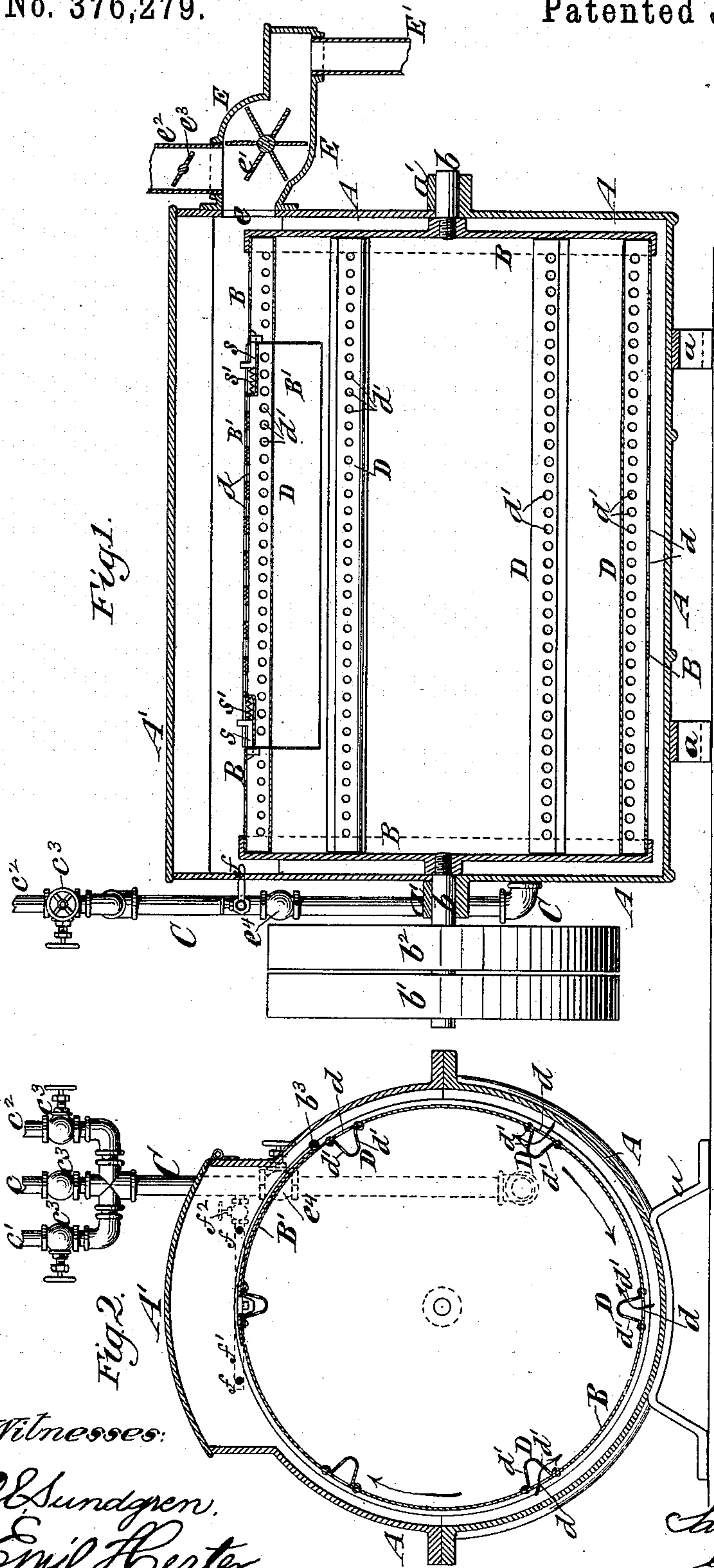


(No Model.)

S. S. BARRIE.  
WASHING MACHINE.

No. 376,279.

Patented Jan. 10, 1888.



Witnesses:

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Inventor:

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# UNITED STATES PATENT OFFICE.

SAMUEL S. BARRIE, OF BROOKLYN, NEW YORK.

## WASHING-MACHINE.

SPECIFICATION forming part of Letters Patent No. 376,279, dated January 10, 1888.

Application filed September 7, 1887. Serial No. 249,048. (No model.)

*To all whom it may concern:*

Be it known that I, SAMUEL S. BARRIE, of Brooklyn, in the county of Kings and State of New York, have invented a new and useful Improvement in Washing-Machines, of which the following is a specification.

My invention relates to that class of washing-machines that has an outer case for retaining water and suds and an inner cylinder or cage which is rotated within the case and in which the clothes are placed.

To get rid of the rapidly-accumulated froth or lather, which holds most of the dirt in suspension, I provide jet-pipes for steam or water, which are arranged at or above the high-water level in the outer case, and which serve to blow off the lather and scum. The outer case is also provided with an overflow-opening, and the discharge of steam or water through the aforesaid jet-pipes serves to carry off the lather or scum through this overflow-opening. For the purpose of breaking up the lather or scum in the overflow-opening I arrange at that point a paddle-wheel or fan, which is turned by the overflowing water, and which serves to assist the breaking up and free carrying off of the lather or scum.

This invention consists in novel combinations of parts, hereinafter particularly described, and pointed out in the claims.

