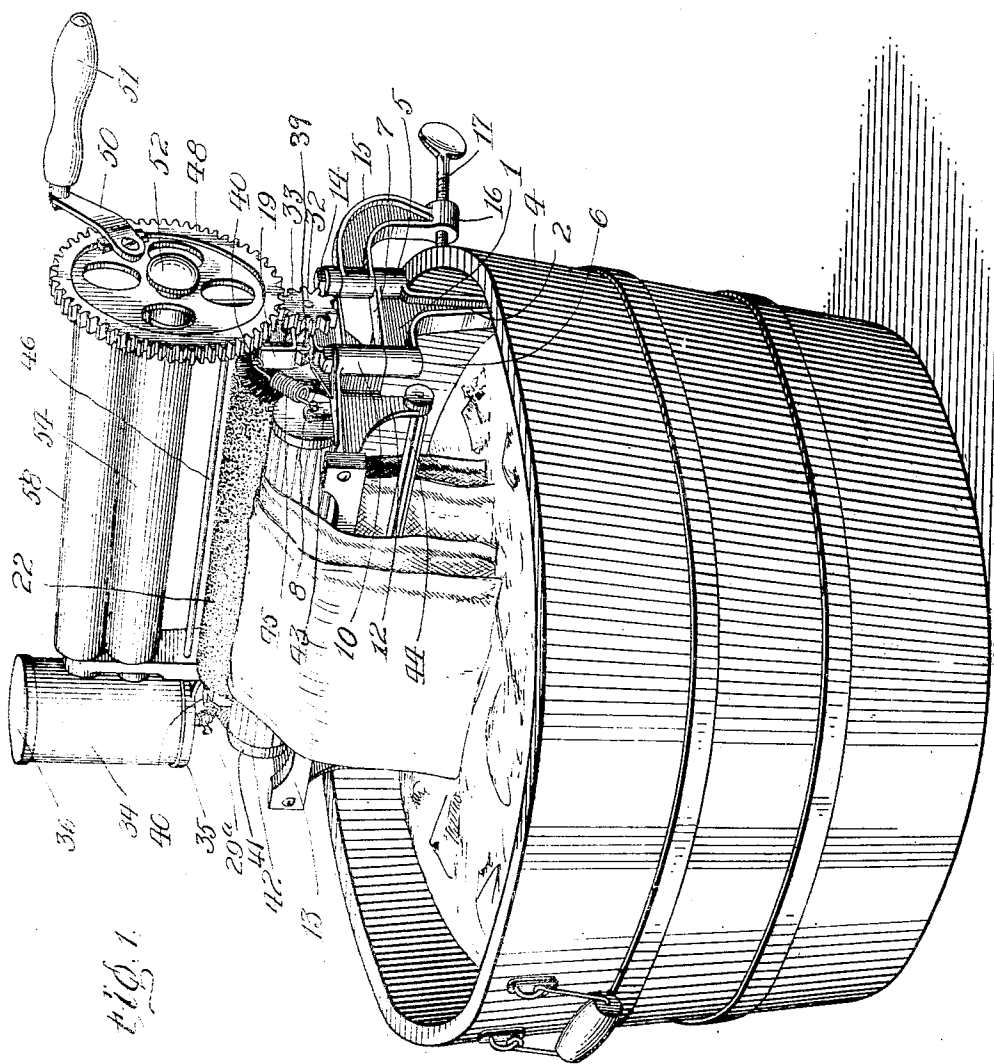


J. VIERLING.
 WASHING MACHINE.
 APPLICATION FILED JULY 15, 1909.

962,803.

Patented June 28, 1910.

