

No. 791,150.

PATENTED MAY 30, 1905.

G. HUFF.

RAILWAY RAIL CLEANER AND OILER.

APPLICATION FILED SEPT. 26, 1904.

4 SHEETS—SHEET 1.

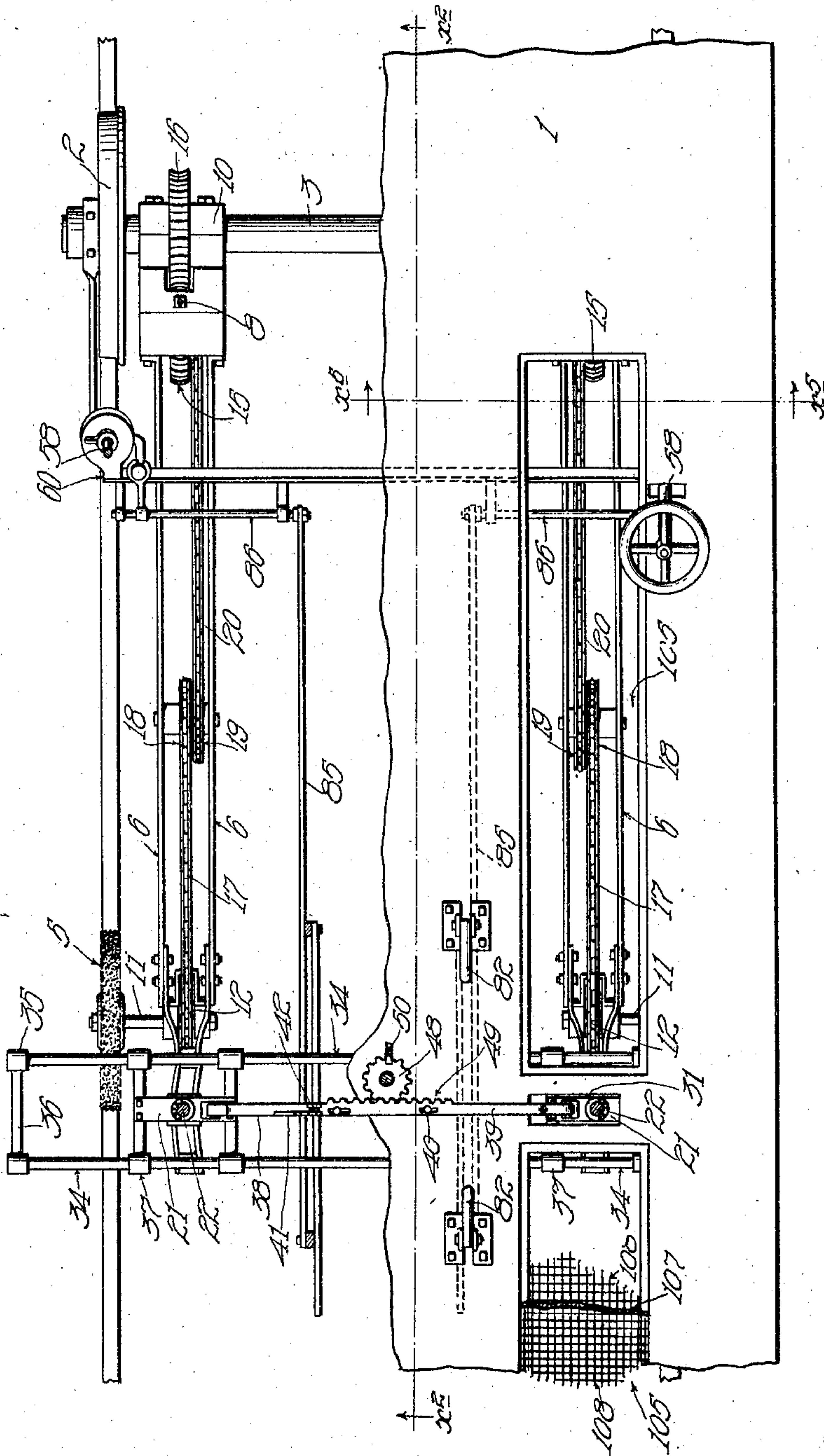


