A. W. HEALEY.

OPERATING MECHANISM FOR WASHING MACHINES.

APPLICATION FILED MAR. 11, 1916. RENEWED JULY 25, 1917.

1,240,204. Patented Sept. 18, 1917.

Fig. 1

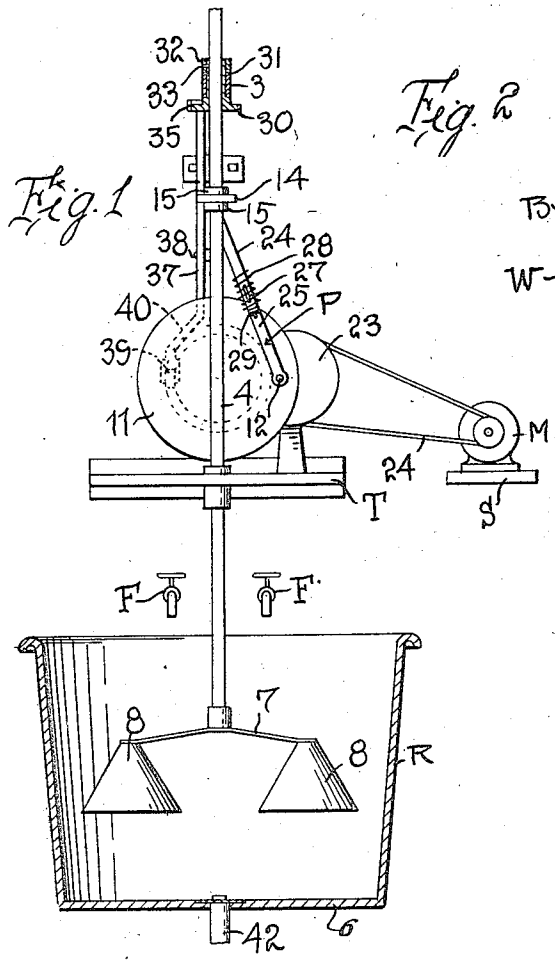


Fig. 2

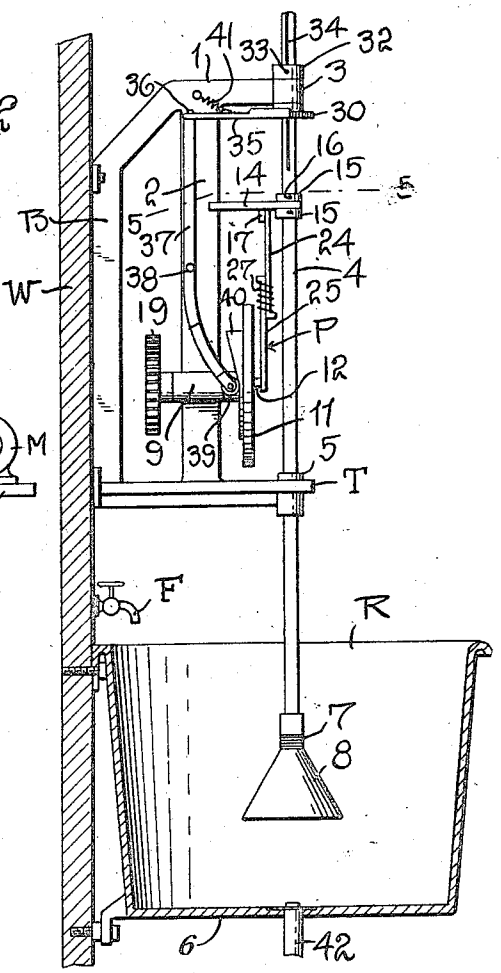


Fig. 3

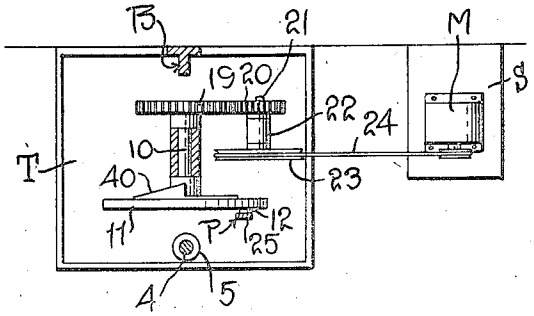


Fig. 4

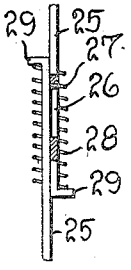
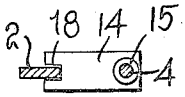


Fig. 5



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OPERATING MECHANISM FOR WASHING-MACHINES.

