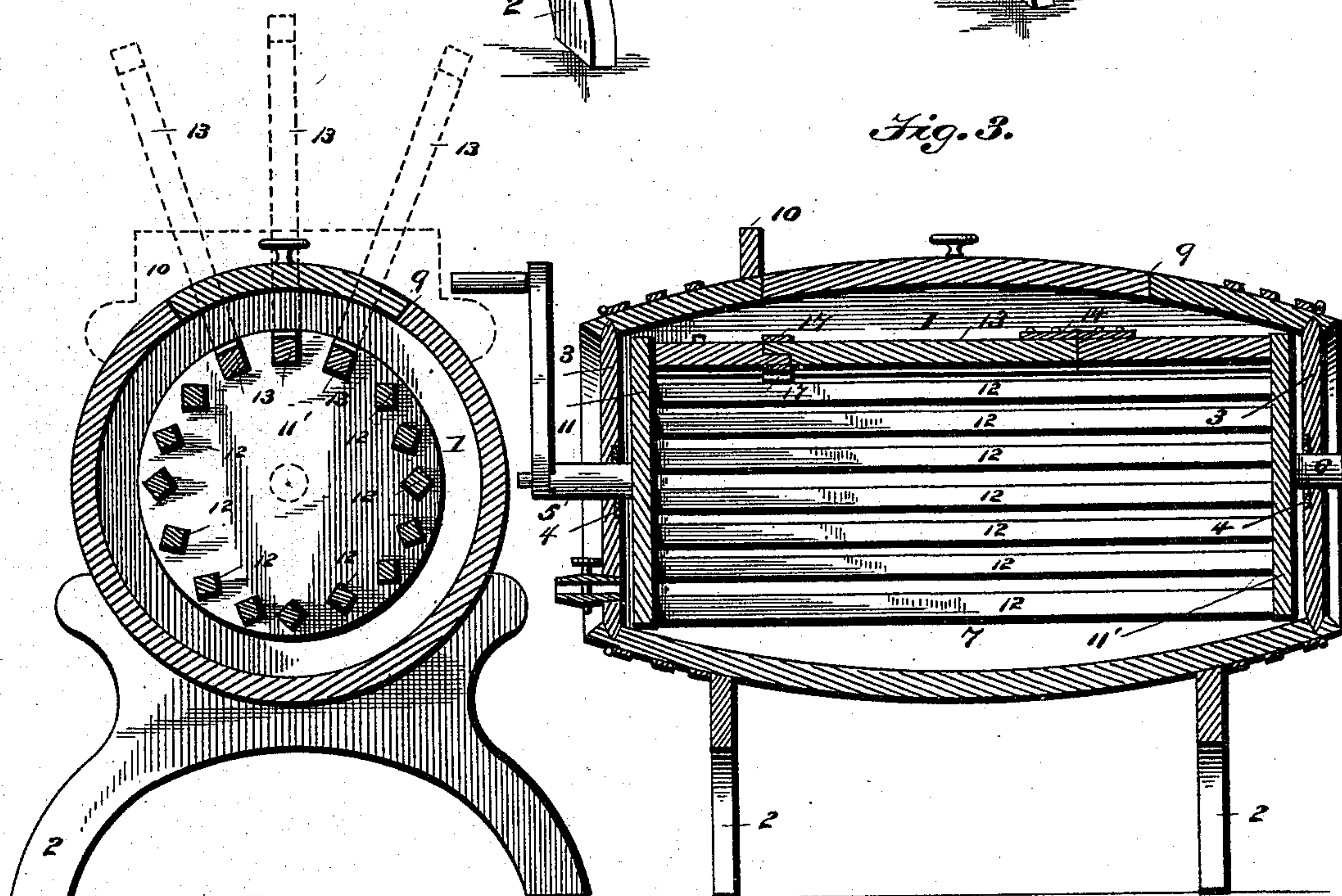
