J. H. Hopkins,

Felting Machine.

No. 111,935. Patented Feb. 21, 1871.

Fig. 1

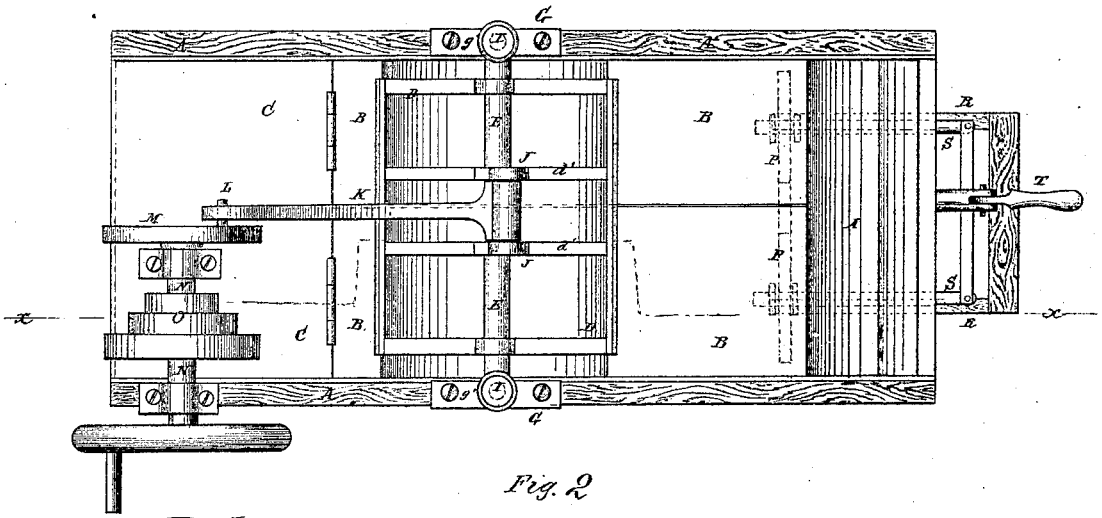
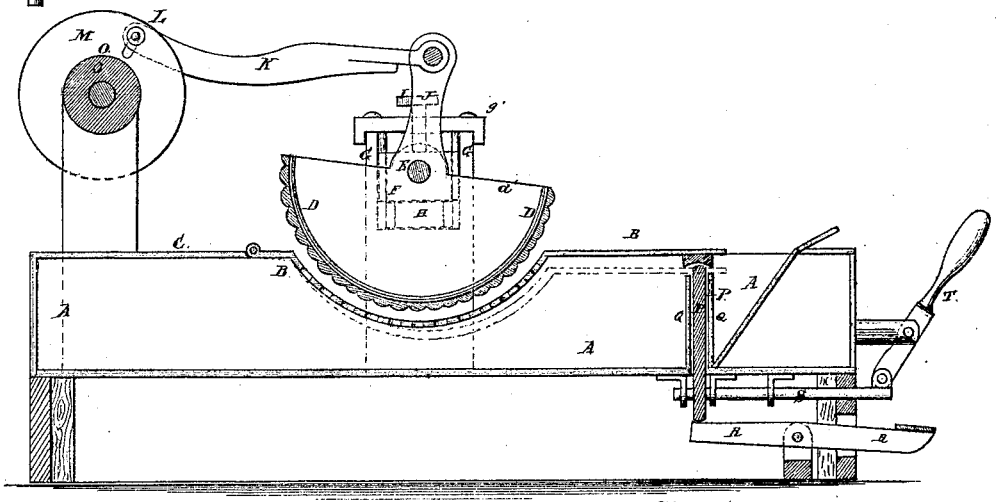


Fig. 2



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UNITED STATES PATENT OFFICE.

JAMES H. HOPKINS, OF NEWARK, NEW JERSEY, ASSIGNOR TO HIMSELF AND WILLIAM CARROLLTON, OF SAME PLACE.

IMPROVEMENT IN HAT-SIZING MACHINES.

Specification forming part of Letters Patent No. **111,935**, dated February 21, 1871.

To all whom it may concern:

Be it known that I, JAMES H. HOPKINS, of Newark, in the county of Essex and State of New Jersey, have invented a new and useful Improvement in Hat-Sizing Machines; and I do hereby declare that the following is a full, clear, and exact description thereof, which will enable others skilled in the art to make and use the same, reference being had to the accompanying drawing, forming part of this specification.