Fig. 1

Witnesses

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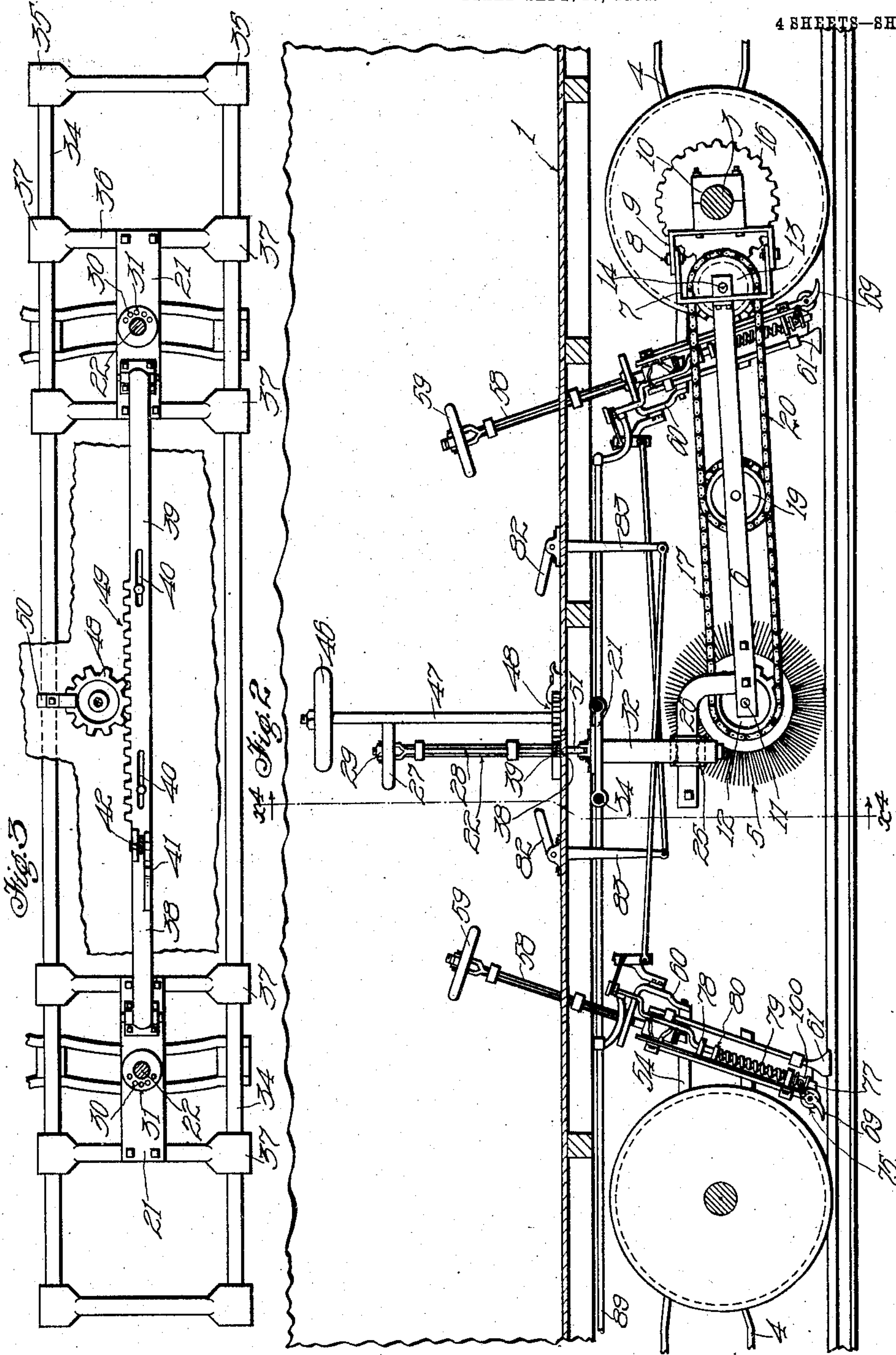
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4 SHEETS—SHEET 2.