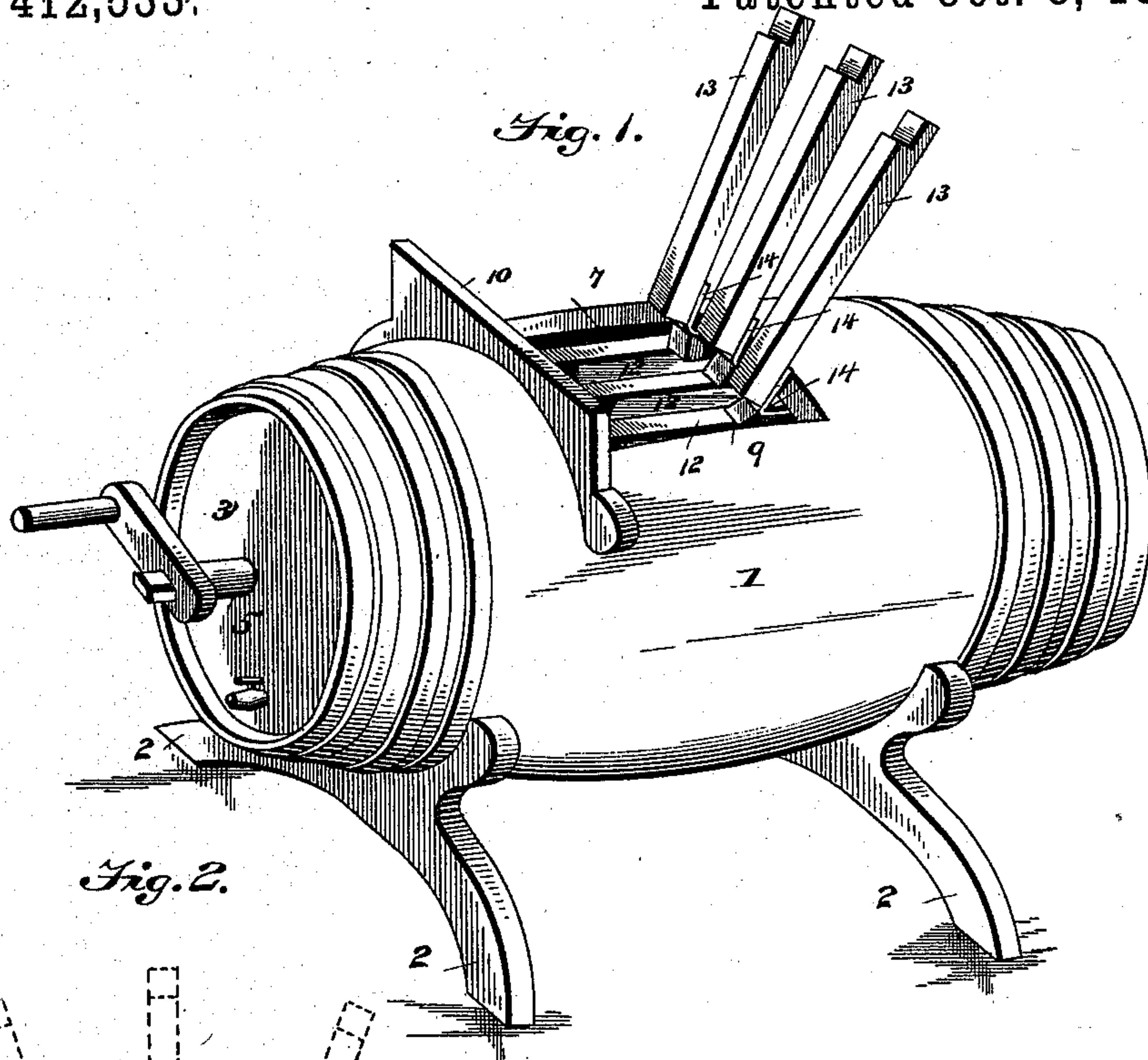


