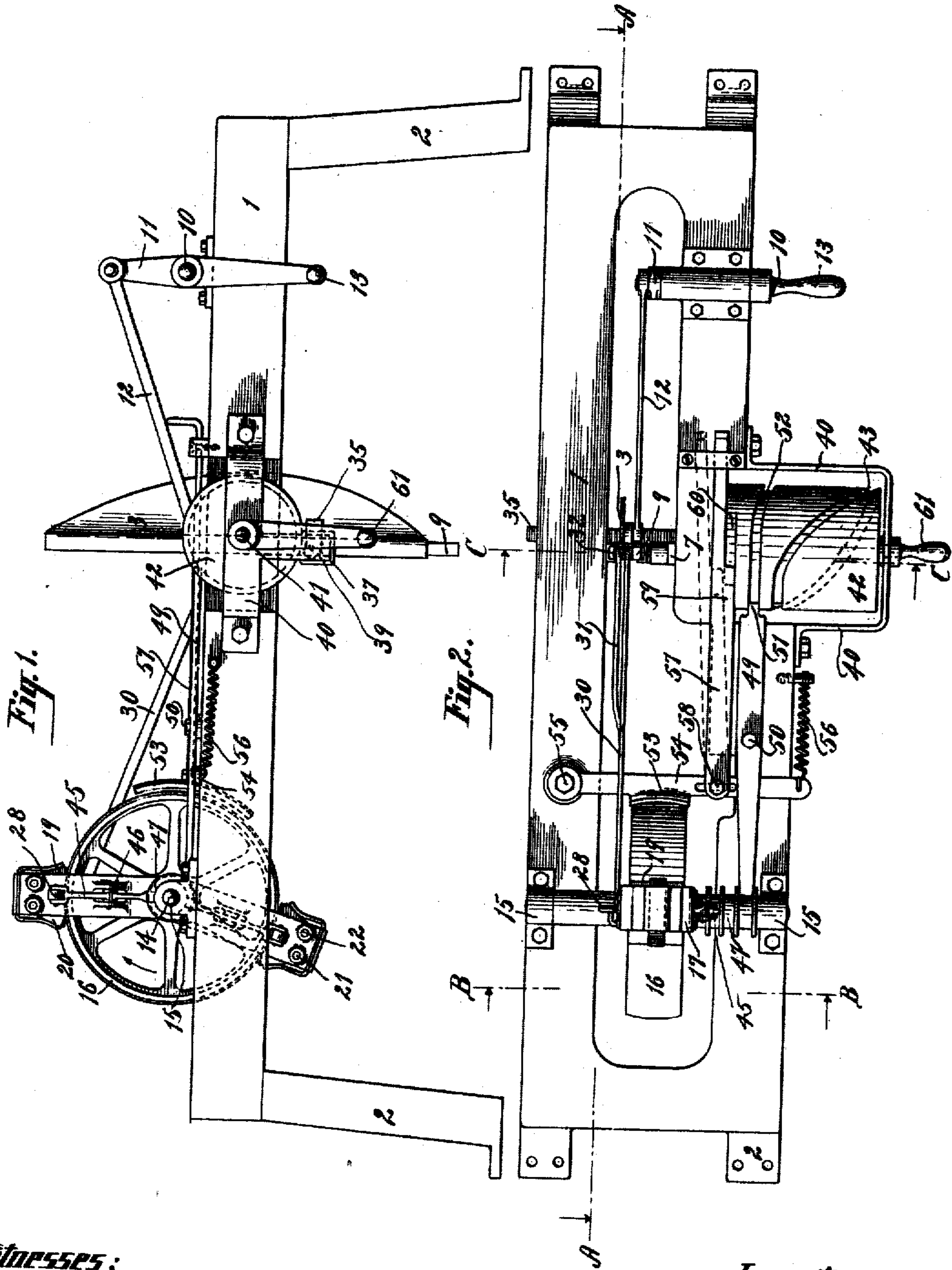


No. 814,010.

PATENTED MAR. 6, 1906.

D. ASHWORTH.  
MECHANICAL MOVEMENT.  
APPLICATION FILED JUNE 27, 1906.

2 SHEETS—SHEET 1.



**Witnesses:**  
F. Hachemburg.  
Henry Whitem.

**Inventor:**  
Daniel Ashworth  
by attorney  
Thomson & Howard

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2 SHEETS—SHEET 2.

