

No. 717,372.

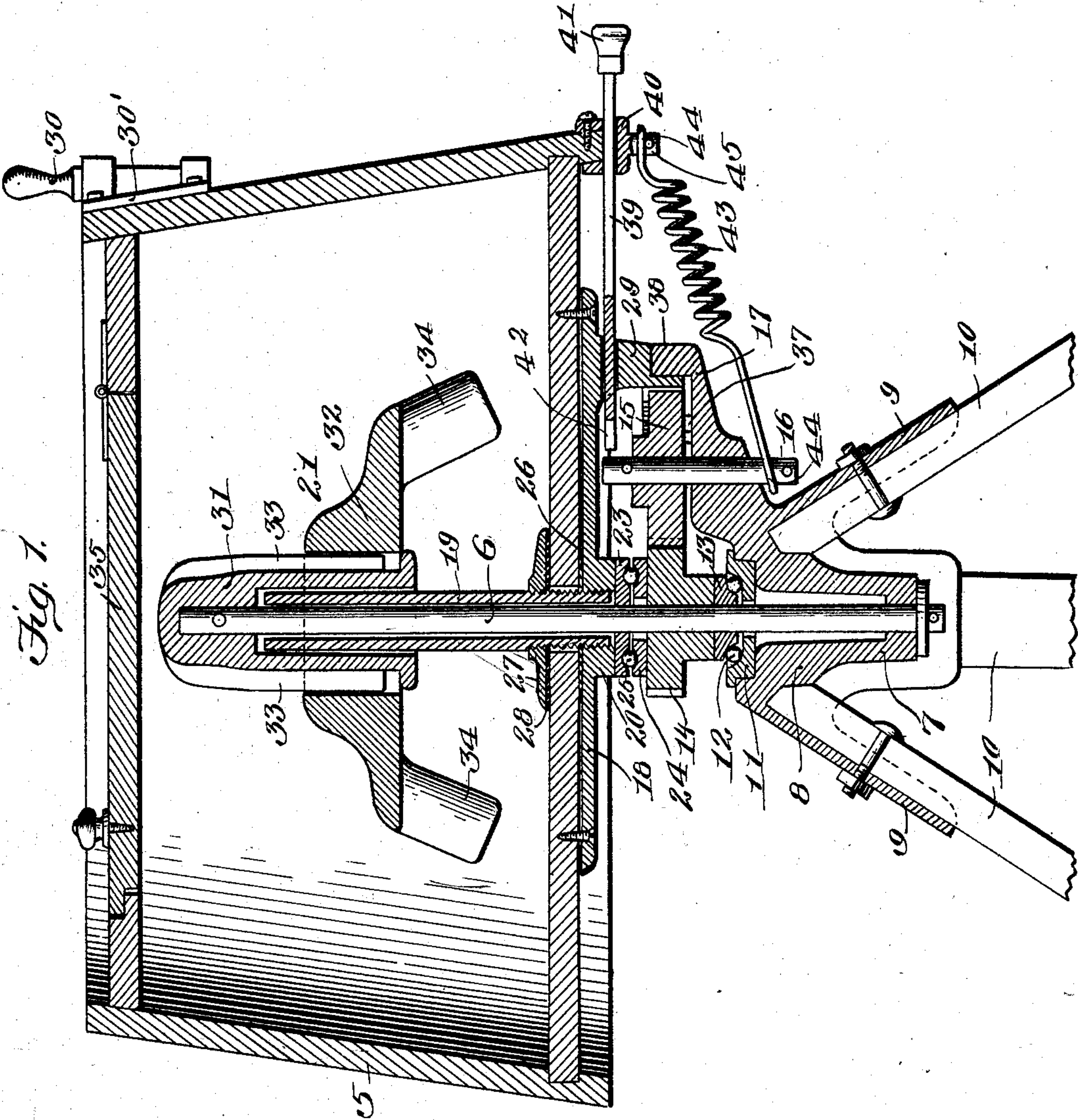
Patented Dec. 30, 1902.

W. C. FAWKES.
WASHING MACHINE.

(Application filed Apr. 17, 1902.)

(No Model.)

2 Sheets—Sheet 1.



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2 Sheets—Sheet 2.

Fig. 2.

