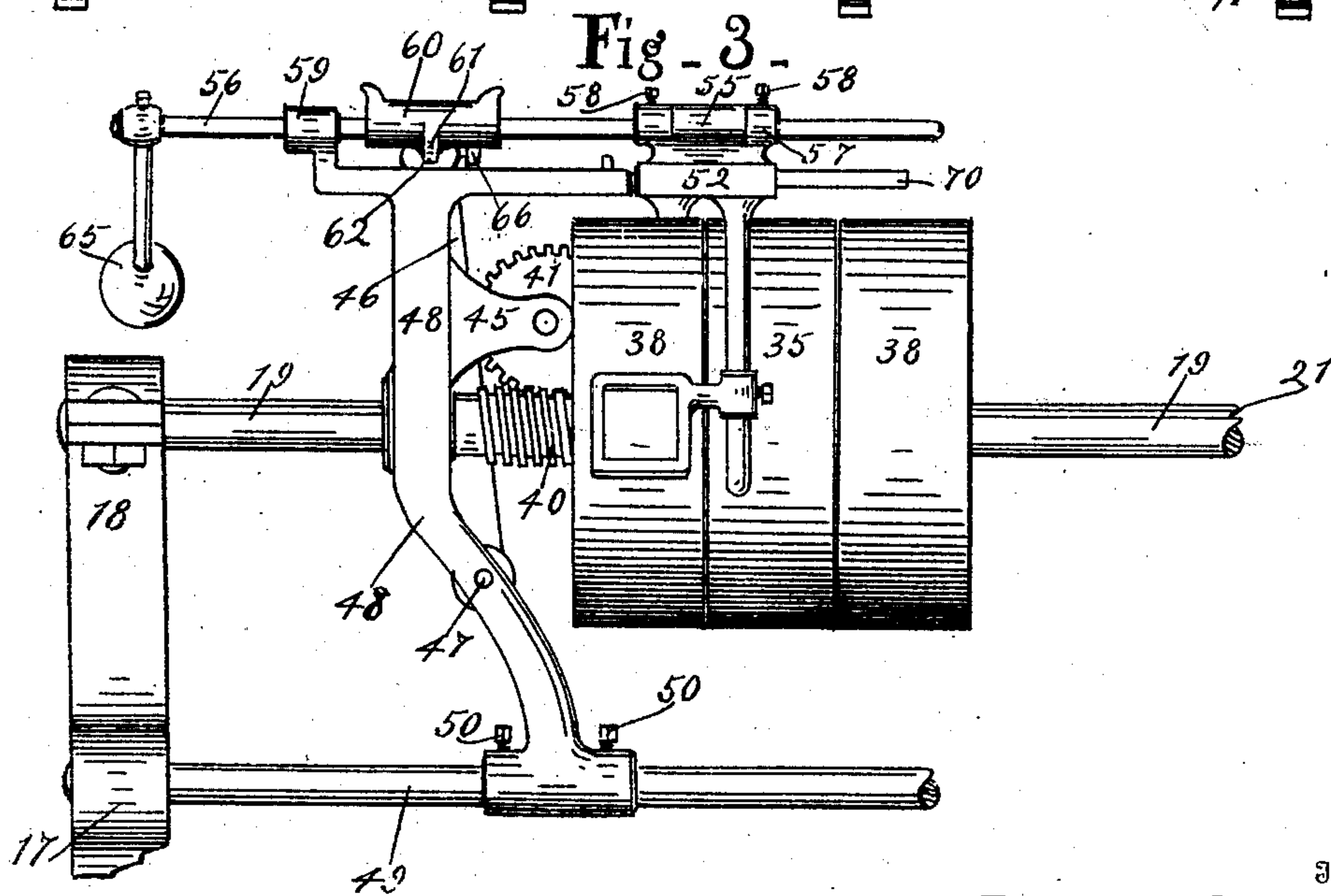
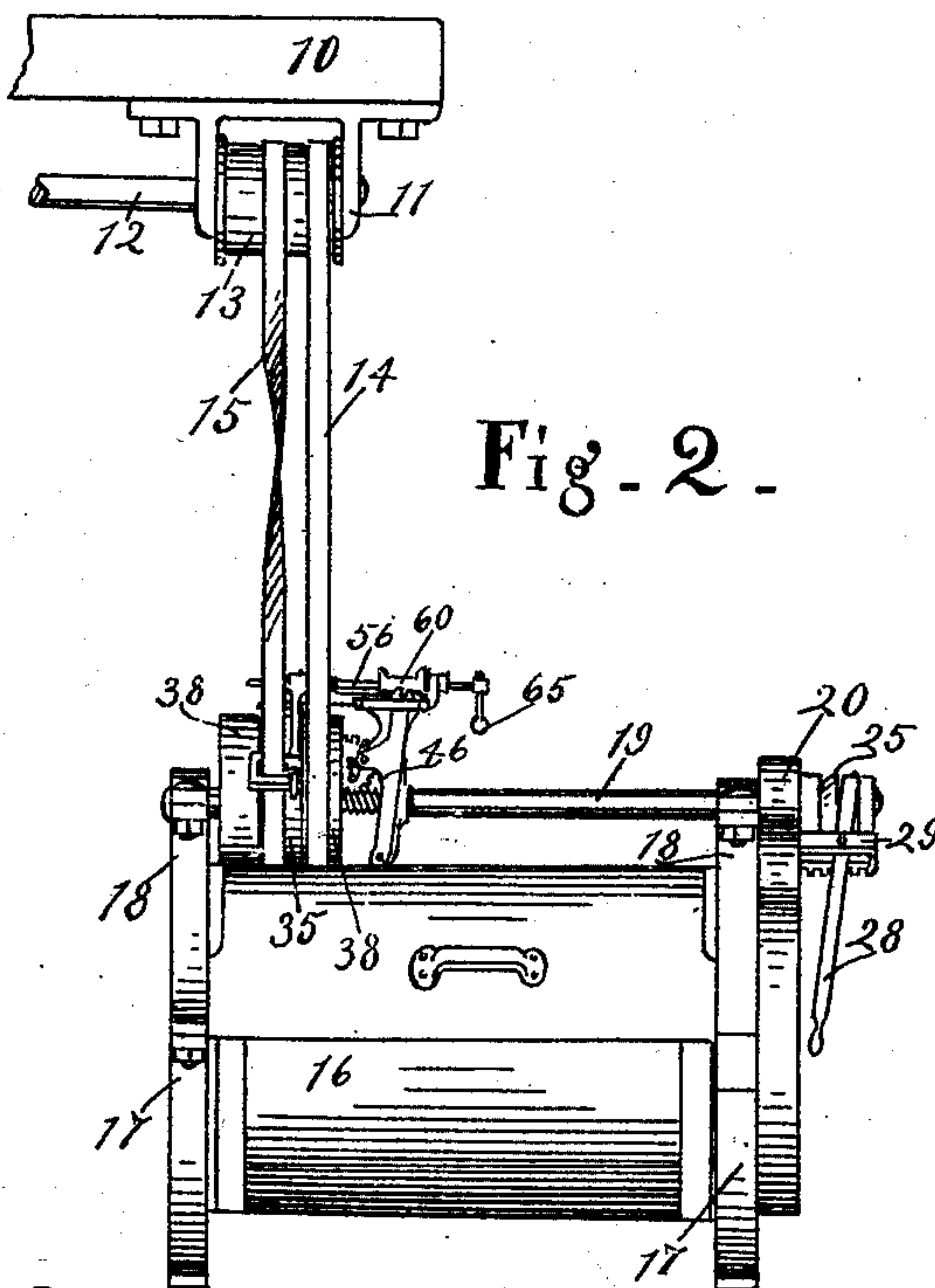
