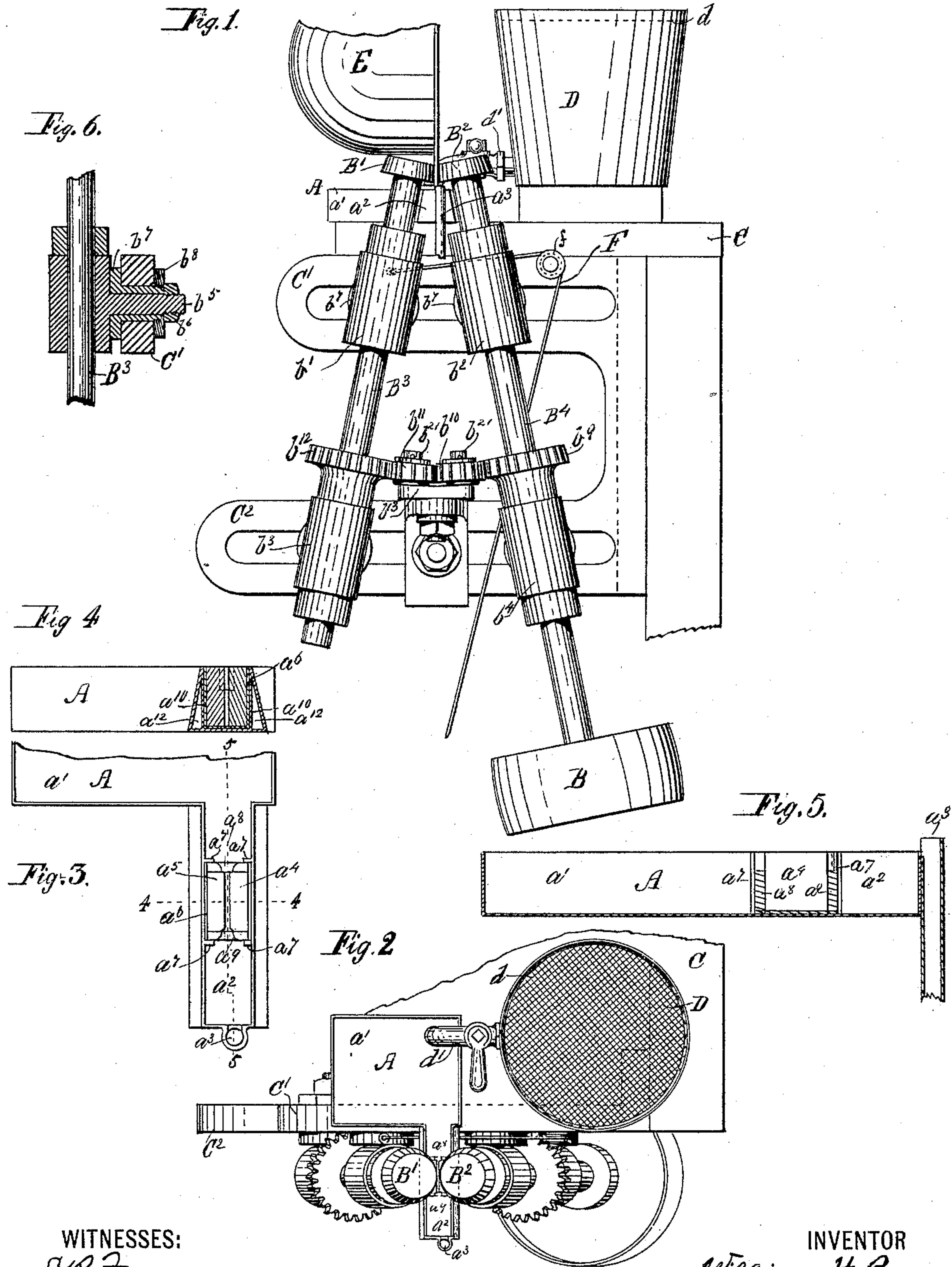


(No Model.)

W. H. BARNUM.  
MACHINE FOR STIFFENING HATS.

No. 476,860.

Patented June 14, 1892.



WITNESSES:

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# UNITED STATES PATENT OFFICE.

WILLIAM HILL BARNUM, OF DANBURY, CONNECTICUT, ASSIGNOR TO  
CHARLES H. MERRITT, OF SAME PLACE.

## MACHINE FOR STIFFENING HATS.

SPECIFICATION forming part of Letters Patent No. 476,860, dated June 14, 1892.

Application filed December 18, 1891. Serial No. 415,448. (No model.)

