May 8, 1923. 1,454,384

G. E. HAWK

WASHING MACHINE

Filed April 26, 1919 3 Sheets-Sheet 1

Fig. 1.

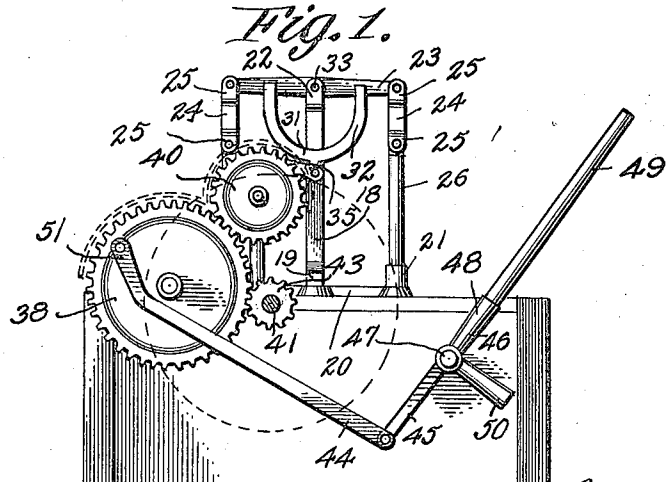
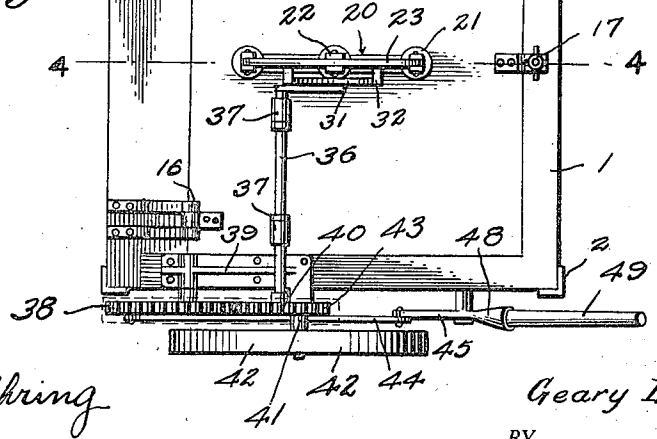


Fig. 2.



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Fig. 3.

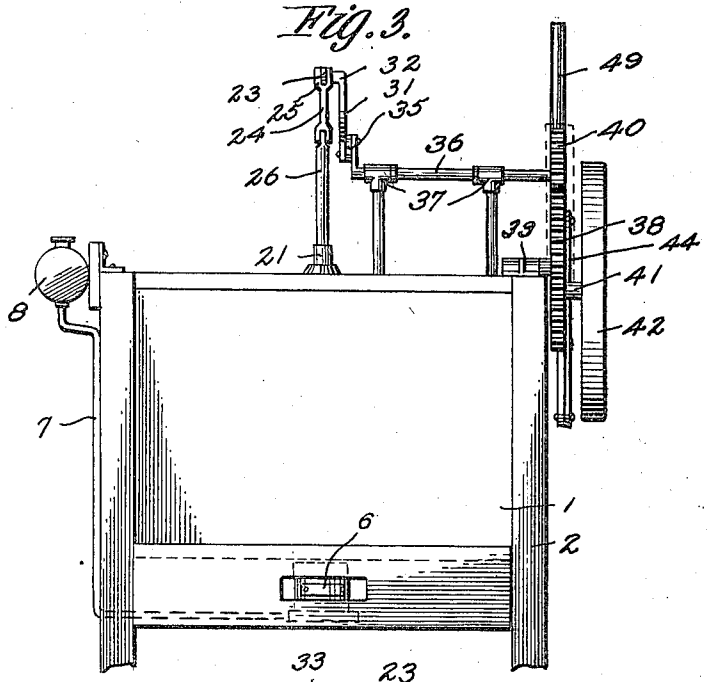
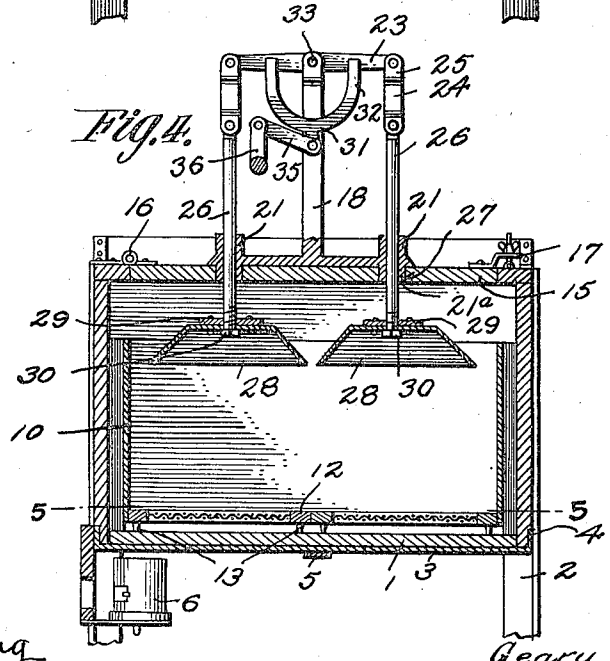


