No. 890,642. PATENTED JUNE 16, 1908.

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WASHING APPARATUS.

APPLICATION FILED MAY 16, 1907

Fig. 1.

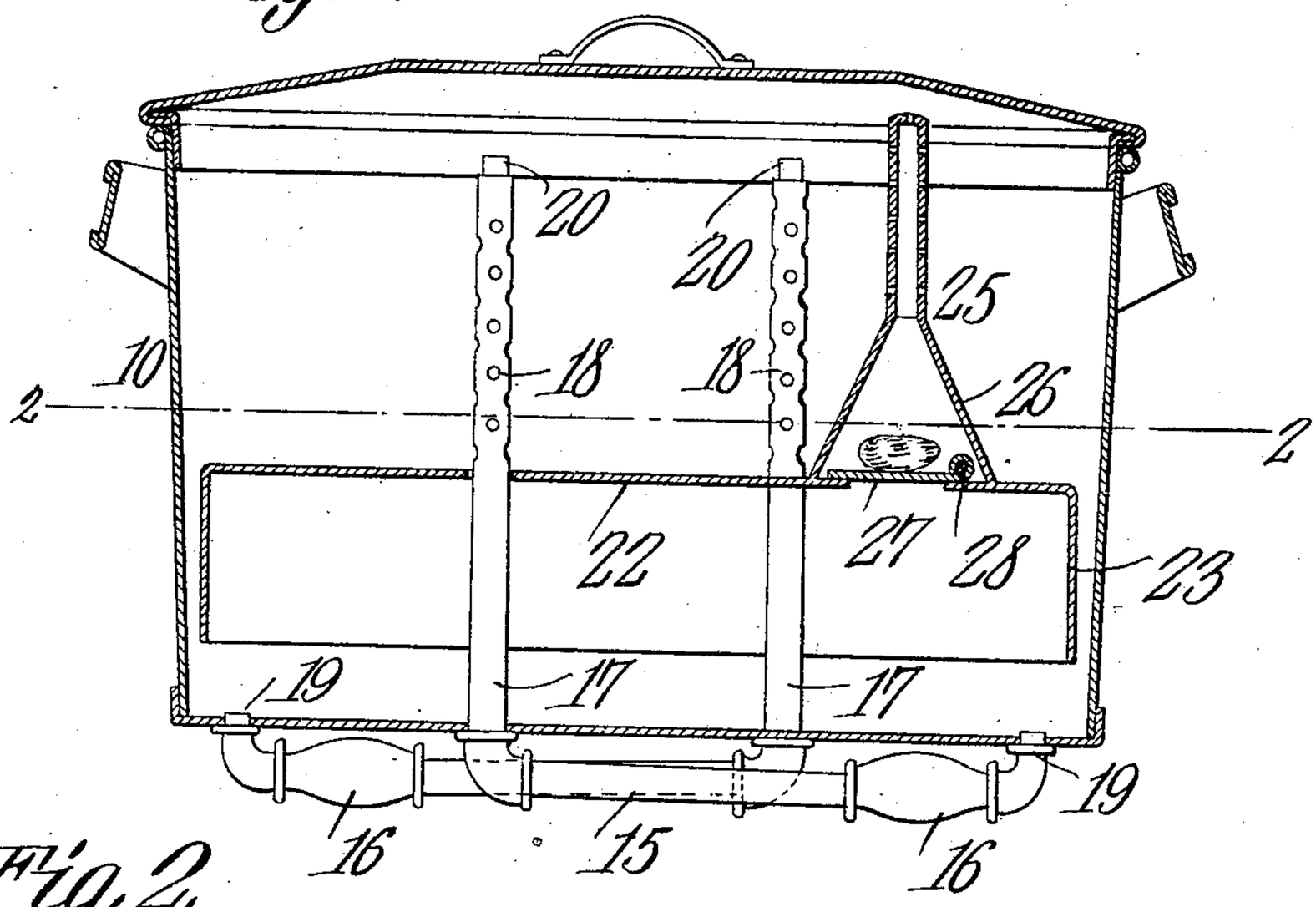


Fig. 2.