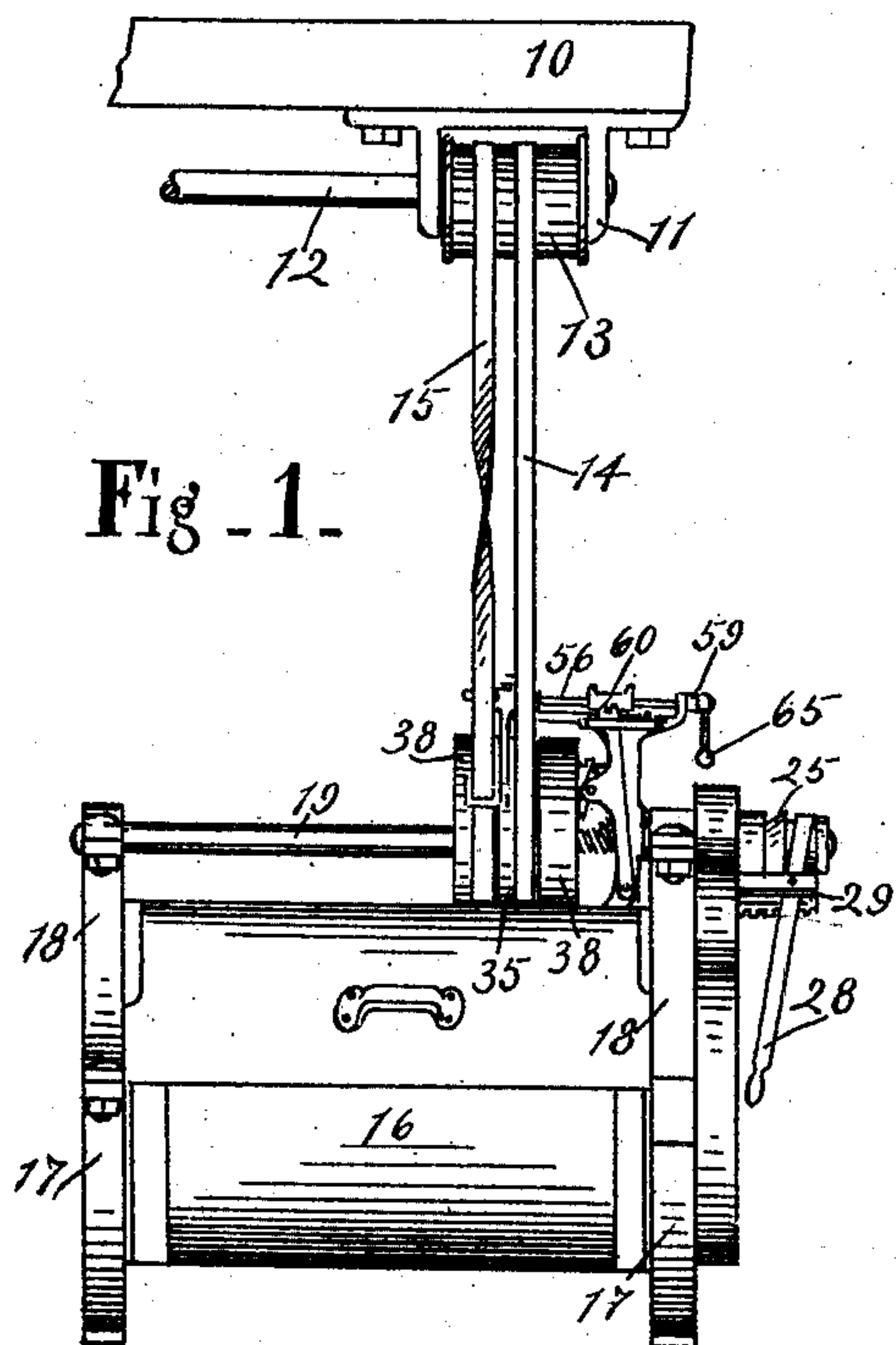


