R. Cranston,

Sheet 1-2 Sheets.

Washing Machine,

No. 43,269.

Patented June 21, 1864.

Fig. 1

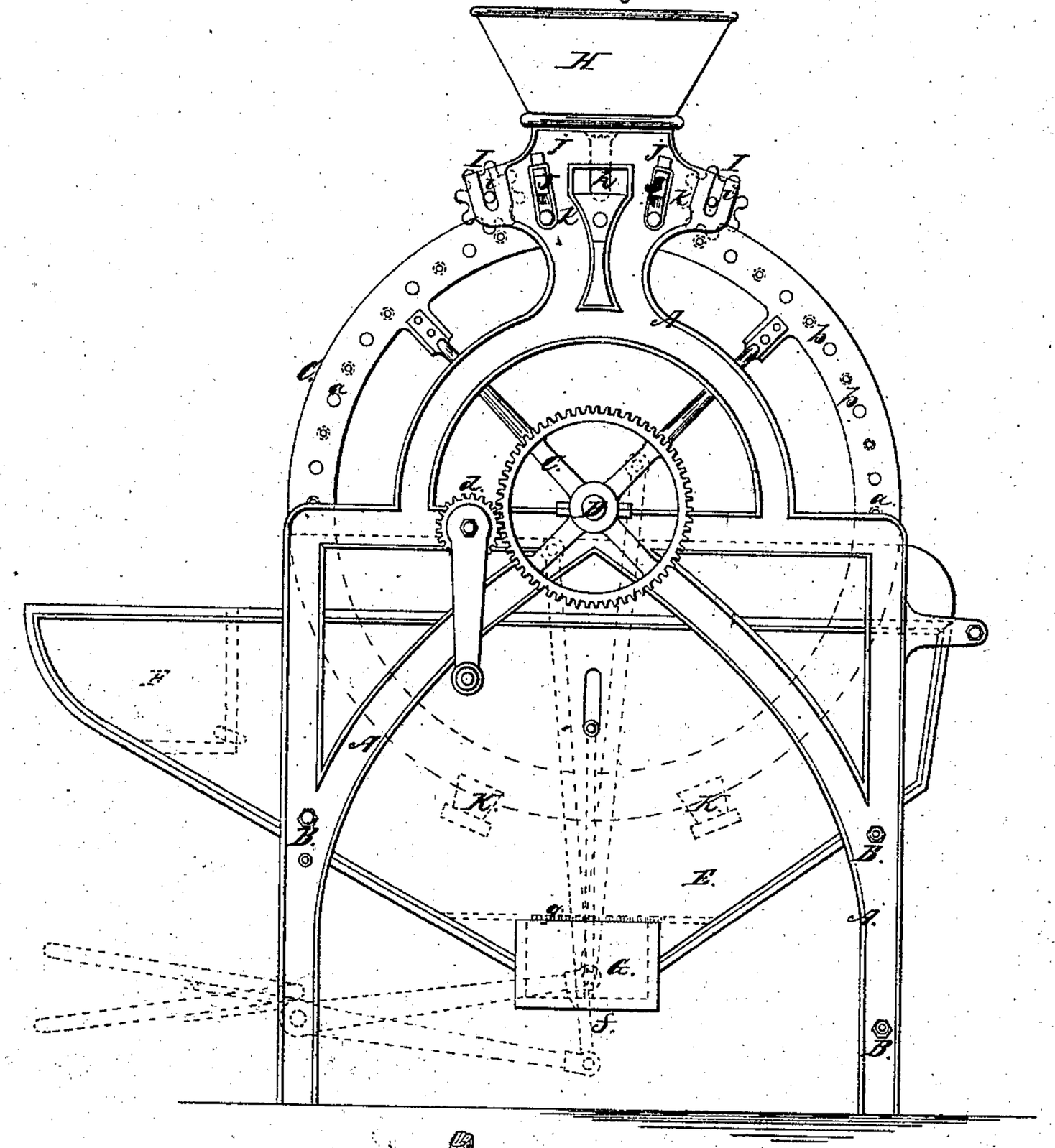
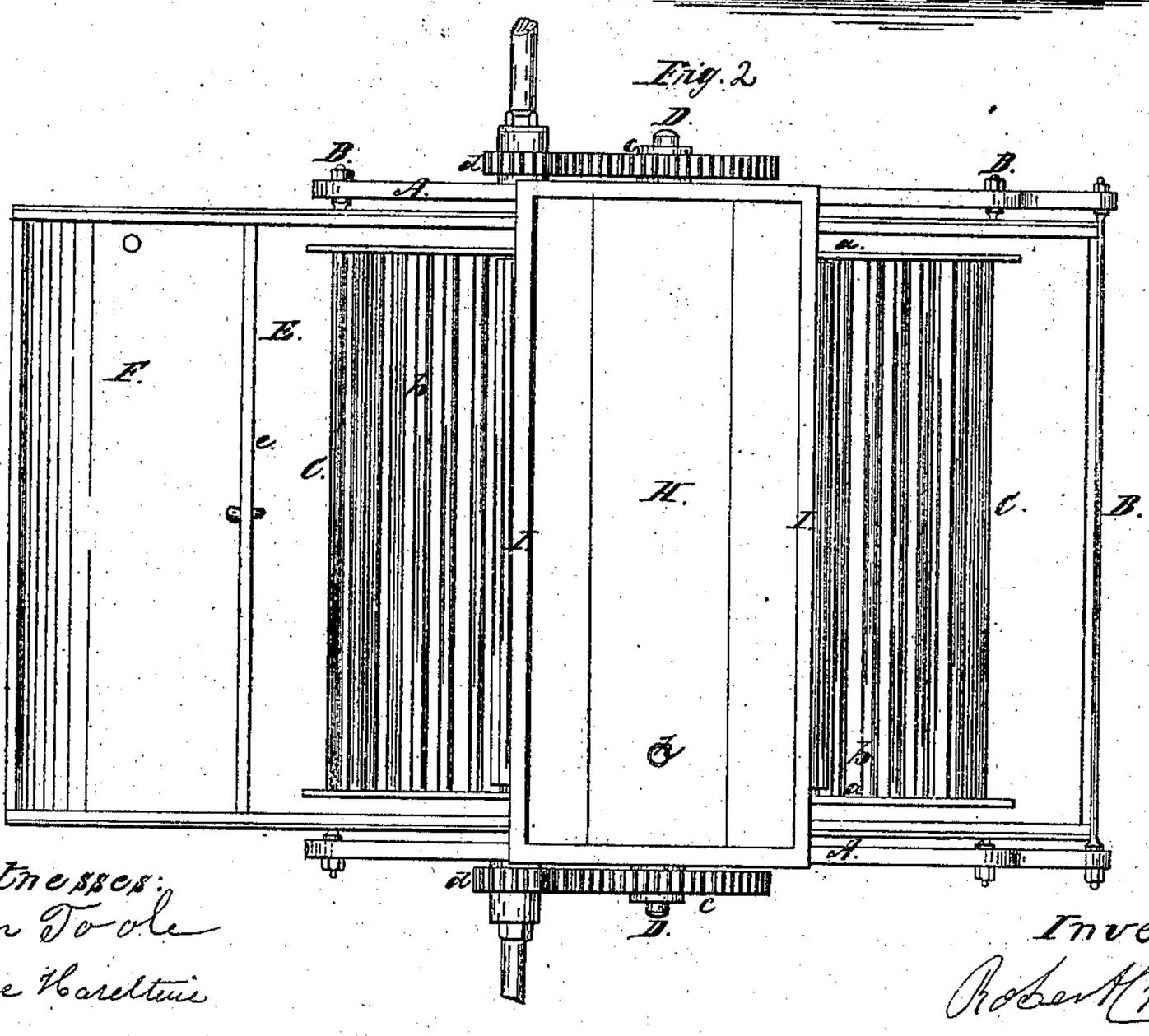


