

MEANS FOR MECHANICALLY OILING THE WHEELS OF TRAMWAY AND LIKE VEHICLES.
APPLICATION FILED OCT. 2, 1920.

1,416,668.

3 SHEETS—SHEET 1.

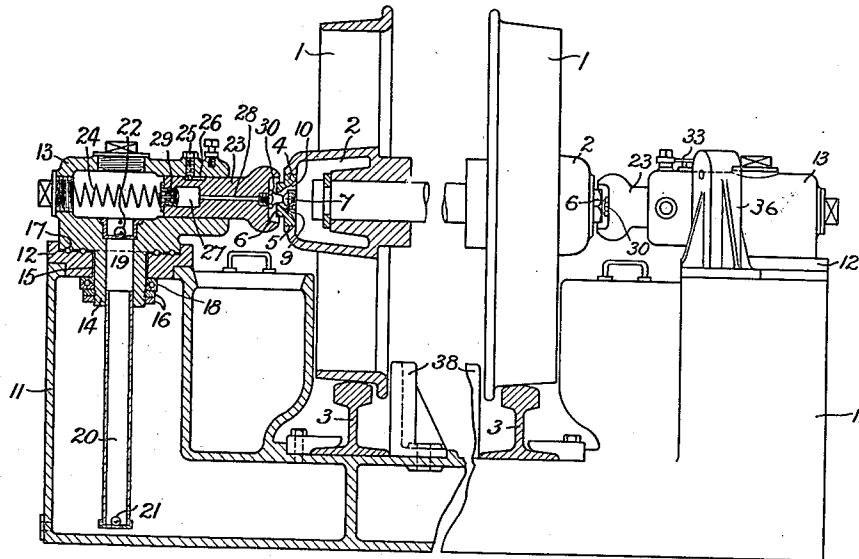
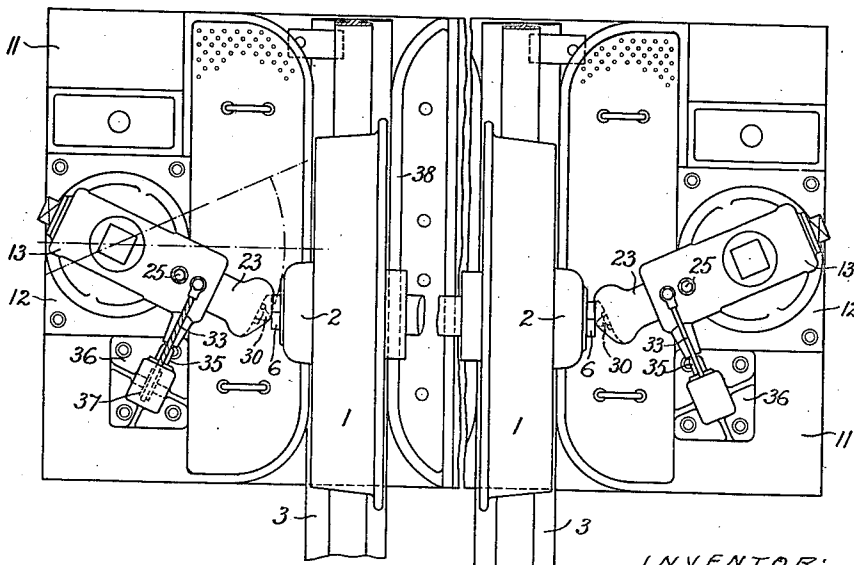


Fig. 1.



INVENTOR:

Fig. 2.

Tom Abbott
By Wm Wallace White
ATTY.

T. ABBOTT.
MEANS FOR MECHANICALLY OILING THE WHEELS OF TRAMWAY AND LIKE VEHICLES.
APPLICATION FILED OCT. 2, 1920.

1,416,668.

Patented May 23, 1922.

3 SHEETS—SHEET 2.

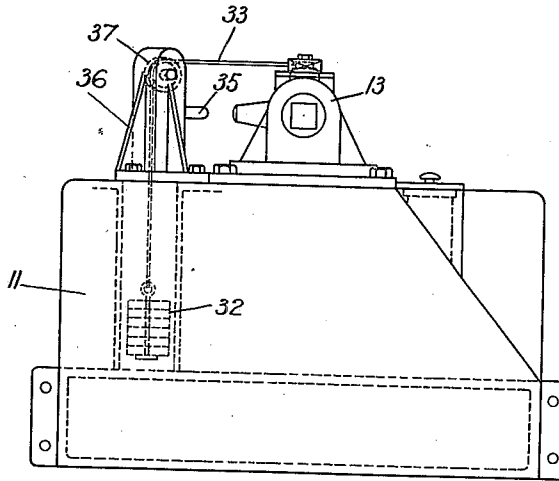


Fig. 3.