4 SHEETS—SHEET 1.



Witnesses

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334

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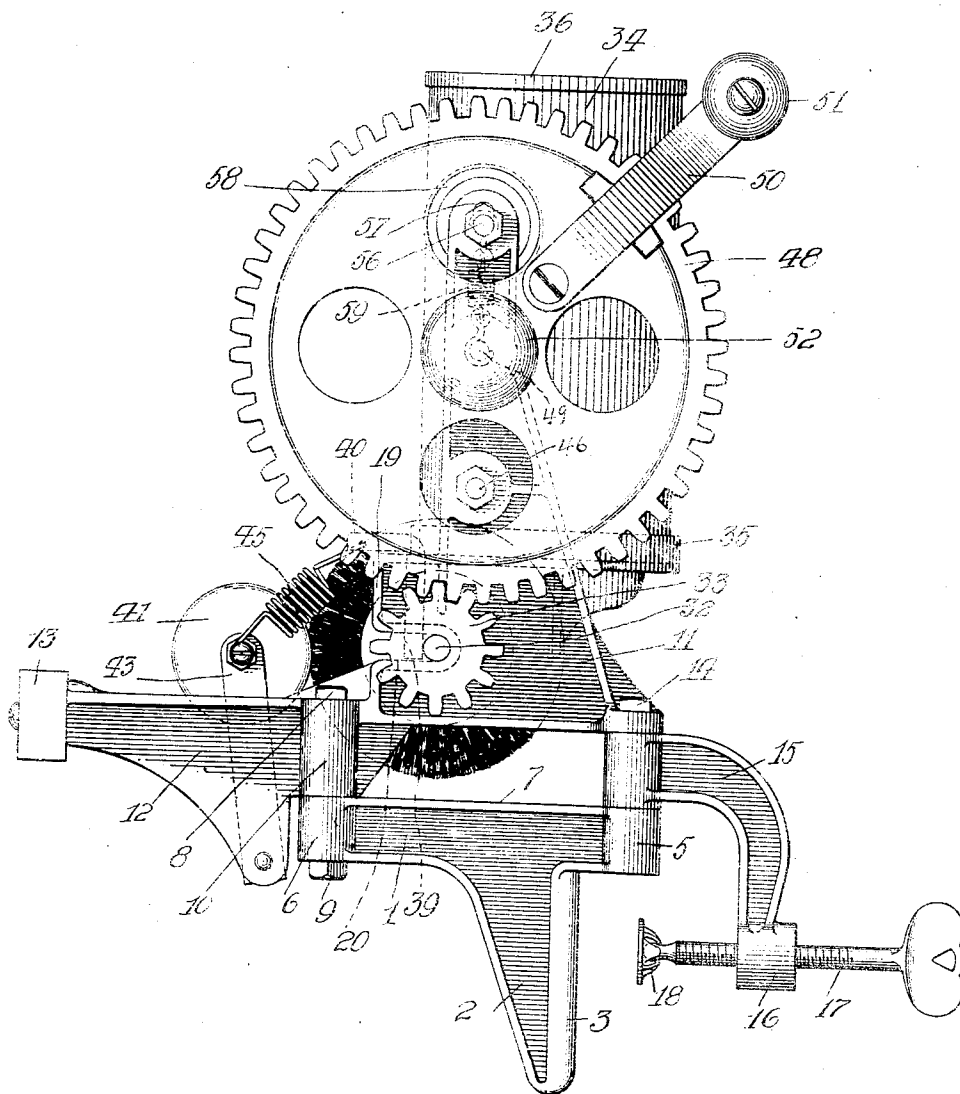
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4 SHEETS—SHEET 2.

Fig. 2.