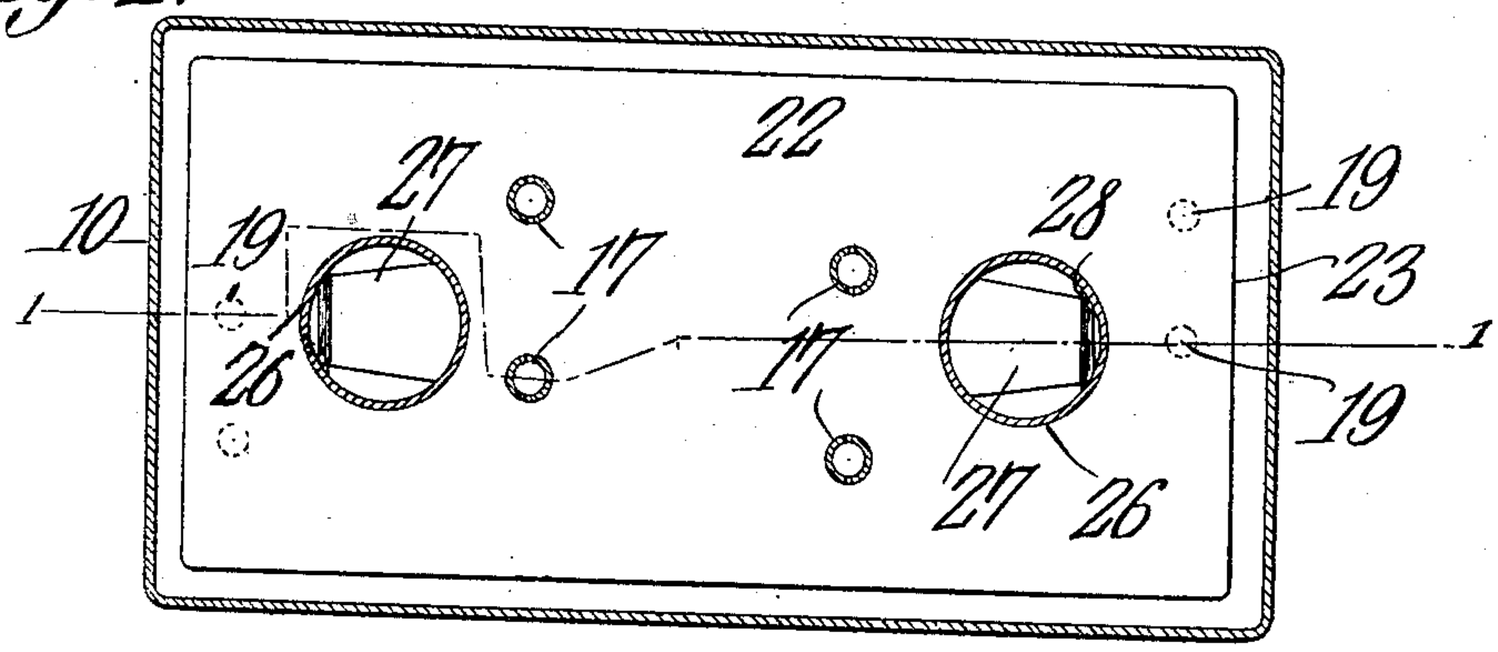
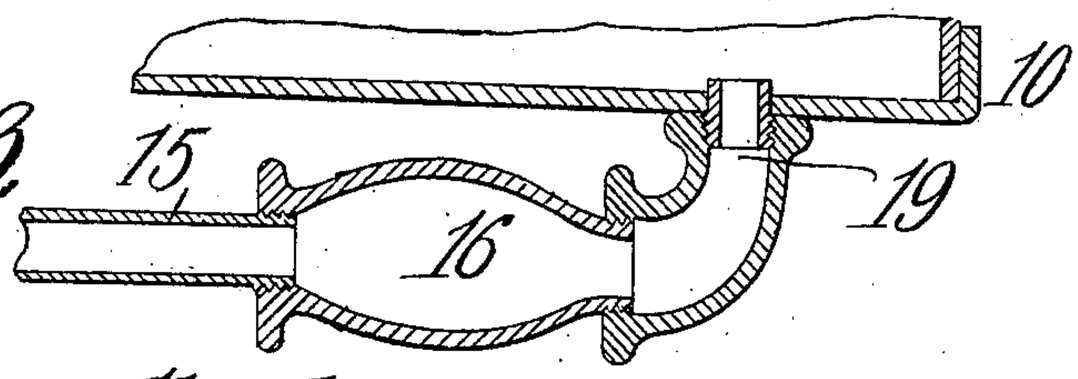


