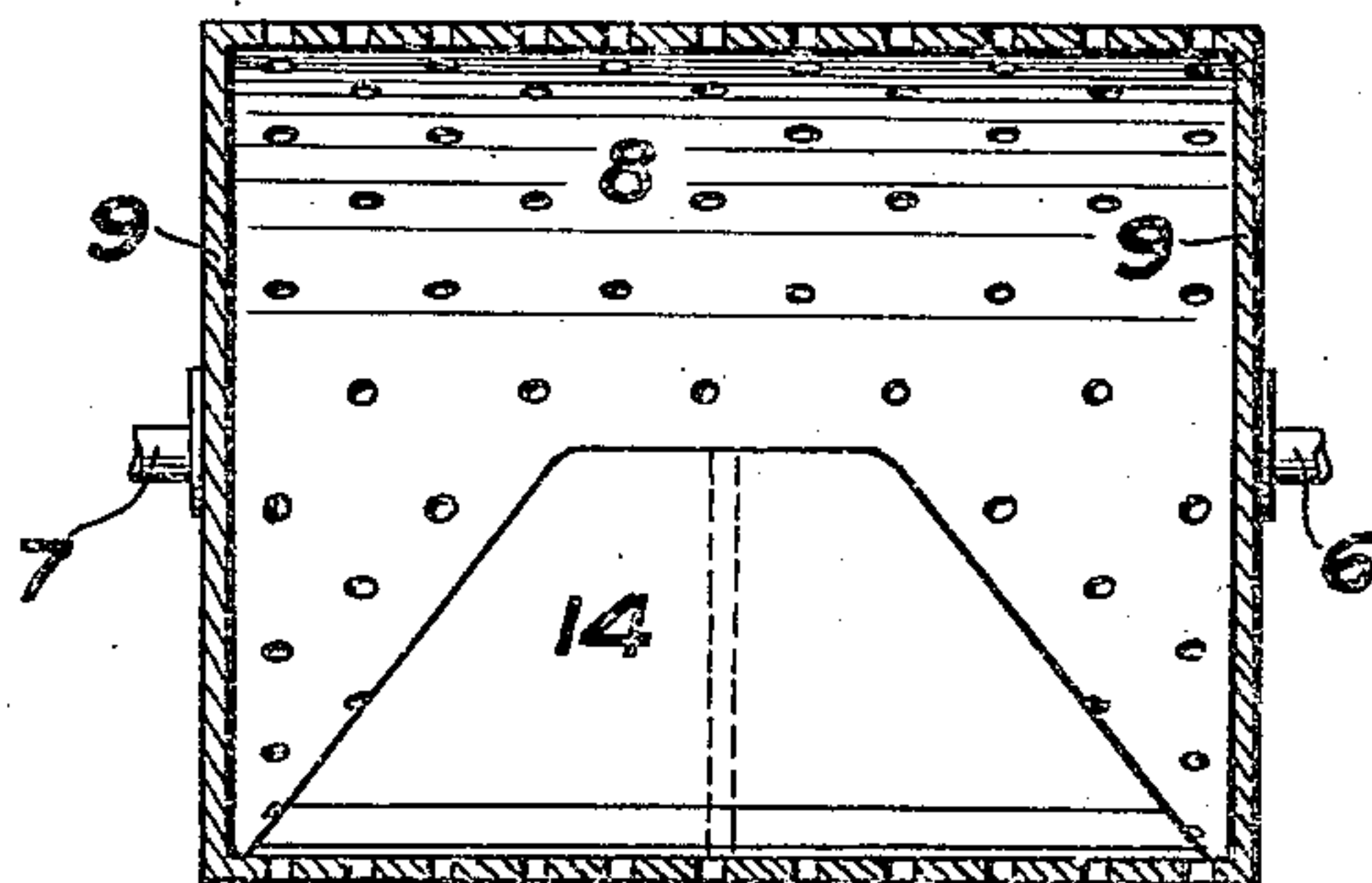
