

No. 866,964.

PATENTED SEPT. 24, 1907.

H. S. REAMS.
WASHING MACHINE.
APPLICATION FILED OCT. 5, 1906.

Fig. 1.

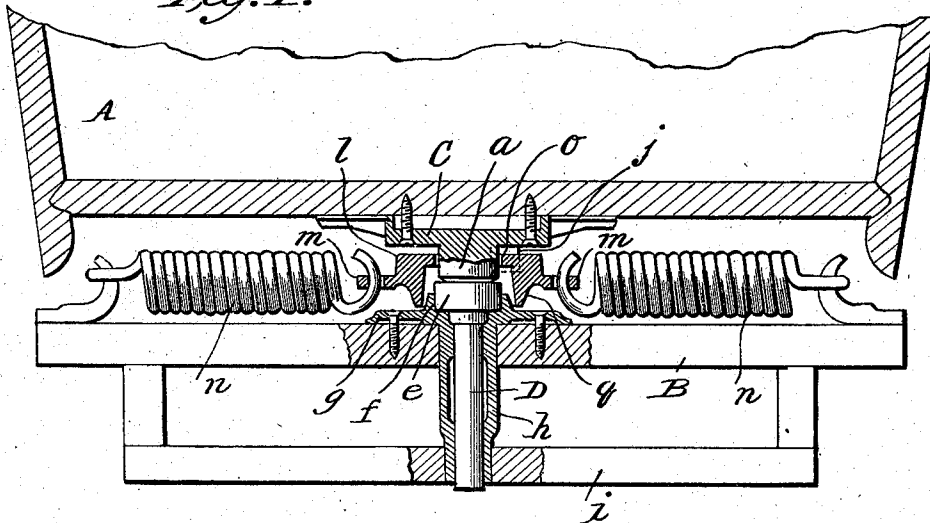


Fig. 2.

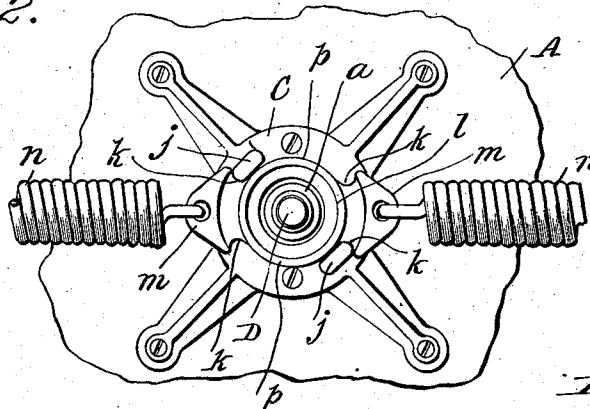
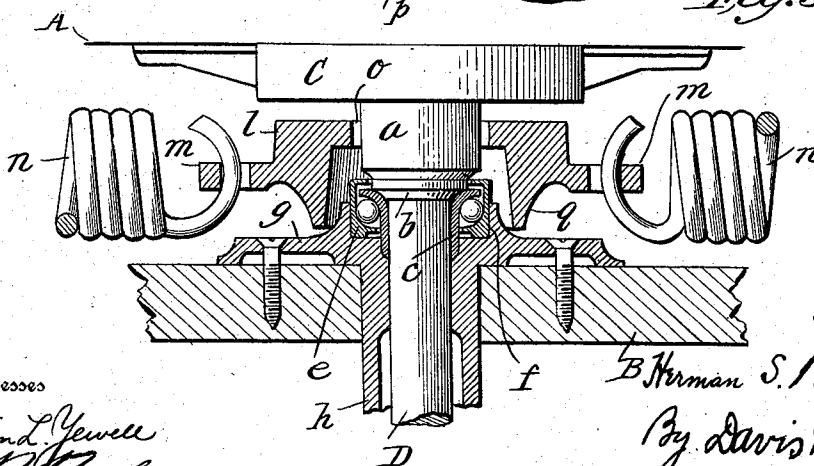


Fig. 3.