Fig. 3.



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WASHING APPARATUS.

No. 890,642. Specification of Letters Patent. Patented June 16, 1908.

Application filed May 16, 1907. Serial No. 373,891.

To all whom it may concern:

Be it known that we, CHARLES M. HARRISON and EUGENIUS C. ARNOLD, citizens of the United States, residing at Monroe, in the county of Walton and State of Georgia, have invented a new and useful Washing Apparatus, of which the following is a specification.

This invention relates to washing boilers, and has for its principal object to provide a boiler in which the clothes are supported by an agitator that is moved by the pressure of steam or expansion of the water beneath it as the temperature of the water rises.

A further object of the invention is to provide a device of this class in which the functions of a boiler and washer are combined, the clothes being boiled, and at the same time agitated in such manner as to loosen the dirt.

A still further object of the invention is to provide a device of this character in which a continuous circulation of the water is maintained in order to carry off the dirt, and in which provision is made for forcing jets of steam and hot water through the mass of clothes while the same are being agitated.

A still further object of the invention is to provide a clothes support of improved construction to prevent contact of the clothes with the bottom of the boiler, and further to so arrange such support as to insure its upward movement and agitation under the pressure of steam or expansion of the water.

A still further object of the invention is to provide an agitator with soap distributers, in which quantities of soap may be placed before the clothes are placed in the boiler.

With these and other objects in view, as will more fully hereinafter appear, the invention consists in certain novel features of construction and arrangement of parts, hereinafter fully described, illustrated in the accompanying drawings, and particularly pointed out in the appended claims, it being understood that various changes in the form, proportions, size and minor details of the structure may be made without departing from the spirit or sacrificing any of the advantages of the invention.

In the accompanying drawings:— Figure 1 is a vertical section of a washing boiler constructed in accordance with the invention, the section being taken on the plane indicated by the line 1—1 of Fig. 2. Fig. 2 is a sectional plan view of the same on the line 2—2 of Fig. 1. Fig. 3 is a sectional view on an enlarged scale of the entrance end of one of the lower water circulating pipes.

Similar numerals of reference are employed to indicate corresponding parts throughout the several figures of the drawings.

The casing 10 may be of any desired shape and size, which preferably is of generally rectangular form, having a flat bottom which may be placed over an opening in a stove or other heating device, and the top of the casing is closed by a closely fitting cover 11.

Arranged below the bottom of the casing are horizontally disposed tubes 15 which preferably are free froam contact with the bottom of the boiler in order to permit the free circulation of the heated gases from the products of combustion around them, and these pipes communicate at one end with enlarged water chambers 16, and at the opposite end with a vertical pipe 17, that extends upward through an opening formed in the bottom of the casing, the pipe 17 reaching to a point considerably above the normal water line of the boiler and provided with a large number of perforations 18, through which jets of steam or water are forced into the mass of clothes during the operation of the device. The enlarged water chambers 16 communicate at one end with the bottom of the boiler through connections 19, these connections being of smaller diameter than the pipe 15, so that there will be no danger of the water being forced through the connections 19, but on the contrary the water will flow from the boiler proper through the connections 19 to the water chambers 16 and thence will be forced to travel through the larger tubes 15 and upward through the perforated tubes 17. The upper portion of each of the tubes 17 may be closed by a removable plug 20 in accordance with the heat applied, so that in case the heat is excessive the plugs may be removed to permit greater freedom of passage of the water, while if the fire is low, the plugs may be inserted in order to insure the passage of the water and steam outward through the perforations. The circulation may be somewhat assisted by arranging the pipes 15 at a slight angle, the connections with the pipes 17 being uppermost.

