

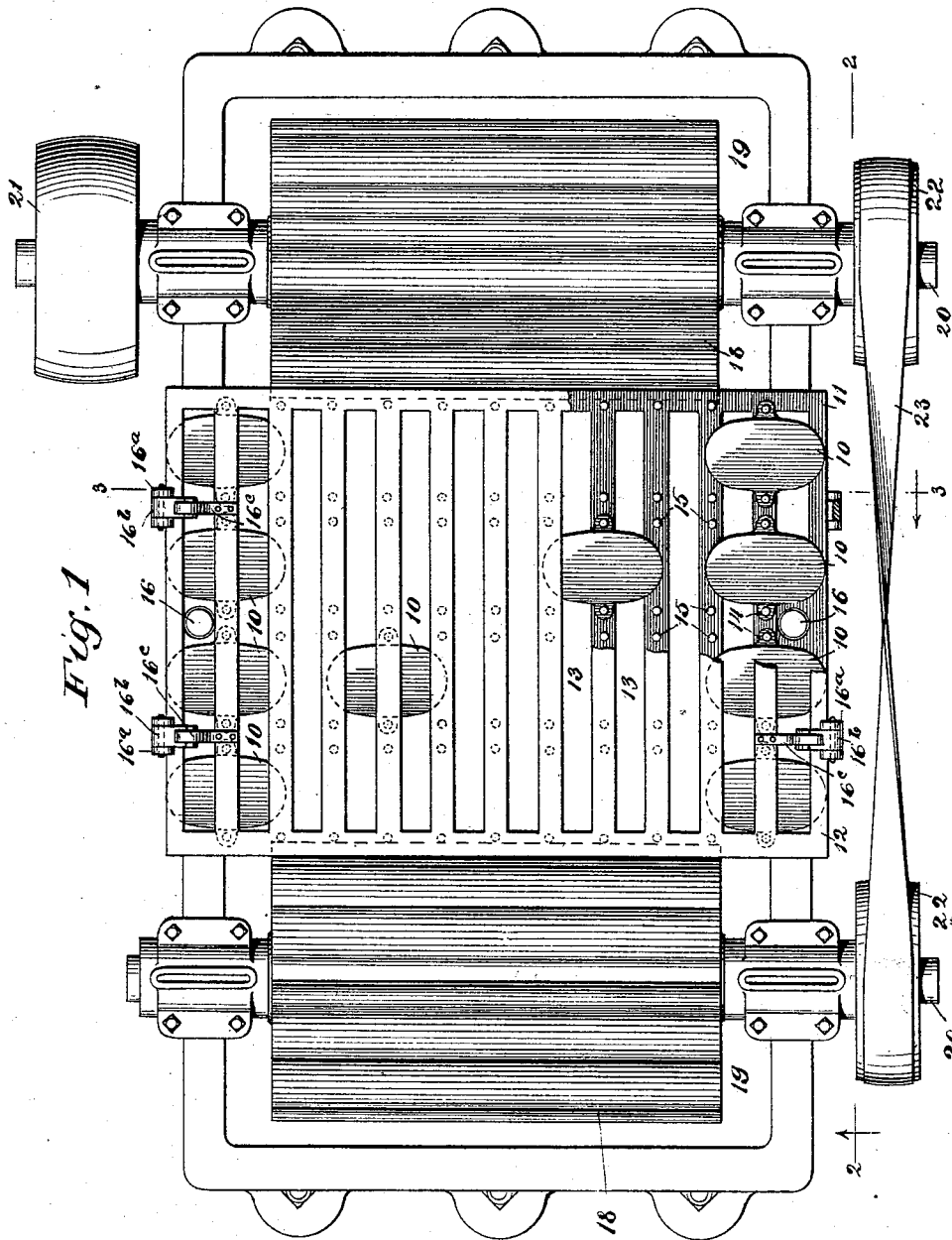
(No Model.)

2 Sheets—Sheet 1.

W. F. HUTCHINSON.
BRUSH MACHINE.

No. 538,782.

Patented May 7, 1895.