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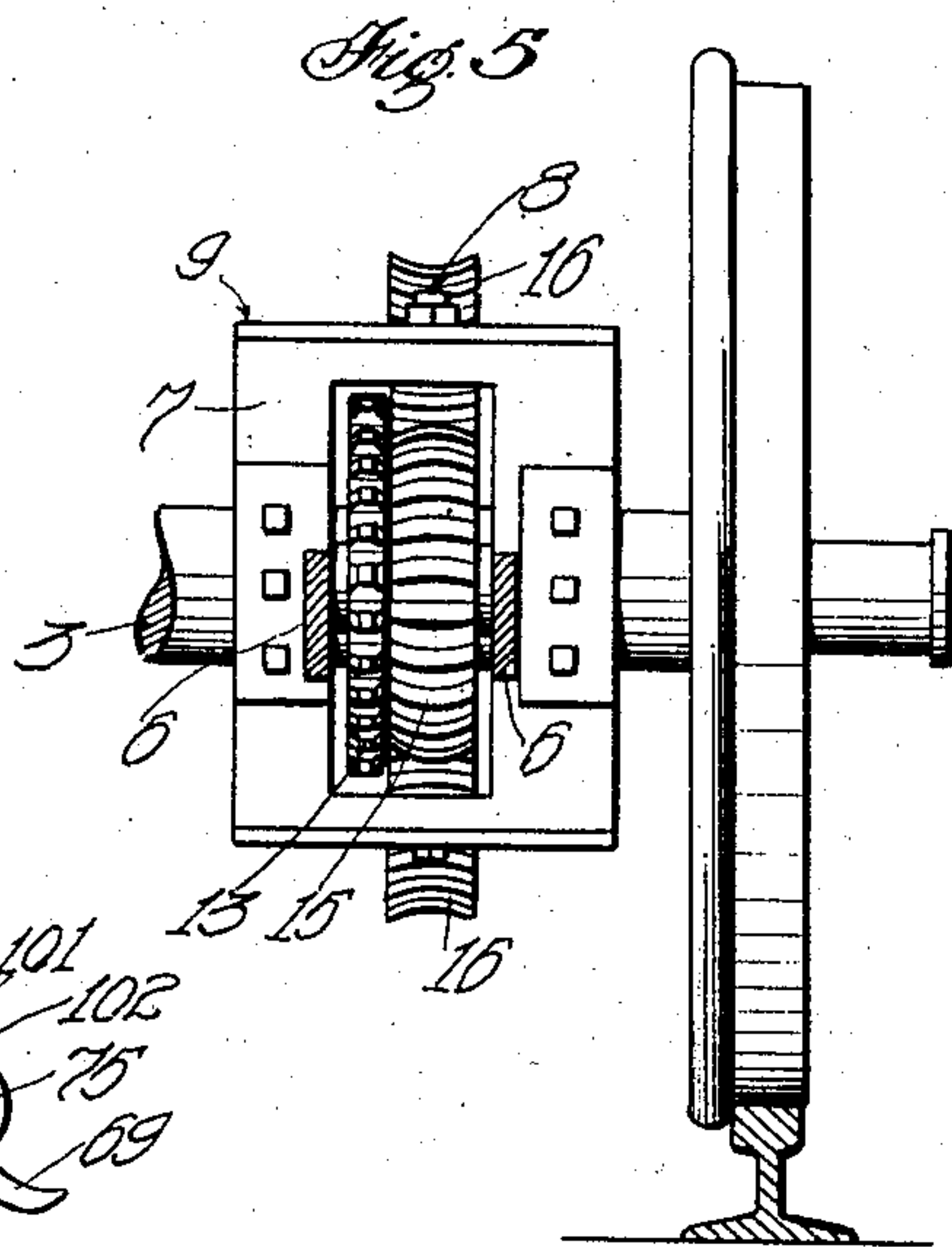
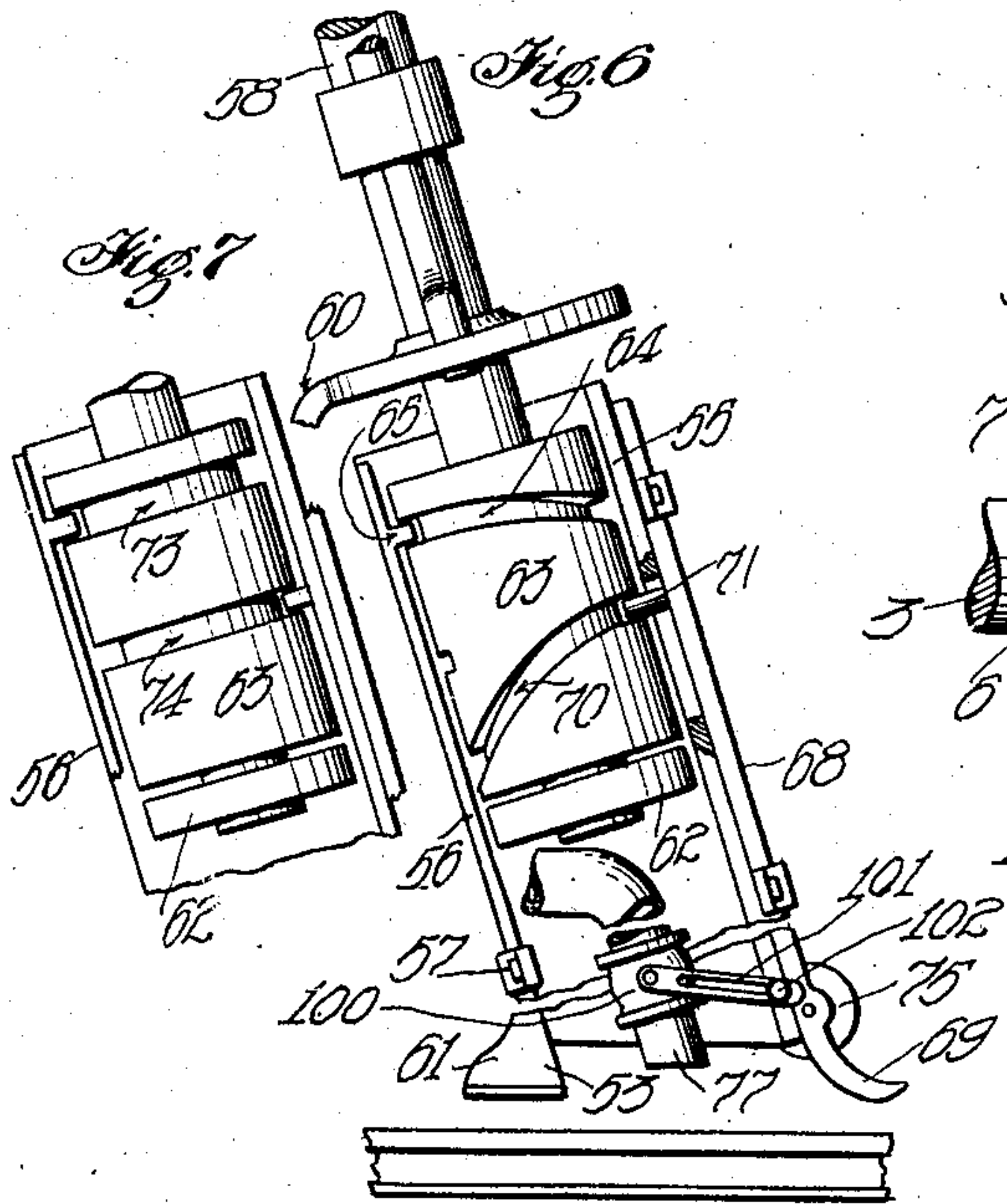
