

No. 844,766.

PATENTED FEB. 19, 1907.

W. W. ALLEN.

WASHING MACHINE.

APPLICATION FILED FEB. 20, 1905.

2 SHEETS—SHEET 1.

FIG. 2.

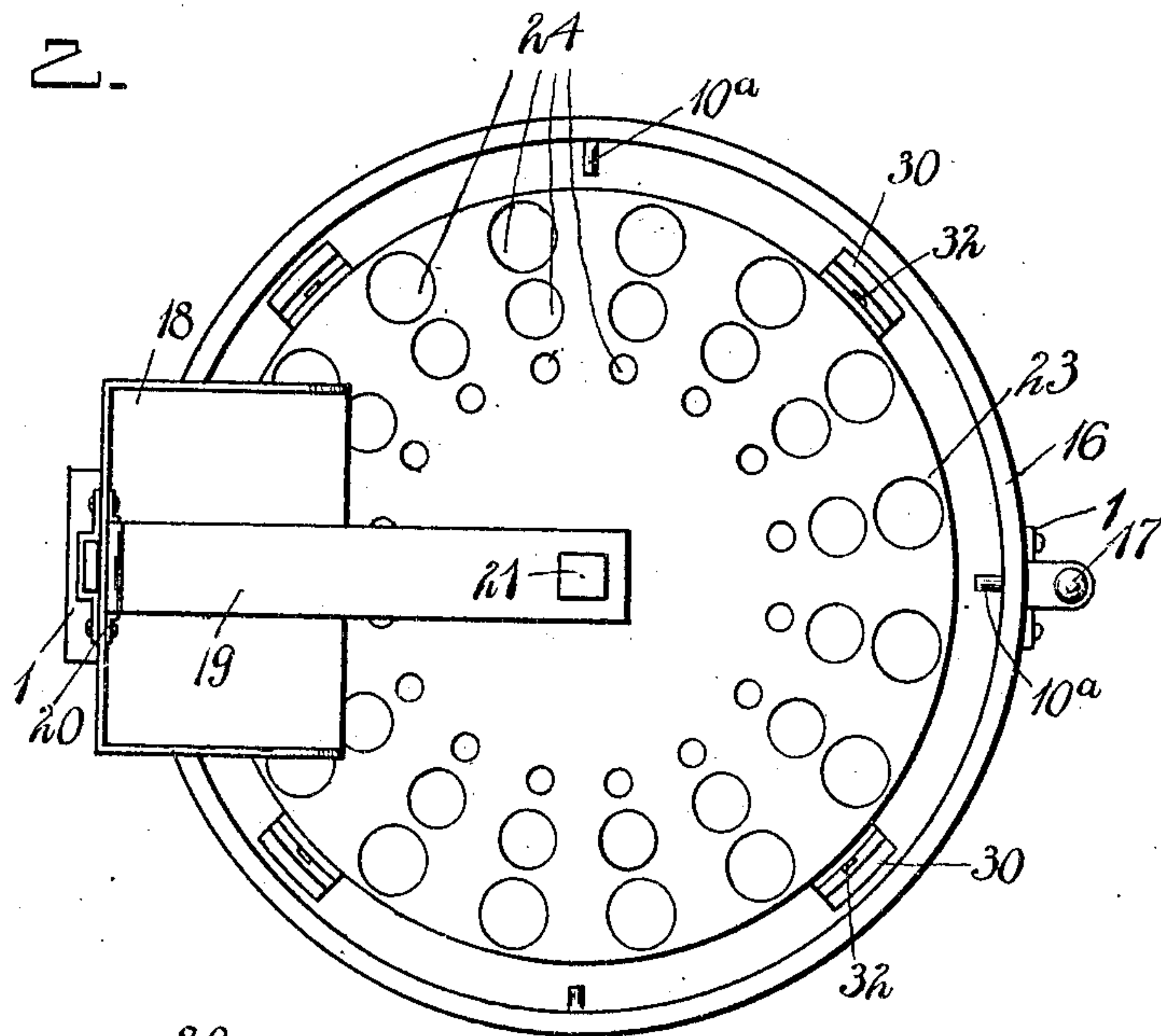
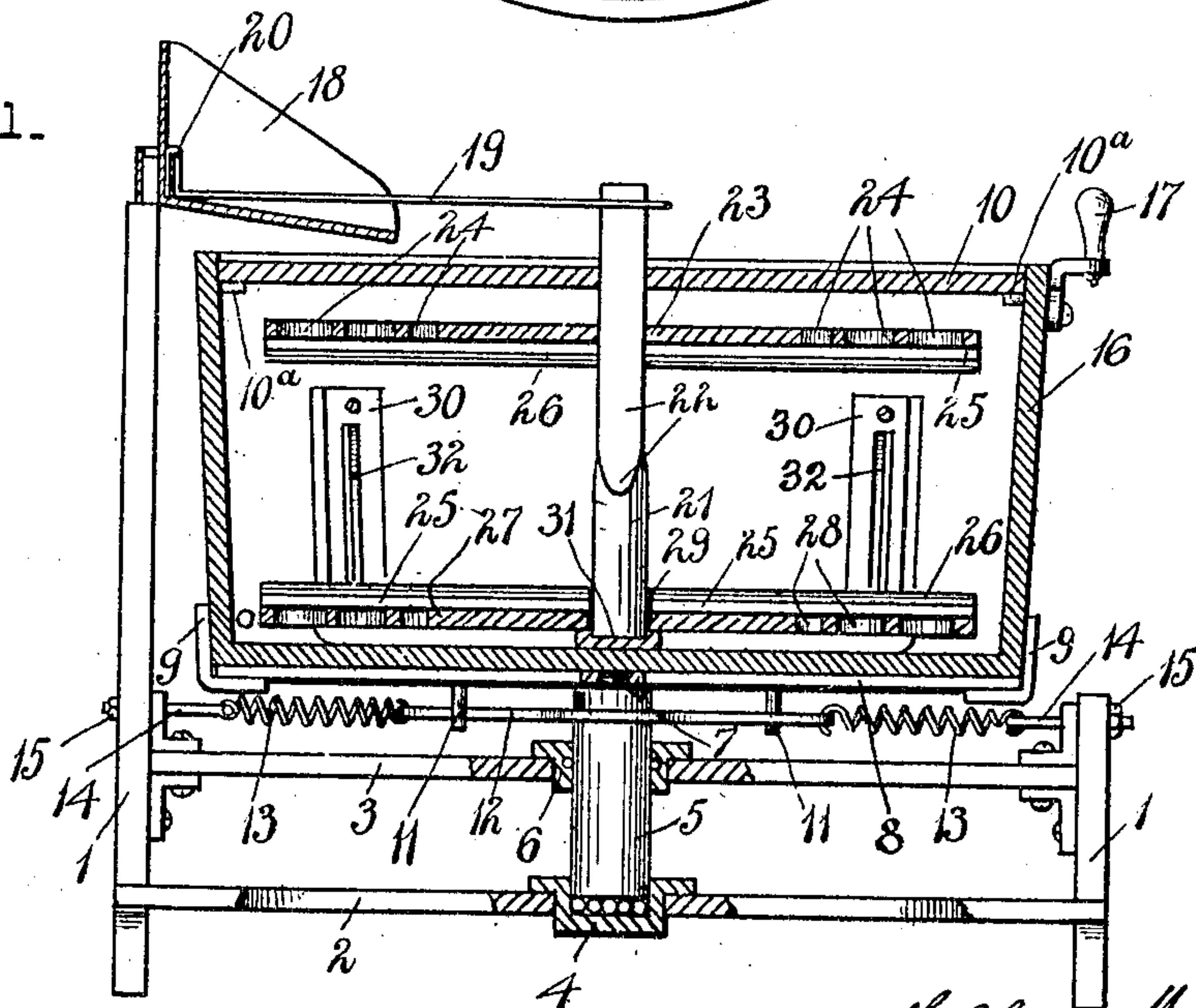


FIG. 1.



