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KNOX SCHLAPP (Q'LAND) PTY. LTD.
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LIGHT RAILWAY MATERIALS

R·HUDSON·L^{TD}

KNOX SCHLAPP (Q'LAND) PTY LTD

CNR. ADELAIDE & BOUNDARY STS.

BRISBANE - Phones B 4701
B 5182**Index to Catalogue No. 36035**

(NOTE.—All Code Numbers are in numerical order)

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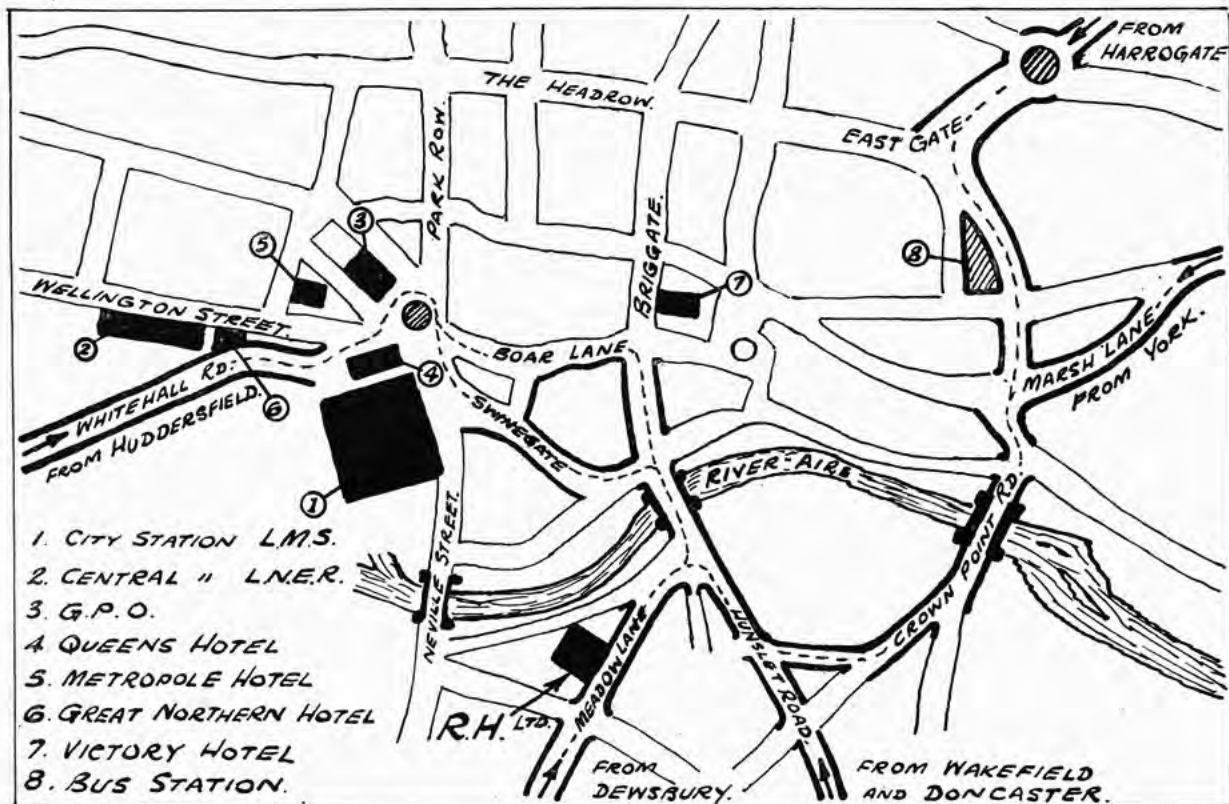
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 "RALETRUX HOUSE," MEADOW LANE, LEEDS

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These offices are situated about 600 yards from City Square and the Queen's Hotel, see plan below.

Ample car parking space is available at the offices at all times.

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LIGHT RAILWAY MATERIALS



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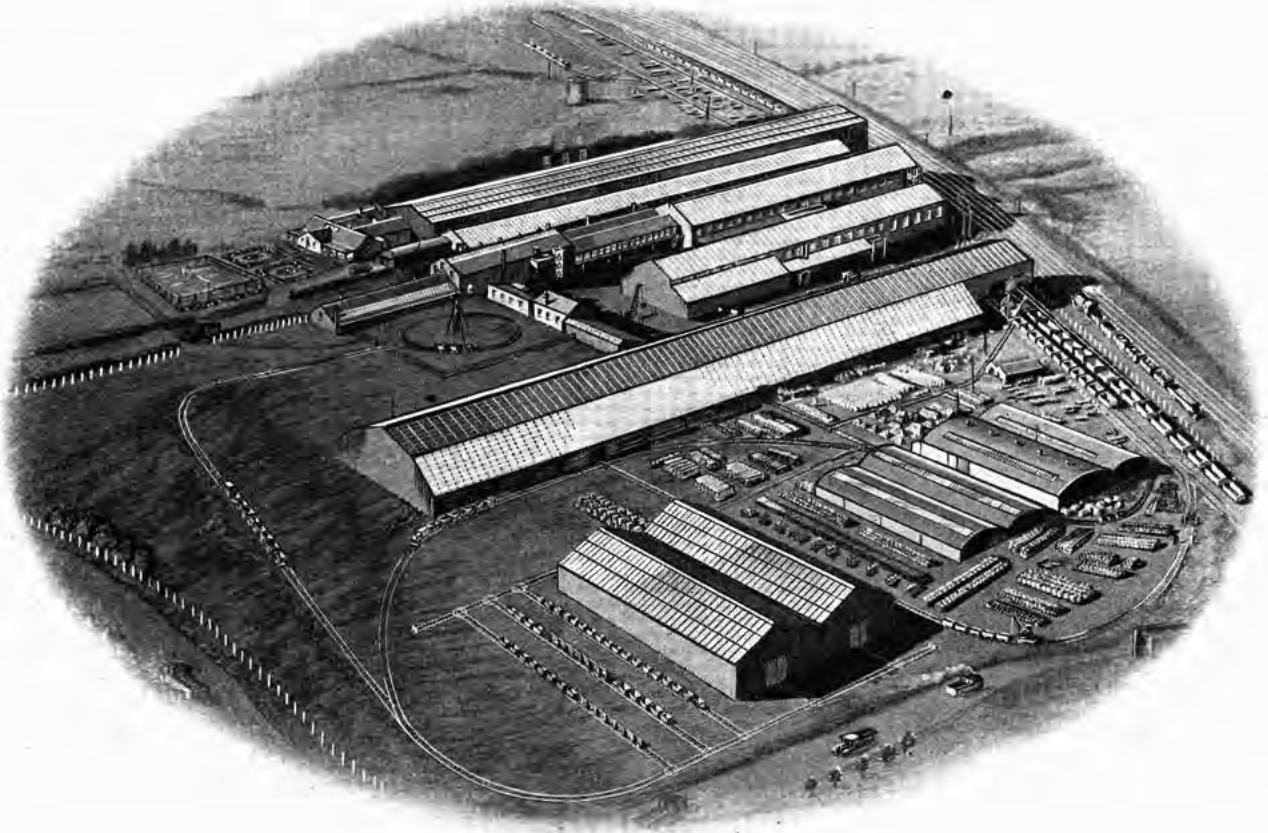
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THE HUNSLET ENGINE CO. LTD., LEEDS
(Incorporating Kerr Stuart & Co. Ltd. and The Avonside Engine Co.)
BUILDERS OF THE HIGHEST CLASS OF STEAM AND DIESEL LOCOMOTIVES



PREFACE

This catalogue shows a great variety of the goods we manufacture in standard types and sizes. We hope intending customers can select their requirements from such standards as we can then supply at lower prices than if the goods are built to special sizes and types.

We regret it is not a feasible proposition to insert prices against the items in this catalogue. Our trade is so varied and the points of delivery so wide-spread that any prices we could give would be of no value to a customer, particularly as Tariffs, Cartels and International agreements, etc., affect the prices so greatly. We assure our customers of immediate attention to any inquiries they may favour us with.

BRITISH v. CONTINENTAL PRICES

A general impression has been prevalent in the past that British prices are far higher than Continental—our firm has always been highly competitive with Continental makers for equal quality of goods so we ask you to “give us a chance” of quoting for any of your requirements within the scope of our manufacture.

HUDSON
RAILWAY
MATERIAL

To New Clients

HUDSON
RAILWAY
MATERIAL

THERE are doubtless many who have never heard of our firm and would like to satisfy themselves we are competent to look after their orders, so to these friends we submit the following few remarks :—

For a generation we have been the largest British manufacturers of Light Railways and Mining Trucks ; for 35 years we have maintained a staff of our own trained men resident overseas at our various branch offices and works, to give service to our customers and make sure our goods are giving satisfaction. No other British firm in this trade has, to our knowledge, ever had one trained engineer resident overseas, consequently our Technical Department is far ahead of any other firm in its experience and collection of data accumulated from actual working conditions.

We undertake contracts for the complete equipment of Light Railways of any magnitude. As an example, we equipped the Luanda Railway in Portuguese West Africa—the permanent way alone of this line cost over £900,000 sterling, and we furnished over 80,000 tons of British steel for it ; we believe this is the largest Railway Contract that has been placed since the Great War.

Our connection with the gold, diamond, copper, tin, coal, and other mining industries is unequalled ; we have supplied thousands of mines with all their Mine Trucks and Railway Equipment and are thoroughly *au fait* with the particular needs of every type of mine, plantation, sugar estate, irrigation contract, etc.

If you can find time to visit our Offices and Works we shall be pleased to show you thousands of wagons, etc., in every stage of manufacture—we invite comparison of either quality, finish, or price with anyone. Our low prices are due to our large turnover and modern machinery coupled with scientific organization and research extending over many years. Our output of Light Railway Materials is far and away in excess of the combined output of all our British competitors added together.

Our firm is 100% British and absolutely free from any outside influence or control of any description.



AERIAL VIEW OF ONE OF OUR COLONIAL STOREYARDS

LEEDS LONDON DURBAN
JOHANNESBURG BEIRA
BULAWAYO MAURITIUS

R. HUDSON LTD

CALCUTTA NDOLA
CAIRO LUANDA LOBITO
SALISBURY SINGAPORE

Views of Hudson Light Railways



ELEPHANT LOADING TIMBER ON A HUDSON LIGHT RAILWAY IN MALAYA



HUDSON LIGHT RAILWAY, 2 FT. GAUGE, FOR HANDLING MINERAL TRAFFIC

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Inquiries from Overseas

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ON page 9 we give a list of all the items on which we like information. We earnestly ask our overseas clients to be kind enough to look through this list to make sure when sending us inquiries they have given a fair amount of information so that we are able to offer exactly what the customer needs.

Many of our clients are most helpful to us in this matter, enabling us to deal with their inquiries expeditiously. Unfortunately we receive requests for quotations from overseas which only give the most meagre information, such as a request for prices and all details for "50 wagons to your catalogue illustration No. —." All illustrations merely represent the type of article, and the goods are actually made in probably ten different sizes and each size in four or five different strengths. Against such an inquiry it is almost guesswork our trying to offer a really suitable article which will give the satisfaction desired and also generally considerable delay occurs before a suitable quotation can be submitted.

We feel sure our overseas friends will not mind our making this request, as it is really for their benefit we need the information.



ERECTING HUDSON TRUCKS AT OUR DURBAN WORKS



WAGON ERECTING SHOPS AT OUR KIDDERPORE WORKS, NEAR CALCUTTA

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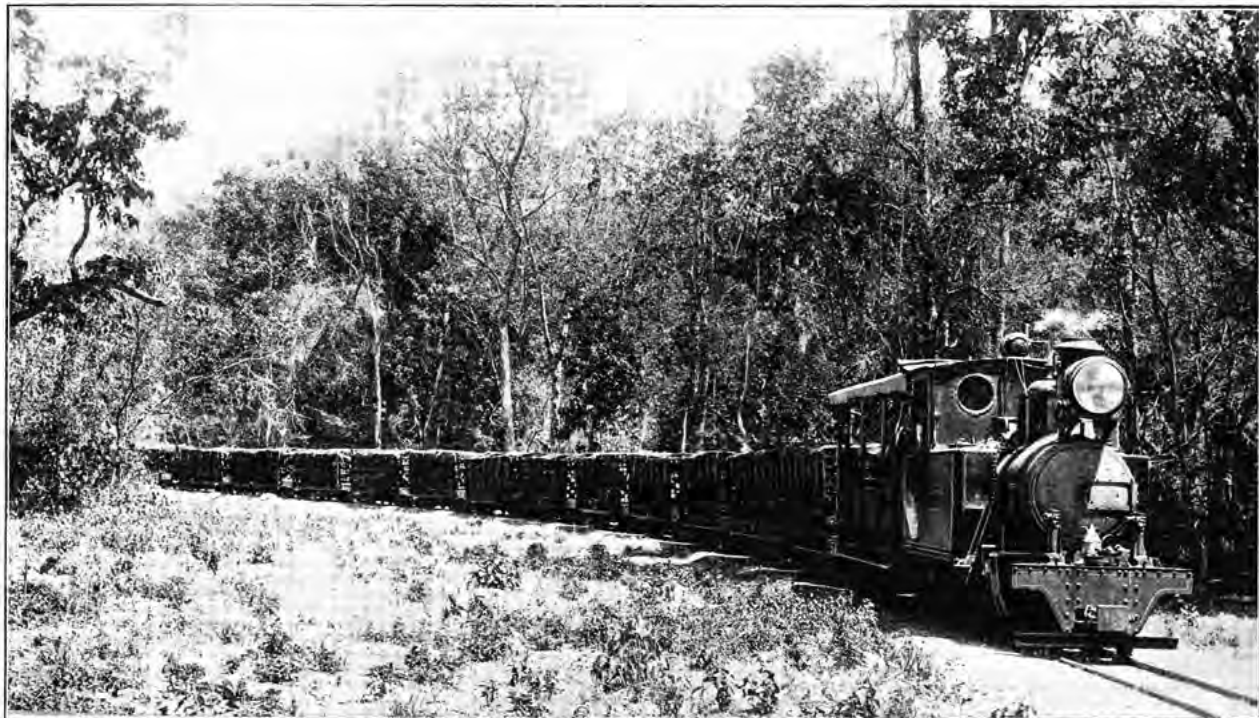
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Views of Hudson Light Railways

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THE NEPAL FOREST RAILWAY

The railways we built in Nepal are of historic importance as they are the only ones ever built in that country—only those who know Nepal can appreciate what an epoch-making event it was for that Kingdom when H.M. the King of Nepal drove the first train on their first railway.



RAILWAY IN INDIA FOR TRANSPORTING STONE



RAILWAY IN INDIA FOR TRANSPORTING TIMBER

We manufactured the greater bulk of the light railways and trucks used on the vast irrigation schemes in India, our wagons, etc., being adopted as standards throughout. The colossal nature of these schemes is not realized by those who do not reside in India.

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We hope you will help us to offer you goods which will give you the maximum efficiency and economy by giving as much as possible of the information asked for below.

RAILWAY TRACK

Code		Code	
36036	Has the material to connect up with some already in use? If so, send details of rail section, weight, lengths, holes, sleepers, and accessories.	36039	Is the weight or section of rail decided upon? If not, state maximum load per axle and method of traction.
36037	What quantity of track is required? By "track" we understand two parallel lines of single rail ready for laying down to form railway track.	36040	Do you require steel sleepers with fastenings, or dogspikes for wood sleepers?
36038	Rail gauge, if decided upon. The rail gauge is always measured between the rail heads—see illustration at foot of page 36.	36041	How many turnouts are required and of which type? See pages 30 to 37.
		36042	State radius of smallest curve on existing track.

LOCOMOTIVES

We need **additional** information as follows:—

36043	Maximum gross load to be hailed up the incline.	36048	Kind of fuel available, its quality and price.
36044	Maximum gross load to be started on the incline.	36049	Length of run without stopping for water or fuel.
36045	Tonnage to be conveyed per day of 8 hours and over what distance.	36050	Maximum load on any one axle .
36046	Gradient and length of steepest incline.	36051	Particulars of climate, altitude, and general conditions of working.
36047	Radius of sharpest curve, and are there any curves on inclines?	36052	Maximum lift that can be dealt with at port of destination, and have you facilities for erecting if locomotive is shipped in parts?

WAGONS

We need **additional** information as follows:—

36053	Nature and weight per cubic foot or metre of material to be conveyed.	36057	If you have any wagons in use, send full dimensions of buffers and couplings and their height from rail. A drawing or photograph indicating any parts which give trouble would be useful.
36054	How are the wagons to be filled, hauled, shunted and emptied?	36058	Number of wagons required of each type and of this number how many you require with brakes.
36055	Type of wagon you prefer and capacity of each.	36059	Can you do any riveting at site?
36056	Limits in height, width, length overall, and weight (if cabling state them in this order).		

Code for cabling special information, see page 110 in this Catalogue

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Views of Hudson Light Railways

HUDSON
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For many years we have supplied over 95% of the light railway materials used by all the various departments of the British Government, so we do hope you will give us the chance of quoting for your requirements



LAYING THE TRACK FOR THE LUANDA RAILWAY
IN ANGOLA—P.W. AFRICA

We supplied over £900,000 worth of material for this

We have about 10 miles of light railway at our own works. We are always pleased to demonstrate this to any of our customers who can find time to pay us a visit. We can also show them the care we take to produce good articles suitable for the purpose in view.



RAILWAY IN EAST AFRICA FOR TRANSPORT OF ORE



HUDSON PLATFORM CARS IN MALAYA, TRANSPORTING COPRA IN BAGS

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Selection of a Suitable Light Railway

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WEIGHT OF RAIL

On pages 14 and 15 will be found the maximum carrying capacities of the different weights of railways, also the usual standard sizes for certain conditions. For long railways it is cheaper to use a light rail with locomotives having three axles, thus keeping a light axle load. For very short railways it is often cheaper to use a locomotive with two axles, and heavier rails. On estate work it is general to use a permanent line with heavy rails for the main haulage and light temporary lines in the cutting fields as feeder tracks. The latter are moved forward as cutting proceeds and are simply laid on the ground without any ballasting. The wagons are loaded on these temporary lines and afterwards transferred to the main line.

RAIL GAUGE

Twenty-four inches (610 m/m) is practically the standard gauge for all small railways, and 30 inches (762 m/m) gauge for the heavier class of light railway. For underground work in mines, where widths are restricted 18 inches (457m/m) gauge is often used.

CURVES

We urge you to have the largest radius you can arrange for, as even one sharp curve will impair the efficiency of the whole installation. The turnouts must also be of ample radius otherwise the train has to slow down unduly to pass them. When the wheels are fast on the axles the radius of curve should be at least twelve times the wheelbase, but if small locomotives are in use we recommend at least fifteen times, and for permanent light railways twenty times is recommended. If trains are to travel at anything like reasonably fast speeds then twenty-five times is better and allows ample margin. When you wish to lay curves of less radii than the minimum proportions given above we recommend you to consult with us as our Technical Department's wide experience on this subject is at your disposal. For mines and factory use we can supply wagons specially adapted for curves far too small in radius for ordinary work.

INCLINES

Are always a source of trouble and danger—see page 13 for the effect they have on the loads hauled and power required by locomotives.

Very few light railways take the maximum advantage of the force of gravity. As far as possible any gradients should be arranged in favour of the loaded train, so that empty wagons travel up the incline—this is particularly advisable in sidings and at any shunting stations.

TECHNICAL ADVICE

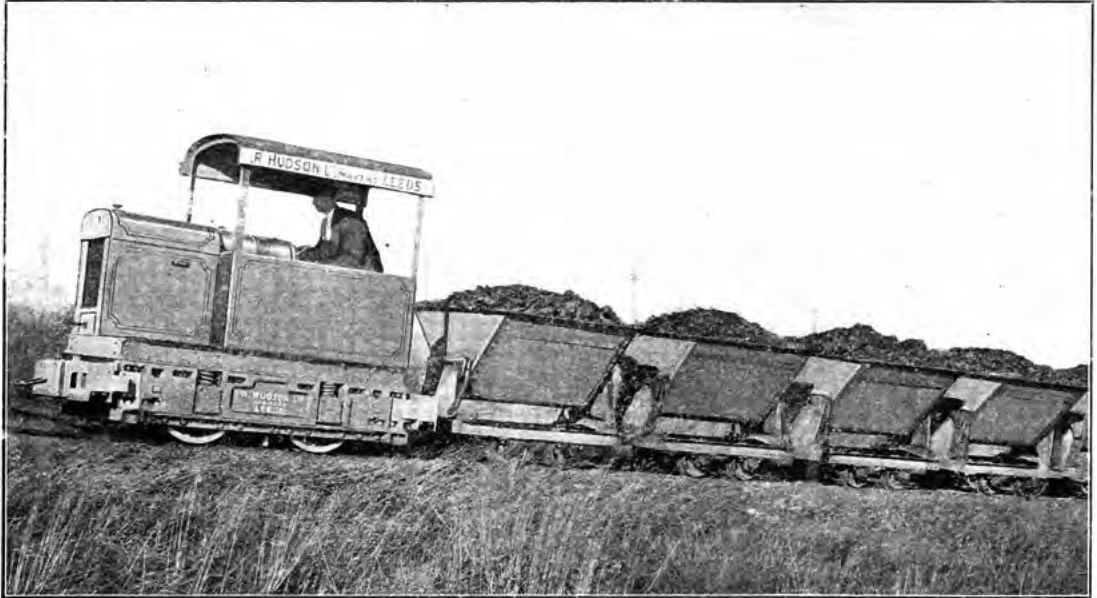
We are always pleased to assist our customers in any way we can. We have a lifetime of experience in the study and application of light railways from both theoretical and practical standpoints and have had far more experience both at home and abroad than all other British firms in the trade.

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Views of Hudson Light Railways



TRACTOR PULLING TIP WAGONS UP A STEEP INCLINE



SIDE TIPPING WAGONS AT WORK ON A TUNNEL CONTRACT

Tractive Power on Light Railways

The following may be taken as average figures of available effort :—

English labourer	30 lbs.	Mule	200 lbs.
Donkey	100 lbs.	Light cart horse	250 lbs.
Pony	150 lbs.	Heavy cart horse	300 lbs.

These figures can only be maintained for short periods of time—if the effort is required more or less continuously the above figures will be halved, although for a few seconds they may be doubled. Men and animals soon tire if they are called upon to give their maximum effort frequently.

TRACTIVE POWER OF SMALL LOCOMOTIVES

When steam locomotives are used this is generally 300/400 lbs. per ton (2240 lbs.) of the loco weight on the driving wheels. Electric and diesel locomotives generally give 450 to 550 lbs. tractive effort per ton of weight. These figures vary greatly according to the coefficient of adhesion between the locomotive wheels and the rails. Climatic conditions affect this; for example, when rails are wet adhesion is low owing to the slippery rail surfaces. On inclines the effective hauling power of locomotives is reduced greatly, due to the effect of gravity and the increase in power necessary to propel its own weight.

RESISTANCE TO TRACTION

On the level this may be as low as 6 lbs. or as high as 40 lbs. per ton weight of the train. We generally base on 20 lbs. as a fair average figure. It is important that rolling resistance be kept down to a minimum as it has so great an effect on the haulage power of a locomotive. The following table shows the effect of this and of gravity at various figures of resistance and up various inclines. This table proves how it pays to use ball or roller bearing axleboxes and thus obtain minimum resistance.

GRADIENT	GROSS LOAD IN LBS. KEPT IN MOTION BY A DRAWBAR PULL OF 30 LBS. ON STRAIGHT TRACK							
	RESISTANCE TO HAULAGE TAKEN AS (—) LBS. PER TON OF 2240 LBS.							
	6 lbs.	8 lbs.	10 lbs.	15 lbs.	20 lbs.	25 lbs.	30 lbs.	40 lbs.
On exact level	11200	8400	6720	4480	3360	2680	2240	1680
Up 1 in 200	3907	3500	3170	2565	2154	1856	1631	1312
Up 1 in 100	2366	2210	2074	1797	1585	1418	1282	1077
Up 1 in 75	1874	1775	1686	1498	1348	1225	1122	962
Up 1 in 50	1323	1273	1226	1124	1037	963	898	792
Up 1 in 40	1084	1050	1018	946	884	830	781	700
Up 1 in 30	833	813	794	749	710	674	642	586
Up 1 in 20	569	560	550	530	510	490	470	440

Table of pull required (in lbs.) and horse power necessary when keeping a train weighing 100 tons (of 2240 lbs.) in motion on straight track at a speed of 1 mile per hour.

GRADIENT	RESISTANCE TO HAULAGE TAKEN AS (—) LBS. PER TON OF 2240 LBS.							
	10 lbs.		15 lbs.		20 lbs.		30 lbs.	
	Pull	H.P.	Pull	H.P.	Pull	H.P.	Pull	H.P.
On exact level	1000	2.7	1500	4.0	2000	5.3	3000	8.0
Up 1 in 200	2120	5.6	2620	6.9	3120	8.3	4120	10.9
Up 1 in 100	3240	8.6	3740	10.0	4240	11.3	5240	13.9
Up 1 in 75	3986	10.6	4486	11.9	4986	13.3	5986	15.9
Up 1 in 50	5480	14.6	5980	15.9	6480	17.3	7480	19.9
Up 1 in 40	6600	17.6	7100	18.9	7600	20.3	8600	22.9
Up 1 in 30	8470	22.6	8970	23.9	9470	25.2	10470	27.8
Up 1 in 20	12200	32.5	12700	33.8	13200	35.2	14200	37.8

The horse power increases in direct proportion to any increase in speed above 1 mile per hour.

N.B.—The figures do not include the horse power required to overcome the resistance of and gravity effect on the locomotive itself.

Starting effort, curves and switches cause considerable increases in pull and horse power required.

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Hudson Portable Railways

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SIZE No.	CODE No.		Approx. Weight per mile of Tract in tons
SIZE No. 1		10 lbs. Rails. 7 lbs. Sleepers, standard clipbolt type, 33 in. long, spaced 1610 per mile (1000 per kilometre) with all accessories. To suit 24 in. rail gauge. Suitable for carrying light agricultural produce. Load not to exceed 36 cwt. (4032 lbs.) on 4 wheels. Traction by hand at very slow speeds	
	36060	TRACK consisting of rails and fishplates only	16½
	36061	TRACK consisting of rails, fishplates and fishbolts	16½
	36062	TRACK consisting of rails, fishplates, fishbolts and dogspikes	17
	36063	TRACK consisting of rails, fishplates, fishbolts and steel sleepers	21½
SIZE No. 2		12 lbs. Rails. All other details as No. 1 size. Load not to exceed 48 cwt. (5376 lbs.) on 4 wheels.	
	36064	TRACK consisting of rails and fishplates only	19½
	36065	TRACK consisting of rails, fishplates and fishbolts	19½
	36066	TRACK consisting of rails, fishplates, fishbolts and dogspikes	20
	36067	TRACK consisting of rails, fishplates, fishbolts and steel sleepers	24½
SIZE No. 3 STANDARD SIZE		14 lbs. Rails. 7 lbs. Sleepers, standard clipbolt type, 33 in. long, spaced 1610 per mile (1000 per kilometre) with all accessories. To suit 24 in. rail gauge. This is a standard size in use all over the world for light traffic. Suitable for animal traction or small tractors at slow speeds say 4 miles per hour. Load not to exceed 3 tons (6720 lbs.) on 4 wheels.	
	36068	TRACK consisting of rails and fishplates only	23
	36069	TRACK consisting of rails, fishplates and fishbolts	23
	36070	TRACK consisting of rails, fishplates, fishbolts and dogspikes	23½
	36071	TRACK consisting of rails, fishplates, fishbolts and steel sleepers	28
SIZE No. 4		16 lbs. Rails. All other details as No. 3 size. Load not to exceed 3 tons 8 cwt. (7616 lbs.) on 4 wheels.	
	36072	TRACK consisting of rails and fishplates only	26
	36073	TRACK consisting of rails, fishplates and fishbolts	26
	36074	TRACK consisting of rails, fishplates, fishbolts and dogspikes	26½
	36075	TRACK consisting of rails, fishplates, fishbolts and steel sleepers	31
SIZE No. 5		18 lbs. Rails. 11 lbs. Sleepers, standard clipbolt type, 33 in. long, spaced 1610 per mile (1000 per kilometre) with all accessories. To suit 24 in. rail gauge. Traction by light locomotives at slow speeds, say 7 miles per hour. Load not to exceed 4 tons (8960 lbs.) on 4 wheels.	
	36076	TRACK consisting of rails and fishplates only	29½
	36077	TRACK consisting of rails, fishplates and fishbolts	29½
	36078	TRACK consisting of rails, fishplates, fishbolts and dogspikes	30
	36079	TRACK consisting of rails, fishplates, fishbolts and steel sleepers	38
SIZE No. 6 STANDARD SIZE		20 lbs. Rails. 11 lbs. Sleepers, standard clipbolt type, 33 in. long, spaced 1610 per mile (1000 per kilometre) with all accessories. To suit 24 in. rail gauge. This is a standard size used all over the world for mining, contractors and estate work. If the work is fairly hard and the traffic heavy we recommend more sleepers, viz. 1760 per mile. Traction by light locomotives at speeds of about 8 miles per hour. Load not to exceed 4 tons 12 cwt. (10304 lbs.) on 4 wheels.	
	36080	TRACK consisting of rails and fishplates only	33
	36081	TRACK consisting of rails, fishplates and fishbolts	33
	36082	TRACK consisting of rails, fishplates, fishbolts and dogspikes	33½
	36083	TRACK consisting of rails, fishplates, fishbolts and steel sleepers	41

Sizes No. 3 and No. 6 are the most commonly used—every year the demand for Nos. 1, 2, 4 and 5 decreases and we anticipate they will soon be obsolete.

The B.S. Portable Railways were all designed by Hudsons

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SALISBURY SINGAPORE

Hudson Permanent Railways

STANDARD SIZE	SIZE No. 7	25 lbs. Rails. 18 lbs. Sleepers, standard clipbolt type, 36 in. long, spaced 1760 per mile (1093 per kilometre). To suit 24 in. rail gauge. Load not to exceed 7 tons on 4 wheels at speeds of 10/12 m.p.h.	Approx. Weight per mile of Track in tons
	36084	TRACK consisting of rails and fishplates only	41
	36085	TRACK consisting of rails, fishplates and fishbolts	41
	36086 36087	TRACK consisting of rails, fishplates, fishbolts and dogspikes TRACK consisting of rails, fishplates, fishbolts and steel sleepers	41½ 57
STANDARD SIZE	SIZE No. 8	28 lbs. Rails. 18 lbs. Sleepers, standard clipbolt type, 36 in. long with closed ends, spaced 1760 per mile (1093 per kilometre). To suit 24 in. rail gauge. Load not to exceed 9 tons on 4 wheels at speeds of 10/12 m.p.h.	
	36088	TRACK consisting of rails and fishplates only	45½
	36089	TRACK consisting of rails, fishplates and fishbolts	45½
	36090 36091	TRACK consisting of rails, fishplates, fishbolts and dogspikes TRACK consisting of rails, fishplates, fishbolts and steel sleepers	46½ 62
STANDARD SIZE	SIZE No. 9	30 lbs. Rails. 18 lbs. Sleepers, standard clipbolt type, 48 in. long with closed ends, spaced 2112 per mile (1312 per kilometre). To suit 30 in. rail gauge. Load not to exceed 13 tons on 4 wheels at speeds of 15 m.p.h. For passenger work load must not exceed 12 tons at 12 m.p.h.	
	36092	TRACK consisting of rails and fishplates only	48½
	36093	TRACK consisting of rails, fishplates and fishbolts	49
	36094 36095	TRACK consisting of rails, fishplates, fishbolts and dogspikes TRACK consisting of rails, fishplates, fishbolts and steel sleepers	50 75
STANDARD SIZE	SIZE No. 10	35 lbs. Rails. 28 lbs. Sleepers, 48 in. long, with closed ends and inclined rail seats, plus and minus clips, spaced 2112 per mile (1312 per kilometre). To suit 30 in. rail gauge. Load not to exceed 18 tons on 4 wheels at speeds of 20/25 m.p.h. For passenger work load must not exceed 14 tons at 20 m.p.h.	
	36096	TRACK consisting of rails and fishplates only	56½
	36097	TRACK consisting of rails, fishplates and fishbolts	57
	36098 36099	TRACK consisting of rails, fishplates, fishbolts and dogspikes TRACK consisting of rails, fishplates, fishbolts and steel sleepers	58 97½
STANDARD SIZE	SIZE No. 11	45 lbs. Rails. 28 lbs. Sleepers, 48 in. long, with closed ends and inclined rail seats, plus and minus clips, spaced 2112 per mile (1312 per kilometre). To suit 30 in. rail gauge. Load not to exceed 22 tons on 4 wheels at speeds of 25/30 m.p.h. For passenger work load must not exceed 18 tons at 25 m.p.h.	
	36100	TRACK consisting of rails and fishplates only	74
	36101	TRACK consisting of rails, fishplates and fishbolts	74½
	36102 36103	TRACK consisting of rails, fishplates, fishbolts and dogspikes TRACK consisting of rails, fishplates, fishbolts and steel sleepers	76½ 116
STANDARD SIZE	SIZE No. 12	60 lbs. Rails. 37 lbs. Sleepers, 60 in. long, with closed ends and inclined rail seats, plus and minus clips, spaced 2112 per mile (1312 per kilometre). To suit 1 metre or 42 in. rail gauge. Load not to exceed 34 tons on 4 wheels at speeds of 30/35 m.p.h. For passenger work load not to exceed 24 tons and speeds 30 m.p.h.	
	36104	TRACK consisting of rails and fishplates only	98½
	36105	TRACK consisting of rails, fishplates and fishbolts	99
	36106 36107	TRACK consisting of rails, fishplates, fishbolts and dogspikes TRACK consisting of rails, fishplates, fishbolts and steel sleepers	102 168½

The B.S. Portable Railways were all designed by Hudsons

LEEDS LONDON DURBAN
JOHANNESBURG BEIRA
BULAWAYO MAURITIUS

R. HUDSON LTD

CALCUTTA MDOLA
CAIRO LUANDA LOBITO
SALISBURY SINGAPORE

Hudson Steel Sleepers

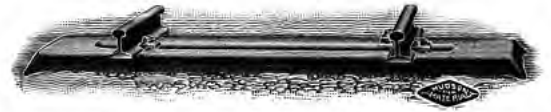
Our standard Clip and Bolt pattern as illustrated below is the cheapest and best to use for all ordinary work.



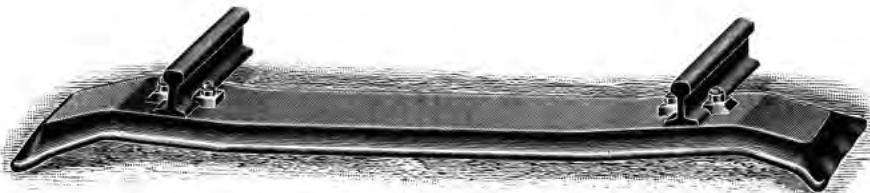
LIGHT PATTERN SLEEPER for 10/20 lbs. rails
Code 36108



SLEEPER WITH CLOSED ENDS for 20/30 lbs. rails
Code 36109



SLEEPER WITH CLOSED ENDS, extra wide section,
for use on soft ground and for 20/28 lbs. rails
Code 36110



SLEEPER WITH INCLINED RAIL SEAT AND CLOSED ENDS for 30/60 lbs. rails
Code 36111

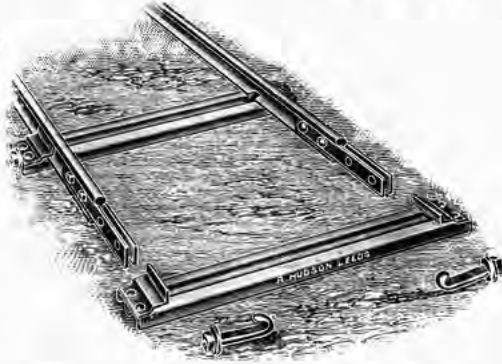
We supplied 800,000 of this type of sleeper for the Luanda Railway—representing over 30,000 tons weight



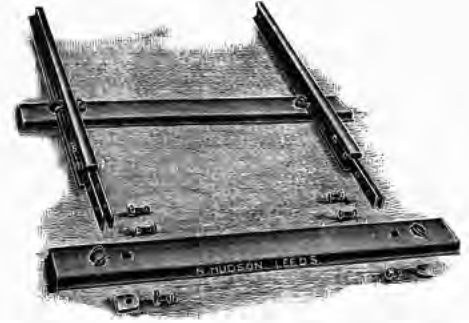
Hudson Steel Sleepers



There are scores of different types of special sleepers, but they are all more expensive than the ordinary Clipbolt Sleeper (see page 16) as the latter is made in such great quantities and the rolls and tools for their production already exist. Below we illustrate a few special types which we frequently supply, also a diagram so that you can furnish us with the dimensions for any specially punched sleepers you may require.



CLUTCHBOLT TYPE SLEEPER for 10/20 lbs. rails, showing ordinary fishplate joint.
Code 36112



SLEEPER, with outside punched-up lips and inside clips and bolts, for any weight of rail
Code 36113



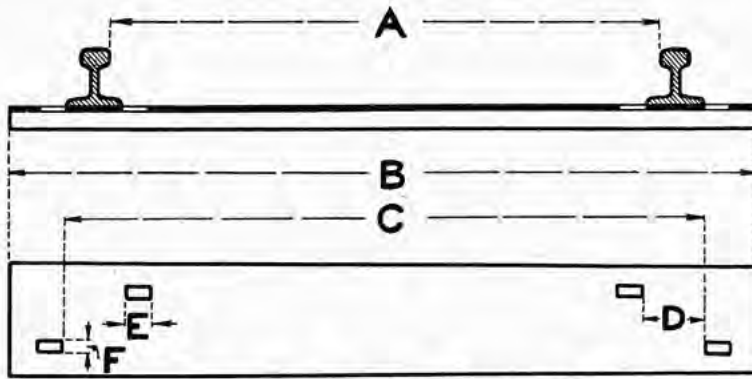
JOINT SLEEPER for clutchbolt type track for 10/20 lbs. rails. Dispenses with fishplates and bolts.
Code 36114



SLEEPER WITH PUNCHED-UP LIPS AND WEDGES
Code 36115

STANDARD RAIL GAUGES

18 in.	=	457 m/m
500 m/m	=	19 ¹¹ / ₁₆ in.
20 in.	=	508 m/m
600 m/m	=	23 ⁵ / ₈ in.
24 in.	=	610 m/m
750 m/m	=	29 ¹ / ₂ in.
30 in.	=	762 m/m



Customers with 2 ft. gauge material should note that the Continental standard gauge is 600m/m, i.e. 23 ⁵/₈ in. This is often sold as "2 ft. gauge material."

DIAGRAM OF SLEEPER PUNCHING

The dimensions A, B, C, D, E and F are as follows (—), (—), (—), (—), (—), (—).
Code 36116

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SALISBURY SINGAPORE

Fishplates and Fishbolts



STANDARD PLAIN FISHPLATE
JOINT for any weight of rail
Code 36117



ANGLE FISHPLATE JOINT for
rails 30 lbs. per yard or heavier
Code 36118



JUNCTION FISHPLATE for joining up two
different rail sections
N.B.—These must be made in sets of 4
fishplates. They are very expensive to
manufacture
Code 36119



SMALL FISHBOLT
Cup head, square neck,
square nut
Code 36120



NORMAL FISHBOLT
Cup head, oval neck,
square nut
Code 36121



HEAVY FISHBOLT
Cup head, pear neck,
hexagon nut
Code 36122



HEAVY FISHBOLT
Square head, round shank,
hexagon nut
Code 36123

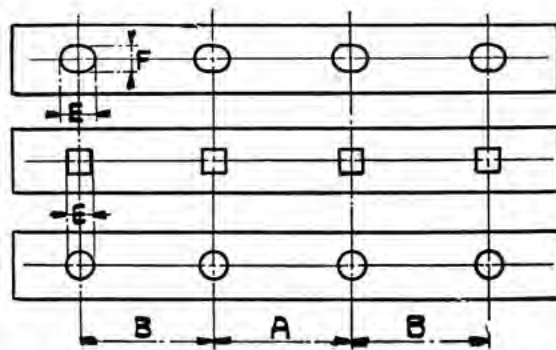
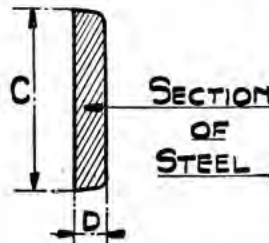


DIAGRAM OF FISHPLATES showing different shapes of holes
Code (for one pair of fishplates) 36124



When ordering spare fishplates for rails you have in use **always** send us a sample pair (or give us **very accurate** dimensions as per diagram) and state whether—

Both fishplates have oval holes.
Code 36125

One square and the other round holes
Code 36126

Both have square holes. Code 36127

Cabled orders should give dimensions in same rotation as our diagram and the quantity should be so many **pairs** of fishplates and not single fishplates.

N.B.—We receive large numbers of orders every year for spare fishplates to be made to a sketch supplied. It is much more satisfactory to us when we can see a sample fishplate as light rail fishplates **vary so little** in their dimensions C and D above that we are frequently in doubt as to what is required.



Clips and Bolts for Steel Sleepers



STANDARD SLEEPER CLIP
Code 36128



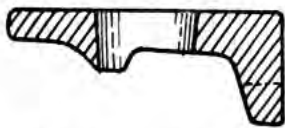
PLUS CLIP
"Plus" and "Minus" types for rails 25 lbs. and heavier.
Useful for widening gauge on curves
Code 36129



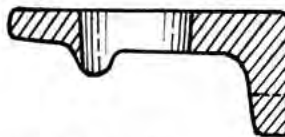
MINUS CLIP



CLIP for 10/16 lbs. rails
Code 36130



CLIP for 16/18 lbs. rails
Code 36131



CLIP for 18/25 lbs. rails
Code 36132



CLIP for 25/30 lbs. rails
Code 36133

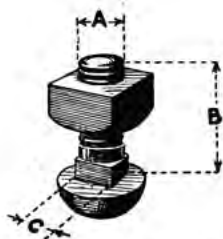


DIAGRAM FOR ORDERING SLEEPER BOLTS

State type of bolt and give dimensions A, B, and C.

Code 36134



SLEEPER BOLT
Cup head, square neck,
square nut
Code 36135



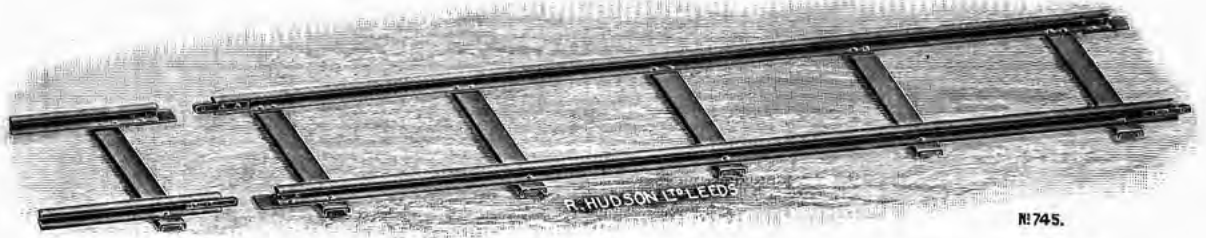
SLEEPER BOLT
Tee head, square neck,
square nut
Code 36136



CLUTCHBOLT
With nut and washer
Code 36137

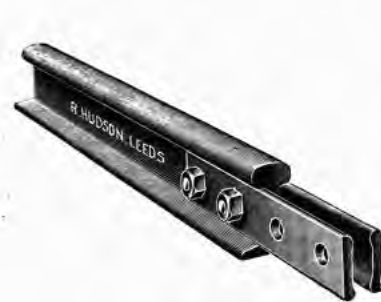
HUDSON
RAILWAY
MATERIAL

Hudson Riveted Track

HUDSON
RAILWAY
MATERIAL

RIVETED TRACK

- Code 36138. When fitted with "hybrid" pattern fishplates and soleplates as shown.
- Code 36139. When fitted with plain fishplate joints.