*To all whom it may concern:*

Be it known that I, WILLIAM HILL BARNUM, of Danbury, in the county of Fairfield and State of Connecticut, have invented a certain new and useful Improvement in Machines for Stiffening Hats, of which the following is a specification.

This machine is particularly adapted to applying stiffening to the edge portion of a hat-brim.

I will describe a machine embodying my improvement, and then point out the novel features in the claims.

In the accompanying drawings, Figure 1 is a side elevation of a machine embodying my improvement. Fig. 2 is a plan or top view of the machine with a portion of the table broken away. Fig. 3 is a plan view, on a larger scale, of a portion of a distributing-tank comprised in the machine. Fig. 4 is a vertical section taken at the plane of the dotted line 4 4, Fig. 3. Fig. 5 is a vertical section taken at the plane of the dotted line 5 5, Fig. 3. Fig. 6 is a vertical section of a journal-box.

Similar letters of reference designate corresponding parts in all the figures.

A designates a distributing-tank containing stiffening material, into which a hat-brim is caused to travel.

B' B<sup>2</sup> designate rollers by which the hat-brim is moved.

The distributing-tank A is mounted upon a table C, which may be supported in any suitable manner. On the table C is also mounted a reservoir D, containing stiffening material. In the upper part of this reservoir is a sieve *d*, through which the stiffening material may be strained when introduced into the reservoir. In the lower portion this reservoir is furnished with a faucet *d'*, by means of which the stiffening material may be caused to flow in any desired quantity from the reservoir in the distributing-tank. The faucet will be kept open to such a degree as to maintain the stiffening material in the distributing-tank at the desired level.

It will be seen that the distributing-tank has a large portion or body *a'* and a narrow portion *a<sup>2</sup>* extending therefrom. This narrow portion extends between shafts upon

which the rollers B' B<sup>2</sup> are mounted. The outer extremity of the narrow portion *a<sup>2</sup>* is provided with an outlet *a<sup>3</sup>*, from which the surplus stiffening material will be discharged. This outlet, as shown, consists of a tube fastened to the end of the distributing-tank and having an opening near the top of the said tank.

In the narrow part of the distributing-tank *a<sup>2</sup>* are two pieces of sponge or like material *a<sup>4</sup> a<sup>5</sup>*, between which the edge portion of a hat-brim may pass. These pieces of sponge or other material may be held in place in any suitable manner—as, for instance, in a trough-shaped piece *a<sup>6</sup>* of sheet metal between lugs *a<sup>7</sup>*, extending inwardly from the sides of the narrow portion *a<sup>2</sup>* of the distributing-tank. Within the ends of this trough-shaped piece *a<sup>6</sup>* are blocks of wood or other suitable material *a<sup>8</sup> a<sup>9</sup>*, which are also held in place by the lugs *a<sup>7</sup>*. These blocks are shown as having central openings in their upper edges to permit of the passage of the edge portion of a hat-brim through them. They also serve to gauge the depth to which the hat-brim shall descend into the distributing-tank. The pieces of sponge or analogous material regulate the amount of stiffening material which is applied to the hat-brim.

The main side walls of the narrow portion *a<sup>2</sup>* of the distributing-tank diverge downwardly. Inside of them are vertical walls *a<sup>10</sup>* at the point where the trough-shaped piece *a<sup>6</sup>* is inserted. These inner vertical walls form a suitable holder for the trough-shaped piece. The space between them and the outer walls constitute passages *a<sup>12</sup>*, along which the stiffening material may flow past the pieces of sponge or other material, so as to reach both ends of the latter.

The rollers B' B<sup>2</sup> are mounted on shafts B<sup>3</sup> B<sup>4</sup>, supported in journal-boxes *b' b<sup>2</sup> b<sup>3</sup> b<sup>4</sup>*, arranged so that the shafts will converge toward their roller-engaging ends. The rollers B' B<sup>2</sup> are slightly conical. The journal-boxes *b' b<sup>2</sup> b<sup>3</sup> b<sup>4</sup>* are supported by arms C' C<sup>2</sup>, here shown as extending from one of the supports of the table C.

The shaft B<sup>4</sup> is not intended to have any oscillating motion. Hence its journal-boxes



may after suitable adjustment be clamped to the arms C' C<sup>2</sup>. The shaft B<sup>3</sup> is, however, intended to oscillate so that its roller B' may move toward and from the roller B<sup>2</sup> during the operation of the machine. Owing to this the lower journal-box b<sup>3</sup> of the shaft B<sup>3</sup> will be fixed against movement lengthwise of the arm C<sup>2</sup>; but the upper journal-box b' for this shaft B<sup>3</sup> will be made capable of moving lengthwise of the arm C'.

