

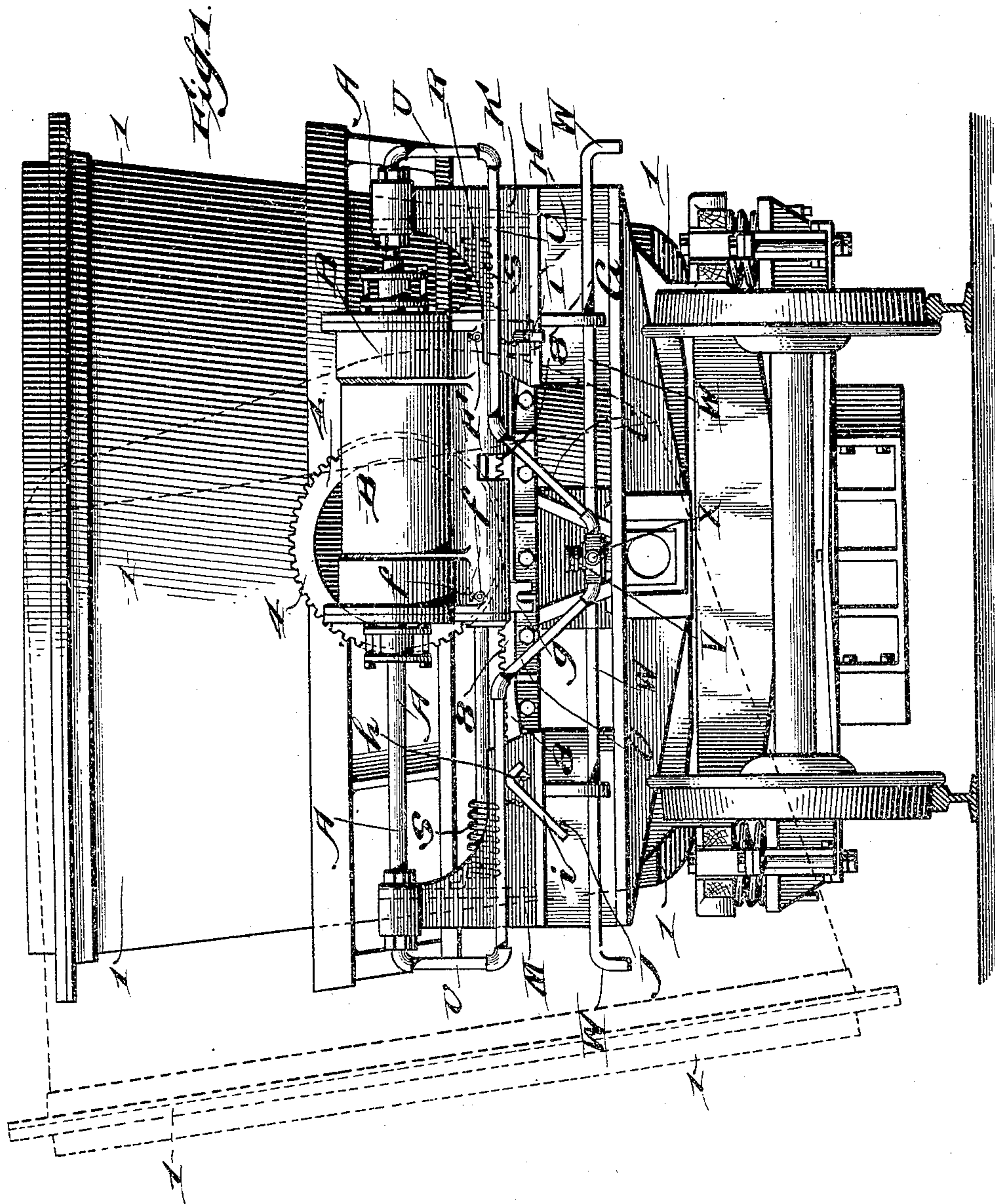
No. 792,306.

PATENTED JUNE 13, 1905.

C. P. ASTROM.
MOTOR OPERATED DUMPING CAR.

APPLICATION FILED SEPT. 6, 1904.