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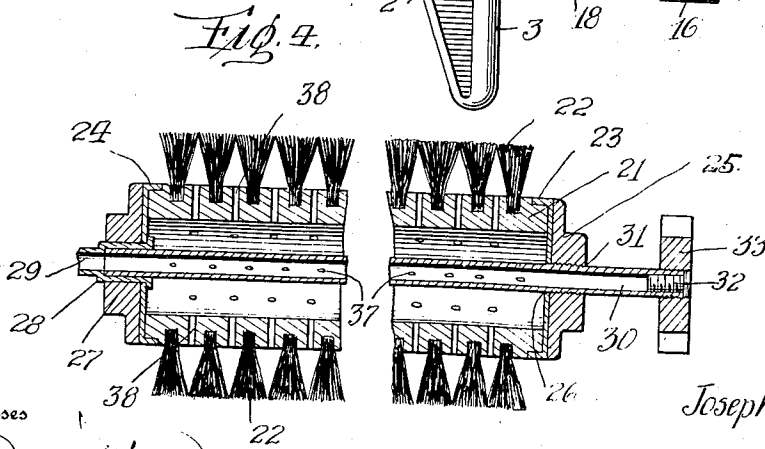
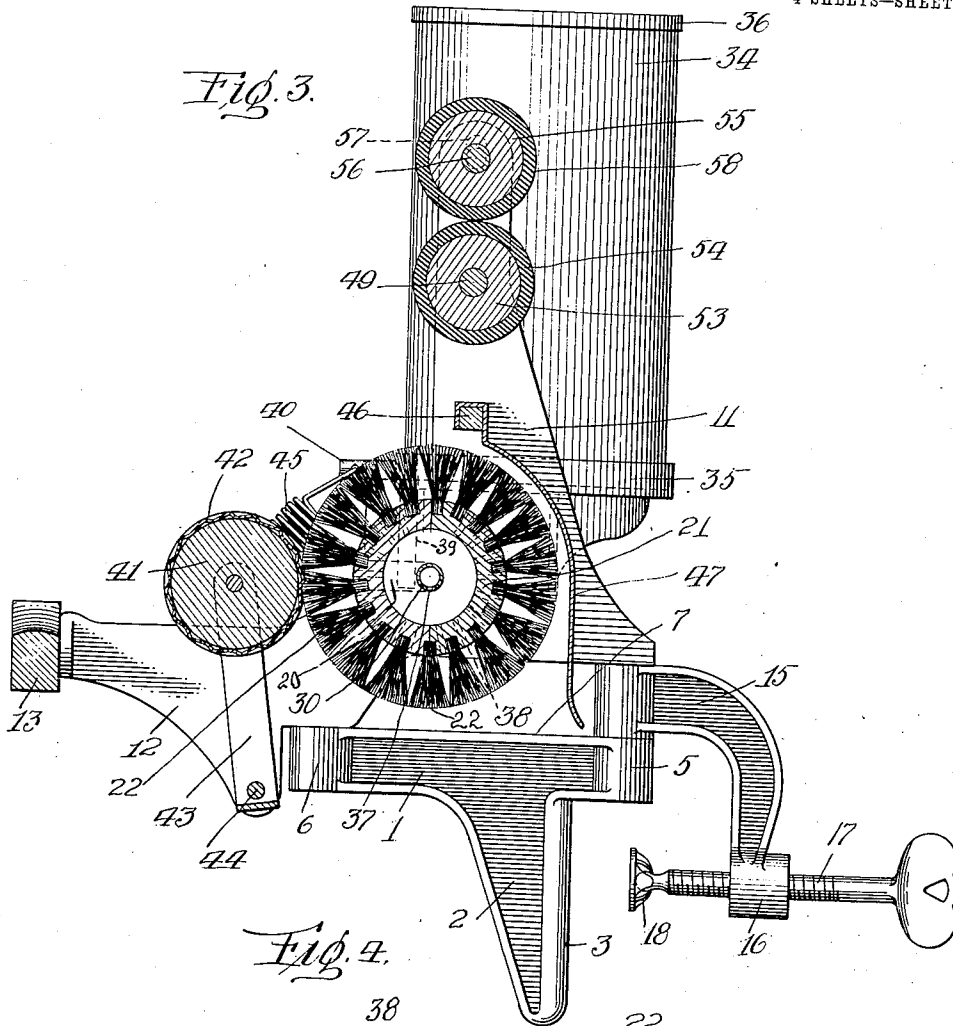
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4 SHEETS—SHEET 3.



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4 SHEETS—SHEET 4.

