P. WERNER.

WASHING MACHINE.

APPLICATION FILED JUNE 9, 1911.

1,027,227.

Patented May 21, 1912.

2 SHEETS—SHEET 1.

Fig. 1.

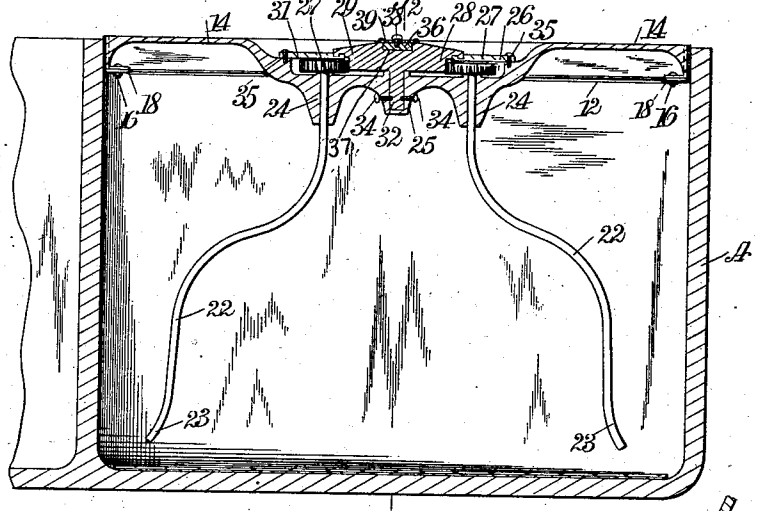


Fig. 2.

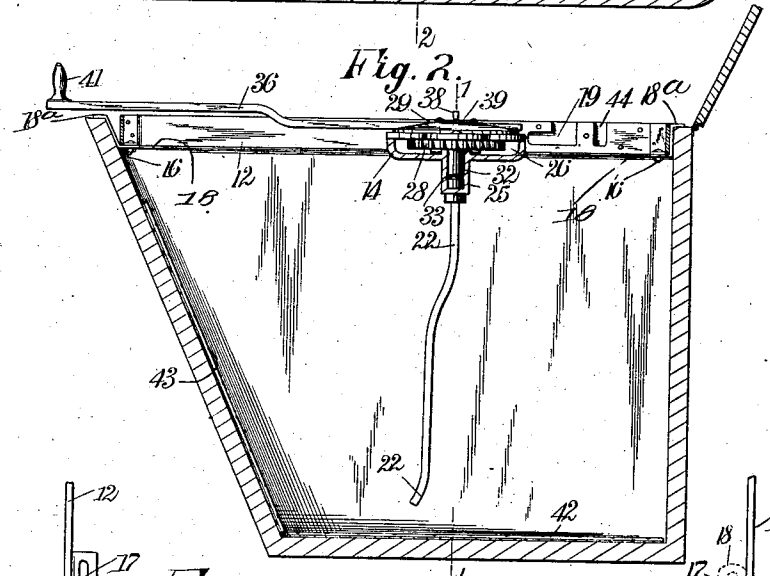
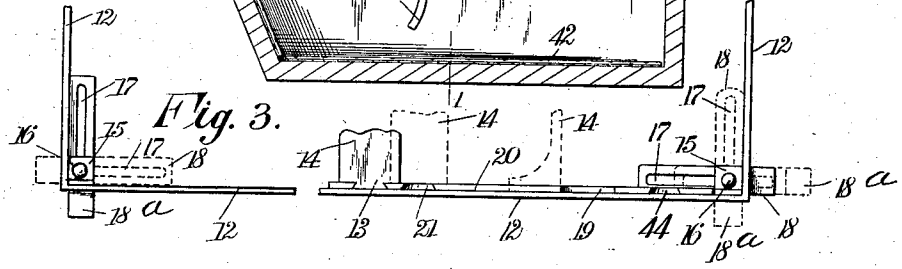


Fig. 3.



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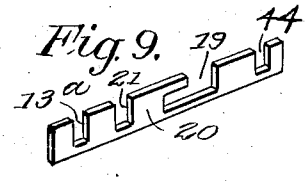
Howard E. Thompson

C. S. Murdock

Fig. 9.



