

T. O. H. HERZOG.
GEARING FOR WASHING MACHINES.
APPLICATION FILED DEC. 16, 1911.

1,064,323.

Patented June 10, 1913.

4 SHEETS—SHEET 1.

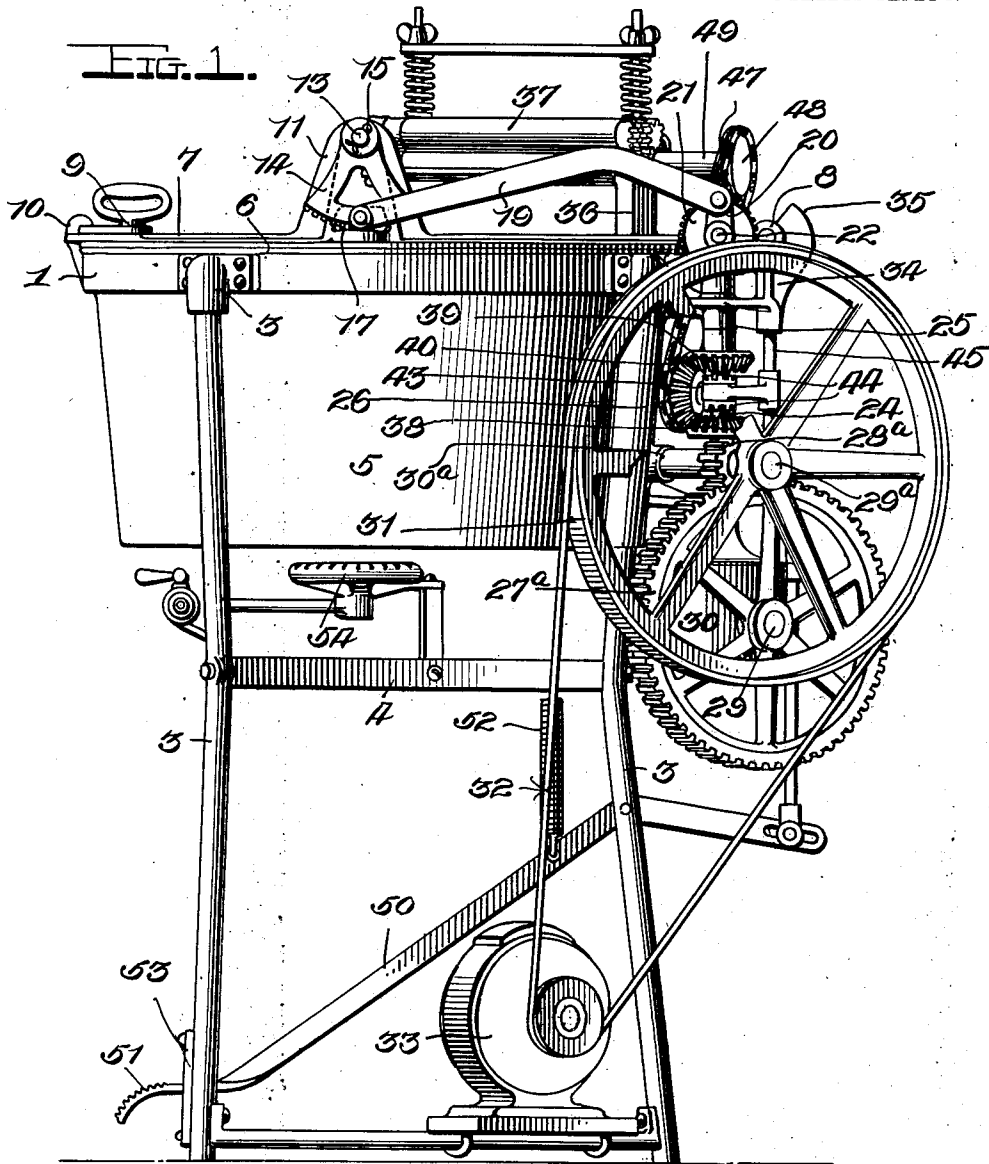
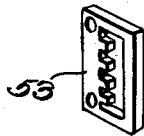


FIG. 7.