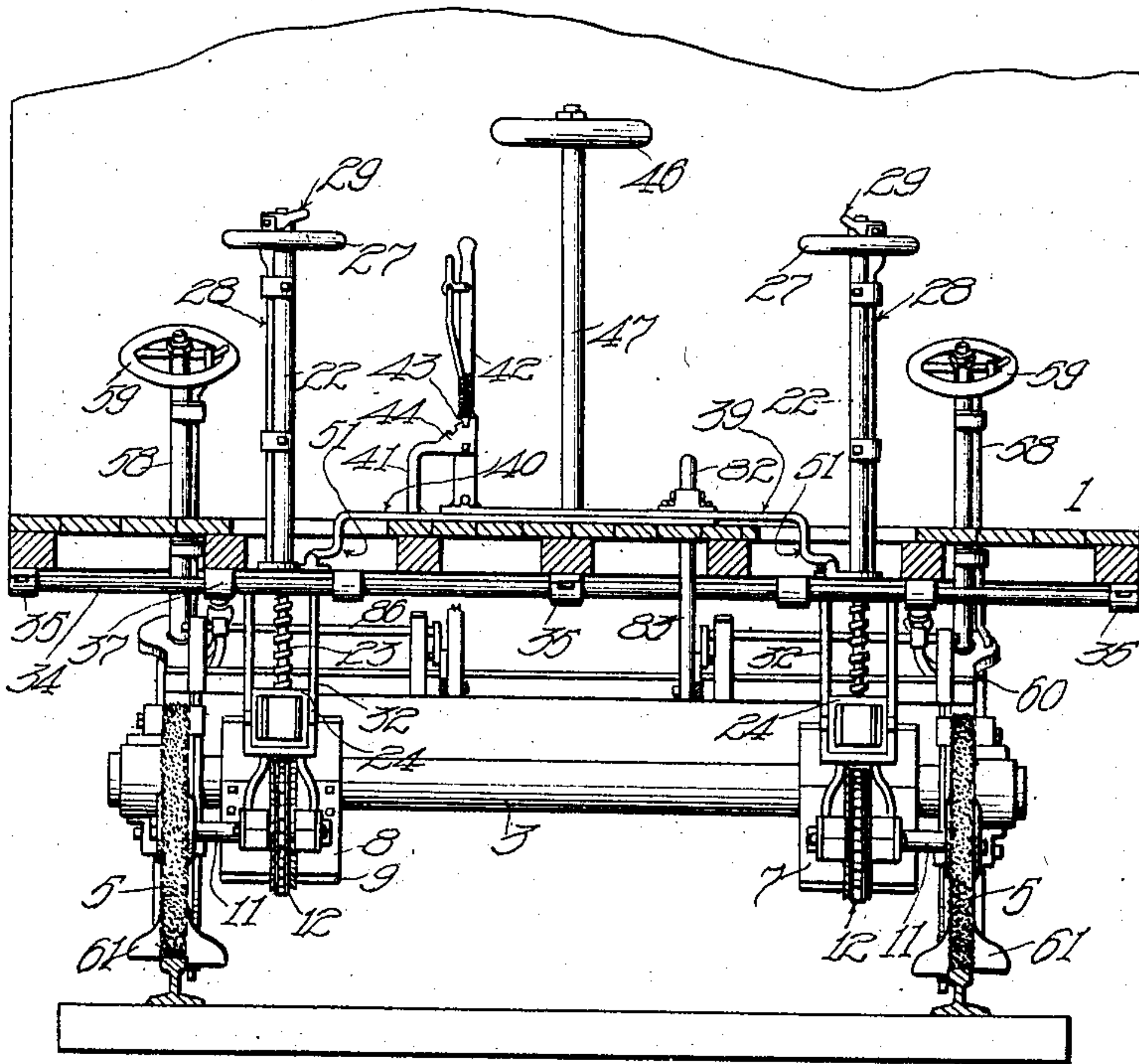
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4 SHEETS—SHEET 3.

