

No. 687,742.

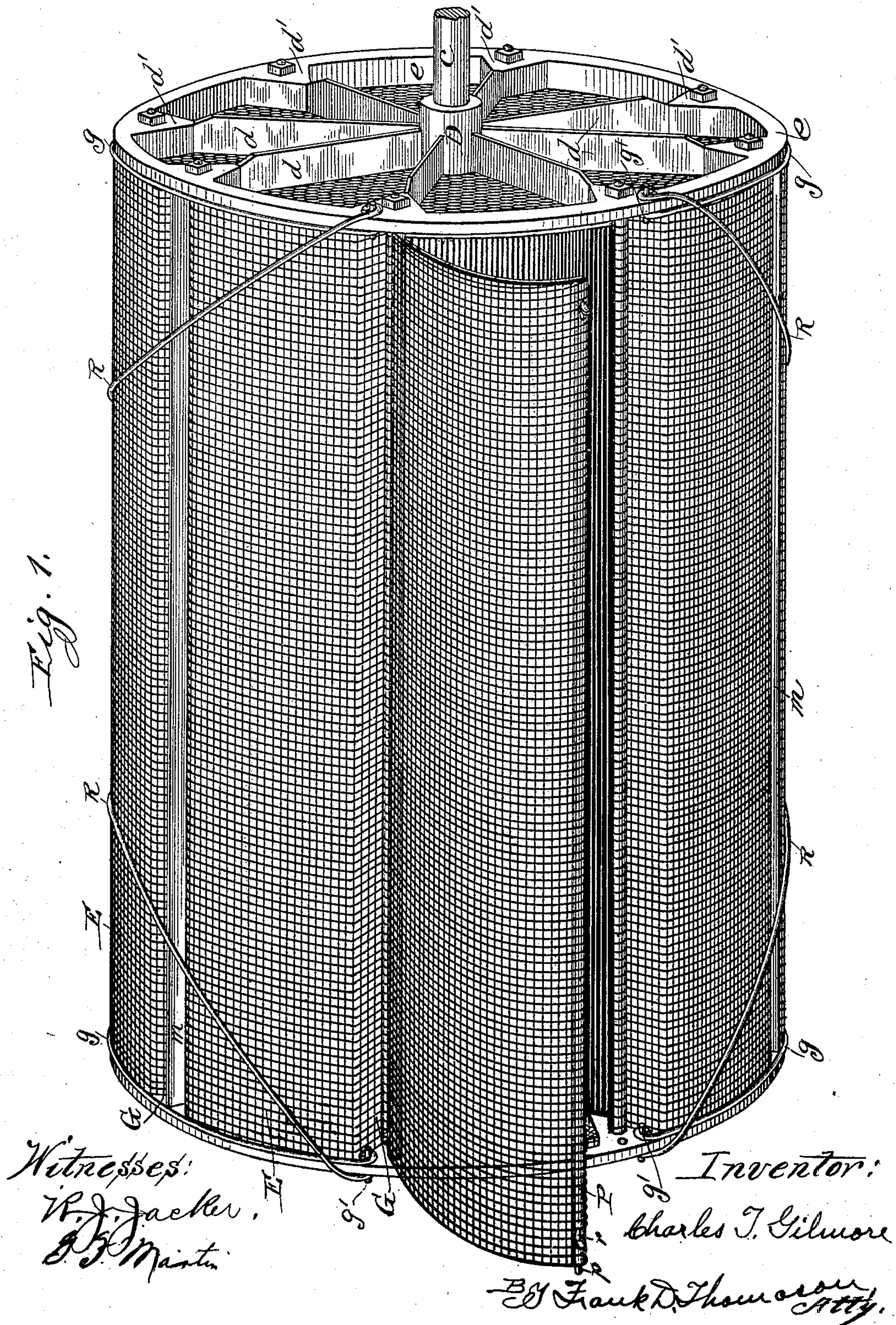
Patented Dec. 3, 1901.

C. T. GILMORE.  
WASHING MACHINE.

(Application filed May 22, 1899. Renewed Apr. 15, 1901.)

(No Model.)

3 Sheets—Sheet 1.





No. 687,742.