INVENTOR

Paul Werner

BY Munn & Co

ATTORNEYS

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2 SHEETS—SHEET 2.

Fig. 4.

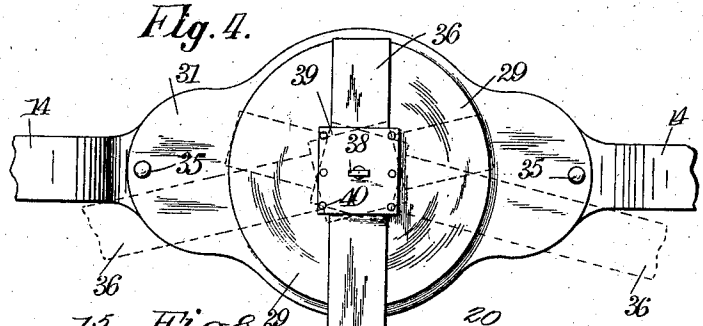


Fig. 8.

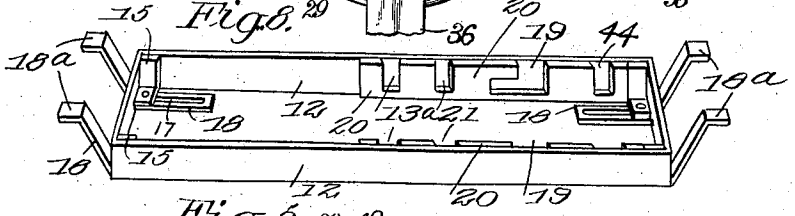


Fig. 5.

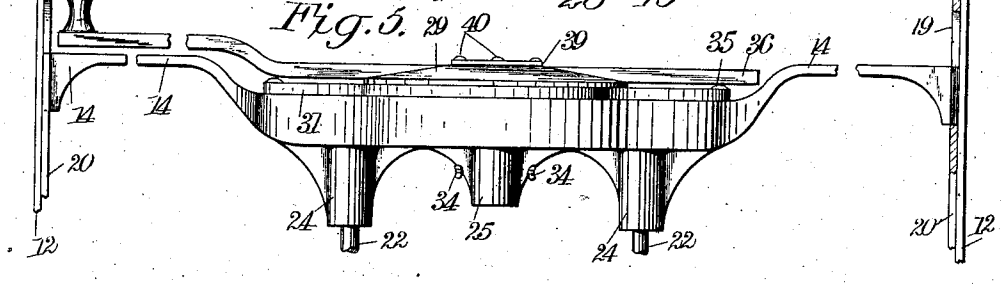


Fig. 6.

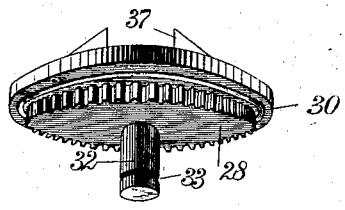
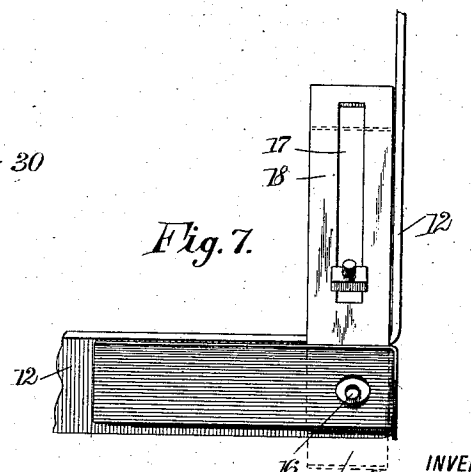


Fig. 7.



WITNESSES

Howard E. Thompson

C. F. Murdock

INVENTOR

Paul Werner

BY Munn & Co

ATTORNEYS

UNITED STATES PATENT OFFICE.

PAUL WERNER, OF NEW YORK, N. Y., ASSIGNOR OF ONE-HALF TO EMIL SPINDLER, OF NEW YORK, N. Y.

WASHING-MACHINE.

1,027,227. Specification of Letters Patent. Patented May 21, 1912.