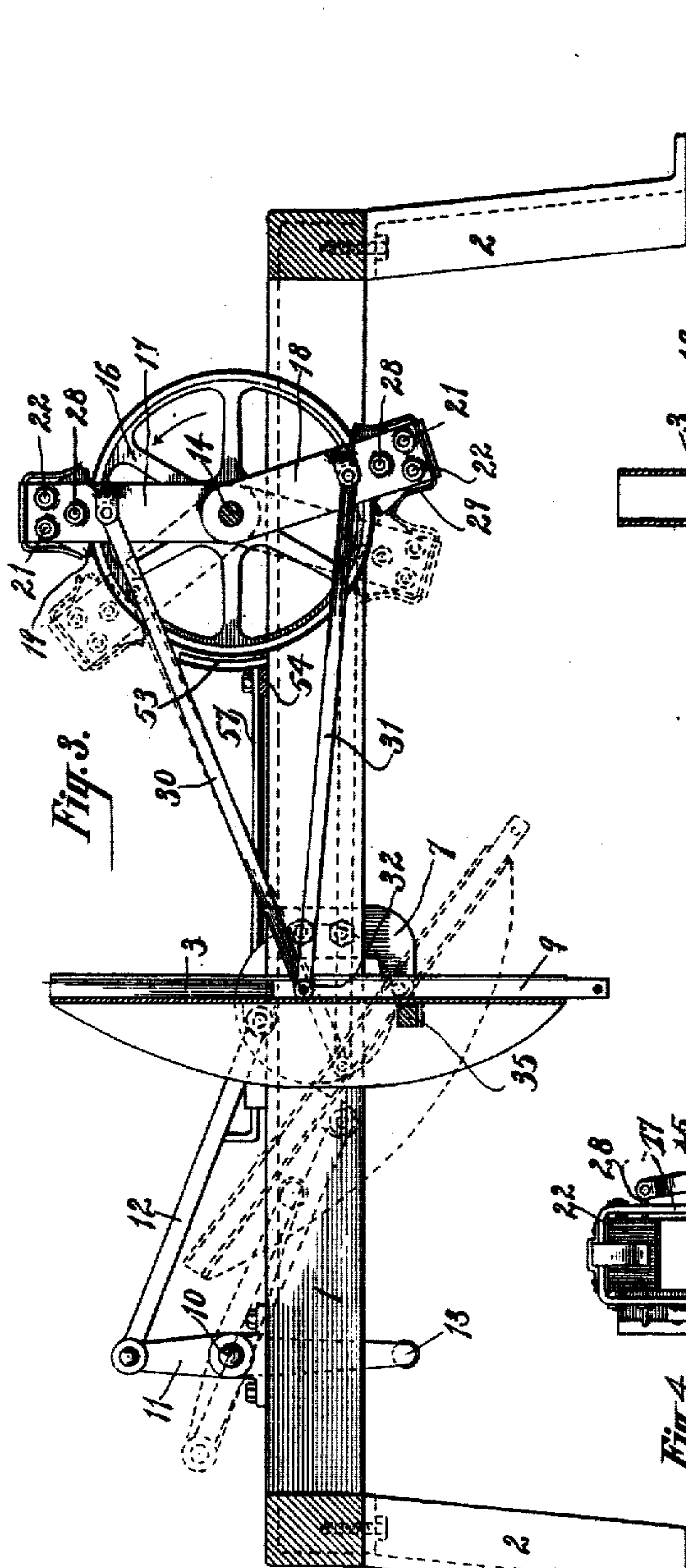


Fig. 3.