Figure 1 is a top view of my improved machine. Fig. 2 is a vertical longitudinal section of the same, taken through the line *x x*, Fig. 1.

Similar letters of reference indicate corresponding parts.

My invention has for its object to furnish a simple, convenient, and effective machine for sizing hats, so constructed and arranged as to do well and thoroughly the work which has heretofore been done only by hand; and it consists in the construction and combination of the various parts of the machine, as hereinafter more fully described.

A represents the warm-water tank, the water in which is kept at the proper temperature by steam in the usual manner. B are the covers of the tank, which are hinged at their rear ends to the stationary rear parts, C, of the cover of said tank. The middle parts of the hinged covers B are concaved, as shown in Fig. 2. The curved or concaved parts of the hinged covers B are perforated with numerous holes, to allow the warm water in the tank A to pass free into the concavities of said covers.

D is the rubber, which is made in the form of a hollow semi-cylinder, and which may be strengthened by semicircular cross-partitions *d'*. The outer or convex surface of the semi-cylinder D, which may be made of wood, rubber, or other suitable material, should be corrugated longitudinally, to produce a better result on the hat-bodies. The semi-cylindrical rubber D is rigidly attached to a central shaft, E, the ends or journals of which work in bearings F, placed in slots in the standards G, attached to the sides of the tank A.

The bearings F rest upon rubber springs H, the elasticity of which holds the said bearings up against the set-screws I, which pass in through the cap *g'*, attached to the upper ends of the standards G, and the forward ends of which bear against the upper sides of the bearings F, to enable the pressure upon the hat-bodies to be regulated as required.

To the semi-cylindrical rubber D or to the shaft E is rigidly attached an arm or arms J, to the upper end or ends of which are pivoted the end of the connecting-rod K, the other end of which is pivoted to the crank-pin L, secured in a radial slot in the wheel M, attached to the counter-shaft N, so that by adjusting the said crank-pin L nearer to or farther from the said shaft N the stroke or rock of the rubber D may be adjusted to give a short or long roll to the hats, as may be required.

The shaft N is revolved by a belt passing around the cone-pulley O, so that by shifting the said belt a slower or more rapid motion may be obtained, as may be required. The forward ends of the hinged covers B rest upon the upper edges of the boards P, which pass up through openings in the bottom of the tank A. The parts of the board P that pass through the water in the tank A are kept from coming in contact with the said water by the tubes or cases Q, surrounding said boards, and secured to the bottom of said tank water-tight, so as also to prevent the water from said tank from escaping through the holes in the bottom of the tank through which the boards P pass up. The lower edges of the boards P rest upon the inner ends of the levers R, which are pivoted to suitable supports, and the outer ends of which project at the forward end of the tank A, in such position that the workmen may conveniently operate them with their feet to raise the boards P, and with them the forward ends of the hinged covers B. The boards P are secured in position when raised by the sliding rods S, which slide through guide and supporting brackets attached to the bottom of the tank A, and which pass through holes in the boards P, as shown in Fig. 2.

The outer ends of the rods S project at the forward end of the tank A, and have levers T pivoted to them and to supports attached to the ends of the tank A, so that the said rods may be conveniently operated to secure or release the boards P when desired.

In the drawing the levers R and rods S are represented as being connected by cross-bars, and the rods S as being operated together and by a single lever; but I prefer to have the said levers and rods unconnected, and to provide each rod S with its own lever, to enable each workman to operate his own part of the machine entirely independent of the other part.

In using the machine, the hat-body is rolled up in the same way as for hand-rubbing. The hinged part of the covers B is then lowered, and the hat placed in the cavity of said cover, and the cover again raised and secured in place, bringing the hat in contact with the rubber D. While one hat is being operated upon by the machine the workman prepares another ready to be placed in the machine when he lowers the cover B to take the first one out, so that the machine will always be operating upon one or another hat.

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

1. The combination of the boards P, levers R, sliding rods S, and levers T with each other and with the water-tank A, hinged covers B, and semi-cylindrical rubber D, substantially as herein shown and described, and for the purpose set forth.

2. The combination of the rubber or equivalent springs H, sliding bearings F, and set-screws I with the shaft E, rubber D, and concaved perforated hinged covers B, substantially as herein shown and described, and for the purpose set forth.

JAMES H. HOPKINS.

Witnesses:
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