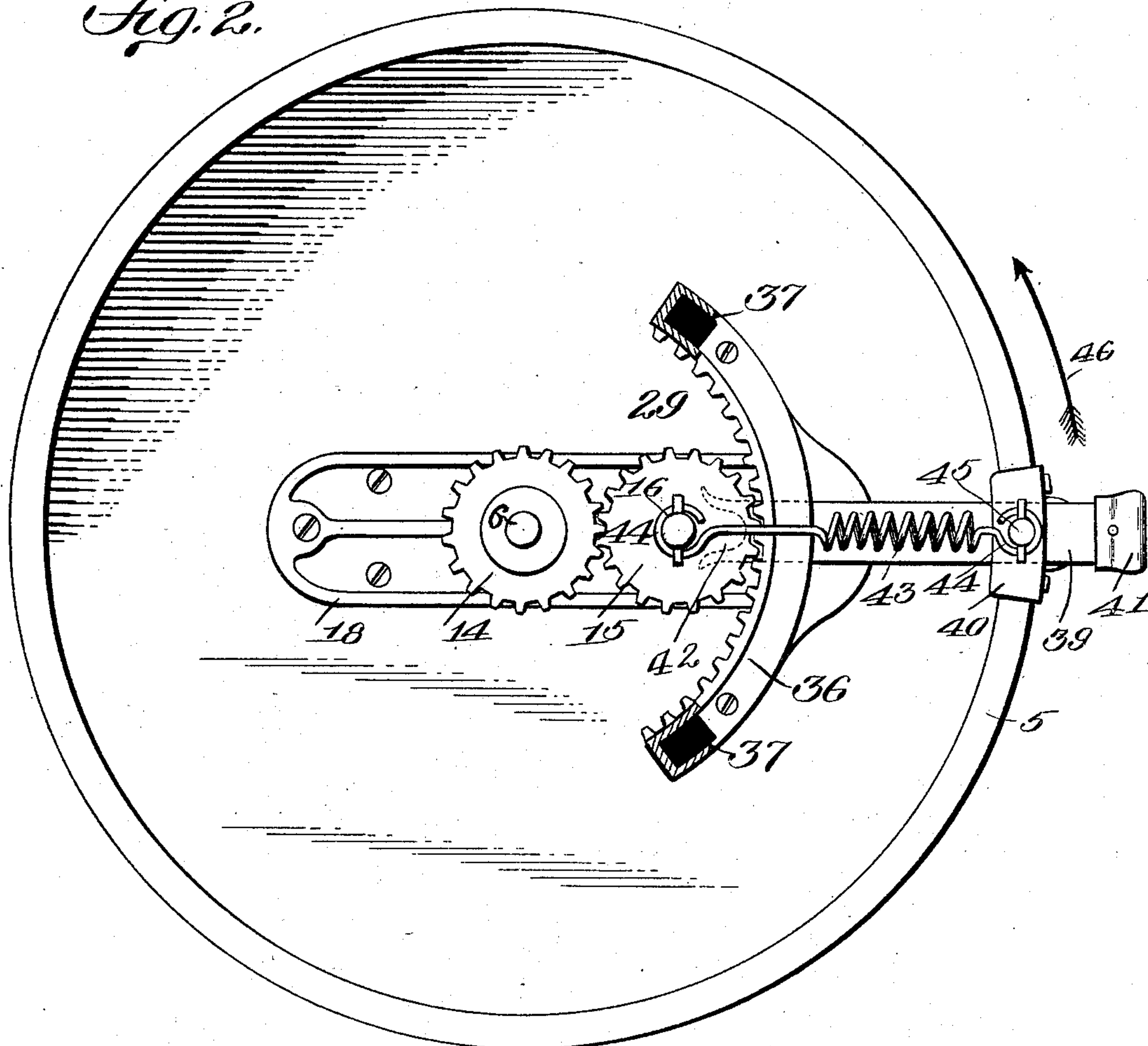
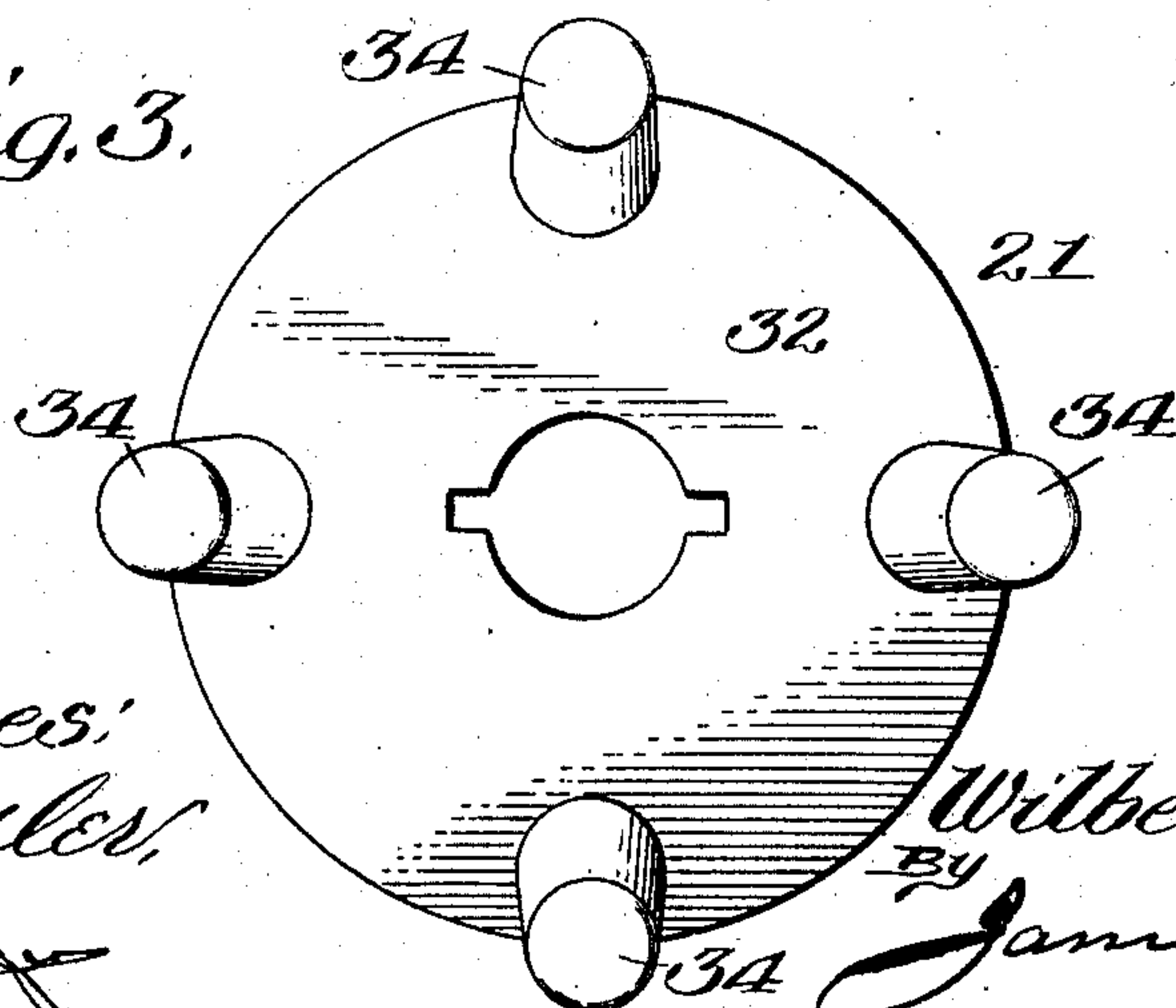