No. 840,199.

PATENTED JAN. 1, 1907.

P. E. CLARK.
MACHINE DRIVING MEANS.
APPLICATION FILED APR. 12, 1906.

3 SHEETS—SHEET 1.



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3 SHEETS—SHEET 2.

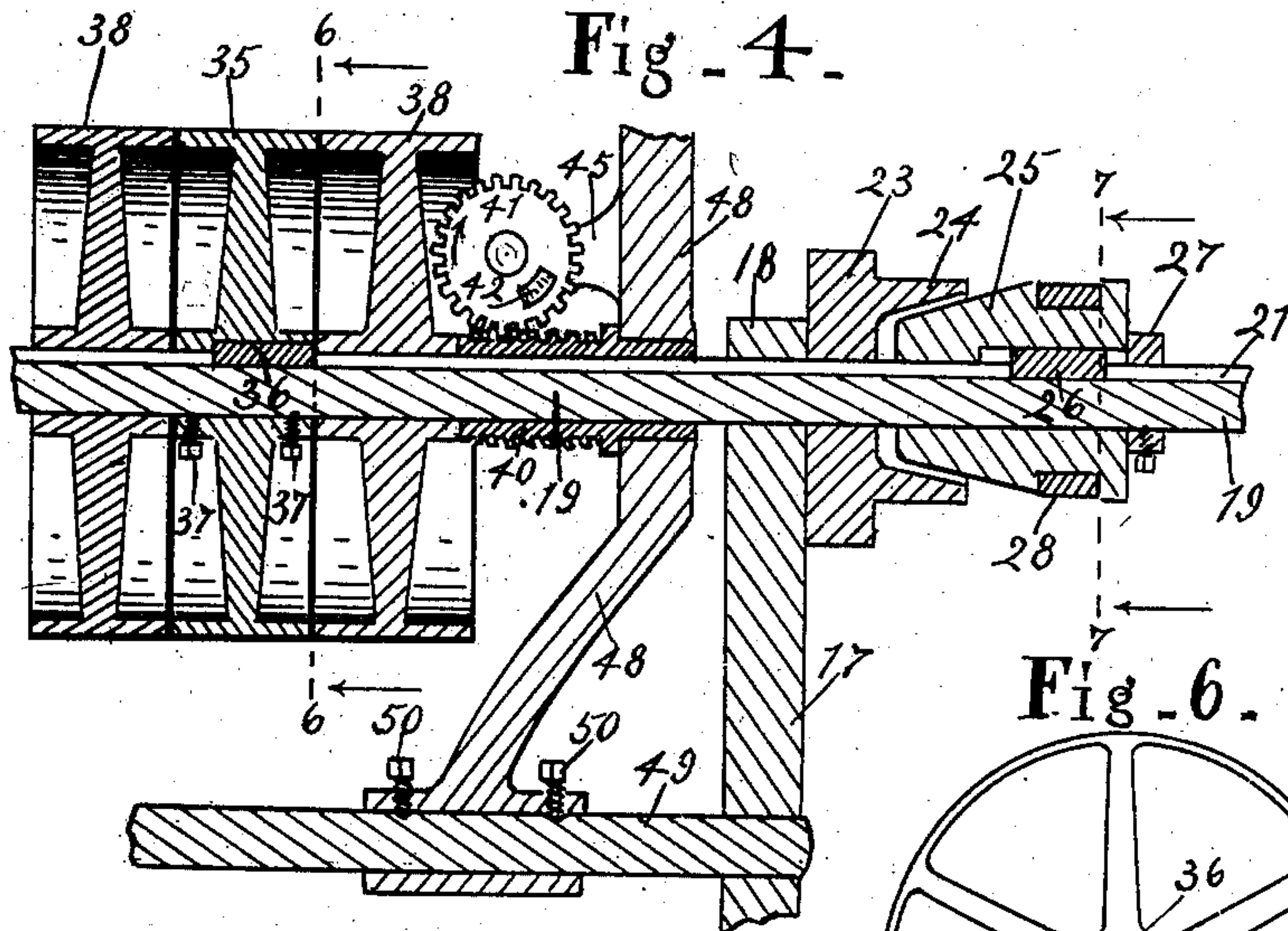


Fig. 7.

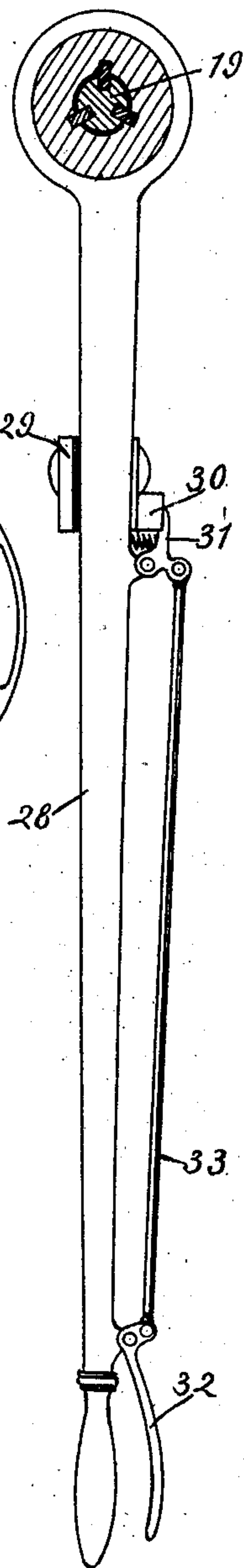


Fig. 6.

