

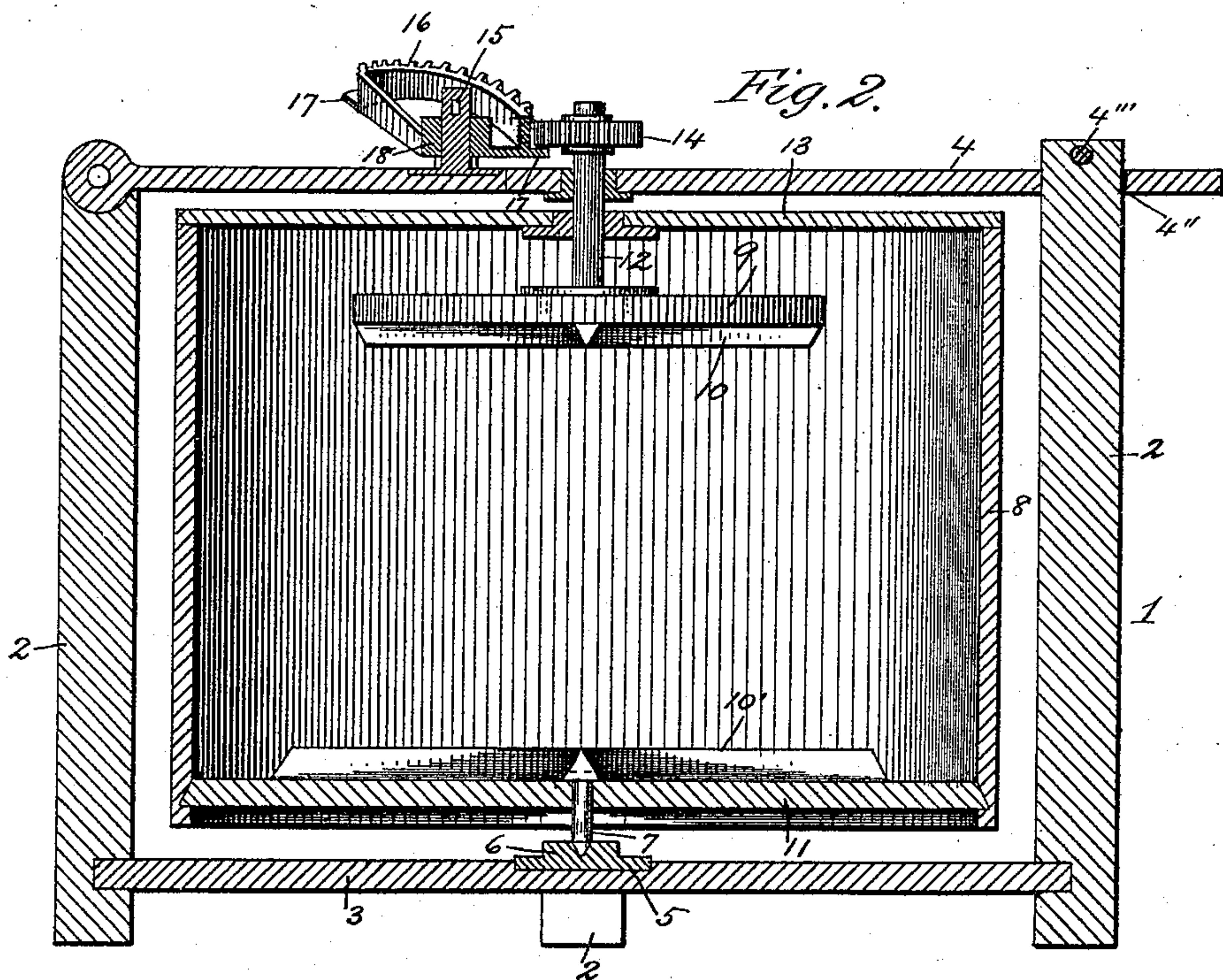