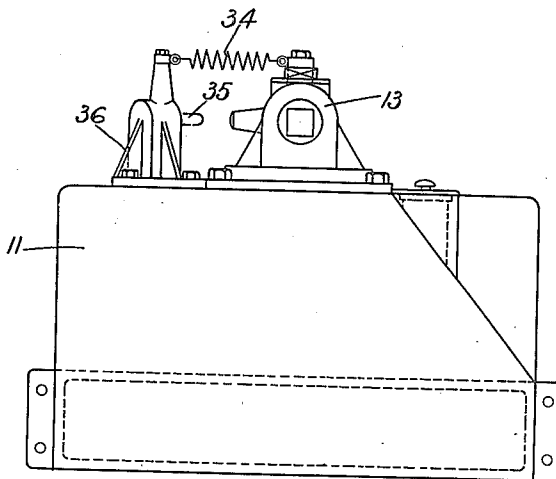
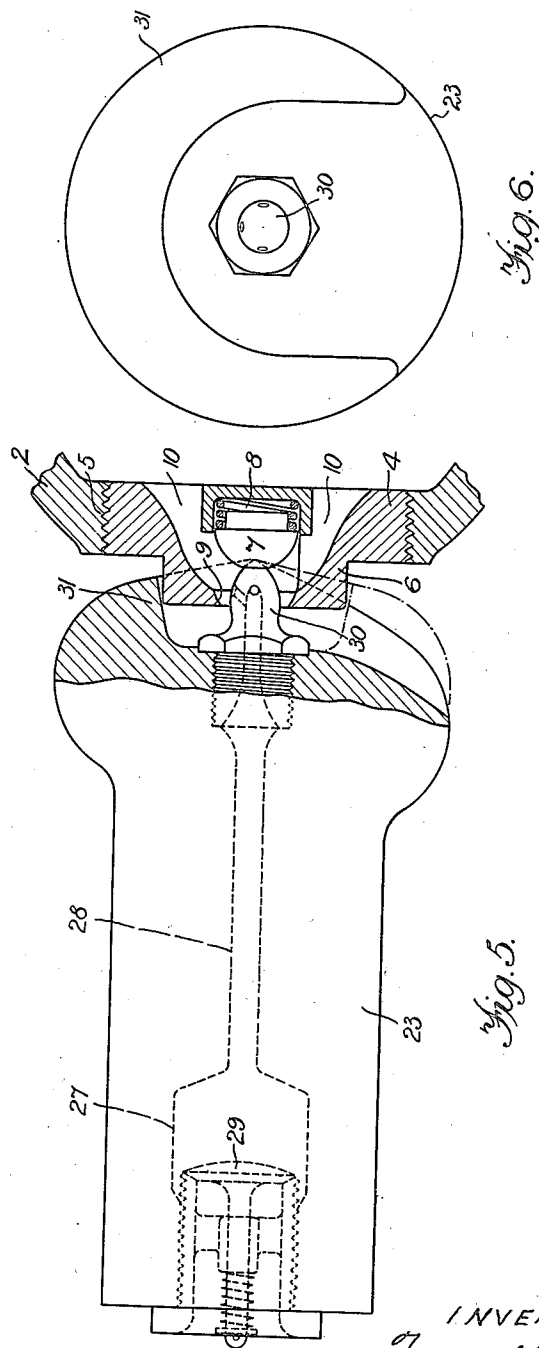


Fig. 4.

INVENTOR:

Tom Abbott
By Wm Wallace White
ATTY

T. ABBOTT.
 MEANS FOR MECHANICALLY OILING THE WHEELS OF TRAMWAY AND LIKE VEHICLES.
 APPLICATION FILED OCT. 2, 1920.
 1,416,668.
 Patented May 23, 1922.
 3 SHEETS—SHEET 3.



INVENTOR:
 Tom Abbott
 BY Wm Wallace White
 ATTY.

UNITED STATES PATENT OFFICE.

TOM ABBOTT, OF PONTYCLUN, LLANTRISANT, WALES.

MEANS FOR MECHANICALLY OILING THE WHEELS OF TRAMWAY AND LIKE VEHICLES.

1,416,668.

Specification of Letters Patent. Patented May 23, 1922.

Application filed October 2, 1920. Serial No. 414,331.

To all whom it may concern:

Be it known that I, TOM ABBOTT, a subject of the King of Great Britain and Ireland, residing at 30 Llantrisant Road, Pontyclun, Llantrisant, South Wales, have invented new and useful Improvements in Means for Mechanically Oiling the Wheels of Tramway and like Vehicles, of which the following is a specification.