1,240,204. Specification of Letters Patent. Patented Sept. 18, 1917.

Application filed March 11, 1916, Serial No. 836,621. Renewed July 25, 1917. Serial No. 182,801.

To all whom it may concern:

Be it known that I, ARTHUR W. HEALEY, a citizen of the United States, residing at Jamestown, in the county of Stutsman and State of North Dakota, have invented certain new and useful Improvements in Operating Mechanism for Washing-Machines, of which the following is a specification, reference being had to the accompanying drawings.

This invention relates to certain improvements in washing apparatus and has relation more particularly to a device of this general character wherein a reciprocable vacuum member is employed, and it is an object of the invention to provide a device of this general character having novel and improved means whereby the requisite reciprocation may be imparted to the vacuum member.

The invention also has for an object to provide a washing apparatus having novel and improved means whereby the reciprocable vacuum member is capable of limited yielding movement independently of the positive reciprocation imparted thereto.

It is also an object of the invention to employ in an apparatus of this general character a novel and improved pitman operatively engaged with the reciprocable vacuum member and with a source of power, said pitman comprising a plurality of coacting sections capable of limited relative yieldable movement whereby the downward stroke of the vacuum member may be momentarily halted without interfering with the operating means for the pitman.

It is a still further object of my invention to provide a novel and improved washing apparatus wherein a reciprocating vacuum member is employed and wherein said vacuum member is intermittently rotated during its reciprocal movement.

The invention consists in the details of construction and in the combination and arrangement of the several parts of my improved apparatus whereby certain important advantages are attained and the device is rendered simpler, less expensive and otherwise more convenient and advantageous for use, all as will be hereinafter more fully set forth.

The novel features of the invention will hereinafter be definitely claimed.

In order that my invention may be the better understood, I will now proceed to describe the same with reference to the accompanying drawings, wherein—

Figure 1 is a view partly in front elevation and partly in section illustrating a washing apparatus constructed in accordance with an embodiment of my invention;

Fig. 2 is a view partly in end elevation and partly in section illustrating my apparatus as herein disclosed;

Fig. 3 is a view partly in top plan and partly in section of the apparatus as herein set forth;

Fig. 4 is a fragmentary view partly in elevation and partly in section setting forth certain details of the pitman as herein included; and

Fig. 5 is a fragmentary sectional view taken substantially on the line 5—5 of Fig. 2.

As disclosed in the accompanying drawings, R denotes a receptacle or tub of predetermined dimensions and into which the articles to be cleansed are adapted to be placed, the necessary water being delivered within the receptacle from the faucets F, it being my intention in practice to have the receptacle or tub R as a permanent fixture within a dwelling and preferably supported, as illustrated in Fig. 2, by a wall W of a room.

Suitably secured to the wall W at a predetermined point above the receptacle or tub R, is the outstanding horizontally disposed table or shelf T having at substantially its longitudinal center the upstanding bracket B terminating at its upper end in the outwardly directed horizontal arm 1 and having an intermediate vertically disposed bracing web or strip 2, the forward vertical edge of which being straight, as is particularly disclosed in Fig. 2 of the accompanying drawings. If preferred the bracket B and its concomitant parts may be integrally produced with the table or shelf T.