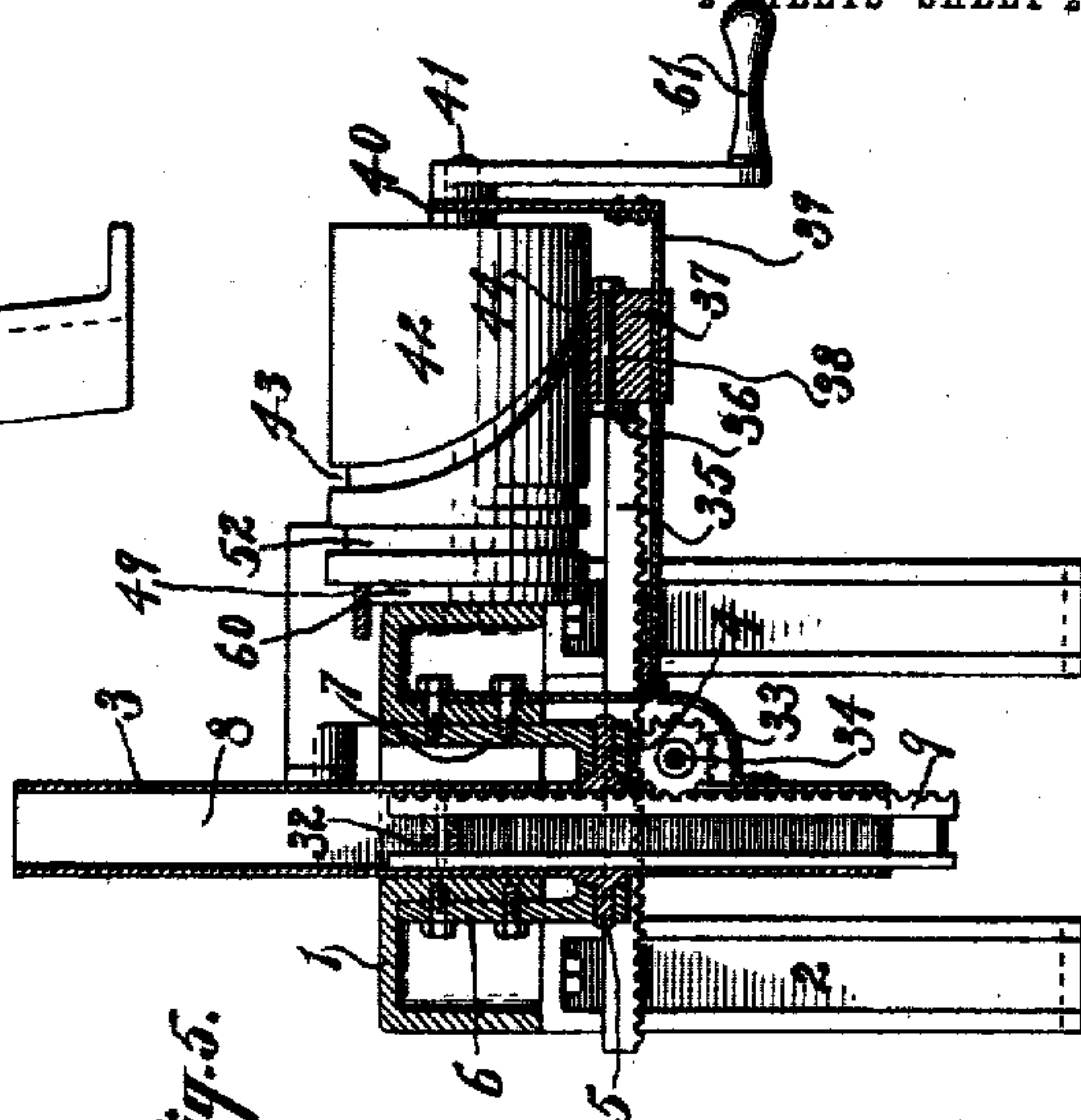


Fig. 5.