Application filed June 9, 1911. Serial No. 632,144.

To all whom it may concern:

Be it known that I, PAUL WERNER, a citizen of the United States, and a resident of the city of New York, borough of the Bronx, in the county and State of New York, have invented a new and Improved Washing-Machine, of which the following is a full, clear, and exact description.

Among the principal objects which the present invention has in view are: to provide a mechanism adapted to perform the function of a washing machine constructed and arranged for packing within the smallest compass; to provide a machine of the character indicated which may be removably attached to the ordinary wash tubs; to provide a mechanism of the character indicated which may be readily disposed within the tub provided for its operation, the disposition whereof permits the employment of the tub for purposes other than that for which the mechanism is provided; and, generally, to produce a machine adapted to supplement the hand labor employed in the domestic wash.

One embodiment of the present invention is disclosed in the structure illustrated in the accompanying drawings, in which like characters of reference denote corresponding parts in all the views, and in which—

Figure 1 is a vertical longitudinal section of a washing machine constructed and arranged in accordance with the present invention, the section being taken on the line 1—1 in Fig. 2; Fig. 2 is a vertical cross section taken on the line 2—2 in Fig. 1; Fig. 3 is a detail view, on an enlarged scale, of a side fragment of the supporting frame and mounting bar for the machine the dotted lines in this figure showing the various extended positions of the fitting braces for mounting the frame in an ordinary wash tub; Fig. 4 is a detail view, on an enlarged scale, of the center fragment of the supporting bar and operating lever for the machine; Fig. 5 is a side view of the construction shown in Fig. 4, showing in conjunction therewith fragments of the supporting frame in packed position; Fig. 6 is a detail view in perspective of the driving wheel and lever locking disk therefor; Fig. 7 is a detail view, on an enlarged scale, showing the fitting braces of the supporting frame as disposed in folded position, the dotted lines showing an extended position; Fig. 8 is a perspective view of the supporting frame for the present machine; and Fig. 9 is a detail view in perspective of the added strap or bar wherein are formed the sockets and slots for the frame.

As distinguished from other washing machines the present machine is adapted for adjustment to the ordinary wash tubs of the variety known as the kitchen wash tub. These are usually constructed from some form of stone or cement, and are shaped substantially as disclosed in Figs. 1 and 2 of the drawings. The machine considered as a mechanism is suspended from a cross bar 14, to support which the attaching frame 12 is provided with sockets to receive the dovetail extension 13 of the bar 14. The frame 12 is constructed from strap or flat bar metal bent and secured in a rectangular shape. Preferably the frame is shaped to defined measurements and when in operative position is mounted on the edge of the above mentioned tubs. The side bars forming the frame are furnished with corner angles 15, as seen best in Figs. 3 and 5 of the drawings. Extended through the angles 15 are clamping bolts 16, these being constructed in any suitable manner or shape. The shank of the bolt 16 is extended through a slot 17 provided in the extension plate 18. With a frame thus constructed it will be seen that by manipulating the plates 18 and setting the bolts 16 the frame 12 may be accommodated to various sizes of tubs A. The plates 18 are provided with hoop end extensions 18^a, these being raised to the upper edge of the frame 12, or if need be are lifted above the upper edge of the said frame.

As stated, the frame is provided with sockets 13^a to receive the dovetail extensions of the bar 14. The frame is also provided with a bayonet slot 19 adapted to receive the said extension and to hold the bar 14 edgewise vertically. In this arrangement of the bar 14 and parts connected therewith the machine, inclusive of the frame 12, may be packed within the smallest compass, as hereinafter set forth.

It is preferred to construct the frame 12 having the added strap or bar 20, wherein are conveniently and cheaply formed the sockets and slots for the seating of the extensions 13. It will be understood that while I have mentioned the bayonet slots 19 and the sockets for holding the extensions 13 in the position shown in full lines

in Fig. 3 of the drawings, I may add a second or third set of sockets 21 to receive the extensions 13, thereby augmenting the adjusted positions of the machine within the compass of the tub A.

