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A. RUSSELL & J. D. DINSMOOR.

REVERSING MECHANISM.

APPLICATION FILED MAR. 12, 1908.

2 SHEETS—SHEET 1.

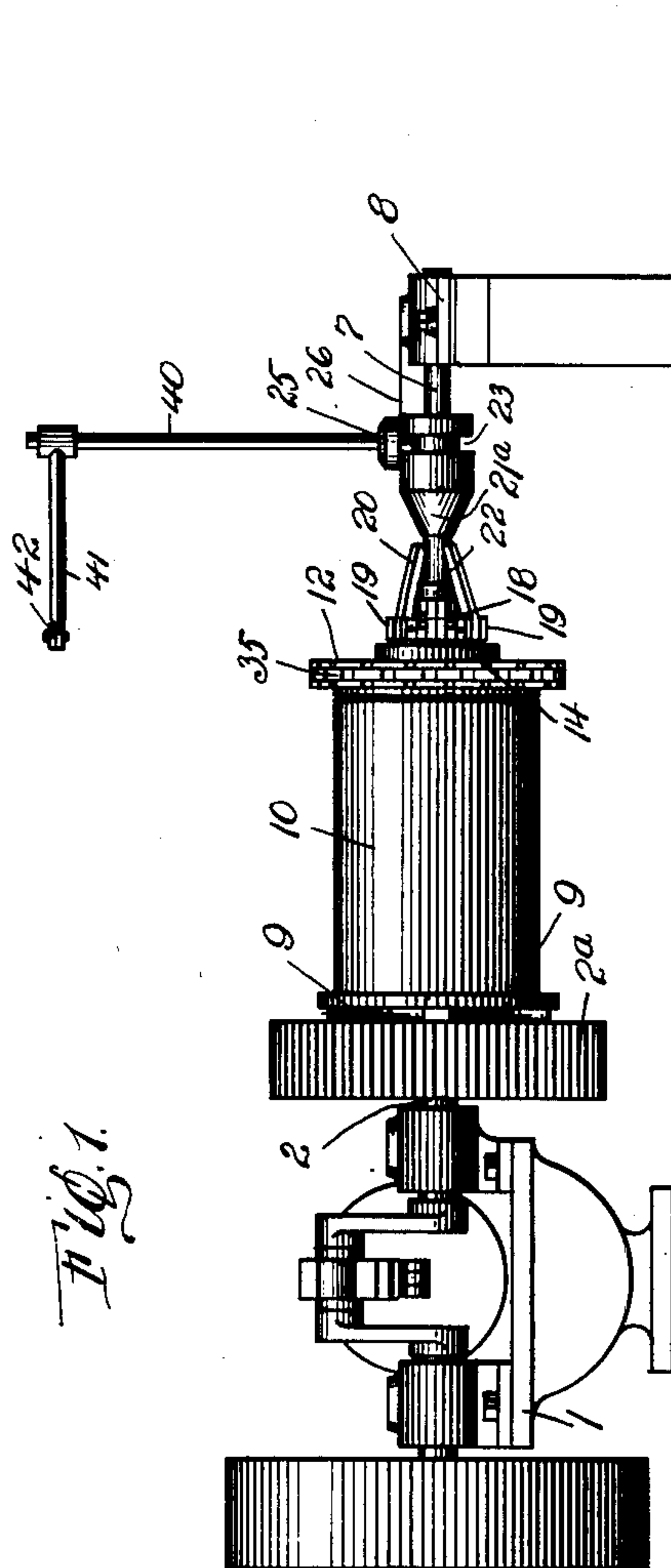


Fig. 1.