Witnesses

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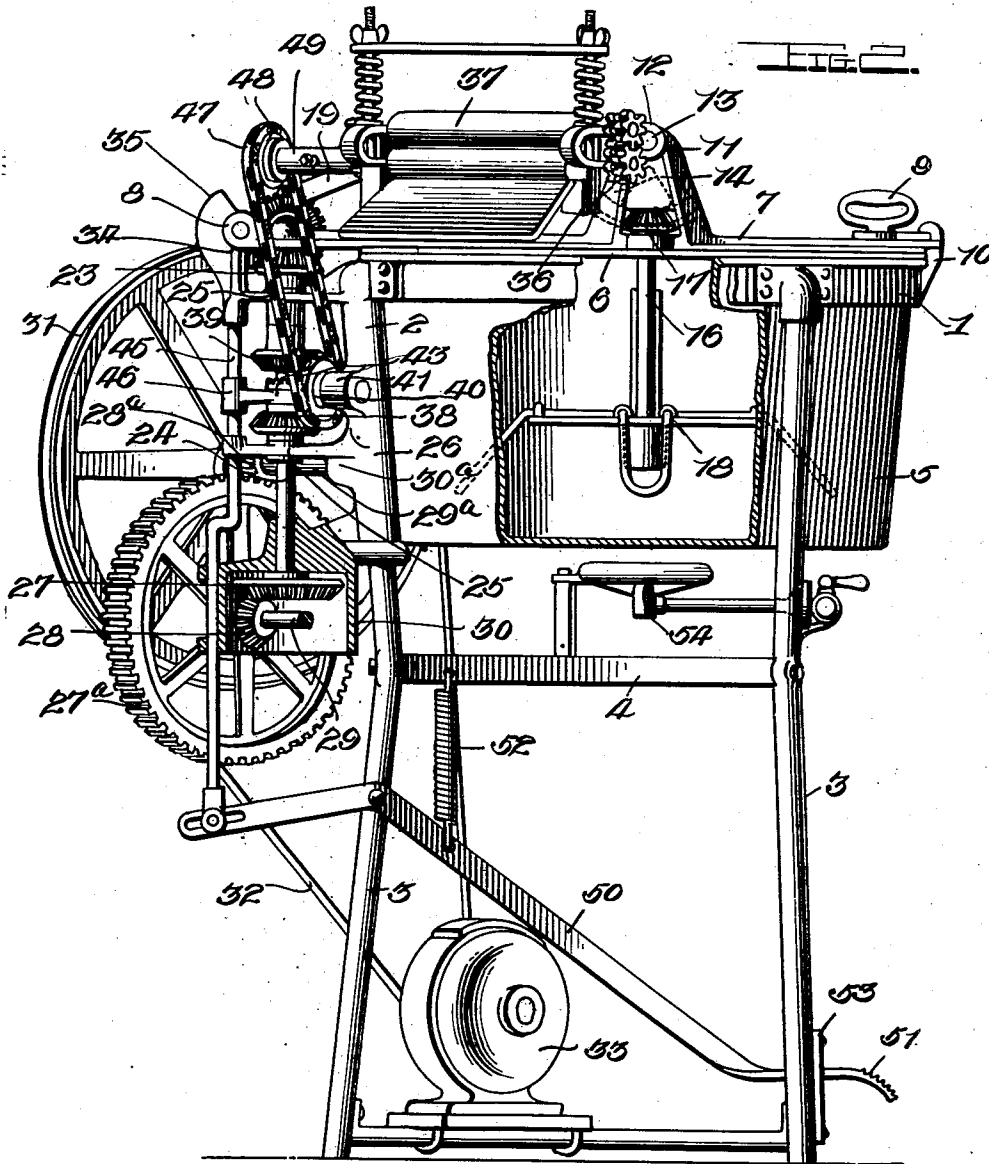
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4 SHEETS—SHEET 2.