The mechanism by means of which the clothes are washed embodies a plurality, usually confined to two, of curved beaters 22. The lower ends 23 of the beaters 22 are curved forward in the path of the said beaters, as seen best in Fig. 2 of the drawings. The immediate result of such a formation of the ends 23 is that they serve to slightly uplift the articles of clothing with which they are directly engaged from articles taking the lower position, and thereby, in the operation of the machine, gradually move the various articles vertically within the tub A.

The upper extensions of the beaters 22 are straight to form bearings in the bosses 24 which are set out from and formed upon the central portion of the bar 14. Preferably the bar 14 and bosses 24, 24 and 25 are cast as a single element. The casing thus formed is also shaped to provide pockets 26 wherein are seated gear wheels for producing the rotary action of the beaters 22.

Fixedly connected with each of the beaters 22, and at the upper terminal thereof, are the gear wheels 27, 27. The gear wheels 27 are disposed in meshed engagement with the enlarged gear wheel 28. The gear wheel 28 is cast, as shown in the drawings, to provide a hooded top 29. The top 29 is furnished with a pendant peripheral flange 30, as seen best in Figs. 1 and 6 of the drawings, said flange being seated in a slot formed in the edge of the removable cover 31 to provide a means to avoid the exuding of oil from the pocket 26.

The hooded gear wheel 28 is pivotally mounted in the boss 25, and disposed in the pocket 26, as shown best in Fig. 1 of the drawings. To form a bearing for the said gear wheel it is provided with a central spindle 32 which is seated in bearings formed in the boss 25. To hold the spindle in the bore provided in the boss 25 there is formed in the lower end of the said spindle a groove 33. When the gear wheel 28 is deposited in the pocket 26 the spindle 32 is seated in the bore formed in the boss 25 in such manner that the groove 33 is disposed opposite the threaded perforations provided for the set screws 34. When the set screws 34 are set up to extend the coned ends usually provided in such screws into the groove 33, the gear wheel 28 is locked in operative position.

It is before the gear wheel 28 is locked into position that the cover 31 is placed over the pocket 26 and there secured by the pins or bolts 35. When the gear wheel 28 is adjusted in position the flange 30 formed thereon extends into a registering groove formed in the said cover and is guided thereby in the subsequent operation wherein the gear wheel is rocked on the bearing formed by the spindle 32.

As the gear wheel 28 is rotated the gear wheels 27 and the beaters 22 connected therewith are each rotated in unison therewith, but at a higher rate of speed. Thus, a relatively small arc of movement on the part of the gear wheel 28 produces a large arc of movement on the part of the beaters 22. In practice it is designed that the wheels 27 and the beaters 22 connected therewith will make a little less than one half of a complete revolution.

It is to rock the gear wheel 28 that I provide the lever 36. The lever 36 is slidably held in the groove 37 formed in the top 29 of the structure forming the gear wheel 28. The lever is held in adjusted position in the groove 37 by means of a set screw 38 formed in the cap 39. The cap 39 is held in position by means of fastening screws 40. When it is desired to move the lever 36 the screw 38 is retracted and the lever drawn from the groove 37 formed in the cap 39.

The operation of a machine when thus constructed and arranged is as follows: The frame 12 is first adjusted to the tub A, the hook plates 18 being set up to hold the frame steady within the said tub. The supporting bar 14 is next adjusted on the frame 12, the dovetail extensions 13 of the said bar being inserted in the sockets provided therefor. The lever 36 is next adjusted to the gear wheel 28 by insertion within the groove 37, to be therein held by the set screw 38. The necessary water having been introduced in the tub A the clothes are then placed in the said tub and the machine is found in position to be operated. The washing operation of the machine is performed by the operator grasping the handhold 41 of the lever 36, moving the lever thereby over the prescribed arc desired. Should the leverage be insufficient the lever is extended to the full limit thereof by releasing the set screw 38 and drawing the said lever farther out of the groove 37. If, however, the extension of the lever 36 be too great, compelling thereby an extended movement of the hand of the operator, this is obviated by retracting the lever 36 within the groove 37, where it is again locked by the manipulation of the screw 38. The rocking imparted to the gear wheel 28 is transmitted through the gear wheels 27 to the beaters 22, and the clothes contained in the tub A are forced to move in the rotary path of the said beaters in the manner as above set forth. When in due course of operation the clothes have been sufficiently washed, in the opinion of the operator, the bar 14 is lifted from the socket in which it

