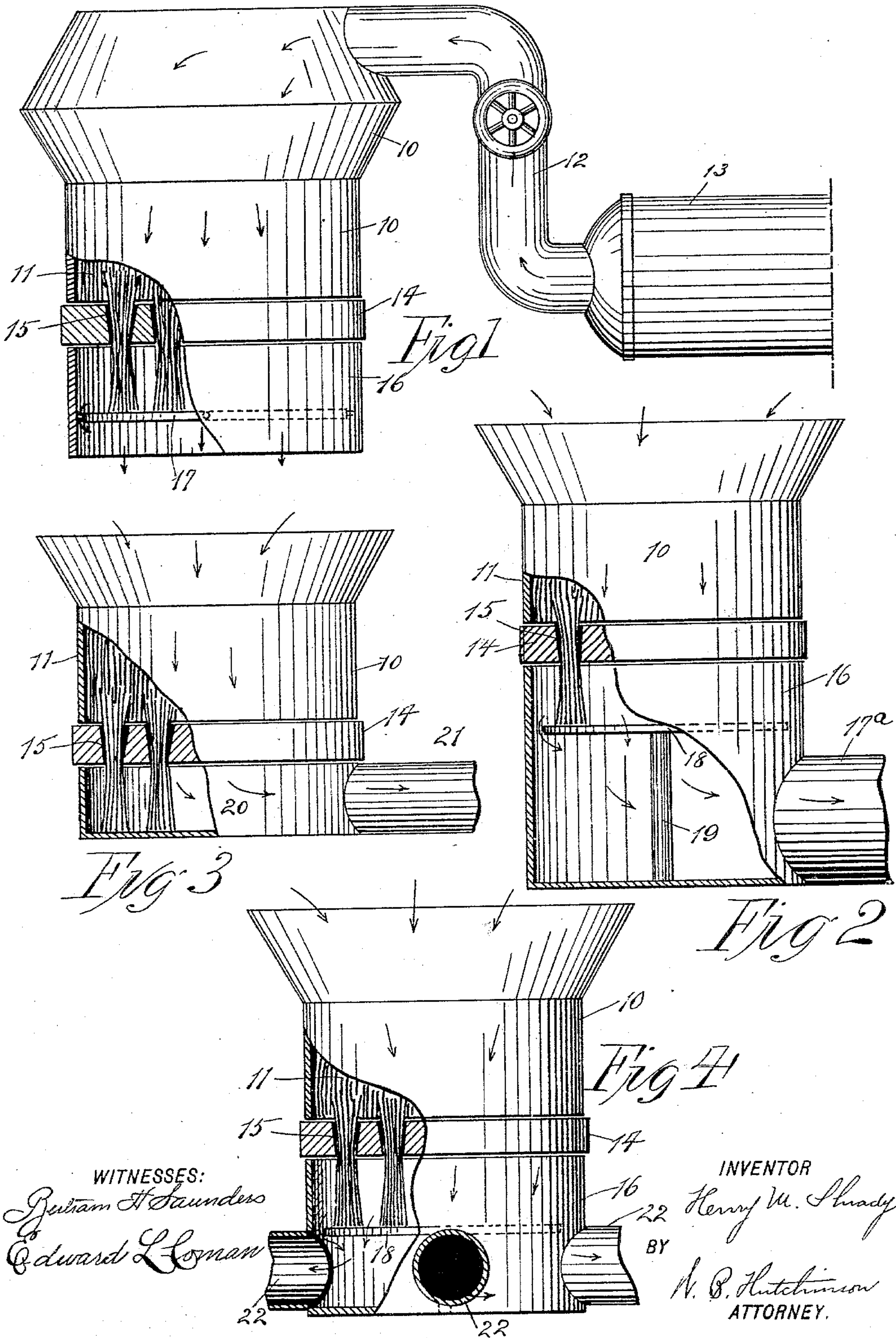


(No Model.)

H. M. SHRADY.
BRUSH MACHINE.

No. 562,930.

Patented June 30, 1896.



UNITED STATES PATENT OFFICE.

HENRY MERWIN SHRADY, OF NEW YORK, N. Y.

BRUSH-MACHINE.

SPECIFICATION forming part of Letters Patent No. 562,930, dated June 30, 1896.

Application filed September 17, 1895. Serial No. 562,793. (No model.)

To all whom it may concern:

Be it known that I, HENRY MERWIN SHRADY, of New York, in the county and State of New York, have invented certain new and useful
5 Improvements in Making Brushes, of which the following is a full, clear, and exact description.

My invention relates to improvements in the art of making brushes, and more particularly to improvements in inserting the bristles
10 in the brush-backs.

The object of my invention is to provide a simple method of and apparatus for filling the holes of a brush-back with bristles, so that the
15 ends of the bristles which protrude through the back may be left in good condition for fastening, while the other ends of the bristles will be in position to form a good brush.

Another object of my invention is to dispense with the ordinary jolting machine used in the construction of brushes, and produce a simple means by which the bristles may be
20 floated by an air-current into the holes of the brush-back, the holes being simultaneously filled and the protrusion of the bristles accurately limited.

With these ends in view my invention consists of certain improvements in the art of making brushes, which will be hereinafter
25 specifically described and claimed.

