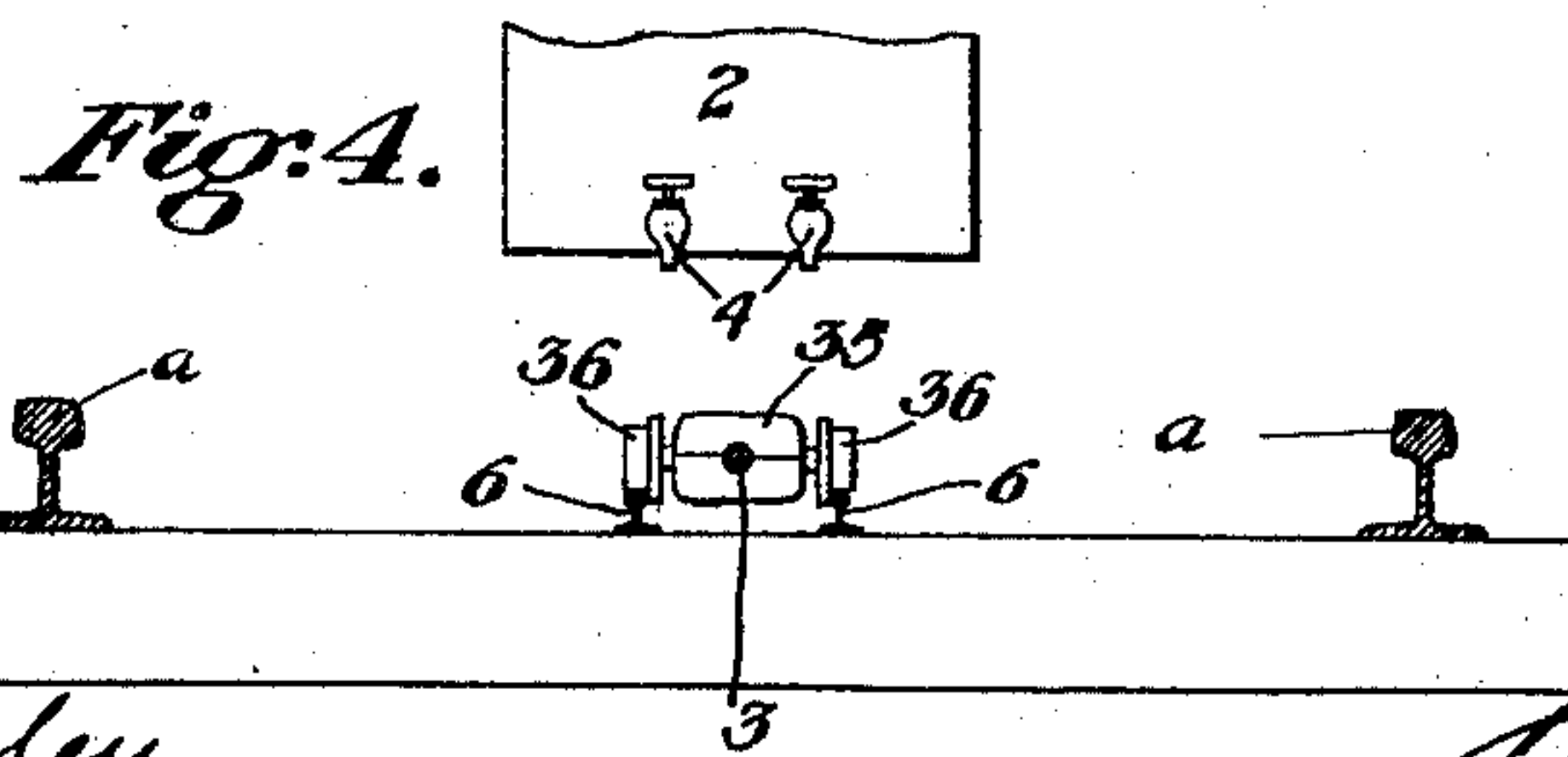