Fig. 3.



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UNITED STATES PATENT OFFICE.

WILBERT C. FAWKES, OF NORTH CHICAGO, ILLINOIS.

WASHING-MACHINE.

SPECIFICATION forming part of Letters Patent No. 717,372, dated December 30, 1902.

Application filed April 17, 1902. Serial No. 103,370. (No model.)

To all whom it may concern:

Be it known that I, WILBERT C. FAWKES, a citizen of the United States, residing at North Chicago, in the county of Lake and State of Illinois, have invented new and useful Improvements in Washing-Machines, of which the following is a specification.

This invention relates to washing-machines.

The improved machine includes a tub, a shaft extending through the bottom of said tub, a tube in the tub surrounding the shaft and also extending through said bottom and fixed in place, a rubber on the shaft and located in the tub, a gear fixed to said shaft below the tub, a second gear adapted to mesh with the other gear, and a rack adapted to mesh with the second gear and connected with the tub. The tub, in the present case, is adapted to oscillate, and the gears are so proportioned that on the prescribed stroke of the tub in one direction the rubber will be given a complete rotation, and on the opposite stroke of said tub said rubber will be oppositely rotated, and by virtue of the gears the rubber will turn in a direction opposite to that followed by the tub. As the several gears and other parts, which are generally oily or greasy, are below the tub and out of sight, they cannot come in contact with the clothes as they are being put into or taken from the top, as in case they did they would soil such clothes.

