

No. 641,062.

Patented Jan. 9, 1900.

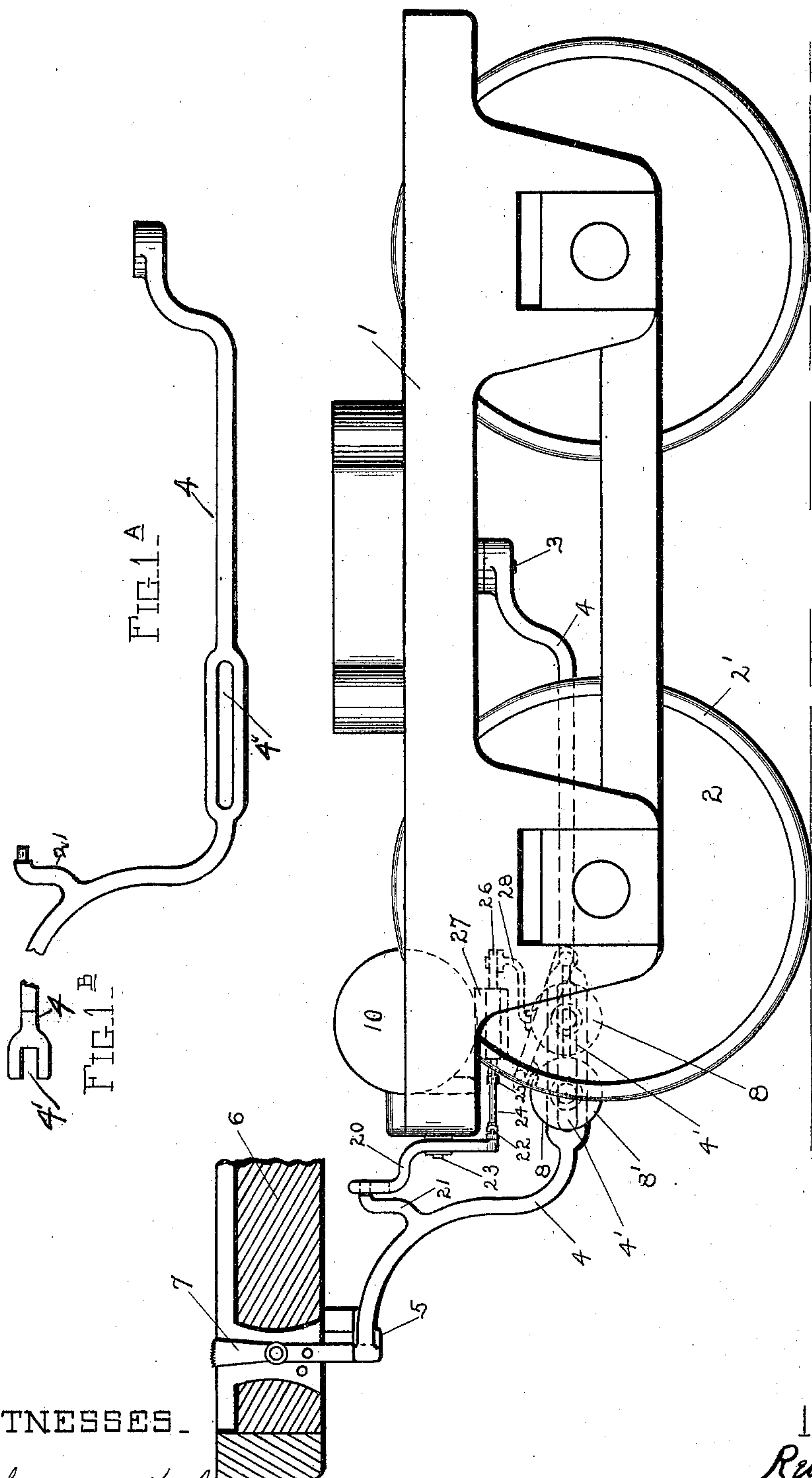
R. G. YORK.

RAILWAY TRACK LUBRICATOR.

(Application filed Sept. 5, 1899.)

(No Model.)

3 Sheets—Sheet II.



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3 Sheets—Sheet 2.