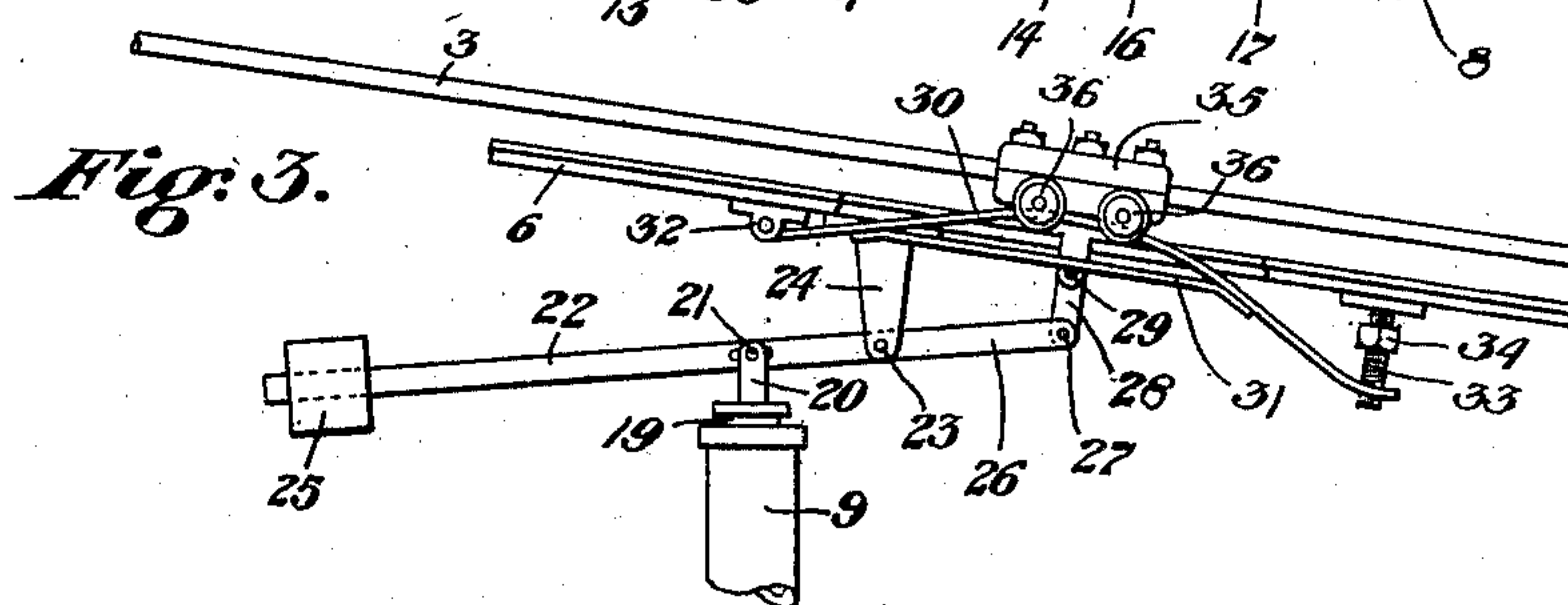
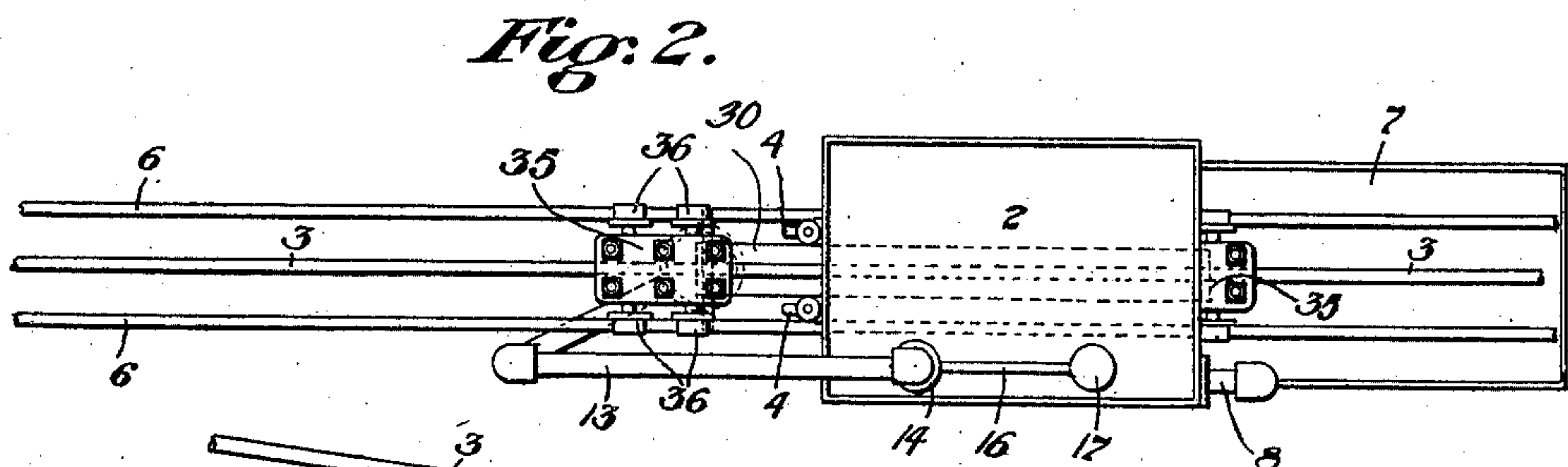