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

35 Figure 1 is a broken side elevation, partly in section, showing the means which I employ for forcing the bristles into the brush-back by the use of compressed air. Fig. 2 is a similar view of a slightly-modified form of the
40 apparatus, showing it adapted to force the bristles into place in the brush-back by suction. Fig. 3 is a slightly-modified form of the apparatus shown in Fig. 2 and illustrates the back of the suction-pipe as arranged to form a
45 limiting-plate for the bristles; and Fig. 4 is a broken side elevation, partly in section, illustrating another slight modification of the suction apparatus, in which a greater sucking effect is produced and in which a series of suc-
50 tion-pipes are arranged in connection with the brush and bristle-holding mechanism and the limiting-plate.

In carrying out my invention many modifications of the apparatus may be used, and I have shown merely simple forms to illustrate
55 the practicability of my method.

As shown, an ordinary bristle-hopper 10 is used, in which the bristles 11 are placed, these being arranged parallel with each other in the
60 usual way, and the upper part of the hopper is covered and connected by a valve-controlled pipe 12 with an air-receiver 13, in which the air is held under pressure, so that when the valve of the pipe 12 is opened the air will flow
65 into the hopper 10 and blow the bristles downward, as shown by the arrows and as presently described. Instead of the receiver 13, however, it will of course be understood that any suitable pump or blower may be substituted.
70

The brush-back 14, which is of the usual kind and has the customary holes 15, is placed
75 beneath the hopper 11 and above a suitable guide 16, which supports the brush-back and in which is a plate 17, against which the bristles abut when they are blown into the holes of the brush-back, and the plate therefore serves to limit the protrusion of the bristles. Sufficient space is left between the edge of the
80 plate and the guide 16 to permit the air to escape, so that the current will be strong enough to force the bristles to place.

After the bristles have been inserted in the holes 15, as specified, the back ends of the
85 bristles are singed and cemented or otherwise fastened in the usual way, and the back is finished in the customary manner.

It will of course be understood that the invention is the same in effect, whether the bristles are blown or sucked to place, and Figs. 90
2 and 4 illustrate means for forcing the bristles into position by suction. As shown in Fig. 2, the guide 16 is closed at the bottom and connected with an exhaust-pipe 17^a, and the air is exhausted from the guide 16 by
95 means of a pump, exhaust-fan or exhaust-tank, and when the air is exhausted the bristles are of course sucked into the brush-back from the hopper 10 above.

In the guide 16 is a limiting-plate 18 substantially like the plate 17 already described
100 and operated in the same way, but the plate 18 is ordinarily mounted on a post 19, although it may be fastened in any approved manner.

Fig. 3 shows how the back of the exhaust-pipe may be utilized to serve as a limiting-plate for the bristles. An exhaust-pipe 21, connecting with suitable means of exhausting
 5 air from it, has one end flattened, as shown at 20, and formed into a short L pipe which fits below the brush-back 14, and the depth of this flattened portion 20 is such that when the bristles are drawn into the brush-back
 10 their ends will strike the back of the flattened part 20 of the pipe, and this will cause the bristles to protrude the exact distance desired. The operation will be understood from the drawings, that is to say, when the air is ex-
 15 hausted the bristles are sucked from the hopper 10 into the holes of the brush-back.

Fig. 4 illustrates a means of creating a greater suction, and shows the guide 16 provided with diverging exhaust-pipes 22, while
 20 the limiting-plate 18 is supported in the guide 16 at the right distance to properly limit the protrusion of the bristles, and space is left around the plate for the passage of air. When the air is exhausted from the pipes 22 and
 25 guide 16, the bristles, as already described, are sucked or floated into the holes of the brush-back.

It will be understood from the foregoing description and from the accompanying draw-
 30 ings that the bristles are simultaneously forced into the holes of the brush-back, that their protrusion is accurately limited, and that the operation is almost instantly accomplished. It will be further seen that the vari-
 35 ous accessories of the invention, such as the bristle-hopper, the limiting-plate, and the means for forcing an air-current, can be greatly changed and modified without chang-
 40 ing the principle of the invention; also that it is immaterial how the air-current through

the brush-back and bristle-hopper is created, whether by a suction or by a direct blast, these two methods being well known equivalents of each other.

Having thus described my invention, I 45 claim as new and desire to secure by Letters Patent—

1. In an apparatus of the kind described, a filling mechanism, comprising a bristle-hop-
 per having a suitable discharge, means for 50 holding a brush-back opposite the discharge of the hopper, and a device to carry the bristles by an air-current through the discharge and into the brush-back, substantially as de-
 55 scribed.

2. An apparatus of the kind described, comprising a bristle-hopper having a suitable discharge, a suction-pipe arranged opposite the discharge of the bristle-hopper, and means
 60 for supporting a brush-back between the hopper-discharge and suction-pipe, substantially as described.

3. In the art of making brushes, the appa-
 ratus herein described, comprising a bristle-
 65 hopper adapted to fit one side of the brush-back, a guide on the opposite side of the brush-back, a stop-plate to limit the protrusion of the bristles, and means of creating an air-current through the holes of the brush-
 70 back to carry the bristles to place, substantially as described.

4. The combination with the bristle-hop-
 per, of a guide opposite the hopper, space be-
 ing left between the guide and hopper for a
 brush-back, and means for exhausting the air 75
 from the guide, substantially as described.

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