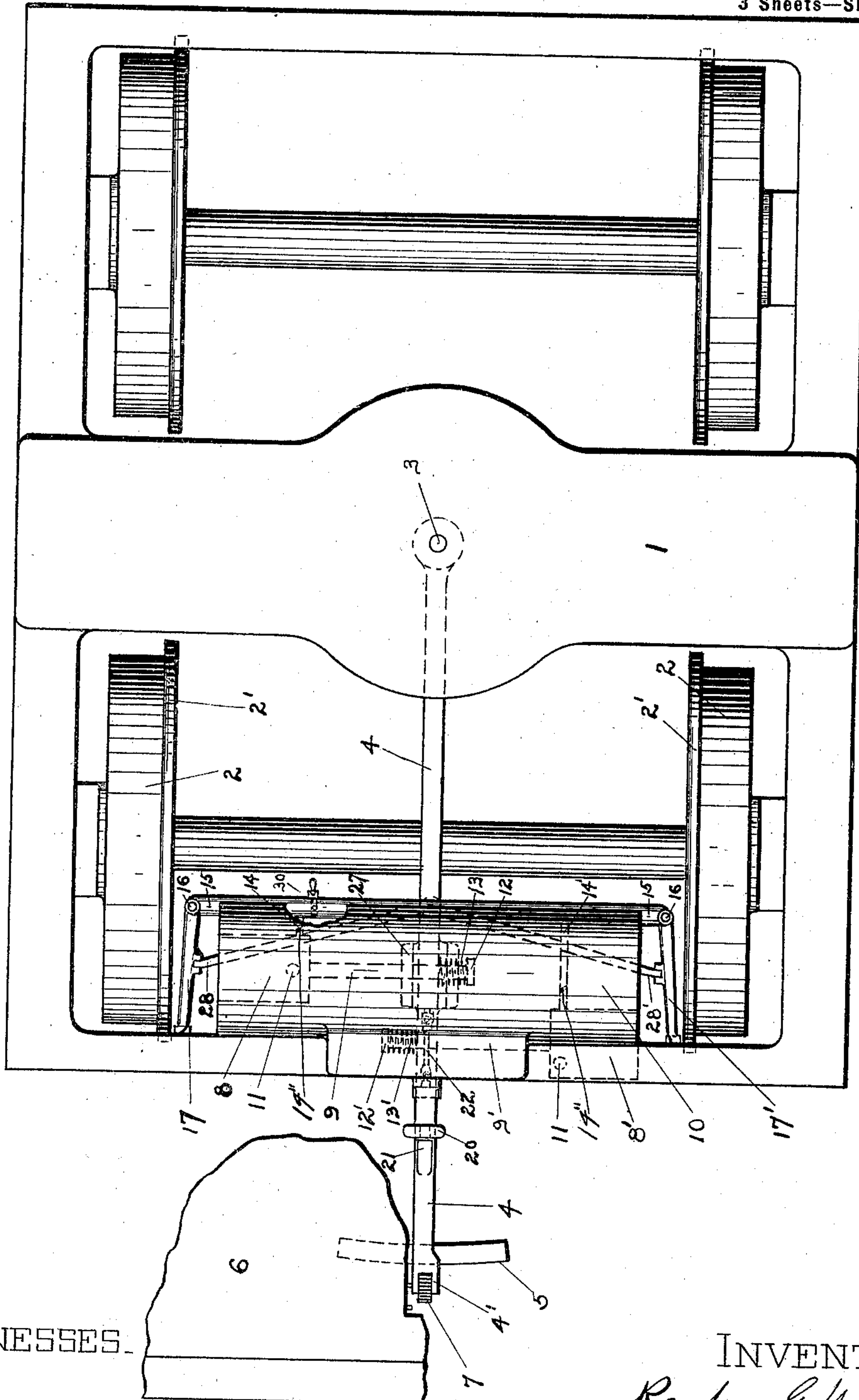


FIG. 2.

WITNESSES.

Thomas C. Keokau.
J. Joseph Doherty.

INVENTOR.

Reuben G. York,
by Louis H. Hamman,
Attorney.