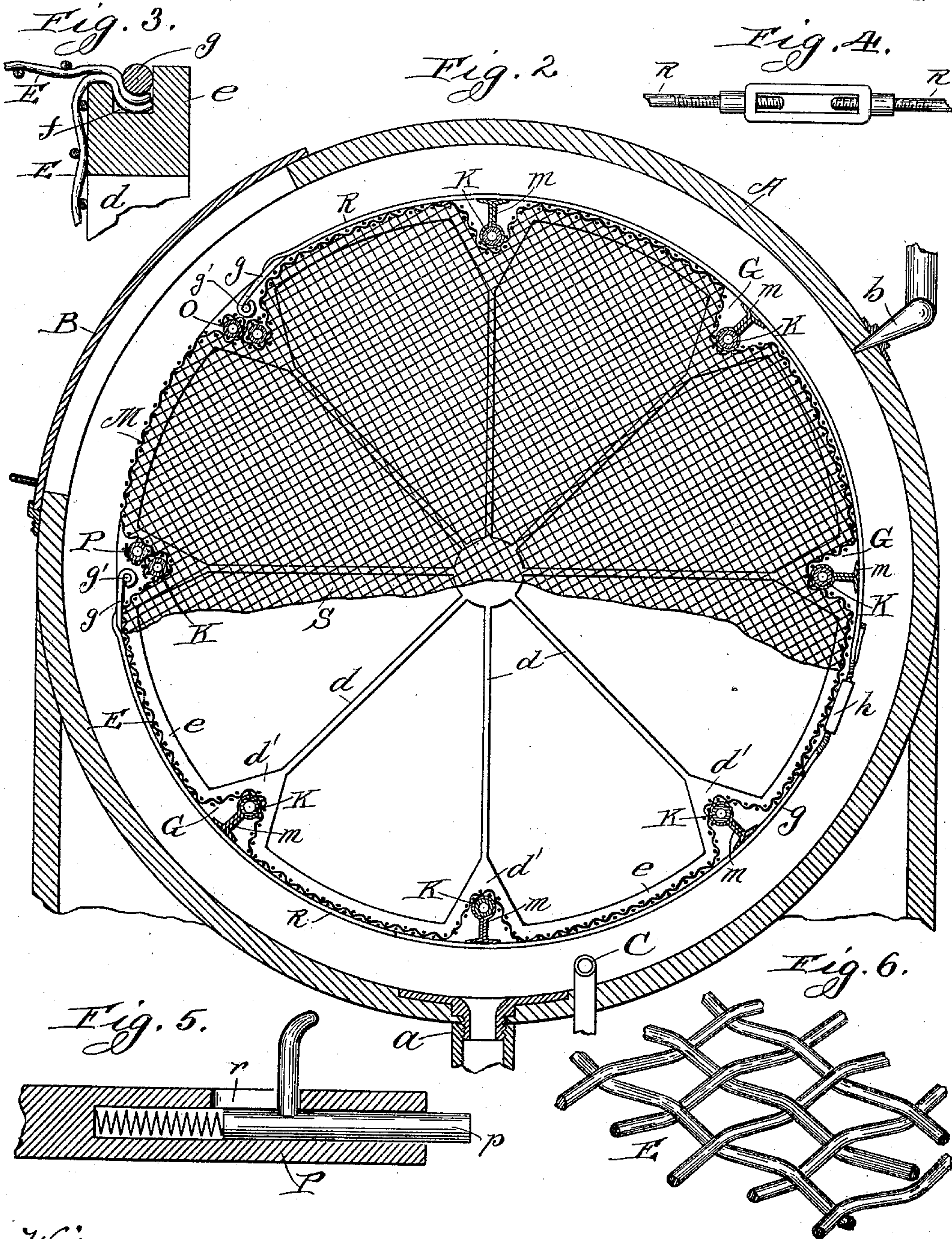
Patented Dec. 3, 1901.

C. T. GILMORE.  
WASHING MACHINE.

(Application filed May 22, 1899. Renewed Apr. 15, 1901.)

(No Model.)

3 Sheets—Sheet 2.



Witnesses:

V. J. Jacker,  
E. J. Martin

Inventor

Charles T. Gilmore  
By Frank D. Thomas,  
Atty.