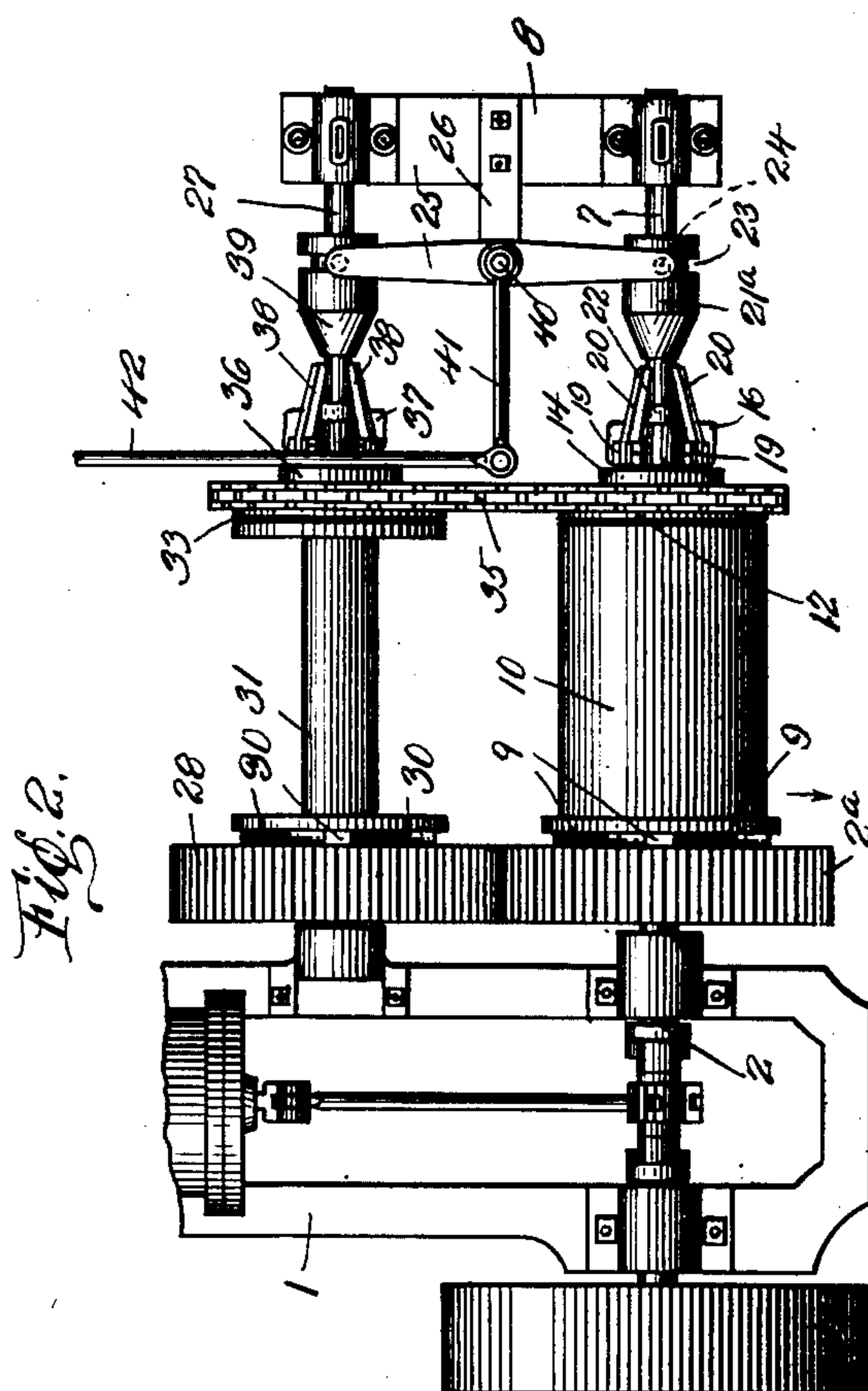


Fig. 2.