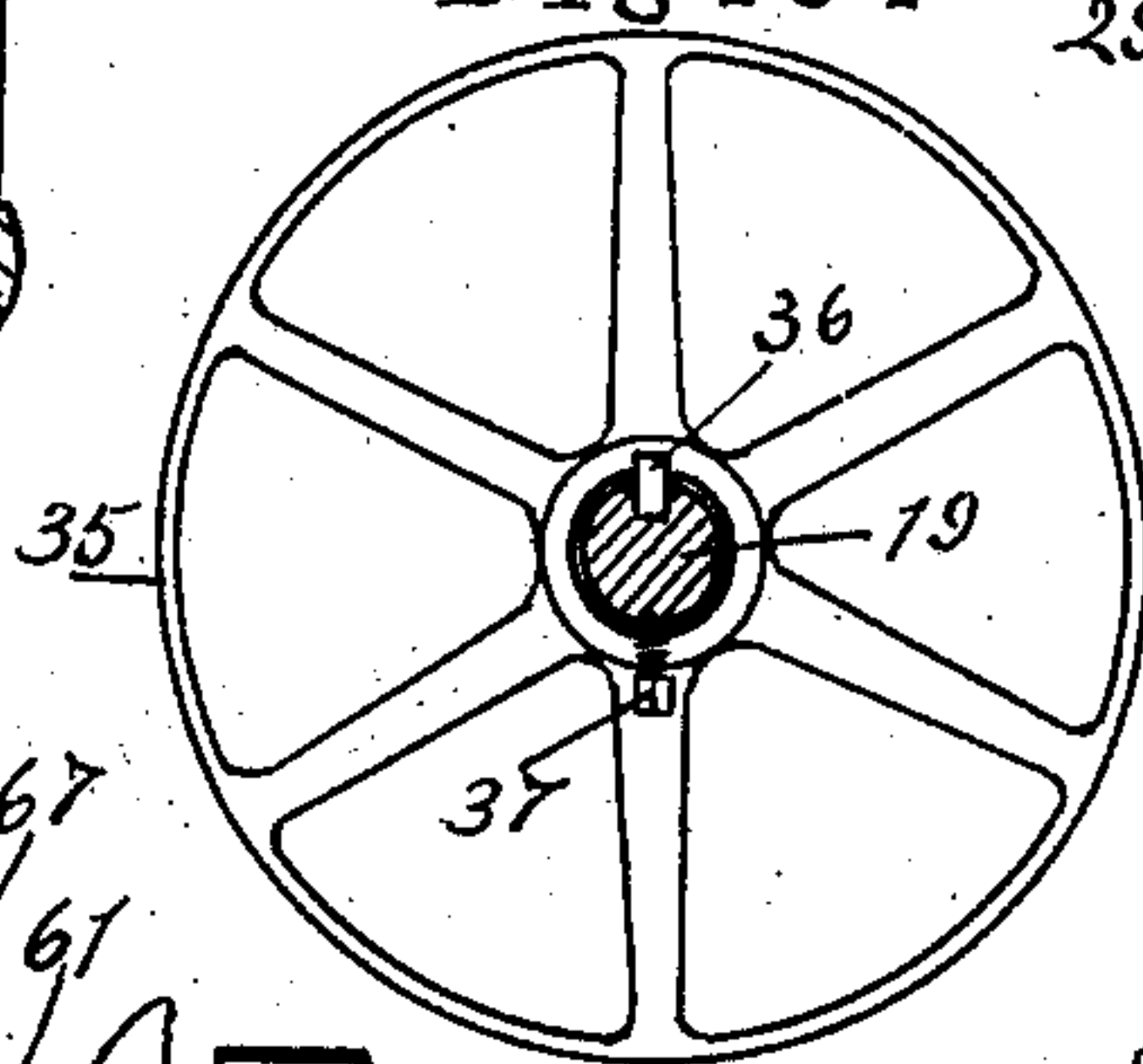