**No. 687,742.**

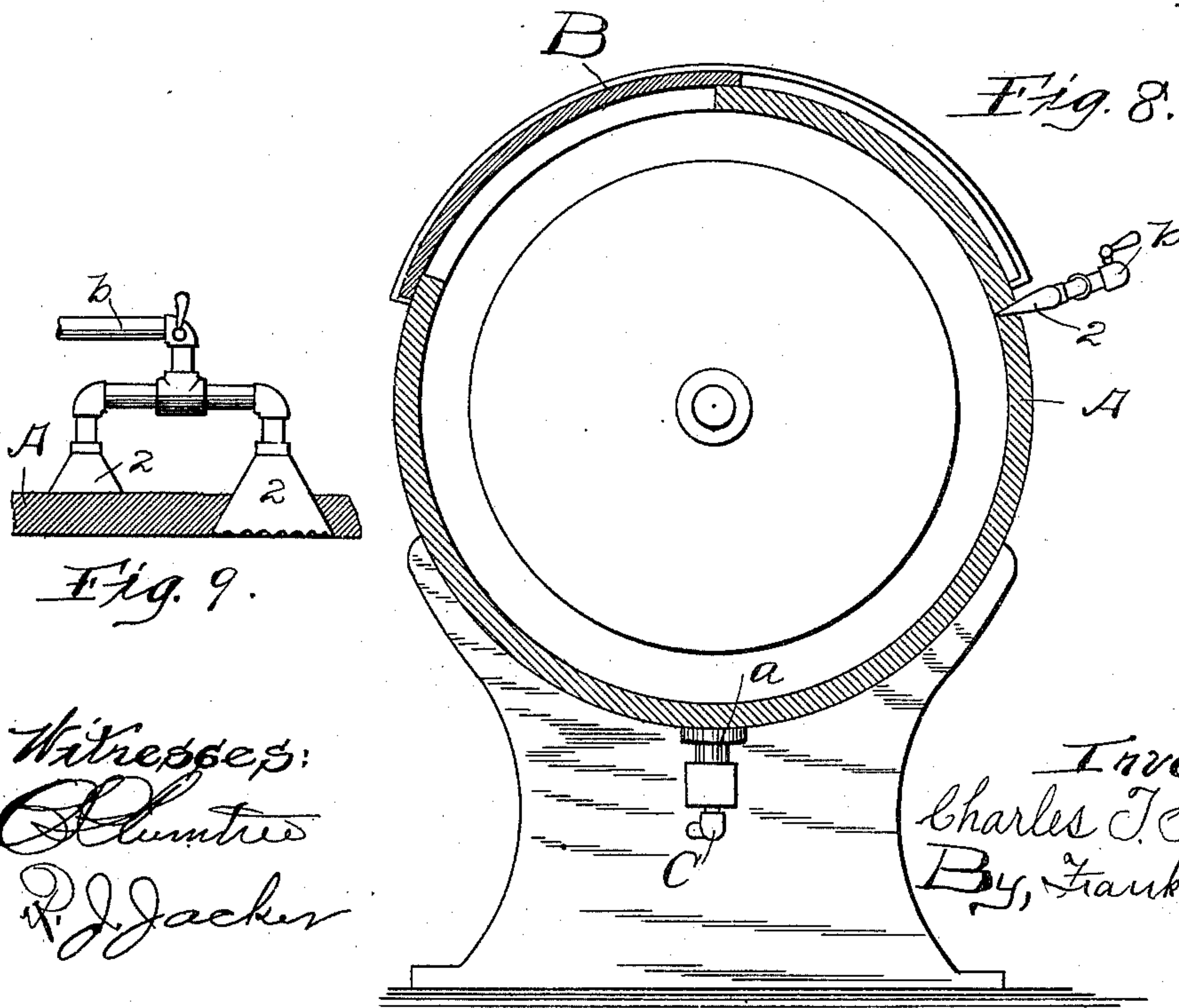