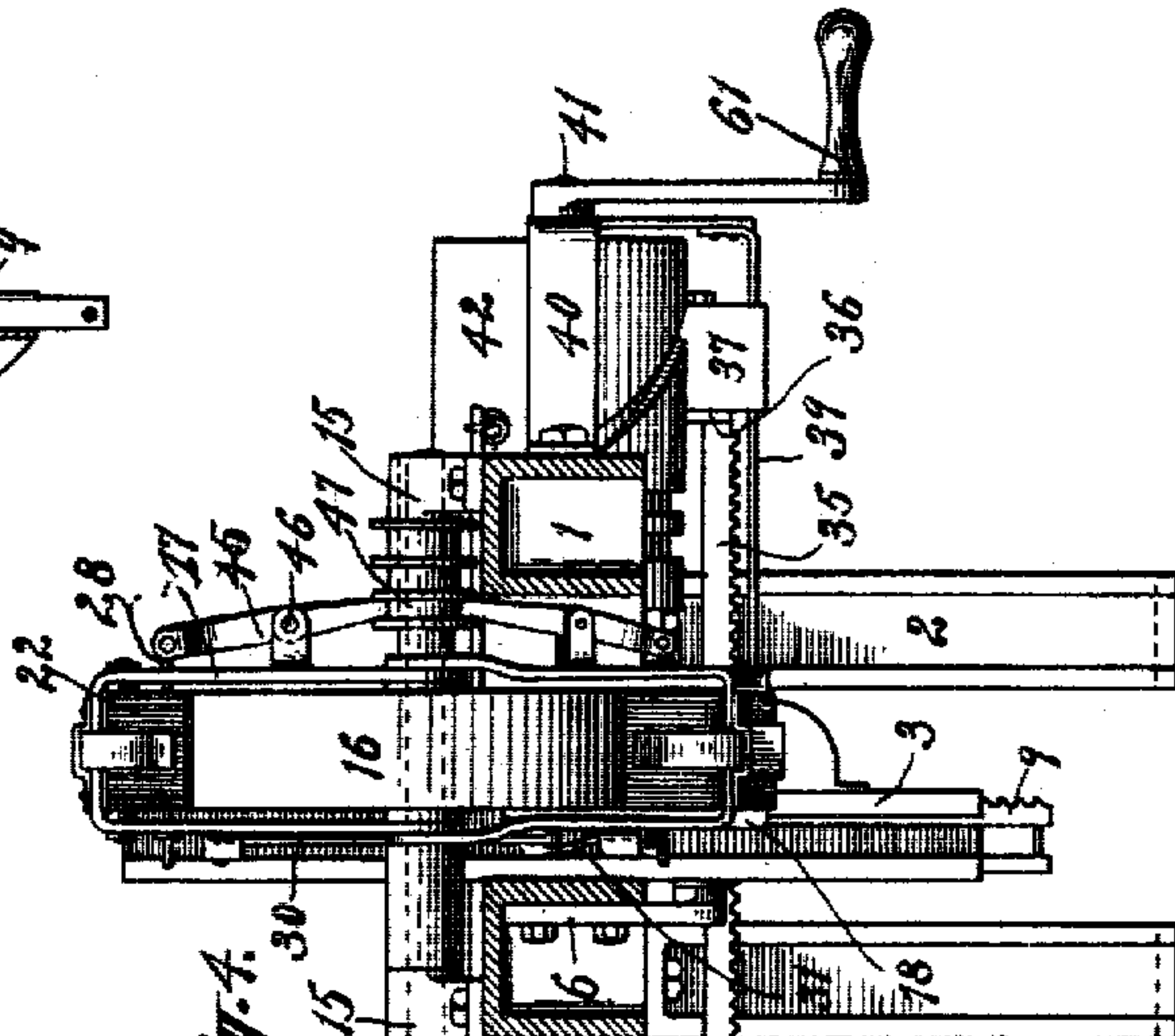


Fig. 4.