Witnesses

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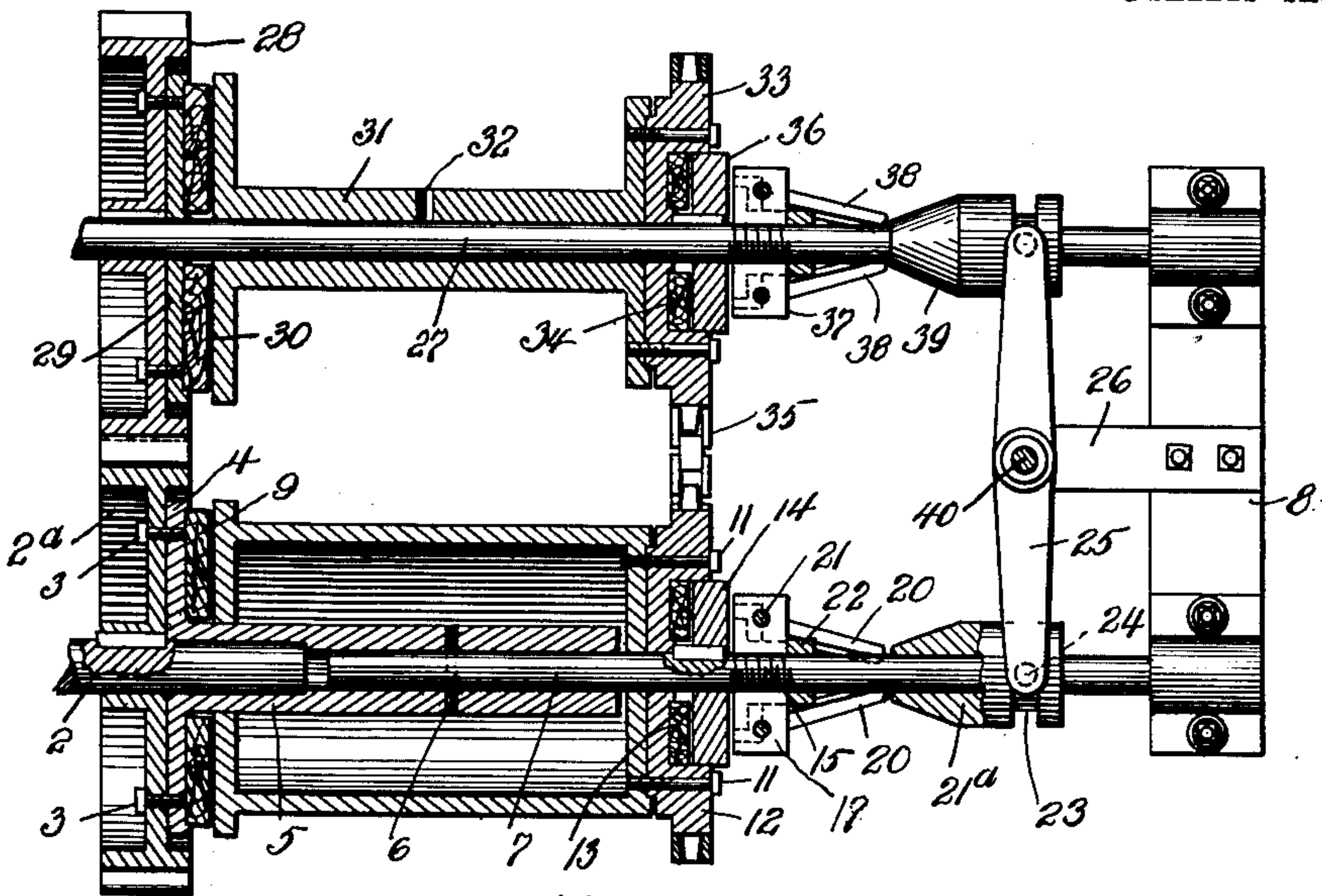


Fig. 3.