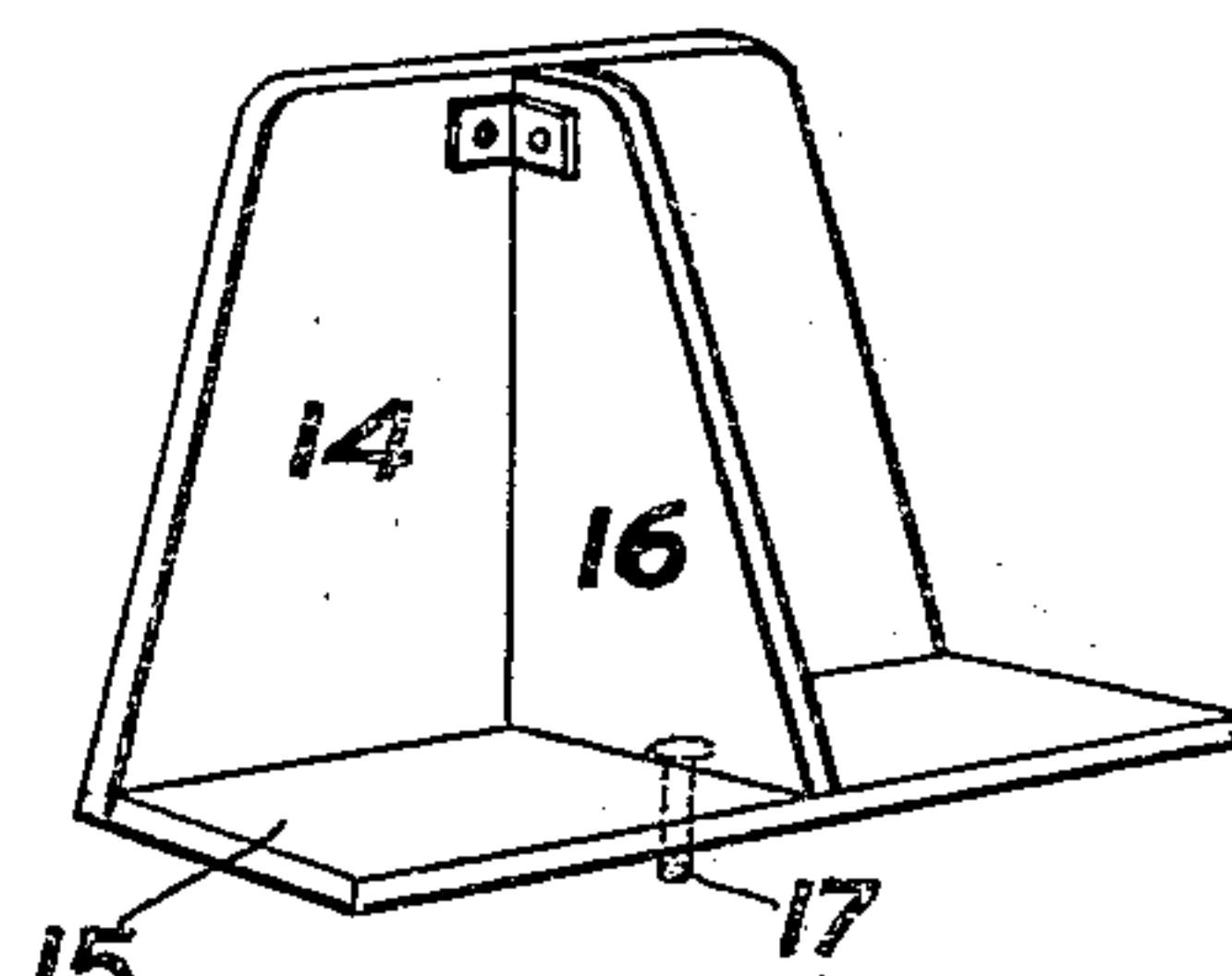