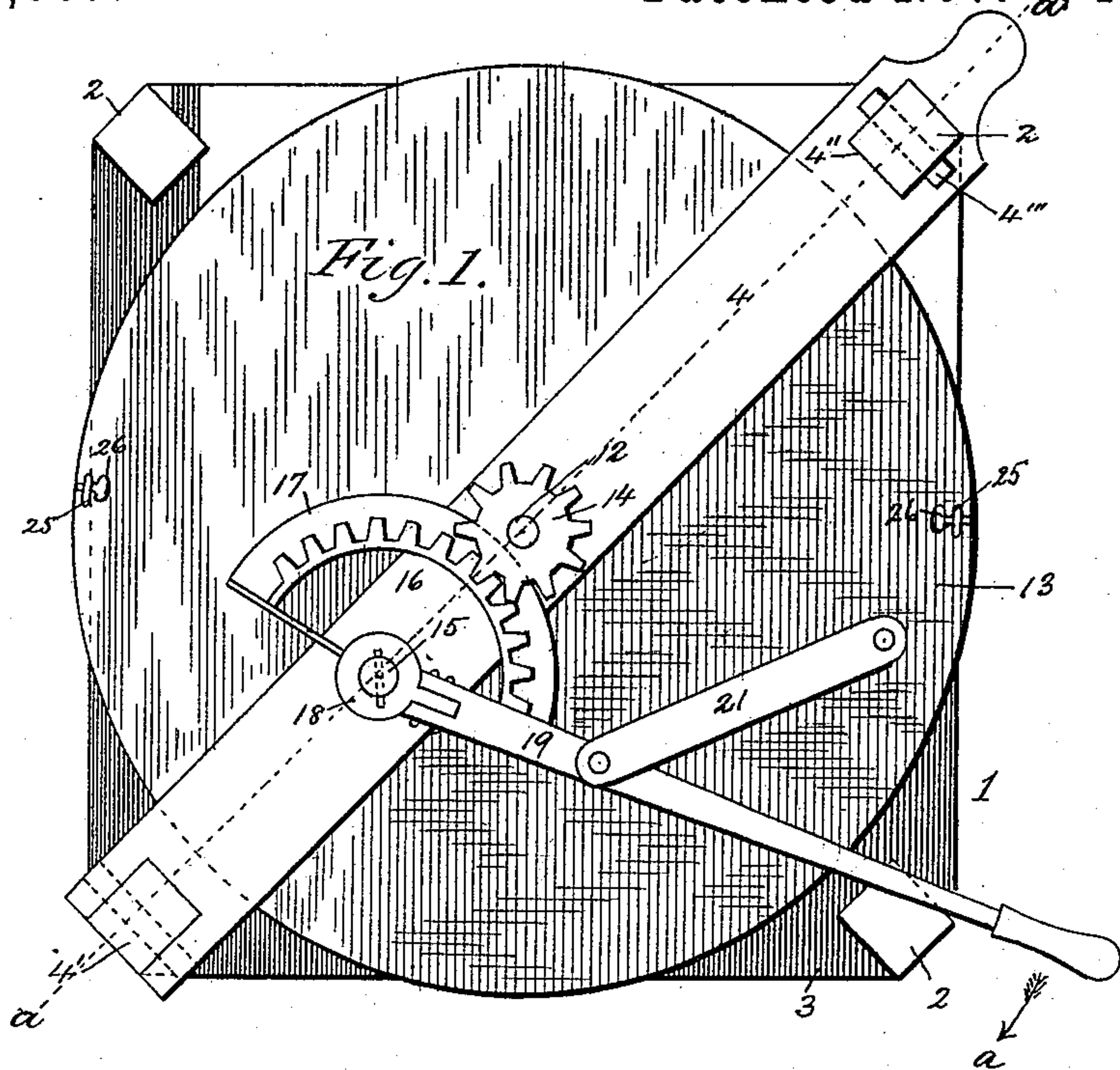
(No Model.)