Witnesses
S. J. Hoexter
Geo. A. Horbrich.

William W. Allen
Inventor
By his Attorney Knight Bros

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3 SHEETS—SHEET 2.

FIG. 3.

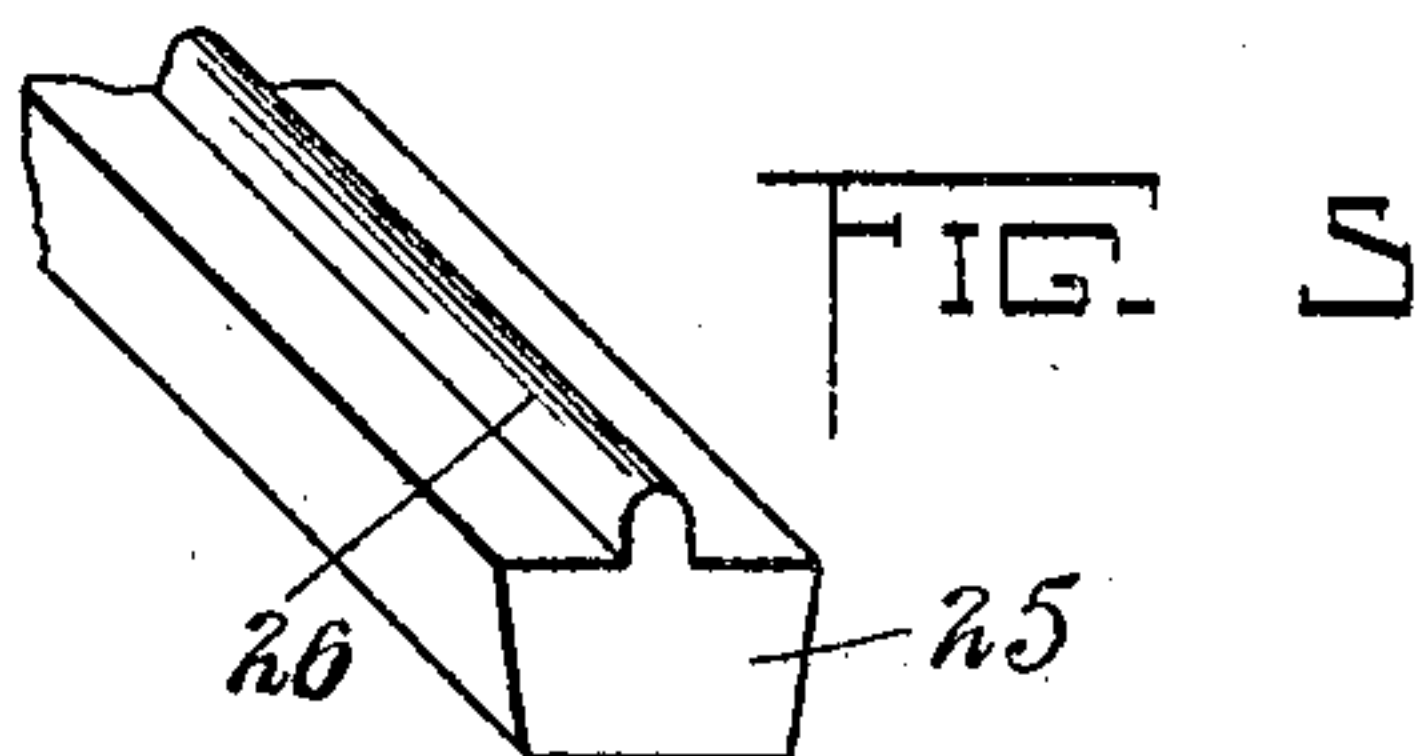