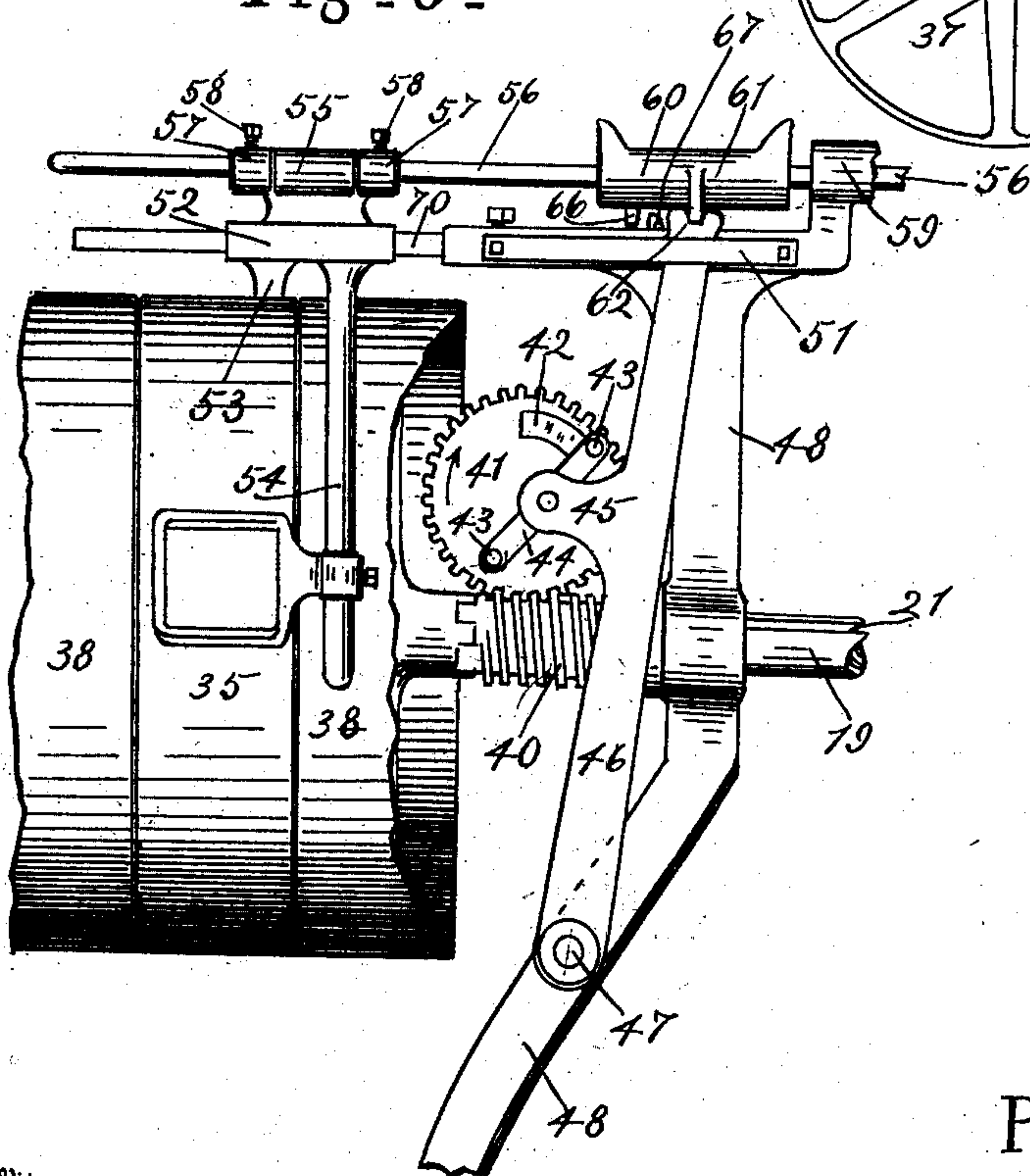


Fig. 5.