Fig. 4.



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Fig. 5.

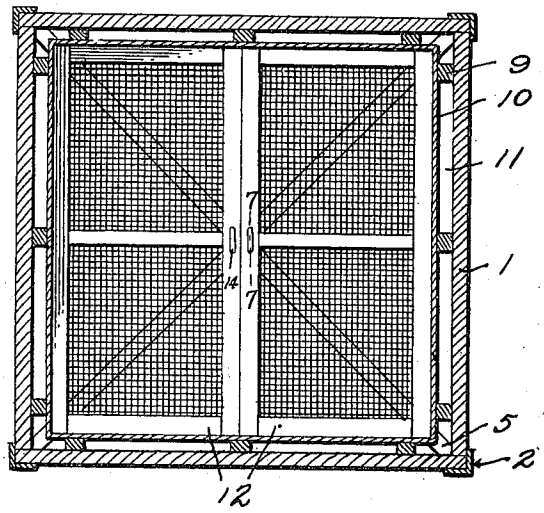


Fig. 6.

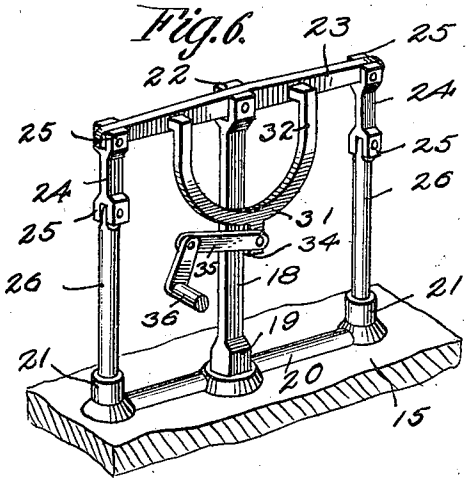


Fig. 7.

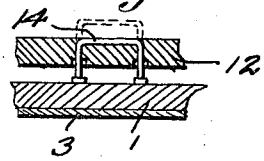
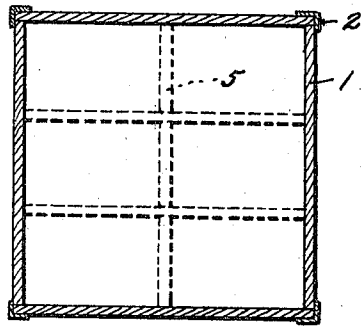


Fig. 8.



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UNITED STATES PATENT OFFICE.

GEARY E. HAWK, OF CAMDEN, NEW JERSEY.

WASHING MACHINE.

Application filed April 26, 1919. Serial No. 292,824.

To all whom it may concern:

Be it known that I, GEARY E. HAWK, a citizen of the United States, residing at Camden, in the county of Camden and State of New Jersey, have invented certain new and useful Improvements in Washing Machines, of which the following is a specification.

This invention relates to washing machines and has for its object the production of a simple and efficient means for actuating the reciprocating plunger whereby a complete circulation of water may be maintained within the receptacle of the washing machine.

Another object of this invention is the production of a simple and efficient removable bottom for the washing machine receptacle which is so supported within the receptacle as to permit the liquid within the receptacle to be forced through the bottom and up through the sides of the receptacle between suitable inner walls mounted in the receptacle and the outer walls of the receptacle.

With these and other objects in view, this invention consists of certain novel constructions, combinations and arrangements of parts as will be hereinafter fully described and claimed.