Fig. 2



Witnesses:
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George Hazeltine

Inventor:
Robert Cranston

Sheet 2 - 2 Sheets.

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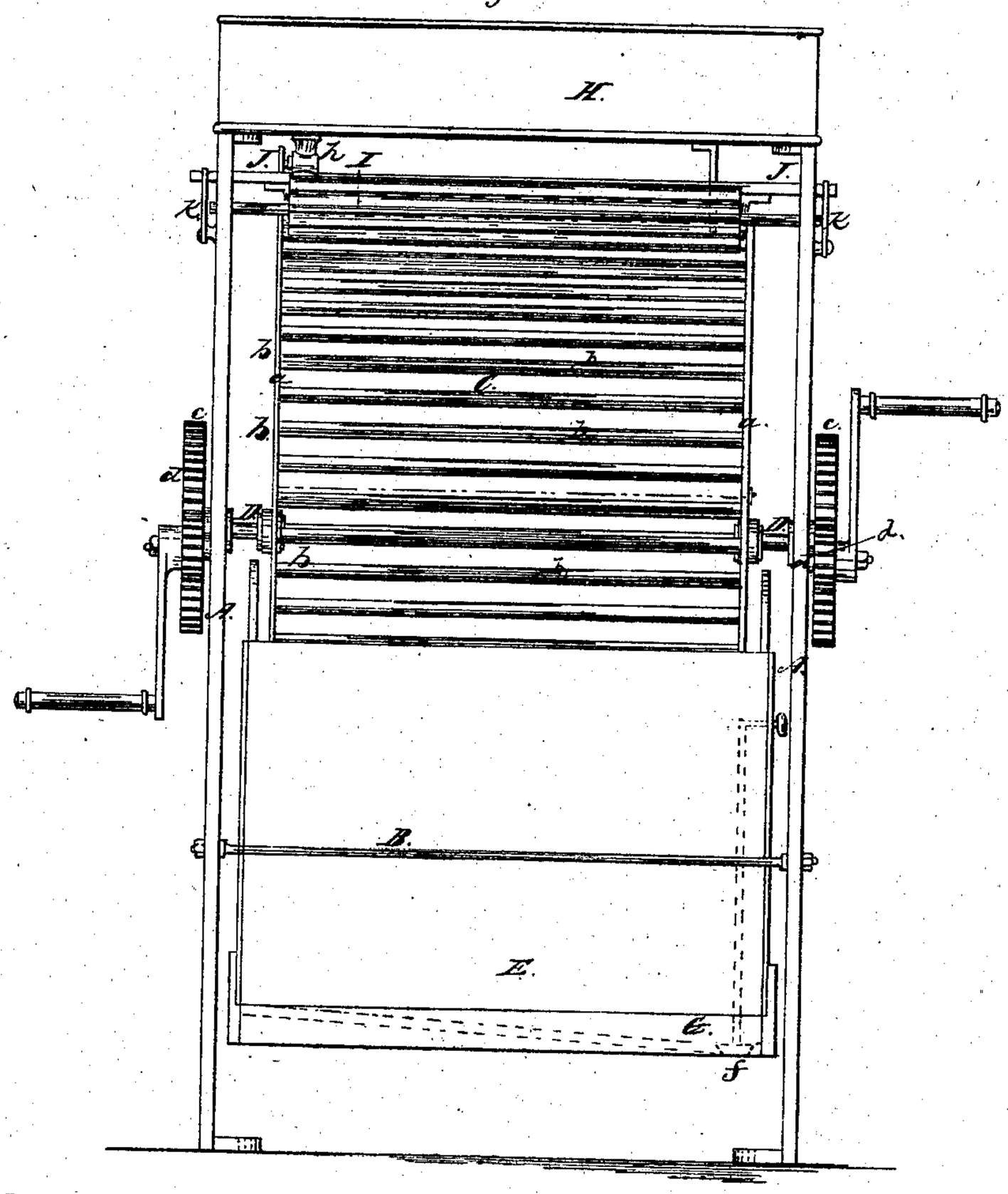
Washing Machine,

No. 43,264. Patented June 21, 1864.

Fig. 3.



Witnesses:
John Toole
George Haseltine

Inventor:
Robert Cranston

UNITED STATES PATENT OFFICE.

ROBERT CRANSTON, OF EDINBURGH, SCOTLAND.

IMPROVED WASHING-MACHINE.

Specification forming part of Letters Patent No. **43,269**, dated June 21, 1864.

To all whom it may concern:

Be it known that I, ROBERT CRANSTON, of the city of Edinburgh, Scotland, have invented a new and useful Washing-Machine; and I do hereby declare that the following is a full, clear, and exact description of the construction and operation of the same, reference being had to the accompanying drawings, making a part of this specification, in which—

Figure 1 is a plan of the machine; Fig. 2, a side elevation; Fig. 3, a front elevation.

Like letters refer to corresponding parts in all the figures.

The nature of the said invention consists in a novel formation and arrangement of the parts of a washing-machine, whereby is combined cheapness with durability of construction, and efficiency with facility of operation.

This invention combines all the principles of the hand process with the additional advantages of rapidity of execution without injury to the finest fabrics.

The frame of the machine may be constructed of wood or metal. That shown in the drawings is formed of cast-iron, and consists of two side pieces, A, connected by transverse tie-rods B.

