

No. 726,827.

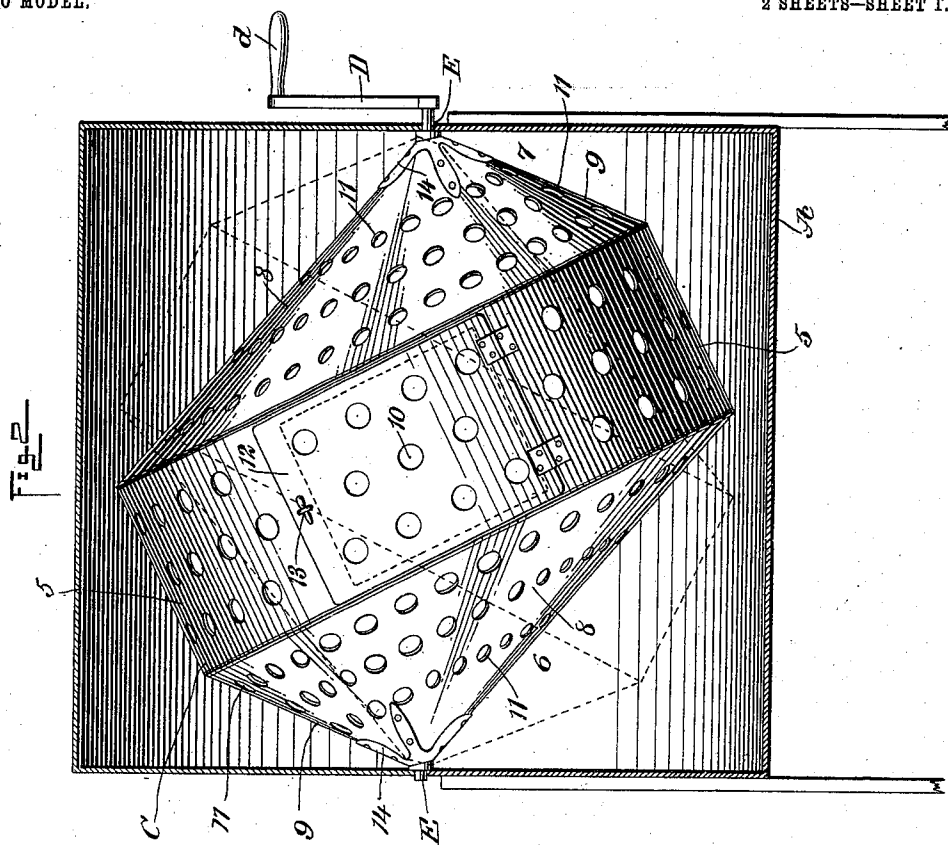
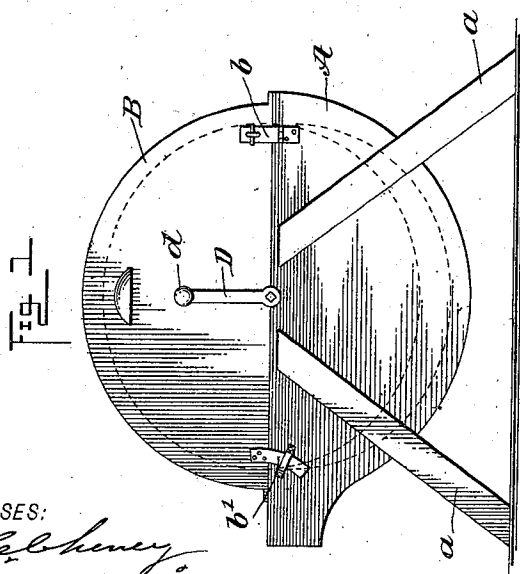
PATENTED APR. 28, 1903.

G. H. RHODES.
WASHING MACHINE.

APPLICATION FILED MAY 29, 1903.

NO MODEL.