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3 SHEETS--SHEET 3.

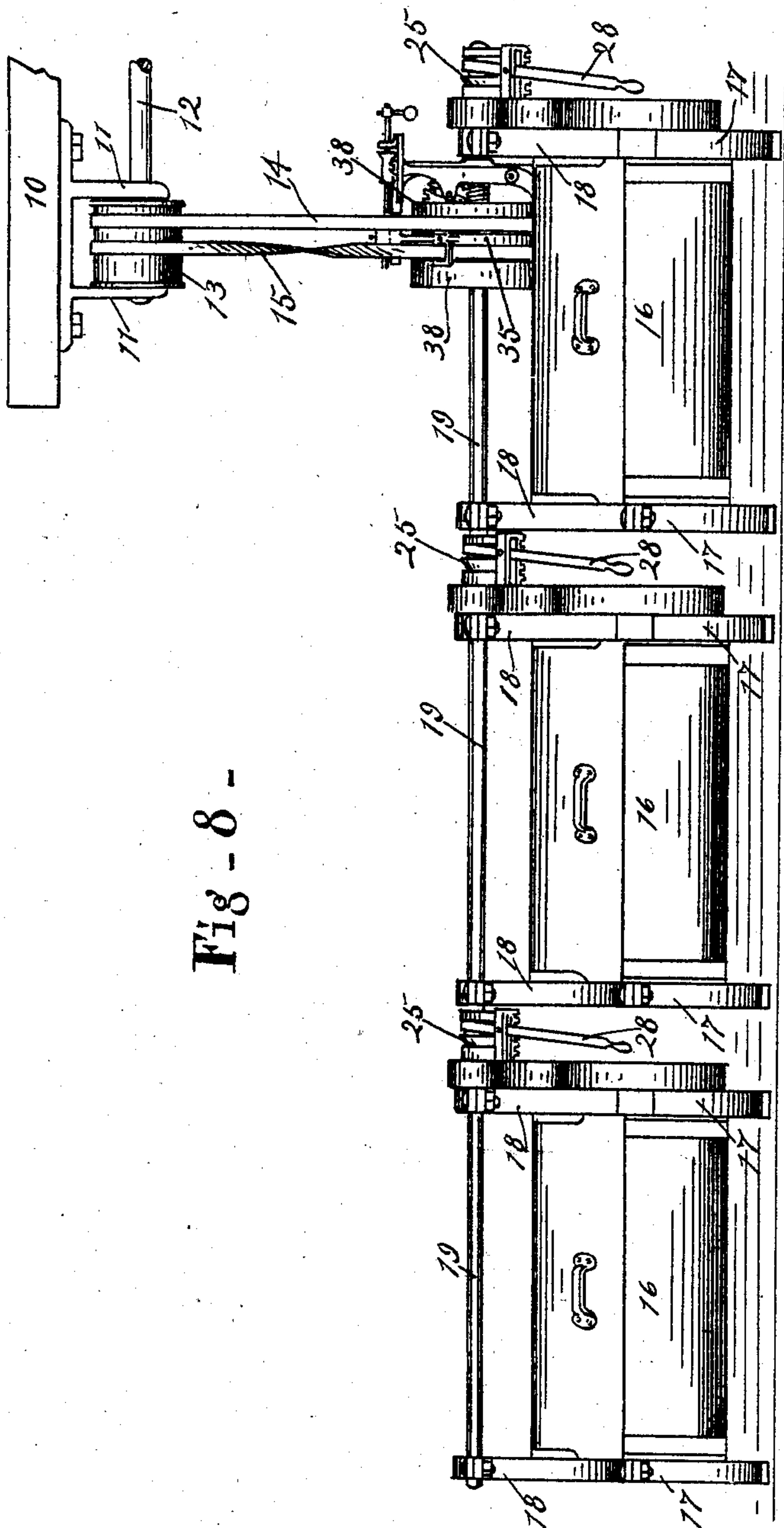


Fig. 8 -

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UNITED STATES PATENT OFFICE.

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MACHINE-DRIVING MEANS.

No. 840,199.

Specification of Letters Patent.

Patented Jan. 1, 1907.

Application filed April 12, 1906. Serial No. 311,364.

To all whom it may concern:

Be it known that I, PRENTICE E. CLARK, of Indianapolis, county of Marion, and State of Indiana, have invented a certain new and useful Machine - Driving Means; and I do hereby declare that the following is a full, clear, and exact description thereof, reference being had to the accompanying drawings, in which like characters refer to like parts.