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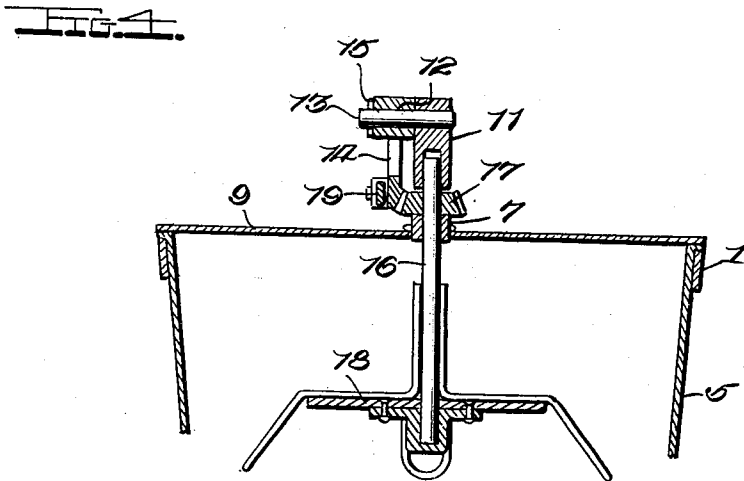
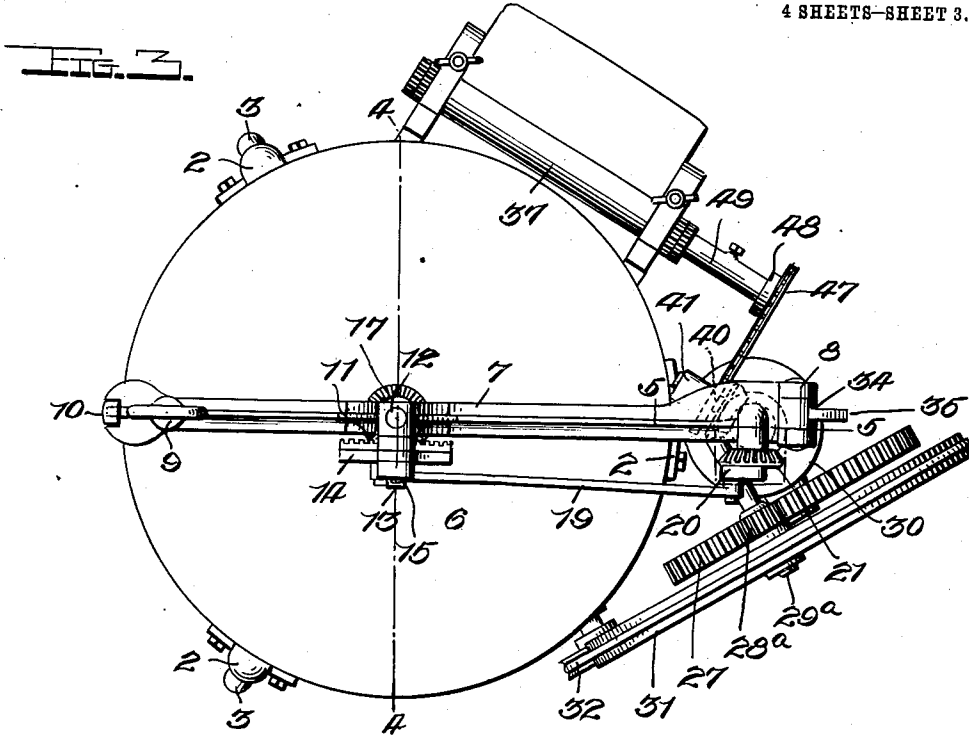
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4 SHEETS—SHEET 3.



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4 SHEETS—SHEET 4.