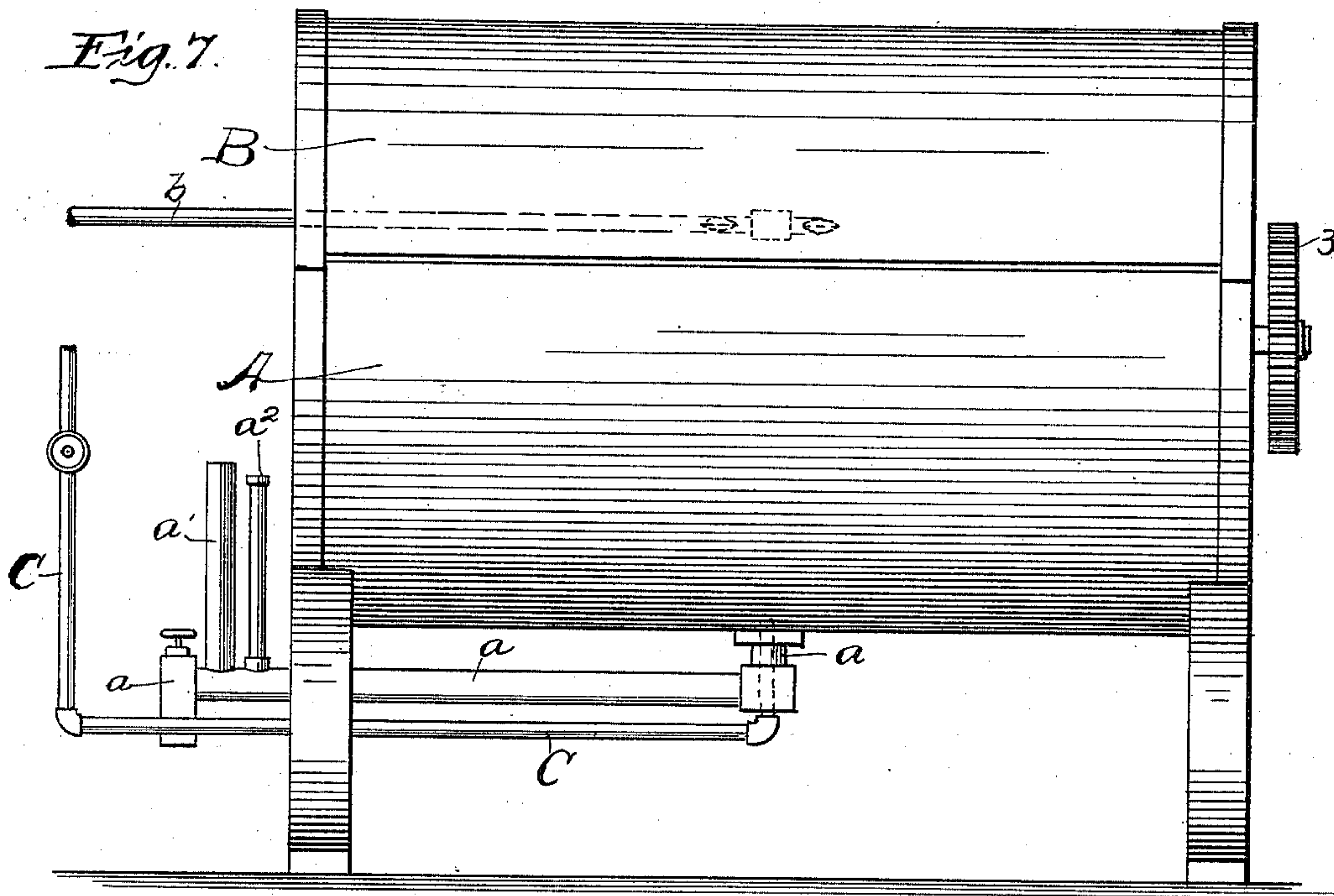
**Patented Dec. 3, 1901.**