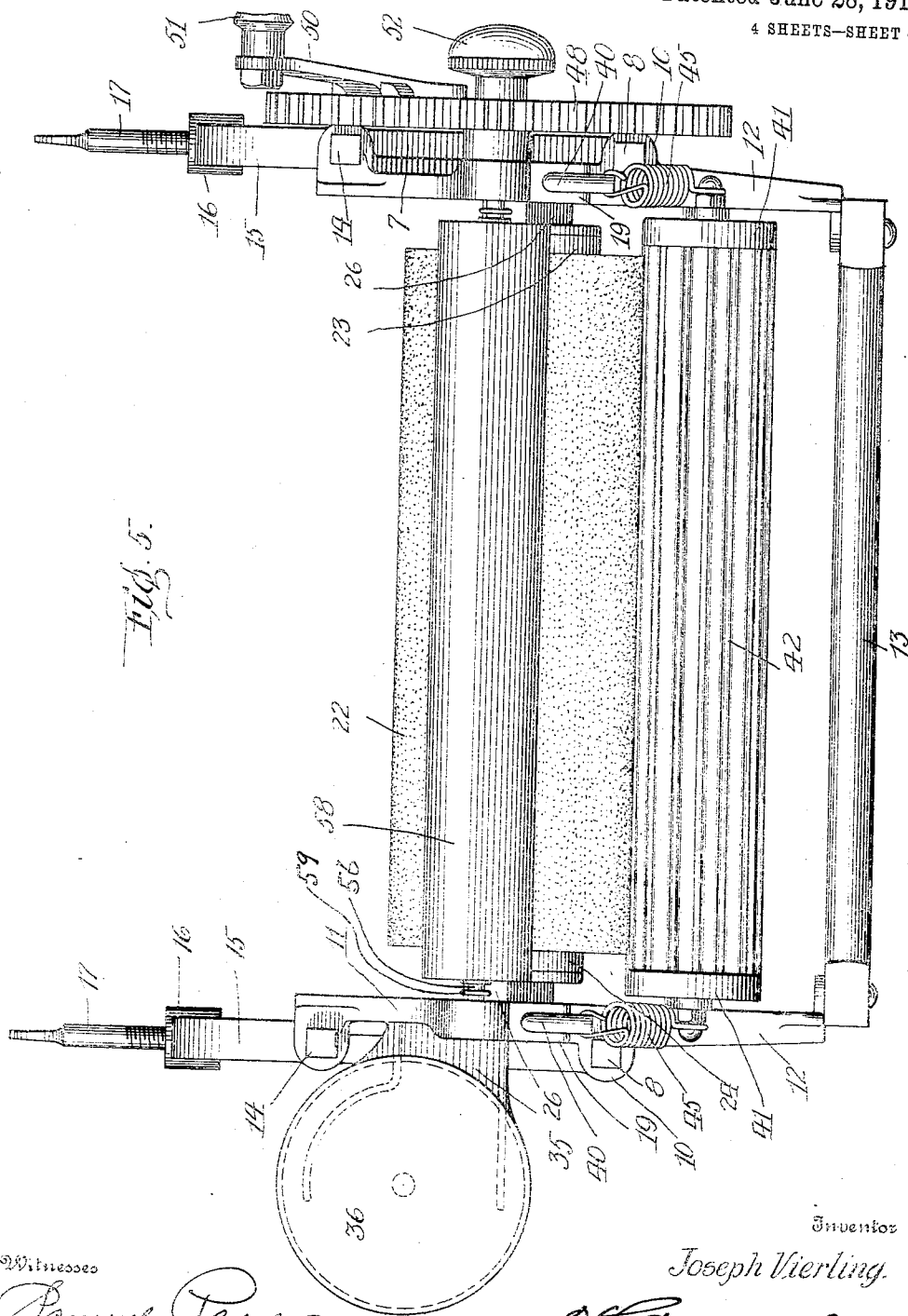


Fig. 5.

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UNITED STATES PATENT OFFICE.

JOSEPH VIERLING, OF PITTSBURG, PENNSYLVANIA.

WASHING-MACHINE.

962,803.

Specification of Letters Patent. Patented June 28, 1910.

Application filed July 15, 1909. Serial No. 507,741.

To all whom it may concern:

Be it known that I, JOSEPH VIERLING, a citizen of the United States of America, residing at Pittsburg, in the county of Allegheny and State of Pennsylvania, have invented certain new and useful Improvements in Washing-Machines, of which the following is a specification, reference being had therein to the accompanying drawing.

10 This invention relates to washing machines and more particularly to machines of the class which are adapted to be detachably-connected to the side of a tub or receptacle.