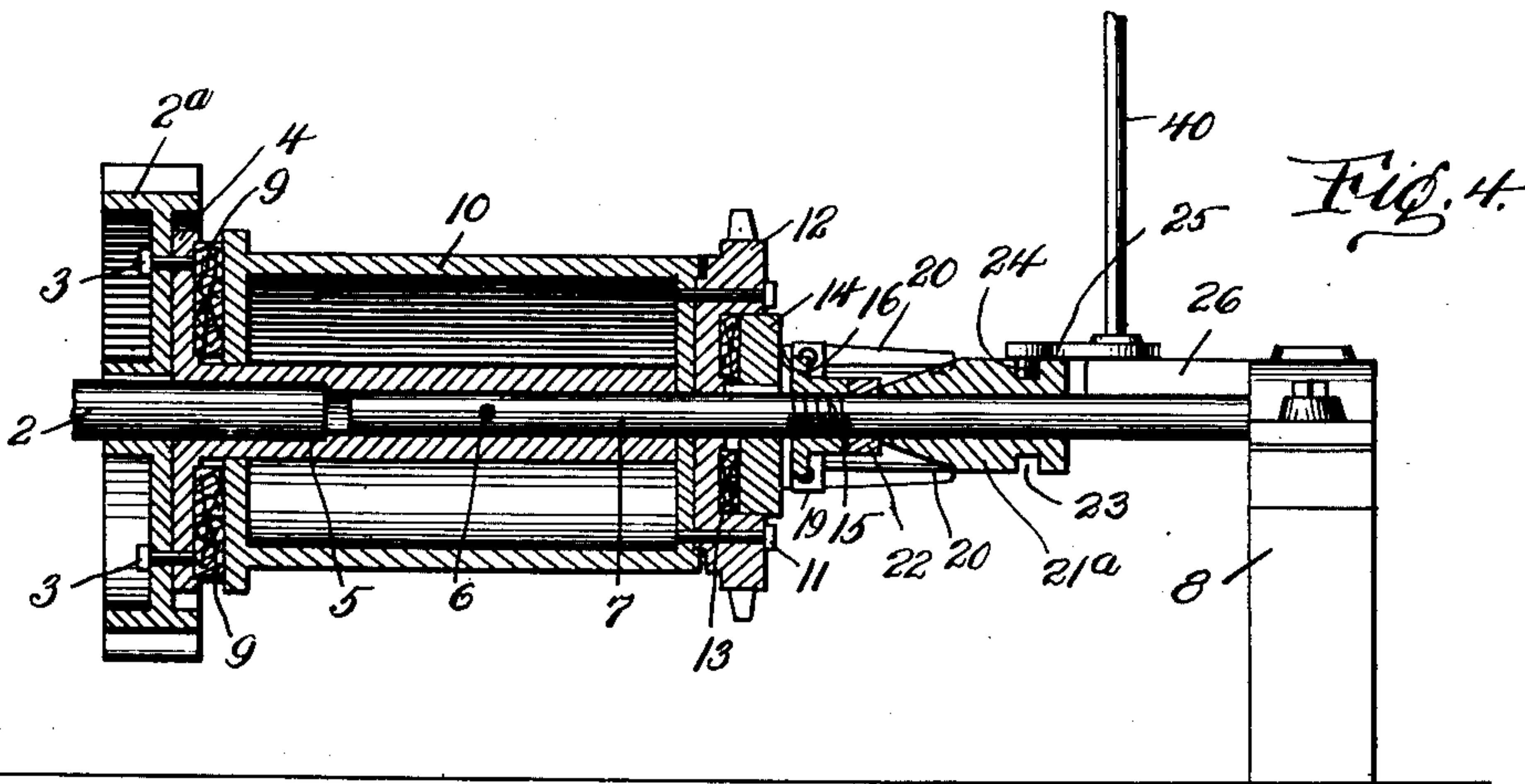


Fig. 4.

Fig. 5.

Fig. 6.