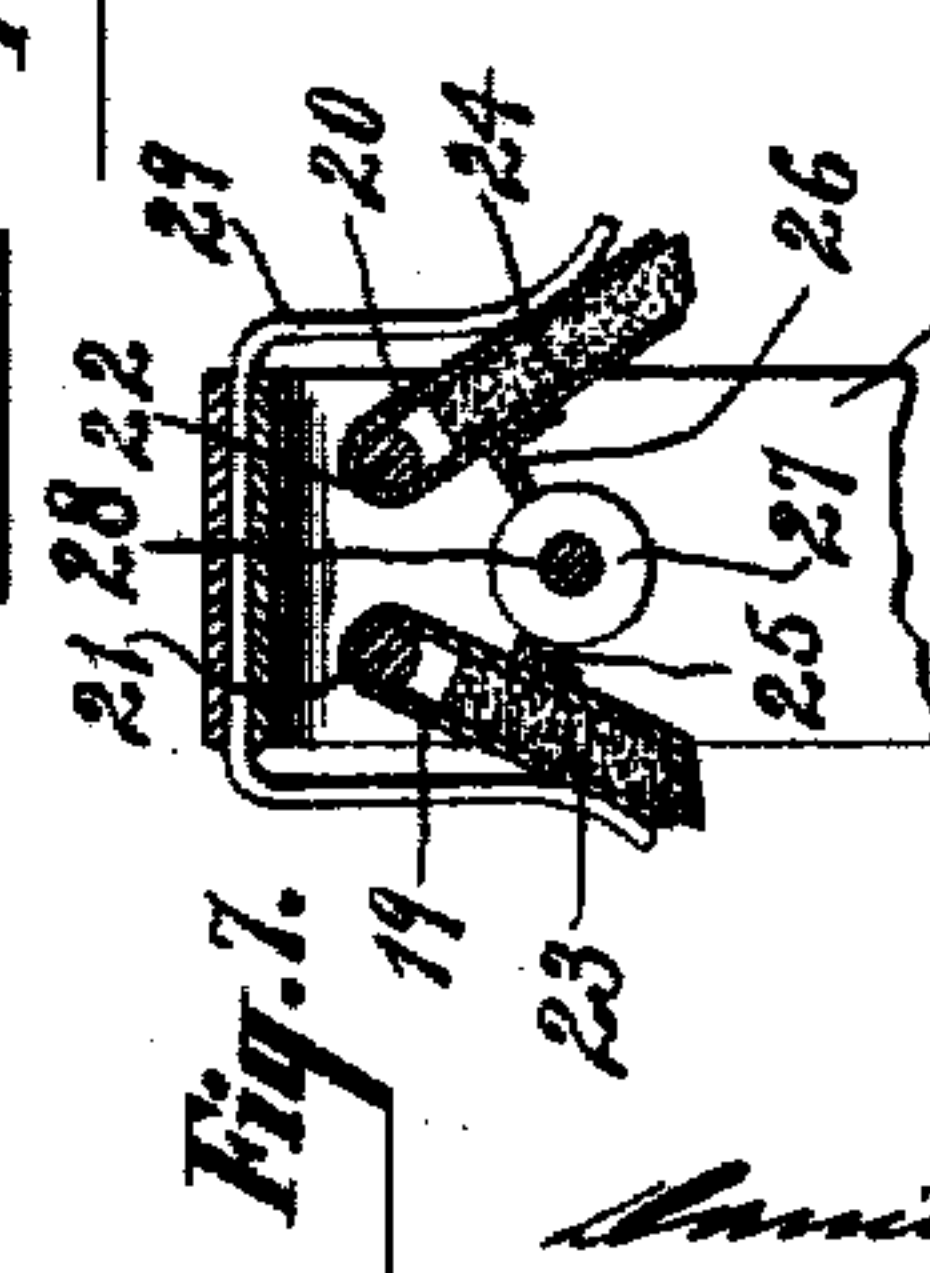


Fig. 7.