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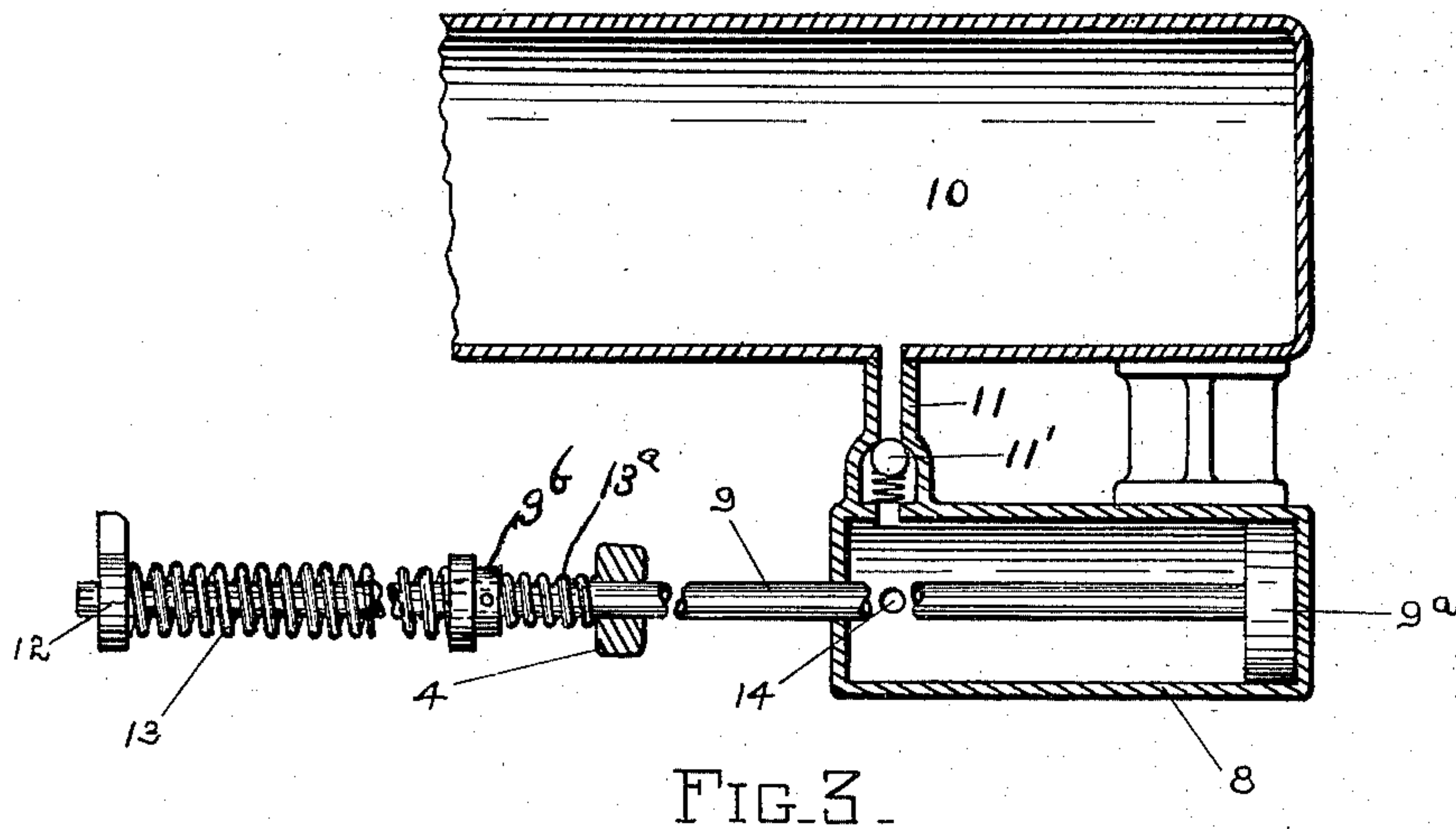


FIG. 3.