2 Sheets—Sheet 1.

K. W. HACKE.
WASHING MACHINE.

No. 485,687.

Patented Nov. 8, 1892.



Witnesses:
T. H. Stuart.
H. M. Marble.

Inventor:
K. W. Hacke
By E. M. Marble
his Attorney.

(No Model.)

2 Sheets—Sheet 2.

K. W. HACKE.
WASHING MACHINE.

No. 485,687.

Patented Nov. 8, 1892.

Fig. 3.

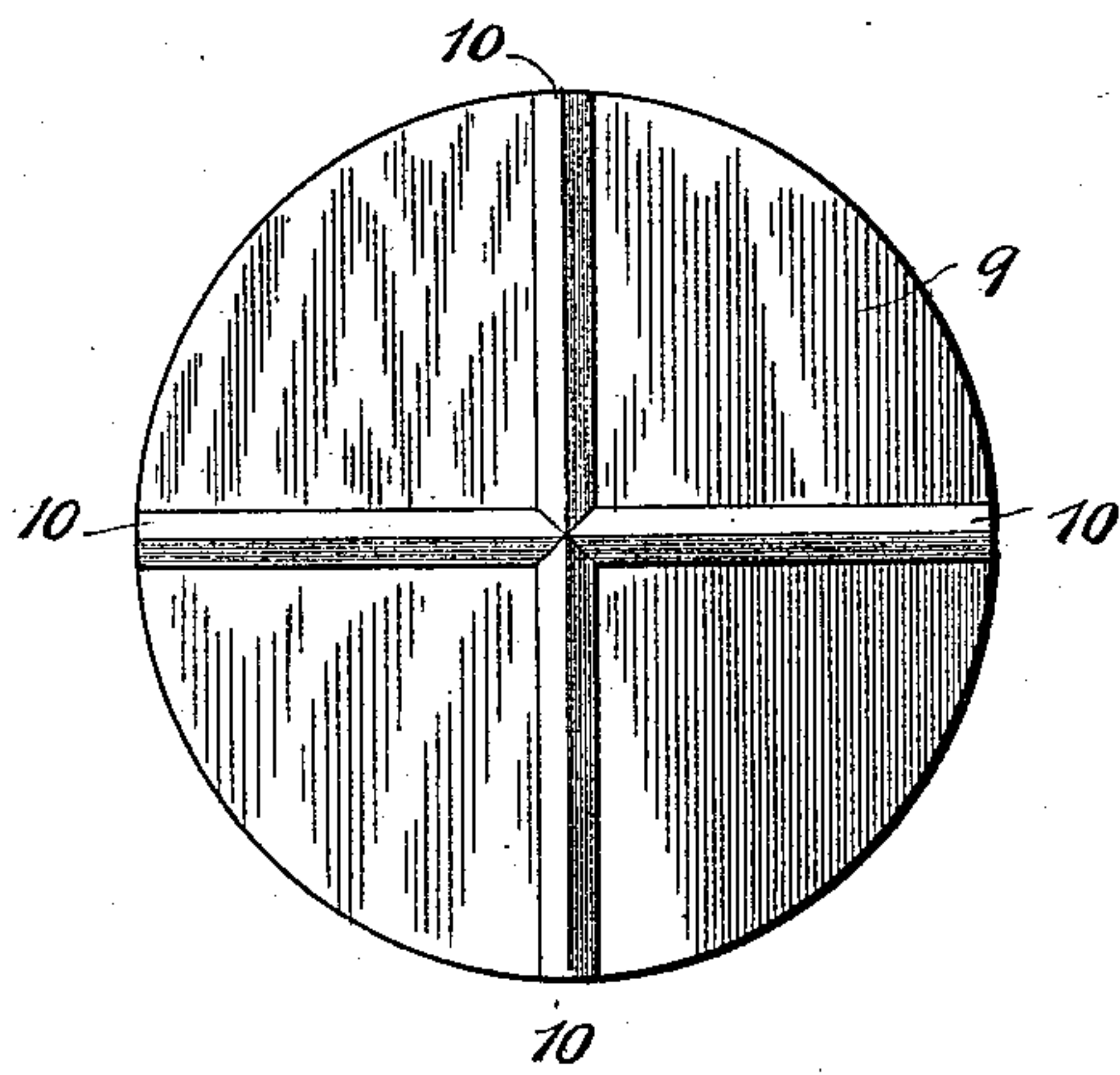
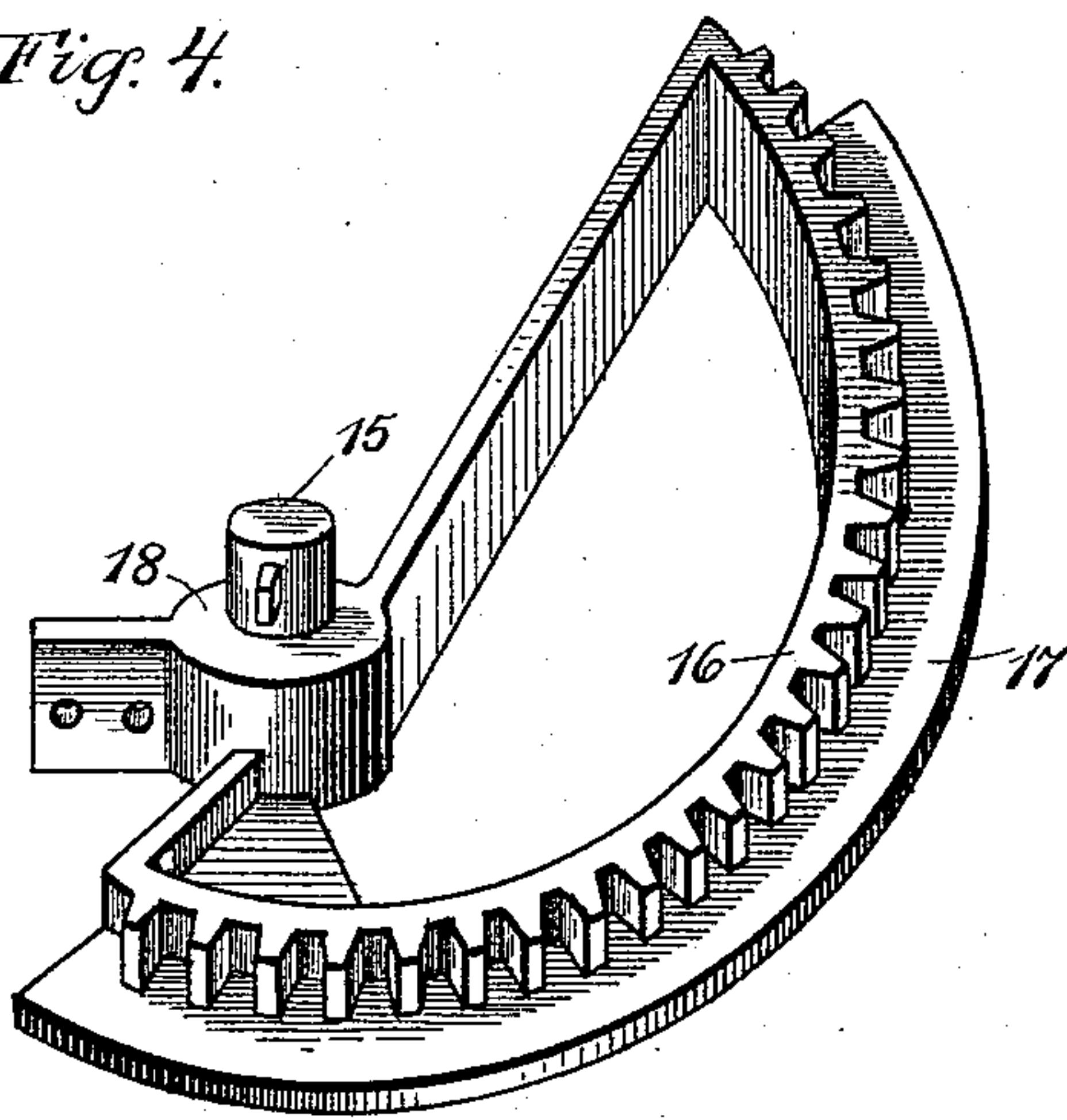


Fig. 4.



