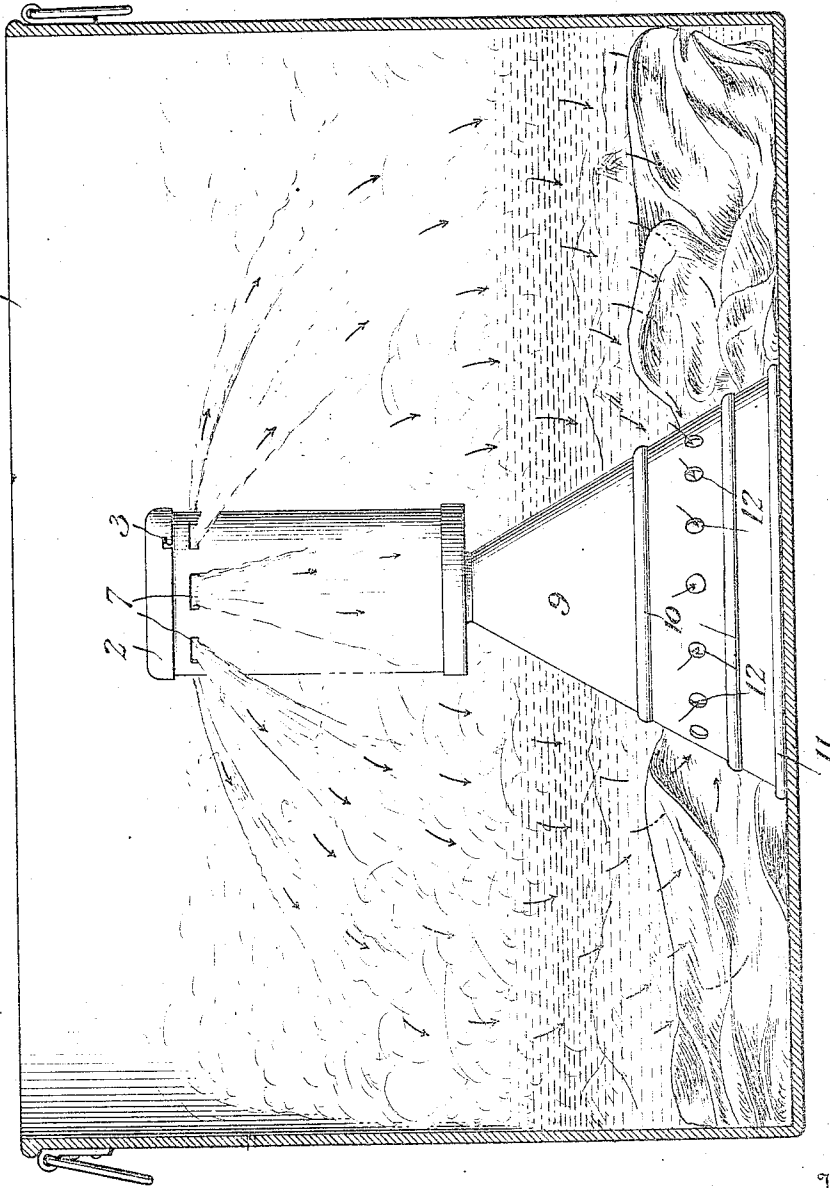


E. A. HAWTHORNE.
 WASHING APPARATUS.
 APPLICATION FILED AUG. 5, 1913.

Patented Feb. 24, 1914.
 2 SHEETS—SHEET 1.

1,087,944.

Fig. 1.



Witnesses:
 Fenton W. Bell
 H. Joseph Dyer

Inventor
 Ellsworth A. Hawthorne
 By *[Signature]*
 Attorney

E. A. HAWTHORNE.
WASHING APPARATUS.
APPLICATION FILED AUG. 5, 1913.

1,087,944.

Patented Feb. 24, 1914.

2 SHEETS—SHEET 2.

Fig. 2.