Fig. 5

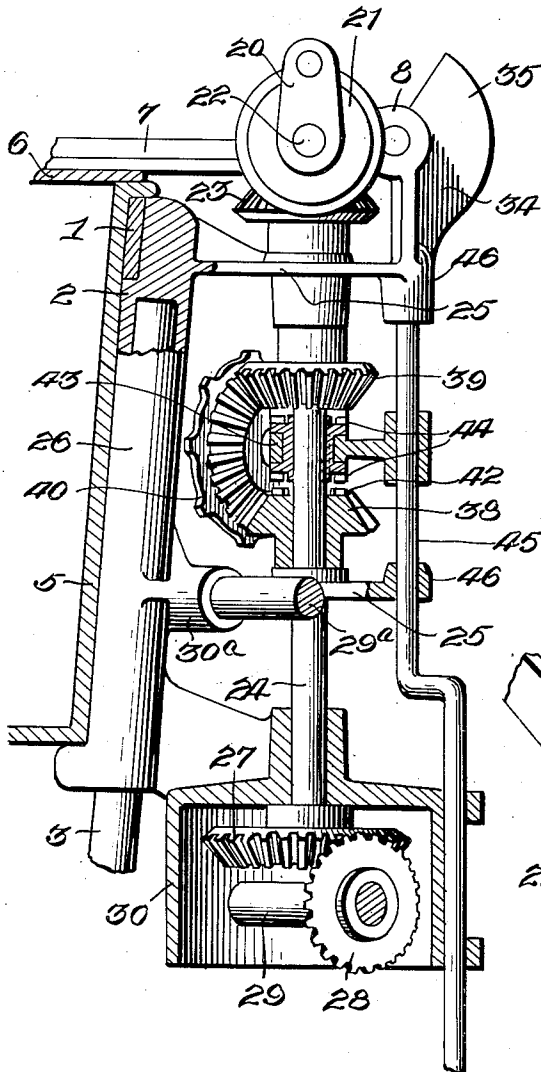
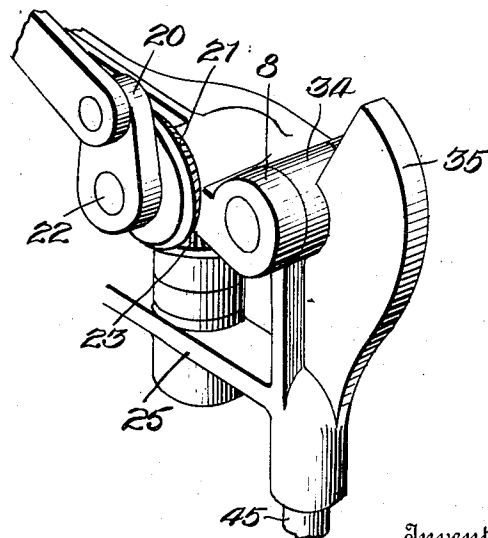


Fig. 6



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UNITED STATES PATENT OFFICE.

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GEARING FOR WASHING-MACHINES.

1,064,323.

Specification of Letters Patent.

Patented June 10, 1913.

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To all whom it may concern:

Be it known that I, THEODORE O. H. HERZOG, a citizen of the United States, residing at Rock Island, in the county of Rock Island and State of Illinois, have invented certain new and useful Improvements in Gearing for Washing-Machines, of which the following is a specification, reference being had to the accompanying drawings.

My invention relates to new and useful improvements in washing machines and more particularly to a motor-operated washing machine, the same having for its primary object to provide a simple and efficient means for most effectively agitating the garments to be washed so as to thoroughly cleanse the same.

A further object of the invention resides in providing an improved form of gearing for the operation of a dasher shaft, and a still further object resides in providing such an arrangement of gearing as will alternately rotate the dasher shaft in first one direction and the other.

Another object of the invention resides in providing means in connection with the referred to gearing for the operation of a wringer, and a still further object resides in providing a device which while simple and durable in construction, is inexpensive to manufacture, and one which is extremely efficient and useful in operation.

With these and other objects in view, my invention consists in the novel features of construction, combination and arrangement of parts as will be hereinafter referred to and more particularly pointed out in the specification and claims.

In the accompanying drawings forming a part of this application, Figure 1 is a side elevation of the machine completely set up for operation. Fig. 2 is the opposite side elevation thereof. Fig. 3 is a top plan view of the same. Fig. 4 is a vertical section as seen on line 4-4, Fig. 3. Fig. 5 is a similar section as seen on line 5-5, Fig. 3. Fig. 6 is a fragmentary perspective view showing the hinge member between the top and vertical shaft and adjunctive parts thereof, and Fig. 7 is a perspective view of the rack or catch for the foot operating mechanism.