The object of this invention is to arrange means for driving one or more machines, such as laundry washing-machines, so that the machine or machines may be readily movable to different locations in the factory or laundry without changing the position of the driving means and said machine or driving means to be automatically reversible.

In this connection a feature of the invention consists in providing a single driving means for a number of such machines with individual clutches, so that one or more of said machines may be driven, as desired.

The full nature of the invention will be understood from the accompanying drawings and the following description and claims.

Figure 1 is a side elevation of a laundry washing-machine belted up with an overhead driving-pulley, parts being broken away and the driving-pulley on the machine being at the right-hand end thereof. Fig. 2 is the same with the position of the machine changed so that the driving-pulleys are at the left end thereof. Fig. 3 is a rear elevation of the driving mechanism on the machine, parts being broken away. Fig. 4 is a central section through the driving mechanism as shown in Fig. 1, the upper part being broken away. Fig. 5 is an elevation of the driving mechanism as shown in Fig. 1, parts being broken away. Fig. 6 is a section through the driving-shaft on the machine with a driving-pulley in side elevation. Fig. 7 is an end view of the clutch-lever, with the clutch in section on the line 7 7 of Fig. 4. Fig. 8 is a front elevation of a series of laundry washing-machines operated by my invention, parts being broken away.

In a building where these laundry washing-machines are set up there is usually an overhead beam 10 with a hanger 11, carrying a driving-shaft 12, driven by some suitable source of power and carrying a pulley 13. From this a straight belt 14 and a twisted

belt 15 extend down to and drive the washing-machines. This overhead driving means and nearly every other driving means that is employed is located differently in different buildings and in a fixed position in every building; and one object of this invention is to provide means for transmitting power from said driving means wherever located to the washing-machine, so that the washing-machine may be conveniently located for receiving power from said overhead or other driving means.

The washing-machine shown herein consists of a tank 16, carried by suitable end frames 17, carrying the posts 18, in which a driving-shaft 19 is mounted. This shaft drives the beater in the washing-machine through gearing in the gear-case 20. The arrangement and construction of the beater and driving-gear are not new and may be in any useful form.

The shaft 19 is provided with a longitudinal groove 21 and carries a pinion 23, secured to it, which engages the gearing that runs the beater. It has an outwardly-extending collar 24 or clutch member that is internally tapering and is frictionally engaged by a clutch member 25, that is slidably mounted on the shaft by means of a key 26, fitting in the groove 21. This clutch is for the purpose of throwing the beater mechanism out of engagement with the shaft 19. A stop 27 limits the outward movement of the clutch member 25, and it is moved by the clutch-lever 28, that is fulcrumed on a bar 29, extending outward from the casing 20, and has in connection with it a rack-bar 30, that is engaged by a spring-drawn pawl 31, pivoted on said clutch-lever, and said pawl 31 is released by a finger-lever 32, pivoted to said clutch-lever and the intermediate connecting-rod 33, as appears in Fig. 7. Any ordinary clutch mechanism may be substituted for the clutch mechanism herein shown without affecting this invention.

The driving-shaft 19 is driven by a pulley 35, with which one of the belts 14 and 15 is always in engagement. Said driving-wheel is mounted slidably on the shaft 19 by a key 36, fitting loosely in the groove 21. It may therefore be moved to any position on said shaft 19, so that it can be worked at either end or between the ends, as is most convenient for the location of the washing-ma-

chines with reference to the overhead driving-pulley. When said driving-pulley 35 is adjusted to its right position, it is held by the set-screws 37 from lateral movement. An idler 38 is placed on each side of said driving-pulley in order to accommodate the pair of belts 14 and 15. These belts slide along the shaft 19 with the driving-pulley during its adjustment.

In laundry washing-machines it is desirable that reversing mechanism be provided whereby the direction of rotation of the beater may be automatically changed periodically. This is accomplished herein by the following mechanism: One of the belts 14 is straight and the other is twisted, so that they will drive the driving-pulley 35 in opposite directions as they may be alternately shifted upon said driving-pulley. In Fig. 1 the straight belt is on the driving-pulley, while the twisted belt is on the left-hand idler. In Fig. 2 the twisted belt is on the driving-pulley, while the straight belt is on the right-hand idler. Hence the shaft 19 and the beater mechanism will be driven in opposite directions with the machines arranged as shown in Figs. 1 and 2, and means is provided for automatically shifting these belts from the position shown in Figs. 1 and 2. To this end a worm 40 is loosely mounted on the shaft 19 and interlocks with the hub of the right-hand idler 38, as seen in Fig. 5, so that said idler will actuate said worm always in the same direction. It may be said that this idler runs constantly, although the belt 14 is on it only half the time, as during the other half of the time it continues to rotate by the impetus it has gained. The worm 40 engages the gear-wheel 41 and turns it in the direction indicated by the arrow. This wheel has a cam-lug 42 on one side adapted to engage alternately the pins 43 in the ends of the bar 44, that is rigidly secured to an arm 45 of the shifting lever 46. Said lever 46 is pivoted at 47 to an arm 48, that is adjustably mounted on a rod 49 and set in the adjusted position by set-screws 50. The rod 49 is parallel with the shaft 19, as seen in Fig. 3, and lies behind the machine, extending throughout the length thereof and mounted at the ends in the frame 17. The arm 48 is adjustable in its position along with the pulleys on the shaft 19 and is fastened in its adjusted position by the set-screws. The upper end of the lever 46 reciprocates between a stationary bar 70 and a guide bar or strap 51, secured thereto. The bar 70 is secured rigidly to the arm 48. A frame 52 is slidably mounted on said bar 70, and it carries two belt-shifters 53 for the belt 14, and 54 for the belt 15. Said belt-shifter frame 52 has an extension 55 on a longitudinally-shiftable rod 56 and is adjustably placed thereon by the sleeves 57 and set-screws 58. Said rod 56 is slidably mounted