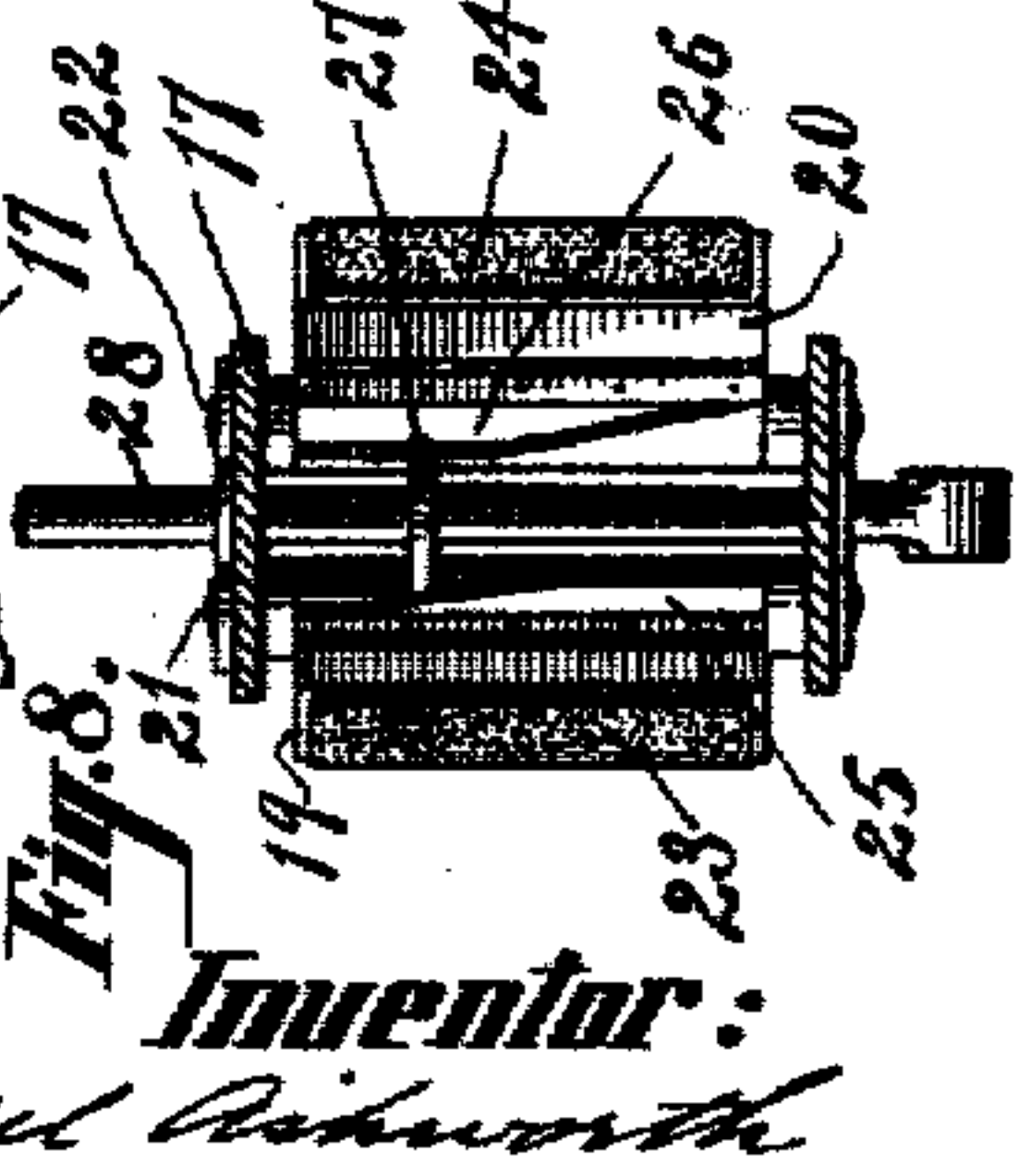
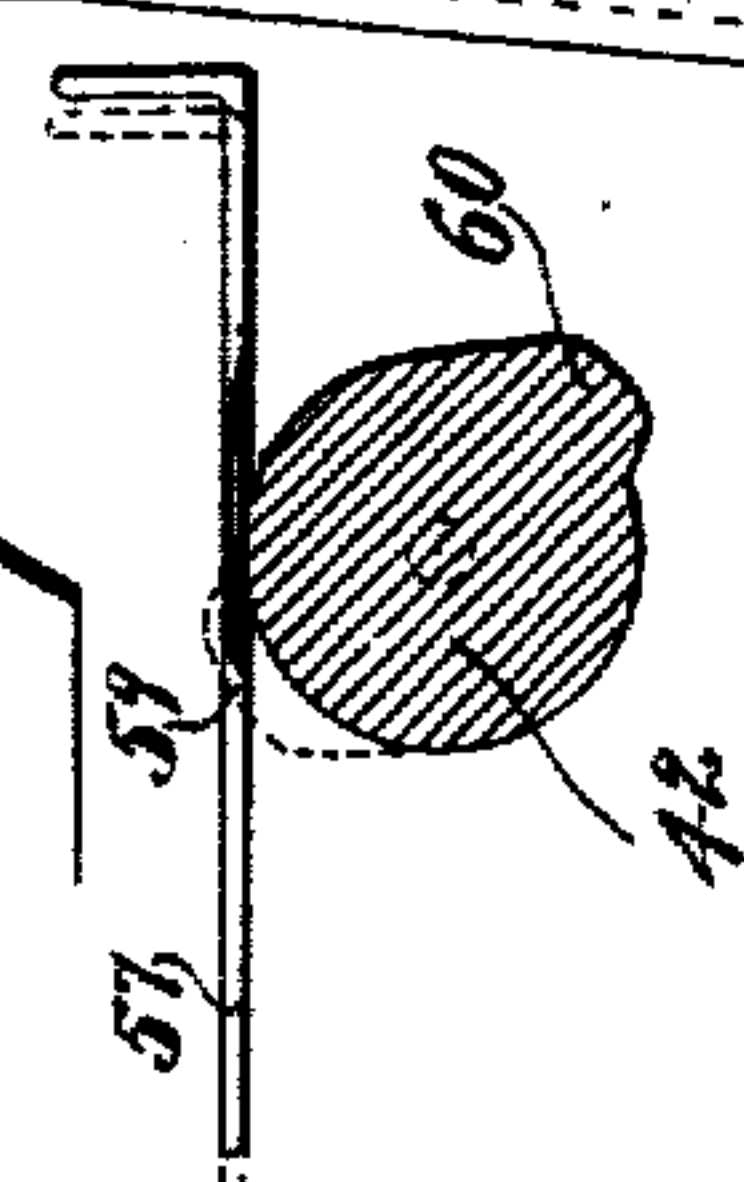


Fig. 8.

*Witnesses:*  
F. S. Hachenberg,  
Henry Thieme.

Fig. 6.



*Inventor:*  
Daniel Ashworth  
by attorneys  
Horn & Howard



# UNITED STATES PATENT OFFICE.

DANIEL ASHWORTH, OF WAPPINGERS FALLS, NEW YORK.

## MECHANICAL MOVEMENT.

No. 814,010.

Specification of Letters Patent.

Patented March 6, 1906.

Application filed June 27, 1905. Serial No. 267,193.

*To all whom it may concern:*

Be it known that I, DANIEL ASHWORTH, a citizen of the United States, and a resident of Wappingers Falls, in the county of Dutchess and State of New York, have invented a new and useful Mechanical Movement, of which the following is a specification.

The object of this present invention is to provide certain improvements in the construction, form, and arrangement of the several parts of a mechanical movement whereby a very simple and easily-controlled mechanism is produced for converting a reciprocating motion into a rotary motion in either direction, as desired, the speed of the rotary motion being capable of accurate adjustment with respect to the speed of the reciprocating motion.

