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C. C. DAVIS.

WASHING MACHINE.

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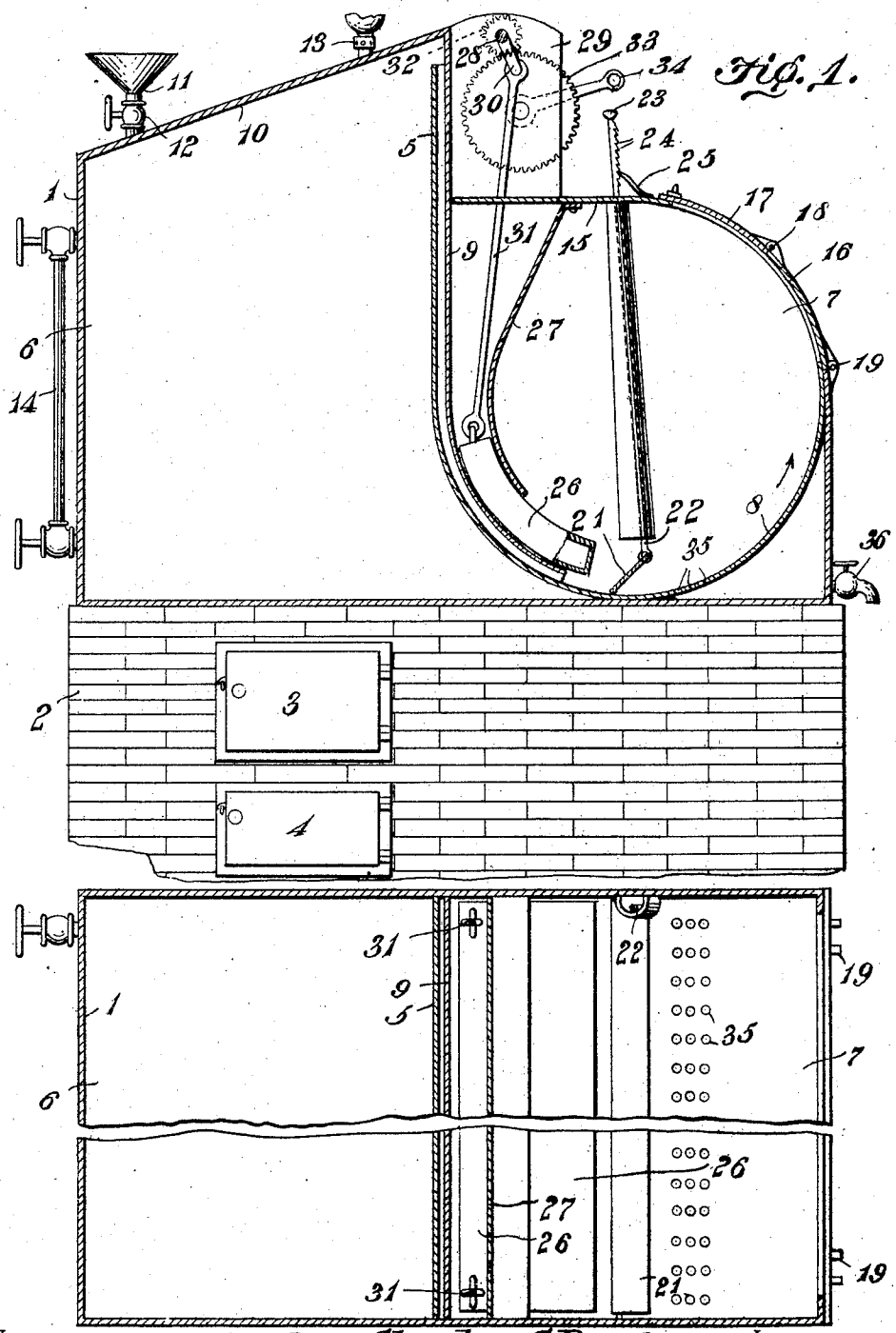


Fig. 1.

Fig. 2.

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WASHING-MACHINE.

No. 850,524. Specification of Letters Patent. Patented April 16, 1907.

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To all whom it may concern:

Be it known that I, CHARLES C. DAVIS, a citizen of the United States, residing at Gaffney, in the county of Cherokee and State of South Carolina, have invented a new and useful Washing-Machine, of which the following is a specification.