Witnesses
Edmund L. Jewell
L. B. Bridges

Inventor
Herman S. Reams,
By Davis & Davis
Attorneys

UNITED STATES PATENT OFFICE.

HERMAN SEGAR REAMS, OF RICHMOND, VIRGINIA, ASSIGNOR TO RICHMOND CEDAR WORKS,
OF RICHMOND, VIRGINIA, A CORPORATION OF VIRGINIA.

WASHING-MACHINE.

No. 866,964.

Specification of Letters Patent.

Patented Sept. 24, 1907.

Application filed October 5, 1906. Serial No. 337,577.

To all whom it may concern:

Be it known that I, HERMAN SEGAR REAMS, a citizen of the United States of America, and a resident of Richmond, county of Henrico, State of Virginia, have invented certain new and useful Improvements in Washing-Machines, of which the following is a full and clear specification, reference being had to the accompanying drawing, in which—

Figure 1 is a vertical sectional view of a portion of a washing-machine showing my invention applied thereto; Fig. 2 is a plan of a portion of the bottom of the tub showing the relationship between the lug carrying plate on the tub and the suspended actuating plate; and Fig. 3 an enlarged vertical sectional view taken through the pivotal bearing of the tub.

This invention has relation to that class of washing-machines in which the tub is rotatably mounted on a central depending shaft or stem and is limited in its rotary movement by means of a plate surrounding the shaft and connected at its opposite ends to two oppositely extending springs whose outer ends are rigidly attached to the supporting frame of the tub, said spring actuated plate being so arranged that it acts as a sort of buffer and at the same time serving with its connected springs to automatically return the tub at the end of each oscillation, as more fully hereinafter set forth.

The object of the present improvements is to reduce friction and wear and consequently reduce the effort required to actuate the tub and utilize to its maximum extent the automatic return action of the springs, as more fully hereinafter set forth.

Referring to the drawing by reference characters, A designates the tub and B a portion of the supporting frame and C a spider-like plate fastened centrally of the bottom of the tub and provided with a central depending stem D whose upper end is preferably somewhat enlarged at *a*. The shoulder formed between the enlarged part *a* and the depending part of the shaft is rounded or concaved at *b*, and this rounded portion fits against the upper rounded outwardly curved edge of a tube *c* which embraces the shaft and has its said outwardly curved portion inclosed in an annular shell *e* which forms the housing for a series of balls forming a ball bearing for the tub. The housing *e* fits down within a socket *f* formed in the upper side of a plate *g* bolted on top of the frame piece B, this plate *g* being provided with a depending tube *h* which surrounds the smaller part of the shaft D and has its lower end inserted in a hole in a part *i* of the frame. In this way a simple and effective ball-bearing is provided for the depending shaft of the tub.

As is well understood, the tub is oscillated back and forth by the hand of the operator or by a suitable motor.

It is limited in its oscillating movements by means of a pair of lugs *j* depending from the plate C at diametrically opposite points and adapted to alternately engage radial shoulders *k* carried by a plate *l*. This plate *l* is provided with oppositely extending ears *m* which are connected respectively with coiled springs *n* whose outer ends are rigidly connected to the base frame B. The tension on these springs is equal and as the hole *o* in the center of the plate is larger than the enlargement *a* of the shaft this plate will be suspended, out of contact with the shaft and the supporting devices thereof. The opposite edges *p* of this plate are curved concentrically with the central hole *o* and lie close to the inner sides of the depending lugs *j*, so that should one spring overbalance the other these lugs will tend to centralize the plate. This plate is provided with a depending annular flange *q* which depends to near the stationary plate *g* and thereby serves not only to strengthen the plate but also to guard the ball-bearing from the entrance of dust. The stops *k* are four in number, two being arranged at each side of a central line drawn across coincidently with the springs, and they are so spaced that the tub shall have about one quarter free revolution and also that both lugs *j* will strike diametrically opposite shoulders at the same instant.