This type of Track is only used for light rails 14/20 lbs. per yard. It is more expensive than the standard Clipbolt Track shown on page 16.



PLAIN FISHPLATE JOINT
suitable for any weight of rail.
The cheapest and best type
Code 36142

Customers who can rivet up the track at site save a good deal in the cost of freight. We send all the necessary rivets and drill all holes in ready.

- Code 36140. Track riveted up.
- Code 36141. Track sent loose for customers to rivet up.



"HYBRID" FISHPLATE JOINT with soleplate
More expensive than plain fishplate joints
Code 36143



A 200 TON TRAIN LOAD OF HUDSON RIVETED TRACK LEAVING OUR WORKS SIDINGS AT GILDERSOME FOUNDRY

LEEDS LONDON DURBAN
JOHANNESBURG BEIRA
BULAWAYO MAURITIUS

R. HUDSON LTD

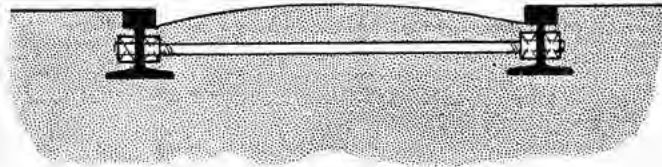
CALCUTTA NDOLA
CAIRO LUANDA LOBITO
SALISBURY SINGAPORE



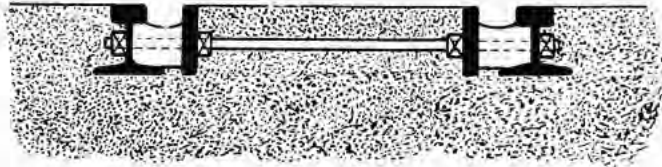
Factory Railways



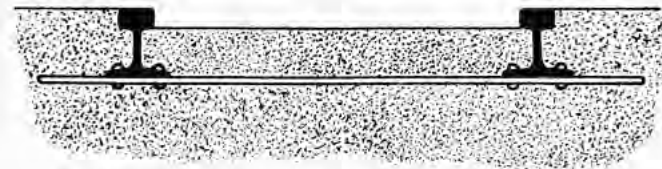
We have equipped thousands of factories with their light railway installations and keep large stocks of rails, turnouts and Turntables ready for this purpose



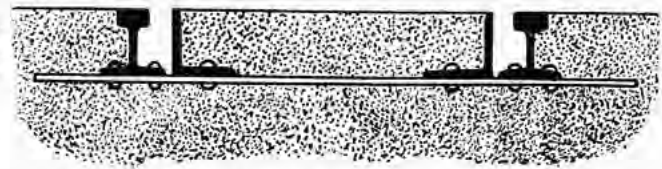
FLANGED RAILS with tierods
Code 36144



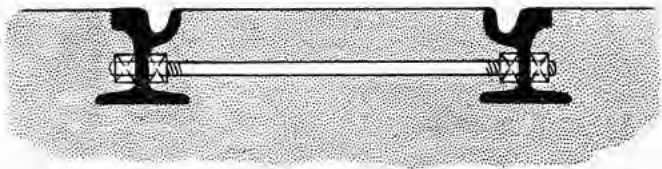
FLANGED RAILS with flat steel strip and tierods
Code 36145



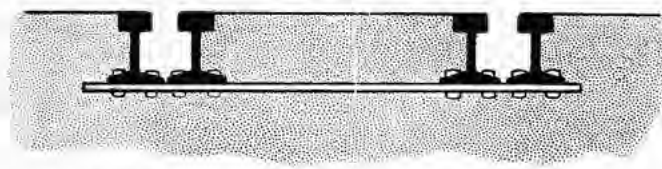
FLANGED RAILS riveted (or bolted) on flat tiebars
Code 36146



FLANGED RAILS with angle guard rails riveted (or bolted) on flat tiebars
Code 36147



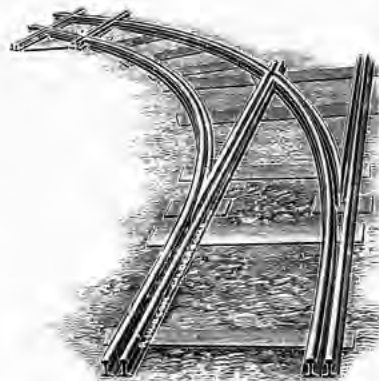
GROOVED RAILS with tierods. These are rarely used to-day and difficult to obtain
Code 36148



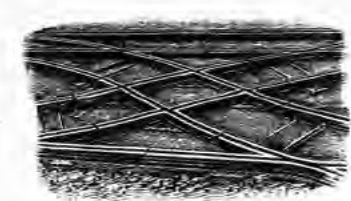
DOUBLE RAILS riveted (or bolted) on flat tiebars
Code 36149



A PAIR OF SWITCHES AND FROG to suit grooved tramrails
Code 36150



LEFT-HAND TURNOUT WITH DIAMOND CROSSING in double rails
Code 36151



SCISSORS CROSSINGS in double rails
Code 36152

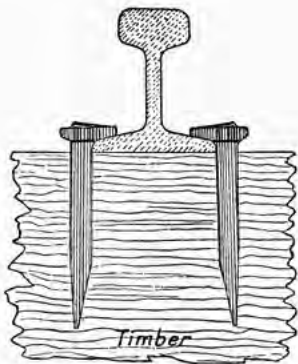
SPECIAL NOTE.—Every week we get inquiries for layouts including curves of too sharp a radius. We hope customers will confer with us when making up their plans as we have had great experience in this subject and can usually make suggestions for dealing with sharp curves. There are many devices which can be used to assist wagons to traverse them with ease.

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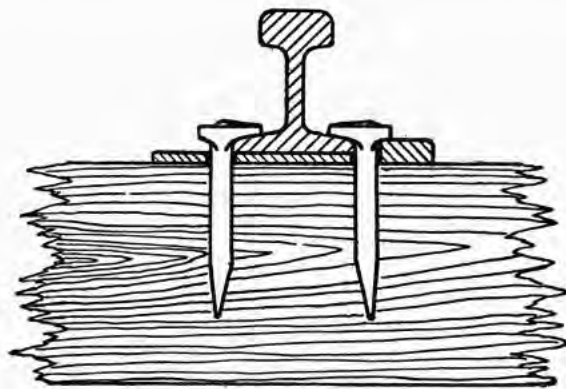
CALCUTTA MDOLA
CAIRO LUANDA LOBITO
SALISBURY SINGAPORE

Accessories for Wood Sleepers



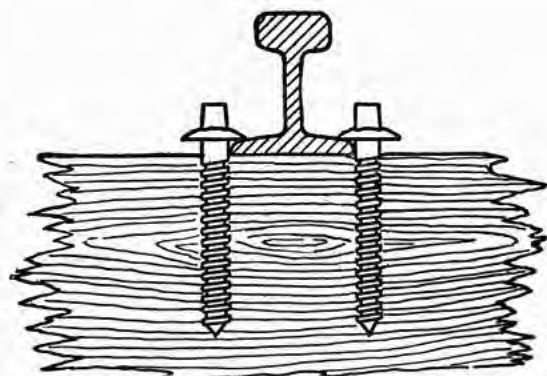
LIGHT RAIL SPIKED TO WOOD SLEEPER

Code 36153



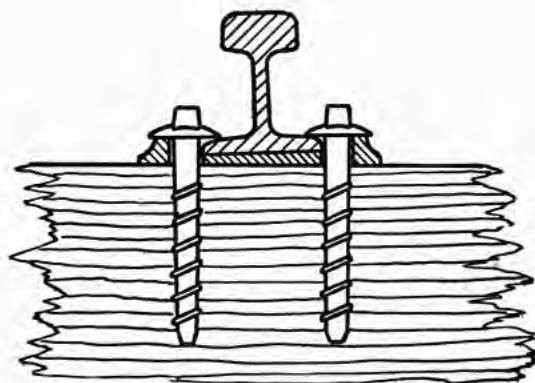
HEAVY RAIL SPIKED TO FLAT CHAIRPLATE

Code 36154



LIGHT RAIL SCREWED ON WOOD SLEEPER

Code 36155



HEAVY RAIL SCREWED ON CHAIRPLATE

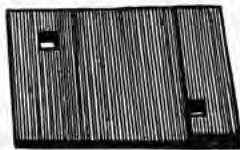
Code 36156



PRESSED STEEL RAIL
SUPPORT

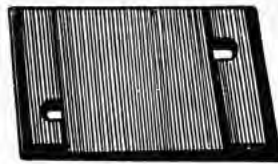
for 35/80 lbs. rails

Code 36157



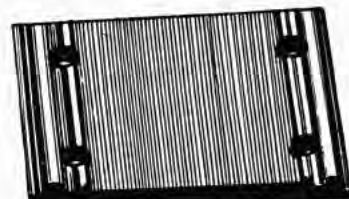
CHAIRPLATE
for 30/45 lbs. rails

Code 36158



CHAIRPLATE
for 45/60 lbs. rails

Code 36159



CHAIRPLATE
for 60/80 lbs. rails

Code 36160

Accessories for Wood Sleepers



NORMAL TYPE DOGSPIKE

Size in inches	To suit Rails	Code	Average number per cwt.
$\frac{5}{16} \times 2\frac{3}{4}$	10 to 14 lbs.	36161	1290
$\frac{5}{16} \times 3$	14 to 16 lbs.	36162	960
$\frac{5}{16} \times 3\frac{1}{2}$	18 to 20 lbs.	36163	680
$\frac{5}{16} \times 4$	20 to 30 lbs.	36164	380
$\frac{5}{16} \times 4\frac{1}{2}$	25 to 30 lbs.	36165	320

The "full-ear" type of dogspike can easily be withdrawn by a claw bar and used again, but they are more expensive in first cost.

The average number per cwt. varies considerably and must only be taken as very approximate.



DOGSPIKE WITH "FULL-EAR" HEAD

Size in inches	To suit Rails	Code	Average number per cwt.
$\frac{5}{16} \times 3\frac{1}{2}$	18 to 20 lbs.	36166	600
$\frac{5}{16} \times 4$	20 to 30 lbs.	36167	320
$\frac{5}{16} \times 4$	25 to 35 lbs.	36168	275
$\frac{5}{16} \times 5$	35 to 50 lbs.	36169	175
$\frac{5}{16} \times 6$	60 to 80 lbs.	36170	150



R. HUDSON LEEDS

RAIL SCREW for light rails, pointed end, fine thread, bed-screw head

Code 36171



R. HUDSON LEEDS

RAIL SCREW for heavy rails, blunt end, coarse thread, bed-screw head

Code 36172



RAIL SCREW light type, pointed end, fine thread, square head

Code 36173



HUDSON, LEEDS

FANGBOLT WITH NUT for heavy rails

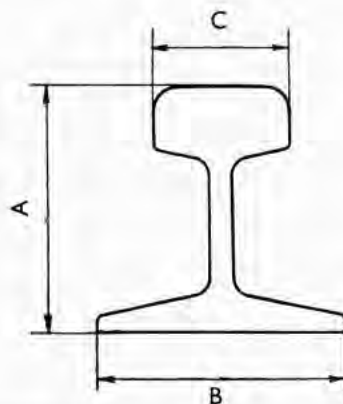
Code 36174

HUDSON
RAILWAY
MATERIAL

Dimensions of Rail Sections normally used

HUDSON
RAILWAY
MATERIAL

We supply rails in all known sections, the table below giving a list of those most commonly used. The section does not of necessity indicate the country of origin as some of the sections are rolled by steelworks in several different countries.



We are highly competitive in price for rails and supply those most favourable in price for the country of destination. We are *au fait* with all the tariffs, cartels and trade agreements which govern the country of supply for any given destination.

BRITISH STANDARD RAILS (dimensions in inches)					A.S.C.E. AMERICAN RAILS (dimensions in inches)				
Code	Title	A	B	C	Code	Title	A	B	C
36175	10 lbs. B.S.	1 $\frac{13}{16}$	1 $\frac{13}{16}$	1 $\frac{15}{16}$	36202	8 lbs.	1 $\frac{9}{16}$	1 $\frac{9}{16}$	1 $\frac{13}{16}$
36176	12 lbs. B.S.	1 $\frac{15}{16}$	1 $\frac{15}{16}$	1 $\frac{17}{16}$	36203	10 lbs.	1 $\frac{3}{4}$	1 $\frac{3}{4}$	1 $\frac{15}{16}$
36177	14 lbs. B.S.	2 $\frac{1}{8}$	2 $\frac{1}{8}$	1 $\frac{5}{8}$	36204	12 lbs.	2	2	1
36178	14 lbs. B.S.M.	2 $\frac{1}{8}$	2	1 $\frac{7}{8}$	36205	14 lbs.	2 $\frac{1}{16}$	2 $\frac{1}{16}$	1 $\frac{7}{16}$
36179	16 lbs. B.S.	2 $\frac{1}{4}$	2 $\frac{1}{4}$	1 $\frac{3}{8}$	36206	16 lbs.	2 $\frac{3}{8}$	2 $\frac{3}{8}$	1 $\frac{11}{16}$
36180	16 lbs. B.S.M.	2 $\frac{5}{16}$	2 $\frac{1}{16}$	1 $\frac{3}{8}$	36207	20 lbs.	2 $\frac{5}{8}$	2 $\frac{5}{8}$	1 $\frac{11}{8}$
36181	18 lbs. B.S.	2 $\frac{3}{8}$	2 $\frac{3}{8}$	1 $\frac{9}{8}$	36208	25 lbs.	2 $\frac{3}{4}$	2 $\frac{3}{4}$	1 $\frac{1}{2}$
36182	18 lbs. B.S.M.	2 $\frac{7}{16}$	2 $\frac{3}{8}$	1 $\frac{9}{8}$	36209	30 lbs.	3 $\frac{1}{8}$	3 $\frac{1}{8}$	1 $\frac{11}{16}$
36183	20 lbs. B.S.	2 $\frac{1}{2}$	2 $\frac{1}{2}$	1 $\frac{9}{4}$	36210	35 lbs.	3 $\frac{5}{16}$	3 $\frac{5}{16}$	1 $\frac{3}{4}$
36184	20 lbs. B.S.M.	2 $\frac{9}{16}$	2 $\frac{3}{16}$	1 $\frac{7}{8}$	36211	40 lbs.	3 $\frac{1}{2}$	3 $\frac{1}{2}$	1 $\frac{7}{8}$
36185	22 lbs. B.S.M.	2 $\frac{9}{16}$	2 $\frac{9}{16}$	1 $\frac{9}{16}$	36212	45 lbs.	3 $\frac{11}{16}$	3 $\frac{11}{16}$	2
36186	25 lbs. B.S.	2 $\frac{3}{4}$	2 $\frac{3}{4}$	1 $\frac{1}{2}$	36213	60 lbs.	4 $\frac{1}{4}$	4 $\frac{1}{4}$	2 $\frac{3}{8}$
36187	25 lbs. B.S.M.	2 $\frac{3}{4}$	2 $\frac{3}{4}$	1 $\frac{1}{2}$	FOREIGN RAIL SECTIONS (dimensions in millimetres)				
36188	25 lbs. B.S.R.	2 $\frac{7}{8}$	2 $\frac{3}{4}$	1 $\frac{1}{2}$					
36189	28 lbs. B.S.M.	2 $\frac{3}{4}$	2 $\frac{7}{8}$	1 $\frac{1}{4}$	36214	10 lbs. (5 kilo) high	60	40	20
36190	30 lbs. B.S.	3	3	1 $\frac{5}{8}$	36215	12 lbs. (6 kilo)	50	45	25
36191	30 lbs. B.S.M.	2 $\frac{31}{32}$	2 $\frac{3}{4}$	1 $\frac{1}{2}$	36216	13.5 lbs. (6.75 Kilo)	65	50	25
36192	30 lbs. B.S.R.	3	3	1 $\frac{3}{8}$	36217	14 lbs. (7 Kilo) Std.	65	50	25
36193	35 lbs. B.S.	3 $\frac{1}{4}$	3 $\frac{1}{4}$	1 $\frac{3}{4}$	36218	16 lbs. (8 Kilo)	60	52	30
36194	35 lbs. B.S.M.	3 $\frac{1}{16}$	3	1 $\frac{11}{16}$	36219	18 lbs. (9 Kilo)	70	55	30
36195	35 lbs. B.S.R.	3 $\frac{5}{16}$	3 $\frac{1}{4}$	1 $\frac{1}{2}$	36220	20 lbs. (10 Kilo) Std.	70	58	32
36196	40 lbs. B.S.	3 $\frac{3}{8}$	3 $\frac{3}{8}$	1 $\frac{7}{8}$	36221	24 lbs. (12 Kilo) Low	70	69	38
36197	40 lbs. B.S.R.	3 $\frac{1}{2}$	3 $\frac{1}{2}$	1 $\frac{3}{8}$	36222	24 lbs. (12 Kilo) Std.	80	65	34
36198	45 lbs. B.S.	3 $\frac{3}{8}$	3 $\frac{3}{8}$	1 $\frac{3}{8}$	36223	28 lbs. (14 Kilo) Std.	80	70	38
36199	45 lbs. B.S.R.	3 $\frac{1}{4}$	3 $\frac{3}{4}$	1 $\frac{3}{8}$	36224	28 lbs. (14 Kilo) High	85	70	36
36200	60 lbs. B.S.	4 $\frac{5}{16}$	4 $\frac{5}{16}$	2 $\frac{1}{4}$	36225	32 lbs. (16 Kilo) Std.	93	80	40
36201	60 lbs. B.S.R.	4 $\frac{1}{2}$	4 $\frac{5}{16}$	2 $\frac{1}{4}$	36226	36 lbs. (18 Kilo) Std.	93	82	43

NOTE—Weights in lbs. are "lbs. per yard." Weights in kilos are "kilogrammes per metre." When asking us to quote for Rails to join up to existing Track, it is best to send us a small piece of Rail, say 1 inch long, cut from the Rails in use. Also send a sample of the Fishplates and Fishbolts and advise us if there are any initials or names rolled on your existing Rails which would enable us to trace the original supply.

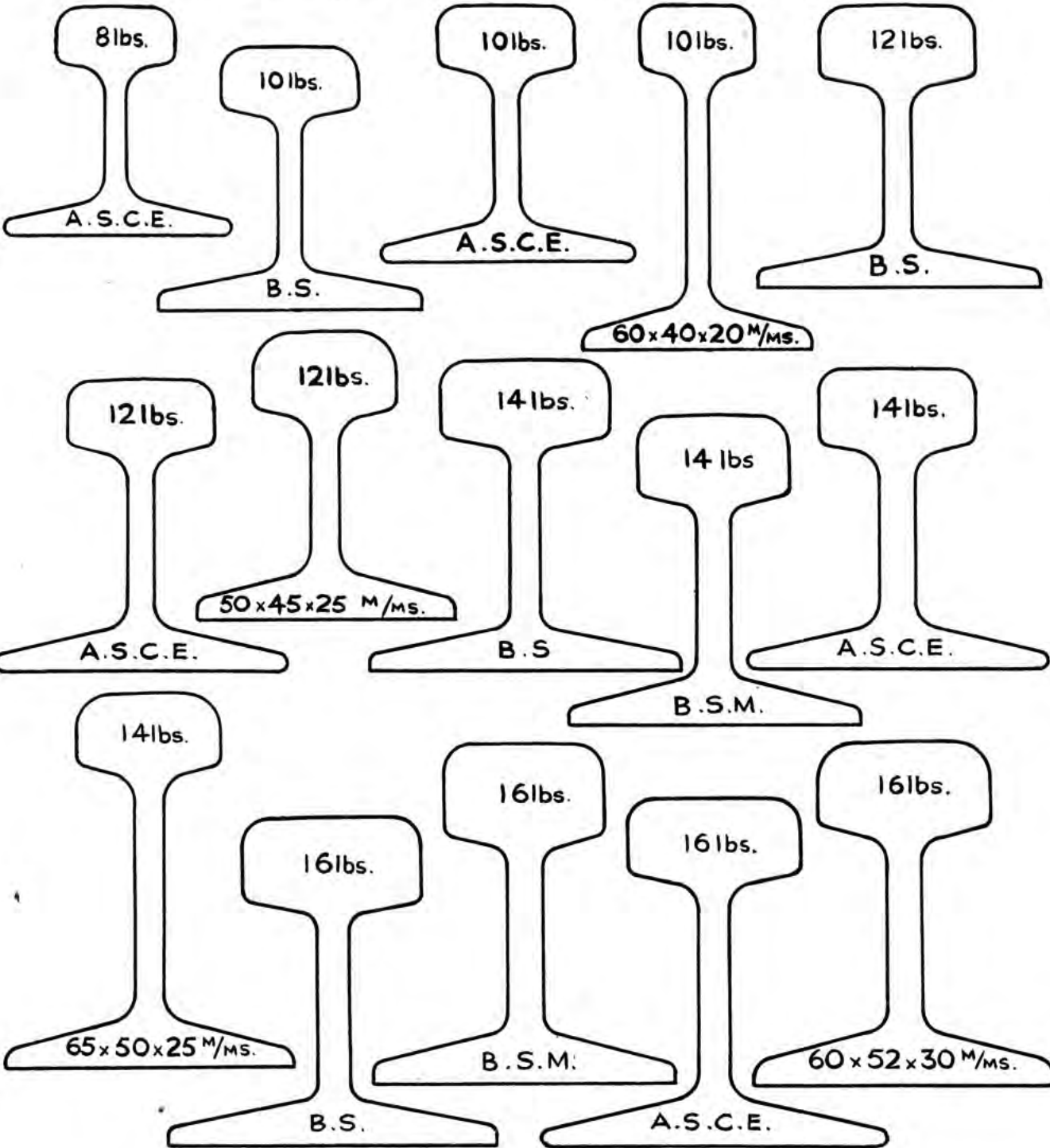
 LEEDS LONDON DURBAN
JOHANNESBURG BEIRA
BULAWAYO MAURITIUS

R. HUDSON LTD

 CALCUTTA NDOLA
CAIRO LUANDA LOBITO
SALISBURY SINGAPORE

Rail Sections 8 to 16 lbs. per yard

All approximately full size—for dimensions and code numbers see page 24

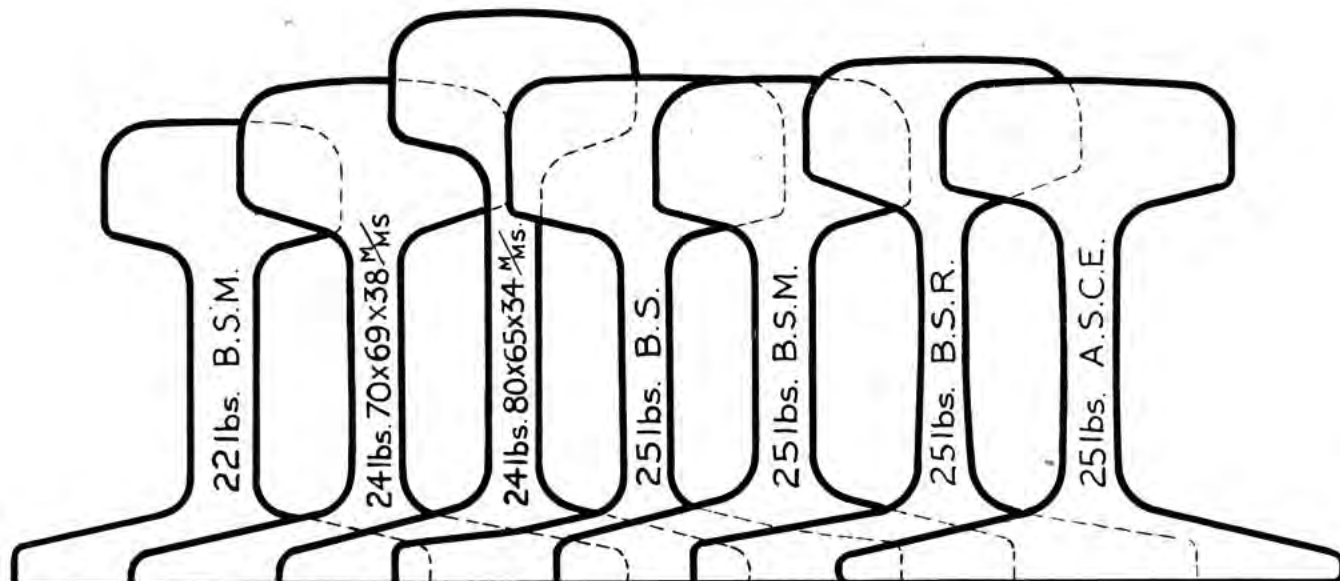
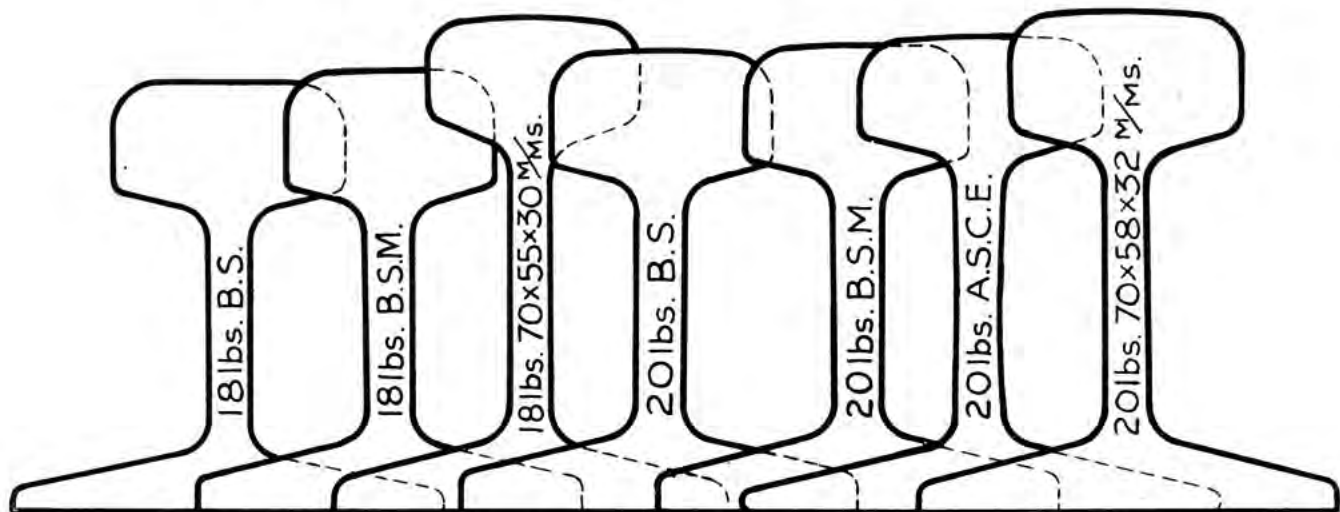


HUDSON
RAILWAY
MATERIAL

Rail Sections 18 to 25 lbs. per yard

HUDSON
RAILWAY
MATERIAL

All approximately full size—for dimensions and code numbers see page 24



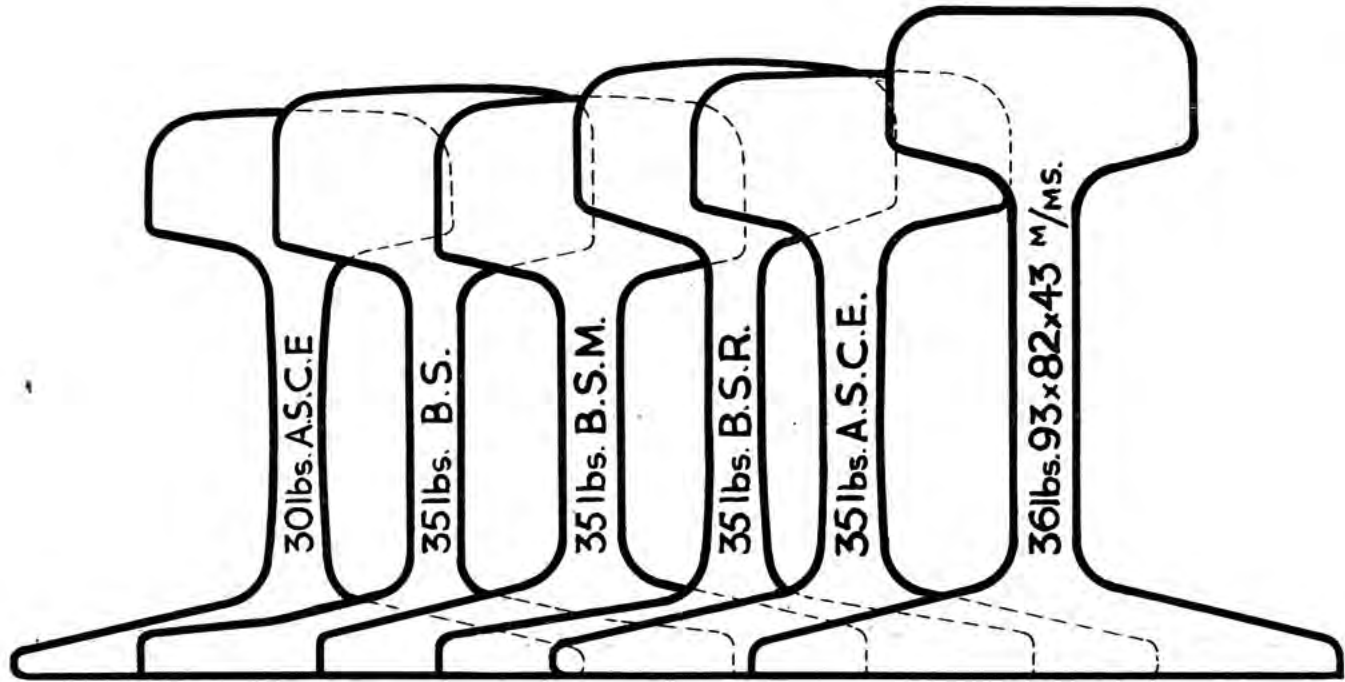
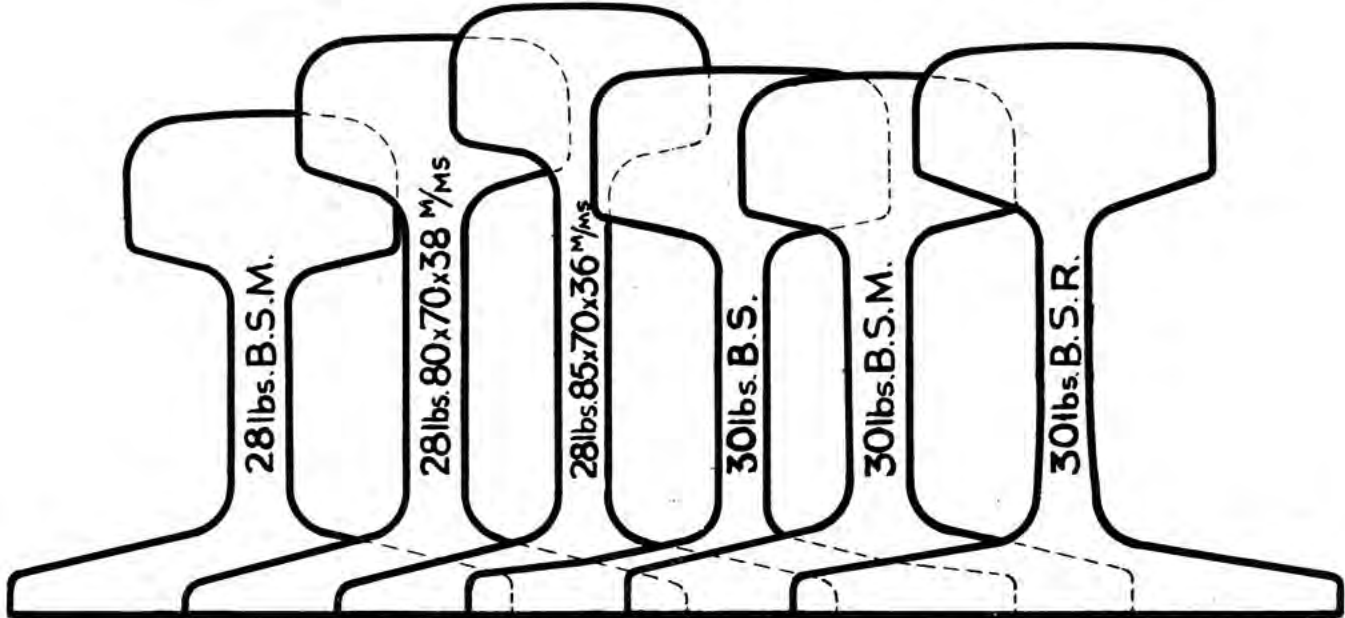
LEEDS LONDON DURBAN
JOHANNESBURG BEIRA
BULAWAYO MAURITIUS

R. HUDSON LTD

CALCUTTA NDOLA
CAIRO LUANDA LOBITO
SALISBURY SINGAPORE

Rail Sections 28 to 36 lbs. per yard

All approximately full size—for dimensions and code numbers see page 24

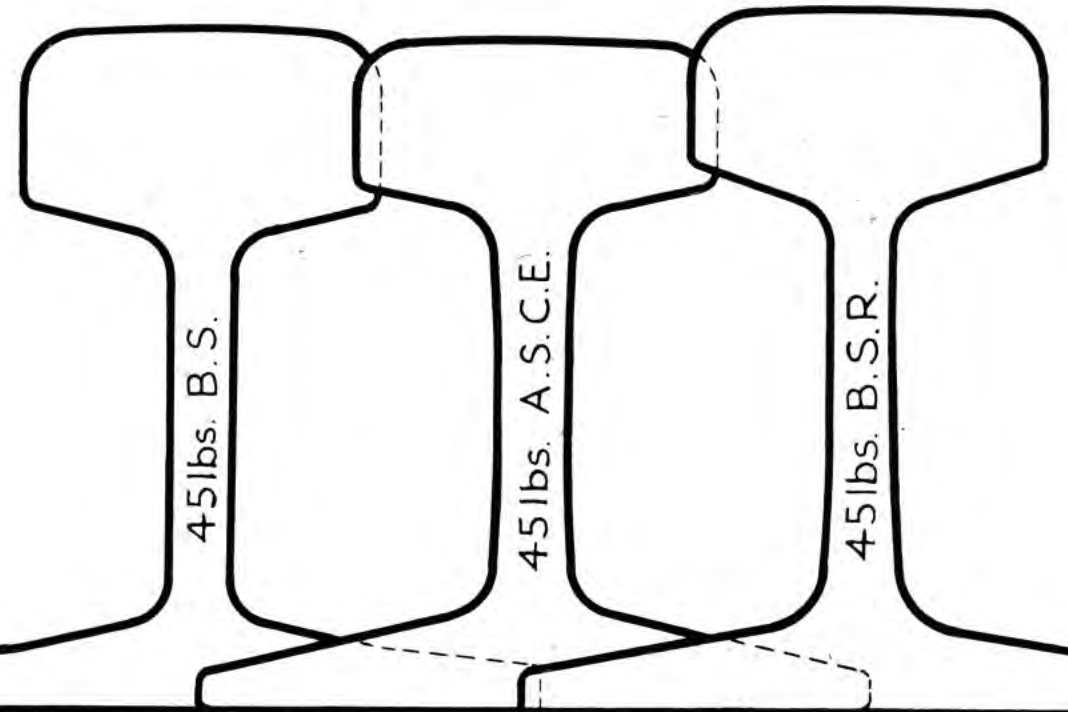
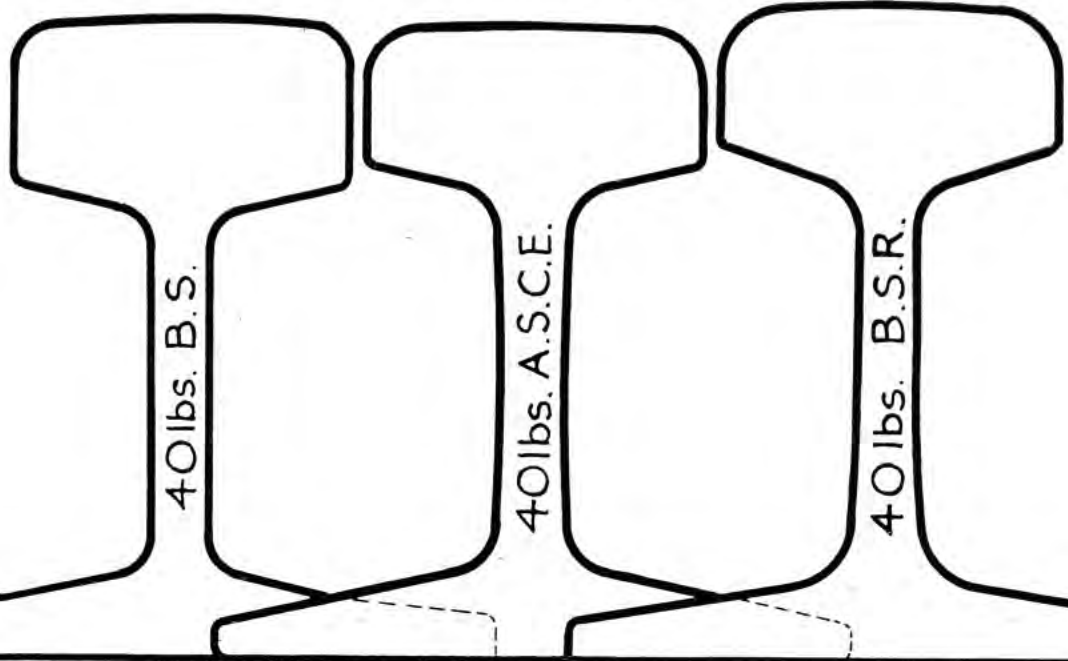




Rail Sections 40 to 45 lbs. per yard



All approximately full size—for dimensions and code numbers see page 24

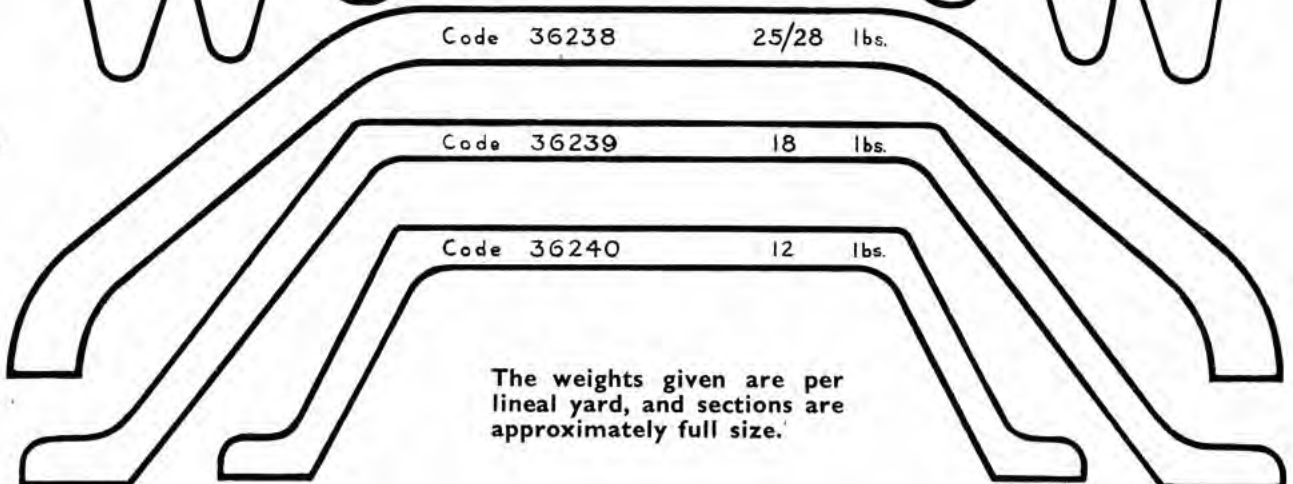
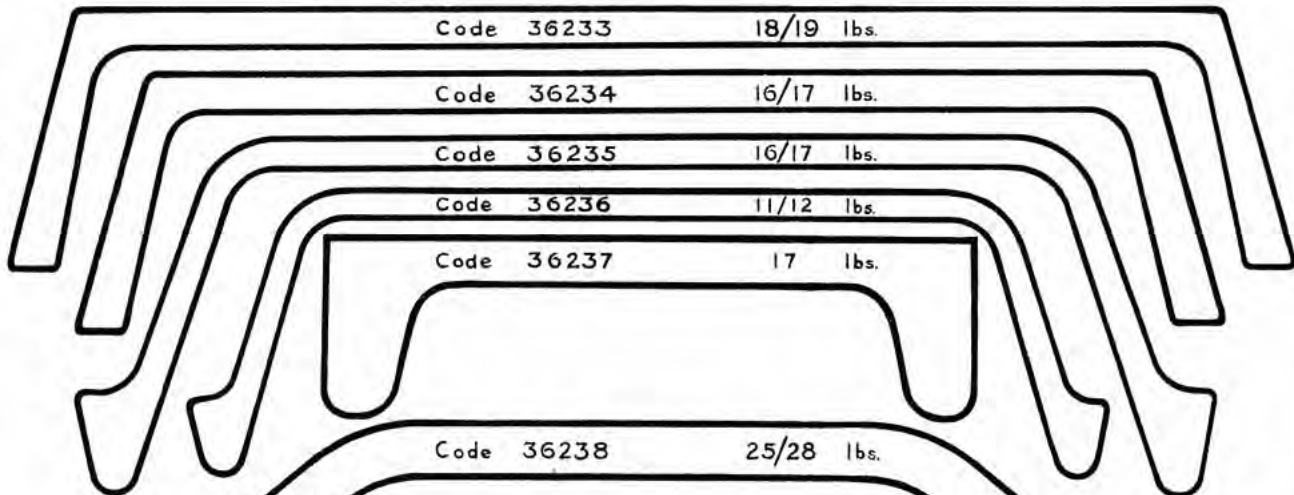
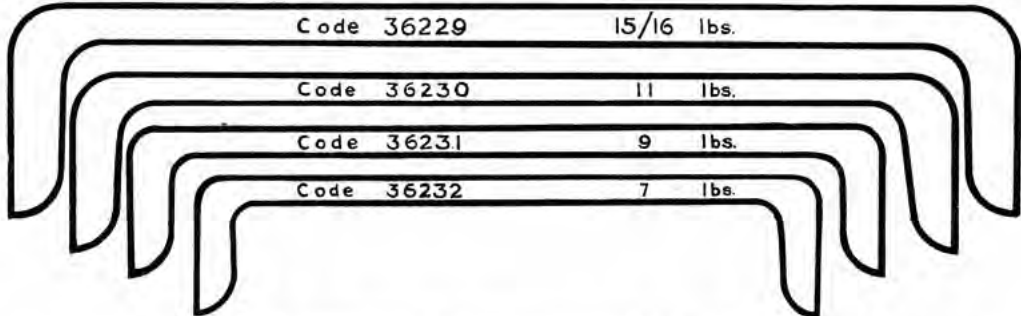


LEEDS LONDON DURBAN
 JOHANNESBURG BEIRA
 BULAWAYO MAURITIUS

R. HUDSON LTD

CALCUTTA NDOLA
 CAIRO LUANDA LOBITO
 SALISBURY SINGAPORE

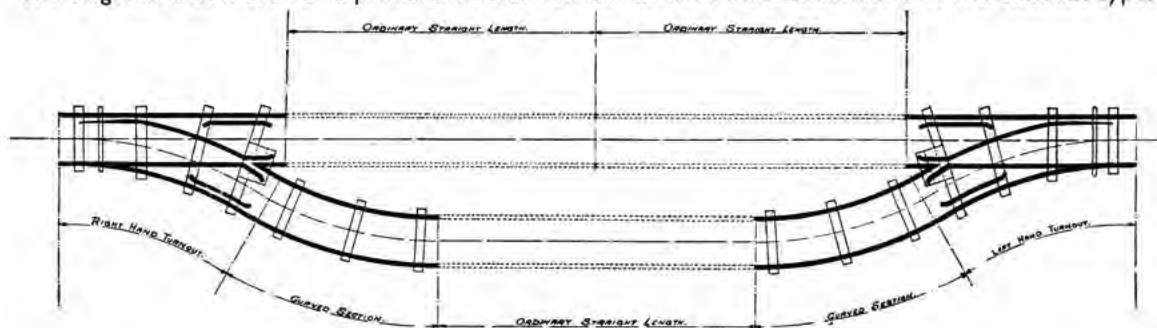
Sections of Steel Sleepers



The weights given are per lineal yard, and sections are approximately full size.