The reel or drum C (shown in the several figures) consists of two disks, *a*, fixed upon a horizontal shaft, D. At short intervals near the periphery of these disks are placed the rods *b*. A portion of these rods are made stationary by fixing in or against the faces of the disks, while for convenience others are so constructed that they are easily removed and readily replaced. This object is attained by boring holes in the inner faces of the disks and placing a spiral spring in those upon one side. Placing these rods in position forces back the spring, whose action keeps the said rods securely in place during the operation of the machine. Several small metal rods are employed, as indicated by the red lines. The shaft D is mounted on bearings formed on the frame A, and is provided with external gear-wheels, *c d*, for rotating the said shaft by the hand. When it is desired to rotate the shaft by the foot, a treadle is attached, as shown by dotted lines in Fig. 2. When other driving power is employed, belt-pulleys may be advantageously substituted. A washing trough, E, rests upon the tie-rods B and projects in front, as shown in Figs. 1 and 2. It will be found desirable, generally, to construct this trough of wood, it being incorrodible and cheaper than metal; but in machines of a large size I find an advantage in applying heat to the bottom of this trough for the purpose of keeping the water hot while the washing is being done. In this case the bottom of the trough should be formed of galvanized iron or other suitable metal. This trough E projects in front, as shown in Figs. 1 and 2, for convenience of wringing the washed fabrics. A partition, *e*, extends across this projection, forming a water-tight box, F. An outlet is formed near the bottom of this partition for conducting the water wrung from the fabrics back into the trough E, which outlet may be closed by means of a plug, and a similar passage is formed at the bottom of the opposite side for carrying away the waste water. To this box a wringing-machine may be attached if desired.

Along the bottom of the trough E is formed an inclined gutter or groove, G, for receiving and retaining the sediment of the dirty water, with a discharge-cock, *f*, at its lower end. This gutter is provided with a perforated cover, *g*, for the purpose of preventing the fabrics coming in contact with the sediment. The side pieces, A, project above the reel or drum C, and on the center of these projections is placed a cistern, H, from which water or a solution of soap may be distributed through the perforated pipe *h*. This device may be dispensed with without materially affecting the utility of the machine, as the soap may be mixed with water in the trough E. On each of these projections are also formed grooves *i j*. In the grooves *i* are fitted loosely the journals of the corrugated rollers I. Two of these rollers are generally employed. They are kept in contact with the reel or drum by their own weight though the pressure may be regulated by springs or elastic bands. In the grooves *j* are placed the ends of the brushes J, whose pressure upon the drum is regulated by the use of the elastic bands *k*. Brushes are also fixed in the trough E, as indicated by dotted lines K.

The number of brushes may be varied; but I prefer to employ two below and two above the reel or drum.

These machines may be made of any required size, and the parts may be considerably modified in form and arrangement without departing from the spirit of my invention.

Operation of the machine: The clothes or other fabrics are hung on the rods *b*, several of which are made removable to facilitate the arrangement. These fabrics, resting on the exterior surface of the reel, are carried around by each revolution of the machine, the necessay amount of water being supplied either from the trough E alone or partly from the said trough and partly from the cistern H, containing soap and water. The fabrics having become saturated, they are acted upon by the different parts in a manner closely resembling hand-washing. When the reel or drum is rotated, the projections on the corrugated roller or rollers pass into the spaces between the rods *b*, thereby producing in a similar manner the same result as the knuckles in the hand process. The action of the brushes is similar to hand rubbing or squeezing, and by the use of elastic bands the pressure may be nicely regulated, to adapt it to the character of the material upon the reel. The fabrics are unrolled from the reel at each revolution of the machine and completely immersed in water in a manner similar to the dripping action in ordinary hand-washing. These motions gradually change the position of the clothes or fabrics on the rods, whereby every part of the surface receives the direct action of the "knuckling," the squeezing, and dripping operations. By simply reversing the rotation of the reel the brushes and rollers, or "knucklers," are brought in contact with the other side of the fabrics, thus insuring the most perfect result in the shortest space of time.

Having fully described the construction and operation of the said invention, I wish it understood that I do not confine myself to the exact details as herein stated; but

What I claim, and desire to secure by Letters Patent, is—

1. The reel or drum C, constructed and operated in the manner and for the purpose substantially as herein set forth.

2. The combination of the box F, with its two outlets, the trough E, and the gutter G, with its perforated cover *g*, substantially as and for the purposes specified.

3. The combination of the reel C, the roller or knucklers I, and the brushes J, arranged substantially as specified.

ROBERT CRANSTON.

Witnesses:
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