In the accompanying drawings, Figure 1 is a longitudinal section of a machine embodying my invention; and Fig. 2 is a transverse section thereof, looking toward the left hand of Fig. 1.

Similar letters of reference designate corresponding parts in all the figures.

A designates the outer casing of the machine, and B the inner rotary cylinder or cage wherein the clothes are placed for washing. The casing is supported upon feet *a*, and the cylinder or case has at its ends studs or gudgeons *b*, which form its journals, and which turn in bearings *a'* in the outer case. The cylinder or cage B is rotated at the desired speed by suitable gearing, and, as here represented, one of the journals *b* is provided with pulleys *b'* *b''* for the reception of a shifting driving-belt. If desired, gearing may be applied to the cylinder or cage to rotate it alternately in reverse directions.

The outer case, A, is provided with a door, A', which may be opened to give access to the cylinder or cage B, and the cylinder or cage is provided with a door, B', which is hinged longitudinally at *b*<sup>3</sup>. The outer case, A, may be made of wood or of wrought or cast metal, advantageously the latter, and the inner cylinder may be made of sheet metal, or with a sheet-metal body and cast-metal ends. I have represented a pipe, C, as communicating with the outer case, A, and as provided with three branches, *c* *c'* *c''*, each provided with a valve, *c*<sup>3</sup>. One of the branches, *c*, may serve for supplying steam and the other two, *c'* and *c''*, respectively, for supplying hot and cold water to the case A.

Upon the interior of the cylinder or cage B, and at points around its circumference, are provided channels D, which, as here represented, are formed by strips of metal bent to give them an approximately U-shaped transverse section, and having their opposite edges riveted to the cylinder B. Through numerous openings *d*, extending lengthwise of the cylinder in series, the channels D communicate with the exterior case, A, and in both sides of the channels D, I have represented longitudinal rows of perforations or openings *d'*, through which the channels, and therefore the exterior case, A, are placed in communication with the interior of the cylinder.

The cylinder or cage B, containing the clothes which have been placed therein, may be rotated, for example, in the direction indicated by the arrow in Fig. 2; and it will be readily understood that the perforations *d'* in one side of the channels D will be closed by the clothes packing against them, as caused by the suction produced through said holes on the clothes by the rapid rotation of the cylinder or cage. This suction will cause the clothes to draw away from the holes *d'* in the opposite sides of the channels, and through these open holes jets of water and suds will be caused to pass with great force, as indicated by the arrows applied to the channels in Fig. 2, and the jets thus produced will act energetically upon the clothes, which follow in the rotary motion.

As shown best in Fig. 1, the channel D is continued across the door B', and, as is best shown in Fig. 1, the sliding bolts or catches *s*,



which secure the door B' closed, have applied to them springs s', and are arranged within the channel D, so that there is no opportunity for the clothes within the cylinder to catch upon them.

During the washing of the clothes there is a large accumulation of lather or scum at the surface of the water in the outer case, A, which holds a considerable part, or nearly all, of the dirt in suspension; and an important object of my invention is to get rid of this lather or scum and dirt and to enable the clothes to be rinsed with clean water without removing them from the cylinder or cage B. At one end of the case A, I have represented an overflow-opening, e, and arranged at the opposite end of the case are jet-pipes f, which extend from the branch f', leading from the pipe C. This branch is controlled by a valve, f<sup>2</sup>, and whenever desired steam or water may be ejected through the jets f, for blowing the lather or scum off from the water and toward the opposite end of the case. The overflow-opening e is about in the middle of the case widthwise, and the jet-pipes are preferably farther apart than the width of the opening, so that their jets will blow the lather and contained dirt in a body toward and against the opposite end of the case. The lather will then pass through the overflow in bulk, or practically in an unbroken state, and carry the dirt in suspension. The overflow-opening e has connected with it a pocket or case, E, constructed with a depression from the overflow-opening, and in which is arranged a fan or bladed wheel, e', constructed like an undershot water-wheel, and to be turned by the passage under it of the overflow-water. This fan

or wheel e' serves to break up the lather or scum and to facilitate its final or complete discharge through the discharge-pipe E', and it also serves as a valve to substantially close the pocket and render the case A nearly steam-tight. From the case or pocket E extends the usual vapor-pipe, e<sup>2</sup>, in which is a damper, e<sup>3</sup>.

I have represented in the pipe C a stop-valve, e<sup>4</sup>, by which the passage through the pipe may be controlled.

After the clothes are thoroughly washed by the action of steam and hot water introduced through the pipe C, supplemented by the rotation of the cylinder or cage, cold water may be introduced through the pipe C and the clothes thoroughly rinsed, so that when they are removed from the cylinder or cage they are in a condition to be wrung out and then dried.

The invention for which I desire Letters Patent is—

1. The combination, with the outer case and the inner rotary cylinder or cage of a washing-machine, of jet-pipes for fluid arranged at or above the high-water level therein and serving to blow off the lather and scum, substantially as herein described.

2. The combination, with the outer case of a washing-machine having a water-overflow comprising a pocket or depression, of a wheel or fan arranged in said pocket or depression and serving to break up and facilitate the escape of the lather and scum, substantially as herein described.

SAMUEL S. BARRIE.

Witnesses:

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