The machine can be operated with comparatively small expenditure of power, and the lid of the tub can be thrown back, so as to obtain free access to the latter when putting in the clothes or wringing the same.

The machine is capable of rapid work and of thoroughly cleaning the clothes.

In the present case the second gear above referred to turns about a fixed shaft, and to said shaft I connect a spring, the other end of the spring being connected with the tub, so that when said tub is oscillated the spring will be stretched, whereby when the tub reaches the opposite ends of its movements said spring by contracting will aid the operator in imparting a return stroke to the tub. When wringing the clothes, it is desirable to hold the tub against movement, and to secure this result I provide a locking de-

vice adapted to cooperate with the fixed shaft just mentioned.

The invention includes other objects and advantages, which with the foregoing will be set forth at length in the following description, while the novelty thereof will form the basis of the claims appended to said description, and the invention is clearly illustrated in the accompanying drawings, in which—

Figure 1 is a sectional side elevation of a washing-machine including my improvements. Fig. 2 is an inverted plan view of a receptacle and gearing with the standard or leg-bracket removed. Fig. 3 is an under side view of the dolly or pin block.

Like characters refer to like parts throughout the several views.

The receptacle or tub is denoted by 5, and it may be made wholly of galvanized metal or may be of any other suitable material, and the same applies to the other parts of the machine.

A perpendicular shaft is shown at 6, it extending centrally through and below the bottom of the tub 5 and at its lower end being fitted freely in the socket portion 7 of the leg-bracket 8, such socket portion or body 7 of the leg-bracket having depending and outwardly-disposed angular arms 9, to which the legs 10 are bolted or otherwise secured and are adapted to rest upon a floor or other foundation. A cup 11 is fitted into the enlarged upper end of the socket 7 and receives the antifriction-balls 12, with which the cone 13, secured to said shaft 6, is adapted to cooperate, the bearing thus provided for the shaft being an antifriction one.

Just above the cone 13 is situated the pinion 14, the same being rigidly secured to the vertical shaft 6. A second pinion 15 meshes with the pinion 14 and is free to turn around the vertical shaft 16; situated below the tub and suitably secured to the extension 17 of the leg-bracket 8. It will be noted that the shaft 16 is a stationary one and that the gear 15 is loose on and rotates around said fixed shaft 16. A plate 18 is suitably fastened to the under side of the bottom of the tub, and it has a perforation at or near its center into which the lower threaded end of the tube 19

is screwed, the lower end of the tube being substantially flush with the boss or hub 20. The vertical shaft to which reference is hereinbefore made extends entirely through the tube 19, and it carries an agitator or rubber, denoted in a general way by 21 and which will hereinafter be more particularly described.

A collar 23 surrounds the shaft 6 and is suitably secured to the boss 20, and it coöperates with a similar collar 24, the adjacent faces of the collars having complementary grooves to receive the balls 25. The collar 23 turns around the shaft 6 with the plate 18, and hence with the tub 5, while the collar 24 is secured in some suitable manner to the pinion or gear 14, whereby a suitable anti-friction-support for the tub is secured. The collars 23 and 24 and the cone 13 and cup 11 are preferably made of hardened steel.

Between the plate 18 and bottom of the tub and surrounding the tube 19 is situated the metal washer 26, while a metal collar or nut is fitted onto the tube just above the bottom of the tub, a rubber gasket 28 surrounding said tube and being situated between the collar or nut 27 and said bottom of the tub. By reason of the collar 27 and gasket 28, just alluded to, the escape of water through the bottom of the tub is prevented, and the upper end of the tube will be situated some distance above the level of the water, so that the latter cannot enter said tube.

The plate 18 carries at one end the depending rack 29, of segmental form, the teeth of which are upon the inside of and are adapted to mesh with those of the pinion 15. When the tub is oscillated, the rack 29 of course will move therewith and will rotate the pinion 15, which in turn rotates the pinion 14, so as to rotate the shaft 6, and hence the rubber 21 connected therewith, and the gears will be so proportioned that when the tub makes a prescribed stroke the rubber will be given a complete turn, and by virtue of the train of gearing illustrated said rubber will turn in a direction opposite to that followed by the tub.