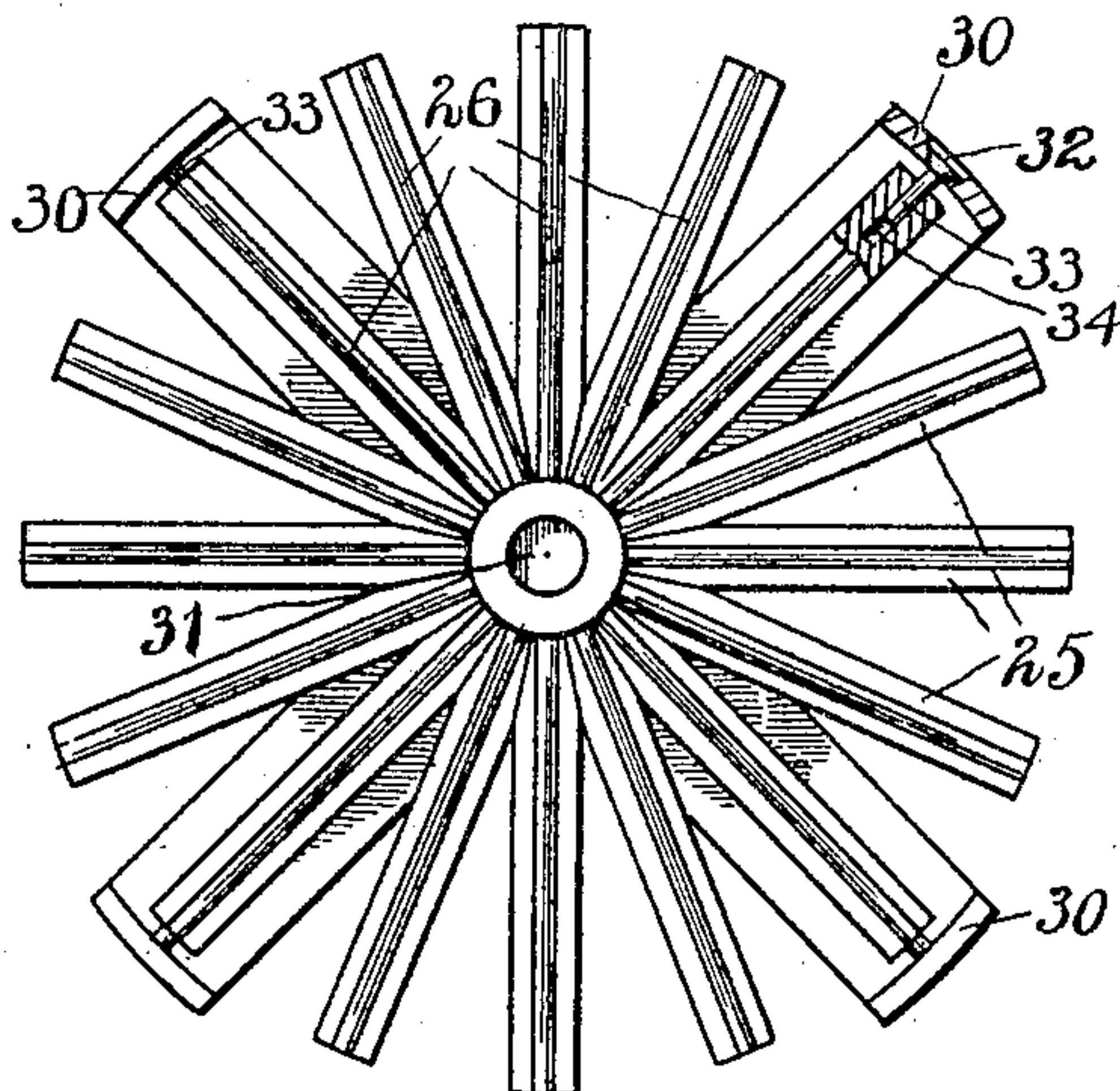
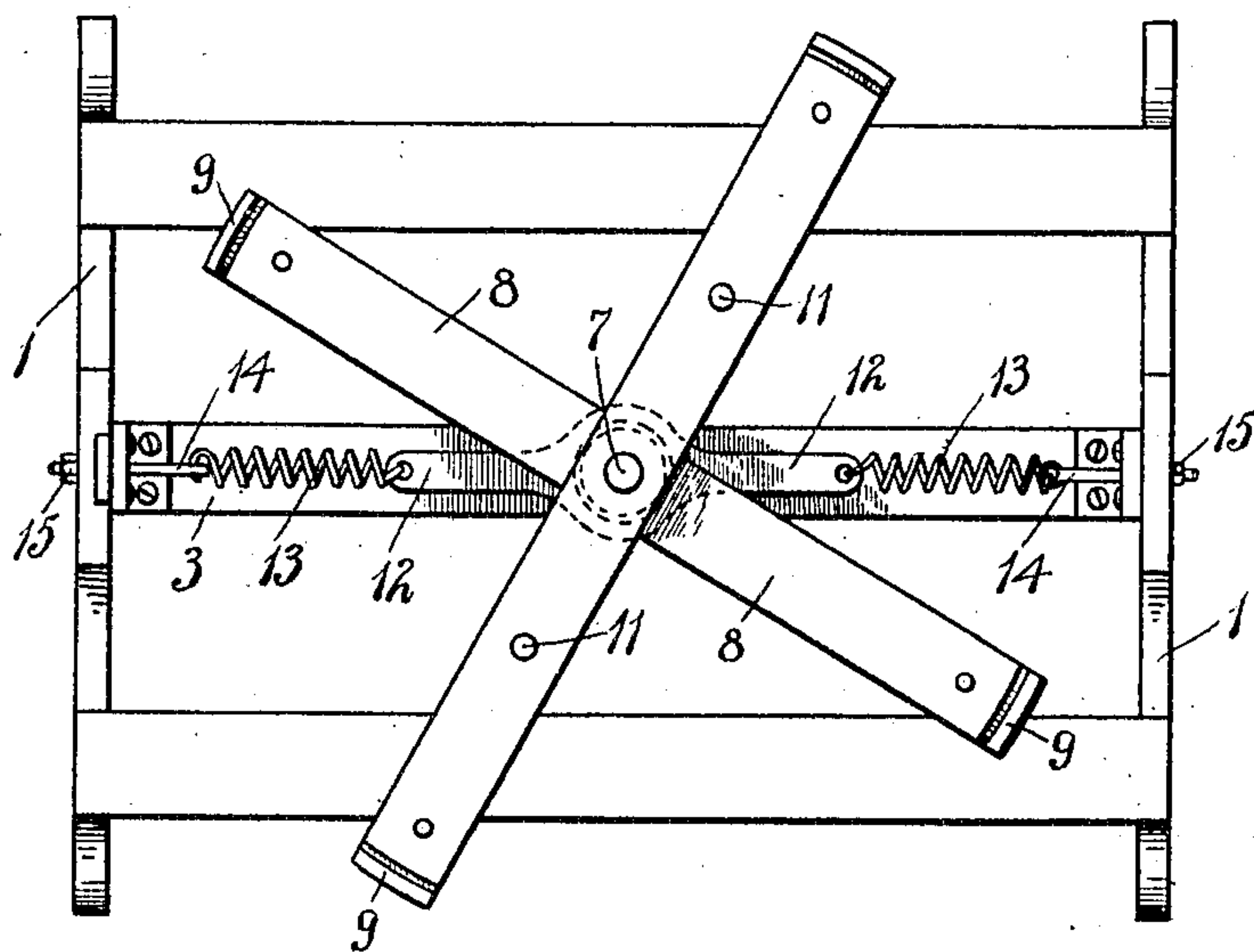