The free end of the arm 1 is provided with the vertically directed bearing 3 through which is loosely directed for reciprocal movement, a rod 4 of predetermined dimensions and which also extends through a bearing 5 carried by the table or shelf T in vertical alinement with the bearing 3 hereinbefore mentioned. The rod 4 is of such a length as to terminate in close proximity to the bottom 6 of the receptacle or tub R when at the limit of its downward movement, and the lower end of said rod 4 is provided with

a cross member 7 including diametrically opposed and oppositely directed arms possessing a certain degree of inherent resiliency and suitably secured to the free ends of the arms of the cross member 7 are the depending vacuum members 8 herein disclosed as of truncate formation and operating upon the articles within the receptacle or tub R in a manner which is believed to be clearly apparent to those skilled in the art to which my present invention appertains. I have found it of especial advantage to have the arms of the cross member 7 possessing a certain degree of resiliency in order that the vacuum members 8 may readily compensate for any unevenness in the upper surface afforded by the articles to be cleansed without interfering with the reciprocation of the rod 4.

As herein embodied, the bracing web of strip 2 is provided at a predetermined point intermediate its length with the bearing 9 disposed transversely of the table or shelf T and in which is rotatably mounted the shaft 10 extending beyond the opposite ends thereof, one extremity of said shaft 10 and preferably the outer extremity, having affixed thereto the disk 11 of a predetermined radius and provided with the wrist-pin 12 with which an extremity of the pitman P is operatively engaged.

In practice I have found it especially advantageous to have the wrist-pin 12 so positioned upon the disk 11 relative to its axis as to result in a stroke of the pitman P of approximately nine inches when the device is employed for household purposes.

The rod 4, as herein disclosed, is disposed through an end portion of an arm 14, said arm being held against independent movement longitudinally of the rod 4 through the medium of the collars 15 embracing the rod 4 and positioned at opposite sides of the arm 14 and contacting therewith, said collars 15 being preferably secured to the rod 4 through the medium of the clamping screws 16 in order that the rod 4 may be conveniently adjusted longitudinally of the rod 4 as the necessities of practice may dictate. The upper extremity of the pitman P is operatively engaged, as at 17, with the arm 14 at a point intermediate the length thereof, whereby it will be perceived that as the disk 11 is rotated, the pitman P will serve to impart the necessary reciprocation to the rod 4.

In order to maintain the arm 14 in proper position, I have the outer or free extremity thereof bifurcated, as at 18, so as to straddle the straight marginal portion of the brace or web 2, whereby it will be perceived that said brace or web 2 serves as a guide for the arm 14 during its reciprocation and serves to effectively hold the arm 14 in proper position.

Any means may be employed for driving the shaft 10, but as herein disclosed, the inner extremity of said shaft has affixed thereto the gear wheel 19 which is in mesh with the smaller gear 20 carried by the counter shaft 21 operatively supported by the bearing 22 mounted in proper position upon the table or shelf T. The counter shaft 21, in the present embodiment of my invention, is also provided with the pulley 23 of a radius materially in excess of the radius of the gear 20, and operatively engaged with the pulley 23 is the belt 24 or its equivalent which is operatively engaged with a suitable source of power, herein disclosed as a conventional motor M mounted upon a supplemental table or shelf S suitably supported by the wall W and preferably in horizontal alinement with the table or shelf T, hereinbefore referred to.

The pitman P as herein embodied, comprises two separate sections 25 arranged in alinement and having their adjacent or free extremities in overlying relation, one of said sections being provided with the longitudinally disposed slot 26 of predetermined length and into which extends the pin or finger 27 carried by the second section, whereby it will be perceived that the sections 25 of the pitman P are capable of limited independent movement and said sections are normally maintained at the limit of their outward movement through the medium of the expansible member 28 herein disclosed as a conventional coil spring surrounding the overlapping portions of the sections 25 and interposed between the stops 29 carried by the free end portions of each of the sections 25.

By this arrangement it will be perceived that the reciprocation of the rod 4 may be momentarily halted without interfering with the rotation of the disk 11 as especially when the rod 4 or more particularly the vacuum members 8 carried thereby, has reached the limit of its downward movement by contacting with the articles within the receptacle or tub R to be cleansed. It will also be perceived that as the rod 4 moves upwardly or outwardly, the member 28 will serve to automatically return the sections 25 to the limit of their outward movements.