The means for securing the several journal-boxes to the arms C' C<sup>2</sup> may be the same. Suitable means are illustrated by Fig. 6, where it will be seen that each journal-box has a cylindric shank b<sup>5</sup>, having a screw-thread upon its outer end for the reception of a nut b<sup>6</sup>, and that such shank passes through a sleeve b<sup>7</sup>, which is capable of passing through a slot in an arm C' or C<sup>2</sup>, has a head at one end, and at the other a screw-thread, with which is engaged a nut b<sup>8</sup>. Obviously by clamping the nut b<sup>6</sup> upon the shank b<sup>5</sup> of any journal-box the shank of such journal-box will be clamped, so as to be incapable of rotation within its sleeve b<sup>7</sup>, and it is equally clear that if the nut b<sup>8</sup> of the sleeve belonging to any journal-box is tightened to clamp such sleeve to the arm C' or C<sup>2</sup>, whereby it is supported, such journal-box will be incapable of moving lengthwise of the supporting-arm.

The nuts b<sup>6</sup> b<sup>8</sup> belonging to the journal-boxes b<sup>2</sup> b<sup>4</sup> wherein the shaft B<sup>4</sup> is journaled, will be clamped in the manner described, so as to hold these journal-boxes rigidly.

The nut b<sup>8</sup> belonging to the journal-box b<sup>3</sup>, wherein the shaft B<sup>3</sup> is journaled, will be clamped so as to preclude any movement of such journal-box lengthwise of the arm C<sup>2</sup>; but the nut b<sup>6</sup> belonging to this journal-box will be left loose enough to permit of the oscillation of the journal-box.

The nuts b<sup>6</sup> b<sup>8</sup> belonging to the journal-box b', wherein the upper portion of the shaft B<sup>3</sup> is journaled, are left loose, so that this journal-box b' may not only oscillate, but may move lengthwise of the arm C'.

The journal-box b' has attached to it one end of a strap or like device F, which passes around a guide-pulley f, mounted upon the arm C' and extends to a treadle. The attendant of the machine may therefore adjust the roller B' toward the roller B<sup>2</sup> by shifting the treadle.

The shaft B<sup>4</sup> may be driven by a belt applied to a pulley B, affixed to said shaft. Rotary motion may be transmitted from this

shaft by a gear-wheel b<sup>9</sup>, affixed thereto, through gear-wheels b<sup>10</sup> b<sup>11</sup> to a gear-wheel b<sup>12</sup>, affixed to the shaft B<sup>3</sup>. The gear-wheels b<sup>10</sup> b<sup>11</sup> are mounted upon a stud b<sup>21</sup>, affixed to a plate b<sup>13</sup>, supported by the arm C<sup>2</sup>. This plate is shown as being capable of being clamped in different positions to said arm. Two gear-wheels b<sup>10</sup> b<sup>11</sup> are employed, so as to secure motion of the shaft B<sup>2</sup> in proper direction relatively to the shaft B<sup>4</sup>.

E designates a portion of a hat having its brim extended into the narrow portion of the distributing-tank A between the pieces of sponge or analogous material a<sup>4</sup> a<sup>5</sup> and passed between the rollers B' B<sup>2</sup>.

It will be seen that the edge portion of a hat-brim may be passed between pieces of sponge or like substance saturated with stiffening material and engaged by the rollers B' B<sup>2</sup>, close to the crown of the hat, so as to be fed or moved along.

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

1. In a machine for stiffening hats, the combination, with a distributing-tank for stiffening material constructed to receive a hat-brim of a pair of rollers adjacent an opening of the tank for engaging a hat-brim and moving it through the stiffening material in said tank, substantially as specified.

2. In a machine for stiffening hats, the combination of a reservoir for stiffening material, a distributing-tank receiving stiffening material from said reservoir and constructed to receive a hat-brim, and rollers adjacent an opening of the tank for engaging a hat-brim and moving it through the stiffening material in the tank, substantially as specified.

3. In a machine for stiffening hats, the combination, with a distributing-tank for stiffening material constructed to receive a hat-brim, of pieces of sponge in said tank for depositing stiffening material on the hat-brim, and rollers adjacent an opening of the tank for moving a hat-brim through said sponge, substantially as specified.

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

WILLIAM HILL BARNUM.

Witnesses:

ELI T. HOYT,  
FRANK N. LEACH.