Fig. 4



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4 SHEETS—SHEET 4.

Fig. 8

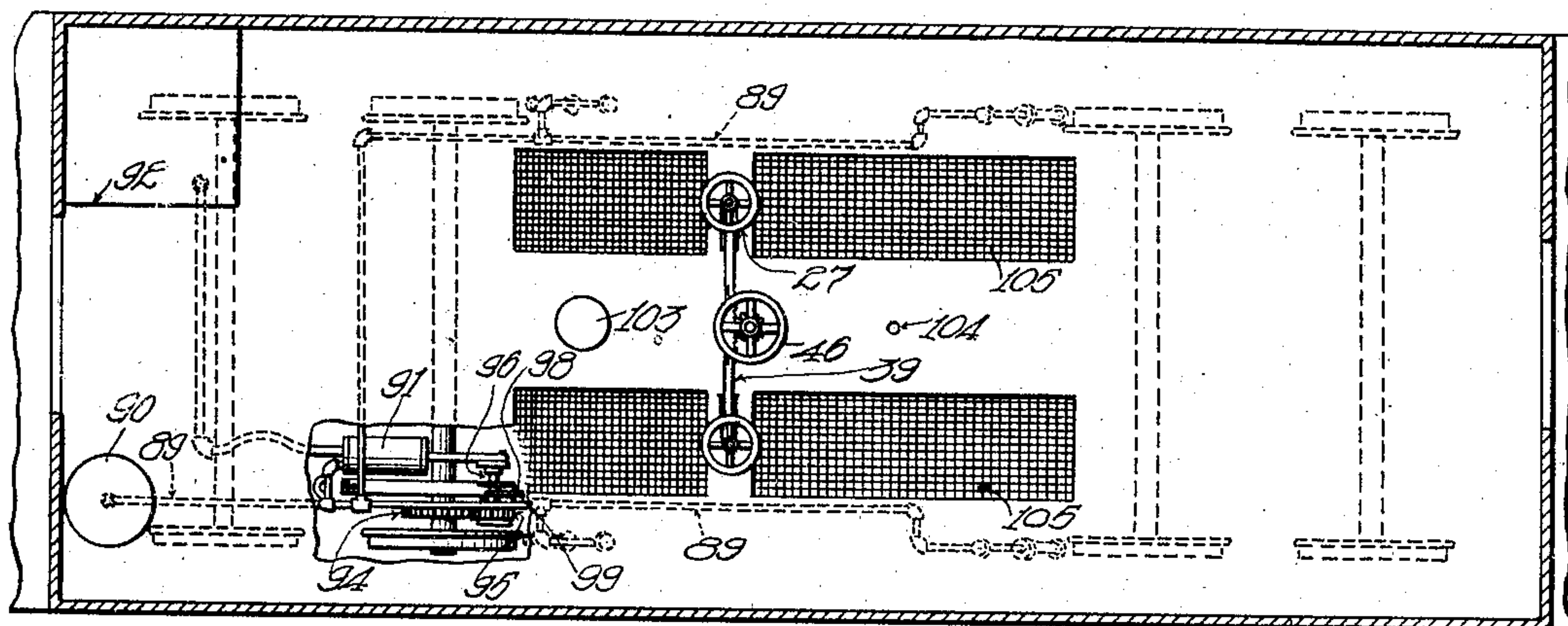
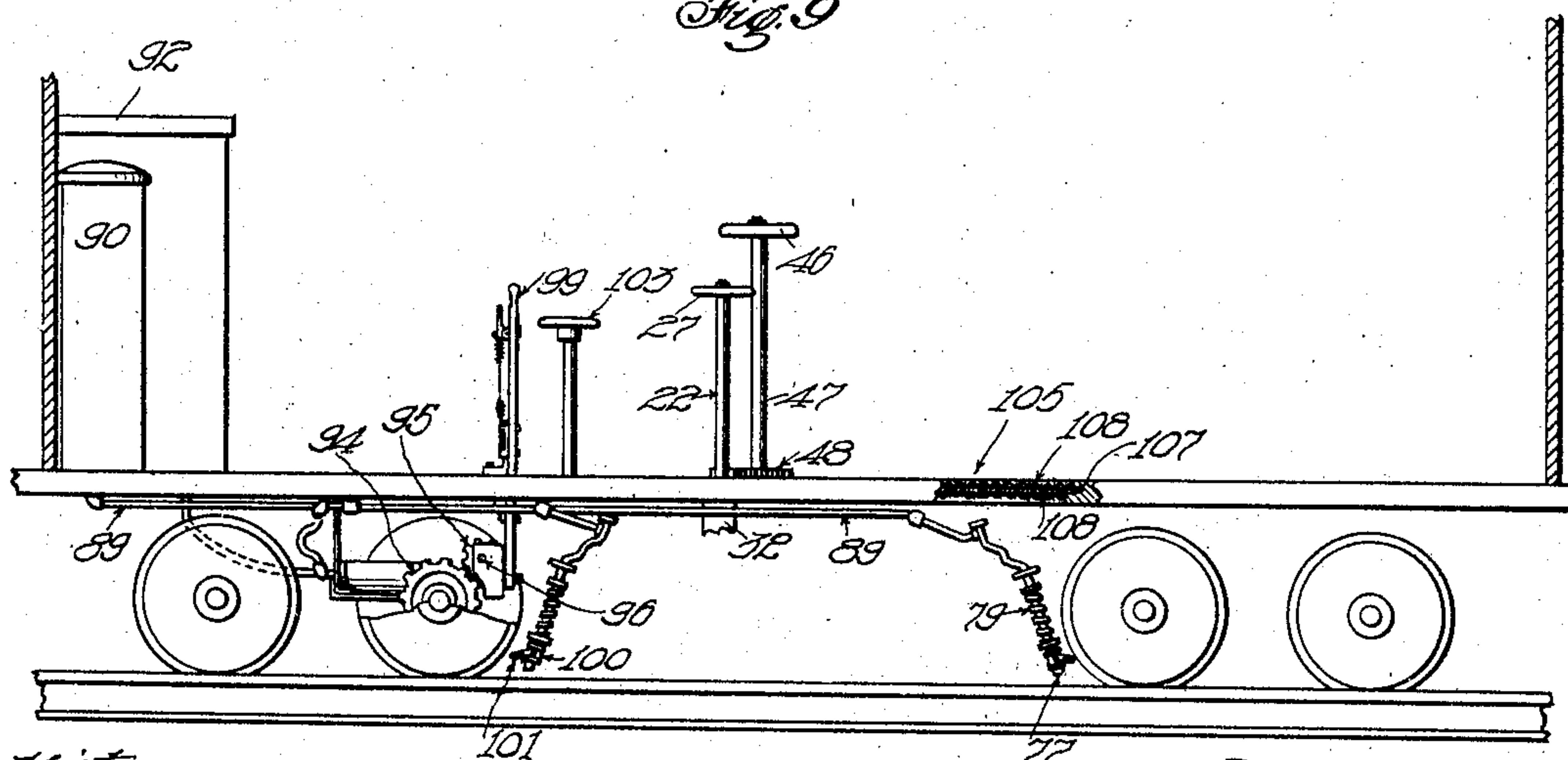


Fig. 9



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UNITED STATES PATENT OFFICE.