A further object is to provide means for automatically increasing and diminishing the speed of the rotary motion and for reversing the motion automatically and for automatically or mechanically locking and releasing the mechanism which imparts the varying rotary motion.

The present invention is well adapted for use in connection with automobiles or wherever it is desirable to easily change the speed of the movement without straining the parts thereof.

In the accompanying drawings, Figure 1 represents the mechanism in side elevation, the parts being arranged in position to impart a rotary motion in the direction of the arrow. Fig. 2 is a top plan view of the mechanism. Fig. 3 is a longitudinal vertical section taken in the plane of the line A A of Fig. 2 looking in the direction of the arrows. Fig. 4 is a transverse vertical section taken in the plane of the line B B of Fig. 2 looking in the direction of the arrows. Fig. 5 is a transverse vertical section taken in the plane of the line C C of Fig. 2 looking in the direction of the arrows. Fig. 6 is a detail view showing more clearly the cam for operating the brake-lever bar. Fig. 7 is a detail sectional view, on an enlarged scale, of the reversible clutch device; and Fig. 8 is an inverted plan view of the same.

The bed-plate of a suitable frame for supporting my improved mechanism is denoted by 1 and its legs by 2. A rock-lever 3 is provided with pintles 4 and 5, pivoted in brackets 6 and 7, secured to and depending from the bed-plate 1 of the frame. This lever is provided with a vertical channel 8, in which

a rack 9 is fitted to slide longitudinally. A reciprocating rocking motion may be imparted to the lever 3—as, for instance, from a rotary crank-shaft 10, the crank 11 of which is connected to the lever 3 through a rod 12. This shaft 10 may be rotated in any suitable manner—as, for instance, by means of a crank-handle 13.

The wheel to which it is intended to impart the variable rotary motion is denoted by 16, which wheel is mounted on a shaft 14, which in turn is mounted in suitable bearings 15 on the bed-plate 1 of the frame. The wheel 16 is in substantially the same plane as the rock-lever 3. Two double arms 17 and 18 have their ends loosely mounted on the shaft 14 upon opposite sides of the wheel 16 and extend in opposite directions from the said shaft. Each of these arms is provided with a reversible clutch device which is constructed and operated as follows: Two pawls 19 and 20 are hinged on cross-pins 21, 22, carried by the arms beyond the periphery of the wheel 16. These pawls are provided with wearing-surfaces of friction material 23, 24—as, for instance, leather. The inner sides of these pawls are provided with oppositely-arranged cams 25, 26, arranged to be alternately engaged by a shoulder 27 on a transversely-movable bar 28, so that the pawls may be alternately brought into and out of engagement with the periphery of the wheel 16, according to the direction in which the bar 28 is moved. A double-ended spring 29 is carried by the arm in position to press the pawls inwardly toward each other.

The arms 17 and 18 are connected to the vertically-sliding rack 9 at the same point by means of rods 30, 31, the point of connection of said rods with the rack being denoted by 32. This rack 9 meshes with a pinion 33, loosely mounted on a stud-axle 34, carried by the lever 3. A transverse sliding rack 35 meshes with the pinion 33, which rack is provided with an arm 36, which is pivoted in a block 37, as shown at 38, in alignment with the pivotal connection of the lever 3. This block 37 is fitted to slide transversely on the bottom bar 39 of a U-shaped frame 40, fixed to the side of the bed-plate 1.

An oscillating cam-shaft 41 is mounted in the bed-plate 1 and the outer end of the U-shaped frame 40, which shaft has fixed there-to a cam-drum 42. This cam-drum 42 is arranged to slide the rack 35 inwardly and outwardly—in the present instance by providing



the drum with a groove 43 and the sliding block 37 with a projection 44, located in said groove. This transverse movement of the rack 35 will raise and lower the rack 9, and thus shift the pivotal connection of the rods 30 31 of the clutch device to a greater or lesser distance above the pivotal connection of the lever 3 with the frame. The nearer the pivot 32 is brought to the lever-pivot the shorter will be the motion imparted to the clutching-arms 17 and 18. In the accompanying drawings the parts are so arranged that the pivot 32 may be brought into alignment with the lever-pivot, so that no motion is imparted to the arms 17 and 18, and thereby the wheel 16, when in this position. The means which I have shown for reversing the movement of the wheel 16 is constructed and operated as follows: Rocking levers 45 are pivoted at 46 to the arms 17 and 18, the outer ends of which arms are attached to the transversely-movable bars 28, and the inner ends of each lever are engaged by a laterally-sliding sleeve 47, loosely mounted on the shaft 14. A rocking lever 49 is pivoted at 50 on the bed-plate 1 and has one arm engaged with the laterally-movable sleeve 47 and its other arm provided with a projection 51, entering a cam-groove 52 in the periphery of the drum 42. This cam-groove 52 is so arranged with respect to the cam-groove 43 in the present instance that the pawls of the clutch device are reversed when the pivotal connection 32 of the clutch device is in alignment with the lever-pivot.