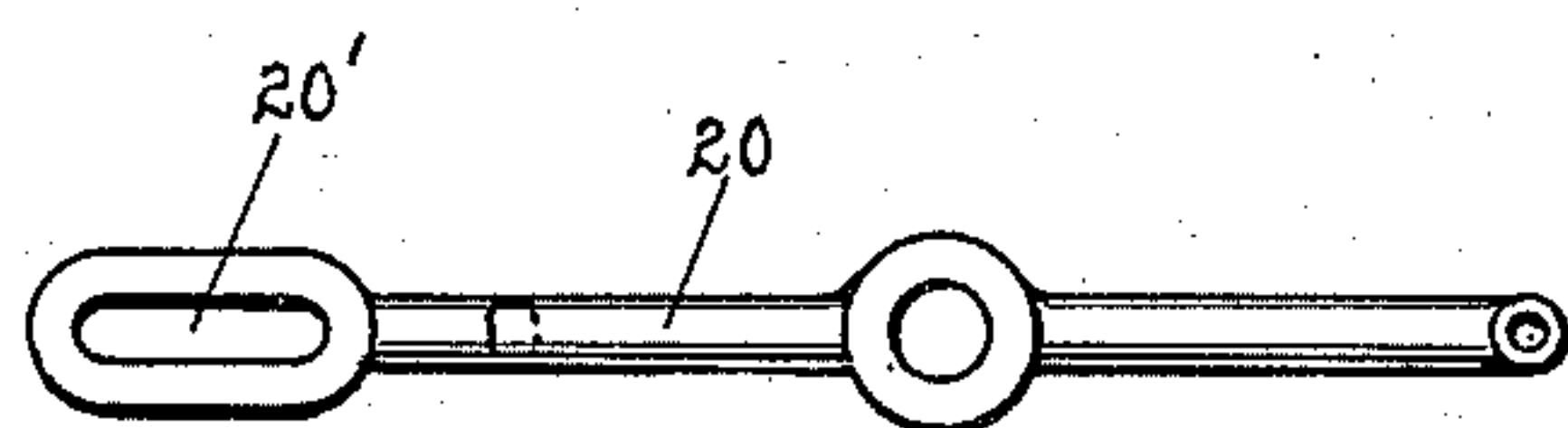


FIG. 4.