It will be observed that as the tub is rotated back and forth the lugs *j* will alternately strike against the diametrically opposite shoulders and will thereby rotate the plate in the direction of the rotation of the tub a distance which will be determined by the force applied to the tub, and when this force is overcome by the springs the motion of the tub will be automatically reversed by the springs and the tub will swing back again in the opposite direction until the lugs strike against the opposite pair of shoulders. The tub has a free action of about a quarter of a turn and the springs are so adjusted that by the exertion of a comparatively slight effort the tub may be operated another quarter turn against the action of the springs, thereby giving approximately a half revolution of the tub with each oscillation. By suspending the actuating buffer plate free of the bearing parts and the shaft it will be observed that the maximum effect of the springs is secured without wear on the parts or retarding the free rotation of the tub on its ball bearings, whereby an exceedingly easy running machine is obtained. Another feature lies in providing the floating or suspended plate with an annular depending guard for the ball bearing.

It will be observed that the contacting vertical edges of the depending lugs *j* strike and engage into rounded notches in the faces of the shoulders *k*; the object of this is to prevent the floating plate from being displaced each time it is struck by the lugs or in other words to

maintain it in its concentric position and thus hold it out of contact with all of the adjacent parts of the machine except the lugs *j*. It will be observed also that the floating plate and its sleeve or flange *g* are held out of contact with the tub fixture at the top as well as out of contact with the plate *g* on the frame, so that this plate *l* is in truth a floating plate.

Having thus fully described my invention, what I claim and desire to secure by Letters Patent is:—

- 10 1. In combination with a support, a bearing therein, a tub having a depending shaft resting in said bearing, a floating plate suspended free of and out of contact with the shaft and its bearing and having a central hole through which the shaft depends and an annular depend-
 15 ing guard flange adapted to guard the bearing and strengthen the plate, said plate being provided at opposite sides with a pair of shoulders, a pair of oppositely extending springs connected to said plate and whose balanced tension supports the plate, and a pair of depending
 20 lugs carried by the tub, for the purposes set forth.
2. In combination with a tub provided with a depending central shaft and a pair of diametrically opposite lugs, a support carrying a bearing for said shaft, a plate having
 25 a central hole through which said shaft passes, said hole being larger than the shaft and said plate being provided with stop shoulders for engagement with said lugs, and a pair of oppositely extending balanced springs adapted to suspend said plate between the bottom of the tub and the supporting frame and out of contact with the shaft, for
 30 the purpose set forth.
3. In combination with a support, a tubular bearing fas-

tened thereon and having an upward extending annular flange, a ball-bearing device confined within this annular flange, a shaft having a hub resting on said ball-bearing device, a plate carried by this shaft and adapted to be
 35 fastened to the tub and provided with depending lugs, a plate having a hole through which said hub passes, this hole being considerably larger than the hub, said plate being provided with stops against which said lugs strike
 40 and also with a flange depending below and outside of the annular flange on the bearing, and a pair of oppositely pulling springs connected to said plate, said springs being balanced so as to maintain said plate free of and out of contact with the shaft and the upward-extending flange
 45 on the bearing.

4. In combination with a tub provided with a depending central shaft and a pair of depending lugs, a support carrying a bearing for said shaft, a plate having a central hole through which said shaft passes, said hole being considerably
 50 larger than the shaft, said plate also being provided with stop shoulders for engagement with said depending lugs, these shoulders having their contacting faces notched for the reception of the contacting edges of the lugs, and a pair of oppositely extending balanced springs adapted to
 55 suspend said plate between and out of contact with the bottom of the tub and the supporting frame and out of contact with the shaft.

In testimony whereof I hereunto affix my signature in the presence of two witnesses this 29th day of Sept. 1906.

HERMAN SEGAR REAMS.

Witnesses:

W. F. CHALMERS,
 W. POWERS LEFEBVRE.