10 The invention consists of improved means for mechanically oiling the wheels of the tramway vehicles that are used in mines and the wheels of other like vehicles.

15 The invention has been devised with the object of producing means, fulfilling the above referred to purpose, which can be used with vehicles that are provided with cham-bered hubs of ordinary construction, that is to say means which will not entail any par-20 ticular construction of the parts of the hubs of the wheels of the vehicles.

25 The improved means consist of pumps which are arranged at the two sides of a track for the vehicles and comprise fixed oil wells or tanks, pump cylinders which are supplied with oil from said wells or tanks, mounted thereon in such manner that they can swivel on fixed axes and are normally directed toward the vehicles to be oiled, 30 spring-controlled plungers which reciprocate in said cylinders and are provided at their front ends with nipples adapted to co-operate with the hubs of the vehicles, and means for returning said swivelling cylin-35 ders to their normal positions when the oiling of a pair of wheels has been effected.

The invention is illustrated by the accom-panying drawings.

40 Fig. 1 is a part vertical section and part elevation illustrating the invention, the right half of the figure being in elevation and the left half thereof in section.

Fig. 2 is a plan of the parts shown in Fig. 1.

45 Fig. 3 is an elevation of one of the oil wells or tanks and parts secured thereto, as seen from the outer side of the well or tank, the pump cylinder and piston being shown in mid-position.

50 Fig. 4 is a view, corresponding to Fig. 3, illustrating alternative means for returning the cylinders to their normal positions.

Fig. 5 is a part section and part elevation, drawn to an enlarged scale, of one of the

55 plungers of the oil pumps and a part of the chambered hub of the wheel of a vehicle, and Fig. 6 is an end view of said plunger, drawn to the same scale as Fig. 5.

Referring now to these drawings, 1 are two of the wheels of a tramway vehicle such as is used in mines, and 2 are the chambered hubs of the wheels 1. 3 are rails for said wheels. 4 are housings that engage with 60 screwed holes 5 formed in the outer walls of the chambered hubs 2 and are provided with projecting bosses 6 of hexagonal shape 65 so that they may be readily screwed into the holes 5. 7 are buttons which are constantly pressed by springs 8 against seatings 9 formed in the central parts of the outer 70 walls of the chambered hubs 2, and 10 are passages formed in the housings 4 through which oil can be injected into the hubs 2. The above described construction of cham-75 bered hub is one of those commonly employed on tramway vehicles used in mines and forms no part of the present invention. 11 are tanks or wells, hereinafter referred to as wells, which contain the oil to be used for oiling the vehicles and serve as supports 80 for the rails 3. These wells 11, though they may form parts of a single casting, are preferably made separate from one another so that the same wells may be used with tracks of varying gauge, distance pieces of widths 85 differing according to the gauges of the rails being interposed between the wells and bolted to the inner faces of the lower parts there- of. 12 are plates fixed to the upper parts of the wells 11, and 13 are cylinders which are 90 mounted on the plates 12 in such manner that they can swivel on fixed axes. For this purpose the cylinders 13 may be formed with downwardly projecting bosses 14 and the plates 12 with holes 15 and the cylinders be 95 secured in position by means of nuts 16 en- gaging with the lower parts of said bosses, ball bearings 17 and 18 being interposed be- tween the cylinders 13 and the upper sur- 100 faces of the plates 12 and between the up- permost of the nuts 16 and the lower faces of the plates 12. 19 are passages leading from the lower ends of the bosses 14 to the interiors of the cylinders 13, and 20 are dip 105 tubes screwed into the bosses 14 and extend- ing to a short distance from the bottoms of the wells 11. 21 and 22 are automatic valves fitted to the lower ends of the dip tubes 20