15 The paramount objects of my invention are to provide a washing machine that can be easily and quickly operated for removing filth and foreign matter from clothes without injuring the clothes or removing the buttons or similar attachments; to afford means for automatically feeding a detergent substance to the clothes passed through the machine, and to furnish means for securing the machine to tubs or receptacles having
20 rims or upper edges of various contours.

Other objects of my invention are to provide a simple mechanism for accomplishing the desired results; to so design and construct the parts of the machine as to give the requisite strength and rigidity without unusual increase in the weight and dimension, and to supply movable parts having the desirable quality or durability and so related as to be readily assembled and repaired.
25

Further objects of my invention are, to provide a mechanism by which the affriction of two bodies can be easily accomplished for cleansing a cloth or piece of fabric placed
30 between the bodies, one of said bodies being maintained in yieldable relation to the other body conducive to a positive and uninterrupted operation of the machine without injuring the cloth or fabric.

35 I accomplish the above and other important objects by the mechanical construction illustrated in the accompanying drawings, which form a part of this specification, and in which—

50 Figure 1 is a perspective view of a washing machine in position upon a tub for operation, Fig. 2 is a side elevation of the

machine, Fig. 3 is a vertical sectional view of the same, Fig. 4 is a longitudinal sectional view of a detachable rotary brush, 55 partly broken away, and Fig. 5 is a plan of the machine.

In the drawings, 1 denotes two brackets having depending tub engaging arms 2 provided with rounded surfaces 3 for engaging 60 the inner sides of a tub 4. The ends of the brackets 1 are provided with cylindrical vertically disposed sockets 5 and 6, said sockets upon the outer sides of the brackets 1 being connected by strength reinforcing
65 ribs 7.

Connected to the sockets 6 of the brackets 1 by bolts 8 and nuts 9, are the vertical sockets 10 of a housing for the rotary brush and roll of the washing machine. The housing 70 comprises two side frames 11 having forward extensions 12 at the lower ends thereof which are connected by a transverse clothes supporting bar 13. The frames 11 are connected by bolts 14 to the sockets 5 75 of the brackets 1, and pivotally mounted upon the bolts 14 between the frames 11 and the sockets 5 are depending clamping arms 15 having the lower ends thereof provided with outwardly screw threaded bearings 16 80 for screws 17, said screws having swiveled clamping heads 18 adapted to cooperate with the depending arms 2 of the brackets 1 in gripping the upper edges of the tub 4 and supporting the washing machine at one side 85 thereof.

The material for the brackets 1, housings 11 and clamping arms 15, may be of any suitable metal. I prefer, however, to use a non-corrodible metal and to reinforce the 90 same with strengthening ribs or webs wherever possible, to insure rigidity in the machine whether attached or detached, relative to a suitable support.

In pivotally mounting the arms 15 where- 95 by the same can swing in a horizontal plane, it is possible to grip the side of the tub or similar receptacle irrespective of the curvature of the same, consequently the washing machine can be used in connection with various kinds of receptacles. 100

The frames 11 have the inward edges thereof offset, as at 19, and provided with horizontal slots 20, open at the forward

edges of the frames 11. Detachably and revolvably supported in the slots 20 of the frames is a rotary scrubbing or agitating brush, constituting one of the important elements of the invention. This brush comprises a tubular body 21 preferably made of wood, said body having longitudinal rows of bristles 22 with the rows radial relative to the longitudinal axis of the body 21, the bristles being closely arranged whereby the entire periphery or exposed surfaces of the body 21 will be of bristles. The ends of the body 21 are provided with metallic caps 23 and 24, the former being secured to a nut 25 and provided with a central opening 26 registering with the opening of the nut. The cap 24 is secured to a head 27, said head and cap having central openings for the enlarged end 28 of a detergent supply pipe 29. Extending through the nut 25 and cap 23 into the enlarged end 28 of the pipe 29 is a tubular shaft 30 which is exteriorly screw threaded, as at 31, to receive the nut 25. The outer end of the tubular shaft 30, is plugged as at 32 and provided with a gear wheel 33. The body 21 is adapted to revolve with the shaft 30 and the head 27 is adapted to rotate upon the enlarged end 28 of the pipe 29, while the inner end of the tubular shaft 30 revolves in the enlarged end 28 of the pipe 29.