It is also of especial importance that the position of the members 8 be varied in a horizontal plane relative to the receptacle or tub R in order that the articles therein to be cleansed may be thoroughly and properly acted upon. As herein disclosed, the rod 4 at a point above the arm 14 has affixed thereto the ratchet 30 adapted to rotate in unison therewith but permitting longitudinal movement of the rod 4 independently of the ratchet 30. As is particularly shown in Fig. 1, the ratchet 30 is provided with a sleeve 31 which extends through the bearing 3 and has secured to its upper extremity the support-

ing collar 32 through which is directed the key 33 coacting with the key-way 34 in a manner and for a purpose which is believed to be self-evident.

Coacting with the ratchet 30 is the substantially horizontally disposed dog or pawl 35 pivotally engaged, as at 36, with the upper extremity of the substantially vertically disposed arm 37 pivotally supported intermediate its length as at 38, for rocking movement in a direction toward or from the ratchet 30, and the lower extremity of the arm 37 is suitably inclined and is provided with the anti-friction roller 39 coacting with the cam 40 carried by the adjacent face of the disk 11. The pawl or dog 35 is normally maintained in contact with the ratchet 30 and the lower extremity of the arm or lever 37, or more particularly the anti-friction roller 39 is normally held in contact with the cam 40 through the medium of the retractile member 41 herein disclosed as a conventional coil spring interposed between and suitably anchored to the dog or pawl 35 and the horizontal arm 1 of the bracket B.

It is also to be noted that the cam 40 is of such formation as to impart intermediate axial movement to the rod 4 during the period said rod is approaching the limit of its upward movement and during the period of its initial movement in a downward direction so that no interference will be offered to the intermittent rotation of the rod 4 by contact of the vacuum members 8 with the articles to be cleansed within the receptacle or tub R.

It is to be noted that the receptacle or tub R has in communication therewith through the bottom thereof, a conventional drain pipe 42, said pipe during the operation of my apparatus being closed in any conventional manner.

From the foregoing description, it is thought to be obvious that an apparatus constructed in accordance with my invention is of an extremely simple and comparatively inexpensive nature and is particularly well adapted for use by reason of the convenience and facility with which it may be assembled, and it will also be obvious that my invention is susceptible of some change and modification without material departure from the principles and spirit thereof and for this reason I do not wish to be understood as limiting myself to the precise arrangement and formation of the several parts herein shown in carrying out my invention in practice.

I claim:

1. In combination, a member mounted for reciprocation and for rotation, a driven disk, a ratchet adapted to rotate in unison with the member but permitting reciprocation of the member independently thereof, a rod mounted intermediate its length for rocking movement, a pawl carried by one end of the rod and coacting with the ratchet, and a cam carried by a face of the disk and coacting with the opposite extremity of the lever whereby the ratchet is intermittently rotated.

2. In combination, a member mounted for reciprocation and for rotation, a driven disk, a ratchet adapted to rotate in unison with the member but permitting reciprocation of the member independently thereof, a rod mounted intermediate its length for rocking movement, a pawl carried by one end of the rod and coacting with the ratchet, a cam carried by a face of the disk and coacting with the opposite extremity of the lever whereby the ratchet is intermittently rotated, and a spring coacting with the pawl for holding the same in constant contact with the ratchet and for holding the lever in constant contact with the cam carried by the disk.

3. In combination, a member mounted for reciprocation and for rotation, a driven disk, a ratchet adapted to rotate in unison with the member but permitting reciprocation of the member independently thereof, a rod mounted intermediate its length for rocking movement, a pawl carried by one end of the rod and coacting with the ratchet, a cam carried by a face of the disk and coacting with the opposite extremity of the lever whereby the ratchet is intermittently rotated, and an operative connection between the disk and the member whereby said member may be reciprocated during the rotation of the disk.

4. In combination, a member mounted for reciprocating movement, an arm loosely carried by said member, means for holding the arm against independent movement longitudinally of the member, a guide coacting with the arm for holding the arm against rocking movement relative to the reciprocating member, a driven disk, and a pitman operatively engaged with the disk and the arm at a point intermediate the member and the guide.

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

ARTHUR W. HEALEY.

Witnesses:
W. E. Lawson,
C. M. Forrest.