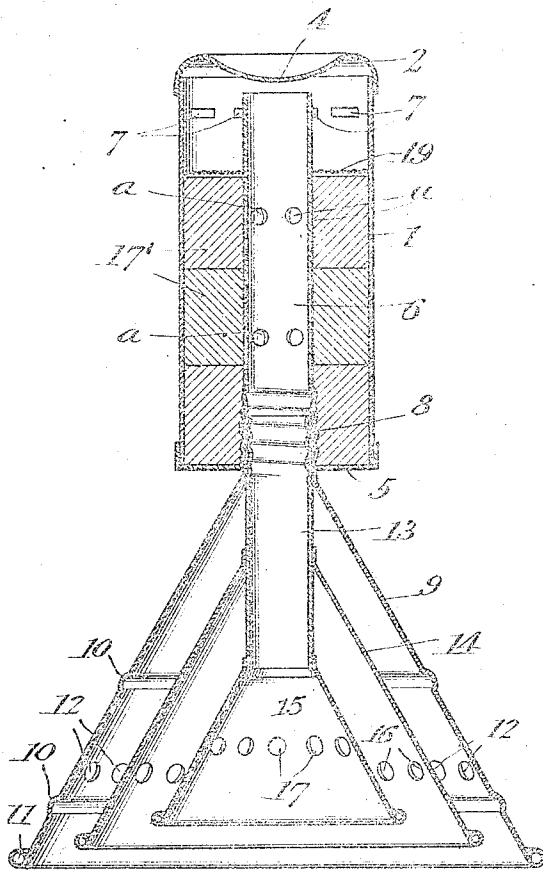


Fig. 3.

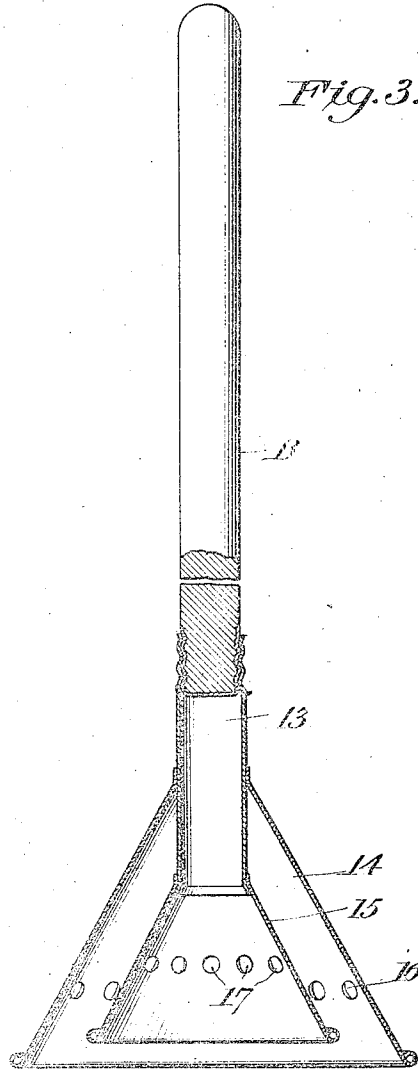
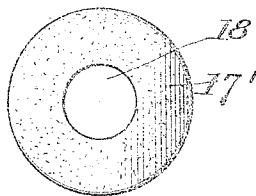


Fig. 4.



Witnesses
Fenton W. Bell
H. Joseph Dupé.

Inventor
Ellsworth A. Hawthorne.

W. L. Smith
Attorney

UNITED STATES PATENT OFFICE

ELLSWORTH A. HAWTHORNE, OF BRIDGEPORT, CONNECTICUT.

WASHING APPARATUS.

1,087,944.

Specification of Letters Patent.

Patented Feb. 24, 1914.

Application filed August 5, 1913. Serial No. 783,112.

To all whom it may concern:

Be it known that I, ELLSWORTH A. HAWTHORNE, a citizen of the United States, residing in the city of Bridgeport, county of Fairfield, State of Connecticut, have invented certain new and useful Improvements in Washing Apparatus; and I do declare the following to be a full, clear, and exact description of the invention, such as will enable others skilled in the art to which it appertains to make and use the same.

This invention relates to the subject of clothes washing, and the main object of the invention is to provide a washing apparatus that is strictly automatic in its action, and which includes means whereby boiling soapy water is caused to circulate through the articles to be washed so that all dirt will be thoroughly extracted from the articles being washed.

With this object in view the invention contemplates a washer that can be readily placed in a boiler and is provided with means whereby as the water is agitated incidental to boiling, the water will enter the washer and simultaneously inject air that commingles with the water and flows to a combined air and soap chamber causing the water to act upon soap to produce suds and also commingle with air in the chamber and be discharged from the chamber under pressure and act upon the clothes, such inflow and discharge of the water and air causing a circulation through the washer the intensity and violence of which increases as the agitation of the water increases incidental to boiling, with the result that the clothes are subjected to the action of a continuous and violent circulation of soapy water, or suds.