GEORGE HUFF, OF TROPICO, CALIFORNIA.

RAILWAY-RAIL CLEANER AND OILER.

SPECIFICATION forming part of Letters Patent No. 791,150, dated May 30, 1905.

Application filed September 26, 1904. Serial No. 225,888.

To all whom it may concern:

Be it known that I, GEORGE HUFF, a citizen of the United States, residing at Tropico, in the county of Los Angeles and State of California, have invented a new and useful Railway-Rail Cleaner and Oiler, of which the following is a specification.

This invention relates to apparatus for cleaning and oiling street-railway rails and cleaning and oiling the curves thereof, said apparatus being mounted on a car or truck adapted to travel on the railway-track.

The apparatus comprises rotary brushes for sweeping and cleaning the rails; and an important object of the invention is to enable said brushes to be driven directly from an axle of the car.

Another object of the invention is to provide for adjustment of the brushes as required by variation in the work and for moving the brushes to bring them into or out of operative position, as required.

Another object of the invention is to provide a plow means to clean the rail of any overlying dirt or obstructions.

A further object of the invention is to provide means for scraping the track-rail, said means being preferably in advance of the brush means aforesaid. This is of great importance, as it removes any insulating matter on the rail and insures perfect contact, with consequent saving of electric power.

Another object of the invention is to provide for cleaning the rail-grooves at the curves of the railway; and to this end the invention comprises means which are normally out of operative position, but can be brought into position to clean or gouge the grooves which are provided at curves.

Another object of the invention is to provide, in connection with said cleaning devices, means for applying oil to the guard-rails of the curves.

The accompanying drawings illustrate the invention.

Figure 1 is a partly-broken plan of a part of a car body and truck provided with my invention. Fig. 2 is a section on line $x^2 x^2$ of Fig. 1. Fig. 3 is a detail plan of a sliding carriage for supporting and laterally shifting

the brushes. Fig. 4 is a section on the line $x^4 x^4$ in Fig. 2. Fig. 5 is a detail section on the line $x^5 x^5$ in Fig. 1. Figs. 6 and 7 are detail side elevations on opposite sides of a cam means for operating the plow or scraper and gouge. Fig. 8 is a diagrammatic plan of the car, showing particularly the arrangement of the oiling device. Fig. 9 is a somewhat diagrammatic section of the car, showing the oiling devices, the cleaning devices being mostly omitted.

The working parts of the apparatus are carried on a suitable truck or car adapted to run on the track. 1 designates the body of said car, and 2 the truck-wheels thereof, having axles 3 and truck-frames 4. The rotary brushes 5 are driven from one of the car-axles and are supported in such manner as to be movable both vertically and laterally, as hereinafter set forth. 6 designates a brush-carrying frame, which is provided at one end with arms 7, pivoted at 8 to a bracket 9, journaled on one of the axles 3, said bracket having attached thereto boxes 10 to support it on the axles, while allowing rotation of the axles therein. Shaft 11 of brush 5 is rotatably mounted in the outer or free end of the frame 6 and carries a sprocket-wheel 12 and a sprocket-wheel 13, journaled at the inner end of frame 6 on a shaft 14, carrying a gear 15, which engages a larger gear 16, fast on shaft 3 aforesaid, the pitch-line of gear 16 being preferably in the plane of the pivots 8, so that the swinging of the frame 6 will not interfere with the operation of the gears. The teeth on gear 15 may be convex and those on gear 16 concave to insure proper engagement in different annular positions. The connection between the two sprocket-wheels 12 and 13 may be by means of a sprocket-chain 17, running over the wheel 13 and over the sprocket-wheel 18, journaled in the frame 6 and connected rigidly to a sprocket-wheel 19, which in turn is connected to the sprocket-wheel 12 by a chain 20. It will be seen that the movements thus imparted to the rotary brush 5 will be in a forward direction, so that it will throw the dirt forward or in the direction of movement of the car. To adjustably support the brush at the proper height and enable it to be lifted

out of operative position when desired, a bracket 21 is provided, suitably supported on the car-body, as hereinafter set forth, and carrying a screw post or standard 22, which is
 5 rotatably mounted in said bracket and is provided with a screw portion 23, engaging in a screw-block 24, having slots or openings 25 to receive arms 26, extending upwardly and forwardly from the frame 6, said slots being
 10 so formed as to enable the arms to move freely therein in a longitudinal direction and to tilt at different angles as the frame 6 is lowered or raised. Said lowering or raising is effected by turning screw-post 22, as by means of a
 15 hand-wheel 27 at the top thereof, and when the rotary brush has thus been adjusted to the proper height it may be held in that position by means of a suitable locking device—for example, rod 28, mounted to slide on post 22
 20 and having an operating finger-piece 29 connected thereto, said rod 28 engaging at its lower end in holes or recesses 30 in a stop-plate 31, connected to the bracket 21 aforesaid. Said bracket 21 has a depending U-shaped strap 32, which extends below the screw-block 24 and provides a bearing for the lower end of the screw-post 22.