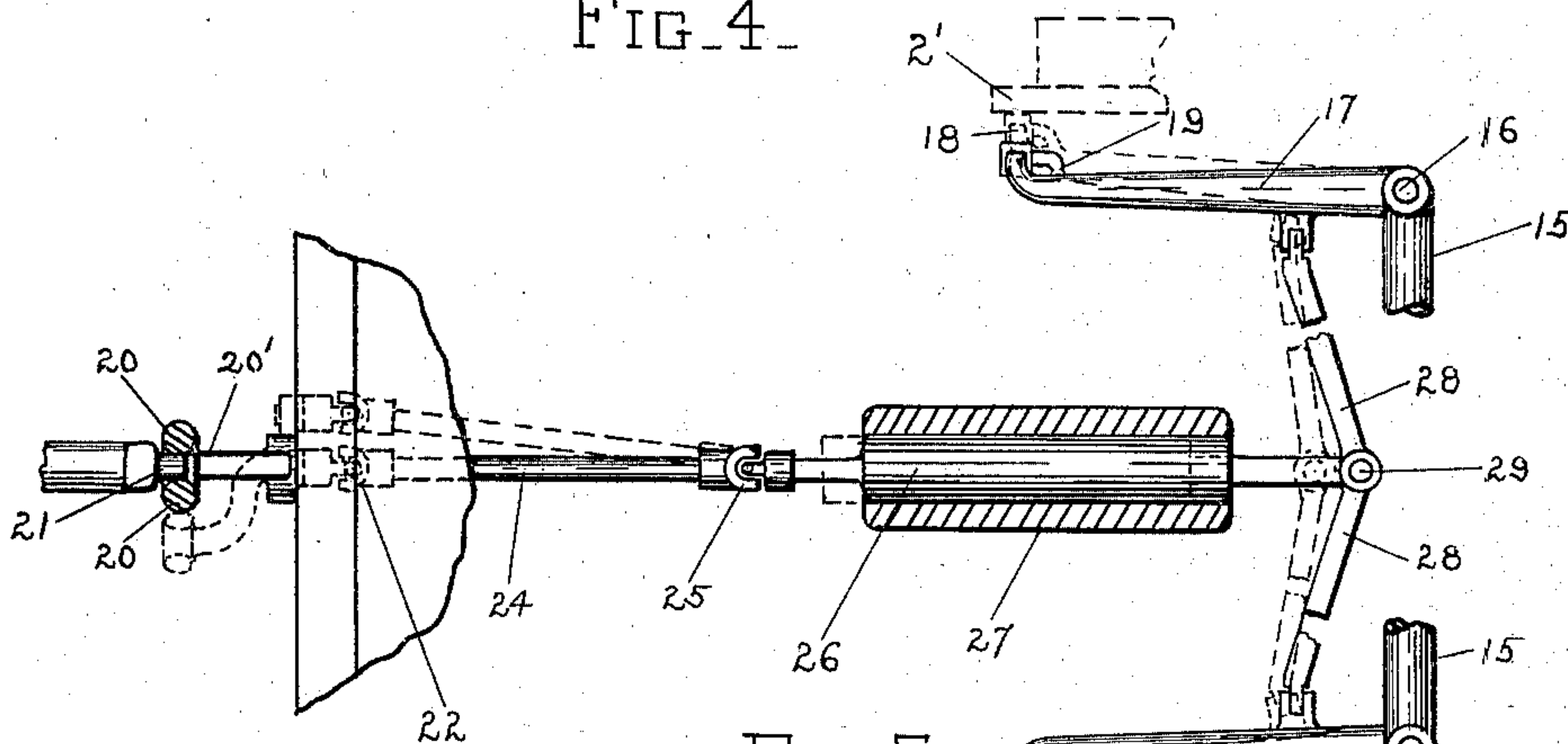


FIG. 5.

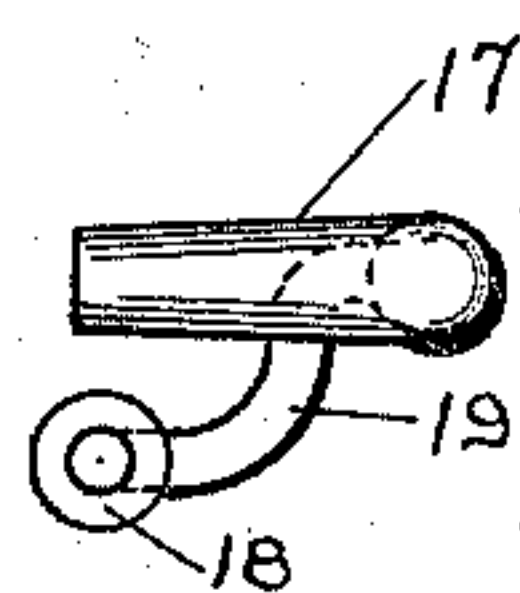


FIG. 6.

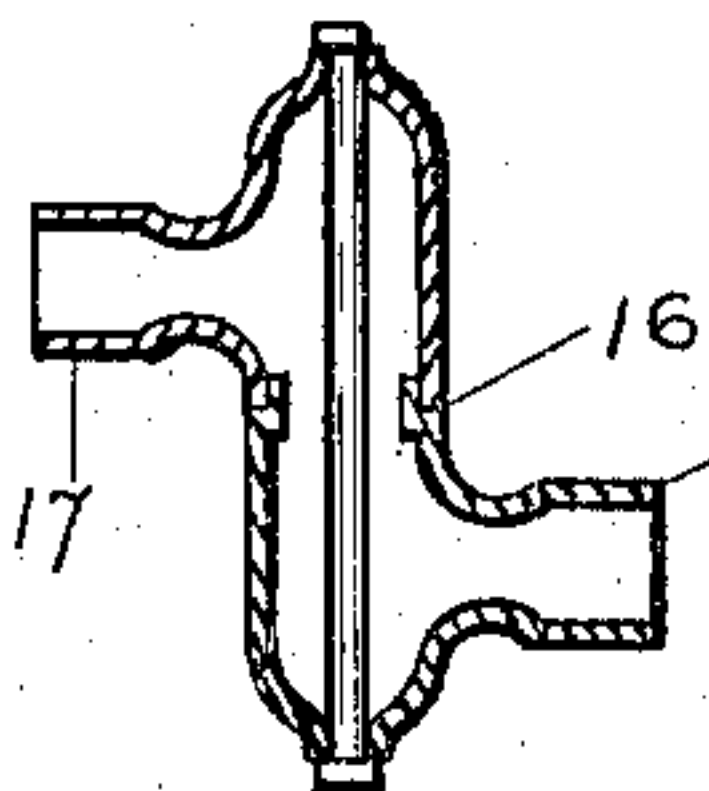


FIG. 7.