In the drawings:—

Figure 1 is a side elevation of the washing machine;

Figure 2 is a top plan view thereof;

Figure 3 is an end view of the machine;

Figure 4 is a section taken on line 4—4 of Figure 2;

Figure 5 is a section taken on line 5—5 of Figure 4;

Figure 6 is a detail perspective view of the operating lever mechanism for the reciprocating plunger shown mounted upon a portion of the supporting top:

Figure 7 is an enlarged sectional view taken on line 7—7 of Figure 5, and

Figure 8 is a view of the bottom of the machine showing reinforcing straps passing across the bottom of the machine which may be employed for the purpose of preventing the sagging of the metallic sheets extending across the bottom of the machine.

By referring to the drawings, it will be seen that 1 designates the body of the machine which is supported upon the usual supporting legs 2. These legs 2 are preferably of the angle iron construction so as to fit snugly around the corners of the body of the machine as shown clearly in Fig. 8 of the drawings. A metallic protector sheet 3 is secured to the bottom of the body 1 of the machine and is provided with upturned edges 4. Suitable straps 5 may be extended across under the sheet 3 in any suitable formation for the purpose of reinforcing the sheet and preventing the same sagging when subjected to the changes of temperature.

Suitable heating means such as a burner 6 may be supported under the bottom of the machine in any suitable or desired manner for the purpose of heating the interior of the machine and maintaining the liquid within the body of the machine at a uniform temperature. Of course, it should be understood that any suitable or desired heating means may be employed and it is not desired to limit the special kind of heating means which might be used in connection with the present device. For the purpose of illustration, however, a usual oil burner 6 is employed which is supplied with fuel through a pipe 7 from a supply tank 8. As stated above, however, gas or electricity may be substituted, or in fact any other heating means may be employed without departing from the spirit of the invention.

The body 1 of the washing machine is provided with a plurality of vertically extending spacing cleats 9 secured to the inner face of the receptacle or body 1 as clearly shown in Fig. 5 and an inner lining or wall 10 is secured to the cleats 9 as indicated clearly in Fig. 5 to form a space or passageway between the lining or inner wall 10 and the outer wall of the receptacle 1. This inner wall or lining 10 terminates short of the top of the receptacle 1 as clearly shown in Fig. 4 to permit the water or liquid forced up through the passageway 11 to easily flow over the top of the wall or lining 10.

A removable bottom fits snugly in the lower end of the receptacle or body 1 between the inner walls 10 as shown in Fig. 5 and this removable bottom comprises a pair of sections 12, the sections 12 being provided with suitable supporting legs 13 as shown clearly in Fig. 4. In this way, the removable bottom 12 is supported above the bottom of the receptacle or body 1 as shown in Figure 4 to permit the liquid or water to easily pass under the bottom of the receptacle when the reciprocating plungers, hereinafter described are actuated. Suitable han-

dles 14 are carried by the sections of the removable bottom 12 and are so constructed as to normally lie snugly upon the upper face of the bottom 12, in this way preventing the handles from becoming accidentally entangled with the clothes or other articles placed within the washing machine. The handles 14 may be drawn to the position shown in Fig. 7 when so desired for the purpose of lifting the sections of the body 12 out of engagement with the machine when it is desired to clean the interior thereof. The handles are so placed upon the sections of the bottom as to be located near the adjoining edges thereof, in this way permitting the sections to be readily and conveniently lifted from the body of the receptacle without jamming the same. By grasping the handle 17 and lifting the same upwardly, the abutting edges of the respective sections of the body will be moved apart and in this way, the sections of the bottom 12 may be readily displaced from the body 1.

A suitable top 15 is placed upon the body 1 and is preferably hinged thereto by means of suitable hinges 16. Suitable fastening means indicated in general at 17 may be employed for holding the top or cover 15 in a closed position. A standard 18 is supported upon the cover 15 as indicated in Fig. 6, and this standard 18 is provided with an enlarged base 19, this enlarged base 19 being formed integral with the casting 20 extending laterally therefrom as shown in Fig. 6, this casting 20 carrying at each end thereof suitable bearing portions 21. The standard 18 is provided with an upper bifurcated end 22 within which bifurcated end 22 is pivotally mounted the beam 23. This beam 23 carries a link 24 at each end thereof, each link 24 comprising bifurcated ends 25, the lower bifurcated end 25 of each link engaging a reciprocating plunger 26 as shown clearly in Fig. 6. The plungers 26 extend through the bearings 21, and these bearings 21 are provided with depending collar portions 21^a, the collar portions 21^a fitting within the apertures 27 formed in the top or cover 15, the depending portions 21^a not only constituting means for guiding the plungers 26 in their operation, but also constituting an efficient means for anchoring the casting 20 upon the cover 15.