(No Model.)

N. D. OLIPHANT.
WASHING MACHINE.

No. 412,533.

Patented Oct. 8, 1889.



WITNESSES

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NORMAN D. OLIPHANT, OF MEADE, KANSAS.

WASHING-MACHINE.

SPECIFICATION forming part of Letters Patent No. 412,533, dated October 8, 1889.

Application filed April 13, 1889. Serial No. 307,177. (No model.)

To all whom it may concern:

Be it known that I, NORMAN D. OLIPHANT, a citizen of the United States, residing at Meade, in the county of Meade and State of Kansas, have invented certain new and useful Improvements in Washing-Machines; and I do hereby 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.

My invention relates to improvements in washing-machines of that class which employ a rotary cylinder operating within a stationary tub or receptacle; and it consists of the peculiar construction, combination, and arrangement of parts, as will be hereinafter fully described, and particularly pointed out in the claims.

The object of my invention is to provide an improved washing-machine which can be operated with a minimum effort to rapidly and thoroughly cleanse the fabrics contained within the rotary cylinder, which machine shall combine simplicity and durability of construction, efficiency of operation, and cheapness of manufacture.

A further object of my invention is to provide the washing-machine with a cylinder of novel form, having an opening in one side thereof for the introduction or removal of the fabrics, formed by individual bars which are hinged to the cylinder and capable of being lifted or raised to an upright, inclined position. When so raised, these hinged bars project or extend beyond the tub or vessel, and the hinges which connect these bars to the rotary cylinder lie at right angles to the plane of rotation of the cylinder, whereby said bars are adapted to impinge against the side edges of the opening in the tub, and thus prevent the rotary cylinder from turning on its axis when the attendant is engaged in the operation of placing fabrics in or removing them from the cylinder, which is highly desirable. These hinged bars are adapted to be folded so as to form a part of the rotary cylinder, and thus close the opening in the side thereof; and said bars are secured in place by sliding sleeves, which can be expeditiously and easily operated.

To enable others to understand my invention, I will now proceed to a detailed descrip-

tion thereof in connection with the accompanying drawings, in which—

Figure 1 is a perspective view showing the hinged bars in an elevated position to permit the fabrics to be placed in the cylinder. Fig. 2 is a vertical cross-sectional view through the machine, showing in full lines the hinged bars closed to form a part of the cylinder and in the dotted lines the bars raised or elevated. Fig. 3 is a central longitudinal sectional view.

Like numerals of reference denote corresponding parts in all the figures, in which—

1 designates the stationary tub or receptacle of my improved washing-machine. This tub or receptacle is preferably made in the shape of a cylinder or barrel, and it is supported in a horizontal position by suitable legs 2. At its ends the barrel-shaped receptacle is provided with closed heads 3, in which are secured metallic bearings or boxes 4, that support the gudgeons or trunnions 5 6 of a rotary cylinder 7, one of said trunnions being extended through its bearing and the head of the tub to which said bearing is fixed, and receiving a crank-handle 8, that serves as the means for applying power to rotate the cylinder 7. This receptacle is further provided in its upper side with an opening 9, through which the fabrics can be passed in removing them from or placing them in the cylinder, and at one end of the opening 9 a vertical supporting-strip 10 is fixed to the receptacle or tub to provide for the attachment of a wringing-machine to the tub in such a position that it will be convenient for the attendant to wring the clothes as they are removed from the cylinder of the machine.

The cylinder 7 of my washing-machine consists of two flat concentric heads 11 11' and a series of individual longitudinal bars 12 13, which are arranged in a circle around the concentric heads and secured in a fixed manner directly thereto. These longitudinal bars are spaced at suitable intervals around the heads of the cylinder, and they are arranged with their angles facing toward the axis of the cylinder, so as to present a roughened or corrugated surface, which exerts a rubbing action on the fabrics and facilitates the operation of washing the same.