**C. T. GILMORE.**  
**WASHING MACHINE.**

(Application filed May 22, 1899. Renewed Apr. 15, 1901.)

(No Model.)

**3 Sheets—Sheet 3.**



Witnesses:  
 Elmer  
 R. J. Jacker

Inventor:  
Charles T. Gilmore  
By, Frank D. Thomason  
Att'y.



# UNITED STATES PATENT OFFICE.

CHARLES T. GILMORE, OF SAULT STE. MARIE, MICHIGAN.

## WASHING-MACHINE.

SPECIFICATION forming part of Letters Patent No. 687,742, dated December 3, 1901.

Application filed May 22, 1899. Renewed April 15, 1901. Serial No. 55,949. (No model.)

*To all whom it may concern:*

Be it known that I, CHARLES T. GILMORE, a citizen of the United States, and a resident of Sault Ste. Marie, in the county of Chippewa and State of Michigan, have invented certain new and useful Improvements in Washing-Machines, of which the following is a full, clear, and exact description.

My invention is more especially adapted for use in laundries; and its object is to provide such improvements therein that the thorough agitation of the clothes, circulation of water, and aeration take place. This I accomplish by mechanism which practical experience has demonstrated greatly reduces the period of time required to wash a batch of clothes and which minimizes the wear and tear thereof, substantially as hereinafter fully described and as illustrated in the drawings.

Figure 1 is a perspective view of the woven-wire drum of my invention. Fig. 2 is a transverse section of the same and the case therefor. Fig. 3 is a detail view showing a section of the rim of the head-frame and the edges of the woven-wire edge and periphery of the drum. Fig. 4 is a detail view of a turn-buckle used in connection with the tightening devices of said drum. Fig. 5 is a detail view showing one end of the bar reinforcing the outer edge of the cover of the drum in longitudinal section. Fig. 6 is a perspective view of a portion of the woven-wire fabric used in the construction of the drum. Fig. 7 is a side view of the entire washing-machine. Fig. 8 is a transverse section thereof with the drum removed. Fig. 9 is a detail view showing a plan of the discharge end of the water-pipe.

In the drawings, A represents a suitable case, preferably of a cylindrical shape, which is supported by suitable legs and is provided with a suitable door B, that conforms to the curvature of said case and preferably slides in suitable guides formed by the hoops or bands wholly or partially surrounding the ends of the same. This case is provided with a drain-pipe *a*, which takes from its bottom at about the center of length thereof and discharges through a suitable valve-controlled downwardly-bent end just beyond one end

of the case. Between the discharge end of said pipe *a* and the side of the case it is provided with a vertically-projecting open-top overflow-pipe *a'*, which when the water gets too high in the case A overflows, and along-side of this overflow-pipe I arrange a gage *a''*, consisting of a vertically-projecting pipe having a glass side and having the top thereof suitably closed, which enables the operator to easily ascertain the liquid contents in the case, so that he may regulate the water-supply thereof according to the requirements of the work the machine has to perform.

The water-supply for the machine is furnished through a valve-controlled pipe *b*, which enters the rear of the case and has lateral branches on its inner ends, the extremity of each of which is provided with fan-tail nozzles 2, which spread the discharged water in all directions toward the contiguous ends of the case.

C represents a valve-controlled steam-pipe which leads to and injects the steam in the bottom of the case at about its center of length in convenient position to agitate and heat the water.

In the center of the heads of the case A are suitable bearings for the journals *c* of the open heads D of the drum in which the clothes are confined when being washed. One or both of these journals is provided with a gear 3, which is given a rotary reciprocal movement by suitable mechanism. The heads of this drum consist of a wheel-like structure having broad flat spokes *d* projecting radially from the central boss thereof at equal distances apart and having their outer ends spread into a web of metal *d'*, which connects the spoke to the outer circular rim *e* of the head. This rim *e* is of a width slightly less than that of the broad flat spokes *d*, and it has contiguous to its inner side—that is, the side facing the interior of the drum—a channel or groove *f*, which follows the curvature of the circumference of the rim between the fan-tail webs *d'*, opposite which this groove extends inward and then outward in sort of a V-shaped course, as shown. The interior side of the heads is covered by a coarse woven-wire fabric the outer edges of which



conform and are bent or seamed over into the groove *f* in the rim *e*. These heads are connected by a coarse woven-wire cover E, which forms the cylindrical exterior of the drum.

5 The end edges of this woven-wire cover E extend to and are likewise bent into the groove *f* in the heads, wherein they are secured by tie-bars *g g*, one end of each of which is secured in any suitable manner to a  
10 lug *g'*, projecting from said head in longitudinal alinement with one edge of the opening through which access is had to said drum, and extend in the circumferential portions of the groove *f* until their ends are within a  
15 short distance of each other, whereupon they are connected with a turnbuckle *h*, which can be manipulated to draw said rods tight and bind the end edges of the woven-wire cover E and the edges of the woven-wire fabric of the heads securely in said groove *f*.