and to the upper ends of the passages 19. 23 are plungers fitting the front ends of the cylinders 13, and 24 are springs bearing at their ends against the rear ends of said plungers and the rear walls of the cylinders 13. 25 are screws which engage with the cylinders 13 and with grooves 26 formed in the plungers 23, and serve not only as a means for limiting the movement of the plungers but as a means for preventing same rotating in the cylinders 13. 27 are cavities formed in the plungers 23, and 28 are passages leading from the front ends of the cavities 27 to the front ends of the plungers 23. 29 are non-return valves fitted to the rear ends of the plungers 23. 30 are nipples at the front ends of the plungers 23, which are preferably formed separate from the plungers and screwed into same. The fronts of the plungers 23 are made of a shape appropriate to the particular constructions of the hubs of the vehicles to be oiled. When said wheels are fitted with housings 4 provided with projecting bosses 6 the front ends of the plungers 23 may be made of the shape shown in section in Fig. 5 and in front elevation in Fig. 6, that is to say the front ends of the plungers may be formed with projections 31 of horseshoe shape. They may however be merely cupped or recessed at their centres, as shown in chain lines in Fig. 5. In either case the projecting parts at the front ends of the plungers 23, surrounding the nipples 30, serve as guards for protecting the nipples when the plungers are swung backwards at the completion of the oiling of a pair of wheels. The cylinders 13 are returned to their normal positions, when displaced therefrom, either by means of weights 32, secured to wire ropes 33 which in their turn are attached to the cylinders, as shown in Figs. 2 and 3, or by means of springs 34, as shown in Fig. 4, said normal positions being determined by stops 35. These stops 35 may be supported by or formed in one with castings 36 bolted to the tops of the wells 11, said castings serving when the cylinders are returned to their normal positions by means of the weights 32 as supports for guide pulleys 37 for the ropes 33, and when springs are used in lieu of weights as parts to which are attached the relatively fixed ends of said springs. The stops 35 preferably consist of plungers slidably mounted in the castings 36 and controlled by somewhat stout springs, as this construction of stop enables the cylinders 13 and plungers 23 to yield when the vehicle is travelling in a backward direction.

Suitable means are provided for ensuring that the hubs 2 of the wheels 1 shall be in correct position when passing the oiling apparatus, a result which may be attained, see Figs. 1 and 2 of the drawings, by making the inner faces of the oil wells 11 of the nec-

essary shape and securing guide rails 38 to said oil wells at the inner sides of the rails 3.

The parts described above co-operate as follows:—

The normal positions of the cylinders 13 and plungers 23 are shown in full lines in Fig. 2. As the wheels of a vehicle travelling on the rails 3, in the direction of the arrow *a*, reach the outer ends of the plungers 23 the hexagonal parts 6 of the housings 4 will contact with the inner faces of the forward parts of the horseshoe shaped or like parts 31 surrounding the nipples 30, and the cylinders 13 will commence to swivel on their axes of rotation and the nipples 30 will come into contact with the buttons 7, which will be pressed backwards and compress the springs 8 controlling same. When the springs 8 have fully compressed the plungers 23 will in their turn be pressed back, the non-return valves 29 will be opened, and oil will be injected into the hubs of the wheels until the cylinders 13 move into a position when their axes are at right angles to the rails 3. As the vehicle travels onwards the cylinders 13 will be swung still further on their axes of rotation and the plungers 23 will eventually become disengaged from the projecting parts 6 of the hubs of the wheels and be returned by the weights 32 or the springs 34 to their normal positions, in readiness to oil a fresh pair of wheels.

Although the improved means for mechanically oiling the wheels of vehicles have been described with reference to vehicle wheels which are provided with the particular construction of chambered hubs illustrated by the accompanying drawings the use of the invention is not necessarily confined to wheels fitted with this particular construction of hubs.

What I have invented and desire to secure by Letters Patent of the United States is as follows:—

1. Means for mechanically oiling the wheels of tramway and like vehicles consisting of pumps arranged at the two sides of a track for the vehicles and comprising fixed oil wells, pump cylinders supplied with oil from said wells, mounted on said wells so as to swivel on fixed axes and are normally directed toward the vehicles to be oiled, spring-controlled plungers reciprocating in said cylinders and provided at their front ends with nipples adapted to co-operate with the hubs of the wheels of the vehicles, stops for determining the normal positions of said cylinders, and means for returning said cylinders to their normal positions when the oiling of a pair of wheels has been effected, substantially as described.

2. Means for mechanically oiling the wheels of tramway and like vehicles con-

sisting of fixed oil wells located one at each side of a track for the vehicles, plates closing the upper ends of said oil wells, pump cylinders mounted on said plates, formed with bosses having passages communicating 5 with said cylinders, and secured in position by means of nuts engaging with said bosses, plungers fitting the front ends of said cylinders, formed with cavities and with passages 10 leading from said cavities to the front ends of the plungers, and provided at their rear ends with non-return valves, nipples at the front ends of said plungers communicating with the passages leading from said cavities, dip tubes secured to the lower ends of the 15 bosses formed on said cylinders, automatic valves fitted to the lower ends of said dip tubes and to the upper ends of the passages formed in the bosses of said cylinders, means 20 for returning said cylinders to their normal positions when displaced therefrom, and stops for determining the normal positions of said cylinders, substantially as described.

In testimony whereof I have signed my name to this specification.

TOM ABBOTT.