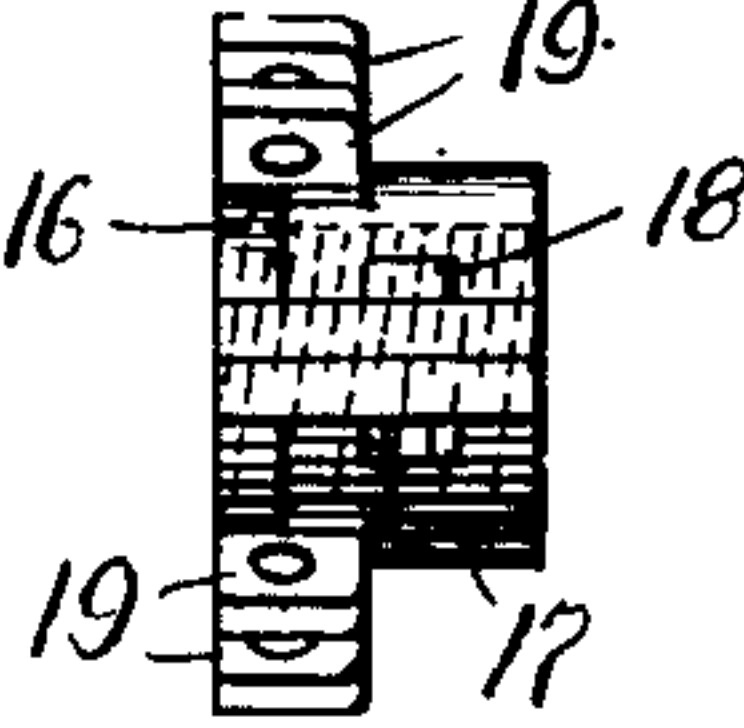
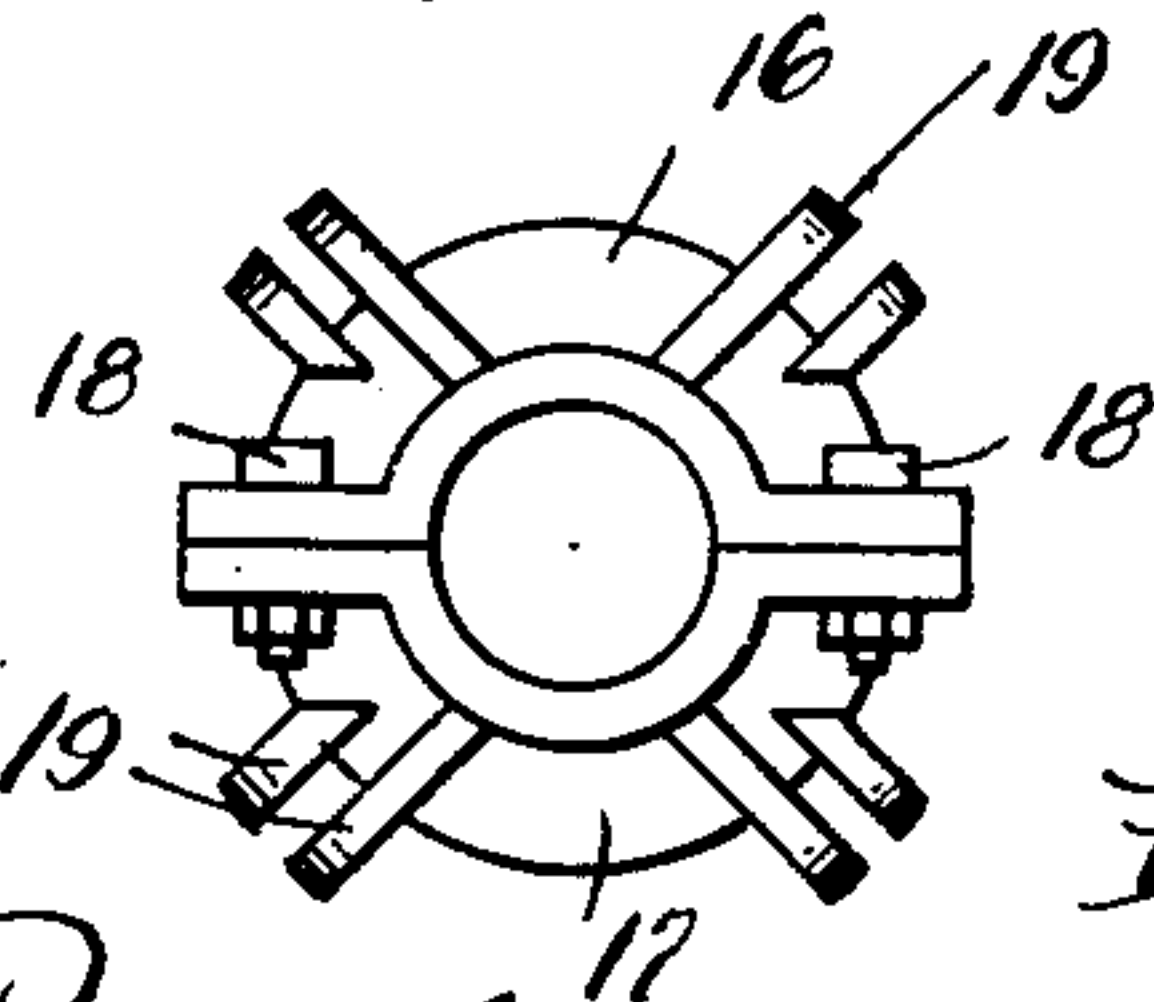
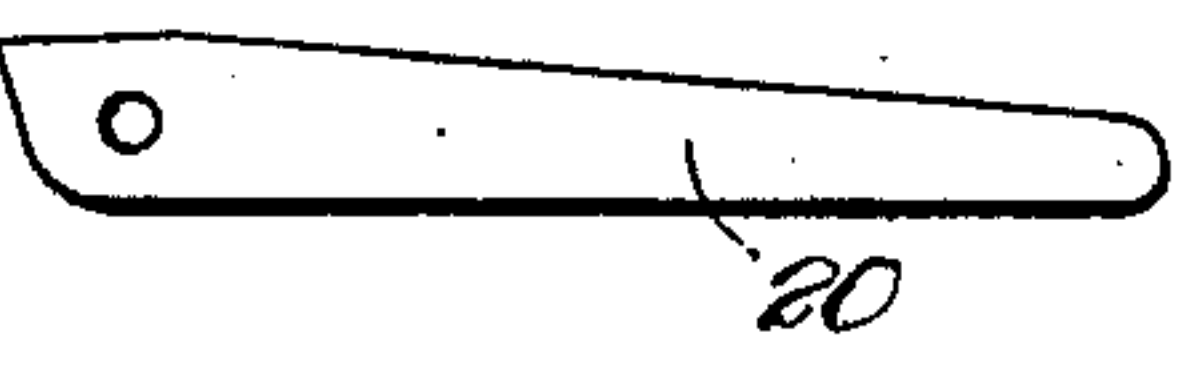