The pipe 29 is adapted to rest in the slot 20 at the left hand end of the washing machine and communicates with a vertical reservoir 34 supported by a bracket 35, carried by the frame 11, at the left hand end of the machine. The reservoir 34 is provided with a detachable cover 36 and is adapted to be filled with a detergent material, as liquid soap, gasoline, etc., which is adapted to flow through the pipe 29 into the tubular shaft 30. This tubular shaft, within the body 21 of the brush is provided with openings or perforations 37 admitting the detergent material to the body 21, and from this body, the material is projected by centrifugal force through radially disposed openings 38 provided therefor in the brush. The openings 38 are arranged at intervals of the bristles 22, whereby the detergent material will be evenly fed to the bristles and held in suspension by said bristles until the rotary brush contacts with the garments to be cleansed. The other end of the tubular shaft 30 is adapted to revolve in the slot 20 at the right hand end of the machine, and to retain said shaft, and the pipe 29, in their respective slots, pins 39 are detachably mounted in the offset portions 19 of the frames 11. These pins extend into the slots 20, and serve a double purpose for which the upper ends of the pins are bent forwardly, as at 40, the purpose to hereinafter appear.

Coöperating with the rotary brush is a revoluble body in the form of a roll 41,

said roll having an absterging action in connection with the rotary brush. This roll is preferably made of wood and has the periphery thereof covered with corrugated or ribbed zinc 42, similar to the metallic covering of an ordinary wash board. The roll 41 is revolvably supported in a yoke 43 pivotally mounted upon a tie rod 44 connecting the lower ends of the extension 12. The upper ends of the yoke 43 are connected by coil springs 45 to the forwardly bent ends 40 of the pins 39, said springs serving functionally as a tension device for normally holding the periphery of the roll 41 in engagement with the bristles 22 forming the periphery of the revoluble brush.

The frames 11 above the rotary brush are connected by a transverse shield supporting bar 46, this bar supporting a curved depending shield 47 which extends downwardly between the frames 11 at the rear side of the rotary brush and prevents water or other matter being projected from the brush upon the operator or objects in the vicinity of the machine when the machine is in operation.

Meshing with the small gear wheel 33 is a large gear wheel 48 loosely mounted upon the projecting end of a shaft 49 journaled in the frames 11. The large gear wheel 48 is provided with a crank 50 having a suitable handle 51, and in order that this gear wheel can be fixed to revolve with the shaft 49, the end of the shaft is provided with a jam nut 52 or a convenient form of clutch, which will frictionally hold or lock the gear wheel 48 relative to the shaft 49. The shaft 49 constitutes the axis of the lower revoluble body or roll of a wringer forming part of the washing machine. Upon the shaft 49 is a roll 53 having a covering of rubber 54 or a similar resilient material. Coöperating with this roll is a superimposed roll 55 revolvably mounted upon a shaft 56 supported in vertically disposed slots 57 formed in the upper ends of the frames 11. The roll 55 is provided with a covering of rubber 58 and for maintaining the covering of this roll in frictional engagement with the covering of the roll 53, coil springs 59 are used. The lower ends of these springs are hooked or coiled around the shaft 49, while the upper ends of said springs are hooked or coiled around the shaft 56, thus allowing the roll 55 to recede to allow a thick piece of cloth or fabric to pass between the rolls of the wringer.

In order to prevent the contents of the reservoir or tank 34 from wasting through the tubular perforated body 21 of the rotary brush, the pipe 29 is provided with a conventional form of valve 29^a, which can be opened when the machine is to be used and closed at each cessation in the operation of the machine.