Arranged within the boiler is a clothes support 22 that preferably is formed of sheet metal, said clothes support having a flat upper face provided with a downwardly bent marginal flange 23, the height of which is approximately one-third the height of the

boiler. This support or agitator 22 is provided with openings for the passage of the pipes 17 which will form guides for the vertical movement of the support and as the water expands and steam is formed below this support, the latter will be agitated and will elevate the mass of clothes resting thereon until in some instances the support will be raised above the level of the water, in which case the steam will escape through the openings that are formed for the passage of the pipes 17, after which the support will drop until a fresh quantity of steam rising through the water accummulates and forces the support upward. Ordinarily steam will escape through the perforations 18 and out through the top of the tubes 17, when the plugs 20 are removed, but if the parts are allowed to remain in place, the support 22 will rise to a greater height.

Secured to the support are soap containing tubes 25 having frusto-conical lower ends 26 in which are arranged swinging plates 27 fulcrumed on pins 28, these plates being held from excessive downward movement by engagement with the upper face of the support, or being free to move upward within the frusto-conical portions 26 of the tubes. The tubes 25 are provided with perforations along their vertical sides, and at the top these perforations permitting the passage of steam and jets of hot water, but the perforations are so small that the water and steam will not escape with sufficient freedom to prevent the rising of the support under the pressure of steam which accummulates beneath it.

The soap or other detergent may be placed on the plates 27, and as the water circulates upward, the plates will be agitated and the soap will be dissolved by the current of water, and the suds will pass upward through each tube 25 and be distributed in the form of jets through the clothes.

In operation the casing is filled with water to about the point indicated in Fig. 1, after which the clothes are placed therein, soap or other detergent having been previously applied to each plate 27. The device is then placed over the fire, and as the water is heated the circulation is maintained from the bottom of casing through connections 19, enlarged chambers 16, pipes 15 and 17, the hot water and steam being directed from the pipes in the form of jets which pass through and agitate the clothes.

The steam will accumulate below the support 22, and when sufficient pressure has been attained the support will be elevated and then will fall as the steam passes off, it being found in practice that the movement of the support is practically continuous, the device being continuously agitated and this movement being transmitted to the clothes, so that the streams of water and steam may carry off the dirt.

We claim:—

1. In washing apparatus, a containing vessel, a vertically movable clothes support arranged to be immersed in the water, said support receiving motion from the ebullition of the water, and means for guiding said support.

2. In washing apparatus, a containing vessel, a vertically movable clothes support arranged to receive motion from the ebullition of the water, said support having downturned flanges on its side forming a chamber in which steam may accumulate to elevate the support, means for permitting the escape of the steam and allowing the support to fall, and means for guiding said support.

3. In apparatus of the class described, a containing vessel, a clothes support having a downturned marginal flange, said support having a plurality of guiding openings, and vertically arranged members extending through said openings.

4. In apparatus of the class described, a boiler having a bottom, a plurality of water heating tubes arranged below the bottom and communicating at one end with the lower portion of the boiler, discharge tubes communicating with the opposite ends of the water heating tubes and extending upward within the boiler, said discharge tubes being provided with perforations, a clothes supporting plate having openings through which said tubes extend, the latter forming guides for the plate during its upward and downward movement, said plate being provided with a downturned flange forming a steam chamber, and soap containing tubes carried by the plate and arranged to permit the passage of steam and water, the upper portion of the soap containing tube being perforated.

In testimony that we claim the foregoing as our own, we have hereto affixed our signatures in the presence of two witnesses.

CHARLES M. HARRISON.
EUGENIUS C. ARNOLD.

Witnesses:
WEYMAN J. VENNER.
JNO. T. ROBERTSON.