3 SHEETS—SHEET 1.



Witnesses
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R. W. Walker

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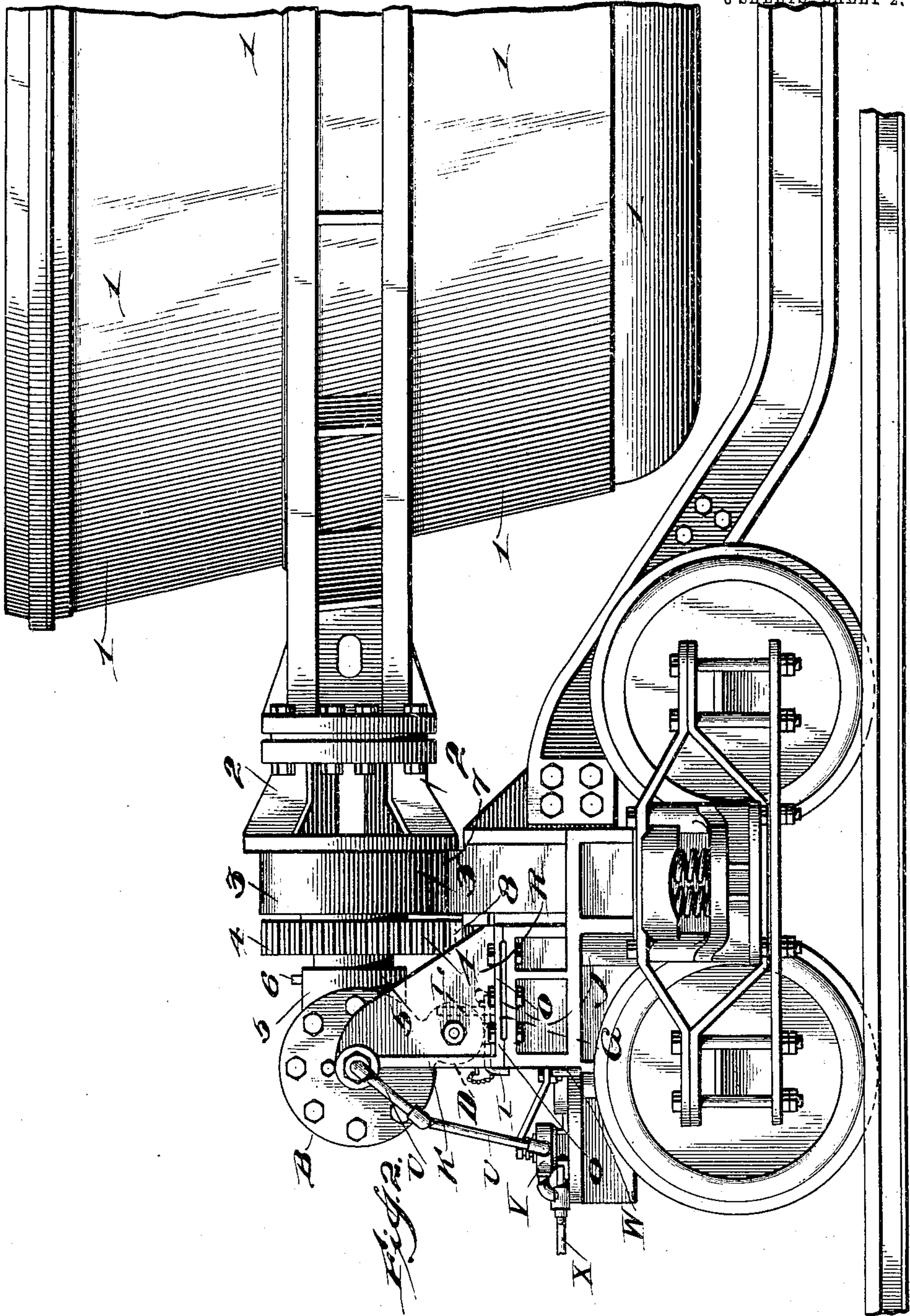
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