A rotary brush 5, operated and driven as above described, is provided at each side of
 30 the car, so that said brushes can be driven and operated independently. It is desirable, however, to provide means whereby the two brushes at the two sides of the car may be simultaneously moved in a lateral direction to
 35 enable them to be maintained on the track when the car swerves in taking a curve.

Arms 26 are desirably curved, as shown, substantially concentric with the center of the brush support or carriage, so that as the car
 40 turns a curve the movement of arms 26 through the blocks 24 will maintain the brushes at the same distance from one another and keep them on the rails regardless of the degree of curvature. It is also desirable to provide for relative lateral adjustment of the brushes to enable them to work equally well whether on
 45 straight tracks or on curves, as hereinafter described. For this purpose the supporting-brackets 21, above referred to, are mounted to move laterally on a suitable support which
 50 may be connected to the car-body and may consist of bars 34, carried by hangers 35 on the car-body and forming the track or rail on which the brackets may slide, said brackets having
 55 arms 36, provided with eyes 37, slidably engaging said bars 34.

The brackets 21 are connected by suitable connecting and operating means so that the brackets conjointly form a carriage for the
 60 two brushes, and said connecting means is preferably extensible, consisting, for example, of two parallel bars 38 39, connected to slide on one another, as by pin-and-slot connections 40, bar 38 having an upwardly-extending bracket or arm 41, to which is piv-

oted a hand-lever 42, which is pivotally connected at its lower end to the bar 39, so that the operation of said lever will cause relative lateral movement of said bars. Said hand-lever may be provided with means for locking it in different positions—as, for example, a spring-catch 43 on the lever, engaging in a notched segment 44 on the bar 39. By operation of this lever the bars 38 39 may be
 70 slid on one another, so as to separate the brushes more widely or bring them more closely together, as may be found necessary in going on a straight track or in rounding a curve.

To cause simultaneous lateral operation of
 80 the brushes in order to compensate for the swerve in rounding a curve, a hand-wheel 46 is provided on a standard or post 47, mounted on the car-body and provided with a pinion 48, engaging with a rack 49 on the connecting-bar 39, so that the movement of the said hand-wheel in one direction or another will cause movement of the brushes to one side or the other. 50 designates a lock for the gear
 85 48, said lock being operated by the attendant's foot in the usual manner of a lock for hand-brakes.

The connecting and operating bars 38 39 may be above the level of the car-floor and provided at each end with downwardly-extending portions 51, which are secured to the
 90 brackets 21, the latter, as well as the track 34 therefor, being below the car-floor.

53 designates a plow and scraper for removing dirt or obstructions from the rail and
 100 cleaning the rail in advance of the action of the brush, there being preferably four of such plows or scrapers, two on each side, so that there will be a plow or scraper acting in advance of the brush in either direction of movement. Said scrapers are desirably supported
 105 on the respective truck-frames, each truck-frame having extensions 54, to which is rigidly connected a post or bar 55, which serves to support said scraper, the scraper having a shank 56, sliding in straps or guides 57 on said bar. The plow has side wings or shares 61 for throwing dirt, &c., to either side, and the point or end of the plow is adapted to engage the rail to scrape off adhering matter. Each
 110 scraper is provided with operating means whereby it may be lifted free of the track-rail or may be brought down upon the rail to scrape or clean the same. For this purpose an operating shaft or post 58, provided with hand-wheel 59, is journaled in a bracket 60, extending from the truck-frame extension 54, and in a bearing-block 62, fast on bar 55, said shaft carrying a cam-cylinder 63, having a groove 64 to receive a pin 65 on the shank 56
 115 of the scraper, said groove or a portion thereof being inclined to the axis of the cylinder, so that in rotation of the lever the groove will cause the pin and scraper to move longitudinally of the cylinder. All of the afore-
 120 130

said parts are set at a pitch or forward inclination relative to the track in such manner that the longitudinal movement aforesaid will cause the scraper to descend to the track-rail or to rise therefrom.

The means for gouging or cleaning the grooves of the rails at curves comprises a gouge 69, formed at the lower end of a bar 68, said bar having a pin or stud 71 engaging in the cam-groove 70 of the cylinder 63 aforesaid, said groove or a portion thereof being inclined to the axis of the cylinder, so as to raise or lower the gouge on rotation of the cylinder by means of the hand-wheel 59. The inclination of the groove 70 is preferably reverse to that of groove 64, so that the gouge and scraper will be lowered by reverse movements of the cylinder and hand-wheel, and each of said grooves is desirably provided with extensions 73 74, extending circumferentially around the cylinder in a direction which has no component longitudinal of the cylinder, so that as the cylinder is turned in one direction, thereby causing the groove 70 to depress the gouge, the pin on the scraper-shank will travel around in the extension 73 of groove 74 and the scraper will be maintained in its uppermost position, while in the reverse movement of the cylinder, wherein the scraper is depressed by the groove 64, the pin 71 on the gouge-bar will travel around in the extension 74 on the groove 70 and the gouge will be maintained in an uppermost position free of the track. In the intermediate position both the gouge and scraper will be lifted free of the track, the operating-pins thereof being between the grooves 64 and 70 and the respective extensions 73 74 thereof.