Fig. 7.



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# UNITED STATES PATENT OFFICE.

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## REVERSING MECHANISM.

No. 898,268.

Specification of Letters Patent.

Patented Sept. 8, 1908.

Application filed March 12, 1908. Serial No. 420,630.

*To all whom it may concern:*

Be it known that we, ALEXANDER RUSSELL and JAMES D. DINSMOOR, citizens of the United States of America, residing at St. Marys, in the county of Pleasants and State of West Virginia, have invented certain new and useful Improvements in Reversing Mechanisms, of which the following is a specification, reference being had therein to the accompanying drawing.

This invention relates to a reversing mechanism, and the primary object of our invention is, to provide a novel mechanism that can be used in connection with various types of engines.

Another object of our invention is to provide a simple and durable reversing mechanism, wherein positive and reliable means are employed for effecting a reverse operation of the belt or driving medium.

A still further object of our invention is to provide a reversing mechanism that can be operated at a point remote from the mechanism.

With the above and other objects in view which will more readily appear as the invention is better understood, the same consists in the novel construction, combination and arrangement of parts to be presently described and then specifically pointed out in the appended claims.

In the drawings: Figure 1 is a side elevation of our reversing mechanism, Fig. 2 is a plan of the same, Fig. 3 is a horizontal sectional view of the mechanism partly in plan, Fig. 4 is a longitudinal sectional view of a portion of the mechanism, Fig. 5 is an end view of a clutch head, Fig. 6 a side elevation of the same, and Fig. 7 an elevation of one of the clutch-arms.