954,802.

Patented Apr. 12, 1910.

Technical drawing of a mechanical device, likely a press or mold, showing a cross-section and a side view. The cross-section (top) shows a rectangular frame (1) with a central cavity (8) containing a trapezoidal mold (14). The mold is surrounded by a layer of material (9) and a top plate (16). The side view (bottom) shows the frame (1) supported by a base (3) and a vertical support (5). A handle (10) is attached to the side, and a clamping mechanism (11, 12, 13) is shown on the right. Various numbered parts are labeled throughout the drawing.

FIG. 4.



Clarence W. Carroll.
D. Lurnee.

He will Hawley
by O'Neil and his attorney

UNITED STATES PATENT OFFICE.

DE WITT HAWLEY, OF ROCHESTER, NEW YORK, ASSIGNOR OF ONE-HALF TO ESTELLE
F. HAWLEY, OF PITTSFORD, NEW YORK.

WASHING-MACHINE.

954,802.

Specification of Letters Patent. Patented Apr. 12, 1910.

Application filed February 23, 1906. Serial No. 302,382.

To all whom it may concern:

Be it known that I, DE WITT HAWLEY, a citizen of the United States, and resident of Rochester, in the county of Monroe and State of New York, have invented certain new and useful Improvements in Washing-Machines, of which the following is a specification.

This invention relates to improvements in washing machines, and particularly to the class of washing machines employed in large commercial laundries.

The invention consists in the apparatus hereinafter described and claimed, and its object is the production of a washing machine having advantages set forth below.

In the drawings:—Figure 1 is a vertical section through a washing machine embodying this invention shown on the line 1—1 of Fig. 2; Fig. 2 is a cross-section on the line 2—2 of Fig. 1; Fig. 3 is a perspective view of one of the blades employed in this device; and Fig. 4 shows a slightly modified form of the invention.

In the drawings 1 is an outside stationary casing that is circular in the present device, and is provided with a door 2. The casing is water-tight, and is provided with water inlet, water outlet, and a steam inlet, which are preferably connected with the bottom of the casing. In the form of device shown, the water inlet and water outlet are united in the pipe 3, and said pipe is connected with the lowest part of the stationary casing 1. The steam inlet pipe 4 also connects with the lowest part of said casing. The casing may be supported in any suitable manner, and may be conveniently attached to the standards 5, which standards also constitute bearings for pivots 6, 7, that lie in the axis of said casing 1, and are attached to an inner perforated drum 8, which, by means of said pivots, is revoluble within the casing 1. The pivots 7 are suitably attached to the end pieces 9 of said drum, which end pieces may be imperforate as shown. Except at the ends, the drum 8 is perforated in order to permit access of the washing fluid in the casing 1 into the interior of the drum. These perforations may be of any suitable form, and may be produced in any suitable manner.

The drum 8 is rotated in any suitable manner, such as by the gear 10 upon the pivot 6, the pinion 11 meshing with said