This invention relates to washing-machines, and is designed to effect agitation of the articles to be cleansed by the application of steam-pressure directly to said articles, thereby materially reducing the wear thereon incident to the use of mechanical agitating means. The direct application of steam-pressure has the further advantage that the steam forces its way between the various articles and produces separation thereof and individual movements in addition to the general movement of the entire mass of articles which promotes the cleansing of the latter.

Another object of the invention is to effect the convenient control of the steam-pressure so as to vary the rate of movement of the articles to be cleansed and to entirely stop the movement thereof when it is desired to force the steam through the mass of articles without moving the same as a whole.

Further objects reside in the novel assemblage of the clothes-receptacle and the steam-boiler for conducting steam from the boiler to the receptacle, in the provision of means for conveniently draining the clothes-receptacle without stopping the operation of the machine, and to provide for mechanically moving the articles being cleansed whenever such method of movement becomes desirable.

With these and other objects in view the present invention consists in the combination and arrangement of parts, as will be hereinafter more fully described, shown in the accompanying drawings, and particularly pointed out in the appended claims, it being understood that changes in the form, proportion, size, and minor details may be made within the scope of the claims without departing from the spirit or sacrificing any of the advantages of the invention.

In the drawings, Figure 1 is a vertical longitudinal sectional view of a washing-machine embodying the features of the present invention. Fig. 2 is a horizontal sectional view thereof.

Like characters of reference designate corresponding parts in both of the figures of the drawings.

The present machine includes a rectangular metallic case 1, which is supported upon the top of a suitable furnace 2, having a fire-door 3 and an ash-pit door 4. While the furnace has been shown as having brick walls, it will of course be understood that any type of furnace may be employed for heating the water in the case 1. The rear of the case rises above the front thereof, and about midway between the front and back of the case there is an upstanding partition 5, dividing the case into a boiler-section 6 and a clothes receptacle or section 7. The lower portion of the partition 5 is bowed forwardly in the form of a semicylinder 8, which forms the bottom of the clothes-receptacle and terminates at the top of the front wall of the case. Spaced slightly in front of the partition 5 and in parallelism therewith there is another upright wall or partition 9, which terminates short of the lowermost portion of the wall 5 and constitutes in conjunction with the wall 5 a steam-passage leading from the upper portion of the boiler into the bottom portion of the clothes-receptacle. As shown in Fig. 1, the partition 9 rises above the partition 5 and the top 10 of the boiler is inclined upwardly and forwardly to the top of the partition 9, whereby the highest portion of the boiler is at the open top of the steam-passage, which insures an effective flow of steam through said passage.

For convenience in filling the boiler with water there is a funneled supply-pipe 11 piercing the top of the boiler and provided with a valve 12. A safety-valve 13 is also applied to the boiler, and a water-gage 14 is fitted to the back of the boiler.

A flat top 15 is provided to cover the rear top portion of the clothes-receptacle, whereby an opening is provided between the top of the front of the receptacle and the front edge of the top portion 15, said opening having a closure made up of longitudinal sections 16 and 17 hinged together, as at 18. The lower section 16 is hinged to the top of the front of the clothes-receptacle, as at 19, while the free end of the section 17 overlaps the top of the receptacle and is held thereagainst by a turn-button or other suitable fastening means.

Disposed longitudinally within the bottom

of the clothes-receptacle is a steam-deflecting plate 21, hinged at its lower edge to the bottom of the receptacle and normally lying against the receptacle, so as not to interfere with the escape of steam from the steam-passage. This deflector may be swung to any adjusted position by means of an upstanding rod 22, loosely connected to one end of the deflector and rising through the top 15 of the clothes-receptacle and terminating in a suitable handle 23 for convenience in manipulating the rod. The upper external portion of this rod is provided with teeth 24 for engagement by a spring-finger or dog 25, carried by the top of the receptacle, so as to secure the rod when adjusted, and thereby hold the deflector 21 in various tilted positions. The rod 22 preferably extends loosely through a semicylindrical guard, as shown clearly in the drawings, which prevents the clothes in the receptacle from becoming entangled with the rod, as will be apparent.