The angularly-arranged bars 12 of the ro-

tary cylinder are each made of a single piece and continuous from one head of the cylinder to the other; but the bars 13 are each made in three parts, the two end parts or members of which bars are much shorter than the middle members, and said end members are fixed directly to the heads of the cylinder. To one of these short members of each bar one end of the longer middle member of said bar is hinged by strap-hinge 14, preferably of metal, whose longitudinal axis is at right angles to the plane of rotation of the cylinder, for a purpose hereinafter described, and the opposite end of said middle member of the bar is rabbeted to fit a corresponding rabbet on the outer end of the other end member of said bar, whereby when the middle member is folded its rabbet rests on the rabbet of the short end member, and the three members of the bar are thus arranged in line with each other to form a practically continuous bar, the free end of the middle member being confined or held in place by means of a sliding angular sleeve 17, which fits over the lapped meeting ends of the middle member and one of the short end members. In practice three or four (more or less) number of adjoining bars 13 of the cylinder are constructed in this manner, and said bars are adapted to be turned to an elevated or raised position when the sleeves thereof have been adjusted to release the outer unconfined ends of the bars, whereby an opening is made or provided in one side of the rotary cylinder of sufficient dimensions to permit of the ready introduction or removal of the fabrics. The hinges of the adjustable bars 13 are located in such a point of the length of the cylinder as to lie beyond one end of the opening in the tub or receptacle, and thus when the bars 13 are raised they assume an inclined position, as indicated in Figs. 1 and 2, which obviates the danger of the bars dropping back into a horizontal position in the tub while the operation of removing or replacing the fabrics is being carried on.

The operation of my invention is as follows: The cover of the tub or receptacle is removed and the cylinder turned so that the sectional hinged bars 13 thereof are opposite said opening. The sleeves on the sectional bars are adjusted to release the outer unhinged ends of the sectional bars, and the latter are raised by hand to the vertically-inclined positions indicated. These hinged bars extend or project through the opening in the tub or vessel, impinge against the side edges and one end edge of said opening in the tub, and as their hinges are at right angles to the plane of rotation of the cylinder, when said bars are adjusted as described, the cylinder cannot turn or rotate, which is highly desirable when placing the fabrics in or removing them from the cylinder. After the fabrics have been placed in the cylinder the hinged bars are lowered and secured in

place to form a part of the cylinder, and the latter is rotated by turning the crank-handle to agitate the contents thereof and subject them to the rubbing action of the roughened or corrugated interior surface of the cylinder. I have found by practical experiments that a cylinder constructed in this manner is exceedingly efficient in operation, as the clothes are thoroughly and expeditiously cleansed within a very short space of time and with comparatively little effort.

I do not confine myself to the precise details of construction and form and proportion of parts herein shown and described as an embodiment of my invention, as I am aware that slight changes therein can be made without departing from the spirit of my invention.

In practice I taper each hinged member of the bar 13 slightly near its outer end, so as to prevent displacement of the sleeve when it is adjusted over the lap-joint between said hinged member and the short end member, to which the hinged member is connected by said sleeve, and on said short member I provide a fixed strap to limit the movement of the sleeve on said short member.

Having thus fully described my invention, what I claim as new, and desire to secure by Letters Patent, is—

1. In a washing-machine, the rotary cylinder consisting of the heads, the longitudinal continuous bars fixed thereto, and the sectional bars, said sectional bars having members which are fixed to the heads of the cylinder and other members which are hinged to the fixed members, said hinged members being confined at their free ends, when they lie substantially parallel with the axis of the cylinder, by suitable fastening devices, whereby the series of sectional bars are adapted to provide an opening for the introduction or removal of fabrics when they are raised, and to form a part of the cylinder when closed and locked in position, substantially as described.

2. In a washing-machine, the rotary cylinder consisting of the heads, the continuous longitudinal bars fixed thereto, and the sectional longitudinal bars having the end members thereof likewise fixed to said heads, the middle member of each sectional bar being hinged to one of the end members, while the unconfined end of said middle member is adapted to be confined in line with the two end members of said bar by a sliding sleeve which fits over the meeting lapped ends of the middle and end members, substantially as and for the purpose described.

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

NORMAN D. OLIPHANT.

Witnesses:

GEO. W. WILEY,
FRANK J. BUXTON.