

No. 622,768.

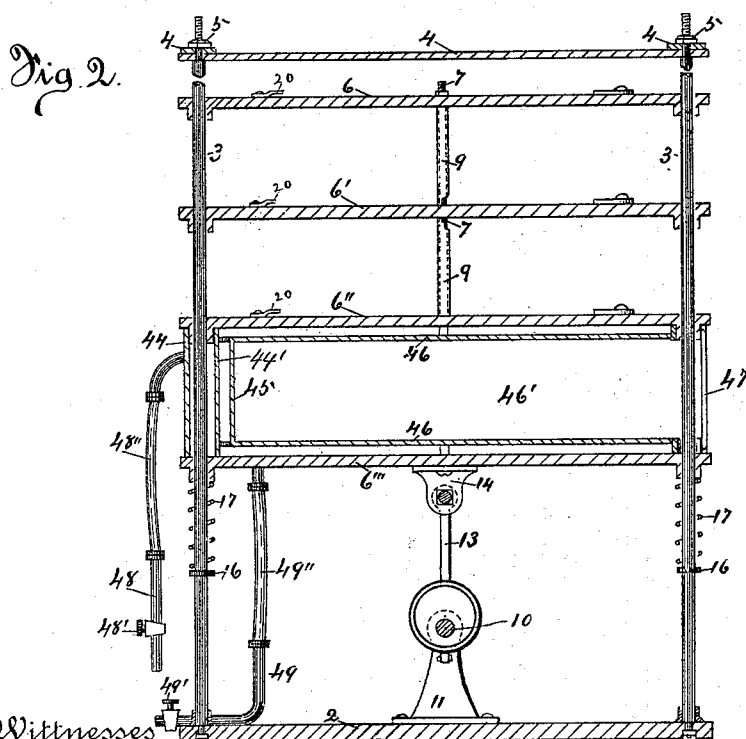
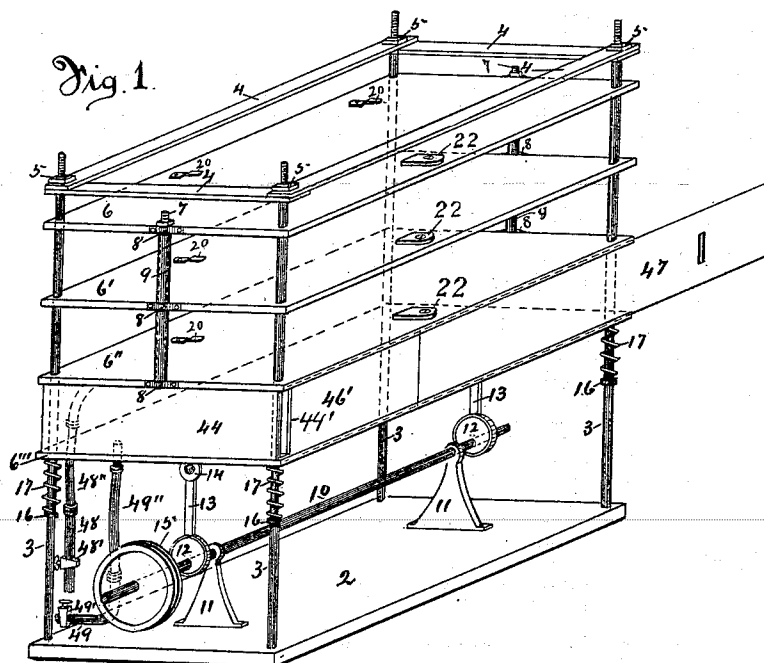
Patented Apr. 11, 1899.

M. HELLWIG.
BRUSH MACHINE.

(Application filed June 30, 1898.)

(No Model.)

3 Sheets—Sheet 1.



Witnesses
George C. Moody
A. Edwards.

Inventor
By his Attorney Maurice Hellwig
Alchuton Farmer.

No. 622,768.