As thus far described, when the machine is in operation steam generated in the boiler 6 passes downwardly through the steam-passage and enters the bottom portion of the clothes-receptacle in a direction parallel to the curved bottom of the receptacle and thereby tends to rotate the mass of articles to be cleansed in the direction of the arrow, which produces the necessary mechanical rubbing of the articles to free the dirt therefrom without subjecting the articles to the undesirable friction of a pounder or agitating device. Moreover, the steam tends to force its way through the mass of articles, and thereby separates the articles and gives them individual movements in addition to the bodily movement of the mass, thereby promoting the cleansing of the articles. After the mass of articles has been rotated as a whole for a suitable length of time the rod 22 is lifted so as to swing the deflector 21 upwardly, whereby the discharge of the steam into the clothes-receptacle is deflected and passes upwardly through the mass of clothing with a less tendency to rotate the mass as a whole, thereby to obtain a more effective forcing of the steam through the mass of articles.

Under some conditions it may be desirable to mechanically rotate the mass of articles, and this contingency is provided for by means of an arcuate plunger 26, working in an upright arcuate guideway formed by the wall 9 and an upright wall or partition 27 depending from the top of the receptacle. For reciprocating the plunger there is a crank-shaft 28, having each end mounted in a bracket or extension 29 of the adjacent side of the case and provided adjacent each end with a crank 30. The connecting rod or link 31 extends between each crank and the top of the plunger. One end of the shaft has a pinion 32 in mesh with a gear 33, mounted upon the bracket 29 and operated by a crank-handle 34. When the crank-handle is manipulated, the plunger 26 is worked back and forth, whereby its lower front end will operate against the mass of clothes and tend to rotate the same as a whole in the direction of the arrow.

It will of course be understood that water is introduced into the clothes-receptacle through the opening in the upper front portion thereof, through which the clothes are also introduced. To drain the receptacle, the semicylindrical bottom 8 is provided with perforations 35, which permit the water to run out into that portion of the case which lies in front of the bottom of the clothes-receptacle, from which it may be drawn through a valved outlet-passage 36.

Having thus described the invention, what is claimed is—

1. A washing-machine having a clothes-receptacle provided with a substantially semicylindrical bottom, an arcuate plunger in said receptacle, and means for admitting steam into the lower portion of the receptacle in substantial parallelism with the bottom thereof.

2. A washing-machine having a clothes-receptacle provided with a substantially semicylindrical bottom, an arcuate plunger in said receptacle, means to admit steam into the lower portion of the receptacle in substantial parallelism with the bottom thereof, and means for deflecting the discharge of steam into the receptacle.

3. In a washing-machine, the combination of a case, a partition dividing the case into a boiler-compartment and a clothes-compartment, an arcuate plunger mounted in the clothes-compartment adjacent said partition and a steam-passage leading from the boiler to the clothes-compartment and discharging into the bottom of the compartment in a direction to impart a rotary movement to the mass of articles being cleansed.

4. A washing-machine comprising a case, an upright partition dividing the case into a boiler-compartment and a clothes-compartment, said partition terminating short of the top of the case with its lower portion directed forwardly to form a substantially semicylindrical bottom for the clothes-compartment, another partition leading downwardly from the top of the case in substantial parallelism with the front of the first-mentioned partition and terminating short of the bottom thereof, the space between the two partitions constituting a steam-passage leading from the boiler into the clothes-compartment, and an arcuate plunger in the clothes-compartment mounted adjacent said last-mentioned partition.

5. A washing-machine comprising a clothes-receptacle, means for admitting steam into the receptacle in a direction to

impart a rotary movement to the mass of clothes as a whole, a steam-deflector pivotally mounted within the clothes-receptacle, a controlling-rod for the deflector, and means coöperating with the rod to hold the deflector at any adjustment.

6. A washing-machine comprising a clothes-receptacle, means for admitting steam-pressure into direct contact with the clothes to rotate the mass of clothes as a whole, a tiltable deflector-plate mounted across the steam-outlet, an adjusting-rod connected to the plate and provided with teeth, and a ratchet coöperating with the teeth.

In testimony that I claim the foregoing as my own I have hereto affixed my signature in the presence of two witnesses.

CHARLES C. DAVIS.

Witnesses:

C. E. DOYLE,

FRANK S. APPLEMAN.