Turnout Diagrams

The diagrams below are to help clients who are unfamiliar with the nomenclature of the different types

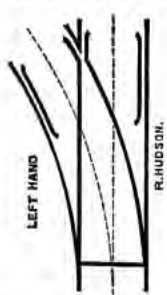


COMPLETE PASSBY Code 36241

Comprises one left-hand turnout, one right-hand turnout, and two curved sections of track
The length of the latter varies according to the radius of curve and track centres



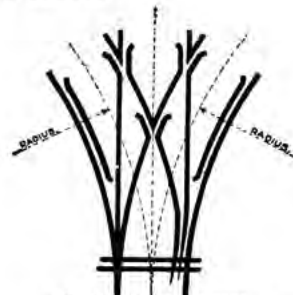
RIGHT-HAND TURNOUT Code 36242



LEFT-HAND TURNOUT Code 36243



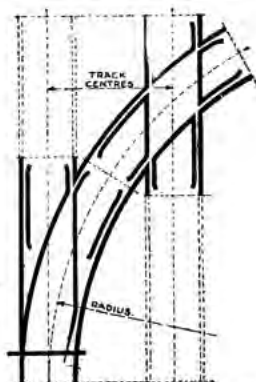
SYMMETRICAL TURNOUT Code 36244



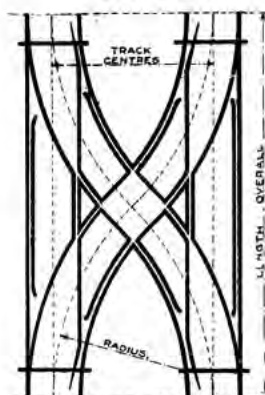
THREE-WAY TURNOUT Code 36245



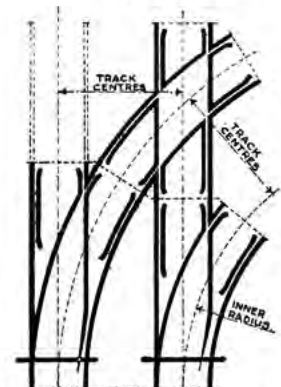
RIGHT-HAND CROSSOVER Code Right-hand 36246 Left-hand 36247



RIGHT-HAND TURNOUT with diamond crossing Code Right-hand 36248 Left-hand 36249



DOUBLE CROSSOVER or "scissors" crossing Code 36250



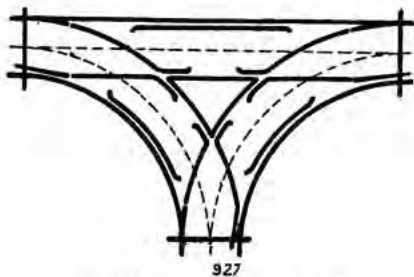
RIGHT-HAND JUNCTION for two tracks Code Right-hand 36251 Left-hand 36252

Special Note—Radius of curve must be amply large enough to let the wagons pass round without undue friction or fear of derailment.

TRACK CENTRES :—
our standards are { 18 in. rail gauge—5 ft. or 5 ft. 6 in.
24 in. rail gauge—6 ft. or 7 ft. 6 in.
30 in. rail gauge—7 ft. 6 in. or 10 ft. }

but in all cases they must be amply wide enough to allow wagons and locomotives to pass each other with ease.

Diagrams of Turnouts, Curves, etc.



TRIANGULAR JUNCTION

Code 36253

N.B.—Length of these must be at least twice the radius of curve. See page 33



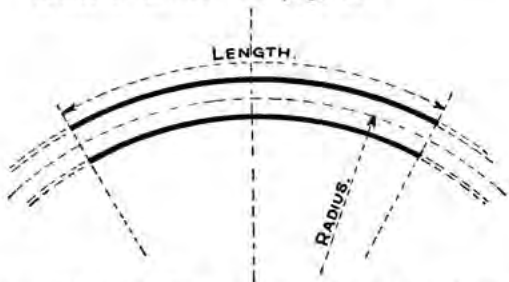
RIGHT-HAND TURNOUT WITH BOTH TRACKS CURVED

Code 36254



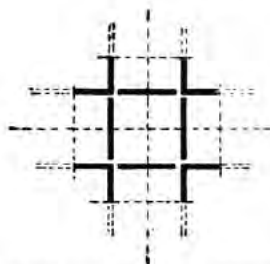
OFFSET CURVE

Code 36255



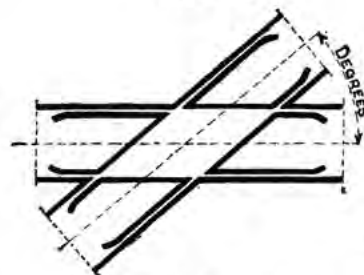
CURVED LENGTH bent to any radius desired (see page 33)

Code 36256



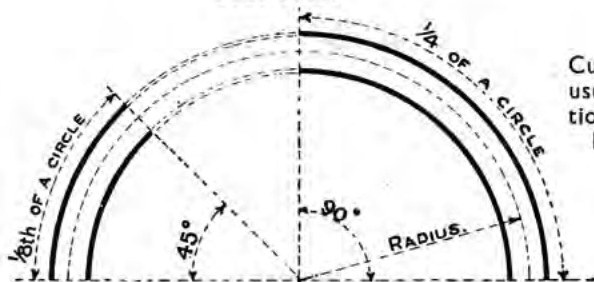
RIGHT-ANGLE CROSSING

Code 36257



DIAMOND CROSSING

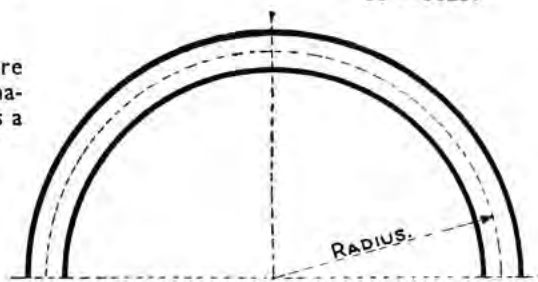
Code 30°—36258
60°—36259



CURVED SECTIONS (radius see page 33)

Code 1/8 of a Circle 36260
1/4 of a Circle 36261

Curves for export are usually bent at destination—all you need is a Rail Bender as per page 40

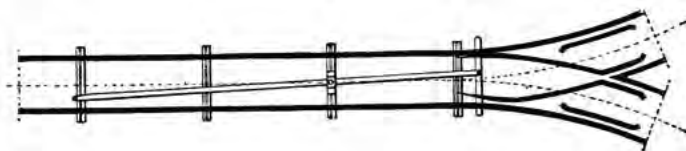


HALF-CIRCLE CURVE (radius see page 33)

Code 36262



INCLINED MOUNT for forming temporary connections, suitable for light track. Code 36263
Also see our "Easy" Turnout, page 35



ADVANCED FOOT SWITCH

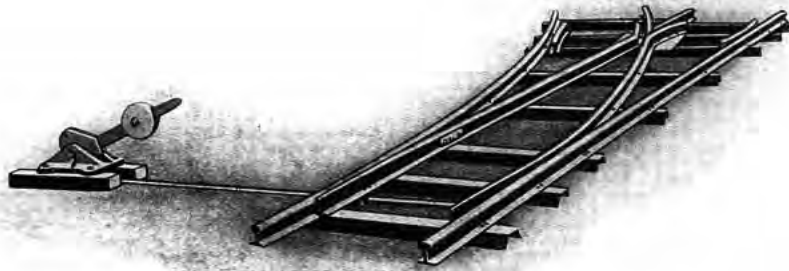
Code 36264

Enables a man to move the switch tongues from some distance away without stopping the wagon's progress

HUDSON
RAILWAY
MATERIAL

Hudson Standard Turnouts

HUDSON
RAILWAY
MATERIAL



LEFT-HAND TURNOUT on steel sleepers, with switchbox and lever for loco. traction

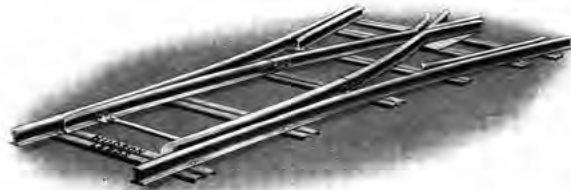
Code 36265



THREWAY TURNOUT on steel sleepers with kickover tongues

NOTE.—Where switchboxes are required two are needed for each turnout

Code 36266



SMALL SYMMETRICAL TURNOUT on steel sleepers, with kickover tongues for hand or animal traction

Code 36267



PLAIN THROWOVER SWITCHBOX

for rails up to 20 lbs. per yd.

Code 36268



REVERSING SWITCHBOX

for rails 20 to 30 lbs. For "throwover" or "spring" tongues to either hand

Code 36269



SWITCHBOX similar to 36269, but lever works parallel to track

Code 36270

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HUDSON
RAILWAY
MATERIAL

Hudson Standard Turnouts

HUDSON
RAILWAY
MATERIAL

We manufacture our Standard Turnouts from steel rails riveted (or welded) on steel sleepers or on flat steel bars. The tongues are machined on both sides and the frog rails are also machined. Guard rails have their flangeway clearances made to suit our standard locomotives and wagons.

Unless switchboxes are specified we supply the ordinary "kickover" tongues operated by the foot. For locomotive traction it is necessary to have switchboxes as shown on pages 32 and 34.

The standard sizes listed below are made right-hand or left-hand as desired. If made "threeway" they are the same length overall and the same radius of curve. If made "symmetrical" the length overall is shorter although the radius of curve remains the same.

When ordering turnouts it is advisable to order a few spare pairs of fishplates and bolts unless similar spare fittings have been ordered with the main track, as each turnout needs usually six pairs extra for connecting up to the track.

RADIUS OF CURVE is most important. On mines where the trucks often have wheels loose on their axles it is quite common to use very small radius curves, sometimes as low as six times the wagon wheelbase (i.e. the distance from the centre of one axle to the centre of the other). When the wheels are fast on the axles the radius of curve should be at least twelve times the wheelbase, but if small locomotives are in use we recommend at least fifteen times, and for permanent light railways twenty times is recommended. If trains are to travel at anything like reasonably fast speeds then twenty-five times is better and allows ample margin.

STANDARD SIZES AND CODE NUMBERS

Length overall	Approx. Radius of curve	Approx. Angle of crossing	Rail gauge	Made from rails weighing (—) lbs. per yard to gauge indicated						
				10 lbs.	12 lbs.	14 lbs.	16 lbs.	18 lbs.	20 lbs.	25 lbs.
9 ft.	19½ ft.	1 in 2½	18 in.	187 lbs. 36271	213 lbs. 36272	243 lbs. 36273	270 lbs. 36274	320 lbs. 36275	348 lbs. 36276	428 lbs. 36277
	13½ ft.	1 in 1¾	24 in.	194 lbs. 36278	220 lbs. 36279	250 lbs. 36280	278 lbs. 36281	330 lbs. 36282	358 lbs. 36283	440 lbs. 36284
15 ft.	48 ft.	1 in 4	18 in.	298 lbs. 36285	343 lbs. 36286	388 lbs. 36287	433 lbs. 36288	512 lbs. 36289	557 lbs. 36290	683 lbs. 36291
	37 ft.	1 in 3	24 in.	310 lbs. 36292	355 lbs. 36293	400 lbs. 36294	445 lbs. 36295	530 lbs. 36296	575 lbs. 36297	705 lbs. 36298
	30 ft.	1 in 2½	30 in.	323 lbs. 36299	368 lbs. 36300	413 lbs. 36301	458 lbs. 36302	550 lbs. 36303	595 lbs. 36304	726 lbs. 36305
18 ft.	65 ft.	1 in 4	24 in.	—	—	470 lbs. 36306	524 lbs. 36307	626 lbs. 36308	680 lbs. 36309	830 lbs. 36310
	46 ft.	1 in 3	30 in.	—	—	485 lbs. 36311	539 lbs. 36312	648 lbs. 36313	702 lbs. 36314	854 lbs. 36315
21 ft.	81 ft.	1 in 4½	24 in.	—	—	—	—	755 lbs. 36316	820 lbs. 36317	1010 lbs. 36318
	62 ft.	1 in 3½	30 in.	—	—	—	—	778 lbs. 36319	843 lbs. 36320	1035 lbs. 36321
24 ft.	100 ft.	1 in 5	24 in.	—	—	—	—	842 lbs. 36322	915 lbs. 36323	1132 lbs. 36324
	80 ft.	1 in 4	30 in.	—	—	—	—	867 lbs. 36325	940 lbs. 36326	1158 lbs. 36327

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HUDSON
RAILWAY
MATERIAL

Hudson Turnouts

HUDSON
RAILWAY
MATERIAL

A "turnout" is built up in one complete unit on steel sleepers, whereas a set of "switches and crossings" comprises only the parts detailed on page 37.



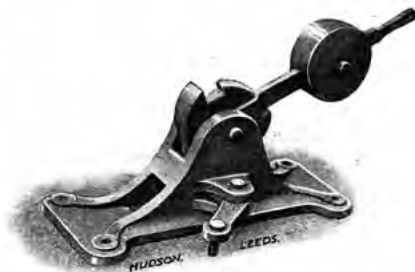
TURNOUT on steel sleepers with closed ends, switchbox to work parallel with the track

Code 36328



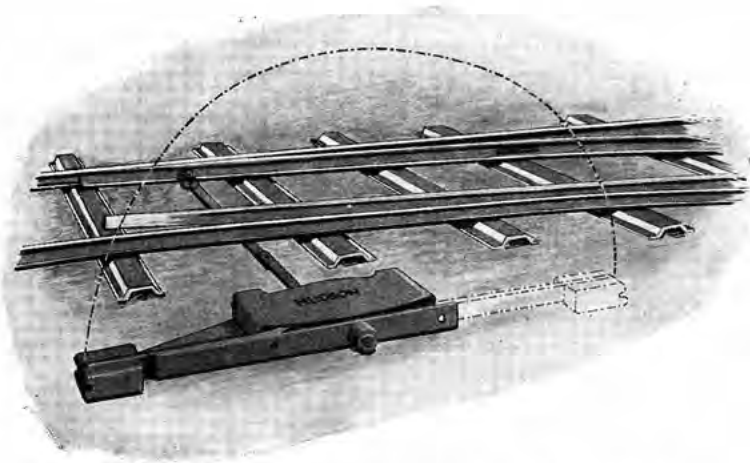
TURNOUT on steel sleepers with closed ends, switchbox with lamp and direction disc

Code 36329



HEAVY SWITCHBOX
for rails 35 to 60 lbs. per yard

Code 36330



HORIZONTAL SWITCHBOX OR "GROUND THROW"
for rails up to 25 lbs. per yard

Code 36331

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HUDSON
RAILWAY
MATERIAL

Hudson "Easy" Turnouts

HUDSON
RAILWAY
MATERIAL

Only suitable for light work and wagons with a wheelbase not exceeding 30 inches. We do not make them for heavy loads, locomotive use or rail gauges wider than 24 inches



Code 36332

This "Easy" Turnout offers advantage where portability is wanted, as it can be laid down anywhere on an existing track. It is not secured in any way.

Weight each about 160 lbs.



EASILY CARRIED ABOUT FROM ONE PART OF YOUR TRACK TO ANOTHER

We make them for gauges of 18 inches up to 24 inches and to carry loads up to 1½ tons. State gauge when ordering.



VERY USEFUL TO MAKE A RIGHT-ANGLE TURN



AS USED ON EMBANKMENTS—AVOIDING THE USE OF END-TIP WAGONS

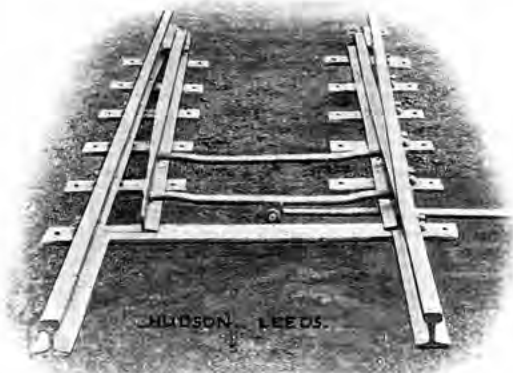
LEEDS LONDON DURBAN
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Hudson Switches and Crossings



A PAIR OF SWITCHES comprising two tongue rails and two stock rails, etc.

Code 36333

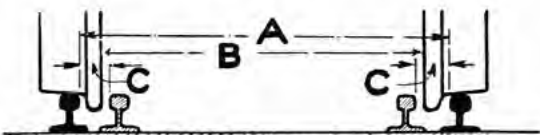


A FROG with two guard rails and two stock rails, etc.

Code 36334

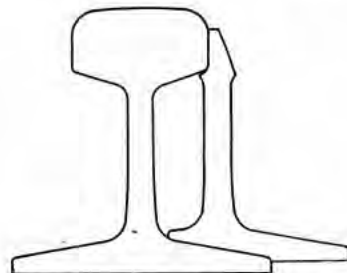
We build our Switches and Crossings with clearances to suit our standard locomotives and wagons, so when customers order Switches and Crossings for a railway which has not been equipped by us, we recommend the following information be given to ensure perfectly smooth running :—

- 1—Maximum rigid wheelbase of largest vehicle which will traverse the switches ; failing this, give us the angle of frog or radius of curve, or length overall required.
- 2—Rail gauge.
- 3—Weight of rail ; a full-size section of same ; also dimensions of holes in fishplates.
- 4—Distance between tyres of locomotives and wagons, and clearance at guard rails (B and C respectively in illustration below).
- 5—Whether for wood sleepers (see illustration on page 37) or built up complete on steel sleepers, as page 32.
- 6—How many sets required and whether right-hand, left-hand, and symmetrical (see page 30).
- 7—Type of switchbox preferred (see pages 32 and 34).
- 8—We assume the intermediate rails are not required unless you specify otherwise.



- A = Rail gauge Code 36335
- B = Distance between wheel tyres Code 36336
- C = Clearance of guard rails Code 36337

NOTE.—When heavy rails are used we can, on request, avoid cutting the bottom flange of the stock rail (this cutting is clearly shown in illustration 36333 above), by machining the fine end of the tongue so that it fits into the web of the rail as shown on illustration 36338. Both systems are much used.



Code 36338

Hudson Switches and Crossings

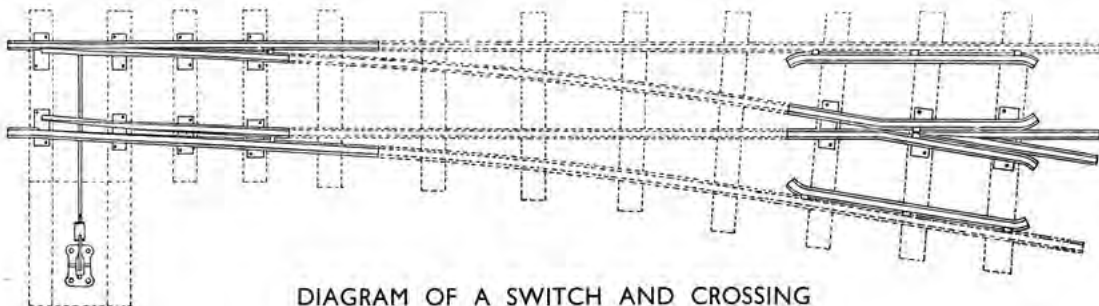


DIAGRAM OF A SWITCH AND CROSSING

Code 36339

The nomenclature of the different parts of Switches and Crossings is confusing to those unaccustomed to railway work, so we detail out below the parts necessary for one set.

1 complete set of Switches and Crossing	}	1 pair of Switches with Stock rails	}	2 Stock rails with soleplates and bearing studs (or heel blocks) if necessary. (See footnote).
				2 Tongue rails, planed to fit stock rails.
				2 Wing rails.
				2 Splice rails fitted together.
	1 Frog		1 set of nose blocks.	
			1 set of soleplates.	
		1 pair of guard rails, with distance blocks and bolts but without the stock rails.		
		1 Switchbox, complete with rods.		

The intermediate rails and fishplate joints are not included unless specified.

The soleplates are usually punched for spiking down on wood sleepers.

STANDARD SIZES AND CODE NUMBERS

Angle of Frog	Rail Gauge	Approximate Radius of Curve	Made from Rails weighing				Theoretical Length over all when built up
			25 lbs. per yd.	30 lbs. per yd.	35 lbs. per yd.	45 lbs. per yd.	
1 in 5	24 in.	82 ft.	565 lbs. 36340	635 lbs. 36341	710 lbs. 36342	1170 lbs. 36343	19 ft. 3 in.
	30 in.	105 ft.	595 lbs. 36344	670 lbs. 36345	750 lbs. 36346	1250 lbs. 36347	25 ft. 3 in.
1 in 6	24 in.	115 ft.	635 lbs. 36348	720 lbs. 36349	810 lbs. 36350	1310 lbs. 36351	23 ft. 9 in.
	30 in.	167 ft.	735 lbs. 36352	835 lbs. 36353	940 lbs. 36354	1495 lbs. 36355	27 ft. 9 in.

WEIGHTS AND DIMENSIONS APPROXIMATE ONLY. Special Code for ordering, see page 110 in this Catalogue.

N.B.—When the tongues are made as diagram 36338 on page 36, we do not supply the Stock Rails unless requested to do so.

HUDSON
RAILWAY
MATERIAL

Hudson Turntables

HUDSON
RAILWAY
MATERIAL

We have manufactured over 100,000 of these and can show you large numbers of them in constant use and in course of manufacture in our works, if you can spare the time to pay us a visit.



RAISED RAIL TYPE for general use
Code 36356



FLUSH RAIL TYPE for carting over,
or for use inside factories, etc.
Code 36357



STEEL RAIL TYPE for locomotive
use
Code 36358



STEEL PORTABLE TYPE for light work only
(See also page 35 for "Easy" turnouts)
Code 36359



EXPORT TYPE—ALL STEEL
Code 36360



PORTABLE TYPE with inclined mounts
placed on ordinary portable track
Code 36361



PLAIN TABLE with chequered top for
turning large drums, etc.
Code 36362

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Hudson Turntables



When considering carrying capacity of Turntables, bear in mind that where locomotives are used the Turntables should be strong enough to allow the locomotives to pass over them even if the latter do not require to be turned.

The diameter of Table required is dependent upon rail gauge and wheelbase (centre to centre of axles) of wagons to be turned.

STANDARD SIZES AND CODE NUMBERS

Type illustrated on page 38	Rail gauge in inches	Carrying capacity in tons	Diameter of moving table in inches	Maximum permissible wheelbase in inches	Average weight in lbs.	Code Number	
RAISED RAILS like Code 36356	18	2	35 $\frac{1}{4}$	20	540	36363	These "raised" and "flush" rail types will work under very bad conditions without becoming choked up with dirt. They never require any lubrication as they revolve on large diameter balls.
		2	46	32	1065	36364	
	20	2	35 $\frac{1}{4}$	19	540	36365	
		2	46	31	1065	36366	
	24	2	46	29	1065	36367	
		4	46	29	1125	36368	
		3	55 $\frac{1}{2}$	40	1570	36369	
		3	72	53	3300	36372	
	30	1 $\frac{1}{2}$	46	25	1090	36370	
		3	55 $\frac{1}{2}$	37	1570	36371	
		3	72	53	3300	36372	
		6	72	53	3190	36373	
FLUSH RAILS like Code 36357	18	1 $\frac{1}{2}$	35 $\frac{1}{4}$	20	600	36374	
		2	46	32	1125	36375	
	20	1 $\frac{1}{2}$	35 $\frac{1}{4}$	19	600	36376	
		2	46	31	1125	36377	
	24	2	46	29	1125	36378	
		4	46	29	1190	36379	
		3	55 $\frac{1}{2}$	40	1690	36380	
		3	72	53	3300	36383	
	30	1 $\frac{1}{2}$	46	25	1100	36381	
		3	55 $\frac{1}{2}$	37	1690	36382	
		3	72	53	3300	36383	
		6	72	53	3430	36384	
PORTABLE TYPE like Code 36359	18	3 $\frac{3}{4}$	33 $\frac{1}{2}$	20	260	36385	
		1 $\frac{1}{2}$	33 $\frac{1}{2}$	20	300	36386	
	20	3 $\frac{3}{4}$	36	20	295	36387	
		1 $\frac{1}{2}$	36	20	330	36388	
	24	3 $\frac{3}{4}$	42	24	380	36389	
		1 $\frac{1}{2}$	42	24	435	36390	
EXPORT TYPE like Code 36360	18	1 $\frac{1}{2}$	37	23	240	36391	
	24	1 $\frac{1}{2}$	37	19	258	36392	
	24	2	49 $\frac{1}{2}$	34	510	36393	
	30	2	49 $\frac{1}{2}$	30	510	36394	
		2	49 $\frac{1}{2}$	30	510	36394	

Weights and dimensions approximate.

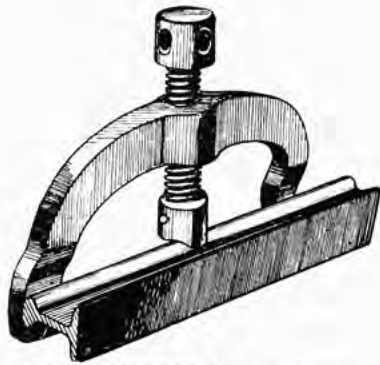
Large stocks kept.

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Platelayers' Tools



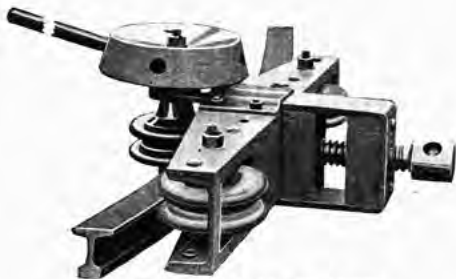
RAIL BENDERS for hand use
For 10/20 lbs. rails Code 36395
For 24/35 lbs. rails Code 36396
For 40/60 lbs. rails Code 36397



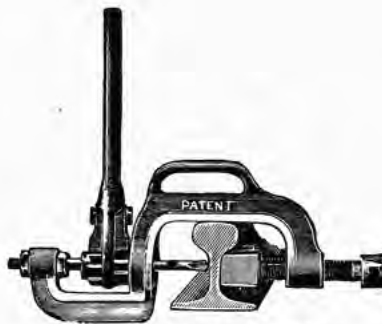
PLATELAYERS' TROLLEY
Timber platform and frame
Code 36398



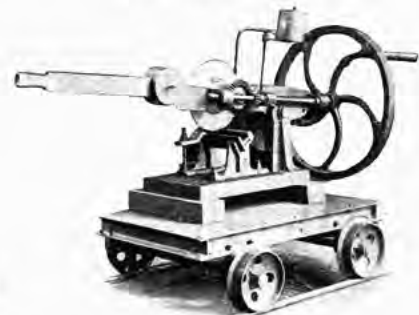
DOUBLE AND SINGLE RAMPs
When inquiring state rail section and axle load of vehicle, and whether single or double ramps (as shown) are required.
Code 36399



RAIL BENDER 3 roller type
for light rails up to 30 lbs. per yard
Code 36400



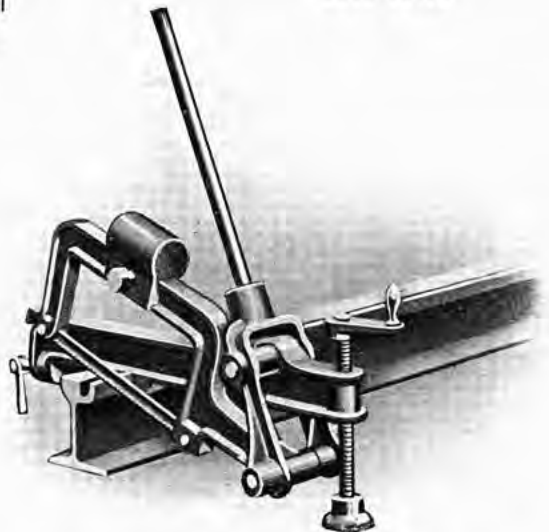
HAND RATCHET DRILL
(state rail section, and diameter of drill required)
Code 36401



RAIL SAWING MACHINE with circular saw, mounted on rail bogie
Code 36402



HIGH DUTY RAIL DRILL
Code 36403



PORTABLE RAIL SAW Code 36404



Platelayers' Tools



RAIL GAUGE fixed Type
Code 36405



SPANNER FOR LARGE FISHBOLTS single ended
Code 36406



RAIL GAUGE adjustable type
Code 36407



SPANNER FOR FISH AND CLIPBOLTS double ended
Code 36408



CROWBAR with claw. 15 to 25 lbs.
Code 36409



BOX SPANNER with tee handle
Code 36410



SPIKE DRIVER. 4 to 8 lbs. Code 36411



BEATER PICK with point end. 6 to 8 lbs.
Code 36412



RAIL LIFTING JACK
Code 36414



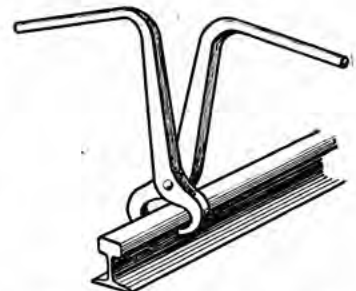
RAIL LIFTING JACK ratchet type
Code 36415



HAND SCREW PUNCHING BEAR
Code 36416



NAVY PICK with point and chisel ends.
5 to 7 lbs.
Code 36413



RAIL CARRYING TONGS
Code 36417



Hudson "Rugga" Side Tip Wagons



HUDSON "RUGGA" TYPE—FOR CONTRACTORS AND GENERAL USE

Fitted with Ball Bearing Axleboxes



STANDARD 27 cu. ft. "RUGGA" TYPE
Code 36418

For special types
for mining work see
pages 50/52



STANDARD 27 cu. ft. "RUGGA" TYPE
Body in tipped position.
Code 36419

BRIEF SPECIFICATION

BODY. Of steel plates with extra strong rim having corners of double strength.

FRAME. One piece construction; central round ended buffers.

END SUPPORTS. Two heavy pressed steel struts at each end. Very rigid against shunting shocks.

COUPLINGS. Safety pattern. We supply different types according to the size of the wagon.

CATCHES. Automatic type.

WHEELS. Heavy pattern in cast steel fast on special steel axles with journals machined and ground.

AXLEBOXES. Hudson "FARO" type, perfectly dustproof and with high duty ball bearings totally enclosed (see page 82). Under normal conditions they will run for a year without lubrication. No wear takes place on the axle journals. We can supply ordinary

roller bearing axleboxes at a very slight reduction, but "FARO" axleboxes save their cost every year in reduced tractive effort, lubrication, axle wear, etc.

SPRINGS. Each "FARO" axlebox is provided with a rubber cushion spring. Axleboxes pivot freely in steel guides. These ensure smooth riding on bad tracks and assist in preventing derailments.

MANUFACTURE. We build these wagons by the thousand by mass production methods at very low prices. We use only the best materials and our workmanship is unequalled for quality and finish.

BRAKES. We can supply screw brakes on any of the wagons. They increase the cost considerably. Simple side lever brakes can also be fitted. See page 91.

LIFTING EYES. See page 97.



STANDARD 36 cu. ft. "RUGGA" TYPE
Code 36420

Customers who have changed to our "FARO" type axleboxes find their locomotives haul at least 30% greater loads at higher speeds; and in manual traction the saving is usually about 50%. See page 78.



STANDARD 54 cu. ft. "RUGGA" TYPE
Code 36421

LEEDS LONDON DURBAN
JOHANNESBURG BEIRA
BULAWAYO MAURITIUS

R. HUDSON LTD

CALCUTTA NDOLA
CAIRO LUANDA LOBITO
SALISBURY SINGAPORE

Hudson "Rugga" Side Tip Wagons

HUDSON "RUGGA" TYPE—FOR CONTRACTORS AND GENERAL USE

Not really suitable for mining work. For mining wagons see pages 50/52

TYPE TO BE SELECTED. We give below a list of five standard sizes for 24 in. rail gauge (other gauges can be supplied to order). Customers are asked to note the following when deciding the type they require.

TYPE "A"—These are suitable for carrying earth, sand and similar soft materials, loading by hand and haulage by animals on fairly level tracks. They will not (for long) stand rough shunting by locomotives.

TYPE "B"—For carrying hard materials such as broken stone the stronger body plates are necessary.

TYPE "C"—For locomotive or incline haulage, the stronger underframes, the stronger end supports and the stronger axles and bearings are necessary.

TYPE "D"—For mechanical loading, mechanical haulage and generally severe usage, type "D" is essential.

All wagons with screw brakes should have the stronger axles and bearings.

STANDARD SIZES AND CODE NUMBERS

Capacity filled level with rim	Type (see above)	Diam. of wheels in inches	Height overall from rails in inches	Width overall in inches	Length overall in inches	Thickness of body plate in inches	Average Weight each in lbs.	Code 24 in. rail gauge	
13½ cu. ft.	A	9	40½	50	61	$\frac{1}{8}$	595	36422	
	A	12	41½	50	61	$\frac{1}{8}$	645	36423	
	B	12	41½	50	61	$\frac{3}{16}$	720	36424	
18 cu. ft.	A	12	43½	54	66	$\frac{1}{8}$	720	36425	
	B	12	43½	54	66	$\frac{3}{16}$	810	36426	
27 cu. ft.	A	12	45½	59½	73½	$\frac{1}{8}$	835	36427	
	B	12	45½	59½	73½	$\frac{3}{16}$	935	36428	
	C	Extra for stronger end supports				—	—	+ 30	+36429
	C	Extra for stronger underframe				—	—	+ 50	+36430
	C	Extra for stronger axles and bearings				—	—	+ 25	+36431
D	12	45½	59½	73½	73½	$\frac{3}{16}$	1040	36432	
36 cu. ft.	A	14	50½	64½	86½	$\frac{1}{8}$	1190	36433	
	B	14	50½	64½	86½	$\frac{3}{16}$	1370	36434	
	C	Extra for stronger end supports				—	—	+ 55	+36435
	C	Extra for stronger underframe				—	—	+ 55	+36436
D	14	50½	64½	86½	86½	$\frac{3}{16}$	1480	36437	
54 cu. ft.	A	15	58	64	94	$\frac{3}{16}$	1900	36438	
	B	15	58	64	94	$\frac{1}{4}$	2120	36439	
	C	Extra for stronger end supports				—	—	+ 45	+36440
	C	Extra for stronger underframe				—	—	+ 80	+36441
	D	15	58	64	94	$\frac{1}{4}$	2245	36442	

At normal times we hold about 2/3000 of the above wagons in stock for 24 in. rail gauge (and also for 60 cm. (23½ in.) gauge)

Dimensions are approximate only

HUDSON
RAILWAY
MATERIAL

Hudson Large Size Tip Wagons

HUDSON
RAILWAY
MATERIAL

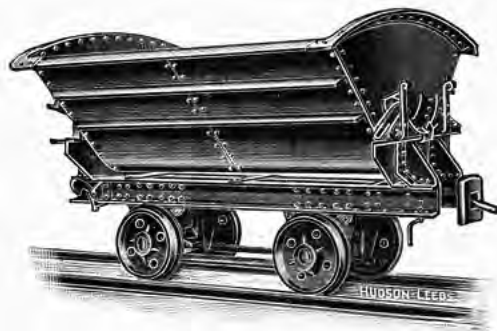
3 to 9 CUBIC YARDS CAPACITY. FOR NARROW RAIL GAUGES

See page 48 for some reasons why you should use them



3 cu. yd. size
Code 36443

SUITABLE FOR
FILLING BY
POWER-DRIVEN
SHOVEL
OR
DRAGLINES



3 or 4 cu. yd. size
Code 36444

BRIEF SPECIFICATION

BODY—Best steel plates with heavy steel rim, reinforced corners, and steel side stiffeners.

TIPPING GEAR—Solid steel. No loose fittings.

FRAMES—Steel channels, with suitable crossbars, gusset plates, securely riveted together.

BUFFERS—Central spring buffers and couplings.

WHEELS—Best cast steel fast on mild steel axles with inside journals.

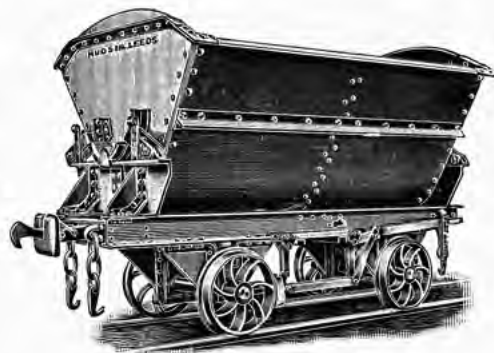
AXLEBOXES—Fitted with heavy springs, brass bushes, oil chamber and oil pads.

CATCHES—Secure body in travelling position. Self-emptying and self-righting gear can be supplied at a small extra, so that when catches are released the load is automatically discharged to the desired side and body held down until a second catch is released, when the body returns automatically to travelling position.



9 cu. yd. size with lever brake on 4 wheels
Code 36445

VISIT OUR WORKS
AND SEE FOR
YOURSELF
HOW THESE WAGONS
OPERATE



7½ cu. yd. size with lever brake on 1 wheel
Code 36446

LEEDS LONDON DURBAN
JOHANNESBURG BEIRA
BULAWAYO MAURITIUS

R. HUDSON LTD

CALCUTTA NDOLA
CAIRO LUANDA LOBITO
SALISBURY SINGAPORE



Hudson Large Size Tip Wagons



3 to 9 CUBIC YARDS CAPACITY. FOR NARROW RAIL GAUGES

These wagons are designed for filling by mechanical shovels. The size to use is one which requires three (or more) strokes of the shovel to fill the wagon. Thus for the $7\frac{1}{2}$ cu. yd. wagon shovels with $2\frac{1}{2}$ cu. yd. buckets can be used. If larger shovels are in operation it is often difficult to fill the wagons completely and then they do not tip easily.

The wagons are so strong that it is almost impossible to damage them even when loading great pieces of rock. Wagons we built over 20 years ago for such work are still in first-class working order and have cost practically nothing in upkeep.

USUAL SIZES AND CODE NUMBERS

If Self-Emptying and Self-Righting gear is required, please give full details of the material to be conveyed.

CAPACITY and approximate dimensions	Diameter of wheels in inches	Thickness of plates	Type of buffers and their height from rail	Rail gauge	Average weight each in lbs.	Code Number To Rail Gauge Specified
3 cubic yards						
Height overall	5 ft. 6 in.	16	Central 20 in.	30 in.	4100	36447
Height at sides	5 ft. 1 in.					
Width overall	6 ft. 8 in.			36 in.	4220	36448
Length over buffers	10 ft. 0 in.					
Length inside body	7 ft. 0 in.					
4 cubic yards						
Height overall	6 ft. 0 in.	20	Central $23\frac{1}{2}$ in.	30 in.	4800	36449
Height at sides	5 ft. 4 in.					
Width overall	6 ft. 11 in.			36 in.	4930	36450
Length over buffers	10 ft. 8 in.					
Length inside body	8 ft. 0 in.					
6 cubic yards						
Height overall	7 ft. 0 in.	24	Central 28 in.	36 in.	7000	36451
Height at sides	6 ft. 3 in.					
Width overall	6 ft. 11 in.			42 in.	7200	36452
Length over buffers	13 ft. 3 in.					
Length inside body	9 ft. 3 in.					
$7\frac{1}{2}$ cubic yards						
*Height overall	7 ft. 8 in.	24	Central 29 in.	42 in.	9850	36453
*Height at sides	6 ft. 10 in.					
Width overall	7 ft. 6 in.	30	Central 32 in.	42 in.	10150	36454
Length over buffers	15 ft. 0 in.					
Length inside body	10 ft. 0 in.					
*Increased by 3 in. when 30 in. wheels are fitted						

We make similar wagons to the above up to 15 cu. yd. capacity on double bogies

If any alteration in buffer height is required mention same when inquiring as it may involve extra cost.

EXTRAS IF REQUIRED—

Side lever brake on one wheel	Code number 36455
Screw brake on all four wheels 36456
Self-Emptying and Self-Righting gear 36457

For export we usually send the wagon bodies partly riveted up for erection and final riveting at destination.

LEEDS LONDON DURBAN
JOHANNESBURG BEIRA
BULAWAYO MAURITIUS

R. HUDSON LTD

CALCUTTA NDOLA
CAIRO LUANDA LOBITO
SALISBURY SINGAPORE

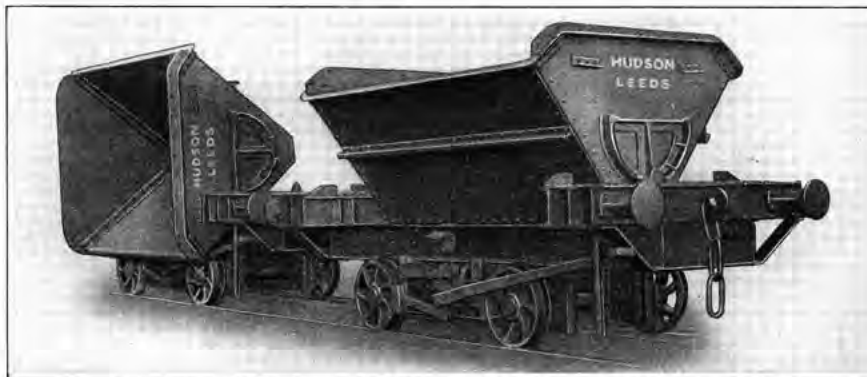
HUDSON
RAILWAY
MATERIAL

Hudson Large Size Tip Wagons

HUDSON
RAILWAY
MATERIAL

7½ and 11 CU. YDS. CAP. AUTOMATIC TYPE, FOR 4 FT. 8½ IN. RAIL GAUGE

This type of wagon is most economical in operation, automatic discharging of the load and automatic righting of the body into its travelling position being arranged—no shovelling and no time wasted. One of our customers is saving £194 per wagon per year by using them! See page 48 for reasons why you should use them.