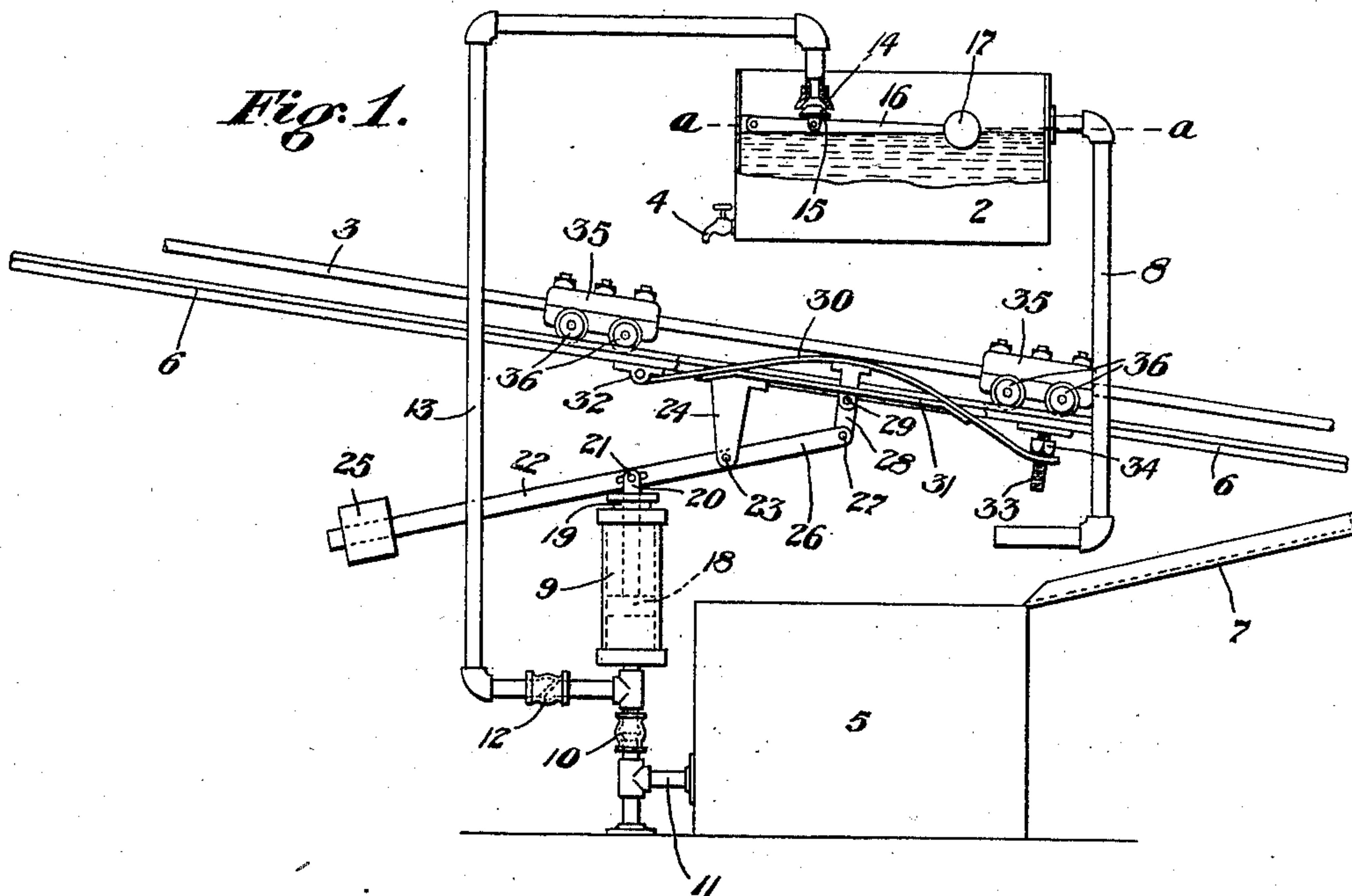