has been placed and the said bar is disposed in the slot 44. The clothes are then removed and others placed in the water, the beaters 22 and bar 14 being removed from the position to interfere with the handling of the clothes. The bar 14 is then shifted to the original position and the washing operation as above described is repeated. Should the operator desire to transfer the machine as set up to an adjacent or some other tub having the rinsing or bluing water, this may be accomplished by lifting it bodily from the one tub and adjusting in holding position upon the tub to which it is removed by a manipulation of the bolts 16. The washing having been accomplished, and it being desired to pack the washing within the smallest compass, this is accomplished by placing the bar 14 in its vertical edgewise position within the bayonet slot 19, the beaters 22 being extended parallel with the sides of the frame 12, and the lever 36 shifted inward as seen in Fig. 5, until the said lever rests between the sides of the frame. It will thus be seen that the machine may be stored within small limits.

As shown in the drawings I provide a removable bottom mat 42. This mat is preferably constructed from perforated corrugated metal and forms a dragging surface for the clothes as the same are washed in the tub A. As seen best in Fig. 2 of the drawings a side mat 43 is hingedly connected to the bottom mat 42. It will be understood that while I prefer the use of these mats they are not essential to the operation of the machine. It will also be understood that while I have herein shown the hinged side and bottom mats, either can be dispensed with without altering the operation of the present machine.

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

1. A washing machine, having a supporting frame; means mounted on said frame for adjusting same to wash tubs of various dimensions; a cross bar extended between the sides of said frame; a plurality of rotary beaters vertically mounted in said cross bar; an operating lever for rotating said beaters; and a transmission mechanism connecting said beaters to move the same in a similar rotary direction.

2. A washing machine, having a supporting frame adapted to adjustably engage wash tubs of various dimensions, in combination with a cross bar to removably engage said frame, said bar having formed therein bearings extended perpendicular to said bar; a plurality of bent rod beaters mounted in said bearings and having lateral extensions, the ends of said beaters being forwardly curved to form members to lift the clothes; an operating lever pivotally mounted on said cross bar intermediate the said beaters; a gear wheel mounted on said lever concentric with the bearing thereof; and a plurality of gear wheels each mounted fixedly on one of said beaters the teeth whereof are meshed with the gear wheel on said lever.

3. In a washing machine having a cross bar for supporting the same, a frame having formed in the sides thereof a plurality of sockets adapted to hold the ends of said cross bar to support the same, one of said sockets having a horizontal extension to hold the said cross bar in position perpendicular to the normal operating position.

4. In a washing machine, in combination with a plurality of bent rod beaters each having a vertical bearing extension and a gear wheel fixedly attached at the upper end thereof, a supporting cross bar having formed therein bearings for said beaters and a pocket to receive said gear wheels; a cover for said gear wheels removably secured to said cross bar and having a central opening therein; an intermediate gear wheel rotatably mounted in said cross bar and meshed with the first mentioned gear wheels, said intermediate gear wheel having a flange to extend over the edge of the central opening in said cover; means for securing said intermediate gear wheel in position; and an operating lever mounted upon said intermediate gear wheel.

5. In a washing machine, in combination with a plurality of bent rod beaters each having a vertical bearing extension and a gear wheel fixedly attached at the upper end thereof, a supporting cross bar having formed therein bearings for said beaters and a pocket to receive said gear wheels; a cover for said gear wheels removably secured to said cross bar and having a central opening therein; an intermediate gear wheel rotatively mounted in said cross bar and meshed with the first mentioned gear wheels, said intermediate gear wheel having a flange to extend over the edge of the central opening in said cover; means for securing said intermediate gear wheel in position; an operating lever slidably mounted in said intermediate gear wheel; and means for adjustably securing said lever in said gear wheel.

In testimony whereof I have signed my name to this specification in the presence of two subscribing witnesses.

PAUL WERNER.

Witnesses:
E. F. MURDOCK,
P. D. ROLLHAUS.