In conforming the edges of the cover E to the curvature of the groove *f* in the rim *e* longitudinal corrugations or grooves G are formed in the cylindrical exterior of the  
25 drum, which besides forming longitudinal ridges on the interior of said drum, which agitate the clothes being washed therein during the operation of the machine, afford a channel within which the tie-bars K are  
30 seated, the ends of which extend through the fan-tail-shaped web *d'* of the head and by means of suitable nuts thereon clamp said heads and cover D rigidly together. Surrounding these tie-bars K, between the heads,  
35 are tubular-shaped metal coverings, which consist of a suitable strip of sheet metal bent around to conform to the tubular shape of said tie-bar and having their longitudinal edges flanged outward and lapped against  
40 each other to form paddles *m*, which during the revolution of the drum materially assist in agitating the water in such manner as to effectually promote the washing and rinsing action of the machine.

45 In order to provide access to the interior of the drum through which to insert and remove the clothes, I do not extend the cover E clear around the exterior of the same, but leave a space between two of said tie-bars uncovered  
50 and close the same by a hatch M. This hatch is made of coarse woven wire like the remainder of the cover E of the drum and is shaped so as to conform to the segment of the exterior thereof, which it closes. Its longitudinal edges are turned or rounded inward,  
55 and one of said edges is bent around a longitudinally-disposed bar O, located parallel and almost in contact with the adjacent tie-bar, forming a knuckle the length of which coincides with the length of the cover. The opposite longitudinal edge of the hatch is bent  
60 around and reinforced by a tube or section of pipe P, the length of which coincides to the distance between the heads. Near each  
65 end this pipe is provided with spring-actuated outwardly-shot bolts *p p*, which are manipulated

by means of a finger-grasp projecting out through longitudinal slots *r* in said pipe, which shoot into suitable recesses made therefor in the heads of the drum when said hatch  
70 is closed.

In order to counteract torsional strain, I provide the drum with oblique stay-rods R, which extend from suitable lugs projecting from the heads contiguous to one corner of  
75 the hatch-opening and extending obliquely around the exterior of the drum to a suitable lug at the opposite corner of the doorway at the other end of the drum. These stay-rods are divided about their centers of length and  
80 their separated ends connected by suitable turnbuckles, (which are located over one of the corrugations of the drum,) by manipulating which the possibility of torsional strain finding expression is entirely avoided.

What I claim as new is—

1. In a washing-machine a revolving drum the periphery of which is made of woven wire and provided with longitudinal corrugations therein, in combination with heads having a  
90 groove therein conforming to the transverse contours of said woven-wire periphery, and woven-wire fabric closing said head, in combination with circumferential tie-bars for securing the end edges of said woven-wire sides  
95 and the edges of the woven-wire fabric closing said heads in said grooves.

2. In a washing-machine a revolving drum the periphery of which is made of woven wire and provided with longitudinal corrugations  
100 therein, and heads therefor, in combination with longitudinal tie-bars connecting said heads seated in said corrugations and paddles secured to said tie-bars.

3. In a washing-machine a revolving drum  
105 the periphery of which is made of woven wire and is provided with longitudinal corrugations therein, and heads therefor having circumferential grooves the course of which conforms to the transverse contours of said  
110 woven-wire periphery the end edges of which are seated therein, in combination with longitudinal tie-bars connecting said heads and seated in said corrugations, and circumferential tie-rods for securing the end edges of  
115 said woven-wire periphery in the grooves of said heads.

4. In a washing-machine a revolving drum the periphery of which is made of woven wire which is provided with longitudinal corrugations, heads for the same having a circumferential groove the course of which conforms to the transverse contours of said woven-wire periphery, and woven-wire fabric closing  
120 said open heads the edges of which together with the end edges of the woven-wire periphery being seamed in said grooves, in combination with longitudinal tie-bars connecting said heads and seated in said corrugations and circumferential tie-rods for  
125 securing the woven-wire periphery and woven-wire fabric in said corrugations.



5 5. In a washing-machine a revolving drum the periphery of which is made of woven wire and is provided with longitudinal corrugations, and heads therefor, in combination with paddles arranged and secured longitudinally in said corrugations.

6. In a washing-machine a revolving drum the periphery of which is made of woven wire, and heads therefor, in combination with cir-

cumferential tie-rods securing the end edges 10 of said woven-wire periphery to said heads, and oblique stay-rods connecting said heads in spiral planes around said drum, as and for the purpose set forth.

CHARLES T. GILMORE.

Witnesses:

DIANA THOMASON,

FRANK D. THOMASON.