In the accompanying drawings, 1 designates the bed plate or foundation of a suitable engine having a driven shaft 2. This driven shaft extends beyond the side of the bed plate 1, and is provided with a gear wheel 2<sup>a</sup>. Secured to the gear wheel 2<sup>a</sup> by screw bolts 3 is the head 4 of a sleeve 5. Fixed in the sleeve 5 by a pin 6 is a shaft 7, the outer end of said shaft being journaled in a double bearing 8 provided therefor. Suitably secured to the head 4 are a plurality of wood blocks 9 frictionally engaged by one end of a drum 10, said drum being loosely mounted upon the sleeve 5. Connected to

the opposite end of the drum 10 as by screw bolts 11 is a large sprocket wheel 12, said wheel having a recess in its outer face in which are a plurality of wood blocks 13. Slidably mounted upon the shaft 7 and adapted to rotate therewith is a circular plate 14 adapted to frictionally engage the blocks 13. A portion of the shaft 7 is threaded, as at 15, to receive a clutch head, this clutch head being made of two parts 16 and 17, clamped together, as at 18. The parts 16 and 17 of the clutch head are interiorly threaded, and are provided with radially disposed lugs 19, these lugs being arranged in pairs to accommodate clutch-arms 20, which are pivotally held in engagement with said lugs by pivot pins 21. The inner ends of the clutch-arms 20 are adapted to engage the circular plate 14, and the arms are movable through the medium of a spreader or tapering collar 21<sup>a</sup>, slidably mounted upon the shaft 7. This spreader is limited in its movement in one direction by a collar 22, carried by the shaft 7, and in its opposite direction by the double bearing 8. The spreader 21<sup>a</sup> is provided with an annular groove 23 to receive a depending pin 24, carried by a cross head 25. This cross head is pivotally mounted upon a bracket 26, carried by the double bearing 8.

Journaled in the bed plate 1 of the engine and the double bearing 8 is a shaft 27, arranged parallel with the shafts 2 and 7. Upon the shaft 27 is mounted a gear wheel 28 adapted to mesh with the gear wheel 2<sup>a</sup>. This gear wheel 28 is provided with a head 29 having a plurality of wood blocks 30. Slidably mounted upon the shaft 27 is a spool 31 one end of which is adapted to engage the blocks 30. The spool is provided with a lubricating port 32 and suitably secured to the other end of said spool is a sprocket wheel 33. This sprocket wheel is similar in construction to the sprocket wheel 12 and carries a plurality of wood blocks 34. Adapted to travel over the sprocket wheels 12 and 33 is an endless sprocket chain 35. Slidably mounted upon the shaft 27 and adapted to rotate therewith is a circular plate 36 adapted to engage the blocks 34, in the same manner as the plate 14 engages the blocks 13. A clutch head 37, clutch-arms 38 and a spreader or tapering collar 39, similar to those elements just described for the shaft 7, are located upon the shaft 27. The spreader 39 is ac-



tuated through the medium of the cross head 25, which in turn can be operated through the medium of the rod 40 and a crank arm 41.

Operation. As illustrated in Figs. 1 to 3 inclusive, the clutch-arms 20 and 38 are in an idle position, and the gear wheel 28, shaft 27, plate 36, and clutch head 37 are revolving in the opposite direction from that of the shafts 2 and 7, gear wheel 2<sup>a</sup>, sleeve 5 and plate 14. With a belt (not shown) engaging upon the drum 10, said belt will remain idle, but assuming that the spreader 21<sup>a</sup> is moved through the medium of the cross head 25, the belt will be immediately driven in the direction of the driven shaft 2 of the engine. This is accomplished by the spreader 21<sup>a</sup> spreading the clutch-arms 20 and causing said clutch-arms to impinge the plate 14. As this plate frictionally engages the blocks 13, the drum 10 and the sprocket wheel 12 will be moved towards the gear wheel 2<sup>a</sup>, causing the end of the drum 10 to impinge and frictionally engage the blocks 9. As long as the spreader 21<sup>a</sup> is maintained in the position illustrated in Fig. 4 of the drawings, the drum 10 will be frictionally held between the plate 4 and the blocks 9 and will rotate with the gear wheel 2<sup>a</sup>. During this operation the sprocket chain 36 rotates the sprocket wheel 33 and the spool 31 and these two elements revolve upon the shaft 27.