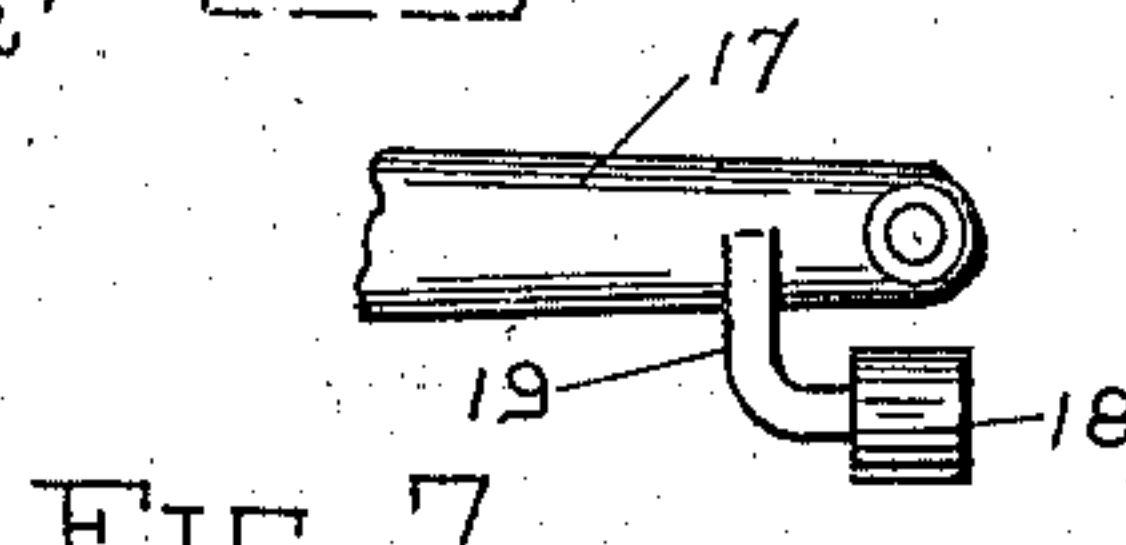


FIG. 8.

WITNESSES.

Thomas C. Keohane
J. Joseph Doherty.

INVENTOR.

Reuben G. York,
by Louis H. Hamman,
Attorney.

UNITED STATES PATENT OFFICE.

REUBEN G. YORK, OF LYNN, MASSACHUSETTS.

RAILWAY-TRACK LUBRICATOR.

SPECIFICATION forming part of Letters Patent No. 641,062, dated January 9, 1900.

Application filed September 5, 1899. Serial No. 729,553. (No model.)

To all whom it may concern:

Be it known that I, REUBEN G. YORK, a citizen of the United States, and a resident of Lynn, in the county of Essex and State of Massachusetts, have invented certain new and useful Improvements in Railway-Track Lubricators, of which the following is a specification.

It is well known that it is a common practice to lubricate the guard-rails of street-railways at the curves, where the flanges of the car-wheels bear against the guard-rails as the car passes the curve, and also at other points where there is excessive wear, as at frogs and switches. These guard-rails are generally used wherever the outer rail of the curve cannot be raised above the level of the street. As the tracks are usually laid the greatest wear comes on the inner guard-rail, particularly when the curve is sharp. There is also additional friction on the inner wheel, due to the necessary slip as it passes a curve. So far as I am aware it has been customary to apply the lubricant to these guard-rails and at other points by hand.

The object of my invention is to provide a simple device which will automatically apply a suitable amount of lubricant to that portion of the flange of the car-wheel which receives the principal amount of wear as the car passes the curve at the time of passing.

In carrying out my invention I preferably utilize the relative motion between the truck and car-body as the car passes the curve to operate the apparatus for discharging the lubricant and applying the same to the desired point.

For a more complete disclosure of my invention reference is made to the accompanying drawings, in which—

Figure 1 is a side elevation of a car-truck provided with my invention. Figs. 1^A and 1^B show detail views of the main operating-bar. Fig. 2 is a plan view of the same. Fig. 3 is a detail view of one of the pumps. Fig. 4 is a detail of one of the operating-levers. Fig. 5 is a detached view of a preferred form of apparatus for applying the oil to the wheels. Figs. 6, 7, and 8 are detail views of parts of the same.

Referring to the drawings, 1 indicates the body of the forward truck of an ordinary dou-

ble-truck car, and 2 the forward wheels thereof, having the usual flanges 2'. The king-bolt 3, on which the truck turns with respect to the car-body, is located at the center thereof. A main operating-bar 4 extends from the bottom of the king-bolt, so that its opposite end rests on a curved supporting-plate 5, which is suitably secured to the under side of the floor of the car-body 6. The end of this bar is provided with a suitable notch 4', (see Fig. 1^A), with which the lower end of a foot-lever 7 is adapted to engage. This foot-lever is pivoted to the car-body 6 and extends up through the floor of the car, so that its upper end may be within easy reach of the motorman. As will hereinafter appear, it is not necessary that the bar 4 be pivoted to the king-bolt; but it may be pivoted to any part of the car which does not swing with the truck.