WITNESSES:

J. A. Bergstrom
John R. Keene.

INVENTOR

William F. Hutchinson
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Warren B. Hutchinson
ATTORNEY

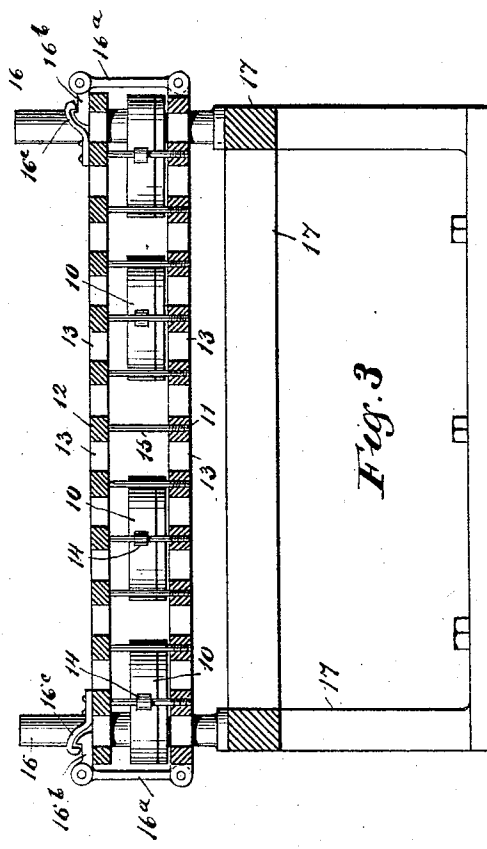
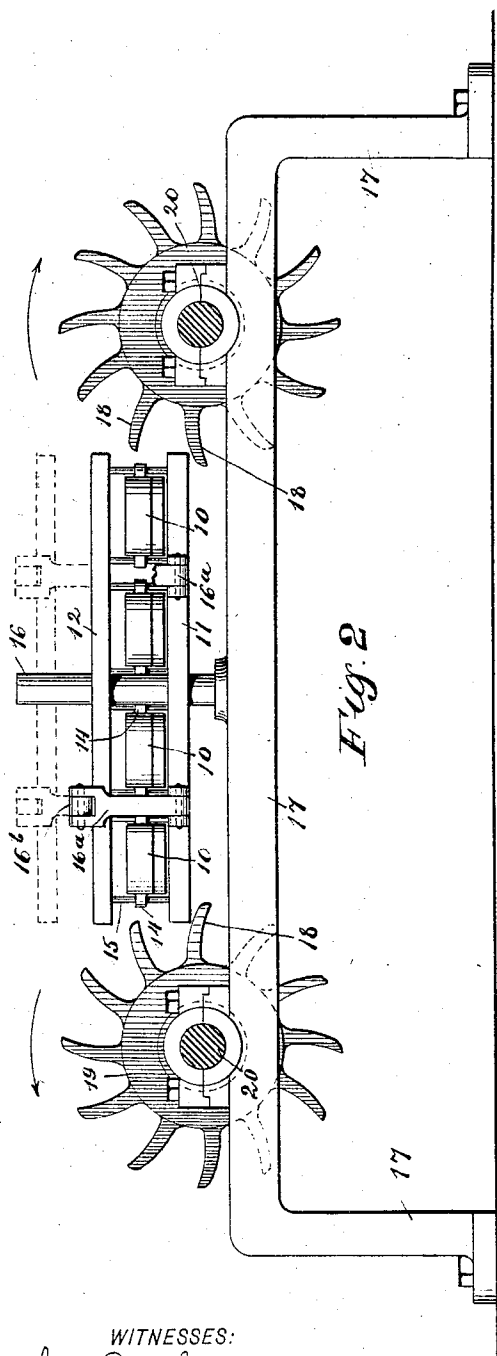
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UNITED STATES PATENT OFFICE.

WILLIAM F. HUTCHINSON, OF PASSAIC, NEW JERSEY, ASSIGNOR TO WALLACE A. DOWNS, TRUSTEE, OF NEW YORK, N. Y.

BRUSH-MACHINE.

SPECIFICATION forming part of Letters Patent No. 538,782, dated May 7, 1895.

Application filed January 19, 1895. Serial No. 535,459. (No model.)

To all whom it may concern:

Be it known that I, WILLIAM F. HUTCHINSON, of Passaic, in the county of Passaic and State of New Jersey, have invented a new and
5 Improved Brush-Making Machine, of which the following is a full, clear, and exact description.

In making brushes it is customary to arrange the bristles or hair in a box containing
10 a perforated brush back and then to shake the box violently up and down so as to force the bristles longitudinally through the perforations in the said brush back.

The object of my invention is to produce a
15 machine which is of great simplicity, strong, and durable, which is adapted to carry a great many of these boxes, which has the boxes mounted on guides between abutment plates which are rigid in relation to the boxes so
20 that the boxes meet with a solid abutment at each end of their movement, thus facilitating the rapid assembling of the bristles, and to provide a very simple and positive means of rapidly reciprocating the abutment plates.