In carrying out my invention, I shall refer to the drawings in which similar reference characters designate corresponding

parts throughout the several views and in which—

1 indicates a hoop or band, to the outer periphery of which are secured and spaced at regular intervals thereon, the sockets or keepers 2 which are cast on the upper ends of the tubular supporting legs 3, said legs being bent inwardly intermediate of their ends and secured to a substantially triangular-shaped bracing frame 4, and disposed through said hoop or band 1 and held therein, is an enlarged receptacle such as a tub or the like 5. The receptacle 5 is substantially circular, and a circular cover or closure 6 which may be formed of metal or other material, is adapted to be applied thereover, said cover having secured on the upper face thereof, a bar or plate 7, which extends diametrically thereacross, having one end thereof projecting beyond the periphery of the cover and provided with an enlarged portion 8 forming one section of a hinge, which will be hereinafter and more particularly described. The opposite end of said plate or bar 7 is provided with a pivotal latch member 9 which is adapted to be engaged with a keeper or the like 10 carried at an adjacent point on the band or hoop 1, whereby when the cover is brought to its closed position, the same may be securely retained over the receptacle by the effective positioning of this latch member.

Mounted on the bar 7 in about the center of the cover or closure 6, is a hanger or the like 11 which extends upwardly therefrom and has formed at its outer end a bearing 12, through which extends a stub shaft 13, and pivotally mounted on said stub shaft to one side of the hanger, is one end of a segmental gear 14, said gear being held in position on the shaft by means of a cotter-pin or the like 15 extending through the free end of said shaft 13. Extending through the center of the cover 6 and through an opening in the bar 7, is a shaft 16 which has mounted thereon above the upper face of the cover 6 and between the arms of the hanger 11, a bevel gear 17, said gear being meshed with the teeth of the segmental gear 14, and the lower end of said shaft 16 which projects into the receptacle 5 when the cover is moved to its closed position, has mounted thereon any approved form of dasher 18 and thereby, as said shaft 16 is rotated, the dasher will contact with the garments within the receptacle and agitate the same

sufficiently to cause all filth and dirt contained therein to be readily removed.

Pivotally engaged with a portion of the segmental gear 14 adjacent its outer end, is the one end of an arm or pitman connection 19, the opposite end of said arm or pitman being pivotally engaged with a crank 20 formed on the one face of a bevel gear 21, and said bevel gear 21 is carried on a shaft 22 which is rotatably mounted transversely of the enlarged head portion 8 of the bar 7. From this construction, it will be seen that as the gear 21 is rotated, the arm 19 will be reciprocated to cause the segmental gear 14 to be oscillated on its pivot, whereby the shaft 16 will be first rotated in one direction and then rotated in the other to cause the dasher carried thereby to likewise be alternately rotated in one direction and another.

Of course, it will be appreciated that some means must be provided for the rotation of the gear 21, and to this extent, I provide an additional beveled gear 23 which is mounted on the upper end of a vertical shaft 24, which shaft is rotatably held in position by means of the bearings 25 extending from a casting 26 on the upper end of one of the supporting legs 3, and said shaft has mounted on the lower end thereof an additional beveled gear 27 which meshes with a similar gear 28 carried on a stub shaft 29. This shaft 29 is rotatably mounted in the sides of a casing or covering 30 which completely incloses the gears 27, and 28, the same being supported in position upon the casting 26 and carried on the shaft 29 which projects beyond one side of the casing or covering is an enlarged spur gear 27^a which meshes with a smaller pinion 28^a carried on a shaft 29^a. This shaft 29^a is rotatably supported in bearings 30^a formed on the casting 26 and said shaft 29^a carries thereon a combined balancing and driving wheel 31 over which extends a belt or the like 32 extending from a motor 33. Thus, the shaft 29 will be caused to rotate through the medium of this motor which will in turn transmit its power to the shaft 16 through the medium heretofore described, and while I have clearly shown and described an electric motor 33, it will be readily understood that any source of power may be supplied, if desired.