Assuming now that the cross head 25 is actuated to move the spreader 21<sup>a</sup> out of engagement with the clutch-arms 20, and the spreader 39 into engagement with the clutch-arms 38, the belt engaging upon the drum 10 will be driven in an opposite or reverse direction from the driven shaft 2. When the clutch-arms 38 frictionally engage the plate 36, said plate is moved to engage the blocks 34 and the spool 31 is moved to engage the blocks 30. The spool 31 will then be frictionally held to revolve with the gear wheel 28 and through the medium of the sprocket wheel 33 and chain 35, the drum 10 and the sprocket wheel 12 will be driven in a similar direction to the gear wheel 28, since the drum is free to rotate upon the sleeve 5.

From the foregoing description it will be observed that we have devised a reversing mechanism that can be used to advantage in the oil fields, where the engines are located a considerable distance from a derrick. By the use of a connecting rod 42, the cross head 25 can be operated from a considerable distance.

The wooden blocks or shoes used in connection with our mechanism can be easily renewed when worn, and the use of wood insures greater friction than if metal to metal was used.

It is thought that the construction and operation of our mechanism will be fully understood, and we reserve the right to make such

structural changes as are permissible by the appended claims.

Having now described our invention what we claim, as new, is:—

1. In a reversing mechanism, the combination with an engine, of shafts driven thereby, heads supported by said shafts, wood blocks carried by said heads, sprocket wheels loosely mounted upon said shafts, an endless chain connecting said sprocket wheels, wood blocks carried by said sprocket wheels, plates slidably keyed upon said shafts, a spool movably mounted upon one of said shafts between some of said blocks and one of said sprocket wheels, a drum movably mounted upon the other of said shafts between the other of said blocks and the other of said sprocket wheels, clutch heads adjustably mounted upon said shafts, clutch-arms pivotally mounted in said heads for impinging said plates and moving said plates, a spool and drum for engaging said wood blocks, a spreader slidably mounted upon each of said shafts for moving said clutch-arms, and means for alternately moving said spreaders.

2. In a reversing mechanism, the combination with an engine, of shafts driven thereby, wood blocks arranged to revolve with said shafts, sprocket wheels loosely mounted upon said shafts, a sprocket chain connecting said sprocket wheels, a drum loosely mounted upon one of said shafts and adapted to be rotated in one direction by said sprocket wheel and in an opposite direction by frictionally engaging some of said blocks, clutch heads adjustably mounted upon said shafts, clutch-arms pivotally carried by said heads for moving said sprocket wheels, spreaders for actuating said clutch-arms, and means for alternately moving said spreaders.

3. A reversing mechanism comprising oppositely rotating shafts, blocks arranged to rotate with said shafts, sprocket wheels loosely mounted upon said shafts, an endless sprocket chain adapted to travel over said sprocket wheels, a drum secured to one of said sprocket wheels and actuated thereby to rotate in one direction, means to grip some of said blocks and actuate said sprocket wheels, and drive said drum in one direction, means adapted to grip the other of said blocks and drive said drum in the opposite direction, said means including clutch heads, clutch-arms carried by said heads, and alternately operated spreaders for actuating said clutches.

4. In a reversing mechanism, a pair of oppositely driven shafts geared together to rotate in unison, friction shoes carried by the gear of each shaft, a drum mounted to rotate on one of the shafts, a spool mounted to rotate on the other shaft, one end of the drum and one end of the spool adapted to frictionally engage the friction shoes carried by said



gears, sprocket wheels carried by the opposite ends of said drum and spool and having friction shoes mounted in their outer faces, friction disks carried by the shafts to engage  
5 said last mentioned friction shoes, clutch heads mounted on each shaft, clutch-arms pivoted in said heads having their inner ends disposed to engage said friction disks and move the same into engagement with the  
10 friction shoes carried by said sprocket wheels, a sprocket chain connecting said wheels, a

spreader on each shaft movable longitudinally thereon to actuate said clutch-arms, and a common actuating means for said spreaders.

In testimony whereof we affix our signatures in the presence of two witnesses.

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JAMES D. DINSMOOR.

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