FIG. 5

FIG. 4



Witnesses
S. J. Hoexter
Geo. A. Horberich

William W. Allen
Inventor
By his Attorney, Freight Bros

UNITED STATES PATENT OFFICE.

WILLIAM W. ALLEN, OF DOBBS FERRY, NEW YORK

WASHING-MACHINE.

No. 844,766.

Specification of Letters Patent.

Patented Feb. 19, 1907.

Application filed February 20, 1905. Serial No. 246,463.

To all whom it may concern:

Be it known that I, WILLIAM W. ALLEN, a citizen of the United States, residing in Dobbs Ferry, Westchester county, and State of New York, have invented certain new and useful Improvements in Washing-Machines, of which the following is a specification.

The object of my present invention is to construct a washing-machine of that class in which a tub is mounted upon a suitable standard or frame, upon which the same is rotated or oscillated, while a disk rubber used in combination with the tub and adapted to cooperate with the bottom of the tub in rubbing the clothes is held through a suitable means also mounted on the frame against rotation.

The particular object of my present invention is to greatly simplify the structure of this class of machines, with a view to lessening the difficulty in assembling and using the same by the operator. Such a machine is hereinafter clearly described, and shown in the accompanying drawings, in which like reference characters refer to like parts, and in which—

Figure 1 is a transverse section through my improved washing-machine complete. Fig. 2 is a plan view of said machine with the cover removed. Fig. 3 is a sectional plan view of the movable bottom and showing also the guiding-plates. Fig. 4 is a sectional plan view of the machine with the tub, attachments, and upper portion of the frame of the machine removed. Fig. 5 is a detail perspective view of a portion of one of the cleats mounted upon the movable bottom and the disk rubber of my machine.

Referring now in detail to the drawings, the frame of my machine is constructed of the legs 1 and cross-bars 2 3. One of the legs 1 is extended upwardly a suitable distance for purposes hereinafter described. Seated in the cross-bar 2 of the frame of the machine is an antifriction end-thrust bearing 4, supporting the pivot-shaft 5, which passes through an antifriction-journal 6, seated in the cross-bar 3, the shaft 5 being threaded at 7 at its upper end to rigidly carry spider 8, comprising four (more or less) radiating arms with upturned clamping ends 9. Spider 8 has also rigidly mounted thereon to rotate therewith downwardly-projecting pins 11, adapted to engage a plate 12, stretched between the return-springs 13, secured at one

end to said plate and at their opposite ends to bolts 14, seated in the legs 1 of the frame. The tension of springs 13 may be adjusted by the adjustment of nuts 15 on bolts 14. Plate 12 is provided with a suitable perforation receiving the shaft 5, so that said shaft may freely rotate without interfering with the said plate 12 except when pins 11 engage plate 12.

16 is the tub, having suitable handle 17 at the upper edge thereof. Tub 16 rests upon the spider 8 under positive connection therewith and when rotated will rotate said spider 8 solely by friction, the object of this arrangement being to permit the tub to be thrown upon the spider 8 without necessitating a careful adjustment of the tub thereon, as is generally the case with washing-machines heretofore constructed, wherein it has been necessary to adjust a suitable projection on the spider into a notch or recess on the tub.

When rotated by the operator, who grasps the handle 17, the tub 16, through friction, communicates motion to the spider 8, which in turn rotates the shaft 5 and the plate 12, bringing the pins 11 into contact with the edge of the plate 12 and oscillating said plate in opposition to the springs 13, so that upon release of the handle 17 or, as is customary, upon relaxation of the forward pressure on said handle 17 the springs 13 reacting force the edge of the plate against the pins 11 and through the plate 12, shaft 5, and spider 8 return the tub 16 to its original position, or rather to a point beyond the original position, since in the operation of this class of washing-machines a forward push on handle 17 is sufficient to create a series of oscillations of the tub.

As already stated, one of the legs of the frame is extended upwardly, this being for the purpose of providing a standard for a wringer, (not shown,) the wring-drain 18, and a locking-bar 19, seated at one end in a strap 20, mounted on the drain 18 and keyed at its forward end to a rubber shaft 21, squared at its upper end and cylindrical and of greater diameter at its lower end. Between the cylindrical and squared portions of the shaft 21 is an annular shoulder 22. 23 is the disk rubber, provided with a central squared portion adapted to fit snugly over the squared end of the shaft 21 to prevent rotation of the rubber 23 and having perforations 24 therein

and cleats 25 thereon. Perforations 24 permit of the percolation of water or suds through the rubber 23.

Cleats 25 are of a shape shown in Fig. 5, this shape being adopted for the reason that the rib 26 thereon acts as an agitating medium.