As stated previously, the enlarged head portion 8 on the extended end of the bar or plate 7 has formed thereon one section of a hinge member, and the opposite section thereof is shown at 34, the same being formed on and extending from one of the bars 25 of the casting 26 and it will be appreciated that as long as the cover 6 is in its lowermost or closed position, the gear 21 carried on the head portion 8 will be in mesh with the gear 23, but when said cover

is raised on its hinges, the gear 21 will be moved out of engagement with the gear 23. A supporting means for the cover is provided by forming a shank or the like 35 immediately in the rear of the section 34 of the hinge, whereby the cover may be opened and allowed to rest thereagainst while the operator is attending to some other portion of the machine.

Projecting from the hoop or band 1 is a pair of arms 36 which may be secured to the band or hoop in any desired manner, whatsoever, which arms carry thereon a wringer mechanism 37 of the usual or any preferred type, and I have provided means in connection with the aforesaid operating mechanism for the operation of this wringer so that the same may be used in connection with the machine proper for removing the water from the garments after the same have been cleansed of their dirt. To this extent, the shaft 24 has loosely mounted thereon and spaced one above the other, the beveled gears 38, and 39, respectively, which gears are normally in mesh with the beveled portion of a combined beveled gear and sprocket 40, said combined gear and sprocket being carried on a shaft which is rotatably mounted in a bearing 41 formed on the casting 26. The inner opposed faces of the gears 38, 39 are provided with clutch faces 42, while a sleeve or the like 43, slidably disposed on the shaft 24 between said gears, has formed thereon the clutch faces 44 adapted to engage the gears one at a time so that one or the other may be caused to rotate with the rotation of the shaft 24, and said sleeve 43 is carried on a vertical rod or shaft 45, which is guided through bearings or the like 46 extending from the bearings 25. The sprocket portion of the combined gear and sprocket 40 has extending thereover, a link chain 47 which also extends over a sprocket 48 carried on the end of a shaft 49 from one of the rollers of the wringer 37, whereby it will be seen that when said combined gear and sprocket 40 is caused to rotate in either one direction or the other, the rollers of the wringer will also be caused to rotate.

In order to provide means for the operation of the clutch mechanism in connection with the gears 38 and 39, I have provided a lever 50 which is fulcrumed adjacent the lower end of the supporting leg 3 carrying the casting 26, and has its outer free end pivotally engaged with the lower end of the shaft or rod 45, the opposite end of said lever having a foot operated pedal 51 thereon. When said pedal 51 is pressed downwardly, it will be seen that the rod 45 will be moved upwardly to correspondingly cause the clutch mechanism to engage the gear 39, whereby the wringer will be operated in one direction, and when the pedal is moved in the opposite direction, the gear

38 will be engaged to operate the wringer in the reverse direction and a coil spring 52 is provided which has one end thereof engaged with the lever 50, while the opposite end thereof is engaged with the bracing frame 4 to normally raise said lever upwardly and to correspondingly dispose the clutch mechanism in engagement with the gear 38. In order to retain the lever 50 and pedal 51 in any adjusted position, that is one of the three positions so that the clutch may be neutral, in engagement with the gear 39 or in engagement with the gear 38, I provide a rack or catch member 53, the same being carried immediately adjacent the free end of one of the supporting legs 3 whereby said pedal member after being disposed into its proper position by the foot of the operator, may readily engage with said rack or catch.

As stated previously, the frame 4 is designed for a bracing means for the supporting legs 3 but the same also performs the additional function of being a supporting means for a burner 54 whereby it will be seen that the garments within the receptacle 5 which are being cleansed may be simultaneously boiled during the cleansing process. While I have shown no particular means for applying fuel to the burner, it might be stated that any means may be provided for this purpose and in this connection it may also be stated that the burner may be of any desired type whatsoever, that is either a liquid or gaseous fuel burner.