2 SHEETS—SHEET 1.



WITNESSES:

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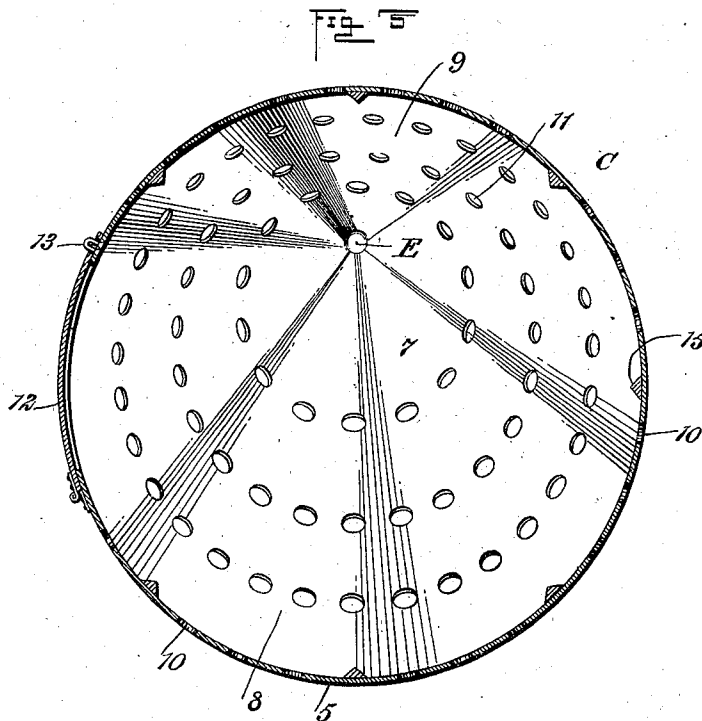
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WITNESSES:

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UNITED STATES PATENT OFFICE.

GEORGE H. RHODES, OF HEALDSBURG, CALIFORNIA.

WASHING-MACHINE.

SPECIFICATION forming part of Letters Patent No. 726,827, dated April 28, 1903.

Application filed May 29, 1902. Serial No. 109,522. (No model.)

To all whom it may concern:

Be it known that I, GEORGE H. RHODES, a citizen of the United States, and a resident of Healdsburg, in the county of Sonoma and State of California, have invented a new and Improved Washing-Machine, of which the following is a full, clear, and exact description.

My invention relates to improvements in washing-machines of that class which employ a hollow drum mounted to rock or turn on its axis of suspension within a suds-box or other containing vessel.

In the present invention I employ a peculiar form of drum which is suspended to rock or turn on a transverse axis, and the said peculiar configuration of the drum is designed with an especial object of forcibly throwing the fabrics from one side to the other of the drum and of causing those portions of the fabrics which do not come in contact with the surfaces of the drum to frictionally rub against each other during the oscillation of the drum, whereby all portions of the fabrics are cleansed without exposing them to such violent mechanical rubbing as will be liable to tear and injure the clothes during the washing operation.

With these ends in view the invention consists of a washing-machine embodying novel features of construction and arrangement, which will be hereinafter fully described and claimed.

Reference is to be had to the accompanying drawings, forming a part of this specification, in which similar characters of reference indicate corresponding parts in all the figures.

Figure 1 is a side elevation of a washing-machine embodying the features of my invention. Fig. 2 is a sectional elevation, the drum being shown in elevation and the receptacle or suds-box in transverse central section; and Fig. 3 is a detail view taken through the cylindrical member of the drum and looking toward one of the irregular conical side sections.

A indicates the suds-box, having the usual legs *a* and equipped with a semicylindrical cover-section B, the latter being hinged, as at *b*, and adapted to be held in its closed position by a suitable catch *b'*. The suds-box may be provided with a strip adapted for the attachment of the wringer; but as these fea-

tures are well known in the art I have not considered it necessary to illustrate them.

Within the closed chamber formed by the suds-box and its hinged cover I have arranged an oscillatory drum, which is indicated in its entirety at C, and this drum is peculiarly constructed in order to forcibly throw the fabrics from one side to the other during the operation of oscillating the drum by any suitable mechanical appliance—such, for example, as the crank D, which is provided with the usual handle *d*, although it is evident that any suitable mechanical appliance may be adopted in lieu of the crank for giving the desired motion to the drum. The drum is composed of a cylindrical part 5 and the irregular conic parts 6 7. In each of these conic parts one side of the base is considerably nearer the apex than is the opposite side. These parts are made of sheet metal or other material, and the conic members have their open ends attached to the ends of the cylindrical part, so that the apices of the cones are on opposite sides of the geometric axis of the part 5. These members are perforated at 10 11 for the free passage of the water. From the apices the trunnions E extend in alinement and have suitable bearings in the suds-box. These trunnions serve to support the oscillatory drum within the suds-box in a manner for the drum to have a rocking motion when the crank or other device is operated, and the peculiar formation of the members 6 7 and the arrangement of the trunnions thereon serve to support the drum in such a position that its middle section 5 will lie diagonally in the chamber of the suds-box, one position of the drum being shown by full lines and the other position of the drum, when it is given a half-turn, being indicated by dotted lines in Fig. 2. The cylindrical section of the drum is provided with a hinged cover 12, adapted to have its free edge secured in place by any suitable fastener, as 13, said cover adapted to be opened in order that access may be obtained to the chamber of the drum for the purpose of placing the clothes therein or of removing them from said drum.