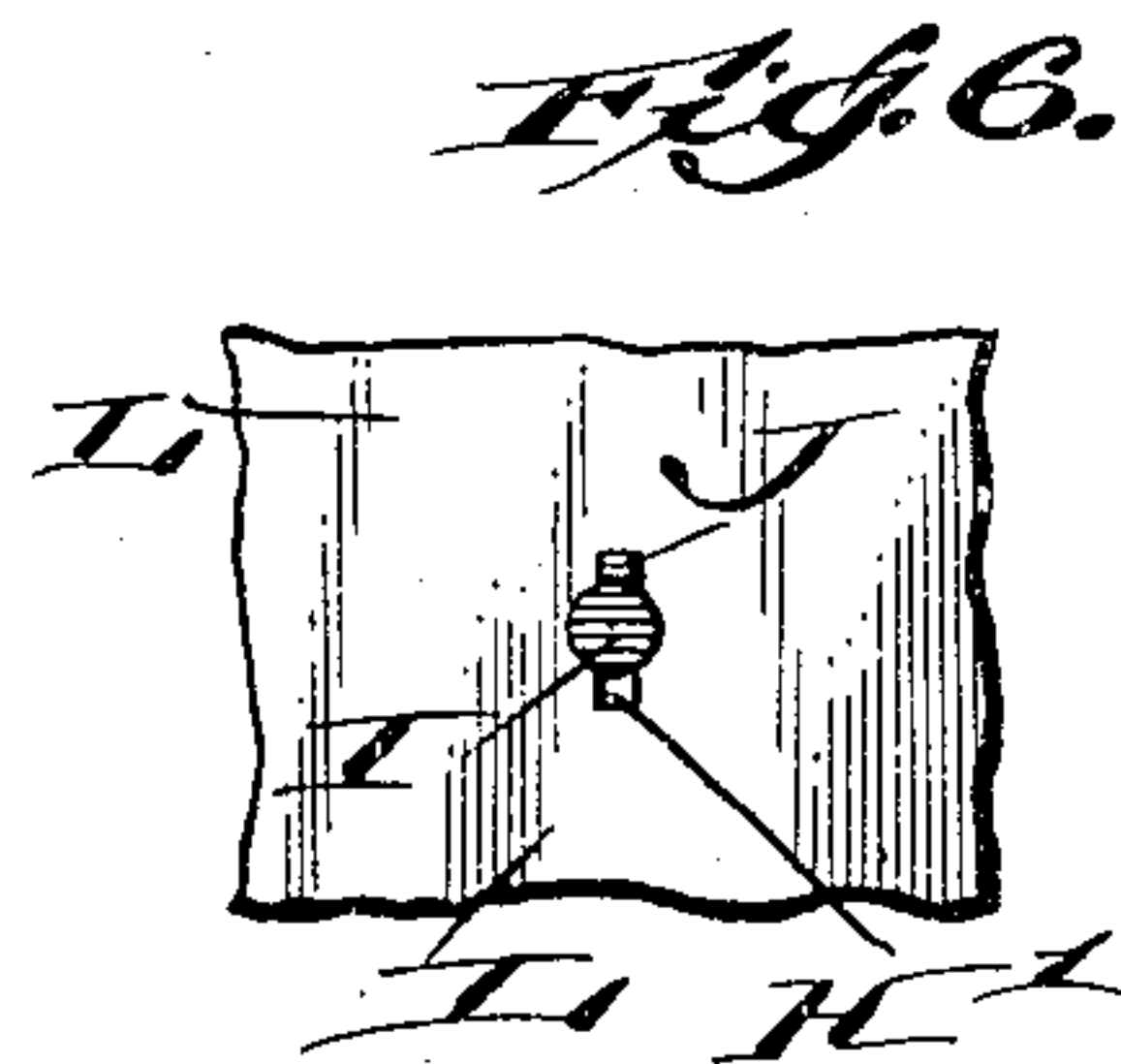
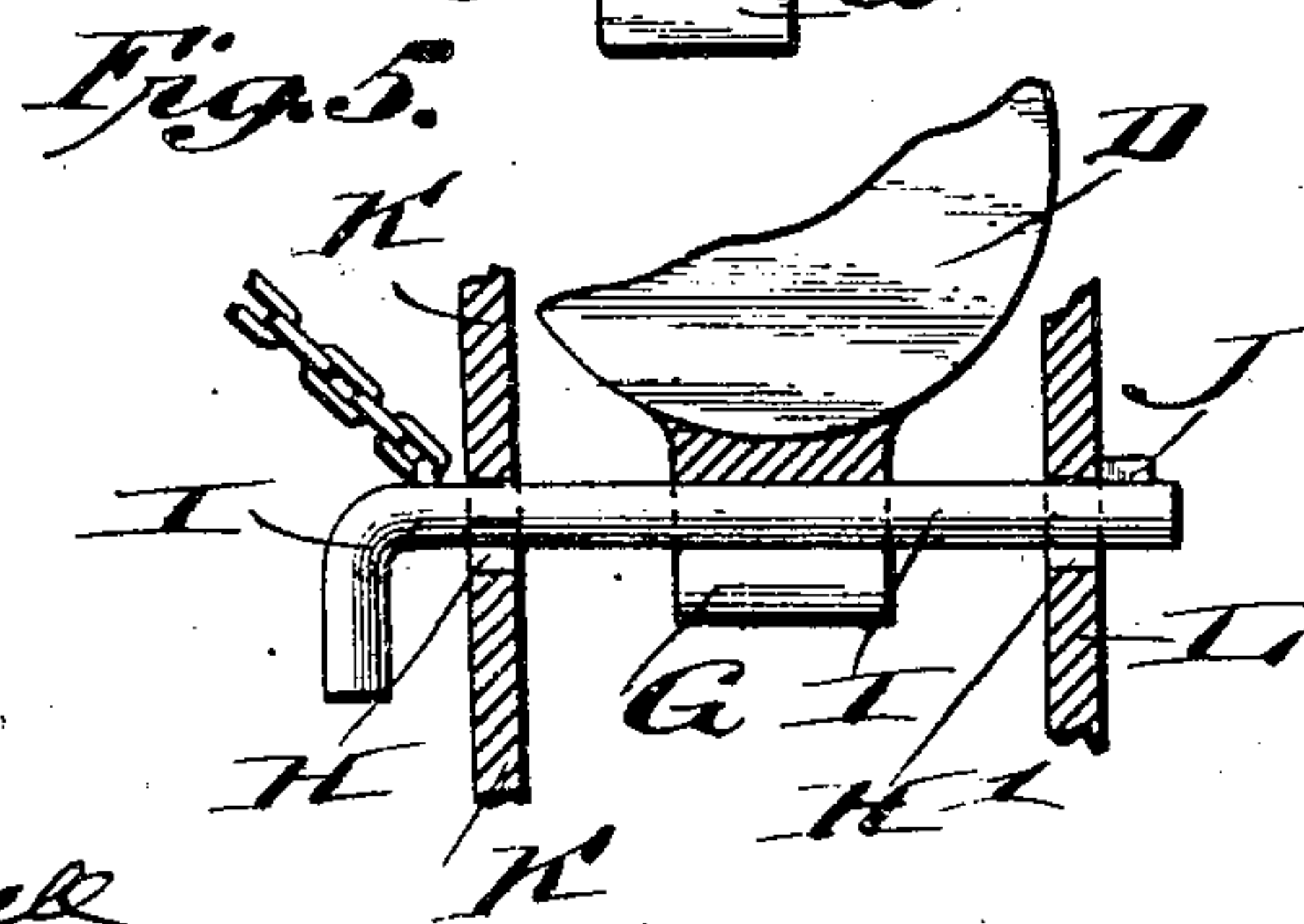
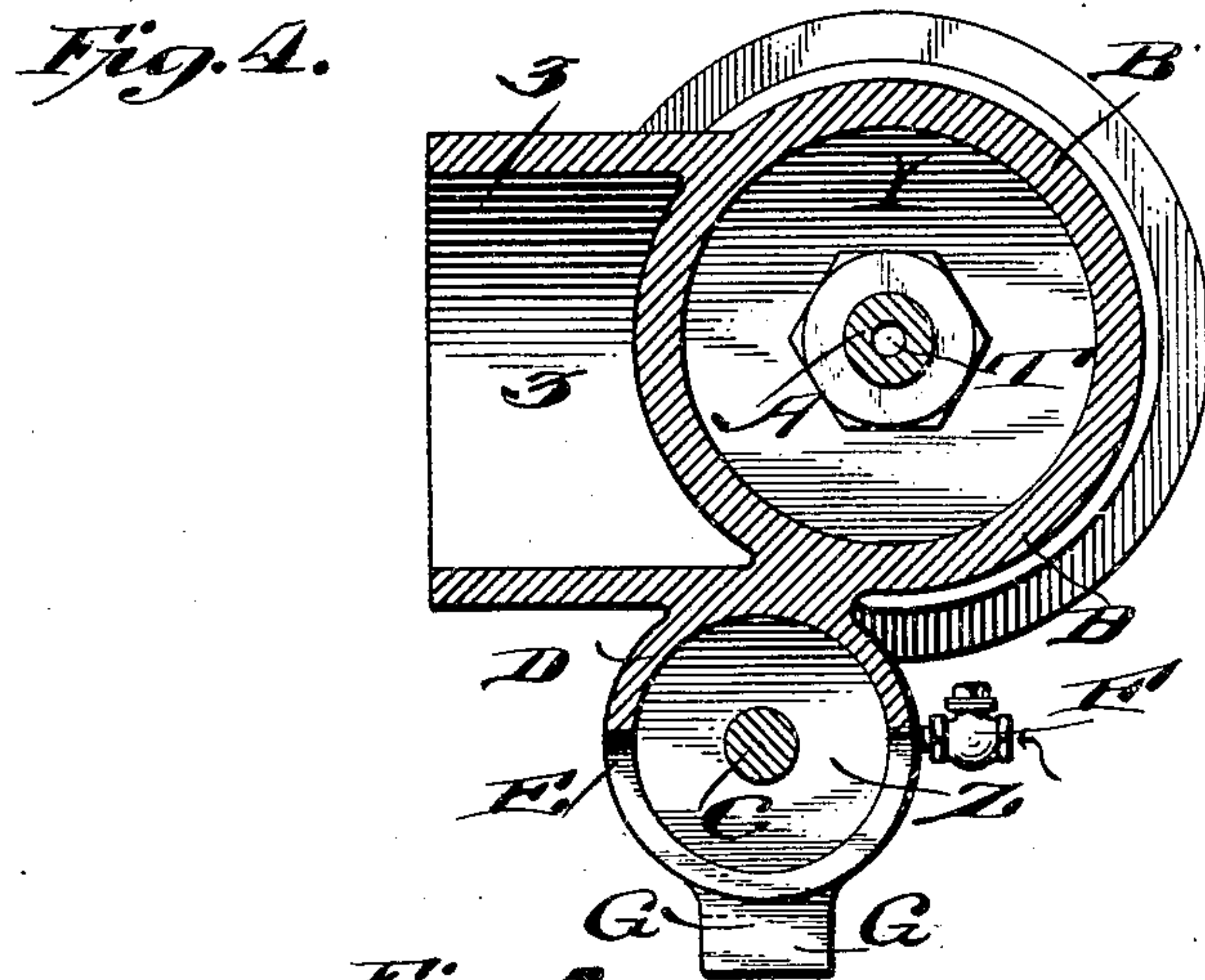