Connected to the forward end of the truck and at opposite sides thereof are two pump-cylinders 8 8', which are arranged horizontally, and therefore have their piston-rods 9 9' extending horizontally. An oil-tank 10 is connected to each cylinder by a pipe 11, in which is placed a spring-pressed check-valve 11'. (See Fig. 3.) The piston-rods 9 9' each pass through an elongated horizontal slot 4'' in the bar 4 in opposite directions. The outer ends of the piston-rods pass through brackets 12 12', (see Fig. 3,) which are suitably connected to the truck. A collar 9^b is secured to each piston-rod, and a spring 13 is interposed between said collar and said bracket 12, so that it will force the piston 9^a back to its rearmost position when the piston is not drawn out by the bar 4, as hereinafter explained. A spring 13^a is interposed between each collar 9^b and the bar 4. Both cylinders are provided with discharge-pipes 14, having the usual pump check-valves 14'. These pipes are connected to the main pipe 15, which extends across the truck. Connected to each end of pipe 15 by flexible joints 16 (shown in detail in Fig. 8) are discharge-pipes 17 17'. These pipes are shown as extending upwardly at an angle of about forty-five degrees (see dotted lines in Fig. 1) and have their discharge ends turned outwardly adjacent to the flanges 2' of the car-wheels. Rollers 18 18' are journaled on brackets 19 19', which are carried by the pipes 17

17'. These rollers are arranged directly below and somewhat in advance of the discharge ends of pipes 17 17', so that when these pipes are swung outwardly by the mechanism hereinafter to be described the rollers will bear against the inner sides of the wheel-flanges. The axes of these rollers should be parallel to a radius of the wheels.

Pivoted on a horizontal pivot 23, which extends forwardly from the front end of the truck, is a lever 20. This lever is provided with a slot 20' at the upper end thereof.

The bar 4 is provided with a projection 21, which engages the slot 20'. The lower end of lever 20 is connected by a universal joint 22 to a link 22', which latter is connected by a universal joint 25 to a longitudinally-movable rod 26, which is arranged to slide in the box 27. Box 27 is secured against movement in any direction to the truck. The opposite end of rod 22 from joint 25 extends some distance beyond the end of box 27, where it is pivoted to two links 28 28' at the joint 29. These links 28 28' are pivoted at their opposite ends to pipes 17 17', respectively, and are preferably made of flat spring-steel bars, suitably curved, as shown in dotted lines in Fig. 1, so that they will bend readily.

The operation is as follows: As the car enters on the curve of the track the forward truck will at once begin to turn with respect to the car-body. The bar 4 being connected at both ends with the car-body does not swing with the truck. If the truck turns to the right when it begins to swing, carrying with it the pump-cylinders, the spring 13^a will at once begin to bear against the bar 4, and on further motion of the truck the piston will be drawn toward the head of the cylinder. When the piston is moved, the cylinder being filled with oil which is prevented from returning to the tank 10 by check-valve 11', a certain quantity of the oil must be discharged into the pipe 14, then into main pipe 15, and out from the ends of both branch pipes 17 17'. As the force tending to move the piston 9^a acts through a spring, there is no danger of overstrain on the parts due to sluggishness in the movement of the oil and quickness of the swinging of the truck. The lateral motion of the piston-rod with respect to the bar 4 is accommodated by the slot 4'' therein, so that there is no binding of the parts. If the truck swings to the left, the spring 13^a on the opposite piston-rod 9' is compressed, and the piston of cylinder 8' is drawn out and the oil discharged in precisely the same manner as previously described. At the same time the truck swings in one direction the upper end of lever 20 will be thrown in the opposite direction—left, as indicated in dotted lines in Fig. 5—the result being that the lower end thereof will be thrown to one side and upwardly, thus materially increasing the distance from the lower end of the lever 20 to the normal position of joint 25, (shown in full lines in Fig. 5,) drawing forward the link 24