in a bearing 59 on the upper end of the arm 48, and it has secured on it a tubular piece 60, that has a peripheral lug 61, adapted to engage the upper end of the lever 46 in the slot 62 thereof.

The cam-lug 42 on the wheel 41 first pushes the lever 46 and belt-shifter to the right into the position shown in Fig. 5, and then the twisted belt is in engagement with the driving-pulley 35, and the straight belt is in engagement with the right-hand idler 38. The parts operate in that way until by reason of the further revolution of the wheel 41 the cam-lug 42 engages the pin 43 on the lower end of the rod 44 and moves said lever 46 and belt-shifter to the left from the position shown in Fig. 5 to the position shown in Fig. 1, at which time the driving-pulley is in engagement with the belt 14 and the twisted belt is on the left-hand idler. This mechanism, therefore, continually at very short periods automatically reverses the direction of movement of the shaft 19. The reversing mechanism is thrown out of gear by the lever 65 on the end of the rod 56, which turns the piece 60 on said rod so that the lug 61 will not engage the lever 46 and said lever will work idly. The desired limit of longitudinal reciprocatory movement of the rod 56, and therefore the belt-shifter, is obtained by the lugs 66 and 67 coming into engagement with each other. It is proper, however, to state that this is an old reversal mechanism and there is nothing that is new in it by itself, and it will be understood by those skilled in the art without further explanation.

From the foregoing description it is apparent that the washing-machine may be situated in the laundry in various positions with reference to the fixed position of the overhead or driving means. To accomplish that purpose, the immediate driving means on the machine can be shifted to any position on the shaft 19, and the reversing mechanism is likewise shifted and adjusted in position along with the pulleys 35 and 38. In this machine, as shown, the shaft 19 operates as long as the shaft 12, and the clutch mechanism must be operated when it is desired to stop or start the beater. Another feature of the invention consists in utilizing the means herein shown for running a number of washing-machines tandem. The one washing-machine carrying pulleys 35 and 38 can be located wherever it is most convenient to operate the same from the driving mechanism. The other washing-machines may be arranged in a row end to end, with the shaft 19 extending throughout the series. This may be done by having one shaft or by coupling the shafts of the different machines. Each machine has its separate clutch mechanism, such as has been described, whereby its beater may be thrown into or out of operation as desired, whether the beaters of the other washing-

machines are being operated or not. Only one reversal mechanism is needed for the whole series. Therefore on the second and successive washing - machines no reversal mechanism is necessary. It is, therefore, evident from this description that a number of machines can be arranged in a tandem position extending in either direction from the washing-machine that is connected with the driving mechanism and that all of said machines may be driven from a single source of power and controlled by a single reversal mechanism, and that each machine may be thrown out of operation regardless of the other machines.

What I claim as my invention, and desire to secure by Letters Patent, is—

1. A machine including a longitudinal driving-shaft, three pulleys longitudinally adjustable thereof, the middle one of which is keyed to said shaft and the other two being idlers, two driving-belts in engagement with said pulleys one of which is twisted, a belt-shifter in engagement with both belts, means actuated by one of said pulleys for operating said belt-shifter to change the belts on said pulleys to reverse the direction of movement of said shaft, a pinion on said shaft for driving the machine, and a clutch on said shaft

for coupling and uncoupling the same with said pinion.

2. The combination of a plurality of machines, a single driving means therefor, a separate clutch for each machine to throw the same into and out of operation, and means mounted on one of said machines for automatically and periodically reversing the direction of movement of said driving means.

3. The combination of a plurality of machines, a single shaft for driving them, a separate clutch for each machine to throw the same into and out of operation, pulleys on said shaft that are connected with one of said machines and longitudinally adjustable thereon, belts for driving the same, a longitudinally-movable belt-shifter adjacent said pulleys, and means on the machine that carries the pulleys for periodically operating said belt-shifter to reverse the direction of movement of said shaft.

In witness whereof I have hereunto affixed my signature in the presence of the witnesses herein named.

PRENTICE E. CLARK.

Witnesses:

HELEN B. McCORD,
N. ALLEMONG.