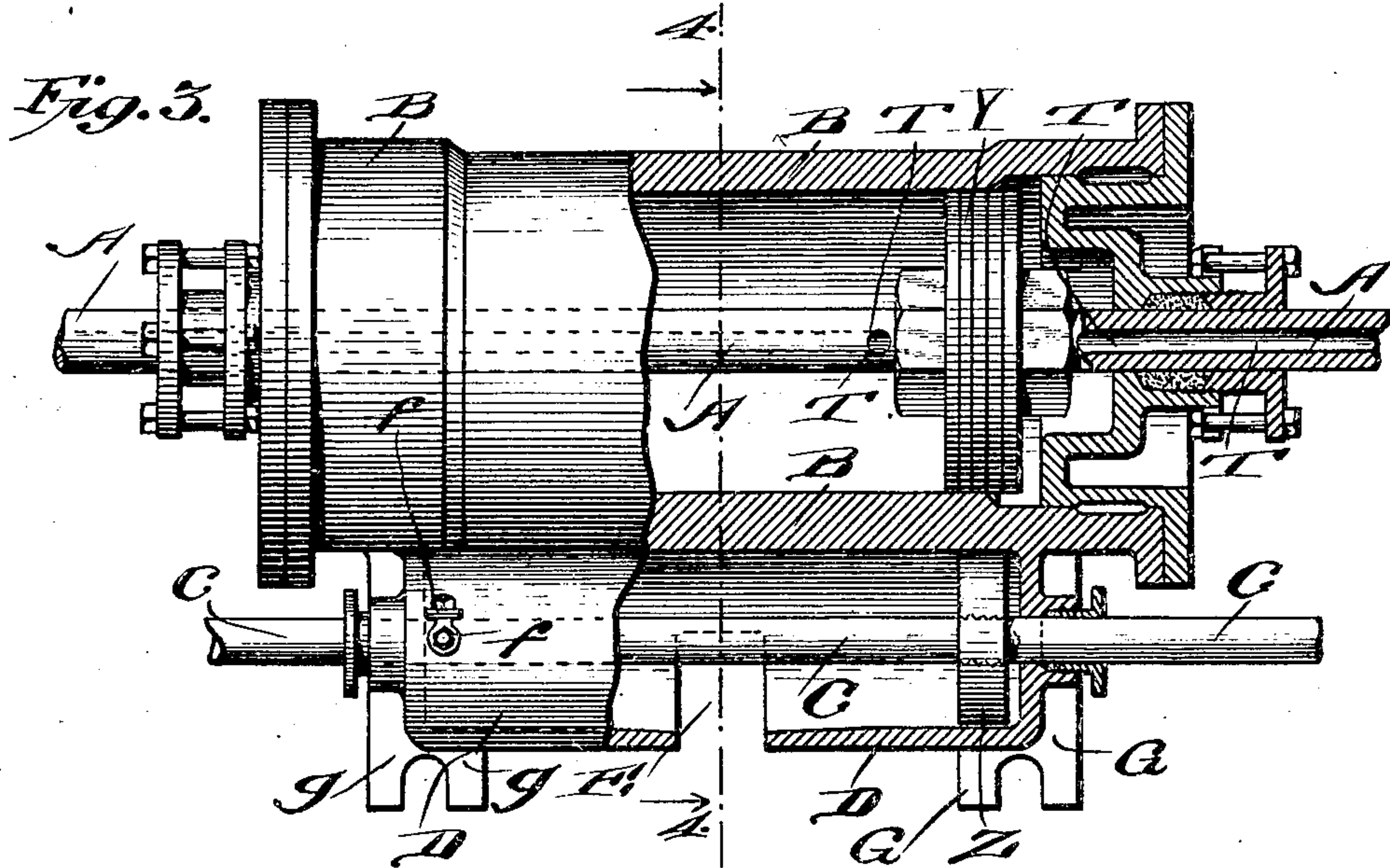
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3 SHEETS—SHEET 3.