7½ CU. YDS. SIZE with side lever brake. Code 36458

BRIEF SPECIFICATION

BODY—Steel plates with heavy steel rim, reinforced corners and steel side stiffeners.

TIPPING GEAR—Solid steel, no loose fittings.

FRAMES—Steel joists or channels with crossbars, diagonals and gusset plates well riveted together.

BUFFERS—Spring buffers and couplings to join up with English main line stock—or central buffers can be supplied to order.

WHEELS—Steel tyred.

AXLES—Best mild steel with machined journals.

AXLEBOXES—Fitted with heavy steel springs of spiral or laminated type, brass bushes, oil chamber and oil pads.

CATCHES—Secure body in travelling position. When released the load is automatically discharged; on releasing a second catch the body returns automatically to the travelling position.



11 CU. YDS. SIZE with screw brake. Code 36459

We have usually a supply of the 11 cu. yds. size in stock, or in course of manufacture. We shall always be pleased to arrange a demonstration. If desired we can usually let you have a sample wagon to test under your own conditions.

LEEDS LONDON DURBAN
JOHANNESBURG BEIRA
BULAWAYO MAURITIUS

R. HUDSON LTD

CALCUTTA NDOLA
CAIRO LUANDA LOBITO
SALISBURY SINGAPORE

HUDSON
RAILWAY
MATERIAL

Hudson Large Size Tip Wagons

HUDSON
RAILWAY
MATERIAL

7½ and 11 CU. YDS. CAP. AUTOMATIC TYPE, FOR 4 FT. 8½ IN. RAIL GAUGE

These wagons are specially designed for direct filling by mechanical shovels. The best size to use is one which requires three (or more) strokes of the shovel to fill the wagon. Thus for the 7½ cu. yds. wagon shovels with 2½ cu. yd. buckets can be used. It is most important we know the nature and the weight of the material to be conveyed in each wagon as this has an important effect on the satisfactory tipping.

The wagons are so strong it is almost impossible to damage them even when loading great pieces of rock. Wagons we built over 20 years ago for such work are still in first-class working order and have cost practically nothing in upkeep.

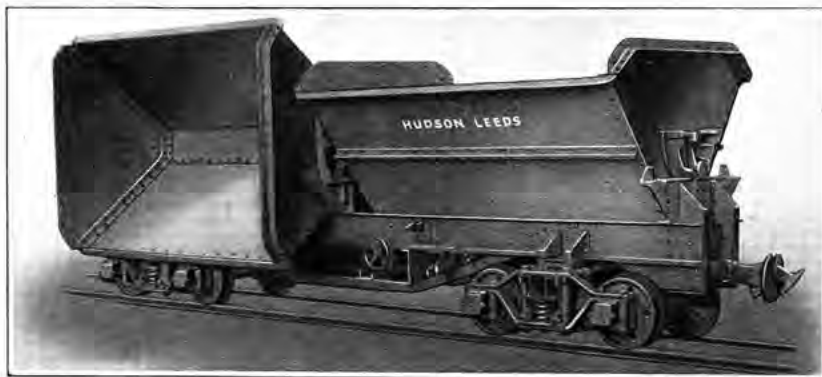
STANDARD SIZES AND CODE NUMBERS

CAPACITY and approximate dimensions	Diameter of wheels	Thickness of plates	Side buffers		Average weight each in lbs.	Code
			Height from rail	Width apart		
7½ cu. yds. *Height overall 8 ft. 7 in. *Height at sides 7 ft. 7 in. Width overall 7 ft. 6 in. Length overall 14 ft. 7 in. Length of body 10 ft. 0 in. *These heights can be reduced if necessary	36 in. Steel tyred	⅜ in.	3 ft. 5 in.	5 ft. 8 in.	13200	36460
11 cu. yds. Height overall 9 ft. 4 in. Height at sides 8 ft. 1 in. Width overall 8 ft. 9 in. Length overall 15 ft. 8 in. Length of body 11 ft. 0 in.	36 in. Steel tyred	⅜ in.	3 ft. 5 in.	5 ft. 8 in.	16300	36461

EXTRAS IF REQUIRED. Side lever brake. Code 36462. Screw brake. Code 36463

If any alteration in buffer height is needed it may involve extra cost.

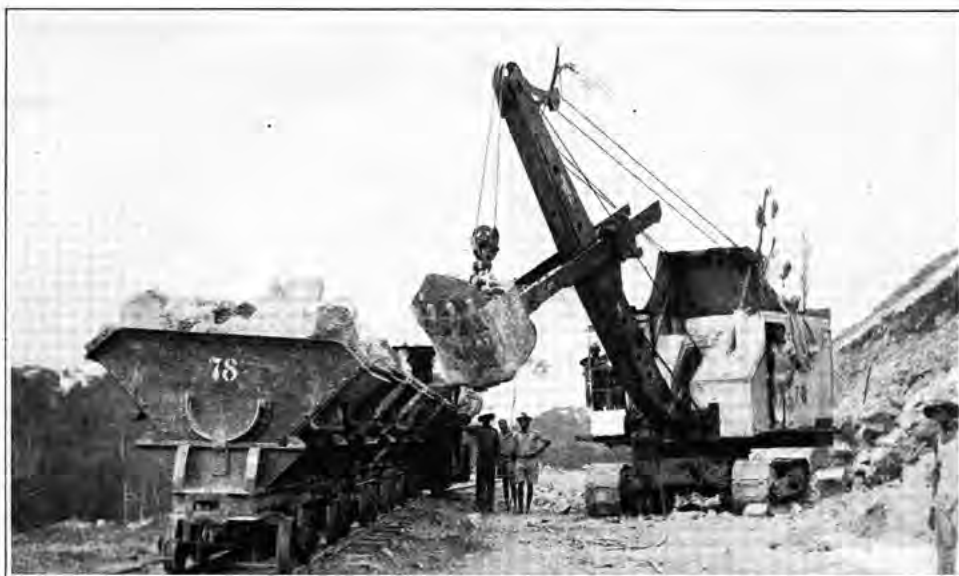
For export we usually send the wagons partly riveted to save freight costs. We do all possible riveting and send a supply of rivets for insertion at site.



15 CU. YDS. SIZE (2-7½ cu. yd. bodies) mounted on diamond bogies
Code 36464

LEEDS LONDON DURBAN
JOHANNESBURG BEIRA
BULAWAYO MAURITIUS**R. HUDSON LTD**CALCUTTA NDOLA
CAIRO LUANDA LOBITO
SALISBURY SINGAPORE

Hudson Large Size Tip Wagons



3 CU. YD. CAP. AUTOMATIC TIPPING WAGONS AT WORK ON A GOLD MINE

SOME REASONS WHY YOU SHOULD USE THEM

SIMPLICITY. The tipping and righting gear is extremely simple. The wear on the moving parts is negligible and there is little liability of the gear failing in its action. Compare this with the elaborate systems of levers and door gears fitted on wagons built by our competitors. We shall always be pleased to arrange a practical demonstration of these wagons either at our works or in actual operation.

EASE OF OPERATION. Due to the simple gear fitted one man can tip a train of wagons very quickly, in fact the time necessary need only be about as long as it takes a man to walk the length of the train and back again. The method of operation is as follows: on releasing a catch the body rolls into the tipped position where it locks itself and discharges its load. When the righting catch is released, the body automatically returns to the upright position where it is automatically locked in position and is thus ready for refilling.

LOCO STANDING TIME. This is an absolute minimum—no time is wasted at the unloading point and at the loading end the time of standing depends upon the loading capacity of the shovels. With the modern shovels this is very short.

ECONOMY. One of our customers using only 9 of the 11 cu. yds. size, keeps careful statistics of the operation costs. He informed us that compared with ordinary railway wagons he saved £1750 per year in labour alone. Thus in one year he recovered more than the entire capital cost of his 9 wagons.

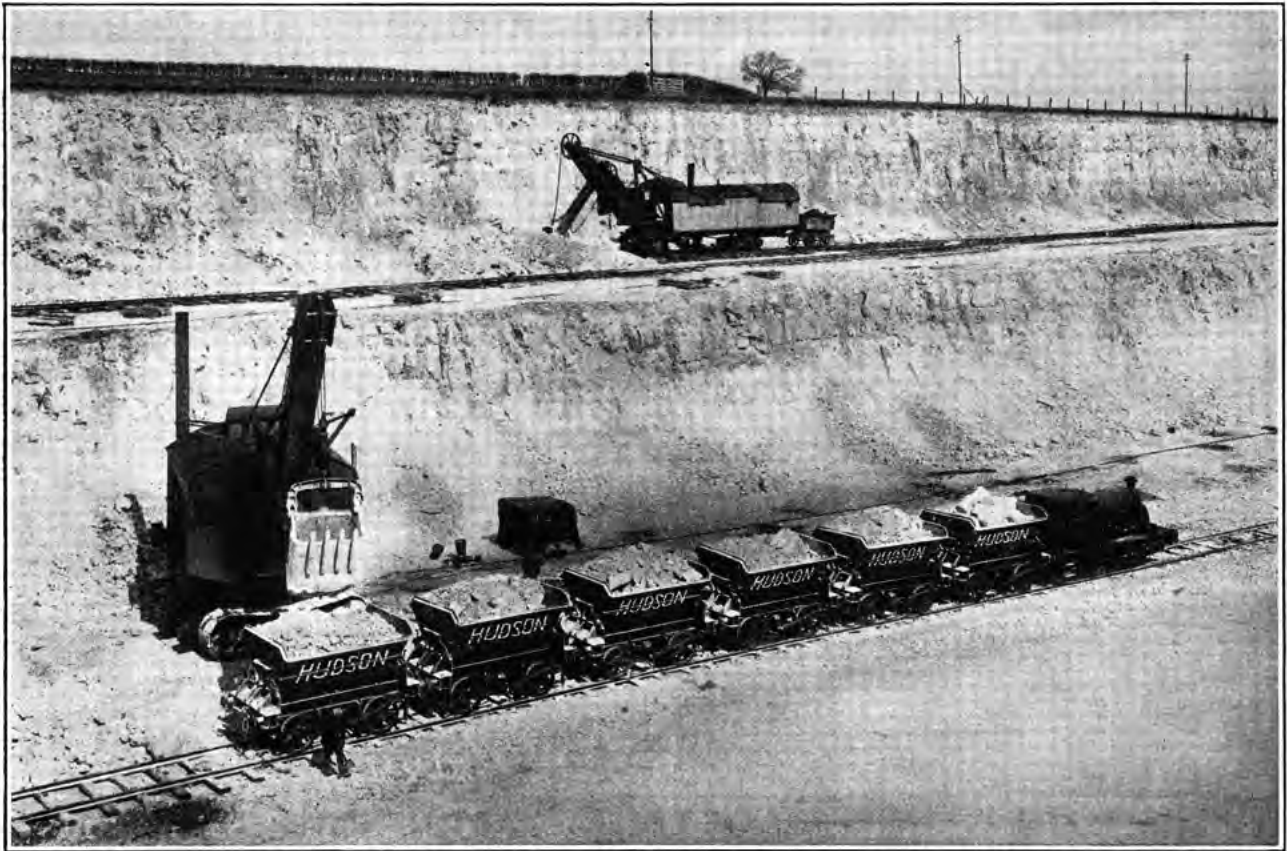
MAINTENANCE. These wagons are of very robust design. The operating gear is simple and all parts liable to wear are of ample size. The cost of keeping the wagons in running order is therefore almost nil.

DESIGN. We are the originators of these wagons and the only firm which really understands them. We make them in large quantities by mass production methods ensuring complete interchangeability of parts.

HUDSON
RAILWAY
MATERIAL

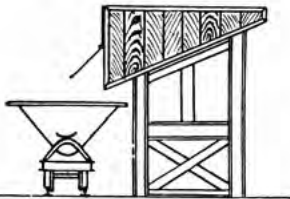
Hudson Large Size Tip Wagons

HUDSON
RAILWAY
MATERIAL

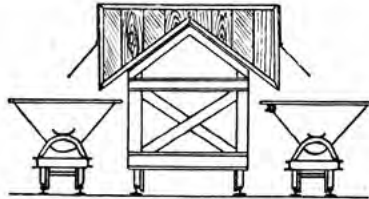


HUDSON 11 CU. YDS. CAP. TIPPING WAGONS, AUTOMATIC TYPE, ON 4 FT. 8½ IN. RAIL GAUGE TRACK being loaded by a 4½ cu. yd. cap. excavator at a limestone quarry

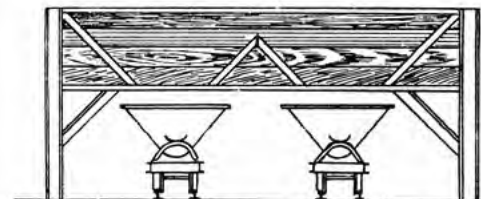
FILLING HOPPERS FOR LOADING SMALL WAGONS BY LARGE MECHANICAL SHOVELS



ONE OR MORE DOORS AT SIDE.
Code 36465



DOORS AT BOTH SIDES.
Code 36466



DOOR IN BOTTOM
Code 36467

If the capacity of the bucket on the mechanical shovel is more than one-third of the capacity of the wagon body, we recommend filling hoppers be used. They can be of portable or fixed type and have as many doors as are necessary to fill the required number of wagons per hour. The diagrams above represent the most commonly used types of filling hoppers which permit small light type wagons being used, and thus permit shunting by hand or animal traction at the filling and emptying stations. See pages 42 and 43 for standard sizes of small light wagons.

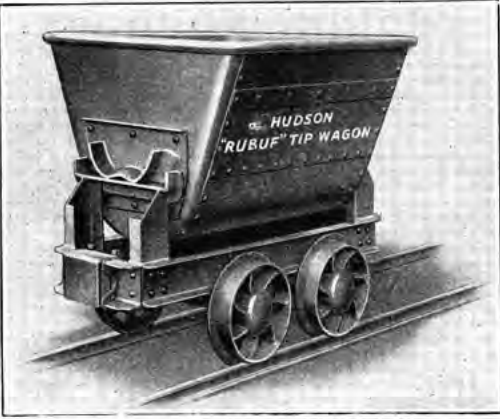
LEEDS LONDON DURBAN
JOHANNESBURG BEIRA
BULAWAYO MAURITIUS

R. HUDSON LTD

CALCUTTA NDOLA
CAIRO LUANDA LOBITO
SALISBURY SINGAPORE

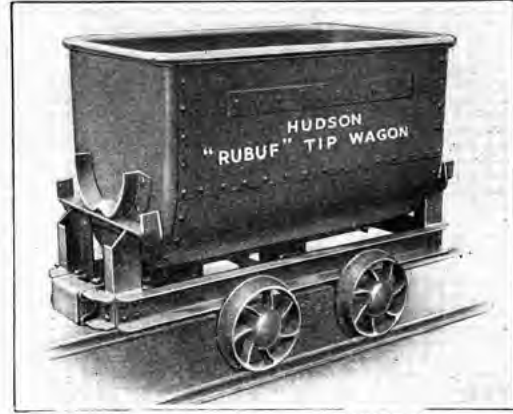
Hudson Mining Tip Trucks

We supply countless thousands of mine trucks for use in the gold and precious metal mines throughout the world.



16 cu. ft. "U" shape, "RUBUF" type
Code 36468

Our "RUBUF" type frame which is fitted on all except 10 cu. ft. wagons is the last word in mining wagon design. It is of immense strength and is provided with rubber spring buffers which effectively absorb excessive buffing shocks.



20 cu. ft. "V" shape, "RUBUF" type
Code 36469

BRIEF SPECIFICATION

BODIES—of steel plate, with continuous round hoops of exceptional strength and smooth finish.

FRAMES—16, 20 and 30 cu. ft. wagons provided with "RUBUF" type frames with rubber spring buffers.

WHEELS—of cast steel fast on high tensile steel axles.

BEARINGS—We normally supply roller bearing wheels and axles as described on pages 79 and 81. They are dust and dirt proof and rarely need lubricating, frictional resistance being reduced to the minimum. We can on request supply the ordinary plain pedestal type of axlebox but they make the wagons hard to push and wear the axles quickly.

COUPLINGS—not usually fitted, but we can supply plain link couplings, swivelling drawbars or jockeys for rope haulage, see pages 89 and 93.



10 cu. ft. "V" shape with joist pattern standards
Code 36470

We manufacture mine trucks at our works at Leeds, Benoni, Durban and Calcutta and keep many thousands in stock.



30 cu. ft. "V" shape, "RUBUF" type, body with flat top hoops
Code 36471

Code 36468 —V shape not U shape.
 Code 36469 —U shape not V shape.
 Code 36483/6—Width over body should be 30 Ins.

ng Tip Trucks



"V" shaped trucks should always be used unless they are too wide for the cages or drives. "U" shaped trucks are really unsuitable for wet sands or damp sticky materials and should only be used when the width of the truck is restricted.

"V" SHAPED TRUCKS SUITABLE FOR SURFACE OR UNDERGROUND WORK

Rail Gauge	Capacity in cu. ft.	Diam. of wheels in inches	Height overall in inches	Width overall in inches	Length overall in inches	Thickness of plates in inches		Average weight each in lbs.	Code Number*
						Ends	Bottom		
18 inches	10	9	32½	32	49	3/16	3/16	476	36472
	10	12	34	32	49	3/16	3/16	536	36473
	16	12	43	38 7/8	59	3/16	1/4	792	36474
	20	12	46 1/8	41 1/2	63 1/4	3/16	1/4	908	36475
	20	15	49 1/8	41 1/2	63 1/4	3/16	1/4	1000	36476
24 inches	16	12	42	38 7/8	59	3/16	1/4	792	36477
	20	12	44 3/8	41 1/2	63 1/4	3/16	1/4	925	36478
	20	15	47 1/2	41 1/2	63 1/4	3/16	1/4	1015	36479
	30	15	49 1/2	43 1/4	87 3/4	3/16	1/4	1400	36480

"U" SHAPED TRUCKS SHOULD ONLY BE USED IN CAGES OR TUNNELS WHERE WIDTH IS RESTRICTED

Rail Gauge	Capacity in cu. ft.	Diam. of wheels in inches	Height overall in inches	Width over body in inches	Length overall in inches	Thickness of Plates in inches		Average weight each in lbs.	Code Number*
						Ends	Bottom		
18 inches	10	9	38	25½	43½	3/16	1/4	521	36481
	10	12	39½	25½	43½	3/16	1/4	581	36482
	16	12	42 5/8	29	57	3/16	1/4	750	36483
	20	12	42	29	67	3/16	1/4	819	36484
24 inches	16	12	43 1/4	29	57	3/16	1/4	768	36485
	20	12	43 1/4	29	67	3/16	1/4	841	36486
	30	12	48 1/2	35	70	3/16	1/4	1300	36487

* State type of wheels preferred by adding respective code number—see pages 79/81.

Modifications if required:—

- Heavier wheels, axles and bearings for travelling at fast speeds with locomotives Code 36488
- Swivelling drawbars and couplings for locomotive traction Code 36489
- Wheels and axles with plain pedestals suitable for automatic greasing machines Code 36490

HUDSON
RAILWAY
MATERIAL

Hudson Side-Tip Trucks for Mining Work

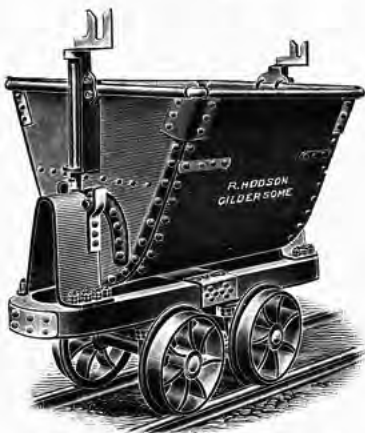
HUDSON
RAILWAY
MATERIAL



"V" shaped TRUCK with round ended frame and joist standards
Code 36491



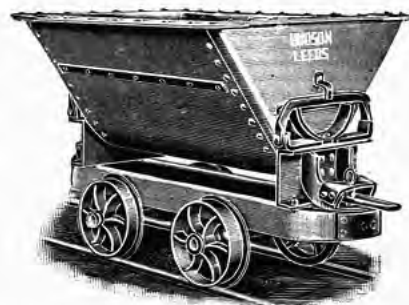
"U" shaped TRUCK with round ended frame and joist standards
Code 36492



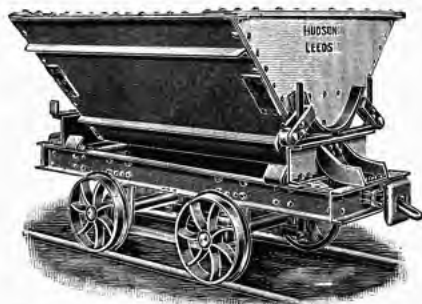
DIAMOND FIELDS TRUCK introduced by us over 60 years ago
Code 36493



Small "U" shaped TRUCK with ends expanded to obtain maximum capacity
Code 36494



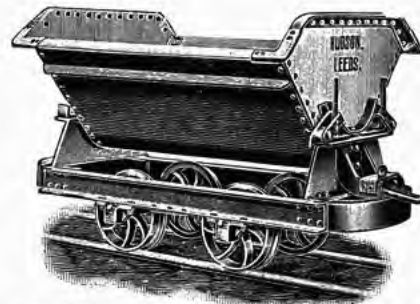
TRUCK with inside journals
Code 36495



TRUCK with inside journals and spring buffers
Code 36496



HEAVY TRUCK with rail top hoop and swivelling drawbars
Code 36497



TRUCK with outside journals and body sides cut down for ease in filling by hand
Code 36498

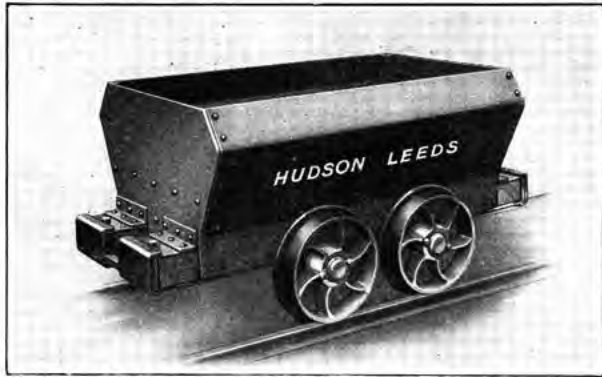
LEEDS LONDON DURBAN
JOHANNESBURG BEIRA
BULAWAYO MAURITIUS

R. HUDSON LTD

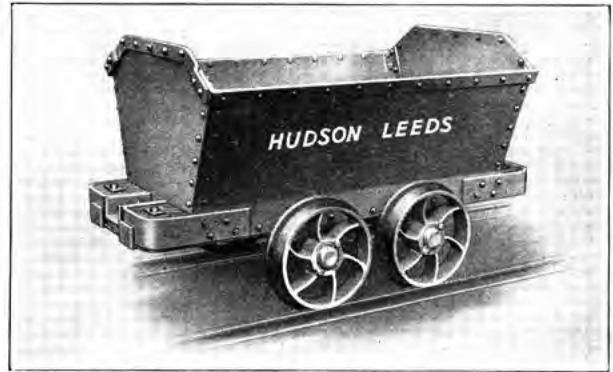
CALCUTTA NDOLA
CAIRO LUANDA LOBITO
SALISBURY SINGAPORE

Hudson Tippler Trucks

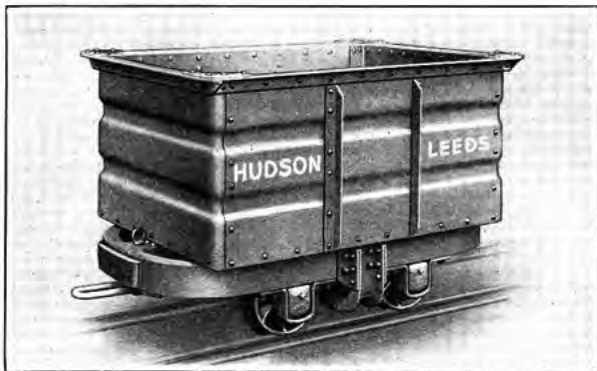
We make thousands of these for use in gold mines throughout the world. We have many different designs to suit special conditions of mining and below we illustrate a few of the standard designs which we manufacture in very large quantities.



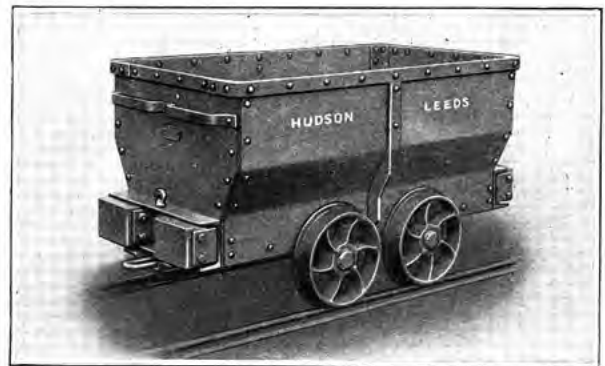
TIPPLER OR STOPE TRUCK with body mounted direct on wheels and axles Code 36499



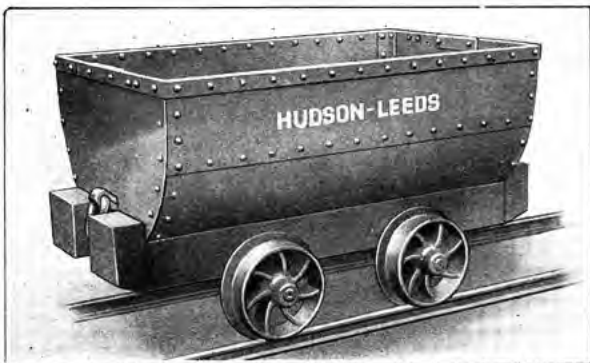
TIPPLER OR STOPE TRUCK with body mounted direct on wheels and axles Code 36500



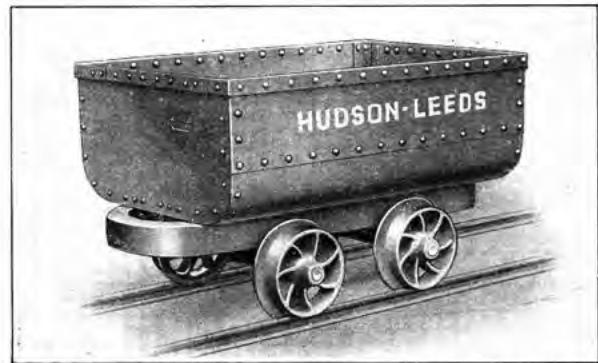
TIPPLER TRUCK flat bottomed type, mounted on steel frame Code 36501



TIPPLER OR STOPE TRUCK with body mounted direct on wheels and axles Code 36502



TIPPLER OR STOPE TRUCK round bottomed type, mounted on wood frame Code 36503



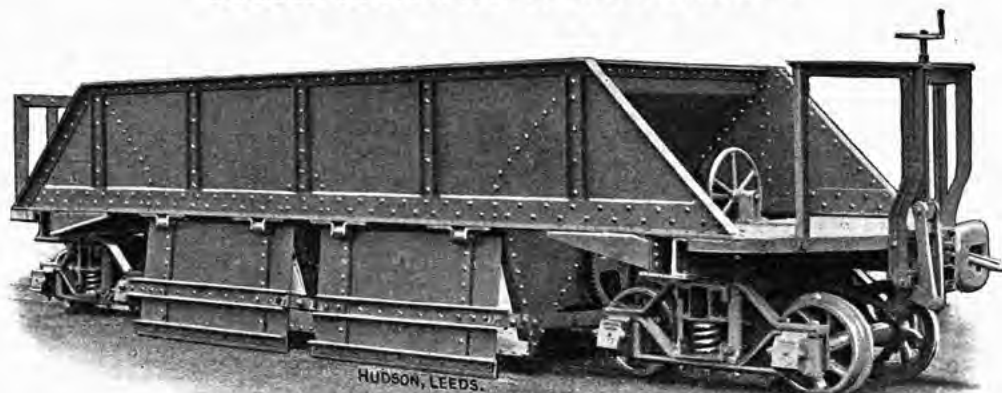
TIPPLER OR STOPE TRUCK flat bottomed type, mounted on steel frame Code 36504

HUDSON
RAILWAY
MATERIAL

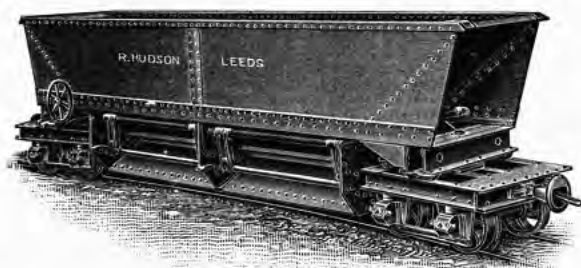
Hudson Side Discharge Wagons

HUDSON
RAILWAY
MATERIAL

DOUBLE BOGIE TYPE OF HIGH CAPACITY

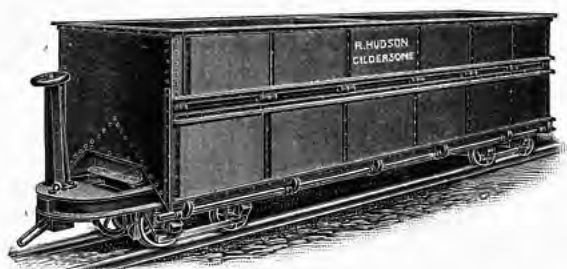


WAGON WITH GABLE BOTTOM discharges on both sides simultaneously
Code 36505



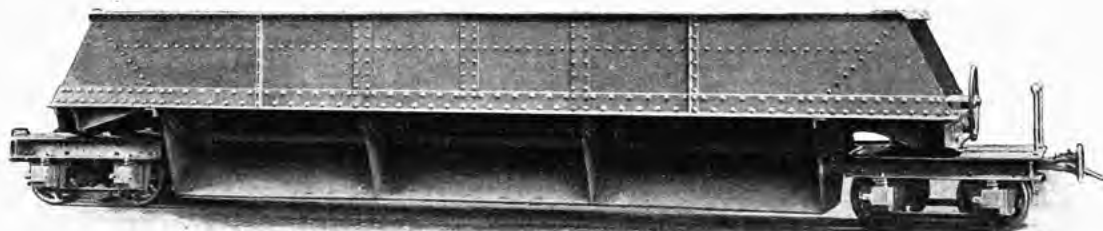
SPECIAL DESIGN WAGON discharges all the load to either side of rail. Built very narrow for use underground.

Code 36506



WAGON WITH GABLE BOTTOM discharges on both sides simultaneously, dead buffers, for light traffic

Code 36507



WAGON WITH GABLE BOTTOM discharges on either side at will
Code 36508

All illustrations represent **type** of article **only** ; for information required see page 9

LEEDS LONDON DURBAN
JOHANNESBURG BEIRA
BULAWAYO MAURITIUS

R. HUDSON LTD

CALCUTTA NDOLA
CAIRO LUANDA LOBITO
SALISBURY SINGAPORE

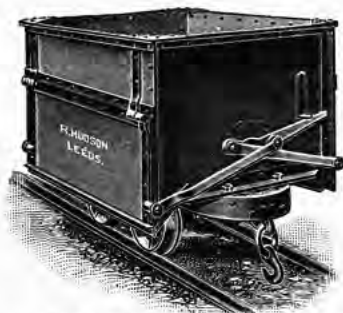
HUDSON
RAILWAY
MATERIAL

Hudson Hopper Wagons

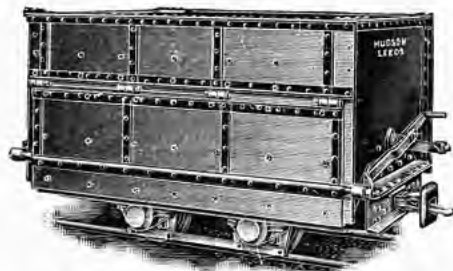
HUDSON
RAILWAY
MATERIAL

FOUR WHEELED TYPE

Normal sizes 40, 60, 80 and 100 cu. ft. and larger



SMALL WAGON with side discharge doors, plain central buffers and drawgear
Code 36509



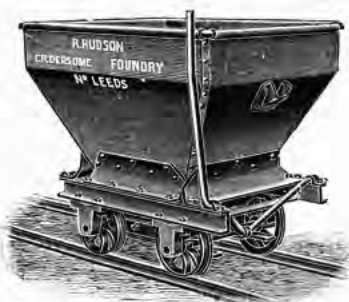
WAGON with side discharge doors and spring buffers
Code 36510



WAGON with side discharge doors opened to show the gable bottom and door gear
Code 36511



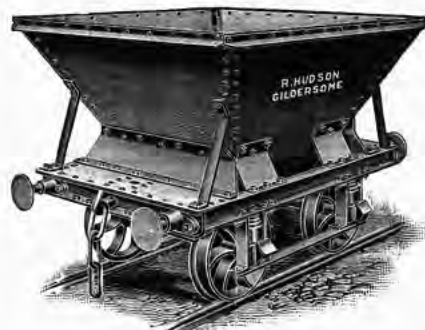
WAGON with side discharge doors, spring buffers and screw brake
Code 36512



WAGON for use at coke ovens, sliding door in the bottom
Code 36513



WAGON with bottom discharge and spring buffers
Code 36514



WAGON with bottom discharge and side buffers
Code 36515

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SALISBURY SINGAPORE

HUDSON
RAILWAY
MATERIAL

Box Type Tip Wagons

HUDSON
RAILWAY
MATERIAL

Box type tip wagons are expensive in first cost and in upkeep as they have so many moving parts to wear and get out of order. We have built large quantities but always recommend tip wagons with solid bodies as per pages 44 to 49 as they are so much simpler and do not distort when roughly used.

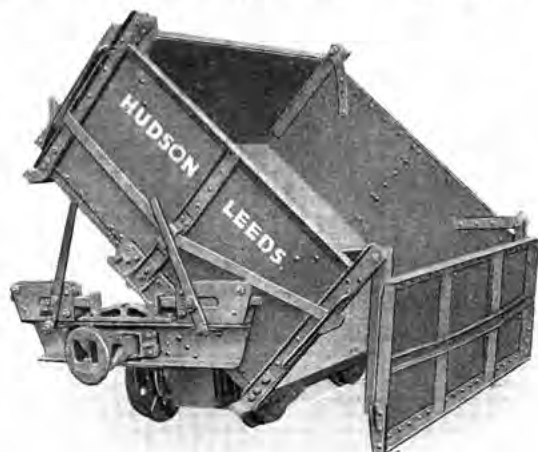


LIGHT TYPE DOUBLE BOGIE WAGON

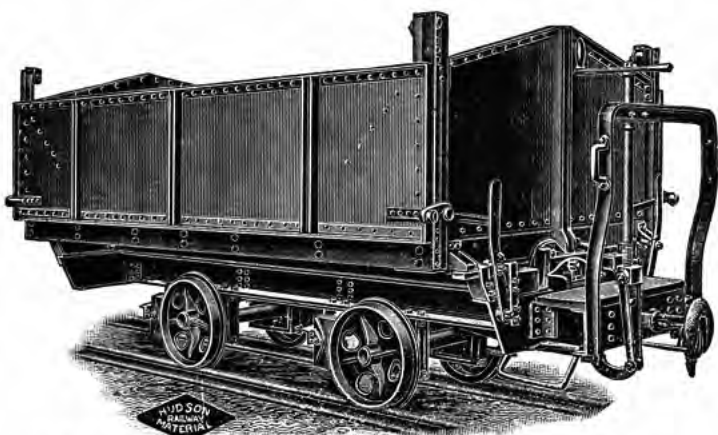
Code 36516



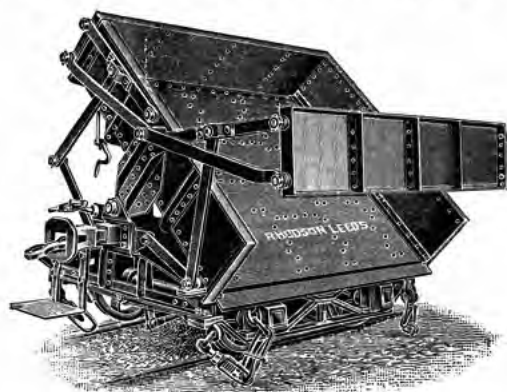
SMALL SIDE TIPPING BOX WAGON Code 36517



9 TON SIDE TIPPING BOX WAGON Code 36518



5 TON LIGHT TYPE for nitrate oficinas Code 36519



8 TON HEAVY MINING TYPE Code 36520

LEEDS LONDON DURBAN
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BULAWAYO MAURITIUS

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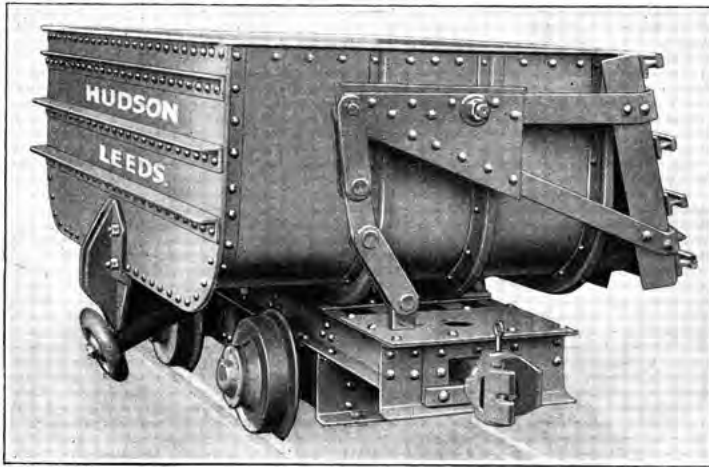
CALCUTTA NDOLA
CAIRO LUANDA LOBITO
SALISBURY SINGAPORE

HUDSON
RAILWAY
MATERIAL

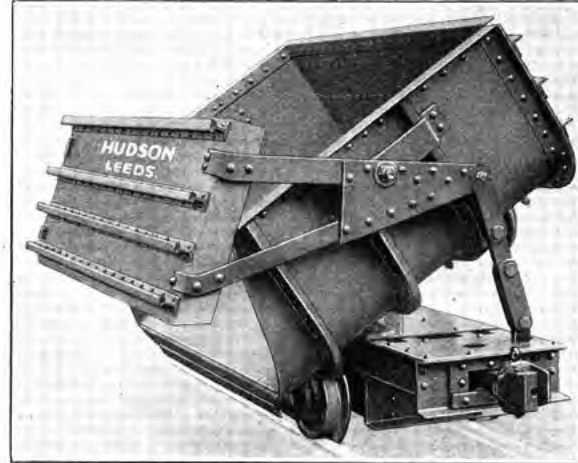
"Granby" Type Mine Cars

HUDSON
RAILWAY
MATERIAL

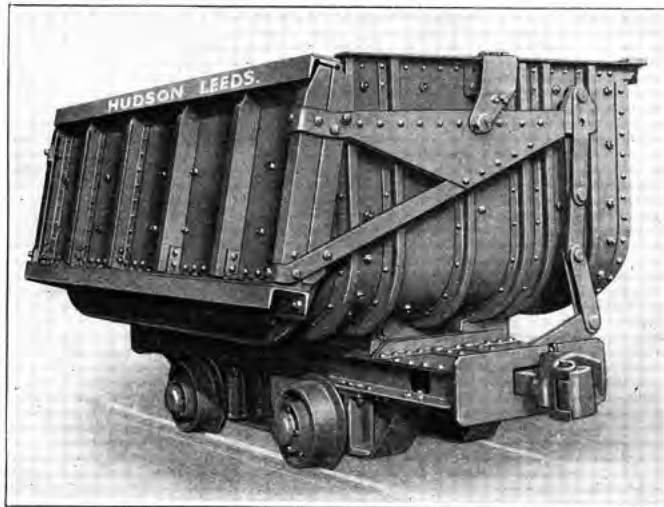
We have manufactured large quantities of these, in many different sizes and types. They are more expensive than our ordinary pattern of side tip wagon and are only suitable for large mines where the load is always discharged at one point where an incline ramp is fitted to tip the body.



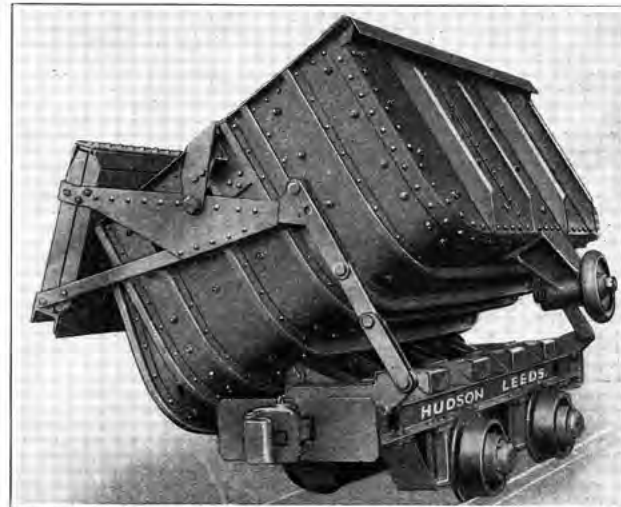
5 TONS CAP. "GRANBY" TYPE MINE CAR discharges to one side only. Fitted with American type automatic couplers Code 36521



5 TONS CAP. "GRANBY" TYPE MINE CAR exactly similar to Code 36521. Showing body in the tipped position Code 36522



10 TONS CAP. "GRANBY" TYPE MINE CAR discharges to one side only. Fitted with American type automatic couplers Code 36523



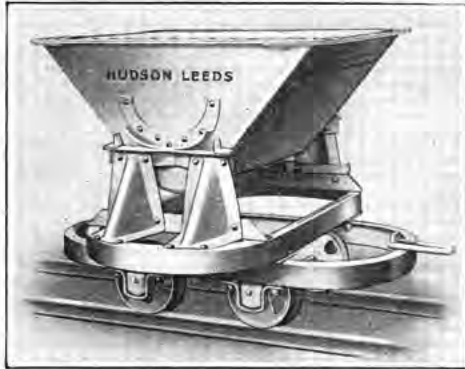
10 TONS CAP. "GRANBY" TYPE MINE CAR exactly similar to Code 36523. Showing body in the tipped position Code 36524

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SALISBURY SINGAPORE

Hudson End Tipping Wagons



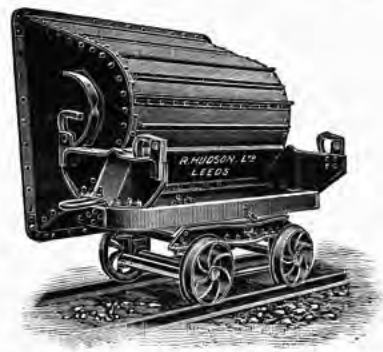
DOUBLE END TIP

Code 36525 (see remarks at side)



SINGLE END TIP

Code 36526 (see remarks at side)



UNIVERSAL TIP WAGON ON
TURNTABLE will tip at both
sides and both ends

Code 36529



SMALL BOX TRUCK with end
door, no buffers, through drawbar

Code 36530



SMALL BOX TRUCK with end
door, and buffers and couplings

Code 36531

These wagons are not very much used and if the use of them can be avoided by installing turntables or Hudson "Easy Turnouts," it is advisable.