The invention also aims to provide a clothes washer in which the various parts can be readily separated, and certain parts thereof used in connection with a hand grip so that they may be used as a hand implement for pounding.

In producing an invention possessing the characteristics generally stated above, it will be obvious that the same is susceptible to changes in details and structural arrangements, simple and practical embodiments being shown in the accompanying drawings, wherein,—

Figure 1 is a view in elevation showing the automatic washer in operation. Fig. 2 is a central vertical sectional view of the

washer. Fig. 3 is a similar view showing how parts of the washer may be used as a hand implement. Fig. 4 is a detail view showing the type of soap used in connection with the washer.

The improved washer in its preferred form comprises in its general organization a chamber or casing 1, shown as cylindrical, and provided with a cover 2, detachably held in position by means of a bayonet joint 3, and serving to close the top of the chamber. The cover 2 is preferably concaved to form an interior baffle 4, for a purpose to be explained. The bottom 5 of the chamber 1 is open at its center and equipped with a tube 6 that projects centrally up into the said chamber 1 and terminates below the cover 2 and above the discharge openings 7 in the upper portion of the wall of said chamber. The tube 6 is internally threaded at its lower end for the reception of the internally and externally threaded portion of the tubular neck 8 of an outer cone 9, and is perforated as at *a*. The cone 9 is strengthened by means of corrugations 10 and has its lower edge or base rolled, as indicated at 11, for a similar purpose, and adjacent the lower edge the cone 9 is provided with a row of inlet openings 12. The interior threads of neck 8 of cone 9 are engaged by the threaded upper portion of a tube 13 that depends into cone 9, and has an outer cone 14 depending from an intermediate portion, and an inner cone 15 depending from its free end, the cones 14 and 15 being each provided with a row of lateral inlet openings 16 and 17, respectively. The cones 9, 14 and 15 are graduated in size, the cone 9 being the larger one, and cone 14, being larger than cone 15, and said cones are arranged in spaced relation, with the lower edge of cone 9 projecting below the similar edge of cone 14, and the lower edge of cone 14 projecting below the similar edge of cone 15, and the inlet openings 16 of said cone 14 are in a plane lower than the openings 17 of the cone 15. By this arrangement, when the washer is placed in a boiler A, or other receptacle, the cone 9 only rests upon the bottom of said receptacle.

The washer as described, may be made of sheet metal, and in the process of manufacturing the same when the threads are formed upon the neck 8 and tube 13, it will be clear that both interior and exterior threads are formed on said parts, thus

adapting neck 8 for the reception of tube 13 and engagement with tube 6, and tube 13 for engagement with the neck 8.

The space formed between the chamber 1 and the central tube 6 has cakes, or a cake, of soap 17 placed therein, the soap being shaped to conform to the contour of the said space and provided with a central opening 18 so that the soap may be dropped over the tube 6. The soap is placed in position in the chamber 1 well below the openings 7, and a screen, or the like 19 is placed over the soap so that particles thereof will not rise and clog the openings 7 when water contacts with the soap.

In use, the washer is placed within the boiler with the cone 9 resting on the bottom thereof with the articles to be washed outside of said cone. The apparatus being placed within the boiler, with the bottom of the cone 9 resting on the bottom of the boiler, clothes will be placed within the boiler around said cone, as indicated in Fig. 1. Water being poured into the boiler, as indicated by the dotted lines in Fig. 1, it will, of course, permeate the clothes and pass into the bottom of the apparatus through the openings 12, 16 and 17, and around the lower marginal portions of the cones 14 and 15, passing thence upwardly into the tube 13 to a point where it is on a level with the water in the boiler. As the water is boiled, steam generated thereby will eject the water upwardly through the tube 13, through the tubular member 6, and into the upper portion of the chamber left in the upper end of the chamber or casing 1. When the water first begins to boil it will run over the upper end of the tube 6 and down upon the soap in the soap-containing chamber, and finally, as it rises, will pass out through the openings 7. This action continues for but a short interval, for as the water becomes hotter and more steam is generated, the apparatus acts more quickly and the water is ejected with considerable force up through the tube 6 against the baffle 4, and is forced outwardly in a lateral direction through the openings 7, being sprayed over the surface of the water in the boiler, or projected upon the material being washed, if such material is not fully submerged in the water. The aligned tubes 6 and 13 provide a free exit for the steam and water which collect beneath the cones, and will be forced upwardly through said tubes, rather than outwardly through the openings in the cones. This action is not only due to the free exit provided, but also to the fact that the weight of the water in the boiler tends, in a measure, to prevent the steam and water from being forced outwardly through the openings 12 in the outermost cone 9. It is found in practice that the soap will be gradually and thoroughly dissolved by the