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UNITED STATES PATENT OFFICE.

CARL PONTUS ASTROM, OF EAST ORANGE, NEW JERSEY, ASSIGNOR TO
M. H. TREADWELL & CO., A CORPORATION OF NEW YORK.

MOTOR-OPERATED DUMPING-CAR.

SPECIFICATION forming part of Letters Patent No. 792,306, dated June 13, 1905.

Application filed September 6, 1904. Serial No. 223,379.

REISSUED

To all whom it may concern:

Be it known that I, CARL PONTUS ASTROM, a subject of the King of Sweden and Norway, and a resident of East Orange, in the county of Essex and State of New Jersey, have invented certain new and useful Improvements in Motor-Operated Dumping-Cars, of which the following is a specification.

My invention relates to improvements in motor-operated dumping-cars—that is, to improvements in cars which are dumped by means of a steam-cylinder or compressed air, &c.

The general description of car to which my improvements are shown in the drawings as being applied is that described in my United States Letters Patent No. 755,207. This car is a cylinder-operated cinder-car, the cylinder reciprocating on a fixed piston and piston-rod and under the influence of the motive fluid being adapted, through connections between the cylinder and one of the trunnions of the car-body, to travel from one side of the car to the other, causing at the same time the car-body to itself tilt and travel correspondingly, the car-body being provided with two of said trunnions, with a gear-wheel on each trunnion meshing with stationary racks upon which the said gear-wheels travel. This brief description of the general character of the car illustrated in the accompanying drawings will suffice, as they form no part of the present application, but are embraced within my said Letters Patent No. 755,207.