The **double end** tip wagon is provided with buffers and couplings so that it will run in trains. The load can be discharged to either end but it does not clear the frame ends very well, though this is quite satisfactory to the majority of users. For clear discharge the **single end** tip wagon should be used—this can only be attached to the end of a train.

CODEWORDS—

If you are cabling us an inquiry for side tip wagons and require a few end tips **as well** of the same size use code numbers 36527 for the **double end** type and 36528 for the **single end** type.

If, however, you **only** want end tips give the code number of the nearest suitable side tip and follow it by the code number 36525 or 36526 according to the type required.

N.B. These end tips are made in the same sizes as the side tips. The **width** overall becomes as great as the **length** of the side tips and the heights are increased by about 5 inches.

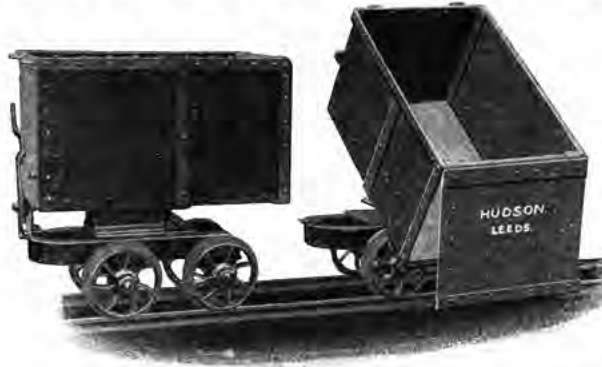
HUDSON
RAILWAY
MATERIAL

Hudson Mine Cars

HUDSON
RAILWAY
MATERIAL

SIDE AND END TIP TYPE for hand traction only

These cars discharge the load at the forward end or to either side as on releasing a catch at the rear end the body can easily be rotated to the desired direction.



It is possible to fit these cars with buffers and couplings. However, they are not really suitable for running in trains as they are essentially a car for manual traction one at a time.

SIDE AND END TIP MINE CAR Code 36532

BODY of mild steel plate with steel liner plate in the bottom. Hand lever at one end releases the car body, and operates the front door catch.

FRAME of steel channel with steel turntable—no buffers or couplings.

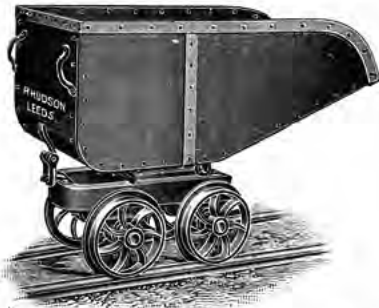
WHEELS of cast steel, 12 in. diameter, all fitted with high duty bearings, see pages 78/81. Plain roller bearing axleboxes can be fitted at lower prices, but they greatly increase the haulage effort required and wear the axles quickly.

STANDARD SIZES AND CODE NUMBERS

Built for 18 in. rail gauge unless specified otherwise

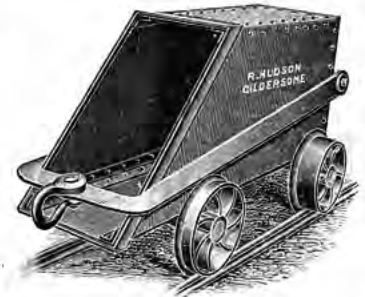
Capacity in cubic feet filled level	Height overall inches	Width overall inches	Length overall inches	Body made of	Average weight each in lbs.	Code (18 inches rail gauge)
10	35	29½	49½	1 3/4 in. thick plates—bottom with 3/4 in. timber and 3/16 in. steel liners	740	36533
16	44	29½	48	3/16 in. thick plates—bottom with 3/4 in. timber and 3/16 in. steel liners.	885	36534
20	44	32	53½	3/16 in. thick plates—bottom with 3/4 in. timber and 3/16 in. steel liners.	990	36535

Weights and dimensions approximate



SCOOP TYPE OF SIDE AND END TIP MINE CAR

Code 36536



INCLINE MINING SKIP with wide tread back wheels for tipping at top of incline

Code 36537

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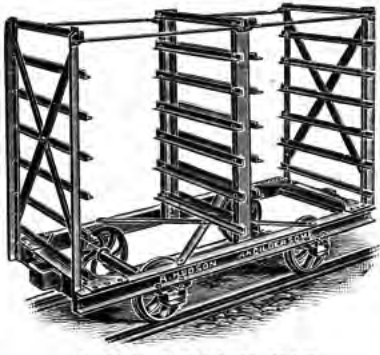
CALCUTTA NDOLA
CAIRO LUANDA LOBITO
SALISBURY SINGAPORE



Cars for Bricks, Tiles, etc.



We make these in such great variety that we can only illustrate a few representative types



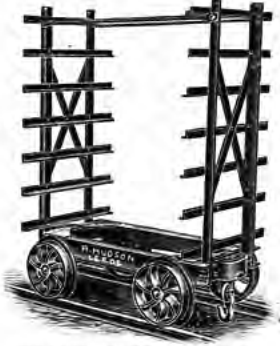
BRICK DRYING CAR
Code 36538



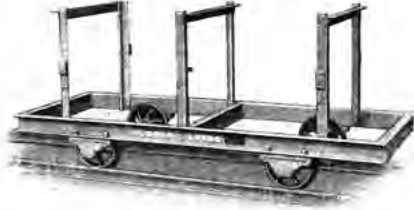
BRICK DRYING CAR
Code 36539



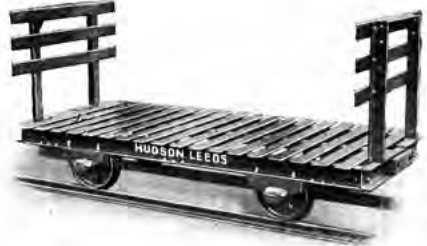
BRICK DRYING CAR
Code 36540



BRICK DRYING CAR
Code 36541



BRICK DRYING CAR
double deck type
Code 36542



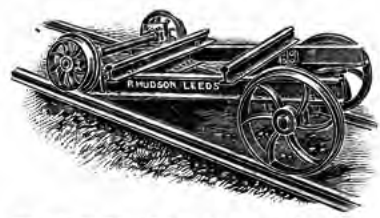
BRICK DRYING CAR
low type
Code 36543



LIME SAND BRICK CAR
Code 36544



TRANSFER CAR
Code 36545



TRANSFER CAR for tracks on an
incline
Code 36546

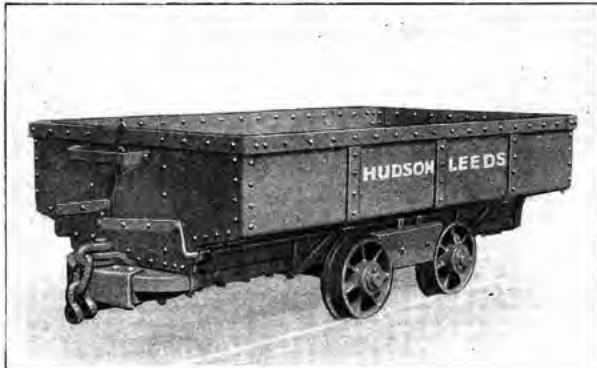
LEEDS LONDON DURBAN
JOHANNESBURG BEIRA
BULAWAYO MAURITIUS

R. HUDSON LTD

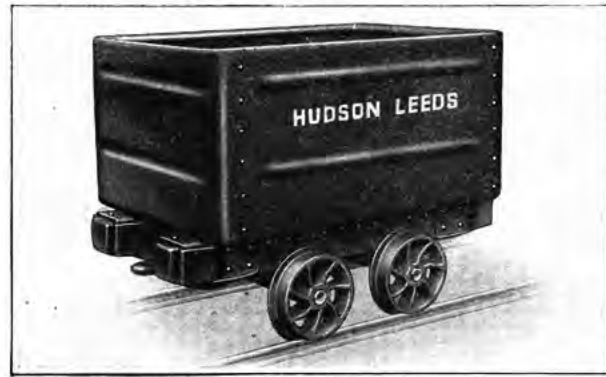
CALCUTTA NDOLA
CAIRO LUANDA LOBITO
SALISBURY SINGAPORE

Hudson Steel Coal Tubs

We manufacture countless thousands of these. We have so many different designs and sizes that we can only illustrate a few well-known types. Many collieries have their own particular type of tub and inquiries for them should be accompanied by full details, i.e. capacity, type, overall sizes, details of construction, weight, etc.



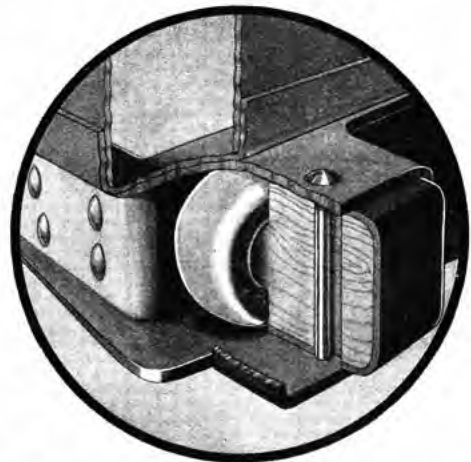
AMERICAN TYPE LARGE COAL TUB Code 36547



WELL BOTTOMED TYPE with rolled hoop, pressed corrugations to give stiffness and Stafford patent spring buffers Code 36548



WELL BOTTOMED TUB with Stafford patent spring buffers and overhead jockey bracket Code 36549



The above illustration shows the general construction of Stafford's patent spring buffer. This arrangement works most efficiently and when fitted reduces breakage, noise and repair costs, etc.

Code 36551



FLAT BOTTOMED TUB with tapered sides and ends Code 36550

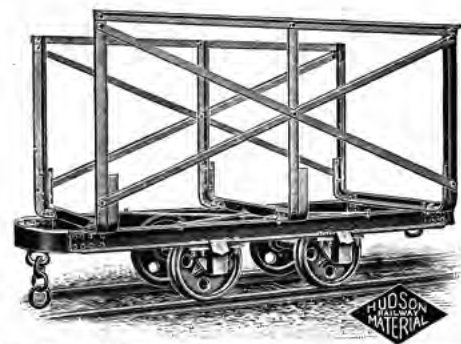
Sole makers of patent rubber buffers as used by the largest English collieries to reduce breakage, noise, repair costs, etc.

HUDSON
RAILWAY
MATERIAL

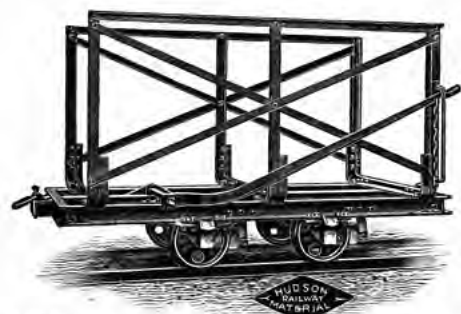
Hudson Sugar Cane Cars

HUDSON
RAILWAY
MATERIAL

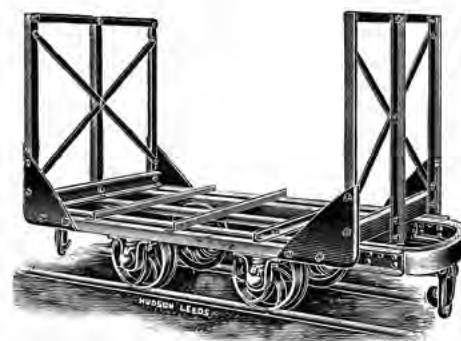
In the next few pages we illustrate a few of the types we make. These illustrations represent type only and we build them in various sizes other than those stated



3 TON CAR with angle basket and open ends Code 36552



3 TON CAR with angle basket, open ends, and lever brake at side Code 36554



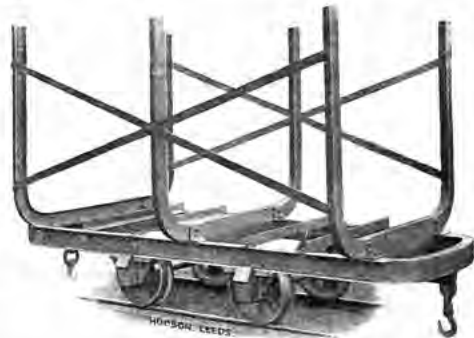
1 1/2 TON CAR with open sides Code 36556

IMPORTANT

All sugar estates should use our "FARO" type ball bearing axleboxes, which are dustproof, and only need lubricating once per cutting season. When compared with ordinary axleboxes they increase the haulage power of the locomotives in use usually by a minimum of 30 per cent, they never wear the axles, and maintenance costs are at the minimum.

We are converting old cars as fast as we can for scores of satisfied customers. See pages 82/83.

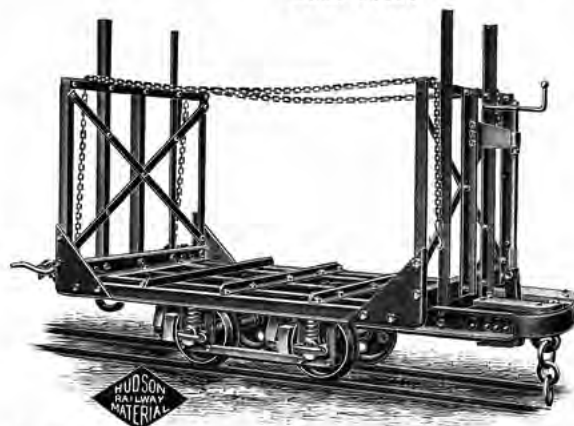
We manufacture Cane Cars at our Works at Leeds, Calcutta, and Durban, and undertake the repairs on existing cars.



4 TON CAR with channel basket and open ends Code 36553



3 TON CAR with channel basket, open ends, steel platform and screw brake at side Code 36555



3 TON CAR open sides, lashing gear, screw brake Code 36557

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SALISBURY SINGAPORE

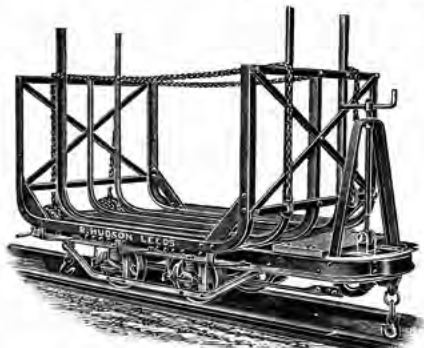
HUDSON
RAILWAY
MATERIAL

Hudson Sugar Cane Cars

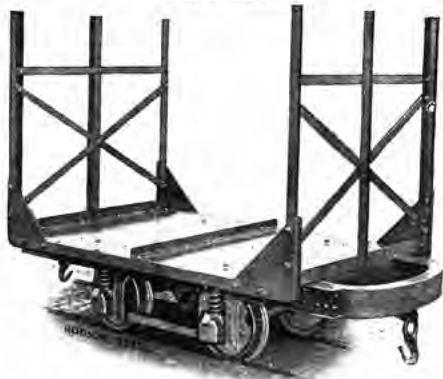
HUDSON
RAILWAY
MATERIAL

SOME FOUR WHEELED TYPES

The density of sugar cane varies greatly, so when asking us for cars of a certain carrying capacity in tons, always give us the area of the floor and the height of stanchions required



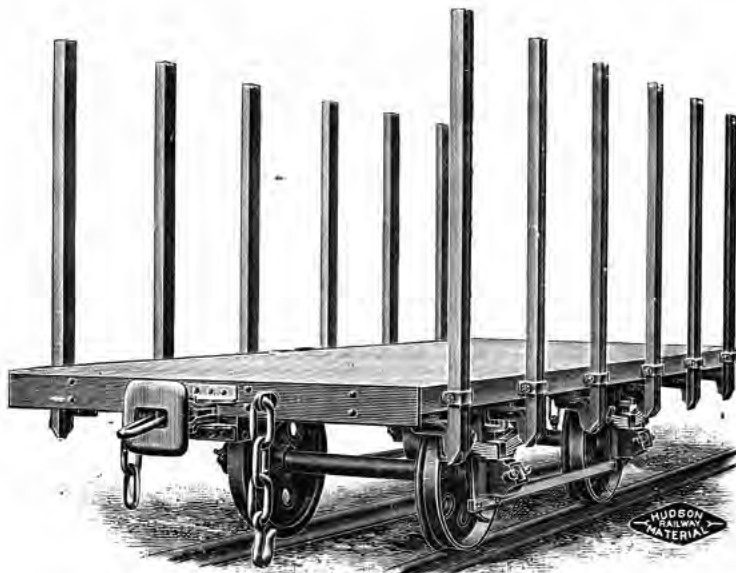
3 TON LIGHT CAR no platform
Code 36558



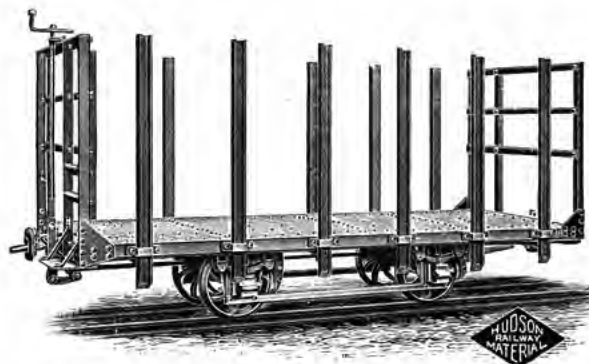
1 TON LIGHT CAR fixed ends, steel
platform Code 36559



4 TON LIGHT CAR fixed ends and sides, steel
platform Code 36561



6 TON HEAVY CAR loose stanchions, steel platform
Code 36560



6 TON HEAVY CAR loose side stanchions, fixed ends,
steel platform, screw brake
Code 36562

LEEDS LONDON DURBAN
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BULAWAYO MAURITIUS

R. HUDSON LTD

CALCUTTA NDOLA
CAIRO LUANDA LOBITO
SALISBURY SINGAPORE

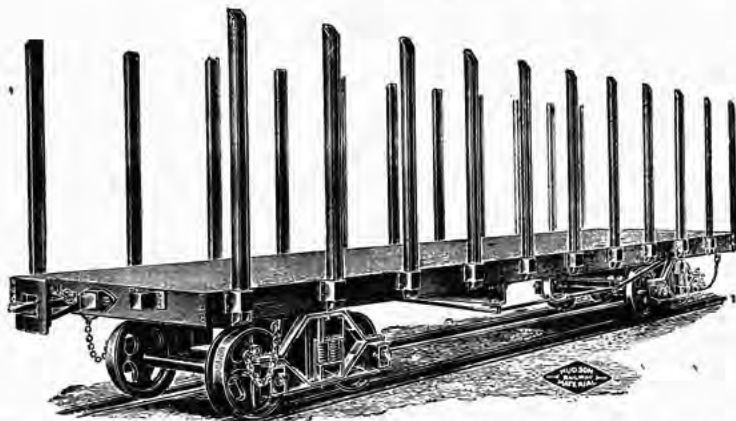


Hudson Sugar Cane Cars

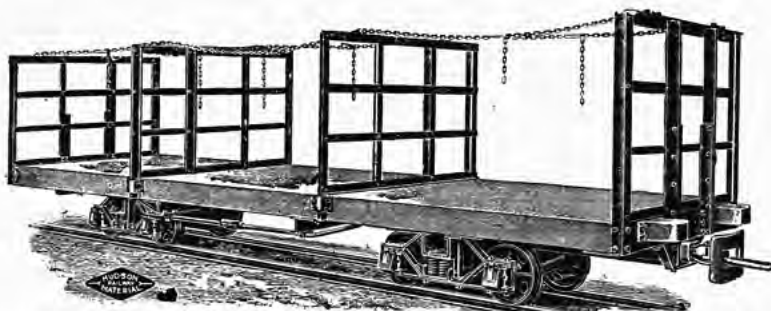


SOME DOUBLE BOGIE TYPES

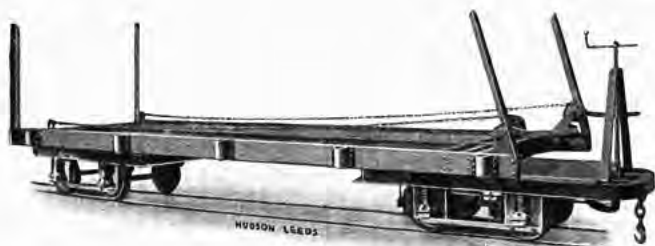
All illustrations are merely representative of the type of car we manufacture. For information we need before we can quote see page 9



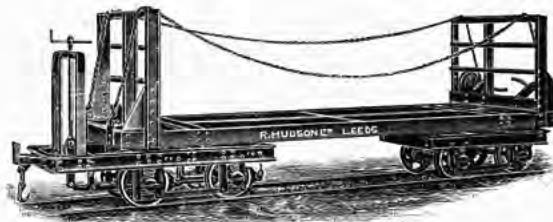
10 TO 15 TON HEAVY CAR loose side stanchions, steel platform
Code 36563



10 TO 15 TON HEAVY CAR three compartment type, steel platform
Code 36564



5 TON LIGHT CAR stanchion pockets at sides, no platform
Code 36565



5 TON LIGHT CAR fixed ends, no platform
Code 36566

LEEDS LONDON DURBAN
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BULAWAYO MAURITIUS

R. HUDSON LTD

CALCUTTA NDOLA
CAIRO LUANDA LOBITO
SALISBURY SINGAPORE



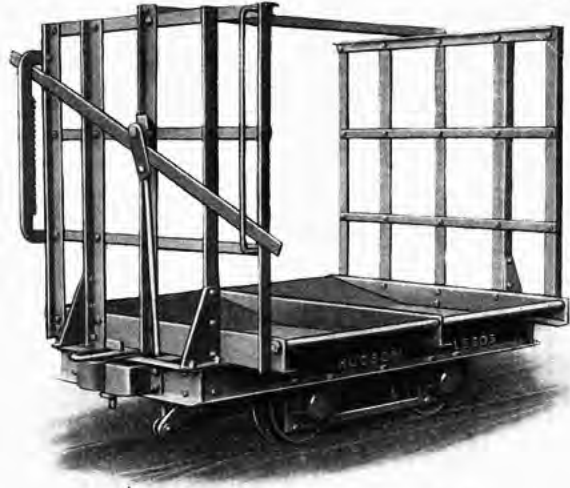
Hudson Sisal Cars



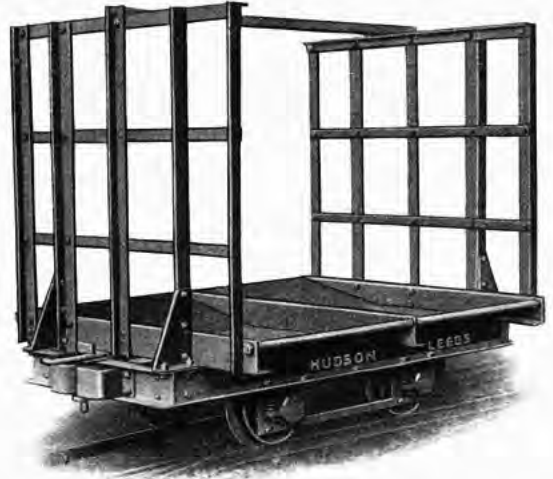
ALL STEEL—FOUR WHEELED TYPES

All fitted with our "FARO" type ball bearing axleboxes.

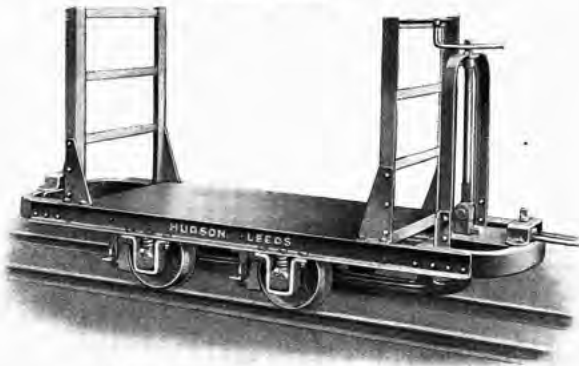
See pages 82/83



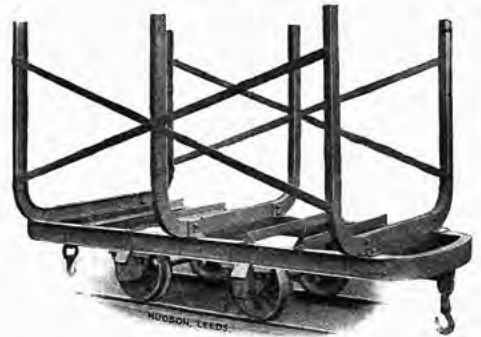
3 TON SISAL CAR with lever brake
Code 36567



3 TON SISAL CAR no brake
Code 36568



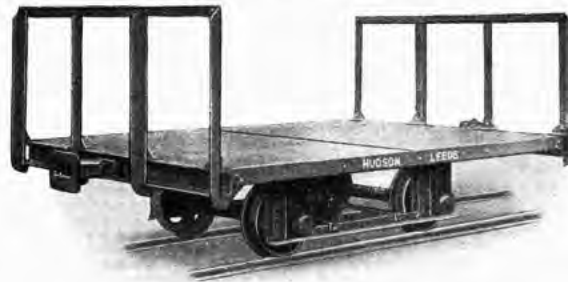
1 TON SISAL CAR with screw brake
Code 36569



3 TON SISAL CAR end loading type
Code 36570



2 TON SISAL CAR with spring buffers
Code 36571



4 TON SISAL CAR with spring buffers
Code 36572

LEEDS LONDON DURBAN
JOHANNESBURG BEIRA
BULAWAYO MAURITIUS

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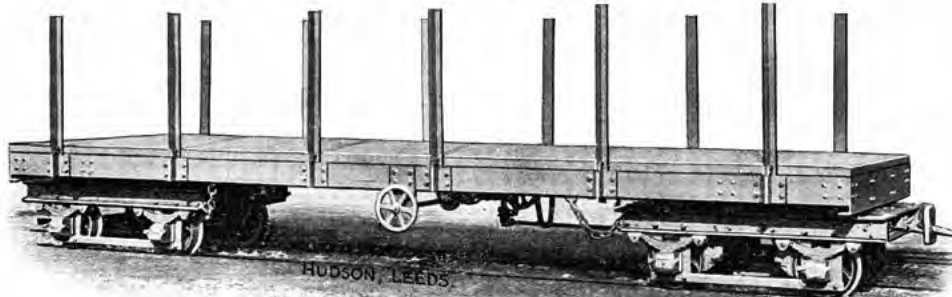
CALCUTTA NDOLA
CAIRO LUANDA LOBITO
SALISBURY SINGAPORE



Hudson Estate Cars

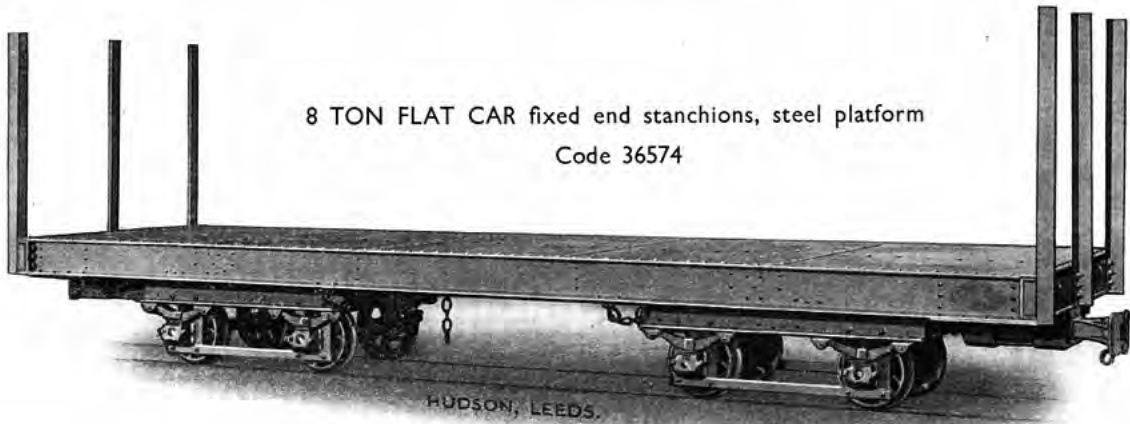


DOUBLE BOGIE TYPE



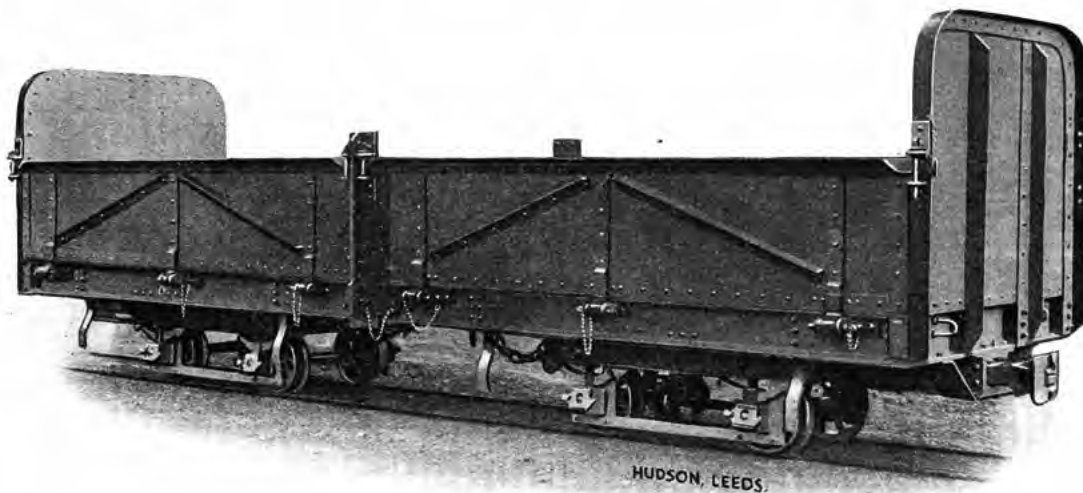
8 TON FLAT CAR loose side stanchions, timber platform, for light traffic

Code 36573



8 TON FLAT CAR fixed end stanchions, steel platform

Code 36574



8 TON GOODS WAGON plated ends, two doors and centre stanchions each side, steel platform

Code 36575

LEEDS LONDON DURBAN
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BULAWAYO MAURITIUS

R. HUDSON LTD

CALCUTTA NDOLA
CAIRO LUANDA
SALISBURY LOBITO
SINGAPORE

HUDSON
RAILWAY
MATERIAL

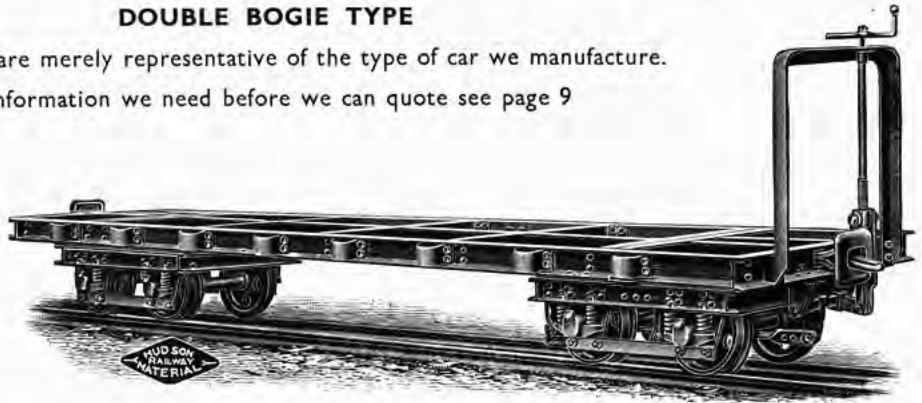
Hudson Estate Cars

HUDSON
RAILWAY
MATERIAL

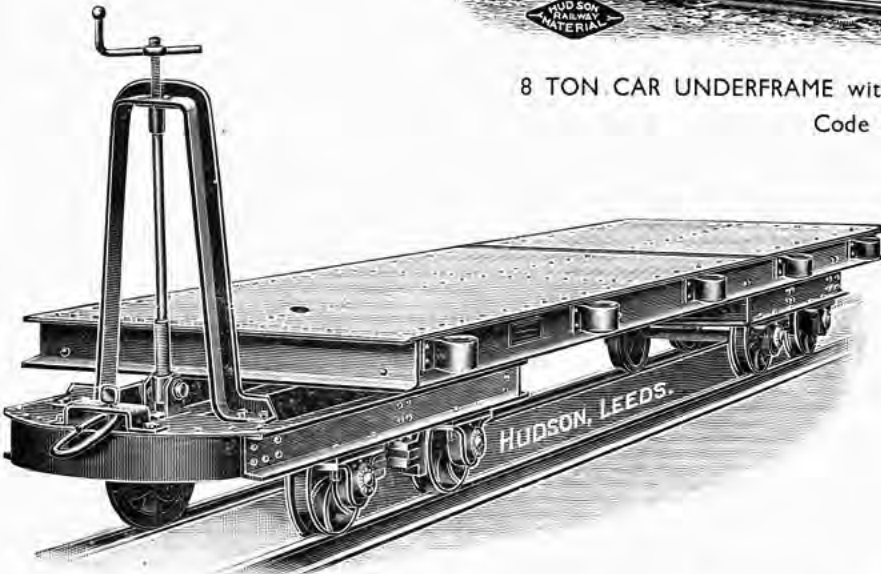
DOUBLE BOGIE TYPE

All illustrations are merely representative of the type of car we manufacture.

For information we need before we can quote see page 9



8 TON CAR UNDERFRAME without platform, brake at one end
Code 36576



5 TON FLAT CAR steel platform, stanchion pockets at side, for light traffic
Code 36577



3 TON FLAT CAR stanchion pockets at sides and ends, timber platform, for very light traffic
Code 36578

LEEDS LONDON DURBAN
JOHANNESBURG BEIRA
BULAWAYO MAURITIUS

R. HUDSON LTD

CALCUTTA NDOLA
CAIRO LUANDA LOBITO
SALISBURY SINGAPORE

HUDSON
RAILWAY
MATERIAL

Hudson Estate Cars

HUDSON
RAILWAY
MATERIAL

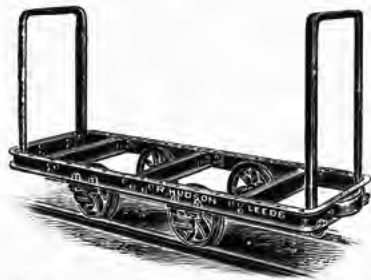


CAR FRAME on wheels and axles
Code 36579

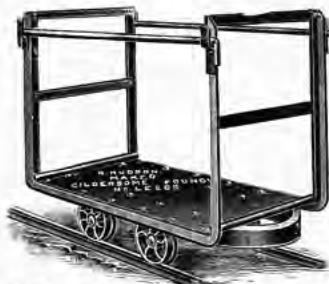
**LIGHT PATTERN
CARS**
for hand and animal traction



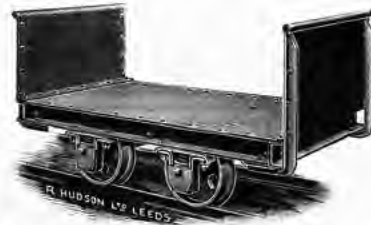
FLAT CAR steel platform, stanchion
pockets and couplings
Code 36580



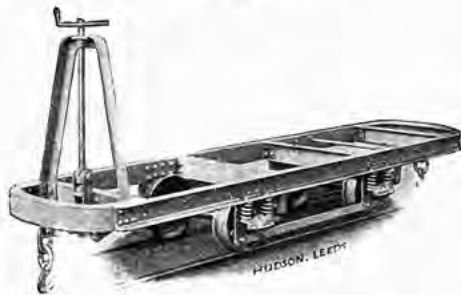
CAR FRAME with crossbars and
fixed ends
Code 36581



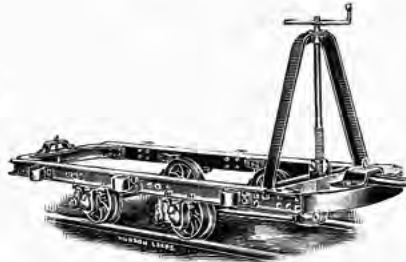
CAR with fixed ends steel
platform
Code 36582



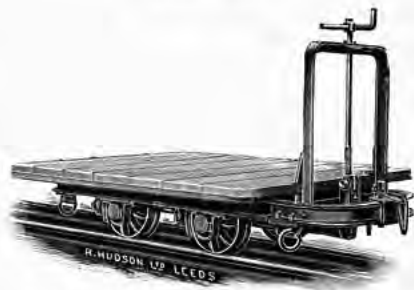
CAR with steel platform, plated
ends, no buffers
Code 36583



CAR FRAME with crossbars and
brake
Code 36534



CAR FRAME with brake
Code 36585



CAR with timber platform and
brake
Code 36586



FLAT CAR with drop ends
Code 36587



FLAT CAR heavy type, with
timber platform, loose stanchions,
side buffers
Code 36588



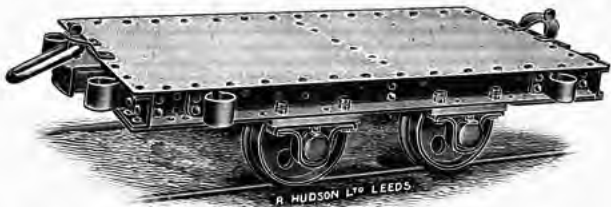
FLAT CAR for carrying bundles of
pit props, etc.
Code 36589

LEEDS LONDON DURBAN
JOHANNESBURG BEIRA
BULAWAYO MAURITIUS

R. HUDSON LTD

CALCUTTA NDOLA
CAIRO LUANDA LOBITO
SALISBURY SINGAPORE

LIGHT PATTERN CARS FOR HAND AND ANIMAL TRACTION



FLAT CAR steel platform, stanchion pockets, light couplings
Code 36590

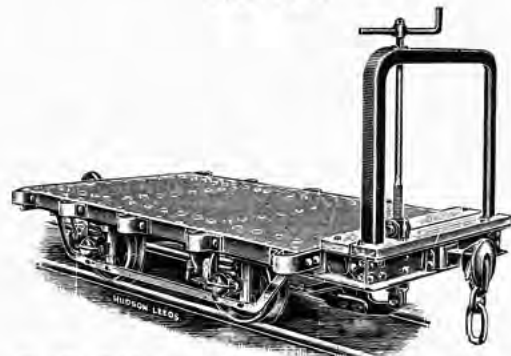


FLAT CAR with stanchion pockets, screw brake, spring buffers
Code 36591



We supply ironwork for building cars with wood frames, and drawings for customers to make the latter. For the cheapest construction the width of the frame should be 18 to 24 in. in excess of the rail gauge.

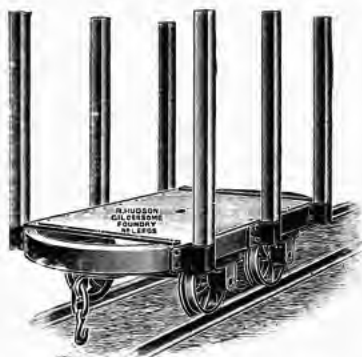
Code for ironwork only 36592



FLAT CAR steel platform, screw brake, spring buffers
Code 36593



CAR FRAME with stanchions of light rails
Code 36594



FLAT CAR steel platform, timber stanchions
Code 36595



LIGHT BOX CAR steel platform, no buffers
Code 36596

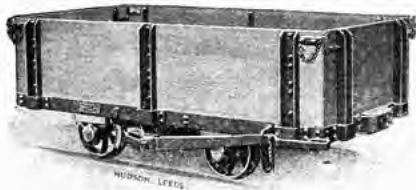
Hudson Estate Cars

All illustrations are merely representative of the type of car we manufacture. For information we need before we can quote see page 9

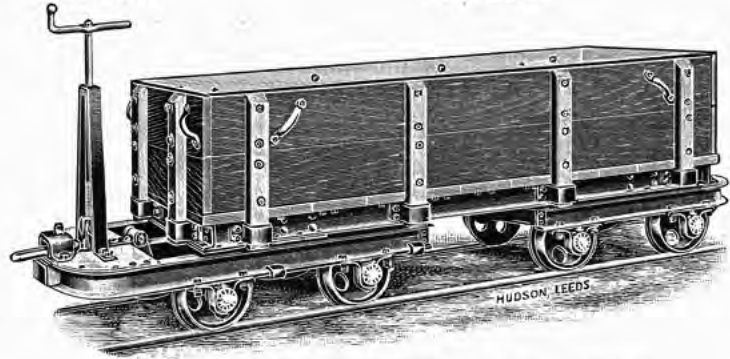


TANK WAGON for gasolene, 2500 gallons cap, mounted on bogies, with central spring buffers and screw brake
Code 36597

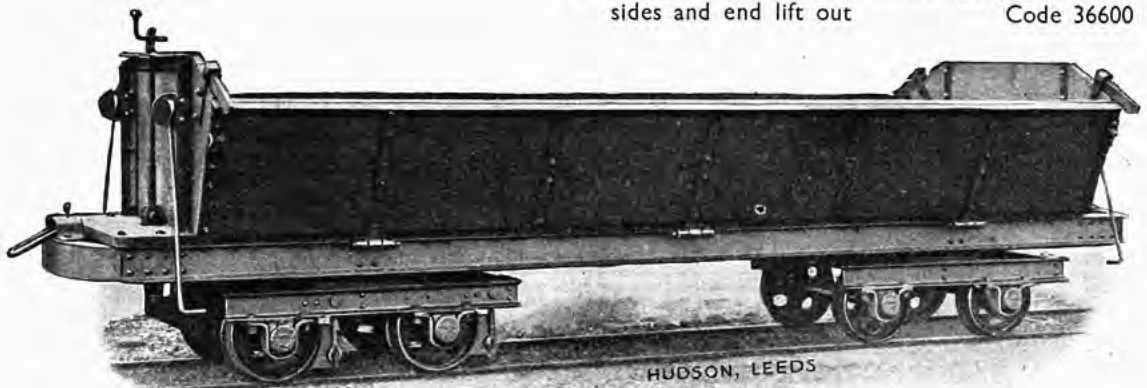
SMALL TANK WAGON for carrying water
Code 36598



1 TON BOX CAR partly made of timber, sides and ends lift out
Code 36599



2 TON BOGIE BOX CAR timber body, screw brake, sides and end lift out
Code 36600



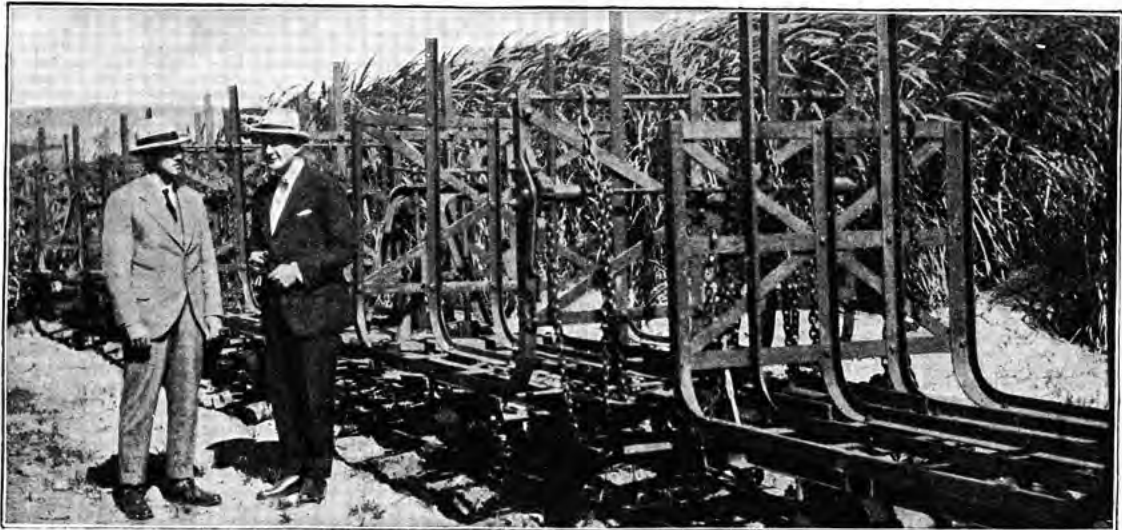
2 TON DOUBLE BOGIE LIGHT CAR with drop down side doors, for carrying light materials such as hay, straw, etc.
Code 36601

N.B.—Overseas customers generally find it cheaper to supply woodwork at destination, in such cases we can supply drawings for this purpose.