Witnesses.

Victor J. Evans.
L. M. Marble

Inventor.
Karl Wilhelm Hacke.

By *E. M. Marble*
Attorney.

UNITED STATES PATENT OFFICE.

KARL WILH. HACKE, OF DÜRKHEIM, GERMANY, ASSIGNOR OF TWO-THIRDS
TO E. M. TILLMANN AND H. TILLMANN, OF DALLAS, TEXAS.

WASHING-MACHINE.

SPECIFICATION forming part of Letters Patent No. 485,687, dated November 8, 1892.

Application filed February 18, 1892. Serial No. 422,044. (No model.)

To all whom it may concern:

Be it known that I, KARL WILH. HACKE, a citizen of the Empire of Germany, residing at Dürkheim, Germany, have invented certain new and useful Improvements in Washing-Machines; and I do hereby declare the following to be a full, clear, and exact description of the invention, such as will enable others skilled in the art to which it appertains to make and use the same.

My invention relates generally to washing-machines, and particularly to that class which is known as "cylindrical reciprocating" and which is provided with stirring devices or, as commonly called, "twirls;" and it has for its objects, first, to provide a washing-machine of the type above described in which the drum or body portion of the machine is supported at a single point at its bottom and gives a partial revolving motion thereon; second, to provide said machine with a suspended horizontally-arranged and vertically-reciprocated stirring device or twirl, and, third, to provide mechanism for automatically raising and lowering the stirring device and at the same time imparting a rotary motion thereto, and also to the drum, but in an opposite direction from that of the stirrer. These objects are accomplished by the mechanism illustrated in the accompanying drawings, referred to in the specification, in which the same reference-numerals refer to the same parts throughout the description, and in which—

Figure 1 represents a top plan view of the washing-machine provided with my improvements; Fig. 2, a vertical section of the same on the line *aa* of Fig. 1; Fig. 3, a bottom plan view of the stirrer or twirl, and Fig. 4 a detail perspective view of the spiral segment-gear.

In the drawings, the numeral 1 indicates the framework of the machine, which is composed of the standards 2, platform 3, and the horizontally-arranged lifting-arm 4, said arm 4 being secured at one end by means of a hinged joint 4' to the upper end of one of the standards 2, the opposite end thereof being provided with an aperture 4'', which fits over the upper end of the opposite standard 2 and is securely held in position by means of a pin

4'', and is for the purpose when released and raised upward from its loose end of permitting ingress to the cylinder 8. To the center of the platform 3 is rigidly secured the plate 5, which is formed at its center with the raised step 6, which forms a seat for the pivot 7, which in turn is rigidly secured to the bottom 11 of the cylinder 8, thus permitting said cylinder to be freely rotated when desirable.

The stirrer 9 is circular in form, constructed of any desired material, but preferably of wood, and is for the purpose of kneading the articles to be cleaned in a manner performed by the hands. To the bottom surface of the stirrer 9 and radiating from the center thereof are securely fastened three or more triangularly-shaped strips of wood or metal 10, as more plainly shown in Fig. 3 of the drawings, and are for the purpose of preventing damage or injury to the articles during the operation of washing. To the inner surface of the bottom 11 of the cylinder 8 are also secured similar strips of wood or metal 10', as above described, which serve, in connection with those on the bottom surface of the stirrer, to firmly hold the articles to be washed and prevent their slipping when the stirrer is pressed down upon them. To the center of the upper surface of the stirrer 9 is rigidly secured the lower end of a vertical shaft 12, which passes upwardly through suitable journal-bearings in the cover 13 of the cylinder 8 and the lifting-arm 4, and to the upper end of which is secured the pinion 14, which, in connection with certain mechanism hereinafter fully described, imparts both an up and down and rotary motion to the stirrer 9.