The objects of my present improvements are to provide improved means for locking the reciprocating cylinder, and consequently the car-body, in fixed position, also means for cushioning the moving parts, so as to take up the shock of impact as said moving parts travel from one extreme position to the other in dumping and righting the car-body.

In the accompanying drawings, Figure 1 is an end elevation of a dumping-car suitable for conveying cinder and embodying my improvements. Fig. 2 is a side elevation of one end of said car—to wit, the end shown in Fig. 1. Figs. 3, 4, and 5 are detail views, Fig. 3 being a side elevation, partly in section, of the mo-

tor-cylinder, the cushion-cylinder, and their related parts. Fig. 4 is a transverse section of Fig. 3 along the line 4 4 looking in the direction of the arrows. Fig. 5 is a detail of the locking-pin in locking position. Fig. 6 is a view of the member L and of the pin I viewed from the right-hand side of Fig. 5.

Describing now my improved locking device I may state at the outset that its purpose is to lock and hold in stationary position the moving part of the motor—to wit, the cylinder—and consequently since the cylinder is connected to the car-body to lock the latter likewise in stationary position.

The locking device shown in the drawings illustrates one form which my improvement may take. This device is shown in duplicate on each side of the car, that on the right side of Fig. 1 comprising the pin I, the notched extension G, rigidly connected to the motor-cylinder, and the openings H and H', (see Figs. 2 and 5,) formed in the upwardly-extending webs K and L of the stationary base-plate O. These openings H and H' are adapted to register with the opening in the member G when the cylinder is reciprocated, so that it occupies its extreme right-hand position, (see Fig. 1,) the pin I being then adapted to be inserted through said openings and to be retained in that position, whereby the cylinder is immovably locked to the base-plate O.

For the purpose of locking the cylinder in its extreme left-hand position, the locking device is duplicated on the left-hand side of the car, the same comprising the pin i, the notched member g, and the openings h and h' (h' not being shown) in the vertically-extending webs of the base-plate, these being in all respects similar to the locking means on the right-hand side of the car, previously described.

Describing next the means for retaining the pins I and i in locking position, it will be noted that each of said pins is provided with a spline or lug J, (see Fig. 5,) also with a handle, the said spline and handle projecting from the pin in different directions. It will be noted that the aforesaid openings (see h, Fig. 1) in the webbed portions of the base-plate

are keyhole-shaped to fit and receive the spline portions of the pins. It is apparent that to insert the pins the spline portion must be down, and, further, that after said
 5 pins are inserted through the openings and the handles turned vertically downward, which is the position they will naturally seek and retain, due to the weight of the handles, that said splines will then engage the sides of the
 10 rear openings H' and H'' in the vertical webs, and that said pins cannot in that position be withdrawn from their locking position.

The pins are preferably attached to the car by chains, as shown, to prevent their being
 15 lost.

Describing now the means for cushioning the cylinder and relieving it and the connected parts from shock when it reaches its extreme limit of motion, one of the forms
 20 which my invention may take in this respect is shown in the drawings and may be described as follows: The cylinder D, hereinafter called the "cushion-cylinder," is rigidly secured to the motor-cylinder B and reciprocates there-
 25 with, the same reciprocating, like the motor-cylinder, upon a fixed piston Z and piston-rod C. The valves F and f' at the ends of the cushion-cylinder are adapted to allow outside air to be sucked through them into the cylin-
 30 der, but to resist the passage of cylinder-air out of the cylinder. The opening E is an opening made through the walls of the cushion-cylinder at its middle portion.