J. M. HOPWOOD.  
AUTOMATIC OILING DEVICE.  
APPLICATION FILED AUG. 18, 1909.

967,774.

Patented Aug. 16, 1910.



Witnesses:

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Henry Sims.

Inventor:

John M. Hopwood  
By V. C. M. Clark  
His Attorney



# UNITED STATES PATENT OFFICE.

JOHN MAITLAND HOPWOOD, OF BELLE VERNON, PENNSYLVANIA, ASSIGNOR OF ONE-HALF TO D. C. THOMAS, OF PITTSBURG, PENNSYLVANIA.

## AUTOMATIC OILING DEVICE.

967,774.

Specification of Letters Patent.

Patented Aug. 16, 1910.

Application filed August 16, 1909. Serial No. 513,162.

*To all whom it may concern:*

Be it known that I, JOHN M. HOPWOOD, a citizen of the United States, residing at Belle Vernon, in the county of Washington and State of Pennsylvania, have invented certain new and useful Improvements in Automatic Oiling Devices, of which the following is a specification, reference being had therein to the accompanying drawing.

My invention relates to means for automatically oiling the truck supporting wheels of a cable of a haulage system and consists of pumping mechanism adapted to force oil from a reservoir to a supply tank on a higher level, operable by means of mechanism adapted to be engaged by supporting carriages secured to the cable and running on a supporting track.

Referring to the drawings; Figure 1 is a view of the entire apparatus in side elevation. Fig. 2 is a plan view thereof. Fig. 3 is a partial view similar to Fig. 1 showing the operating shoe depressed and the pump plunger elevated. Fig. 4 is a cross sectional view.

In the operation of haulage systems it is necessary to keep the journals of the supporting carriages of the haulage cable well oiled, and for this purpose I provide a supply tank 2, located above the line of travel of the wheels of the cable carriages and having two delivery faucets or cocks 4 adapted to deliver the oil drop by drop on the wheel journals as long as the tank 2 is full of oil. While tank 2 may contain a variable supply and will furnish oil to the faucets if filled to any level above them, it is designed that the tank shall be normally kept filled with oil up to about the level of the line *a, a*, for which purpose I have provided the automatic pumping mechanism actuated by the power of any suitable abutment, carriage or operating device secured to and traveling with the cable 3. It will be understood that the cars operated by cable 3 run on main tracks *a, a*, of the cable rails 6.

5 represents a main supply tank, preferably located beneath the runway of the cable, which is ordinarily located between its carrying tracks 6, a drip pan 7 being preferably extended from one end of tank 5 and adapted to return the surplus oil to the tank as it falls below.

8 represents an overflow pipe leading from supply tank 2 at the normal level *a, a*,

whereby any overflow or surplus oil is returned to the main tank 5.

9 represents the cylinder of a pump, connected through vertical check valve 10 and pipe 11 with main tank 5 and through check valve 12 and supply pipe 13 with the supply tank 2, into the upper portion of which it discharges the oil as pumped, through a valve controlled terminal 14.

15 is a check valve mounted on a lever arm 16 having a controlling float 17, whereby the valve-controlled terminal of pipe 13 is closed when the oil has risen to the normal level *a, a*, the valve being open when the oil falls below said level.