HUDSON
RAILWAY
MATERIAL

Views of Hudson Light Railways in operation

HUDSON
RAILWAY
MATERIAL



ON SUGAR ESTATES IN NATAL

LEEDS	LONDON	DURBAN
JOHANNESBURG	BEIRA	
BULAWAYO	MAURITIUS	

R. HUDSON LTD

CALCUTTA	NDOLA
CAIRO	LUANDA
SALISBURY	LOBITO
	SINGAPORE

HUDSON
RAILWAY
MATERIAL

Flat Cars for Hand Traction

HUDSON
RAILWAY
MATERIAL

FRAME—Steel channel with central buffers.

PLATFORM—Of steel or timber bolted on.

WHEELS—In best cast steel 12 in. diam. on the 2 ton cars 14 in. diam. on the 4 ton cars

AXLEBOXES — Patent "FARO" ball bearing type. See pages 82/83.

COUPLINGS — Not fitted unless ordered.

STANCHION POCKETS—When required we fit three of these on each side of platform suitable for loose timber stanchions.



STANDARD TYPE LIGHT FLAT CAR with timber top, no couplings
Code 36602

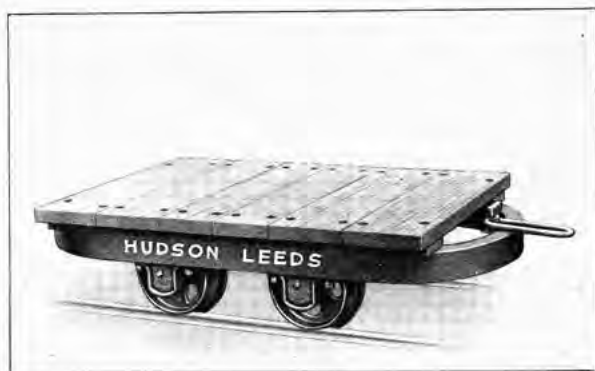
LOAD—We give the maximum safe working load—but the weight which can be carried depends upon the nature of the material to be conveyed. If for light bulky materials we can increase the width or length of platform.

WHEELBASE—Frames are drilled with two sets of holes so that a long or short wheelbase can be used in case there are any turntables or sharp curves in the tracks.

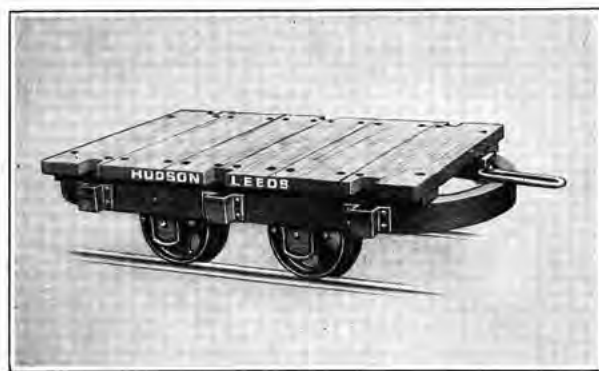
STANDARD SIZES AND CODE NUMBERS

Rail gauge	Maximum safe load	Platform		Length overall	Height from rail	Wheelbase	Platform made of	Average weight each in lbs.	Code state rail gauge
		Length	Width						
18 in. or 24 in.	2 tons	5 ft. 0 in.	3 ft. 4 in.	6 ft. 1½ in.	14 in.	22 and 27 in.	½ in. steel	515	36603
					16 in.	22 and 27 in.	2 in. timber	500	36604
	4 tons	6 ft. 1 in.	3 ft. 6 in.	7 ft. 3 in.	18 in.	27 and 34 in.	¾ in. steel	890	36605
					21 in.	27 and 34 in.	3 in. timber	870	36606
30 in. or 75 cm.	2 tons	5 ft. 0 in.	3 ft. 10 in.	6 ft. 1½ in.	14 in.	22 and 27 in.	½ in. steel	545	36607
					16 in.	22 and 27 in.	2 in. timber	530	36608
	4 tons	6 ft. 1 in.	4 ft. 0 in.	7 ft. 3 in.	18 in.	27 and 34 in.	¾ in. steel	930	36609
					21 in.	27 and 34 in.	3 in. timber	910	36610

N.B.—Couplings and stanchion pockets are not fitted unless specially ordered



STANDARD TYPE LIGHT FLAT CAR with timber top and couplings
Code 36611



STANDARD TYPE LIGHT FLAT CAR with timber platform, couplings and stanchion sockets
Code 36612

LEEDS LONDON DURBAN
JOHANNESBURG BEIRA
BULAWAYO MAURITIUS

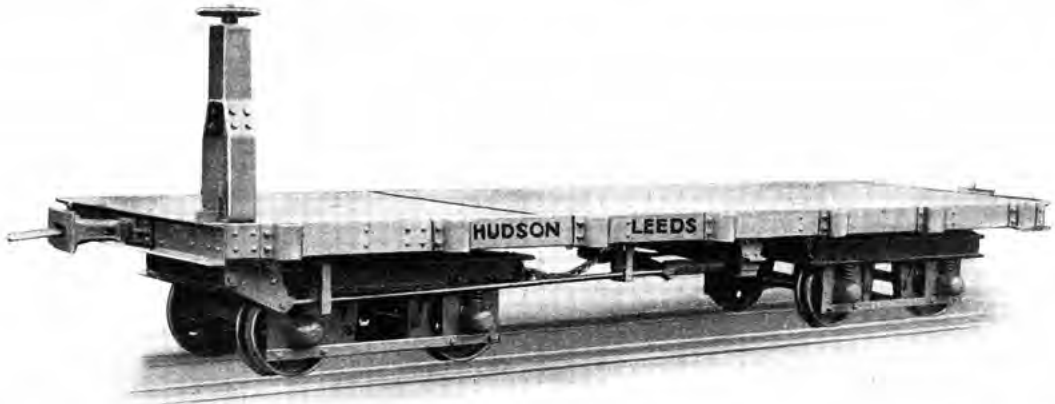
R. HUDSON LTD

CALCUTTA NDOLA
CAIRO LUANDA LOBITO
SALISBURY SINGAPORE

HUDSON
RAILWAY
MATERIAL

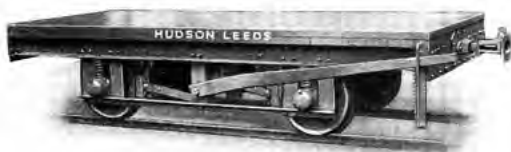
Flat Cars for Heavy Traffic

HUDSON
RAILWAY
MATERIAL



8 TON FLAT CAR double bogie type with steel platform, side stanchion pockets, central buffers and screw brake on all wheels

Code 36613



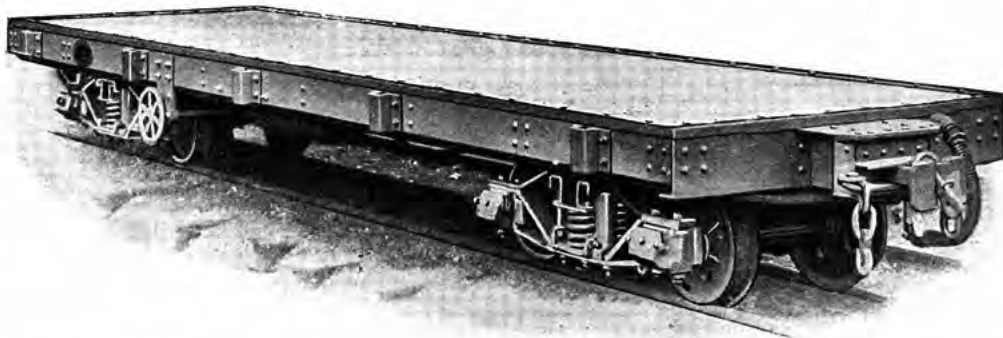
8 TON FLAT CAR all steel, for heavy work, central buffers, lever brake

Code 36614



15 TON FLAT CAR timber platform, for heavy main line work, central buffers, screw brake

Code 36615



10 TON FLAT CAR double bogie type, side stanchion pockets, timber platform, central buffers, for heavy traffic

Code 36616

LEEDS LONDON DURBAN
JOHANNESBURG BEIRA
BULAWAYO MAURITIUS

R. HUDSON LTD

CALCUTTA NDOLA
CAIRO LUANDA LOBITO
SALISBURY SINGAPORE

HUDSON
RAILWAY
MATERIAL

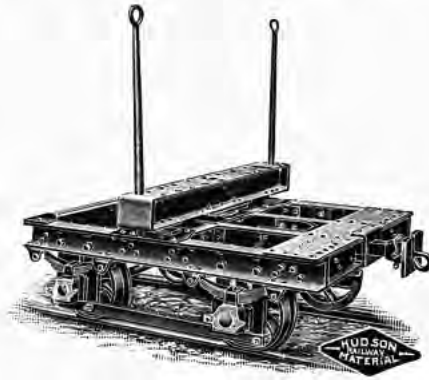
Logging Cars and Bogies

HUDSON
RAILWAY
MATERIAL

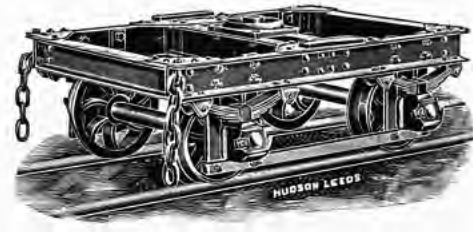
These bogies are often supplied in pairs (with or without brake) for making into a double bogie car. If spring buffers are fitted they are usually at one end of each bogie only. When inquiring please advise us whether you require "single" bogies or "pairs" and whether the load you mention is on one bogie or the total load on two bogies.



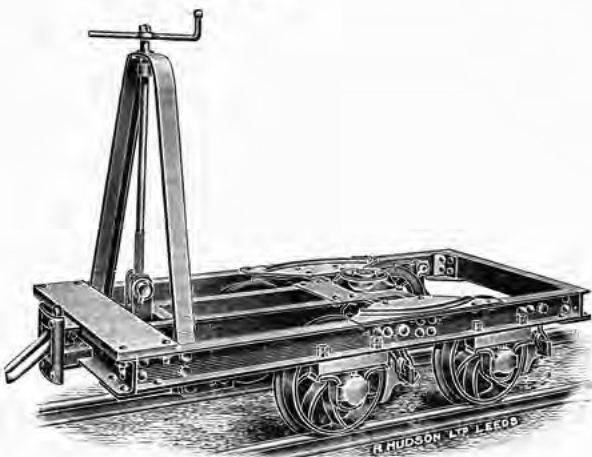
2 TON LIGHT BOGIE animal traction,
with brake
Code 36617



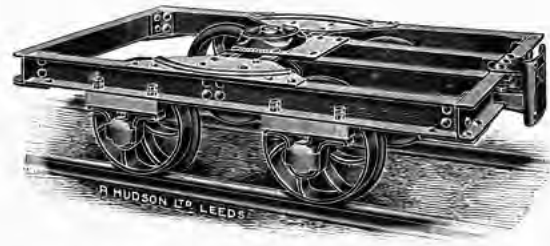
4 TON HEAVY BOGIE with spring
buffers, for fast traffic
Code 36618



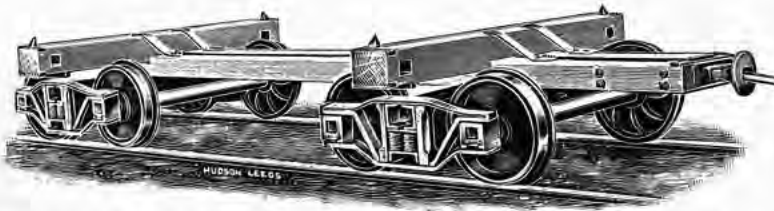
4 TON SQUARE BOGIE for fast traffic,
no buffers
Code 36619



2 TON LIGHT BOGIE with brake, animal traction
Code 36620



2 TON LIGHT BOGIE animal traction
Code 36621



10 TON DOUBLE BOGIE FOREST CAR for heavy work, timber frame
Code 36622

LEEDS LONDON DURBAN
JOHANNESBURG BEIRA
BULAWAYO MAURITIUS

R. HUDSON LTD

CALCUTTA NDOLA
CAIRO LUANDA LOBITO
SALISBURY SINGAPORE

HUDSON
RAILWAY
MATERIAL

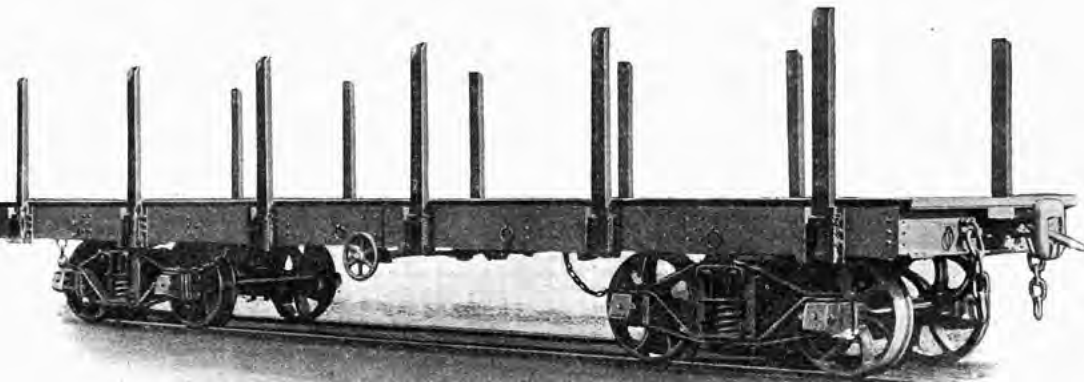
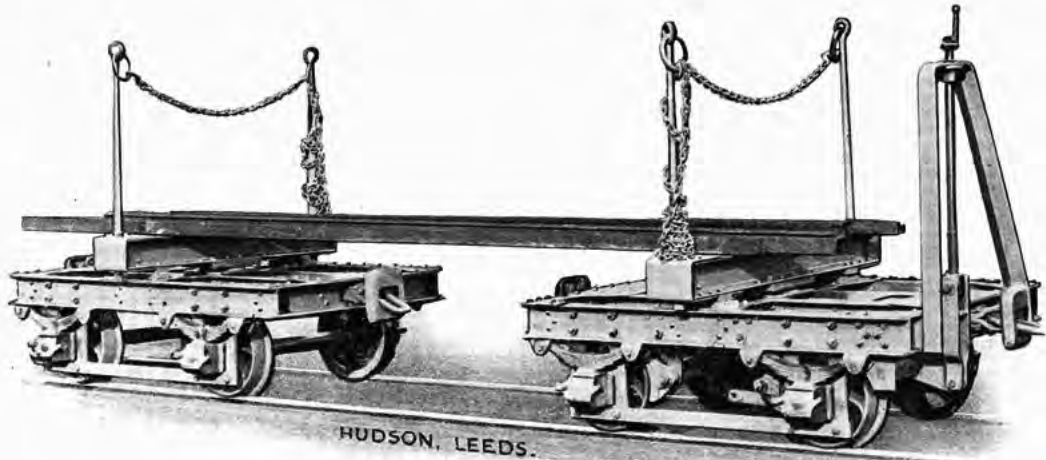
Cars for Carrying Long Articles

HUDSON
RAILWAY
MATERIAL

A PAIR OF BOGIES
FOR CARRYING
RAILS, LOGS, ETC.,
up to 5 tons weight
on each bogie.

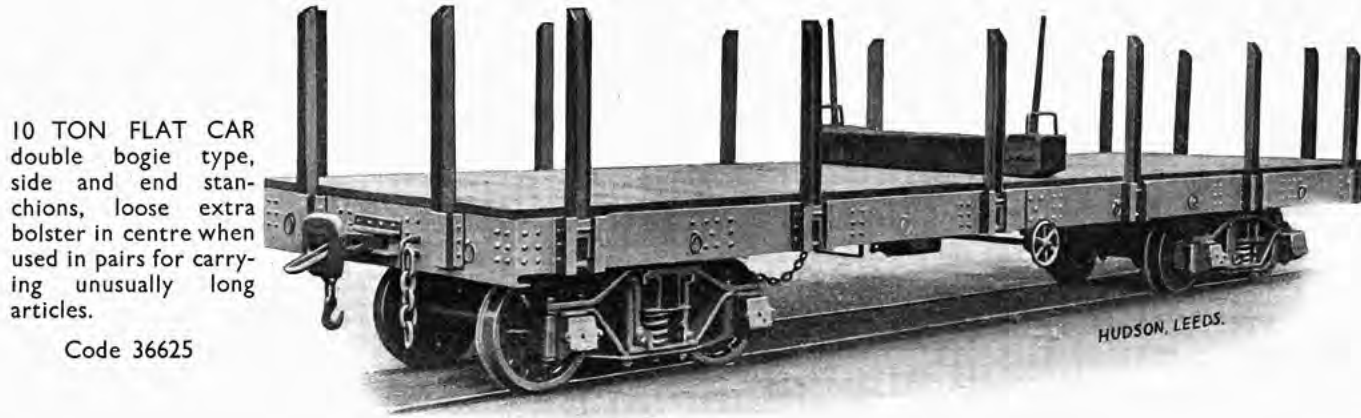
Spring buffers at both
ends of each bogie.

Code 36623



10 TON FLAT CAR
double bogie type,
drop side stanchions,
for heavy traffic.

Code 36624



10 TON FLAT CAR
double bogie type,
side and end stan-
chions, loose extra
bolster in centre when
used in pairs for carry-
ing unusually long
articles.

Code 36625

LEEDS LONDON DURBAN
JOHANNESBURG BEIRA
BULAWAYO MAURITIUS

R. HUDSON LTD

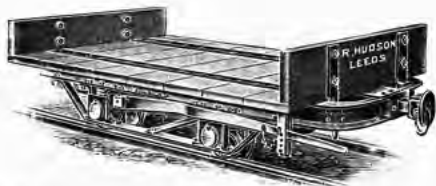
CALCUTTA LUANDA NDOLA
CAIRO LUANDA LOBITO
SALISBURY SINGAPORE

HUDSON
RAILWAY
MATERIAL

Special Cars and Goods Wagons

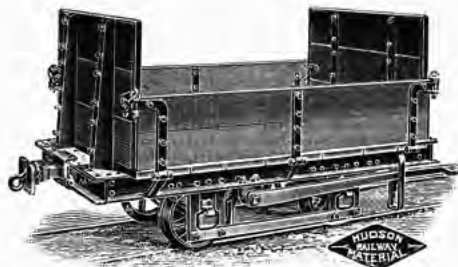
HUDSON
RAILWAY
MATERIAL

All illustrations are merely representative of the type of cars we manufacture, for information we need before we can quote see page 9



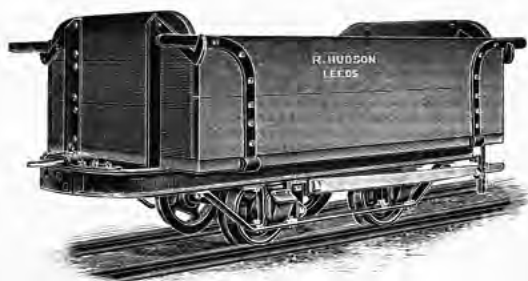
2 TON OPEN SIDE CAR with lift-out ends and timber body

Code 36626



4 TON GOODS WAGON drop-down sides, lift-out ends, timber body

Code 36627



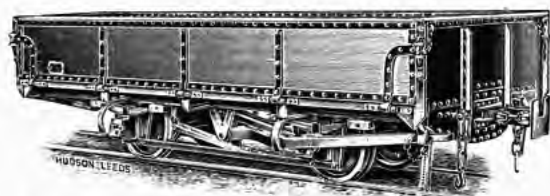
2 TON LIGHT CAR lift-out sides, fixed ends, timber body

Code 36628



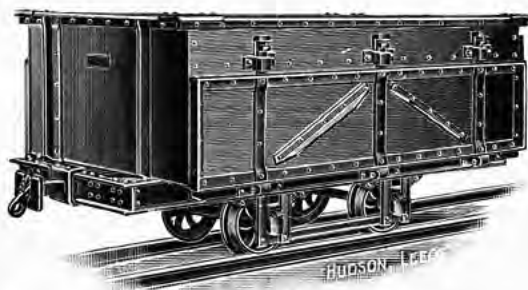
5 TON BOX CAR with sides and ends to lift out, timber body

Code 36629



8 TON GOODS WAGON all steel, side drop doors, for heavy fast traffic

Code 36630



4 TON GOODS WAGON all steel, door at each side, for light traffic

Code 36631

LEEDS LONDON DURBAN
JOHANNESBURG BEIRA
BULAWAYO MAURITIUS

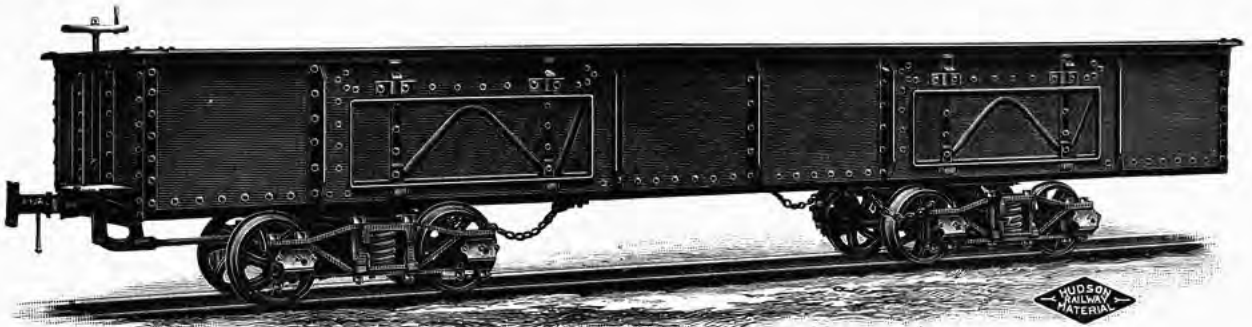
R. HUDSON LTD

CALCUTTA NDOLA
CAIRO LUANDA LOBITO
SALISBURY SINGAPORE

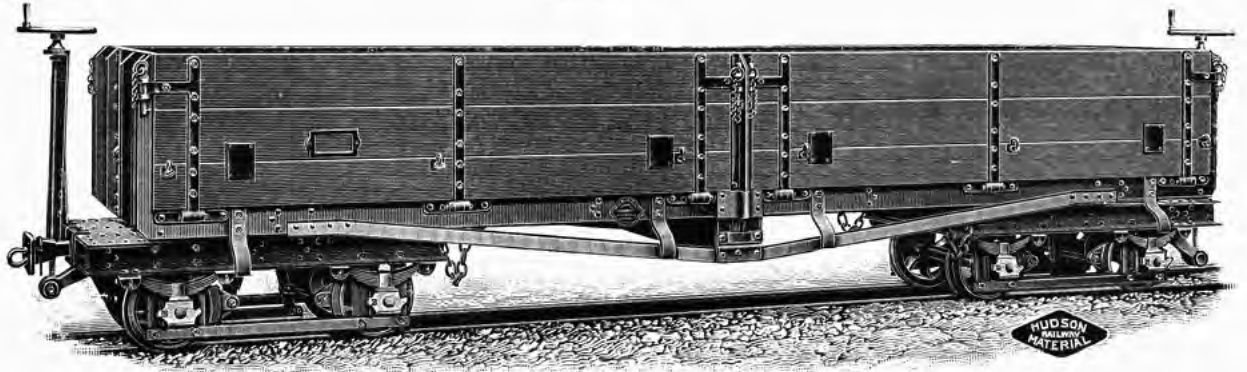
HUDSON
RAILWAY
MATERIAL

Double Bogie Goods Wagons

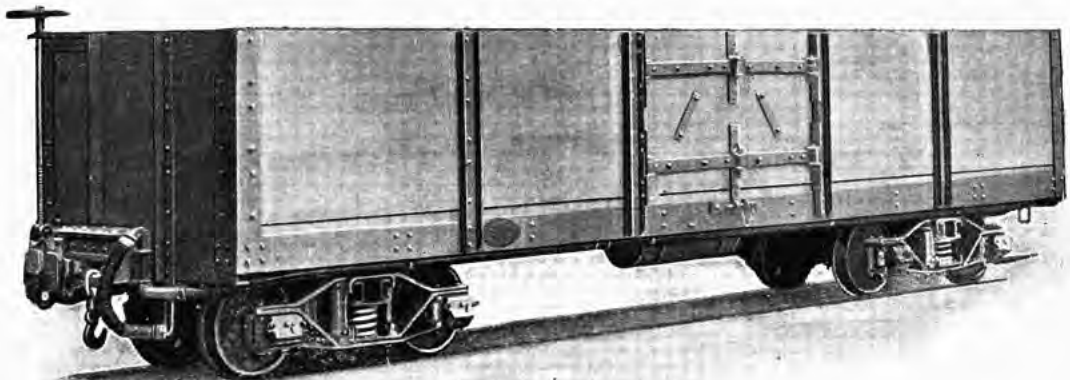
HUDSON
RAILWAY
MATERIAL



8 TON ALL-STEEL GOODS WAGON two small doors each side, for heavy traffic
Code 36632



8 TON GOODS WAGON timber body on steel frame, two doors each side, for light traffic. We can supply the ironwork for customers to build their own superstructure at destination and can send drawings for this purpose
Code 36633



10 TON GOODS WAGON central doors at each side, body of steel and timber, for heavy fast traffic
Code 36634

LEEDS LONDON DURBAN
JOHANNESBURG BEIRA
BULAWAYO MAURITIUS

R. HUDSON LTD

CALCUTTA NDOLA
CAIRO LUANDA LOBITO
SALISBURY SINGAPORE

Ball and Roller Bearing Wheels

On the next few pages we give details of the Hudson types, the designs of which are superior to any other—we manufacture them by mass production methods in shops equipped with precision machine tools specially built for the purpose.

Hudsons will supply sample sets on approval to all firms which after they have carried out tests may use them in quantities.

No user of light railway trucks can in these days afford to use the old plain types of roller bearing or bushed axleboxes. The savings of the new types are so great that their initial extra cost is repaid, often in the first six months working.

The following table gives an excellent indication of how much can be saved every year on every truck in use. The cost of power and lubrication is often not realized by users as it is so difficult to estimate properly.

New life would be given to the men, horses, locomotives or haulage gear in use by equipping your trucks with our new type wheels, especially if the means of haulage is "tired" or overloaded.

IT WILL PAY YOU TO STUDY THESE FIGURES

Figures ascertained at varying intervals on a year's test of 4500 miles	Hudson Patent ball and roller bearings	ORDINARY WHEELS AND AXLES		
		Self-oiling type with brass bushes	With plain axleboxes	Loose wheels on plain axles
Load kept in motion on level track by one man exerting 20 lbs. effort	2.8 tons	1.25 tons	0.9 tons	0.55 tons
Load started from rest by one man exerting 30 lbs. effort	2.1 tons	1.00 tons	0.75 tons	0.4 tons
Cost of time spent in lubricating, per wagon, per year, based on a rate of 1s. per hour	1s. 0d.	5s. 0d.	£1 0s. 0d.	£3 8s. 0d.
Cost of lubricant added during the year's test	* $\frac{1}{2}$ d.	8d.	1s. 0d.	2s. 9d.
Wear on the axles	Nil	Moderate	Well worn	Worn out
An average English labourer exerts 20 lbs. effort. For brief periods he can exert 30 lbs. but would soon tire if he had to keep up this output continuously.				
* The bearings were in perfect condition at the end of the tests but this time was taken in forcing in a little grease once every four months.				

Our tests of these new wheels cost us over £3000. We built at our works a special electric railway so that we could run the trucks under the worst possible conditions. The track was purposely laid in the roughest possible manner and the trucks were overloaded and unevenly loaded. A further test was with the wheels and axles submerged in water mixed with emery powder, sand, dirt, etc.; on another occasion the wheels were run in fine dust six inches deep. Both the latter tests went on for two months without ceasing. The bearings were spotlessly clean at the finish and no lubricant was ever added.

After three years of incessant testing under every difficult condition of working we could devise, we ran a special test of a year, working the trucks on alternate days. The total mileage was 4500 and each type tested gave the results enumerated in the above table.

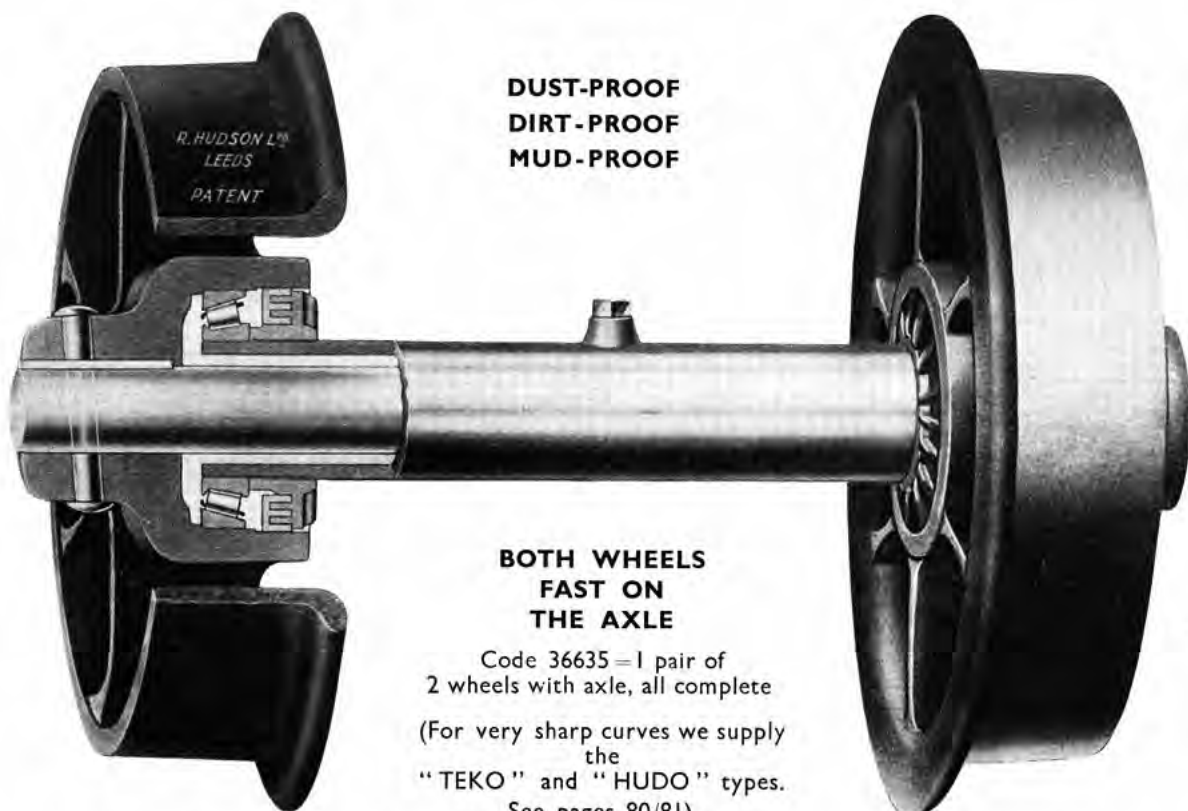
These tests definitely proved the advantages and savings of our new type wheels and show particularly that the time spent in lubricating with its attendant cost is far greater than one would imagine.

HUDSON
RAILWAY
MATERIAL

Hudson "Cabo" Type Wheels and Axles

HUDSON
RAILWAY
MATERIAL

High duty taper roller or ball bearings in each wheel
Metallic dust seals—no felt washers
High tensile tubular steel grease sleeve
Lubrication by grease pump



DUST-PROOF
DIRT-PROOF
MUD-PROOF

BOTH WHEELS
FAST ON
THE AXLE

Code 36635 = 1 pair of
2 wheels with axle, all complete
(For very sharp curves we supply
the
"TEKO" and "HUDO" types.
See pages 80/81)

Owing to the bearing being located over the rail head practically all stress is removed from the axle itself

This type of wheels and axle is only suitable for trucks with **inside** journals, rail gauges of about 24 inches and loads up to about $1\frac{3}{4}$ tons per axle.

The wheels never need a fresh supply of grease for lubricating the bearings. We recommend, however that a small quantity of grease be pumped in each year under normal conditions and every three months if conditions are bad (just to clean the grease seals). No wear can ever take place on the axles.

One of our customers wrote us recently as follows:—

"I took a few of the new wheels to pieces to 'look inside' as I could hardly credit they could run so long without oiling. I found them in perfect condition, so just put them together again. I could not trace they had used any lubricant at all in spite of a year's incessant working."

LEEDS LONDON DURBAN
JOHANNESBURG BEIRA
BULAWAYO MAURITIUS

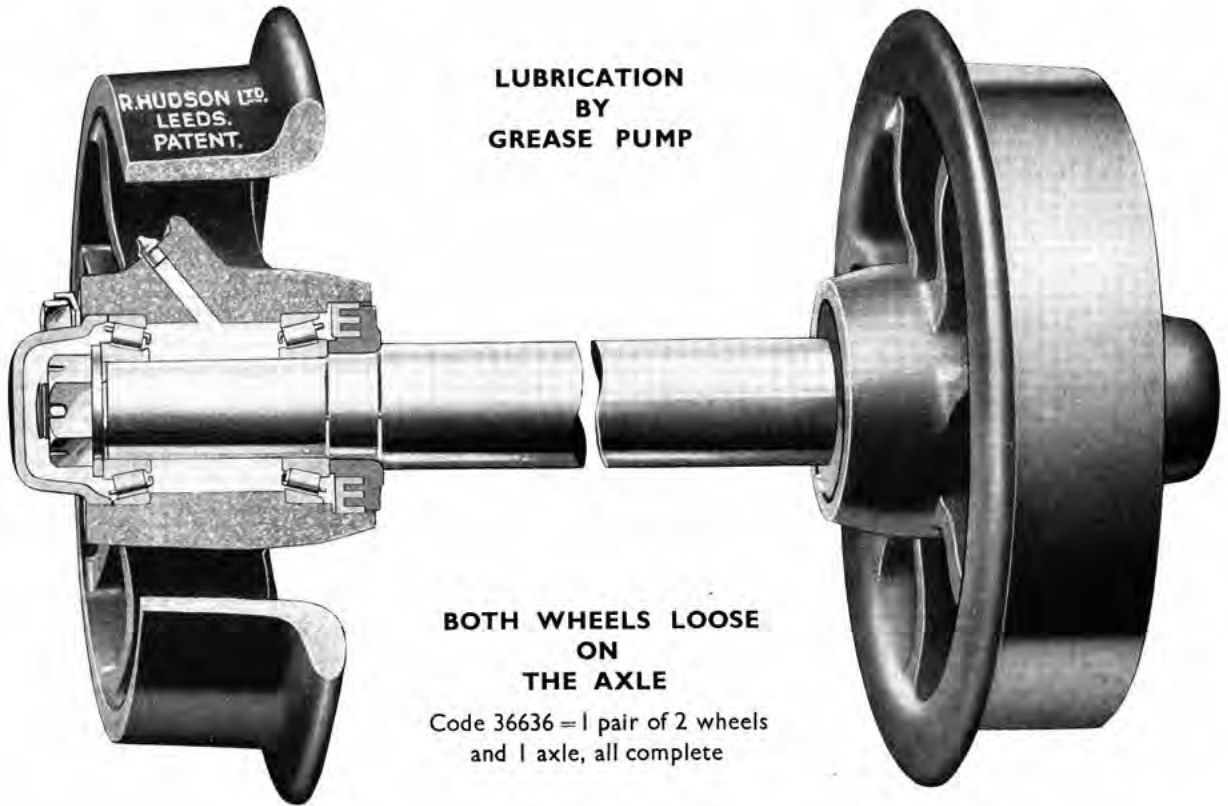
R. HUDSON LTD

CALCUTTA NDOLA
CAIRO LUANDA LOBITO
SALISBURY SINGAPORE

Hudson "Teko" Type Wheels and Axles

High duty taper roller bearings—two in each wheel
Metallic dust seals—no felt washers
Both wheels revolve on the axle—yet axle can never wear
Very suitable for traversing sharp curves

**LUBRICATION
BY
GREASE PUMP**



**BOTH WHEELS LOOSE
ON
THE AXLE**

Code 36636 = 1 pair of 2 wheels
and 1 axle, all complete

This type of wheels and axle can be made up to almost any carrying capacity. They are as dust, dirt and mudproof as it is possible to make any wheel which revolves loose on its axle.

Only made to suit trucks with inside journals, but can be built for any rail gauge.

The following is an unsolicited testimonial :—

"For the past twenty years it has given us a great deal of satisfaction to place our orders with you for our trucks—much of their success is due to the excellent design of the Hudson wheel. We have often used wheels made by other foundries but all found the scrap-heap in a few years. We find it false economy to buy from other makers when your English factory with its sixty years experience can produce such excellent results. Trucks we bought from you in 1914 are still in excellent condition after twenty years' continuous daily operation."

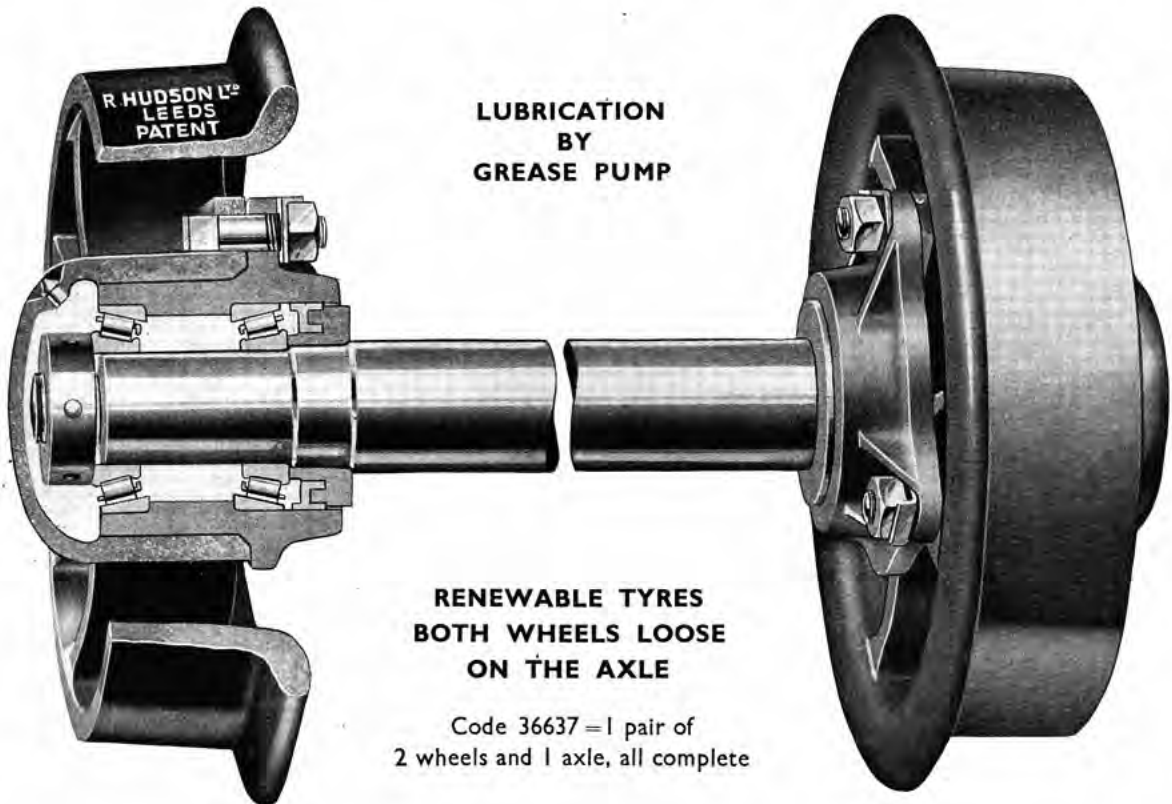
WHEELS WITH RENEWABLE CAST STEEL TYRES

High duty taper roller bearings—two in each wheel

Metallic dust seals—no felt washers

Both wheels revolve on the axle—yet axle can never wear

Very suitable for traversing sharp curves



This type of wheels and axle is on a similar principle to the "TEKO" type but is provided with renewable cast steel tyres. Whilst they are very little more expensive than the "TEKO" type they have the advantage of being a great deal more economical in maintenance costs, as new tyres are cheaper than complete wheels, and the fitting of them can be easily done by unskilled labour.

"HUDO" type wheels and axles can be made up to almost any carrying capacity. They are as dust, dirt and mud proof as it is possible to make any wheel which revolves loose on its axle.

Only made to suit trucks with inside journals but can be built to suit any rail gauge.

HUDSON
RAILWAY
MATERIAL

Hudson "Faro" Type Axleboxes

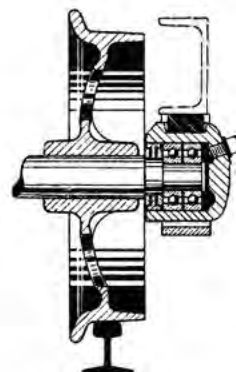
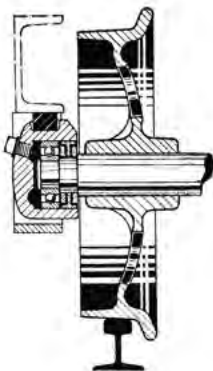
HUDSON
RAILWAY
MATERIAL

RUBBER SPRING TYPE

High duty ball bearings and rubber cushion springs

Metallic dust seals—no felt washers

Grease pump lubrication



The ball bearings are of the highest quality identical with those used for motor cars

STANDARD SIZES AND CODE NUMBERS

Working load per axlebox at slow speeds	CODES	
	Axlebox with ball bearings and dust seals	Axlebox complete and including springs and horn-guides
5 cwt.	36638	36642
10 cwt.	36639	36643
15 cwt.	36640	36644
20 cwt.	36641	36645

If the wagons have screw brakes allow plenty of margin when estimating the working loads, as brakes add to the working load on the ball bearings.

It is only necessary to lubricate once a year, but under dirty conditions lubricate rather more often. Wagons in use at our works run 4 to 5 years without re-greasing.

LARGE STOCKS KEPT OF ALL SIZES

"FARO" axleboxes are the greatest improvement ever made in light railway wagons and pay for their extra cost every year.