The rubber disk 23 when placed on the shaft 21 will drop on said shaft until it reaches the shoulder 22, beyond which it cannot fall.

Seated in the bottom of the tub and of disk form is a movable bottom 27, provided with cleats 25, having ribs 26 and with suitable perforations 28. Bottom 27 is provided with a central cylindrical perforation 29 of a greater diameter than the diameter of the shaft 21 at its lower end and adapted to receive the shaft 21 at its lower end. Bottom 27 rests upon the lower inwardly-bent radiating ends of guide-plates 30, which intersect at the center of the tub and in which is formed a socket 31 of a diameter greater than the diameter of the lower end of the shaft 21 and adapted to receive the said shaft 21. In order to insure rotation of the movable bottom 27 with the tub 16, guide-plates 30, having therein slots 32 and slide-screws or headed pins 33, seated in the sockets 34 in the ends of the cleats 25, are provided. The guide-plate 30 and pin 33 form connection between the tub 16 and the bottom 27 and are provided for the purpose of allowing a limited upward movement of the bottom 27, such movement being induced by the tendency of the bottom 27 to float in the water in the tub. To accommodate the slight inclination of the side of the tub 16, slide-screws or head-pins 33 are capable of limited movement within their sockets 34.

In operation of the last-described portions of the machine when the operator grasps the handle 17 and forces the same to either right or left the tub 16 will be moved and through the plates 30 and pins 33 will move the bottom 27 about the shaft 21 as an axis, said shaft 21 turning in its socket 31, formed in the inwardly-bent radiating ends of the plates 30. The rubber 23, resting in its lowermost position, although the same may be forced to a higher position by the depth of water and the quantity of clothes in the tub, will be held from rotation by the squared upper end of the shaft 21, so that a rubbing or twisting of the clothes in the tub is effected. Since the lower or rounded end of the shaft 21 is of greater diameter than the upper or squared end of the shaft 21, it is obvious that the bottom 27 may float upwardly to a point beyond the shoulder 22, but limited by the

length of the slots 32, this upward movement of the bottom 27 forcing the top 23 upward.

If desired, the movable bottom 27 may be dispensed; likewise the guide-plates 30 and cleats 25 may be mounted directly on the bottom of the tub; but the provision of the movable bottom in the tub is a valuable feature in my invention, for the reason that it confines the clothes during the rubbing process.

This machine may also be used with a cover 10, mounted on lugs 10^a.

Having thus described my invention, what I claim as new therein, and desire to secure by Letters Patent, is—

1. In a washing-machine, the combination with a frame, of a tub rotatably mounted on said frame, of a movable bottom in said tub capable of limited vertical movement, and a stationary disk rubber positioned in said tub to cooperate with said bottom and capable of limited vertical movement.

2. In a washing-machine, the combination with a frame, of a tub rotatably mounted on said frame, of a movable bottom mounted in said tub and capable of limited vertical movement, ribbed cleats on said bottom, a disk rubber rigidly mounted in said tub to cooperate with said bottom, and ribbed cleats on said disk rubber.

3. In a washing-machine, the combination with a frame, of a tub rotatably mounted on said frame, a false bottom in said tub, slotted guide-bars mounted on the side of said tub, axially-movable retaining-pins engaging the slots in said guide-bars and socketed in said bottom, and a disk rubber stationarily mounted in said tub to cooperate with said false bottom.

4. In a washing-machine, the combination with a frame, of a rotatable tub mounted on said frame, a false bottom in said tub, a shaft loosely socketed in the tub and passing through said false bottom, a disk rubber keyed to said shaft but capable of limited vertical movement, and means for holding said shaft against rotation.

5. In a washing-machine, the combination with a frame, of a rotatable tub mounted on said frame, a false bottom in said tub, a shaft loosely socketed in the tub and passing through said false bottom, a disk rubber keyed to said shaft but capable of limited vertical movement, and a key-bar seated at one end in said frame and engaging at its other end the said shaft to hold the said shaft against rotation.

WILLIAM W. ALLEN.

Witnesses:

S. J. HOEXTER,
C. VON GRUEBE.