In practice, the garments to be cleansed together with a quantity of water are placed within the receptacle 5 after said receptacle has been properly positioned in the circular rim or band 1, whereupon the closure 6 is brought to its effective position over the receptacle and locked through the medium of the latch and keeper 9 and 10, respectively. The disposition of the closure in its effective position will of course introduce the dasher 18 within the receptacle to contact with the garments therein and the gear 21 carried on the bar or plate 7 to which the closure 6 is secured, will mesh with the gear 23 carried on the upper end of the vertical shaft 24. The motor 33 may then be set in operation which will, through the various elements heretofore described, rotate the gear 23, thereby causing the gear 21 to be rotated and from this latter rotation the segmental gear 14 will be oscillated thereby rotating the dasher shaft in first one direction and then in the other. The alternate rotation of the dasher shaft in first one direction and then in the other will cause the dasher carried thereon to agitate the garments within the receptacle 5 thereby causing the same to be cleansed of their dirt and the like and this is continued until the operator deems that sufficient agitation has occurred to re-

lieve the garments of all their filth whereupon the closure 6 may be raised from its effective position which will disengage the gears 21 and 23 and thereby stop the rotation of the dasher shaft 16. The garments may then be removed from the receptacle 5 and by placing the foot upon the pedal 51, the wringer mechanism 37 may be set in operation so that said garments may be inserted therethrough and the same relieved of the excess water. It will be appreciated that the wringer may be operated to discharge the garments in either one direction or the other by the movement which is given the pedal 51. During the operation of the device for removing the dirt from the garments, the burner 54 may be set in operation so as to boil the garments during this cleansing process and it will be appreciated that in this manner considerable time, trouble and expense will be saved over the processes now in vogue.

From the foregoing, it will be seen that I have provided a simple, inexpensive and efficient means for carrying out the objects of the invention and while I have particularly described the various elements which are best adapted to perform the functions set forth, it is obvious that various changes in form, proportion and in the minor details of construction may be resorted to without departing from the spirit or sacrificing any of the principles of the invention.

Having thus described my invention, what I claim is:

1. The combination with a stationary object and a support; of a bar secured to and extending diametrically across said support, means to hingedly mount said bar on said stationary object, a dasher shaft rotatably extending through said bar and support, means to rotate said dasher shaft upon the disposition of the support to a horizontal position, said means being ineffective when the support carrying the bar is raised, and means to limit the raised movement of said bar and forming a support for the latter.

2. The combination with a stationary object, a support, a bar carried thereon, hingedly engaged with said stationary object, a dasher shaft extending through said bar and support, a pinion on the upper end of said dasher shaft, a bracket formed on said bar, a segmental gear oscillatingly mounted on a horizontal axis on said bracket and engaged with the pinion on said dasher shaft, a bevel gear rotatably mounted on a horizontal axis at the hinged end of said bar, said latter gear being provided with a crank arm, and connecting means between said segmental gear and the crank arm on said bevel gear; of an additional shaft rotatably carried on the stationary object, and a bevel gear carried on the upper end of said additional shaft adapted to mesh with the

aforesaid bevel gear when said bar and support are lowered to a substantially horizontal position.

3. In a machine of the class described, the
5 combination with a stationary object, a support, a bar extending diametrically and secured thereto, means to hingedly mount the one end of said bar on said stationary object, a dasher shaft extending through said
10 bar and the support, a pinion carried on the upper end of said dasher shaft, an integral bracket formed on the bar and extending vertically thereof, a segmental gear oscillatingly mounted on a horizontal axis on
15 said bracket and engaged with the pinion of said dasher shaft, a bevel gear rotatably mounted on said bar immediately adjacent

the hinged end thereof, a crank arm formed on said bevel gear, and connecting means between said crank arm and said segmental gear; of means to engage said bevel gear and cause the same to be rotated upon the lowering of said bar to a horizontal position, and means formed on a stationary section of the hinged means between said bar and the stationary object to form a support for said bar when the latter is raised.

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

THEODORE O. H. HERZOG.

Witnesses:

GRACE L. HOLMES,
JOHN J. INGRAM.