An important characteristic of my in-

vention is the revoluble roll 41 and more particularly the angle of the yoke 43 relative to the rotary brush. It will be observed that the yoke 43 is normally retained at an acute angle with relation to the vertical plane between the roll 41 and the rotary brush, and this particular angle is essential in order that clothes or garments can be fed between the roll and brush without binding or causing material retardation in the rotation of the brush and the roll contacting with said brush. If the roll 43 is located at a more acute angle, clothes or garments would bind between the roll 41 and the brush to the extent that the brush would revolve independently of the roll 41, and if the yoke 43 was disposed at an obtuse angle, the weight of the clothes or garments upon the roll 41 would have a tendency to move the roll out of engagement with the rotary brush and in a short while impairing the usefulness of the springs 45 employed for yieldably holding the roll against the rotary brush. It is in this connection, that the supporting bar 13 relieves the roll 41 from supporting the entire weight of the cloth or garment started between the roll 41 and the rotary brush, and it would be almost impossible to dispense with this supporting bar, particularly if the yoke 41 was disposed at any other angle than that shown.

While I have shown my invention embodied in what I now consider to be its preferred form; it is evident from the foregoing explanation that numerous variations in detail may be made without departing from the spirit of my invention, the essence of which consists in providing a detergent feeding, scrubbing and agitating rotary brush and a yieldable roll for maintaining matter to be cleansed in engagement with said brush. With this understanding of the fundamental characteristics of my invention, numerous means may be devised for carrying it out and for adapting it to various conditions and services; but the exact form, character, or position of the mechanism for rotating the brush and maintaining the yieldable roll in position to be rotated by the brush, does not matter, since other means than the gear wheel shown can be utilized for imparting a rotary movement to the brush. Neither is it material as to the position of the reservoir or tank 34 relative to the rotary brush, since the reservoir can be located in a suitable elevated position and connected to the brush by a detachable flexible tube, thus relieving the machine of weight.

Having now described my invention what I claim as new, is:—

1. A clothes washing machine comprising a housing adapted to be supported upon a receptacle, a hollow perforated rotatable scrubbing agitating and detergent-feeding

brush supported in said housing, a yieldable roll maintained in engagement with said brush and adapted to be rotated thereby, a detergent reservoir supported by said housing at one side thereof, means communicating with the reservoir and with the interior of the brush for supplying a detergent to the latter, and means carried by the housing for securing it to the receptacle.

2. A clothes washing machine comprising a housing embodying a pair of side frames, a hollow perforated scrubbing and agitating brush revolubly-mounted in said frames, a spring-controlled yoke pivotally-mounted between said frames, a revoluble body journaled in and maintained in engagement with said brush by said yoke, said body rotated by said brush, a detergent reservoir supported by one of said frames, means for feeding a detergent from the reservoir to the interior of said brush, and a bar carried by said frames forwardly of said body for supporting the garments operated upon by the body and brush.

3. A washing machine comprising a housing, a rotary scrubbing and agitating brush supported by said housing, a yieldable corrugated roll maintained in engagement with said brush and adapted to be rotated thereby, a detergent reservoir supported by said housing, means for supplying a detergent from the reservoir to the interior of said brush, means for revolving said brush, and a bar carried by the housing forwardly of said corrugated roll for supporting garments operated upon by said brush and roll.

4. A clothes washing machine comprising a housing adapted to be supported upon a receptacle and provided with extensions projecting over said receptacle, a rotatable hollow perforated scrubbing and agitating brush journaled in said housing, a yoke pivoted to and arranged between said extensions, a corrugated roll pivoted in said yoke and arranged forwardly of said brush, springs connected to the body of the housing and to said yoke for maintaining the roll in engagement with the brush whereby the former is rotated by the latter, means for supplying a detergent to the interior of said brush, means for revolving the brush, and means carried by the body of the housing for securing it to the receptacle.

5. A clothes washing machine comprising a housing adapted to be supported upon a receptacle and provided with extensions projecting over said receptacle, a rotatable hollow perforated scrubbing and agitating brush journaled in said housing, a yoke pivoted to and arranged between said extensions, a corrugated roll pivoted in said yoke and arranged forwardly of said brush, springs connected to the body of the housing and to said yoke for maintaining the roll in engagement with the brush whereby the former

is rotated by the latter, means for supply-
ing a detergent to the interior of said brush;
means for revolving the brush, means car-
ried by the body of the housing for securing
5 it to the receptacle, and a bar carried by
said extensions for supporting garments op-
erated upon by said roll and brush.

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

JOSEPH VIERLING.

Witnesses:

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