water and steam which are forced upwardly through the apparatus. The continuous motion of the water through the apparatus, and the discharge of the same in jets or streams upon the upper surface of the water in the boiler or the exposed clothes, as the case may be, causes a circulation of the soapy water through the clothes, thereby thoroughly extracting the dirt therefrom.

As before stated, the washer is preferably made of sheet metal, and is seated in the boiler A, the cone 9 being the only part which comes into contact with the boiler. The weight of the soap within the chamber 1 is normally sufficient to hold the apparatus in place, the device being buoyed up by the air which is trapped in the upper portion of the space formed intermediate the cones 9 and 14, and 14 and 15. When the apparatus is in action the soap is dissolved but is replaced by water which is of sufficient weight to retain the washer in its upright position. Moreover, the clothes, which may be placed around the outer cone 9, likewise assist in holding the washer in place.

The washer being formed of sheet metal is advantageous in that when the threads are pressed upon the neck 8 and tube 13, both outside and inside threads are formed which facilitates the attachment and detachment of the parts. Such arrangement also permits the neck 8 to be separated from the tube 6 so that a handle B can be attached to the tube 13, engaging the interior threads thereof so that a hand implement is formed comprising the three cones 9, 14 and 15, tube 13, and said handle B, that can be used as a hand implement for pounding clothes. Similarly, the tube 13 of cones 14 and 15 can be detached from the neck 8 and said tube, cones 14 and 15, and the handle B used as a "baby" or smaller pounder. In both forms of the hand pounder, the openings in the cones, provide means that create the necessary suction. The perforations *a* in the tube 6 may of course be located at any suitable part of said tube, and while they are not absolutely necessary I prefer to employ them since the passage of the boiling water through them more readily acts on the soap.

I claim as my invention:

1. An automatic washing apparatus, comprising in combination a plurality of cones arranged in spaced, nested relation, the lower edges of the cones being arranged in graduated planes with the edge of the outermost cone lying in a plane below those of the other cones, and each cone being provided with a row of openings, said openings being arranged in graduated planes; a soap chamber provided with a central inlet tube and with lateral discharge outlets adjacent its upper end; and means for detachably securing the cones to said central tube.

2. In an automatic washing apparatus, the combination of an outer cone provided with inlet openings adjacent its lower end; inner cones within the outer cone in spaced, nested relation thereto, the lower edges of said inner cones being in a plane above the lower edge of the outer cone, said inner cones being provided with inlet openings; and a soap chamber detachably connected to the cones, said chamber being provided with discharge outlets.

3. In an automatic washing apparatus, the combination of a body portion having an intake for boiling water; a soap chamber surmounting the same and provided with a central admission tube and lateral discharge outlets at its upper end, the soap being seated in the lower portion of the chamber; and a protector resting upon the soap.

4. An automatic washing apparatus, comprising in combination an outer cone having openings adjacent its lower end; a threaded neck extending upwardly from said cone; a tube threaded into said neck; a pair of

cones secured to said tube and bearing a fixed relation to the first-named cone, said pair of cones likewise having openings formed in the walls thereof; a chamber screwed upon the upper end of the neck aforesaid; a tube extending upwardly in said chamber and thereby forming a space between the walls of the chamber and itself for the reception of soap, said chamber having lateral discharge openings formed around the upper end thereof at a point slightly below the termination of the upper end of the tube; and a dish-shaped cover secured to the upper end of the chamber, said cover forming a baffle against which the water which is ejected upwardly through the tube impinges and is thrown out laterally into the chamber above the soap and through the openings formed in said chamber.

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

ELLSWORTH A. HAWTHORNE.

Witnesses:

E. HORACE HAWTHORNE,
E. LOUISE SCOTT.