Each trunnion E may be fastened to the apex of a conical side member by any suitable means, but as shown in Fig. 2 the trunnion is made a part of a spider, having the

radial arms 14, that are disposed at different angles to the trunnion in order to bear firmly against the exposed surface of the drum member, said arms being secured to the drum by riveting them in place or by the employment of other suitable fasteners.

The drum of my invention operates so efficiently on the clothes that it is not necessary to provide the interior surface thereof with rubbers; but in Fig. 3 I have shown the cylindrical middle member 5 as constructed with a plurality of transverse rubbing-ribs 15. These ribs preferably extend in a straight direction across the inner cylindrical surface of the middle member 5, and they are in alternate relation to the series of drain-holes 10. It will be understood, however, that the ribs may be omitted, if desired. The inner surfaces of the irregular conical side members 6 7 of the drum are not provided with rubbing-ribs, and hence these side members present comparatively smooth surfaces to the fabrics, the latter being free to slide or turn on these surfaces of the conical side members during the oscillation of the drum.

In the operation of my improved machine a proper quantity of hot soapy water is placed in the suds-box A, and the cover B of the suds-box, as well as the cover 12 of the drum, having been opened the operator can obtain free access to the machine in order to place the fabrics therein. The cover 12 of the drum is closed and fastened, and the cover B of the suds-box is likewise closed and fastened, after which the operator manipulates the crank D by giving it a half-turn in order to impart the desired oscillation to the drum.

The movement of the drum through the hot soapy water causes it to circulate through the perforations and the chamber of the drum, thereby permeating the fabrics contained in the latter. When the drum turns in one direction through an arc of one hundred and eighty degrees, it is caused to pass from one diagonal position to the other, as indicated by full and dotted lines in Fig. 2, and during this semiturning movement of the drum the long inclined surface of one side member is brought in reversed relation to the corresponding surface of the other side member, and the same change takes place in the position of the short inclined surfaces of the two side members. This reversal in the positions of the short inclined surfaces of the irregular conical side members forming parts of the drum causes the fabrics to be forcibly thrown from one side to the other

of the drum, and these fabrics are adapted to be impelled from the abruptly-inclined surface of one side member to the long and slightly-inclined portion of the other side member, down which the fabrics are adapted to roll or slide in order to rub frictionally against the perforated surfaces of the drum and to cause the fabrics to frictionally rub against one another. This operation of rubbing the fabrics takes place during each semiturn of the drum, and in addition to being subjected to the rubbing action of the side members the fabrics are rubbed against the perforated cylindrical middle section 5 and the ribs 15 thereof, whereby thin delicate fabrics may be washed thoroughly without tearing or injuring them in any way.

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

1. In a washing-machine, an oscillatory drum comprising a middle cylindrical member and irregular conic members, the latter having their open ends attached to the ends of the cylindrical member; each conic member having one side of the base nearer to the apex than the opposite side thereof, and the apices of the conic members lying on opposite sides of the geometric axis of the cylindrical member.

2. A washing-machine comprising a suitable receptacle, an oscillatory drum, the latter consisting of a middle cylindrical member and irregular conic members, said conic members having their open ends attached to the ends of the cylindrical member; each conic member having one side of the base nearer to the apex than the opposite side thereof, and the apices of the conic members lying on opposite sides of the geometric axis of the cylindrical member, a suitable door provided in the cylindrical member, transverse ribs on the inner active surface of said cylindrical member, and trunnions projecting from the apices of the irregular conic members and mounted in said receptacle to support the cylindrical member of said drum in a diagonal position therein.

In testimony whereof I have signed my name to this specification in the presence of two subscribing witnesses.

GEORGE H. RHODES.

Witnesses:

ISAAC S. LEWIS,
C. H. ALLEN.