The tub is shown as provided with a handle 30 near the upper outside thereof, adapted to be slipped into the aligned loops of a bracket 30' and which can be removed therefrom and put into the tub during transportation of the machine.

The agitator or rubber 21 includes in its construction a tubular portion or dolly-post 31, which surrounds but is free from the tube 19, said dolly-post being rigidly secured to the upper end of the shaft 6, which upper end, it will be seen, extends a short distance above the corresponding end of the tube 19. The dolly-post 31, which is adapted to receive the dolly block or body 32, which is normally situated near the lower end of said dolly-post, is provided with diametrically opposite keys or wings 33, adapted to enter corresponding keyways or seats in the dolly block or body 32, the latter having on its under side

the depending pins 34. It will be seen that the dolly-block is keyed to the dolly-post, so as to rotate with the latter, and by reason of such construction the dolly-block can be easily slipped from place when it is desired to take the same from the tub—for example, in wringing the clothes.

The lid of the tub is denoted by 35, and it may be of the hinged kind, as shown.

The rack 29 has upon its under side thereof, the arcuate groove or channel 36, in which the rubber pads or cushions 37 are suitably secured. The extension 17 is provided with the vertical lug 38, adapted to extend into the groove 36 and to strike the cushions 37 in alternation when the tub reaches the opposite ends of its movement.

The segmental rack 29, pinion 15, and pinion 14 constitute a multiplying train of gears, the rack constituting the primary gear of the train, and it will be evident that the cushions 37, in connection with the lug 38, serve as a means for limiting the rotation of the receptacle, the train of gears being so proportioned that when the receptacle moves through the third part of a circle the agitator is given a complete rotation and in an opposite direction. The receptacle therefore has an oscillatory motion, the lug 38 constituting a stop and adapted to be alternately engaged by the cushion 37.

I provide means for locking the tub against movement when it is desired to wring out the clothing after the same has been washed and will now describe the same.

A locking-bolt is shown at 39, it being horizontally movable and being adapted to extend through aligned slots in the body of the rack 29 and bracket 40, secured to the tub 5 at the outer lower side thereof. The locking-bolt 39 is provided at its outer end with a knob 41, by which it can be readily manipulated, and its inner end is bifurcated or notched, as at 42. In Fig. 1 the locking-bolt is shown in its retracted position. When it is pushed in, the bifurcated end thereof is adapted to straddle the upper end of the fixed shaft 16, so as to firmly hold the tub against movement. To release the tub, it is merely necessary to draw the locking-bolt backward.

A coiled spring is shown at 43, it having extensions at its opposite ends provided with loops, as 44, one of which is adapted to fit over the lower end of the stationary shaft 16, while the other of which is adapted to fit over the depending lug 45 on the bracket 40. The spring 43 is of the pull kind.

In Fig. 2 the tub is shown as being in a position intermediate the ends of its strokes, the spring 43 at this time being ineffective or lax. When the tub is moved in the direction of the arrow 46 in said figure, the spring will be stretched, this result continuing until the tub reaches the limit of one end of its stroke, so that when a reverse movement is applied by the operator to the tub the spring by con-

tracting will serve to aid him in securing such reverse movement and will also secure an acceleration of such movement, and the same action will follow when the tub moves in such
5 reverse direction.

Having described the invention, what I claim is—

1. In a washing-machine, a tub, a shaft extending through the bottom of the tub, a tube
10 in the tub surrounding the shaft and also extending through said bottom and fixed to said tub, an agitator on the shaft in the tub, a gear fixed to said shaft below said bottom, a
15 second gear meshing with the first gear, a rack secured to the tub and meshing with the second gear and having a groove, rubber cushions secured in said groove and a projection upon the framework adapted to be alternately engaged by said rubber cushions.

2. In a washing-machine, a tub, a shaft extending through the bottom of the tub, a tube
20 in the tub surrounding the shaft and also extending through said bottom of said tub, an agitator on the shaft in the tub, a gear fixed to said shaft below said bottom, a second gear
25 meshing with the first gear, a segmental rack connected with the tub, a support for the tub, and means connected respectively with the rack and support for limiting the rotary
30 motion of the tub.

In testimony whereof I have hereunto set my hand in presence of two subscribing witnesses.

WILBERT C. FAWKES.

Witnesses:

C. C. BEWSIC,
F. BARTLE.