gear and driven by the pulley 12. A loose pulley 13 may be provided if desired. In the greater number of washing machines heretofore in use in commercial laundries, the rotary drum thereof has been revolved in one direction for a certain number of turns, and then the direction of rotation is reversed, and the drum is rotated an equal number of turns in the opposite direction. The purpose of this reversal of rotation of the drum is to prevent the mass of clothes from being wound upon itself into a tight mass so as to make it more difficult for the washing fluid to come into contact with each article within the drum. If the clothes are wound in this tight mass, the exterior only of the mass will be washed and the interior will, by rotation of the drum, be more or less squeezed so that the washing fluid is to a certain extent expressed from the mass and the interior is insufficiently or not at all washed. The reversal of rotation of the drum has been one means of preventing this "balling" of the clothes or other articles to be washed, but by this process the clothes are in fact wound first in one direction and then in the other so that, as a matter of fact, the "balling" is not entirely obviated. It is the purpose of the present invention still further to prevent the "balling" action, and, as far as possible, to keep the clothes in a loose mass so as to permit access of the washing fluid to each article in the revolving drum. For this purpose I provide blades or paddles projecting inward from the perforated cylindrical wall of the drum and detached from the ends thereof. As shown most clearly in Fig. 2, I prefer so to arrange the said blades or paddles that they should stand from the cylindrical wall inward toward, but to one side of, the axis of revolution of the drum. These blades or paddles 14 are suitably supported in the drum in any suitable manner, as, for instance, each paddle may be fastened to a base, board or block 15, and a brace piece 16 may be fastened to said board or block and to the back of said blade or paddle so that the blade or paddle is supported rigidly against the pressure of the blades and the water in the operation of the device. The base 15 is fastened to the inner surface of the cylindrical wall of the drum in any suitable manner as, for instance, by means of one or more bolts 17.

The drum 8 is provided with an opening door 18, which may be brought into registry with the door 2 for the insertion or removal of articles to be washed.

5 The drum revolves in the direction shown by the arrow in Fig. 2, so that the front face of each paddle or blade 14 enters the water in the casing and drum and picks up the articles to be washed within the drum and
10 carries them on through the water until the paddle rises sufficiently high, and at a sufficient angle from its face to dump or deliver the said articles back toward the bottom of the drum. These articles are again
15 picked up by the blade or paddle when it meets them again in its revolution so that the operation of the device is to pick up the whole mass of clothes in the drum, carry it through the water and dump said mass
20 back into the water, so that it may be thoroughly saturated thereby. It will be seen that in this operation the tendency of the clothes to wind upon themselves, or to ball, is diminished to the minimum so far as
25 consistent with a sufficient passage of the clothes through the water and of the water through the clothes. Thus far the action described is entirely that of the form of the single paddle drum shown in Fig. 4.
30 Multiple paddle drums are within the scope of this invention, as shown by Figs. 1 and 2. In this case the drums may be arranged, as shown in said figure, so as to alternate in their action, or to be arranged
35 to act upon different portions of the clothes so as to separate the total mass of clothes into parts that are moved differently, thus tending to dump the mass of clothes into separate portions, thus tending still further
40 to prevent the binding or balling of the mass.

It will be noted that the paddles do not extend to the ends 9 of the drum, but that
45 a passage for water is arranged between the edge of the paddle and the end of the drum. This is to prevent the dead water corner that would be produced by the paddle

extending into contact with the end of the drum. The paddles further have edges converging toward the free end or end nearest
50 to the axis of the drum. This construction is for the purpose of permitting the mass of clothes to relieve itself freely from the paddle.

What I claim is:—

1. In a washing machine, a revoluble drum, a paddle or blade fixed longitudinally within the drum and having a working face substantially at right angles to the lines of pressure of the mass of clothes and extending from the periphery of the drum toward
60 and at one side of its axis, the end edges of said paddle or blade being spaced from the ends of the drum; whereby in revolving the drum in one direction, the middle part of
65 the mass of clothes in the drum presses against the working face of the blade and the end portions of said mass bend around the end edges of the blades and resist rotation of said mass.

2. In a washing machine, a revoluble drum, a pair of paddles or blades fixed longitudinally within the drum, one adjacent to each end, with a central passageway between them, and each extending in opposite
70 directions from the periphery of the drum to near the axis thereof and each having a working face substantially at right angles to the lines of pressure of the mass of clothes and having end edges spaced from the ends
80 of the drum; whereby in revolving the drum in one direction, the middle part of the mass of clothes in the drum presses against the working face of each blade and the end portions of said mass bend around the end edges
85 of the blades and resist rotation of the mass and said mass drops from the face of one blade to a position in front of the face of the other blade.

DE WITT HAWLEY.

Witnesses:

D. GURNEE,
L. THON.