YOU CANNOT BUY A BETTER AXLEBOX AT ANY PRICE

One of our customers wrote us as follows:—

"The 'FARO' bearings on our tipping wagons have now been in use two years in our quarries. Each truck has covered 10,000 kilometres and none of the bearings have given any trouble. The rolling resistance of the wagons is so low we find we have to use brake wagons on the down grade, although we did not expect to do so. The Hudson tipping wagons have given us every satisfaction and we have had no repairs of any kind to do."

LEEDS LONDON DURBAN
JOHANNESBURG BEIRA
BULAWAYO MAURITIUS

R. HUDSON LTD

CALCUTTA NDOLA
CAIRO LUANDA LOBITO
SALISBURY SINGAPORE

HUDSON
RAILWAY
MATERIAL

Hudson "Faro" Type Axleboxes

HUDSON
RAILWAY
MATERIAL

SPIRAL SPRING TYPES

High duty ball bearings—two in each axlebox
Metallic dust seals—no felt washers
Grease pump lubrication

You cannot
buy
better axleboxes
at
any price



STANDARD PATTERN
kept in stock
Code 36646

DUST-PROOF
DIRT-PROOF
MUD-PROOF



TWIN SPRING PATTERN
made to order
Code 36647

The ball bearings are
of the highest class,
identical with those
used for motor cars

STANDARD SIZES AND CODE NUMBERS

Working load on each axlebox at slow speeds	CODE Single spring standard type
10 cwt.	36648
15 cwt.	36649
20 cwt.	36650
25 cwt.	36651
30 cwt.	36652
40 cwt.	36653

It is most important for all our "FARO" ball bearing axleboxes that they are not lubricated with oil or any grease other than a quality equal to that we supply, as many greases contain a high percentage of water and fatty acids which rust the ball bearings, with the result that they are ruined in a short time.

TWIN SPRING TYPES TO ORDER

We have converted many thousands of wagons by fitting on our "FARO" type Axleboxes and all our customers have found their hauling medium, i.e. locomotives, animals and/or native labourers can deal with loads never less than 30 per cent greater than previously. They all find also enormous savings are made in the costs of lubricant and time spent lubricating—see page 78 for details of these.

We are constantly receiving unsolicited testimonials, one example of which is as follows:—

"We have received complete satisfaction from the 'FARO' axleboxes and we place this further order with you because we find considerably less native labour is required to haul the wagons and this means a big saving to us every year owing to the large tonnage of logs we haul."

We can convert your wagons (if they are of normal design) to suit these axleboxes if you will send us a detailed drawing of your existing wheels, axles and wagon frame.

LEEDS LONDON DURBAN
JOHANNESBURG BEIRA
BULAWAYO MAURITIUS

R. HUDSON LTD

CALCUTTA NDOLA
CAIRO LUANDA LOBITO
SALISBURY SINGAPORE

HUDSON
RAILWAY
MATERIAL

Wheels for Hudson Wagons

HUDSON
RAILWAY
MATERIAL

For ordinary light railway work we recommend the cast steel wheel. Where the work is very severe we can supply wheels in nickel-chrome or other special cast steels, but these are more expensive. We have at our works an electric testing plant on which we have tested the durability, quality and efficiency of every kind of wheel.


R. HUDSON
LEEDS

CAST STEEL WHEEL
with curved spokes.
Sizes 8 to 30 in.
diameter

Code 36654


R. HUDSON
LEEDS

CAST STEEL WHEEL
disc pattern. Sizes
9 to 30 in. diameter

Code 36655



DISC WHEEL with
rolled steel tyre, for
fast traffic. Sizes
20 in. diameter and
larger

Code 36656


R. HUDSON
LEEDS

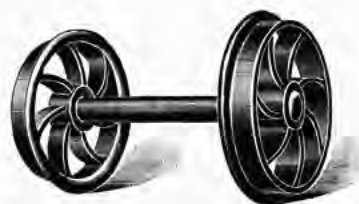
**CHILLED CAST IRON
WHEELS.** Sizes 10
to 34 in. diameter

Code 36657



PRESSED STEEL WHEEL
for inspection trollies.
Generally about 20 in.
diameter

Code 36658



SPOKE WHEELS AND AXLES
with inside journals

Code 36659



SPOKE WHEELS AND AXLES
with plain outside journals

Code 36660


R. HUDSON LTD
LEEDS

DISC WHEELS AND AXLES
with plain outside journals

Code 36661



SPOKE WHEELS AND AXLES
with collared outside journals

Code 36662



**STEEL-TYRED WHEELS ON STEEL
AXLES** with inside journals

Code 36663



WHEELS, DISC TYPE with steel
tyres and collared outside journals

Code 36664

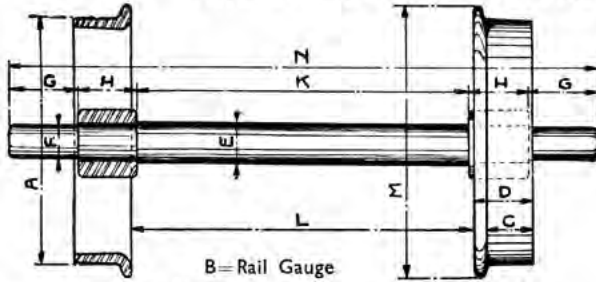
LEEDS LONDON DURBAN
JOHANNESBURG BEIRA
BULAWAYO MAURITIUS

R. HUDSON LTD

CALCUTTA NDOLA
CAIRO LUANDA LOBITO
SALISBURY SINGAPORE

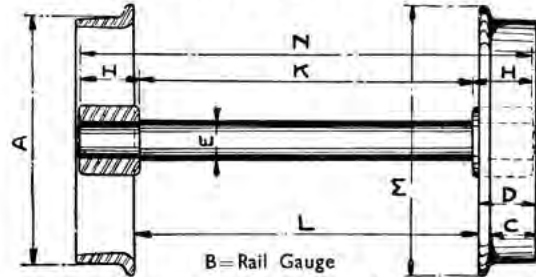
Wheels for Hudson Wagons

DIMENSIONS REQUIRED FOR SPARE PAIRS OF WHEELS AND AXLES



OUTSIDE NECK TYPE

Code 36665

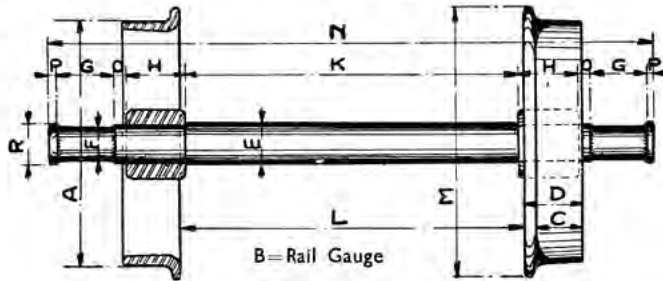


INSIDE NECK TYPE

Code 36666

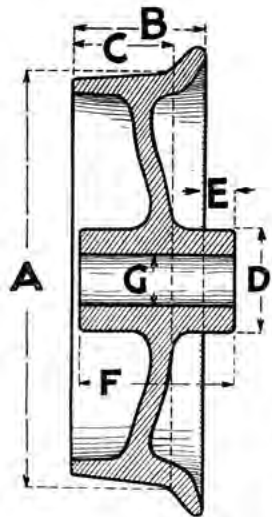
Codes 36667 = Dimensions in alphabetical order as shown on diagram
36668 = Weight per pair of two wheels fast on one axle.

When ordering give the dimensions, and weight per pair of 2 wheels on 1 axle, and state whether disc or spoke type is preferred.



OUTSIDE COLLARED JOURNAL TYPE

Code 36669

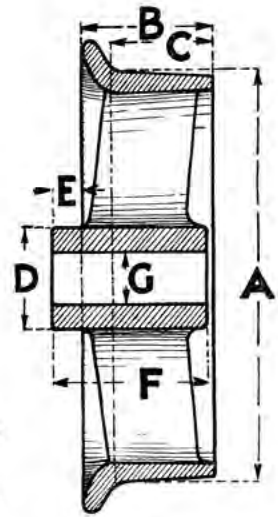


DISC PATTERN WHEEL
Code 36670
(add dimensions as list below)

SPARE WHEELS

Usually we have in stock about 50,000 cast steel wheels 9, 12, 14, 15 in. and larger in diameter. We also have many thousands of patterns of wheels of all sizes and types

SPOKE PATTERN WHEEL
Code 36671
(add dimensions as list below)



The seven dimensions are as follows, A (—), B (—), C (—), D (—), E (—), F (—), G (—), and the weight per casting is (—), the dimension G being the size of hole after machining. We should supply the hole cast smaller in size ready for you to machine unless you add Code 36672, when we machine the hole to size stated.

- A = Diameter on tread
- B = Width over tread and flange
- C = Width of tread
- D = Diameter of boss

- E = Boss projection on flange side
- F = Length through boss
- G = Diameter of hole machined to size

SPARE AXLES. We supply axle bars of rolled high tensile or mild steel for customers to machine up at destination. When ordering these use Code 36673 followed by the diameter and length of bar required.

Plain Roller Bearings

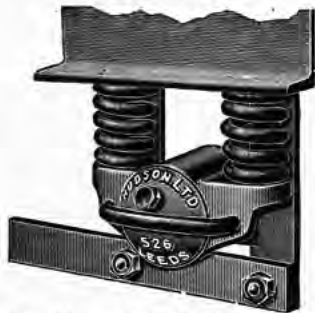
We have manufactured several millions of these—they are cheaper than our patent "FARO" ball bearing axleboxes but are nothing like so efficient as their internal resistance is much higher, they need constant lubrication and always wear the axle journals.



SWIVEL TYPE for inside journals
Code 36674



SPRING TYPE for inside journals
Code 36677



TWIN SPRING TYPE for outside journals
Code 36680



"SOLO" FIXED TYPE for outside journals
Code 36675



HEAVY SPRING TYPE for outside journals
Code 36678



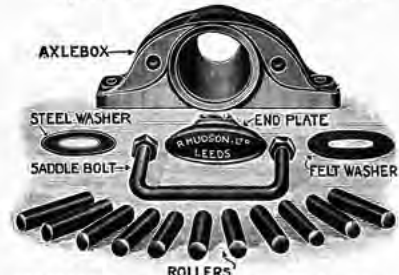
FIXED TYPE for wood frames and inside or outside journals
Code 36681



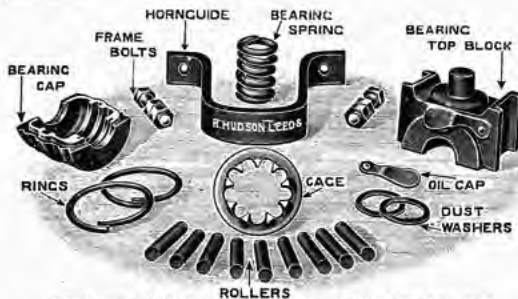
SWIVEL TYPE for outside journals
Code 36676



LIGHT SPRING TYPE for outside journals
Code 36679



OUTSIDE CAP TYPE BEARING DISMANTLED
Code 36682



SPRING TYPE BEARING DISMANTLED
Code 36683



OUTSIDE SWIVEL TYPE BEARING DISMANTLED
Code 36684

Customers who have used this type of roller bearing hitherto could save a lot of money every year if they changed over to our new ball bearing axleboxes. We can usually turn up the old axles to make them fit the new bearings.

Plain Axleboxes

Plain axleboxes are still used despite their high frictional resistance and general inefficiency. We have many patterns and can only illustrate a few of the commonly used types.



PLAIN AXLEBOX
with anti-friction
metal bush
Code 36685



PLAIN AXLEBOX
with brass bush
Code 36686



PLAIN PEDESTAL to suit
automatic greasing machines
Code 36687



PLAIN PEDESTAL with deep jaw
Code 36688



PLAIN PEDESTAL with cap. Suitable for
use with automatic greasing machines
Code 36689



AXLEBOX with brass
bush and spring
Code 36690



AXLEBOX with two
springs
Code 36691



AXLEBOX with brass
bush and spiral spring
Code 36692



AXLEBOX with brass bush and laminated
spring
Code 36693



AXLEBOX with brass
bush and spiral spring
Code 36694



AXLEBOX with brass bush and laminated
spring
Code 36695



Spring Buffers for Wagons



A FEW TYPES FOR LIGHT LOCOMOTIVE TRACTION



DROP LINK TYPE
Code 36696



HORIZONTAL LINK TYPE
Code 36697



VERTICAL LINK TYPE
Code 36698



HORIZONTAL LINK TYPE
Code 36699

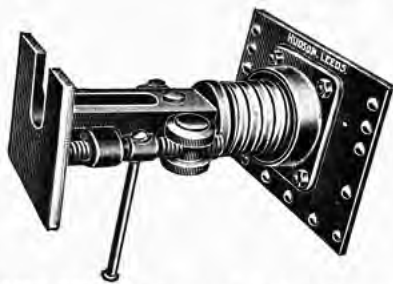


SIMPLE HOOK TYPE
Code 36700

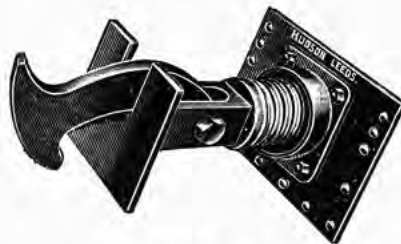


HOOK TYPE with safety chains
Code 36701

A FEW TYPES FOR HEAVY LOCOMOTIVE TRACTION



HOOK TYPE with screw tightening yoke
Code 36702



HOOK TYPE
Code 36703



HORIZONTAL LINK TYPE
Code 36704



A.B.C. TYPE
Code 36705



AMERICAN TYPE COUPLER
Code 36706



SIDE SPRING TYPE
Code 36707

HUDSON
RAILWAY
MATERIAL

Spare Parts for Wagons

HUDSON
RAILWAY
MATERIAL



AXLEBOX SPRING
laminated type
Code 36708



AXLEBOX SPRING
spiral type
Code 36709



BUFFER SPRING
spiral type
Code 36710



BUFFER SPRING
volute type
Code 36711



SINGLE LINK COUPLING
Code 36712



TWO LINK COUPLING
Code 36713



TWO LINKS AND RING COUPLING
Code 36714



TWO LINKS AND TRIANGULAR LINK COUPLING
Code 36715



HOOK AND SHACKLE COUPLING
Code 36716



DRAWHOOK
Code 36717



SHACKLE AND PIN
Code 36718



SPECTACLE TYPE LINK
Code 36719



MINE CAR COUPLING with link above the frame
Code 36720



MINE CAR COUPLING with link below the frame
Code 36721



LOW PRESSURE GREASE GUN without nozzle
Code 36722



LOW PRESSURE GREASE GUN with nozzle
Code 36723



CENTRAL SWIVELLING DRAWBAR suitable for mine trucks, etc.
Code 36724



HIGH PRESSURE GREASE GUN
Code 36725

LEEDS LONDON DURBAN
JOHANNESBURG BEIRA
BULAWAYO MAURITIUS

R. HUDSON LTD

CALCUTTA NDOLA
CAIRO LUANDA LOBITO
SALISBURY SINGAPORE

SPARE PARTS FOR HUDSON "RUGGA" TYPE CONTRACTORS' WAGONS

- 1—Body plate
- 2—End plate
- 3—Tipping strip
- 4—Trunnion
- 5—Body catch stop
- 6—Standard top angle
- 7—Pressed support plate
- 8—Catch pin
- 9—Catch
- 10—Standard foot angle
- 11—Coupling pin
- 12—Coupling link
- 13—Frame
- 14—Frame crossbar
- 15—Axle
- 16—Wheel
- 17—Axlebox
- 18—Hornguide

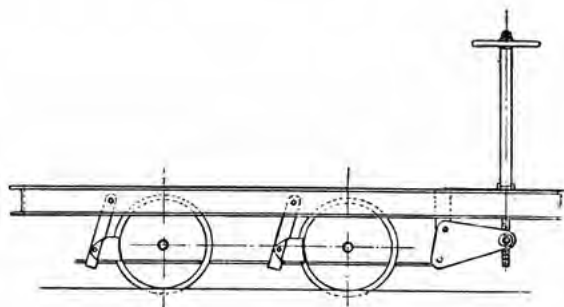


COMPLETE SETS OF PARTS

- 19—Body complete, parts 1, 2, 3, 4 and 5
- 20—Channel frame, parts 13 and 14
- 21—Standards and catch, parts 6, 7, 8, 9 and 10
- 22—Wheels fast on axles, parts 15 and 16
- 23—Axleboxes with ball bearings, parts 17 and 18
- 24—Completed wagon (without body, part 19)
- 25—Completed underframe (without body and standards, parts 19 and 21)

Code 36726 = Ship at once (—) sets of spare parts Item No. (—) in the above diagram each sufficient for one wagon

Always send us information so that we can trace when the wagons were supplied. The date of the original order would be sufficient.



BRAKE BLOCKS. Are occasionally made "Right" and "Left" hand. For purposes of identification the "Hand" should be taken as the side on which they are placed when looking forward along the wagon from the brake wheel end.

Code 36727 (—) Wagon sets of brake blocks to suit the wagons ordered on the following date.

HUDSON
RAILWAY
MATERIAL

Brakes for Wagons

HUDSON
RAILWAY
MATERIAL

Our overseas and other friends may find the following information of some assistance when selecting a type of brake to meet their needs.

SIDE LEVER BRAKES—Suit grades up to 1 in 40. Small wagons with wheels 14 in. diameter or less do not lend themselves well to the design of Lever Brakes, as the distance from ground level to top of wagon platform is so limited—so customers who order small wagons must not expect Lever Brakes to have much power.

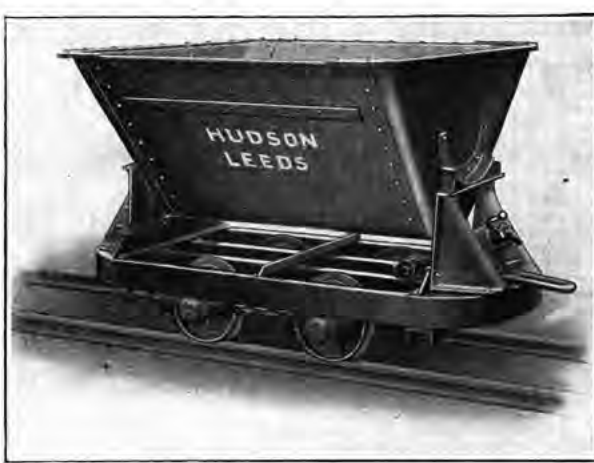
SCREW BRAKES—Essential for steep inclines, they must act on all four wheels if the maximum braking effort is desired. Heavy wagons are better fitted with compensating type of Screw Brakes which act equally on all four wheels. They are rather expensive to fit on small wagons.

AIR BRAKES—For passenger traffic with heavy locomotive traction there is nothing better. They are expensive but a great safeguard, and unless initial outlay is limited we recommend them. It is almost a necessity to have all the wagons fitted with brakes; failing this all must be fitted with pipes and hose connections, and brakes fitted on as many wagons as necessary to obtain the braking effort desired in the train.

BRAKING EFFORT—The maximum resistance that can be obtained on dry rails without using sanding devices is only about 300-500 lbs. per 2000 lbs. weight on the braked wheels only. It varies according to the state of track, etc., so the number of wagons in a train requiring brakes is dependent upon the braking effort necessary to overcome the gravity effort, which is 20 lbs. per 2000 lbs. for each 1 per cent of grade, less of course the resistance of the wagons, which varies from, say, 8 lbs. to 30 lbs. per 2000 lbs. gross weight, according to the class of axlebox fitted and the state of the track, etc.

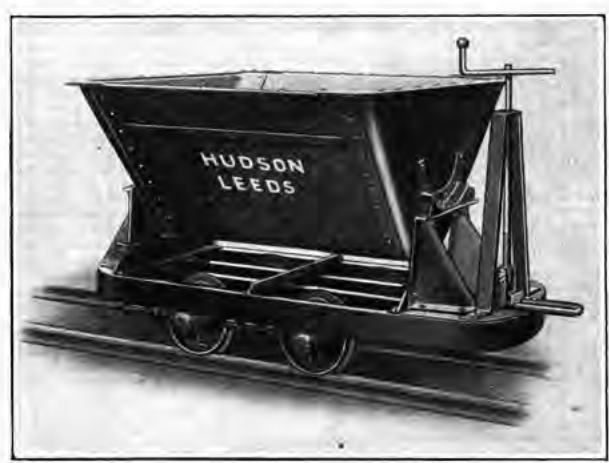
SPRAGS—Are liable to damage axleboxes and their supports, and if the wagon skids along with its wheels spragged a flat is worn on the wheel tread. If intelligently handled they are a cheap and handy contrivance, but they put severe strains on the wagon underframe, wheels, bearings, etc.

VERY STEEP INCLINES—On inclines of exceptional steepness where a "run-a-way" wagon might do great damage it is advisable to adopt some safety device. A set of automatic switches which turns the wagon off on to a side track deeply covered with sand is one of the best devices. Self-acting stops and trailing sprags are also used, see page 93, though if the track be unevenly laid, as soon as the wagon attains a very high speed it usually derails itself, especially if a sudden curve is put in to encourage this result.



CONTRACTORS' WAGON with screw brake acting on all 4 wheels—without extended platform

Code 36728



CONTRACTORS' WAGON with screw brake acting on all 4 wheels—with extended platform for brakeman

Code 36729

LEEDS LONDON DURBAN
JOHANNESBURG BEIRA
BULAWAYO MAURITIUS

R. HUDSON LTD

CALCUTTA NDOLA
CAIRO LUANDA LOBITO
SALISBURY SINGAPORE

HUDSON
RAILWAY
MATERIAL

Incline Haulage Gears

HUDSON
RAILWAY
MATERIAL

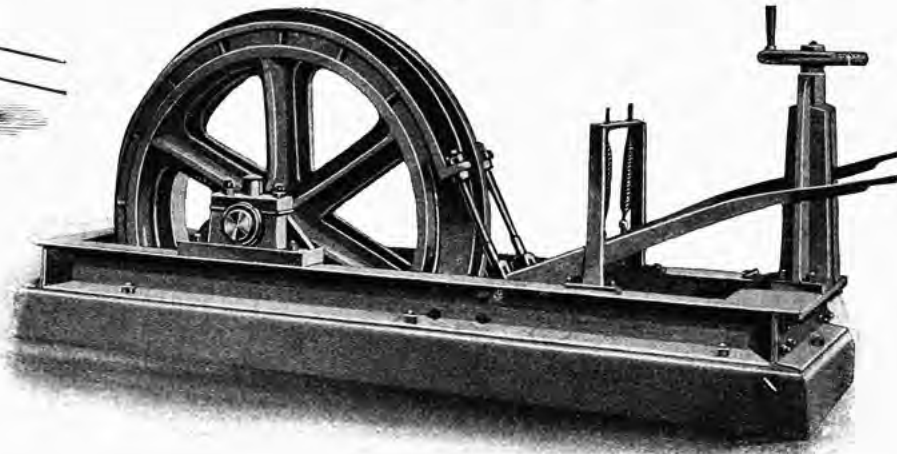


TERMINAL WITH TENSION GEAR
for endless rope system
Code 36730

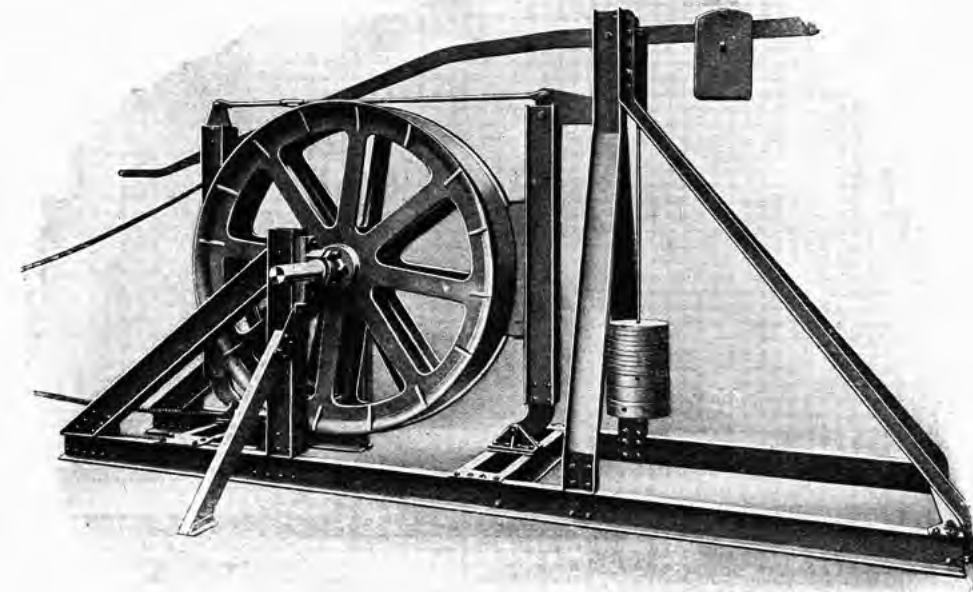


DRIVING TERMINAL for endless rope system
Code 36731

We cannot quote for these without full details of the proposed line, with all its inclines, curves, etc., and information as to the tonnage to be conveyed.



BRAKE WHEEL with foot and hand screw brakes
Code 36732



" FLEETING WHEEL " Code 36733

Fleeting Wheels can only be used on inclines 1 in 15 or steeper, the full truck going down pulls up the empty truck, the speed being kept under control by very powerful brakes operated by balance weights and hand lever or screw.

We require full details of the incline over its entire length before we can submit estimates, also state whether the trucks will be permanently attached to the rope or have to travel elsewhere at top or bottom of the incline.

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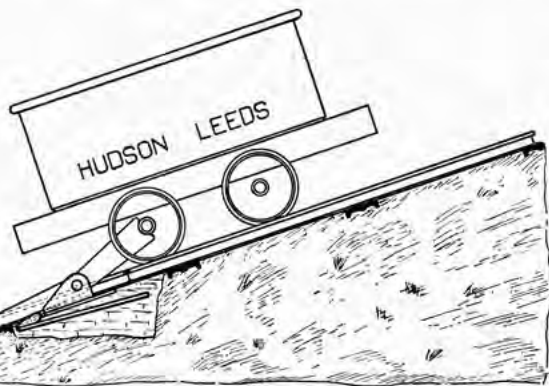
CALCUTTA NDOLA
CAIRO LUANDA LOBITO
SALISBURY SINGAPORE

HUDSON
RAILWAY
MATERIAL

Rope Haulage Fittings

HUDSON
RAILWAY
MATERIAL

There are numerous fittings required in connection with a Rope Haulage Plant. We cannot illustrate all the various devices used as so much depends upon the type of installation in use and the degree of efficiency and safety required.



STEEP INCLINES—Safety devices such as the one illustrated are frequently used to protect men working at the foot of inclines Code 36734



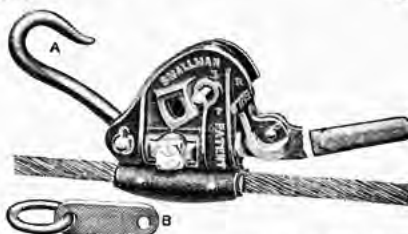
SOLID JOCKEY for wire rope Code 36735



PRESSED JOCKEY for wire rope Code 36736



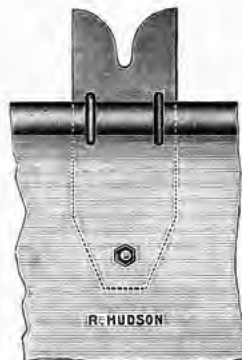
"OVER-TUB" TYPE HAULAGE CLIP Code 36738



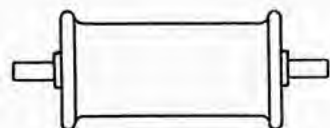
"UNDER-TUB" TYPE HAULAGE CLIP Code 36737



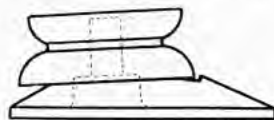
CHILLED IRON ROPE ROLLER with pedestals Code 36739



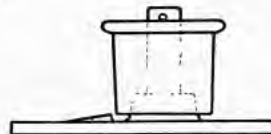
HAULAGE PLATE for chain Code 36740



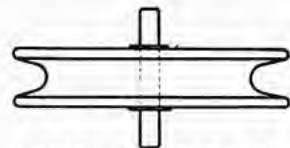
HORIZONTAL ROPE ROLLER Code 36741



BEVEL ROPE ROLLER, on soleplate Code 36742



VERTICAL ROPE ROLLER on soleplate Code 36743



DEFLECTION SHEAVE Code 36744

LEEDS LONDON DURBAN
JOHANNESBURG BEIRA
BULAWAYO MAURITIUS

R. HUDSON LTD

CALCUTTA NDOLA
CAIRO LUANDA LOBITO
SALISBURY SINGAPORE

Endless Rope Haulage



HUDSON SIDE TIPPING TRUCKS on main haulage of diamond mine



HUDSON SADDLE BACK HOPPER TRUCKS of 10 ton capacity descending a very steep grade on Rhodesian gold mine



HUDSON SADDLE BACK HOPPER TRUCKS of 40 cubic feet capacity starting at foot of incline on African gold mine

Endless Rope Haulage

We prefer the rope over the tub, as supporting rollers on the track are not usually needed and the trucks are more easily attached to and detached from the rope. Our experience is that the danger from accidents is less than with the under-tub type of Rope Haulage.



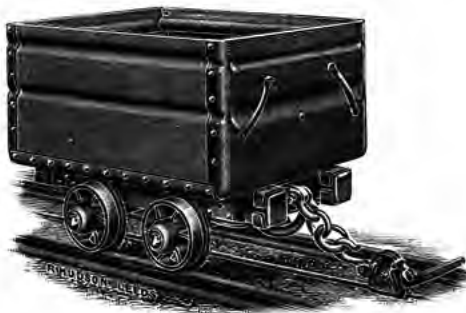
ENDLESS WIRE ROPE OVER THE TUB with clip. Stops may be placed to release the clip at any desired point

Code 36745



ENDLESS WIRE ROPE OVERHEAD hauling Hudson side discharge trucks by means of pivoted jockeys

Code 36746



ENDLESS WIRE ROPE UNDER THE TUB with clip. The track requires rollers about 40 to 60 feet apart to carry the rope

Code 36747



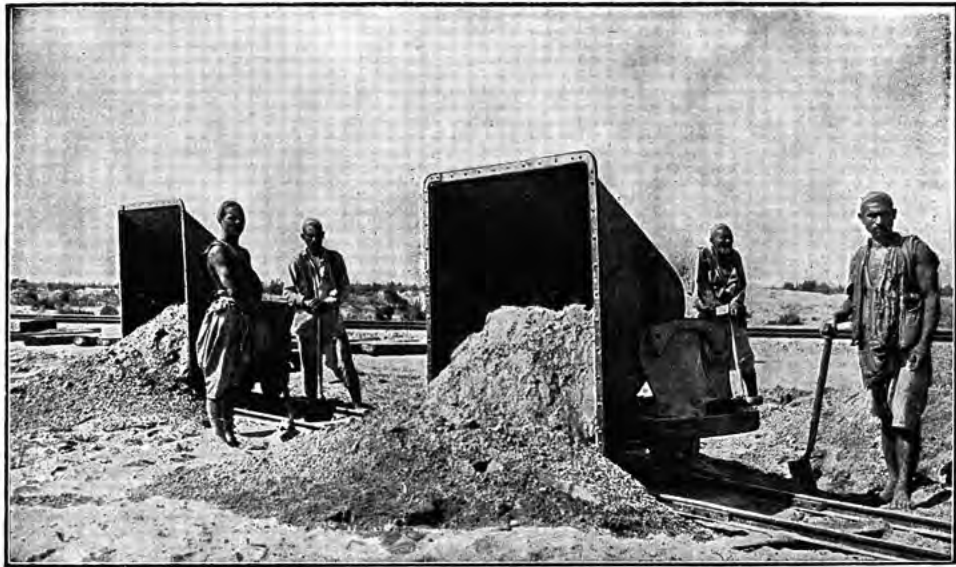
ENDLESS WIRE ROPE AT SIDE hauling Hudson side tip trucks of 20 cubic feet capacity, with side jockey

Code 36748

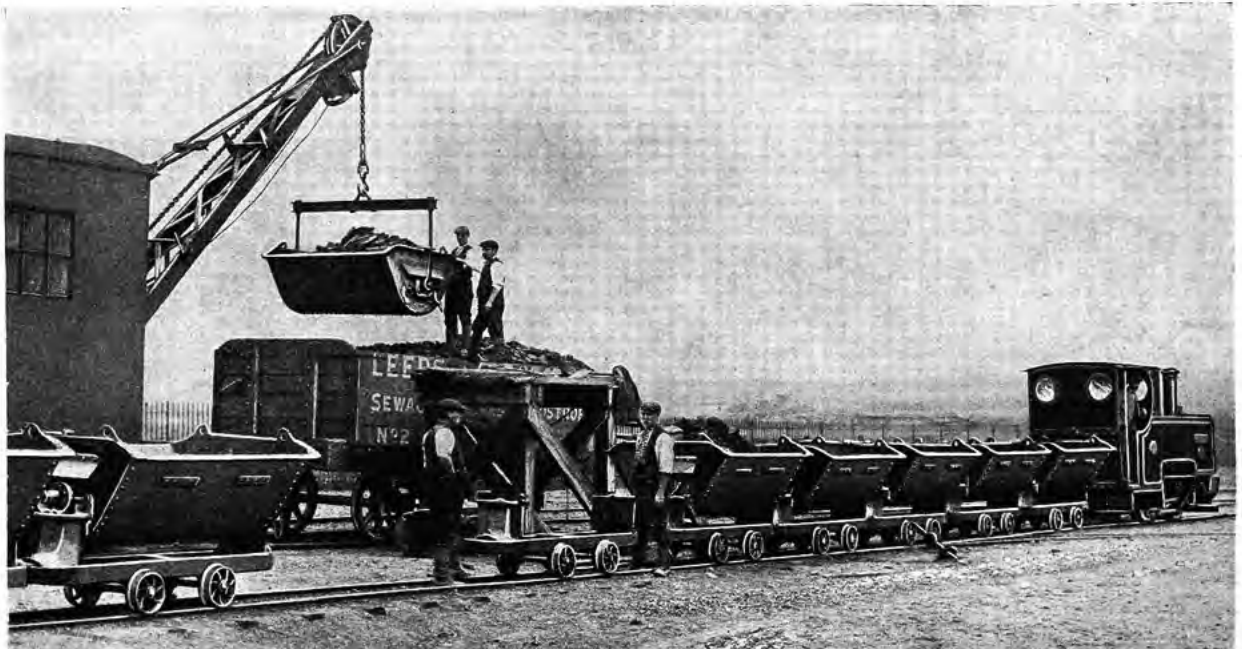
The endless rope system is specially suitable for transporting a constant even tonnage with a large number of trucks, which should run at a speed of 1 to 4 miles per hour and 20 to 60 feet apart. It can be safely used on inclines up to 1 in 8 ; but for very steep inclines a chain is used instead of a rope.

HUDSON
RAILWAY
MATERIAL

Methods of Emptying Wagons

HUDSON
RAILWAY
MATERIAL


SIDE TIP WAGONS discharge all their load to either side with the greatest ease. They are made in all sizes, from 9 to 400 cubic feet capacity and all rail gauges from 18 inches upwards. Illustration is of Hudson 1 cu. yard wagons 24 inches rail gauge on an Egyptian Irrigation scheme



SIDE TIP WAGONS fitted with crane lifting trunnions so that on occasion they can be used in the manner illustrated above

LEEDS LONDON DURBAN
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HUDSON
RAILWAY
MATERIAL

Methods of Emptying Wagons

HUDSON
RAILWAY
MATERIAL



SIDE TIP WAGON BODY fitted with crane lifting eyes and feet

Code 36749

1 set of sling chains with hooks

Code 36750



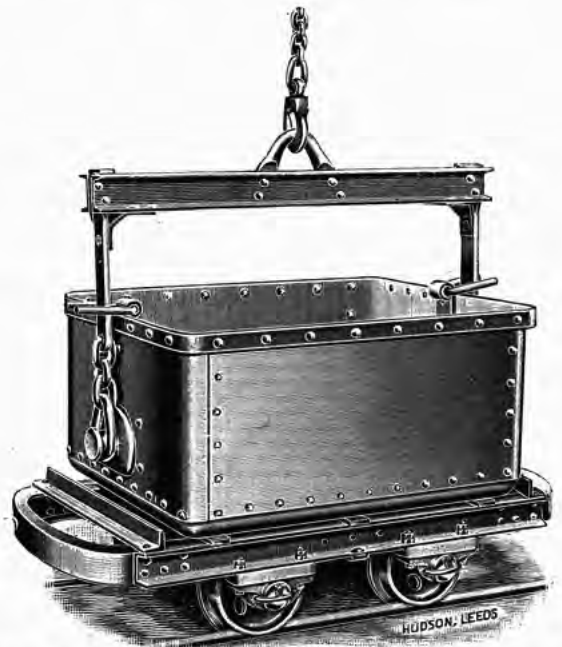
CRANE LIFTING BEAM with hooks. Only one set needed for each crane but all wagons need lifting trunnions and feet

Code 36751 - one lifting beam with hooks



SIDE TIP WAGON with the body fitted with crane trunnions and feet. Can be tipped whilst the body is slung from the crane and also whilst on its underframe

Code 36752



BOX TUB TO LIFT OFF ITS UNDERFRAME. The body can only be tipped whilst suspended from the crane.

Code 36753

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Methods of Emptying Wagons



Square tubs are emptied by means of tipplers, the tubs as a rule are not larger than about 40 cubic feet capacity. This system is suitable when all the tubs have to be emptied at one fixed place.



SIDE TIPPLER FOR SQUARE TUBS

Code 36754

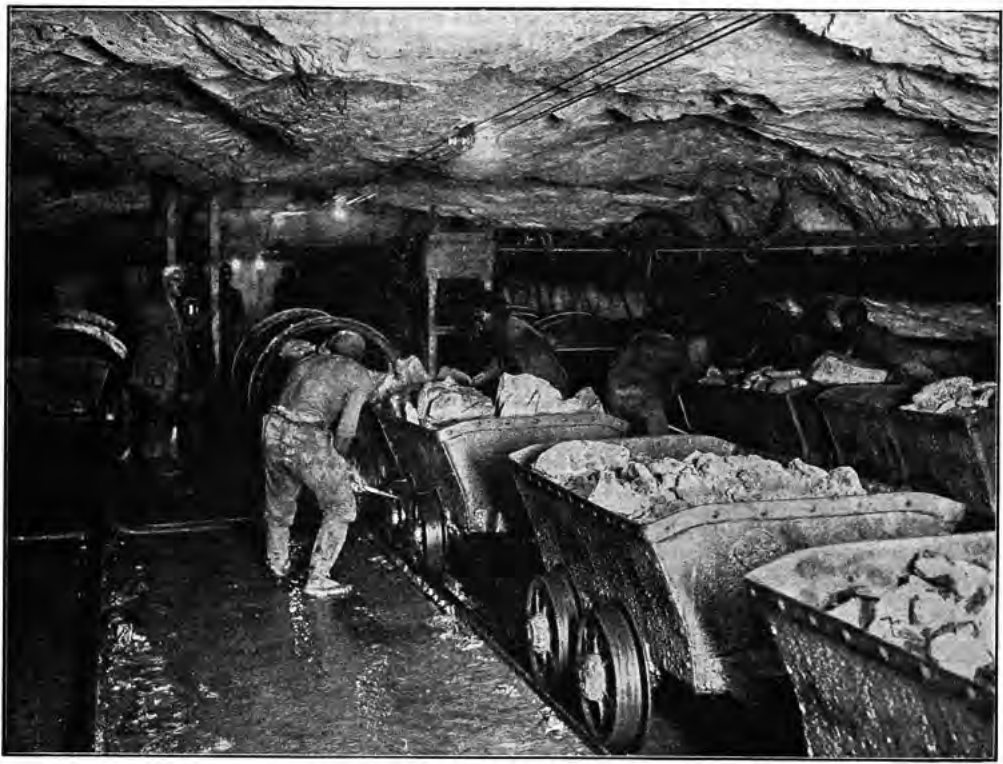
Side Tipplers will empty small tubs at the rate of 3 or 4 per minute on through tracks. End tipplers are much slower in operation.



END TIPPLER FOR SQUARE TUBS

Code 36755

The tipplers illustrated are "light patterns," suitable for small installations and small tubs.



HUDSON STOPE TRUCKS IN A SOUTH AFRICAN GOLD MINE, passing along to side tipplers for emptying into bins below the level of the track.

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Loading Steamers at Sea



At some ports steamers have to be loaded whilst some distance away from the shore, and to minimise handling many of our customers use ordinary tip wagons, lift off the bodies and place a number of them in a tug or lighter, which conveys them to the steamer.

The illustrations below give a good idea of the procedure.



ROBERT HUDSON LTD, LEEDS.

In our 70 years' experience we have had thousands of difficult transport problems placed before us. If you have one please consult with us as it is more than likely we shall have dealt with problems of a very similar nature.

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Small Diesel Locomotives

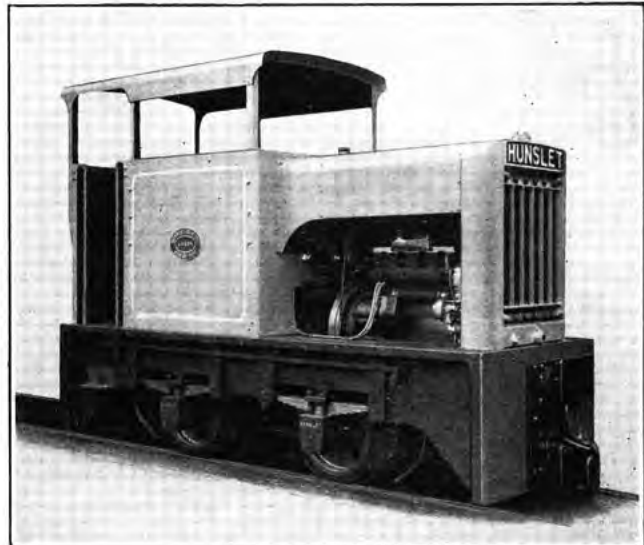


HUDSON-HUNSLET STANDARD DIESEL LOCOMOTIVES

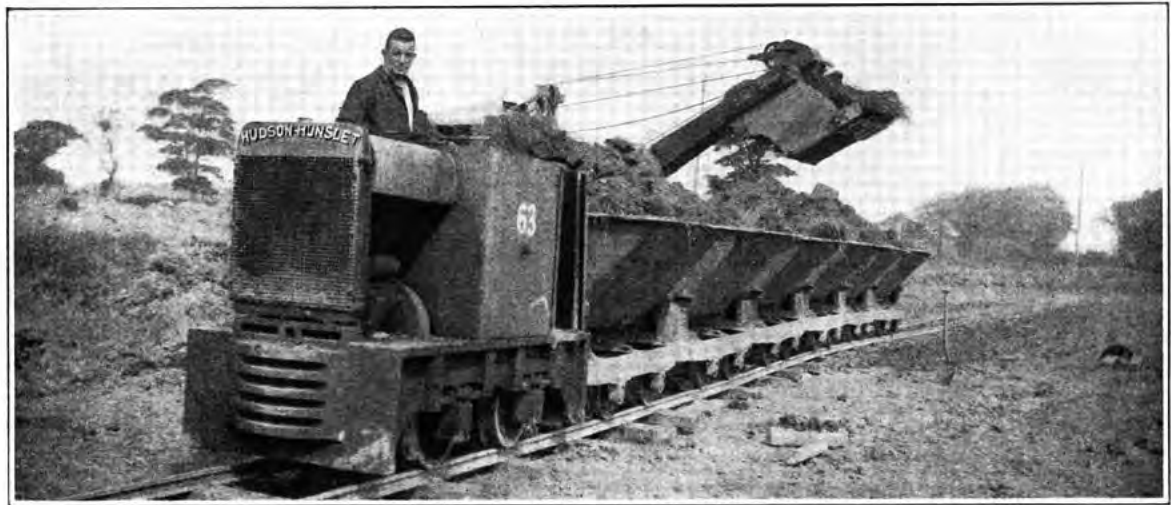
Specially designed for contractors, quarries, mines and estates, etc.