75 designates a roller near the lower end of gouge-bar 68 to roll on the tracks and prevent the gouge from being lowered too far.

In conjunction with the above-described cleaning devices oiling means are preferably supplied particularly designed to oil the grooves of the tracks at curves, said oiling means acting subsequent to the action of the gouge devices above described. For this purpose an oil-nozzle 77 is slidably supported in straps or bearings 78 on each bar 55, so as to be movable up and down and toward and from the track-rail, the lower end of said nozzle being directly behind the gouge, a spring 79 engaging with one of said bearings, with a collar 80 on said nozzle, and tending to lift the nozzle normally away from the track. The means for depressing said nozzle may consist of a treadle 82, suitably located within the car on a bell-crank 83, said bell-crank having an arm 84, connected by a tie-rod 85 with a rock-shaft lever 86, one arm of which engages a projection or collar 87 on the nozzle 77 and depresses the same on depression of the treadle.

The oil-supply connections (shown more par-

ticularly in Figs. 8 and 9) comprise distributing-pipes 89, leading from the pressure-tank 90, which is supplied by a pump 91 from the oil-tank 92, said pump being of any suitable character, being preferably driven by one of the car-axles 3, as by means of a gear 94 on said axle engaging a pinion 95, the shaft 96 of which is connected to operate the pump in any suitable manner. A clutch 98 is desirably interposed between said shaft and the pump, said clutch being controlled by a hand-lever 99, extending up into the car.

A cut-off valve 100 for the oil-supply is desirably located in each nozzle 77 and may be operated automatically by the movement of the nozzle, the operating-arm 101 of said valve engaging a pin or stud 102 on bar 55 to cause the valve to be closed as the nozzle is raised.

103 designates a seat for the operator, which is removably supported in sockets, one of which is shown at 104, so as to enable the operator to sit facing forward, with the hand-wheels 27 46 in convenient position for operation irrespective of the direction of movement of the car.

Windows or apertures 105 are preferably provided in the floor of the car to enable the operator to observe the position and operation of the various cleaning and oiling devices aforesaid, these apertures being preferably closed by sashes 106, which may be provided with glass panes 107 and protecting screens or gratings 108 on both faces.

What I claim is—

1. In combination with a car, a rotary brush supported thereon and movable vertically and horizontally, means for vertical adjustment of the brush, and means for horizontal adjustment of the brush.

2. In combination with a car, a plurality of brushes supported to be movable vertically and horizontally on the car, means for vertical adjustment of the brushes, and means for horizontal adjustment of the brushes.

3. In combination with a car, a plurality of horizontally and vertically movable brushes supported on the car, means for simultaneous horizontal adjustment of the brushes, and means for independent vertical adjustment of the brushes.

4. In combination with a car, a plurality of horizontally and vertically movable brushes thereon, means for relative horizontal adjustment of the brushes, means for simultaneous horizontal adjustment of the brushes, and means for vertical adjustment of the brushes.

5. An apparatus for cleaning track-rails comprising a car, two rotary brushes connected to be driven from a car-axle, and means for simultaneously moving said brushes in a lateral direction.

6. An apparatus for cleaning track-rails comprising a car, two brushes connected to be

driven from a car-axle, and an extensible connection between said brushes to adjust their distance apart.

5 7. An apparatus for cleaning track - rails comprising a car, two brushes connected to be driven from an axle of the car, a frame mounted on the car to slide transversely thereto, and means on said frame to support said rotary brushes.

10 8. The combination with a car and an axle thereof, of a frame journaled on said axle, a brush-carrying frame swiveled to the aforesaid frame, a rotary brush journaled in said brush-carrying frame, driving connections between said rotary brush and the axle, a carriage movable transversely on the car, and means vertically adjustable on said carriage and connected to the brush-carrying frame to operate the same in a vertical direction.

20 9. The combination with a car and axle thereof, of a frame mounted on said axle and swinging in vertical and horizontal directions, rotary brushes journaled on said frame and connected to be driven by an axle, a carriage movable laterally on the car, brackets on said carriage, manually-operated means for adjusting the lateral distance of said brackets, manually-operated means for moving the carriage laterally of the car, means supported by and

moving with the brackets in a horizontal direction and engaging with the brush-carrying frame, and manually-operated means connected to said supports to raise and lower the same independently.

35 10. The combination with a car and an axle thereof, of brush-supporting frames journaled on said axle, and pivotally mounted to swing horizontally, brushes journaled in said frames, a support carried by the car, the frames having arms slidably engaging in said support and said arms being curved to maintain the brushes at the same distance in rounding a curve.

40 11. A car having a track-cleaning device adjacent to a track-rail, said car provided with a window in its floor for inspection of said device.

45 12. A car having a track-cleaning device adjacent to a track-rail, said car provided with a window in its floor for inspection of said device and a screen above and below said window.

In testimony whereof I have hereunto set my hand, at Los Angeles, California, this 12th day of September, 1904.

GEORGE HUFF.

In presence of—

A. P. KNIGHT,
TILLIE E. ADAM.