18 is the plunger of pump 9, which plunger, or an extension thereof projects upwardly through a suitable stuffing box 19 and by its terminal 20 is pivotally connected at 21, preferably by a slotted bearing or other suitable construction, with the operating lever 22. Said lever is fulcrumed at 23 in a suitable bracket or support 24 and extends outwardly beyond pivotal connection 21 for a sufficient distance to provide it with an attached counterweight 25 providing ample leverage to depress plunger 18 for performing the pumping operation. At its other end, lever 22 is provided with a short extension 26 pivoted at 27 to an arm 28, which may be rigid or jointed as at 29, as preferred, and which is provided at its upper portion with a resilient shoe 30. Said shoe is arched as shown, extending longitudinally of the track-way between the rails, preferably provided with a stiffening or reinforcing piece 31 for the major portion of its length. At one end shoe 30 is secured below the track-way and cable 3 to any suitable holding bracket or attachment 32, its other end engaging a regulating screw or stud 33 projecting downwardly from any suitable mounting, and provided with one or more adjusting nuts 34 by which its position may be accurately regulated.

35 represents a carriage or abutment of any suitable form mounted upon and supporting the cable 3 and provided with supporting wheels 36 running on tracks 6, which abutment is designed to depress shoe 30 as it runs over it in either direction.

The operation is as follows: As the shoe 30 is depressed it depresses the short end 26 of counterweighted lever 22, elevating the weighted end of said lever and the plunger



18, the oil running through pipe 11 and check valve 10 into the lower portion of the cylinder 9. Upon release of pressure from the shoe the counterweight 25 and lever 22 depresses plunger 18, whereupon check valve 10 closes against pressure and the oil passes through check valve 12 and pipe 13 into the tank 2. This operation is repeated as long as it is necessary until said tank is filled with oil up to the normal level *a, a*, whereupon float 17 rising, closes check valve 15, and is held with sufficient force thereagainst to prevent further delivery of oil, so that plunger 18 having been raised by depressing shoe 30, the plunger and shoe will remain in such position, until the oil has been sufficiently drawn off from the tank 2 through drip-cocks 4, to again lower the level of the oil and to open valve 15. The operation then continues as above described, the level of the oil being maintained in the tank 2 substantially at the normal level *a, a*, and continuously delivering oil to the journals of the cable carriages at any desired rate of flow as controlled by the drip-cocks 4.

The invention is applicable to any type of rope or chain haul employing supporting elements requiring oiling; it obviates the necessity of watchfulness or care and labor and expense of manual oiling; prevents the loss of surplus oil, while being comparatively simple and economical in construction and operation, and not liable to get out of order.

What I claim is:—

1. Means for oiling a cable carriage or the like consisting of a stationary distributing tank having a delivery outlet at its lower portion, a main supply reservoir, means for pumping oil from the main supply reservoir to the distributing tank having a depressible shoe, a traveling cable or the like, and means connected therewith for intermittently engaging said shoe, substantially as set forth.

2. Means for oiling a cable carriage or the like consisting of a distributing tank having a delivery outlet, a main supply reservoir, means for pumping oil from said reservoir to the supply tank, a cable or the like, means connected with the cable for actuating the

pumping means, and means for temporarily closing the circulation from the main supply reservoir to the distributing tank when oil in the distributing tank has reached a desired level, substantially as set forth.

3. In pumping apparatus, the combination with a main reservoir, a supply reservoir, and a pump having connections to both reservoirs; of a lever for the pump mechanism, a depressible shoe therefor, a traveling cable or the like, and means secured to the cable for actuating said shoe, substantially as set forth.

4. In pumping apparatus, the combination with a main reservoir, a supply reservoir provided with one or more delivery faucets adapted to drop the contents of the reservoir by gravity, and a pump having connections to both reservoirs; of a lever for the pump mechanism, a depressible shoe therefor, a traveling cable or the like, and means secured to the cable for actuating said shoe, substantially as set forth.

5. In pumping apparatus, the combination with the rails of a main track, of cable carriage supporting rails, a cable and wheeled carriages therefor running on said carriage supporting rails, a main reservoir, a supply reservoir, a pump arranged to force the contents of the main reservoir into the supply reservoir, and actuating mechanism for the pump having an operating element arranged in the path of said wheeled carriages, substantially as set forth.

6. In pumping apparatus, the combination with a traveling cable, of a supply reservoir having means for dropping oil by gravity, a pump arranged to deliver oil thereto, a lever for the pump, a depressible shoe connected with the pump lever, and means secured to the traveling cable adapted to pass over and depress said shoe, substantially as set forth.

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

JOHN MAITLAND HOPWOOD.

Witnesses:

C. M. CLARKE,  
CHAS. S. LEPLEY.