The operation of the cushion-cylinder is as
 35 follows: When steam or compressed air, &c., is applied to the motor-cylinder and it is driven from one side of the car to the other, the cushion-cylinder travels with it, and as soon as the central opening E in the cushion-
 40 cylinder passes the piston Z the air entrapped between said piston and the walls of the cushion-cylinder is compressed for the reason that the valves F or f' (as the case may be) at the
 45 end of the cylinder resists the escape of air out of the cylinder, and the piston Z of course fits steam-tight within its cylinder. This compression of air gradually increases to the end of the stroke, and the moving parts are there-
 50 by gradually brought to a standstill, thus relieving the various parts of the car from shock and excessive strain.

The spiral springs R and S (shown in Fig. 1 as surrounding the ends of the piston-rod C) are held in fixed position at the sides of
 55 the car and so placed that the cylinder somewhat prior to reaching its extreme limits of travel strikes against one of said springs, with the result that the work of compression done upon said spring brings the moving parts
 60 gradually to a stop.

Obviously some features of this invention may be used without others, and the invention may be embodied in widely varying forms.

65 Therefore, without limiting the invention

to the construction shown and described nor enumerating equivalents, I claim, and desire to obtain by Letters Patent, the following:

1. In a motor-operated dumping-car and the like, a reciprocating motor-cylinder, a fixed
 70 piston and piston-rod for said cylinder, connections between said cylinder and the dumping-car body, a member on said cylinder provided with an opening, a member on a fixed
 75 part of the car also provided with an opening, and a locking-pin adapted to be received through said openings when the cylinder has been shifted so that said openings are oppo-
 80 site, substantially as and for the purposes set forth.

2. In a motor-operated dumping-car and the like, a reciprocating motor-cylinder, a fixed
 85 piston and piston-rod for said cylinder, connections between said cylinder and the dumping-car body, a member on said cylinder provided with an opening, a member on a fixed
 90 part of the car also provided with an opening, a locking-pin adapted to be received through said openings when the cylinder has been shifted so that said openings are oppo-
 95 site, and means for retaining said pin in its locking position, substantially as and for the purposes set forth.

3. In a motor-operated dumping-car and the like, a reciprocating motor-cylinder, a fixed
 95 piston and piston-rod for said cylinder, connections between said cylinder and the dumping-car body, a member on said cylinder provided with an opening, a member on a fixed
 100 part of the car also provided with an opening, and a locking-pin adapted to be received through said openings when the cylinder has been shifted so that said openings are oppo-
 105 site, said pin being provided with a handle and a lug, which project outwardly from said pin in different directions, one of the afore-
 110 said openings being so adapted to said lug that when the pin is inserted through the openings and turned so that its handle extends verti-
 115 cally downward, that the said lug abuts against the side of the one of said openings which is so adapted, and thereby prevents the pin from
 120 being withdrawn, substantially as and for the purposes set forth.

4. In a motor-operated dumping-car and the like, a reciprocating motor-cylinder, a fixed
 115 piston and piston-rod for said motor-cylinder, connections between said motor-cylinder and the dumping-car body, a cushion-cylinder at-
 120 tached to said motor-cylinder and reciprocating therewith, a fixed piston and piston-rod for said cushion-cylinder, an opening through the wall of said cushion-cylinder in the mid-
 125 dle part thereof, and a valve at each end of said cushion-cylinder adapted to permit air
 130 to be sucked into said cylinder, but to resist its being forced out of said cylinder, substantially as and for the purposes set forth.

5. In a motor-operated dumping-car and the like, a reciprocating motor-cylinder, a fixed
 130

piston and piston-rod for said cylinder, connections between said cylinder and the dumping-car body, a fixed spring buffer or buffers against which the end or ends of said cylinder abuts at the limits of its travel, substantially as and for the purposes set forth.

6. In a motor-operated dumping-car and the like, a reciprocating motor-cylinder, a fixed piston and piston-rod for said motor-cylinder, connections between said motor-cylinder and the dumping-car body, a cushion-cylinder attached to said motor-cylinder and reciprocating therewith, a fixed piston and piston-rod

for said cushion-cylinder, and a valve at each end of said cushion-cylinder adapted to permit air to be sucked into said cylinder but to resist its being forced out of said cylinder; substantially as and for the purposes set forth.

In testimony whereof I have signed this specification in the presence of two subscribing witnesses.

CARL PONTUS ASTROM.

Witnesses:

E. W. SCHERR, Jr.,
JOHN R. HALSEY.