and rod 26 to the position indicated in dotted lines in the same figure. The result is that joint 29 is drawn forward, throwing the pipes 17 17' outwardly, so that the rolls 18 18' bear against the flanges 2' of the wheels 2, so that they will roll thereon as the wheels rotate. These rolls will be yieldingly held against the wheel-flanges, as the links 28 28' are resilient, permitting the usual lateral motion of the car-axle. At the same time that the rolls are thrown against the wheel-flanges the oil will be discharged from the ends of the pipes 17 17', the piston of the pumps being moved simultaneously with the pipes 17 17'. This simultaneous discharge of the oil and engagement of the rolls with the flanges of the wheels is made possible by the upwardly-extending discharge-pipes 17 17', which retain the oil in the main pipe 15 and pipes 17 17', so that both will be constantly full of oil, and any slight additional supply of oil to pipe 15 will cause it to flow out of the ends of pipes 17 17'. As the oil is sluggish in its motion it will not ordinarily be thrown against the wheel-flange, but will simply run down and be transferred to the surface of the rollers 18 18' between the point over the axis thereof and the point of contact with the wheel, and as the rollers will be rotated by the wheel toward the same the oil will at once be transferred to the wheel-flange, so that each time the car passes the curve the point of contact between the wheel and guard-rail will be perfectly lubricated. After the car passes the middle of the curve the piston will be free to be returned by the spring 13. As the piston is returned a fresh supply of oil equal in amount to that discharged will be drawn from the reservoir 10 into the cylinder 8. The usual pump check-valves in the pipes 14 prevent the piston from drawing back the oil from pipe 15 to the cylinder.

By providing an obstruction in pipe 15, as a valve 30, between the points where the two pipes 14 14' are connected to pipe 15 the proportion of oil which will be applied to the wheel which is on the outer rail of the curve to that which is on the inner may be varied, so that much less may be applied to the outer wheel than to the inner. By totally closing the valve no oil whatever will be discharged on the outer wheel.

As it will usually be desirable to have an apparatus for the purpose described on each end of the car, so that the forward wheels will be lubricated whichever way the car is going, it will also be desirable to have some means of throwing the apparatus on the rear truck out of action. I accomplish this by means of the foot-lever 7, which may be thrown in and out of engagement with the notch 4' in the end of bar 4. When the lever 7 is thrown out of engagement with the bar 4, the latter will no longer be connected to the car-body, but it will then be swung from one side to the other with the truck, the front end of the bar being supported on the sup-

porting-plate 5 as the truck swings back and forth. As the bar will thus be swung with the pumps, the pistons will not be moved.

The above-described apparatus may be readily applied to single-truck cars, where there is no relative motion between the truck and car-body, by providing some convenient hand operating means for throwing the bar 4 in either direction.

Although I have described a particular form of apparatus for carrying out the desired function set forth, yet I do not wish to confine myself to this particular form, as other forms of apparatus may be made without departing from the spirit of my invention.

Having described my invention, what I claim as new, and desire to secure by Letters Patent of the United States, is as follows:

1. A car having a wheel-truck which is capable of motion with respect to the car-body as the car passes along a curve, means carried by the car for applying a lubricant to the car-wheel which is automatically operated upon the movement of the truck with respect to the car-body.

2. In a car, a wheel-truck, a pivotal connection between said truck and the car-body, means carried by said truck for applying a lubricant to the flange of the car-wheel, connections between said means and the car-body whereby said means will be operated when the truck swings with respect to the car-body.

3. In a car, a wheel-truck, a pivotal connection between the truck and car-body, a pump carried by said truck, pipe connections between said pump and the wheel, and means carried by said car-body which is adapted to

operate said pump when the truck turns with respect to the car-body.

4. In a car, a wheel-truck, a pivotal connection between the truck and car-body, a pump carried by said truck, connections between said pump and the car-wheel, means for operating said pump carried by the car-body, a yielding connection between said means and the pump, whereby, when the truck turns with respect to the car-body, the working parts of the pump will not necessarily be moved to an extent corresponding to the movement of the truck.

5. In a car, a wheel-truck, a pivotal connection between the truck and car-body, a pair of pump-cylinders, a main pipe terminating adjacent to one of the wheels on each side of the truck, a separate pipe connecting each pump-cylinder with said main pipe, a valve located in said main pipe between the points where said pipes are connected to said main pipe, and means for operating one of said pumps when the truck turns in either direction.

6. In a car, a wheel-truck, a pipe terminating adjacent to the flange of the car-wheel, means for discharging a lubricant there-through, a roller journaled directly beneath the end of said pipe, and means for moving said roller into and out of engagement with the flange of the car-wheel.

In testimony whereof I have affixed my signature in presence of two witnesses.

REUBEN G. YORK.

Witnesses:

LOUIS H. HARRIMAN,
THOMAS C. KEOHAN.