A substantially dish-shaped plunger 28 is carried by the lower end of each plunger 26, and the upper end of each plunger head 28 is substantially reinforced by means of a reinforcing 29. Nuts 30 are fitted upon the lower ends of the plungers 26 for retaining the plunger heads 28 in engagement with the plunger rods 26.

A substantially U-shaped connecting yoke 31 is secured to the beam 23, the respective arms 32 of the yoke 31 being integrally connected to the beam 23 upon opposite sides of the pivotal connection 33 as shown clearly in Figures 4 and 6 of the drawings. This yoke 31 is provided with a depending finger 34, which finger 34 is connected to a link 35, the link 35 being in turn connected to a crank 36. This crank 36 is supported upon suitable supporting standards 37 and journaled in such a manner as to continuously rotate thereon.

A gearing mechanism is supported in conjunction with the means above described for actuating the plungers 26, and this gearing mechanism comprises a primary drive gear 38 which is journaled upon a supporting bracket 39. This primary drive gear 38 meshes with a pinion 40 carried by the crank shaft 36 and a balance wheel supporting shaft 41 is also supported upon the bracket 39, this shaft 41 carrying a balance wheel 42, the shaft 41 also carrying a pinion 43 meshing with the primary drive gear 38 as clearly shown in Fig. 1 of the drawings. The primary drive gear 38 is engaged by means of an operating link 44, this operating link 44 being secured to the depending finger 45 and pivotally connected thereto, of the operating handle 46. This operating handle 46 is pivotally connected to the side of the washing machine upon a pivot pin 47. The handle 46 is provided with a shank portion 48 which is adapted to receive a suitable operating stick or handle 49 to be used in place of the short or stub handle 50, the handle 50 extending at right angles to the shank 48. The link 44, however, is provided with an offset or angularly extending end 51 to permit the link 44 to easily actuate the primary drive gear 38 without interfering with the shaft 41 which supports the balance wheel 42.

It should be understood that the gear or pinion 40 is so supported upon the top or cover 15 as to permit the same to readily travel over the periphery of the main or primary driving gear 38 when the cover 15 is swung to an open position. In this way, the gears will be prevented from jamming when the cover is swung to an open or closed position.

The operation of the device is as follows. As the handle 46 is actuated, for operating the link 44, the primary gears 38 will be rotated, thereby imparting rotary movement to the gear 40 for driving the crank shaft or crank 36. This operation in turn will rock the beam 23 through the medium of the yoke 31 and consequently the plunger rods 26 will be alternately reciprocated through their respective bearings 21. It is desired to cause the top 15 of the machine to fit snugly upon the body 1 and to maintain the body in as near an air-tight condition as is possible. As the plunger rods 26 are reciprocated, the water within the body of the receptacle will be forced through the articles of clothing

placed within the body of the receptacle for washing, the water or liquid then passing through the clothes, down through the wire mesh or otherwise preforated removable bottom 12 as shown in Fig. 4 and then up through the passageway 11 and overflow the upper end or top of the inner wall 10, in this way making a complete circulation of water for the purpose of thoroughly cleansing the clothes or other articles placed within the washing machine.

It of course should be understood that the invention illustrated above may be modified in its detail construction so long as the modification or changes fall within the scope of the appended claim without departing from the spirit of the invention.

It should be understood that no air is admitted into the machine through the plungers or escapes through the plungers of the washing machine while the plungers are in operation, so that the liquid in the body of the machine may be thoroughly forced through the holes.

What is claimed is:—

In a washing machine, a body, a cover hingedly secured at one edge to the body, clothes engaging members carried by the cover, a relatively large drive gear, a bearing for the gear carried by the body and disposed in alignment with the hinged edge of the cover, means for operating the gear, a drive shaft carried by the cover, means operatively connecting the drive shaft with the clothes engaging members, a relatively small pinion secured to the shaft and meshing with the relatively large drive gear forwardly of the vertical diametric center thereof and above the horizontal diametric center thereof, whereby upon opening movement of the cover, the pinion will rotate around said relatively large drive gear.

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

GEARY E. HAWK.

Witnesses:

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A. L. CHASE.