To these ends my invention consists of certain features of construction and combinations of parts, which will be hereinafter described and claimed.

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

Figure 1 is a broken plan view of the machine embodying my invention. Fig. 2 is a
35 vertical longitudinal section, on the line 2 2 of Fig. 1, of the machine; and Fig. 3 is a cross-section on the line 3 3 of Fig. 1.

In connection with my shaking machine, boxes 10 are used which will not be described
40 in detail, as they form no part of my invention but which are adapted to contain the bristles and brush backs to be shaken. My present invention relates wholly to the means of shaking these boxes and therefore it is needless to show the construction of the boxes.

The boxes 10 are held between abutment
45 plates 11 and 12 which are rigid in relation to the boxes and which are longitudinally slotted, as shown at 13, to render them lighter
50 and also to prevent them from offering too

great resistance to the air when they are vertically reciprocated. The boxes 10 are provided with side guides 14 which run on pins 15, these being secured to the lower plate 11, and the pins, besides serving to guide the
55 boxes and prevent their displacement, also hold the plates 11 and 12 the necessary distance apart as the plate 12 rests on the top of the pins 15. It will of course be understood that other means may be employed for preventing the displacement of the boxes, that
60 is, for preventing them from slipping out from between the abutment plates 11 and 12, without affecting the principle of the invention. The plates 11 and 12 are mounted to slide
65 vertically on posts 16 which are secured to a suitable frame 17 and the plates are locked together by any suitable fastening devices, the devices shown each consisting of a link
70 16^a pivoted to the lower plate, a latch 16^b on the upper end of the link, and a catch 16^c on the upper plate 12 to engage the latch 16^b. The lower plate 11 rides on the long teeth 18
75 of oppositely arranged cog wheels 19 which are mounted on shafts 20, these being journaled transversely on the frame 17, and the cog wheels are made long in order that the teeth may have a good bearing on the under side of the plate 11. The cog wheels are oppositely revolved when the machine is in
80 motion, and it will be seen that the lower plate 11 will be dropped successively from tooth to tooth, that the upper plate 12 will move in unison with the lower plate, and that the constant jolting of the two plates will cause the
85 boxes 10 to be rapidly reciprocated up and down on the guide pins 15. One of the shafts 20 is provided with a driving pulley 21, and both shafts have pulleys 22 which are connected by a cross belt 23 in order that the
90 shafts and cog wheels may be oppositely rotated, but this contrivance for driving the shafts is shown merely to illustrate an operative machine and it will be understood that any suitable means may be employed for giving
95 the desired rotation to the cog wheels.

When the machine is to be used, the top plate 12 is removed and the boxes 10, which have been filled with bristles and are to be shaken, are placed on the guide pins 15, after
100

which the top plate 12 is fastened in place and the machine is set in motion. The abutment plates 11 and 12 are rapidly reciprocated by coming in contact with the successive teeth of the cog wheels and the rapid up and down movement of the plates causes a similar jolting movement to be imparted to the boxes, which, however, move up and down independently of the plates by reason of the sudden jolts which they receive, and thus the boxes are very efficiently shaken.

It will be seen that the machine provides for simultaneously shaking a large number of boxes, that they may be very easily placed in position and removed from the machine and that the mechanism for reciprocating the abutment plates is of the simplest nature.

I am aware that it is not new to provide a jolting platform to shake brush boxes of the kind described, and I do not claim such arrangement broadly, but

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

1. The combination, of the reciprocating abutment plates, the boxes held loosely between the plates, and means for preventing the displacement of the boxes, substantially as described.

2. The combination, of the reciprocating abutment plates, movable in relation to each other, a fastening device to hold the plates together, the boxes held between the plates,

and means for preventing the displacement of the boxes, substantially as described.

3. The combination, of the oppositely arranged reciprocating abutment plates, the boxes held loosely between them, the guides for the boxes, and guide posts carrying the abutment plates, substantially as described.

4. The combination, of the oppositely arranged abutment plates having openings therein to prevent excessive resistance to air, the guides between the plates, and the boxes held loosely on the guides, substantially as described.

5. The combination, of the oppositely arranged reciprocating abutment plates, a fastening device to hold the plates together, guides arranged between the plates and limiting the distance between them, and boxes held to slide on the guides, substantially as described.

6. A machine of the kind described, comprising guide posts, oppositely arranged abutment plates to slide on the posts, means for holding boxes between the abutment plates, and cog wheels having their teeth supporting the lower abutment plate, substantially as described.

WILLIAM F. HUTCHINSON.

Witnesses:

WALLACE A. DOWNS,
C. SEDGWICK.