To the arm 4 is secured a short vertical shaft 15, upon which is loosely journaled the spirally-formed segment-gear 16, the teeth of which mesh with those of the pinion 14, and extending outwardly from the lower surface of the segment-gear 16 and beyond the teeth thereon is integrally or removably formed the spirally-arranged plate 17, upon which rests a portion of the body and teeth of the pinion 14, (fully and more plainly shown in Fig. 4 of the drawings,) and which is for the purpose of raising and lowering the pinion 14 and its connecting parts when said segment-gear is in motion.

Securely bolted or riveted to the journal-box 18 of the segment-gear 16 is one end of the lever 19, which extends outward beyond the edges of the framework 1 a sufficient distance to permit the same to be freely moved back and forth without danger of the hand of the operator coming in contact with the framework and is for the purpose of giving a half-rotary motion to said segment-gear 16.

Near the middle of the lever 19 is pivotally attached one end of the short lever 21, the other end of which is pivotally secured to the cover 13 of the cylinder 8 near its periphery, and by reason of its connection with the lever 19 will cause said cylinder 8 to rotate back and forth with said lever 19. The cover 13 of the cylinder 8 is firmly held in position by means of the lugs 25 and thumb-screws 26, and when said set-screws are removed the cover 13 is permitted to be raised with the arm 4 and its several connections.

The operation of my improved washing-machine is as follows: When it is desired to place within the cylinder 8 any clothing or other articles to be operated upon, the thumb-screws 26, which hold the cover 13 to the top of the cylinder 8, are removed, as is also the pin 4", which secures the arm 4 to the standard 2. This leaves said arm free to be raised, by which operation and by reason of the short vertical shaft of the segment-gear 16 being rigidly secured to said arm and the plate 17 of said segment-gear projecting beneath the lower edge of the pinion 14 will cause said pinion, with its downwardly-extending shaft 12, the stirring device 9, and cover 13, to be raised or tilted up to any desired height, thus leaving the top of the cylinder open and free from all obstruction. After placing the clothes in the cylinder and the arm and other parts of my invention have been returned to their normal positions and securely fastened down by means of the thumb-screws and pin heretofore described and it is desired to operate upon the clothing the lever 19 is grasped and swung in the direction indicated by the arrow marked *a*, which motion by means of the small lever 21, attached thereto and to the cover of the cylinder, will cause said cylinder

to revolve in a like direction, as also the segment 16. Said motion of the lever 19 will also cause the pinion 14 and stirring device 9 to be revolved, but in the opposite direction from that of the cylinder and segment-gear, and at the same time by means of the spiral plate 17, resting beneath and in contact with the lower end of the pinion 14, will cause said pinion to be raised and lowered with each forward and backward motion of the lever 19.

Having thus fully described the construction, operation, and advantages of my invention, what I claim as new is—

1. In a washing-machine, the combination, with a vertically-reciprocated and horizontally-rotatable stirring device provided with a vertical shaft and pinion, of a spirally-formed segment-gear having an outwardly-projecting flange formed on its bottom portion, meshing with said pinion, and means for operating the same, substantially as described.

2. In a washing-machine formed with a pivotally-supported and rotatable cylinder, the combination, with the stirring device provided with a vertical shaft and pinion, of a spirally-formed segment-gear having an outwardly-projecting flange formed on its bottom portion and engaging said pinion, a horizontal lever attached thereto, and means for connecting said lever with the cylinder, substantially as described.

3. A washing-machine composed of the frame 1, the cylinder 8, pivotally supported thereon and provided with the lifting-arm 4 and cover 13, the rotary and vertically-reciprocated twirl or stirring device 9, and means for operating the same, said means consisting of the vertical shaft 12, pinion 14, spiral segment-gear 16, having an outwardly-projecting flange 17 formed on its bottom portion, meshing with said pinion, and the levers 19 and 21, pivotally secured to said cylinder, substantially as described.

In testimony whereof I affix my signature in presence of two witnesses.

K. WILH. HACKE.

Witnesses:

EDUARD WEILLER,
CONR. REITZ.