



# UNITED STATES PATENT OFFICE.

ARP BECKER, OF CHICAGO, ILLINOIS.

## IMPROVEMENT IN WASH-BOILERS.

Specification forming part of Letters Patent No. 159,745, dated February 16, 1875; application filed November 18, 1874.

*To all whom it may concern:*

Be it known that I, ARP BECKER, of Chicago, county of Cook and State of Illinois, have invented an Improved Wash-Boiler or Steam Washing-Machine, of which the following is a specification:

This invention is an improvement of the machine for which Letters Patent were granted me in the United States, dated July 1, 1873, and, like it, is designed to wash fabrics without the necessity of any labor such as incurred in the use of ordinary washing-machines. The improvements here presented more specifically relate to the top or cover parts of the boiler, as will hereinafter more fully appear.

Of the drawing, Figure 1 is a longitudinal sectional elevation; Fig. 2, a transverse section on line *xx*; Fig. 3, a bottom plan of cover parts; and Fig. 4 a top plan of boiler without cover.

A is the boiler. Within the boiler A is the false bottom *a*, chamber B, side and end tubes *b*, having outlets *b'*, the object and purposes of said parts being the same as described and shown in my patent aforesaid. In the present case, however, I form the false bottom non-detachable and water-tight. The said bottom is, therefore, soldered to the inner walls of the boiler perfectly. Further, I form part of the false bottom in this case to act as a hinged door. (See *a'*, Figs. 1, 2, and 4.) The said door is capable of being opened and closed, and fastened by a detent-spring; and, by means of said door, access is had to the bottom chamber, B. The soap, fluid matter, &c., are, by this means, entered into the bottom chamber; also, the same can be more readily emptied and cleaned. This door part *a'*, at its under side, has the cages *a''*, in which are contained floats *a'''*, (see Figs. 1 and 2,) to operate in the manner and for the purpose described, and shown in my patent aforesaid. The outer edge of the cages should close perfectly with the bottom chamber, so as to prevent the boiling action from passing the water through the closure thus made. The false bottom *a* being water-tight, and the outer edges of the cages directly closing on the bottom, when hinged door *a'* is held closed by spring, as aforesaid, the full force of the boiling action takes place in the chamber B, and

thus the upward passage of the steam and boiling water is fully achieved, passing up the tubes and out of same top of clothing.

As previously stated, the specific improvements in the present case relate to the top part of the boiler and its cover or lid parts. As seen in Figs. 1, 2, and 4, I provide the top of the boiler with an outflaring rim, C, the purpose of which is to prevent the water in boiler from boiling over and escaping down the sides thereof—in other words, to act as a trough or channel.

My cover for the boiler consists of a top chamber, forming part of which is the true cover, the said parts having the peculiar constructive features as follows: D is the cover. This I provide with an enlarged opening, loosely covered by a movable plate, *d*. (See Figs. 1, 2, and 3.) The boiling water and steam that force their escape can thus pass through said enlarged opening in the cover D and top of same, there to cool, condense, and be passed in the trough C, from which it can re-pass the same way into the boiler. The movable plate *d* acts as a valve, closing its opening in the cover sufficiently to allow the boiling action in boiler to go on, and also to be acted upon by the force of water and steam to open or be raised in order to allow passage for the water and steam that will escape from the boiler. In this manner the water top of the cover D has always an open passage under the movable plate *d* into and top of the clothes in the boiler. The true cover D, otherwise, is formed by its bottom edges to fit snugly the top of the boiler. *d'*, Fig. 3, are transverse strips attached to the bottom edges of said cover to prevent the fabric from interfering with the self-operation of the plate *d*. Above the cover D, and united to same by supports, is the top chamber, E, the purpose of which is more particularly to collect all escaping vapor or steam from the boiler, thus preventing overflow and the ill effects arising from the free escape of the vapor into the room, or which surrounds the operators, as in the use of the ordinary wash-boilers. In order, therefore, to permit the steam and escaping water from boiler to pass into as well as out of the top chamber, E, I further connect same by the tubes *e* (see Figs. 1, 2, and

3) to the cover D. Said tubes thus establish communication from the inside of the boiler to the inside of the top chamber, E. Similarly, that the vapors which pass top of the cover D may also be passed into the top chamber, E, I provide the bottom of said chamber with any number of holes,  $e^1$ . (See Fig. 1 and dotted lines in Fig. 3.) Through said holes  $e^1$  the condensation or water in the top chamber is thus also permitted to reflow top of the cover D in order to re-pass into the boiler. The bottom edge of the top chamber, E, should extend in line with the rim C of the boiler, as indicated in Figs. 1, 2, and 3. This enables me further to perforate said extended part of the top chamber with the outlets  $e^2$ , (see Figs. 1, 2, and 3,) and these also serve to allow whatever water has been collected in said top chamber to pass into the trough previous to returning through the cover D again into the boiler. The bottom of the top chamber, E, excepting that part thereof that contains the outlets  $e^2$  round its edges, can be made a hinged bottom, so as to facilitate get-

ting at the inside of said chamber. Finally, through the top of the chamber E are one or more air-vents.

My machine is thus virtually not only an improved boiler for washing purposes, but also can be termed a "steam-washer," in which clothing, &c., can be perfectly washed, with a saving of fuel, time, and expense.

What I claim is—

1. The combination of the hinged door  $a^1$ , having cages  $a^2$  and floats  $a^3$ , with false bottom  $a$ , made water-tight, in a boiler, A, as and for the purpose set forth.

2. The combination and arrangement of the top chamber E, having outlets  $e^2$   $e^1$ , the tubes  $e$ , cover D, its movable plate  $d$ , bottom strips  $d'$ , with boiler A, having rim C, substantially as shown and set forth.

In testimony of said invention I have hereunto set my hand.

ARP BECKER.

Witnesses:

WILLIAM W. HERTHEL,  
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