STANDARD 20 H.P. LOCOMOTIVE



STANDARD 50 H.P. LOCOMOTIVE



A STANDARD 20 H.P. LOCOMOTIVE HAULING HUDSON WAGONS

N.B.—The Hunslet Engine Co. Ltd. have built diesel locomotives up to 200 h.p. and steam locomotives from the smallest to the largest sizes for all rail gauges. Ask for separate catalogue dealing with these.

Builders—THE HUNSLET ENGINE CO. LTD., LEEDS
(Incorporating Kerr Stuart and Co. Ltd. and the Avonside Engine Co. Ltd.)

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Small Diesel Locomotives



HUDSON-HUNSLET STANDARD DIESEL LOCOMOTIVES

Specially designed for contractors, quarries, mines and estates, etc.

This type of locomotive is particularly suitable for work under the above conditions. The design is extremely simple, all parts are completely interchangeable (which facilitates and cheapens servicing) and the degree of efficiency is very high.

They are economical to run, the fuel consumption of the 20 h.p. size averaging about 2 gallons per 10 hour day; other sizes *pro rata* to the horse power, i.e. a 50 h.p. loco about 5 gallons per day.

The standard locomotives can be fitted with the Hunslet Patent Exhaust Gas Conditioner enabling them to be used underground in non-gaseous mines. For working in gaseous mines and other similar dangerous areas the Hunslet Engine Co. Ltd. build special flash-proof locomotives.

The Hunslet Engine Co. Ltd. usually keep their standard sizes in stock, built for 60 cm. or 24 in. rail gauge, so that usually delivery can be made immediately.

STANDARD SIZES AND CODES

24 in. Rail Gauge unless otherwise specified

Power		10 h.p.		20 h.p.		30 h.p.		40 h.p.		50 h.p.	
Working weight		2 t. 10 cwt.		3 t. 6 cwt.		4 t. 15 cwt.		6 t. 10 cwt.		7 t. 11 cwt.	
Wheelbase		30 inches		35 inches		42 inches		42 inches		48 inches	
Minimum rail weight per yd.		12 lbs.		14 lbs.		18 lbs.		24 lbs.		25 lbs.	
Minimum curve radius		25 feet		30 feet		35 feet		35 feet		40 feet	
Speeds in m.p.h.		3½	7	3½	7	3½	7	3½	7	3½	7
Tractive effort in lbs.		910	455	1820	910	2730	1365	3640	1820	4550	2275
Loads hauled in tons of 2240 lbs. under good average conditions and based on a rolling resistance of 20 lbs. per ton	Level	43	20	88	42½	132	63	176	85	221	107
	1 in 200	27	12	55	26	83	39	110	52	139	66
	1 in 100	19	8	40	18½	59	27	80	37	101	47
	1 in 75	16	6½	33	15	50	22	67	30	85	39
	1 in 50	12	4½	25	11	37	16	50	22	63	28
	1 in 30	7	2	16	6½	24	9½	32	13	41	17
	1 in 25	6	1½	13	5	20	7½	27	10	35	14
Overall height (*with canopy) in inches ..		58		63		70		108*		108*	
Overall Length (over buffers) in inches ..		96		99		144		150		152	
Overall width in inches		42		42		48		48		48	
Codes (24 in. rail gauge)		36756		36757		36758		36759		36760	

See page 11 for our recommendations respecting weight of rail suitable and minimum curve radius.

N.B.—We also supply diesel locomotives up to 200 h.p. for all rail gauges and steam locomotives of any size.
Ask for complete separate catalogue.

Builders—THE HUNSLET ENGINE CO. LTD., LEEDS

(incorporating Kerr Stuart & Co. Ltd. and the Avonside Engine Co. Ltd)

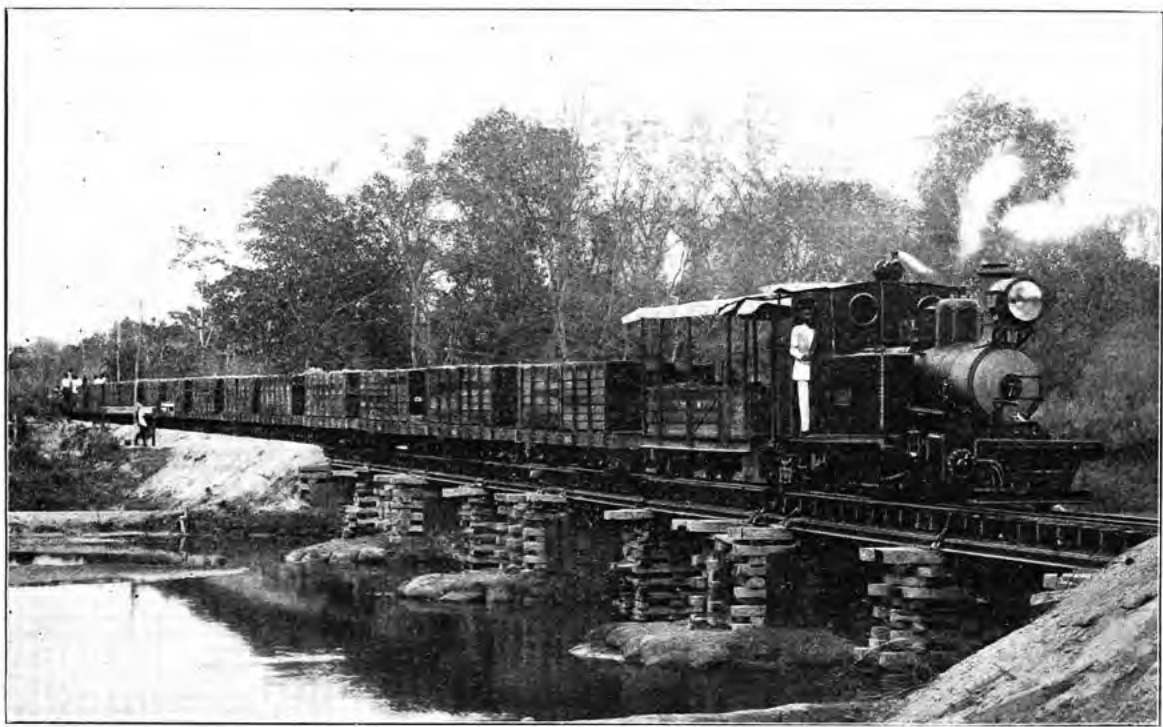
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BULAWAYO MAURITIUS

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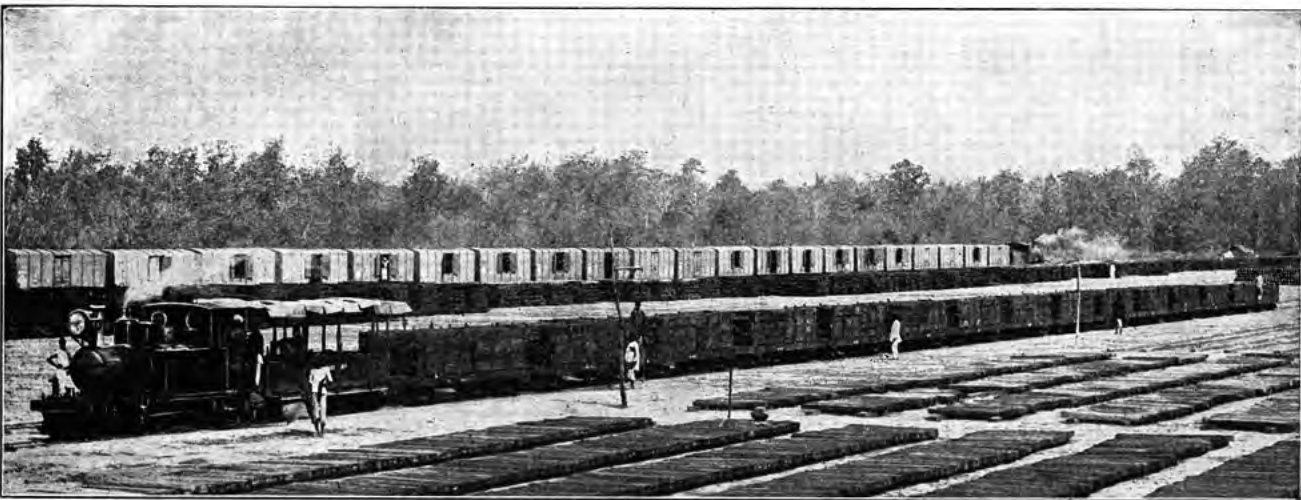
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Views of Hudson Light Railways in operation



THE FOREST RAILWAY IN NEPAL—Loaded train crossing a temporary bridge



A TRAIN LOAD OF TIMBER SLEEPERS ARRIVING AT THE DEPOT

All the railways in NEPAL were built by HUDSONS

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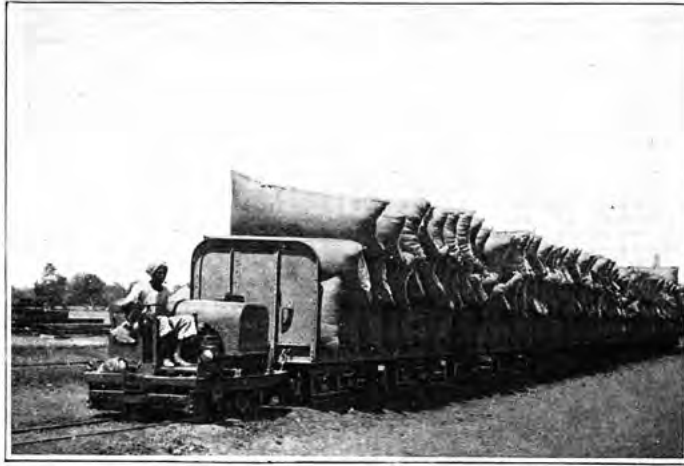
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Views of Hudson Light Railways in operation

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ON A COTTON ESTATE



ON RECLAMATION WORK IN THE FAR EAST

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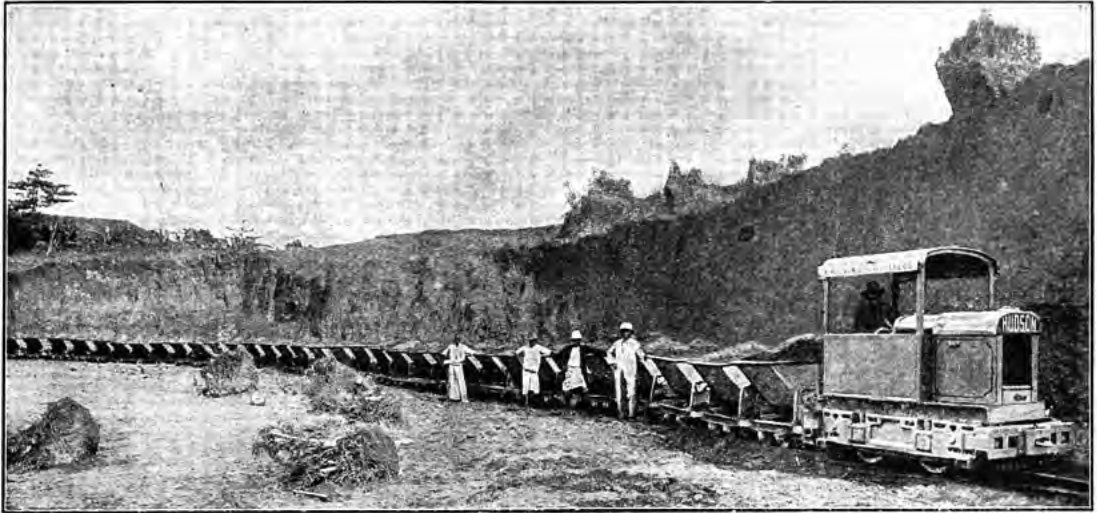
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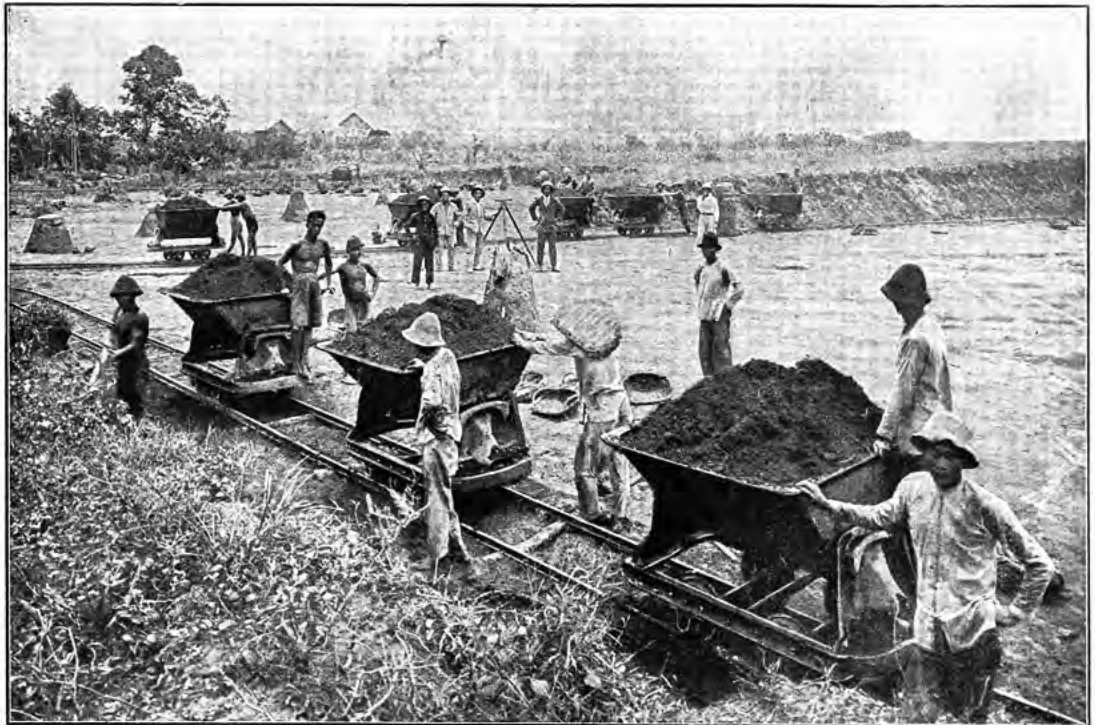
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Views of Hudson Light Railways in operation

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ON CONTRACTORS' WORK IN THE FAR EAST



ON A LAND RECLAMATION SCHEME IN MALAYA

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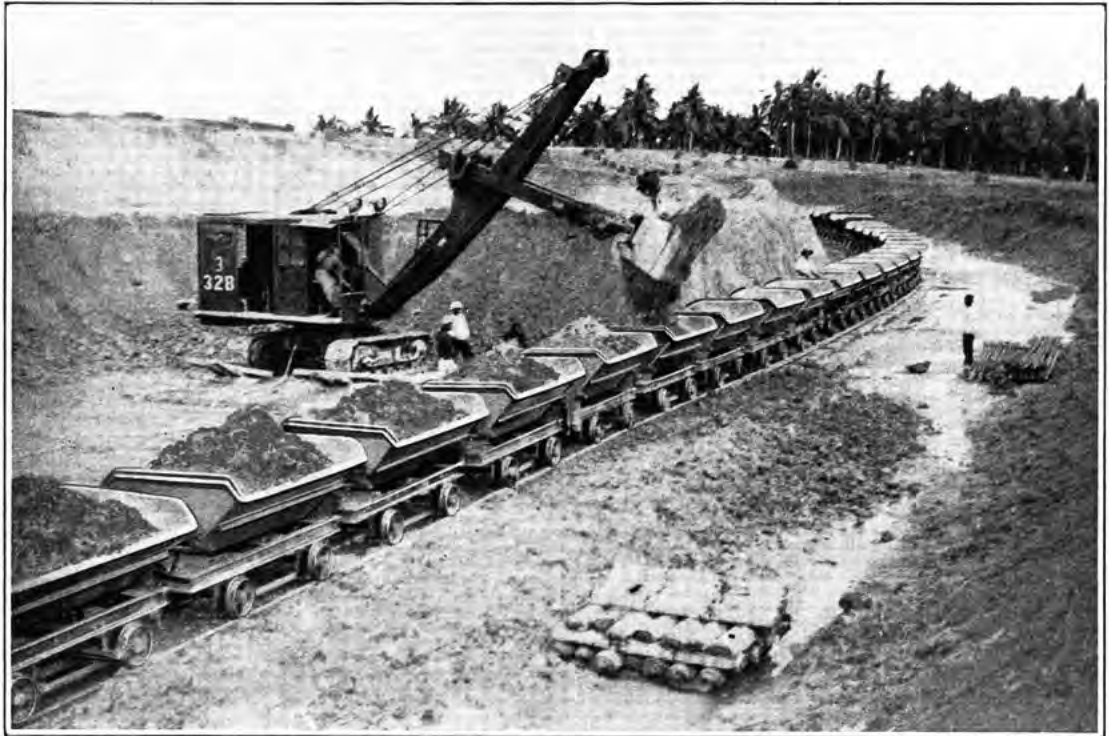
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MATERIAL

Views of Hudson Light Railways in operation

HUDSON
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MATERIAL



ON A CONTRACTING SCHEME IN ENGLAND



ON A RECLAMATION SCHEME IN THE FAR EAST

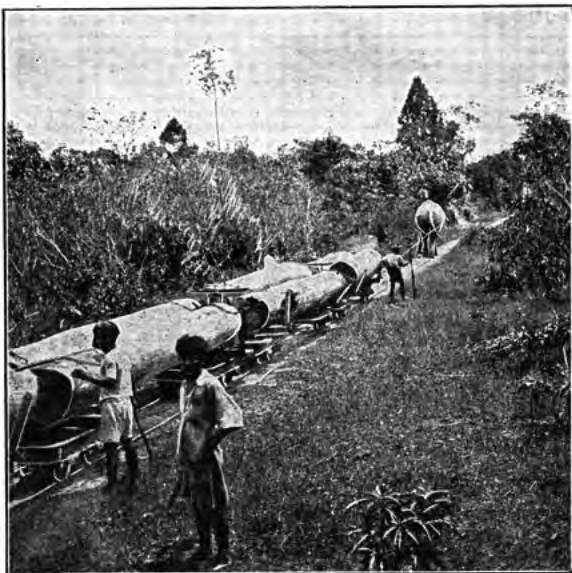
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Views of Hudson Light Railways in operation



ON FOREST WORK IN SIAM



ON A SISAL ESTATE IN EAST AFRICA



ON AN IRRIGATION SCHEME IN MESOPOTAMIA

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Views of Hudson Light Railways in operation

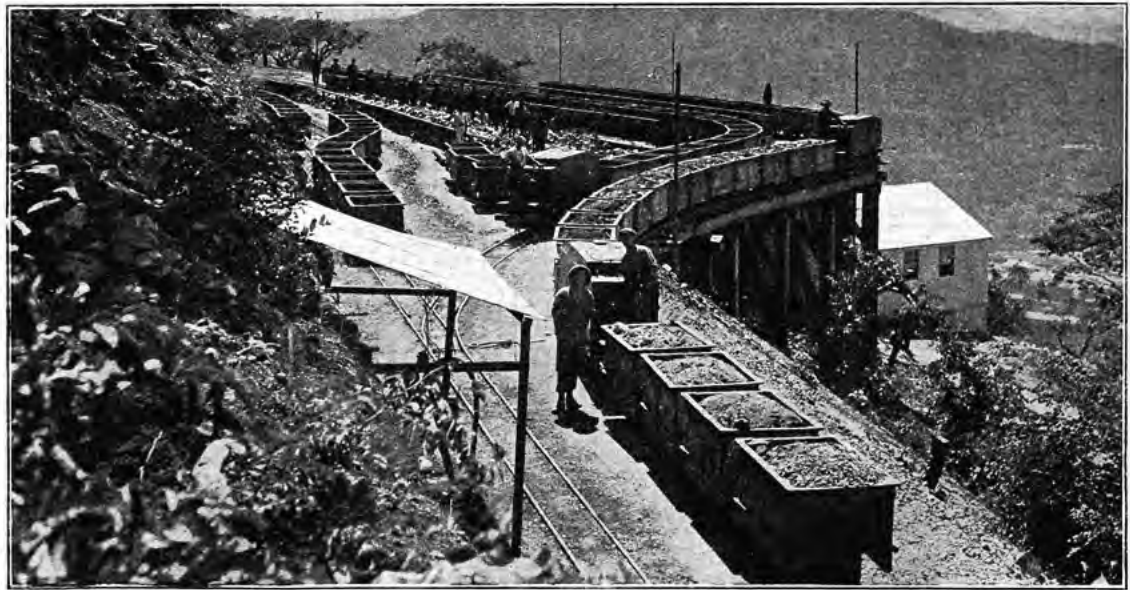
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ON A GOLD MINE IN WEST AFRICA



ON A GOLD MINE IN SOUTH AFRICA



ON A GOLD MINE IN RHODESIA

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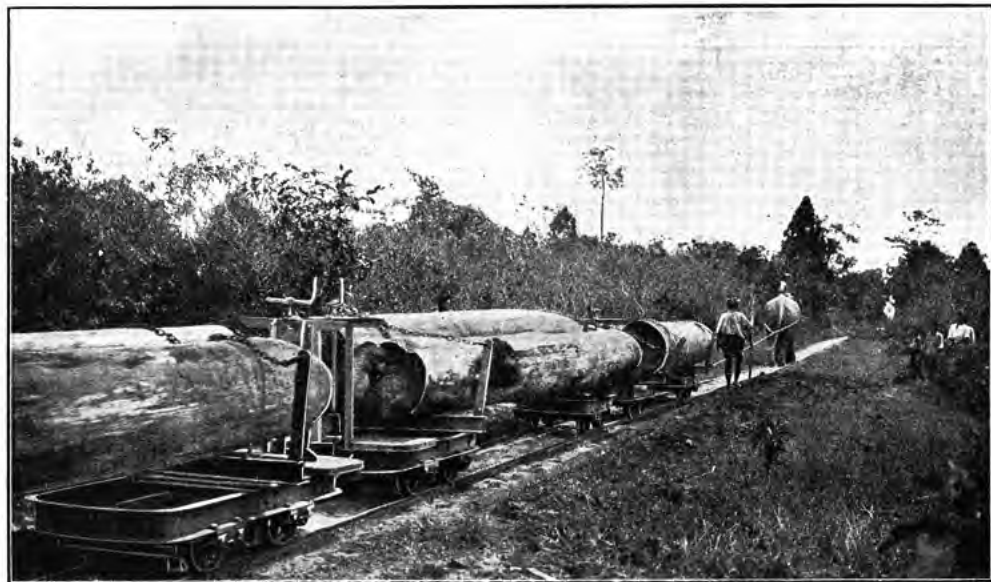
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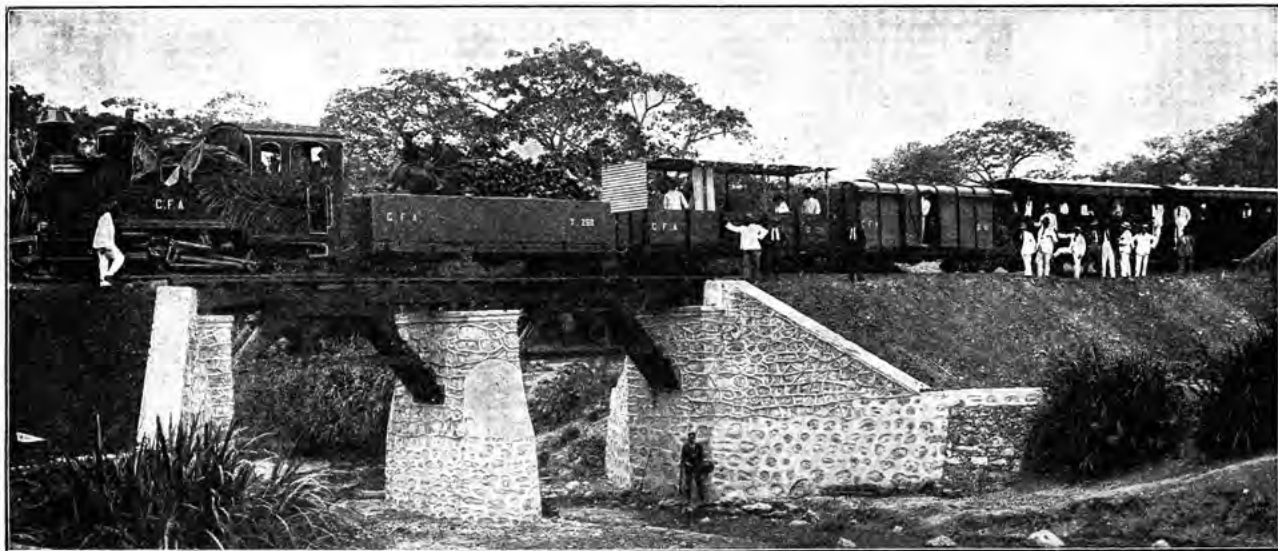
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Views of Hudson Light Railways in operation

HUDSON
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ELEPHANT HAULING LOGS IN SIAM



THE AMBOIM RAILWAY IN PORTUGUESE WEST AFRICA

View of the first train to run when the line was opened to traffic

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Views of Hudson Light Railways in operation

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ON AN OIL PALM ESTATE IN WEST AFRICA



TRANSPORTING POTATOES IN THE ARGENTINE

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BULAWAYO MAURITIUS

R. HUDSON LTD

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Private Code for Hudson Material

For ordinary phrases to suit these Code Numbers use the A.B.C. 6th Edition. We also use MARCONI, BENTLEY, NEW STANDARD 3 LETTER, etc.

INQUIRIES

Telegraph lowest price delivered C.I.F. (—) and earliest date of shipment	= 36761
Telegraph lowest price delivered F.O.B. home port and earliest date of shipment	= 36762
Send by air mail lowest price delivered C.I.F. (—) and earliest date of shipment	= 36763
Send by air mail lowest price delivered F.O.B. home port and earliest date of shipment	= 36764
Telegraph what you have in stock approximately to the following details	= 36765
Repeat our order dated (—)	= 36766
Repeat our order dated (—) but double the quantity	= 36767
Telegraph to-day's price and delivery for repeating our order dated (—)	= 36768
Telegraph to-day's prices and deliveries for goods as per our enquiry dated (—)	= 36769

RAIL GAUGE

18 inches	= 36770	500 mm.	= 36777
20	= 36771	600	= 36778
*24	= 36772	700	= 36779
30	= 36773	750	= 36780
36	= 36774	800	= 36781
42	= 36775	900	= 36782
56½	= 36776	1000	= 36783

* Take careful note that 24 inches gauge is ½ in. wider than 600 m/m.

QUANTITY OF TRACK

1 mile	= 36784	1 kilometre	= 36798
1½	= 36785	1.5	= 36799
2	= 36786	2	= 36800
2½	= 36787	2.5	= 36801
3	= 36788	3	= 36802
3½	= 36789	4	= 36803
4	= 36790	5	= 36804
5	= 36791	6	= 36805
6	= 36792	7	= 36806
7	= 36793	8	= 36807
8	= 36794	10	= 36808
10	= 36795	15	= 36809
15	= 36796	20	= 36810
20	= 36797	25	= 36811

RAILS, SLEEPERS, etc.

Railway Track composed of	Rails with Fishplates only	= 36812
	Rails, Fishplates and Bolts only	= 36813
	Rails, Fishplates, Bolts and Dogspikes	= 36814
	Rails, Fishplates, Bolts and Sleepers	= 36815
Rails in (—) feet lengths with usual shorts	= 36816	
Rails in (—) feet lengths without any shorts	= 36817	
Rails measure (—) high, (—) wide head, (—) wide foot (give in inches or millimetres)	= 36818	
Length of each sleeper (—)	= 36819	
Sleepers spaced (—) per mile of track	= 36820	
Sleepers spaced (—) per kilometre of track	= 36821	
Sleepers with closed ends	= 36822	

SWITCHES, CURVES, ETC.

(See pages 30 to 37)

(—) sets of switches and crossings, half quantity right hand and half left hand	= 36823
(—) sets left hand	= 36824
(—) sets right hand	= 36825
With ordinary kickover points	= 36826
With switchbox and lever	= 36827
Built up complete on steel sleepers	= 36828

TURNABLES

(See pages 38 and 39)

To carry (—) tons on four wheels	= 36829
To carry (—) tons on six wheels	= 36830
Suitable for a wheelbase of (—)	= 36831
Diameter of moving table (—)	= 36832
Engine weighing (—) tons maximum on one pair of wheels will pass over the table but will not be turned on it	= 36833

LOCOMOTIVES

(See page 100)

To haul (—) tons of 2240 lbs. on level	= 36834
To haul (—) tons up incline of 1 in (—)	= 36835
Length of incline (—)	= 36836
Engine to start (—) tons on the incline	= 36837
Speed (—) miles per hour on the level	= 36838
Speed (—) miles per hour up the incline	= 36839
Maximum weight on one axle (—)	= 36840
Minimum weight of rails	= 36841
Radius of sharpest curve (—)	= 36842
Weight empty (—) in tons of 2240 lbs.	= 36843
Weight working (—) in tons of 2240 lbs.	= 36844
Horse power of engine	= 36845
Make of engine	= 36846
Speeds forward and reverse	= 36847
Two speeds (—) and (—) m.p.h.	= 36848
Three speeds (—), (—) and (—) m.p.h.	= 36849
Four speeds (—), (—), (—) and (—) m.p.h.	= 36850
Average working temperature (—) deg. F.	= 36851
Loco to work at (—) feet altitude	= 36852
Brand of fuel available	= 36853
Four wheels coupled	= 36854
Six wheels coupled	= 36855
(—) in. rigid wheelbase	= 36856
Canopy required	= 36857
Totally enclosed cab with heater required	= 36858
Nearest size loco we can offer	= 36859
Loco asked for is not suitable on account of—	
Rails are too light in weight	= 36860
Curves are too sharp in radius	= 36861
Inclines are too steep	= 36862
Buffers overhang too much on the curve	= 36863
Your limits in overall dimensions	= 36864
With electric lighting	= 36865
With electric starting	= 36866
With electric starting and lighting	= 36867
With exhaust gas conditioner	= 36868
Shipped in one piece fully erected	= 36869
Shipped in parts for erection at site	= 36870
Loco number stamped on nameplate	= 36871
Spares for loco made by Messrs. (—)	= 36872
To conform to the ruling dimensions and to suit the rolling stock of the following railway	= 36873
N.B.—For buffer particulars see code numbers in the wagon section	

For ordinary phrases to suit these Code Numbers use the A.B.C. 6th Edition. If you cable us using any of the Code Numbers given below, our reply may contain certain numbers from this list also.

WAGONS, CAPACITY, HAULAGE, etc.

(—) cubic feet filled level	= 36874
(—) tons, each of 2240 lbs.	= 36875
Material to be conveyed is (—)	= 36876
Materials weigh (—) lbs. per cubic foot	= 36877
Haulage { By hand	= 36878
By animals	= 36879
By light locomotives	= 36880
Height of rope or chain from rail level	= 36881
Filled by steam shovels	= 36882
Filled by hand	= 36883
Filled by overhead shutes	= 36884
For use on steep inclines of 1 in (—)	= 36885
For haulage in trains of (—) per train	= 36886
Hinged side doors full length of wagon	= 36887
Small doors on each side of wagon	= 36888
Detachable sides to lift out	= 36889
Detachable ends to lift out	= 36890
Fixed ends	= 36891
Wood body and steel frame	= 36892
(—) sockets for timber stanchions required on each side and (—) on each end	= 36893
All superstructure supplied and fitted at destination	= 36894
Of four-wheeled type	= 36895
Of double bogie type	= 36896
Timber supplied and fitted at destination	= 36897
Holes drilled in ready	= 36898
Holes drilled in at destination	= 36899
Body of wagon to be galvanized	= 36900
Wheelbase (centre to centre) of axles	= 36901
Liner plate in bottom of body	= 36902
Special strengthening necessary for use on inclines of 1 in (—)	= 36903
Article Code (—) suitable but we require	= 36904
Spare sets of (—) to suit article Code (—)	= 36905
Generally as per illustration (—)	= 36906
In sets sufficient for one wagon	= 36907
Platforms of timber (—) thick	= 36908
Platforms of steel (—) thick	= 36909
Platforms of (—) long, (—) wide, (—) high from rail level	= 36910
Height above platform level (—)	= 36911
Drawbars like those on illustration (—)	= 36912
Buffers to join up to those already in use	= 36913
Buffers fitted on the main frame	= 36914
Height from rail to centre of buffer	= 36915
Side buffers width apart, centre to centre	= 36916
Buffers like those as illustration (—)	= 36917
Lug for brake stick	= 36918
Side lever brake	= 36919
Screw brake on four wheels	= 36920
(—) of these wagons to have screw brake	= 36921
(—) additional wagons fitted with screw brake	= 36922
Brake on four wheels of one bogie	= 36922

PRICE

Price in shillings each	= 36923
Price in £ each	= 36924
Price in £ lump sum	= 36925
Price in £ per mile	= 36926
Price in £ per kilometre	= 36927
Price in shillings per 100 lbs. weight	= 36928
Price in shillings per ton of 2000 lbs.	= 36929
Price in shillings per ton of 2240 lbs.	= 36930
Price in shillings per ton of 1000 kilograms	= 36931
Price subject to a few small modifications	= 36932
Price based on all being ordered at one time	= 36933
Price to our alternative design	= 36934
Price if only one is ordered	= 36935
Price C.I.F., excluding consular fees, customs, wharfage, dues, lighterage, and all charges at port of destination	= 36936
Prices F.O.B. and C.I.F. are respectively (—) and (—)	= 36937
Price per set, sufficient for one wagon	= 36938
Price of standard article without any alteration	= 36939
Price subject to our approval of specification and conditions of contract	= 36940
Price does not include for any tests or analysis	= 36941
Price based on using nearest British sizes	= 36942

FREIGHT AND PACKING

Prices based on to-day's rate of freight, any variation for your account	= 36943
Charge freight at cost price extra	= 36944
Estimate will measure about (—) cu. ft. per ton of net weight	= 36945
C.I.F. ex ship's tackle	= 36946
Freight by direct steamer only included	= 36947
If by transhipment steamer extra cost	= 36948
By mail steamer at extra cost	= 36949
Cannot pack economically	= 36950
Packed along with other goods ordered, if sent separately will incur extra freight cost	= 36951
If you can order (—) we can reduce (—)	= 36952
Sent partly riveted to save freight	= 36953
(—) rivets each to put in at destination	= 36954
Packages bolted up for easy division at port into small packages of (—) weight	= 36955

DRAWINGS

Omit following dimension	= 36956
Dimensions and scale differ, which is correct?	= 36957
Dimensions do not appear correct	= 36958
Give insufficient detail of (—)	= 36959
Sending alternative drawing	= 36960
Minor details on drawing revised to suit our nearest standard	= 36961
We consider the design should be altered as regards the (—) and are therefore altering same unless you cable	= 36962
Customer's drawing No. (—)	= 36963
Hudson Drawing No. (—)	= 36964



Weights and Dimensions



The weight of material varies greatly, we give this list as a general guide only.

Table of English dimensions and their Metric equivalents

Material	Estimated	
	Lbs. per cubic foot	Cubic feet per ton of 2240 lbs.
Ashes	44	51
Ballast (Loose)	112	20
Basalt (Broken)	170	13
Blue Lias (Broken)	140	16
Bones	50/70	45/32
Caliche	83	27
Cement (Clinker)	100	22
Cement (Portland)	86/90	26/22
Chalk (Lumps)	77	29
Clay (Solid)	80/120	28/18
Clay (Loose)	78	28
Coal (Average Loose)	50/56	45/40
Charcoal (Loose)	18	124
Coke (Broken)	30	75
Concrete	120	18
Earth (Loose)	78	28
Elm	36	62
Granite (Broken)	150	15
Gravel (Average)	109	21
Graphite	140	16
Gypsum (Broken)	120	18
Iron Ore (Clydesdale)	190	12
Iron Ore (Brown)	236	9
Iron Ore (Red)	320	7
Limestone (Broken)	90	25
Massecuite	83	27
Maize	41	54
Manure (artificial)	56	40
Mortar	86	26
Mud (Wet Fluid)	110	20
Nitrate	64	35
Oak	50	45
Phosphate	100	22
Pitch	60	37
Plumbago	140	16
Potatoes	47	48
Peat (Dry)	31	72
Peat (Wet)	62	36
Quartz (Broken)	142	15
Quartz (Sand)	170	13
Salt (Solid)	131	17
Salt (Dried)	56	40
Sand (River)	117	19
Sand (Pit)	95	23
Sandstone (Broken)	140	16
Shingle	88	25
Slate	157	14
Stone (Broken)	142	16
Sugar Cane	32/56	70/40
Teak	40	56
Water (Fresh)	62	36

1/16 inches = 1.58 mm.	1 mm. = .039 inches	1 cu. ft. = 28 litre
" = 3.17 "	2 " = .078 "	2 " = 56 "
" = 4.76 "	3 " = .118 "	3 " = 85 "
" = 6.35 "	4 " = .157 "	4 " = 113 "
" = 7.93 "	5 " = .196 "	5 " = 141 "
" = 9.52 "	6 " = .236 "	6 " = 169 "
" = 11.11 "	7 " = .275 "	7 " = 198 "
" = 12.70 "	8 " = .315 "	8 " = 226 "
" = 14.28 "	9 " = .354 "	9 " = 254 "
" = 15.87 "	10 " = .393 "	10 " = 283 "
" = 17.46 "	11 " = .433 "	13 1/2 " = 382 "
" = 19.05 "	12 " = .472 "	16 " = 453 "
" = 20.63 "	13 " = .511 "	18 " = 509 "
" = 22.22 "	14 " = .551 "	20 " = 566 "
" = 23.81 "	15 " = .590 "	27 (1 cu. yd.) = 764 "
1 " = 25.40 "	20 " = .787 "	30 cu. ft. = 849 "
2 " = 50.80 "	25 " = .984 "	
3 " = 76.20 "	30 " = 1.181 "	36 cu. ft. = 1.01 M ³
4 " = 101.60 "	40 " = 1.574 "	40 " = 1.13 "
5 " = 127.00 "	50 " = 1.968 "	54 (2 cu. yds.) = 1.53 "
6 " = 152.39 "	60 " = 2.362 "	3 cu. yds. = 2.29 "
7 " = 177.79 "	70 " = 2.755 "	4 " = 3.05 "
8 " = 203.19 "	80 " = 3.149 "	5 " = 3.82 "
9 " = 228.59 "	90 " = 3.543 "	6 " = 4.58 "
10 " = 253.99 "	100 " = 3.937 "	7 " = 5.34 "
11 " = 279.39 "	200 " = 7.874 "	8 " = 6.11 "
12 " = 304.79 "	300 " = 11.811 "	9 " = 6.87 "
18 " = 457.20 "	400 " = 15.748 "	10 " = 7.64 "
20 " = 508.00 "	500 " = 19.685 "	11 " = 8.40 "
24 " = 609.60 "	600 " = 23.622 "	12 " = 9.16 "
30 " = 762.00 "	700 " = 27.559 "	13 " = 9.93 "
	800 " = 31.496 "	14 " = 10.69 "
	900 " = 35.433 "	15 " = 11.46 "
		16 " = 12.22 "
3 feet = .91 metres	1 metre = 3 ft. 3.37 in.	.25 M ³ = 8.8 cu. ft.
4 " = 1.22 "	1.5 " = 4 ft. 11.05 in.	.50 " = 17.6 "
5 " = 1.52 "	2.0 " = 6 ft. 6.74 in.	.75 " = 26.4 "
6 " = 1.82 "	2.5 " = 8 ft. 2.42 in.	1.0 " = 35.3 "
7 " = 2.13 "	3 " = 9 ft. 10.11 in.	1.5 " = 52.9 "
8 " = 2.43 "	4 " = 13 ft. 1.48 in.	2.0 " = 70.6 "
9 " = 2.74 "	5 " = 16 ft. 4.85 in.	3 " = 105.9 "
10 " = 3.04 "	6 " = 19 ft. 8.22 in.	4 " = 141.2 "
11 " = 3.35 "	7 " = 22 ft. 11.59 in.	5 " = 176.5 "
12 " = 3.65 "	8 " = 26 ft. 2.96 in.	6 " = 211.9 "
13 " = 3.96 "	9 " = 29 ft. 6.33 in.	7 " = 247.2 "
14 " = 4.26 "	10 " = 32 ft. 9.70 in.	8 " = 282.5 "
15 " = 4.57 "	11 " = 36 ft. 1.07 in.	9 " = 317.8 "
16 " = 4.87 "	12 " = 39 ft. 4.44 in.	10 " = 353.1 "
17 " = 5.18 "	13 " = 42 ft. 7.81 in.	11 " = 388.4 "
18 " = 5.48 "	14 " = 45 ft. 11.18 in.	12 " = 423.8 "
19 " = 5.79 "	15 " = 49 ft. 2.55 in.	13 " = 459.1 "
20 " = 6.09 "	16 " = 52 ft. 5.92 in.	14 " = 494.4 "
21 " = 6.40 "	17 " = 55 ft. 9.29 in.	15 " = 529.7 "
22 " = 6.70 "	18 " = 59 ft. 0.66 in.	16 " = 565.0 "
23 " = 7.00 "	19 " = 62 ft. 4.00 in.	17 " = 600.3 "
24 " = 7.31 "	20 " = 65 ft. 7.40 in.	18 " = 635.7 "
25 " = 7.62 "	21 " = 68 ft. 10.78 in.	19 " = 671.0 "
26 " = 7.92 "	22 " = 72 ft. 2.15 in.	20 " = 706.3 "
27 " = 8.23 "	23 " = 75 ft. 5.52 in.	21 " = 741.6 "
28 " = 8.53 "	24 " = 78 ft. 8.89 in.	22 " = 776.9 "
29 " = 8.84 "		
30 " = 9.14 "		

100 gallons = 454 litres	1 mile = 1760 yards = 1609.3 metres.	10 lbs. per cubic foot = 160 kilogs. per cubic metre.
100 litres = 22 gallons	1 kilom. = 1093.6 yards = 3281 feet.	100 kilogs. per cubic metre = 6.25 lbs. per cubic foot.
100 gallons = 16 cubic feet	1 kilog. per metre = 2.0159 lbs. per yard	1 kilog. per sq. centimetre = 14.22 lbs. per sq. inch.

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