The means which I have shown for applying a brake to the wheel 16 to stop its rotary movement before movement is imparted to it in the reverse direction is constructed and operated as follows: A brake-shoe 53 is carried by a rocking lever 54, pivoted at 55 on the bed-plate 1, with the brake-shoe 53 opposite the periphery of the wheel 16. A spring 56 leads from the end of the lever 54 to the bed-frame 1 for normally holding the brake-shoe 53 disengaged from the periphery of the wheel 16. A bar 57 is adjustably secured at 58 to the lever 54 at a greater or lesser distance from the pivot 55 of the lever for insuring a greater or lesser movement of the same toward and away from the wheel 16. This bar 57 is provided with a shoulder 59, which may be swung into the path of a cam 60 on the face of the cam-drum 42. When desired, this bar 57 may be swung laterally out of the way of the said cam 60.

An oscillating movement comprising one complete revolution of the drum 42 may be imparted thereto by any suitable means. In the present instance I have shown a crank-handle 61.

It will be seen that a constant reciprocating movement of the lever 3 may by use of the several devices hereinabove described impart a rotary motion to the wheel 16 in

a forward or reverse direction at different speeds.

What I claim as my invention is—

1. A mechanical movement comprising a rock-lever, a vertically-sliding rack carried thereby, a pinion meshing with the rack, a laterally-sliding rack, a wheel, a clutch device, a connection between the clutch device and vertically-sliding rack and a cam for controlling the movement of the laterally-sliding rack.

2. A mechanical movement comprising a rock-lever, a wheel, a brake, a clutch device, a connection between the rock-lever and clutch device, a cam for controlling the movement of the clutch device and a cam for operating the brake.

3. A mechanical movement comprising a rock-lever, a wheel, a brake, a reversible clutch device, a connection between the rock-lever and clutch device, a cam for reversing the clutch device and a cam for operating the brake.

4. A mechanical movement comprising a rock-lever, a wheel, a brake, a reversible clutch device, a connection between the rock-lever and clutch device, a cam for controlling the movement of the clutch device, a cam for reversing the clutch device and a cam for operating the brake.

5. A mechanical movement comprising a rock-lever, a wheel, a brake, a reversible clutch device, a connection between the rock-lever and clutch device and a common cam-drum arranged to control the movement of the clutch device to reverse the clutch device and to operate the brake.

6. In a mechanical movement, a shaft, a wheel mounted thereon, a clutch device comprising an arm loosely mounted on the shaft, oppositely-arranged pawls carried thereby oppositely-arranged cams on the adjacent faces of the pawls, a spring tending to force the pawls into engagement with the periphery of the wheel and means engaging the cams for forcing the one or the other of the pawls out of engagement with the wheel.

7. In a mechanical movement, a shaft, a wheel mounted thereon, a clutch device comprising an arm loosely mounted on the shaft, oppositely-arranged pawls carried thereby, oppositely-arranged cams on the adjacent faces of the pawls, a spring tending to force the pawls into engagement with the periphery of the wheel and means engaging the cams for forcing the one or the other of the pawls out of engagement with the wheel comprising a transversely-sliding bar, a rock-lever carried by the arm, a sleeve loosely mounted on the shaft, a second rock-lever and a cam engaging said second-named rock-lever.

8. A mechanical movement comprising a rock-lever, a shaft, a wheel mounted thereon, a clutch device comprising oppositely-arranged arms loosely mounted on the shaft,

pawls carried by the said arms for engaging the said wheel, connecting-bars extending between the arms and the rock-lever and a cam for controlling the position of the connecting-bar on the rock-lever.

5 9. A mechanical movement comprising a rock-lever, a vertically-sliding rack carried thereby, a wheel, a clutch device comprising oppositely-arranged arms, rods connecting  
10 the arms at a common point on the rack, pawls on the said arms arranged to engage the said wheel, a pinion engaging the rack, a

transversely-sliding rack engaging said pinion and a cam for controlling the movement of the transversely-sliding rack.

In testimony that I claim the foregoing as my invention I have signed my name, in presence of two witnesses, this 24th day of June, 1905.

DANIEL ASHWORTH.

Witnesses:

J. WYCKOFF CORNELL,  
JOS. D. THOMPSON.

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