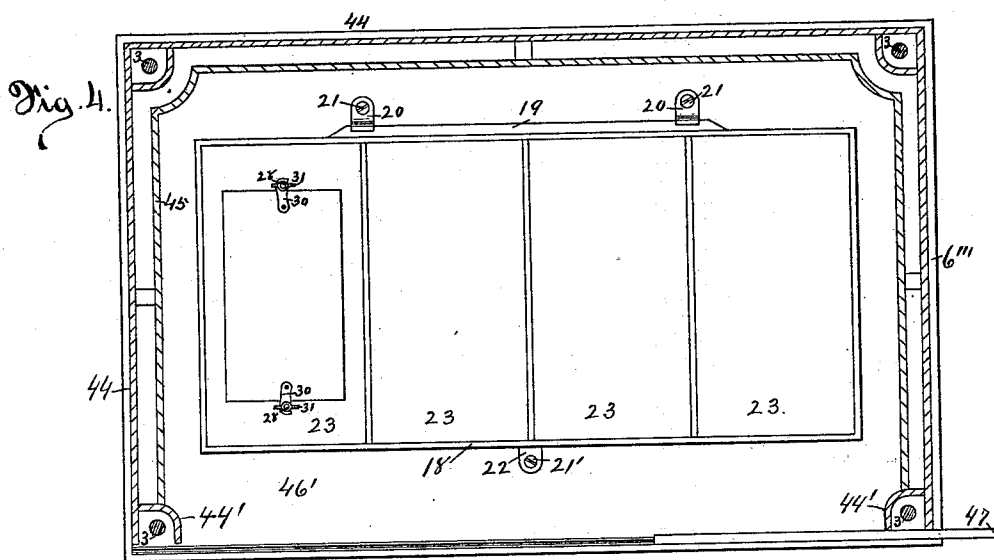
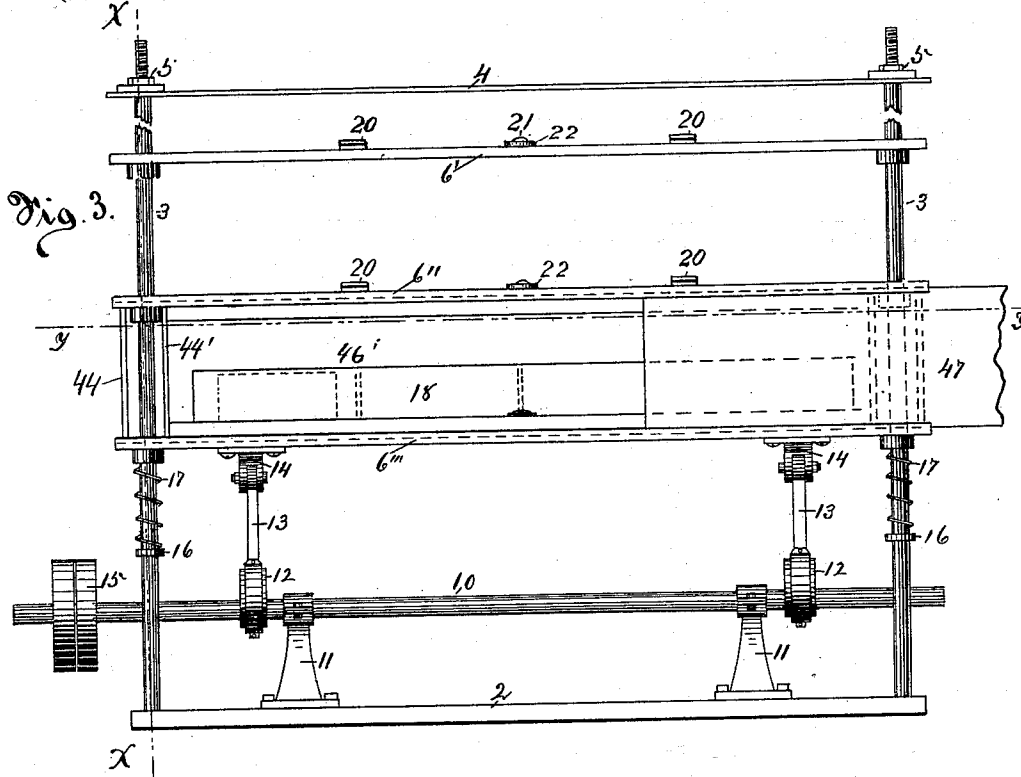
Patented Apr. 11, 1899.

**M. HELLWIG.
BRUSH MACHINE.**

(Application filed June 30, 1896.)

3 Sheets—Sheet 2.

(No Model.)



Witnesses
B. Zalamea
John Benjamin

Inventor
Maurice Hellwig
By his Attorney
A. Chilton Turner

No. 622,768.

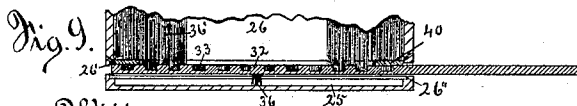
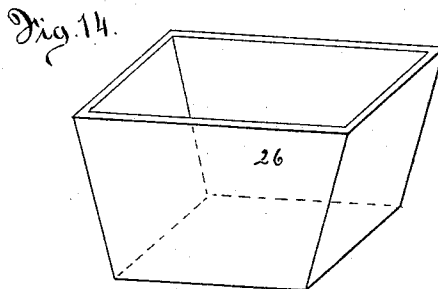
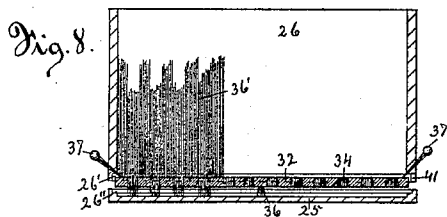
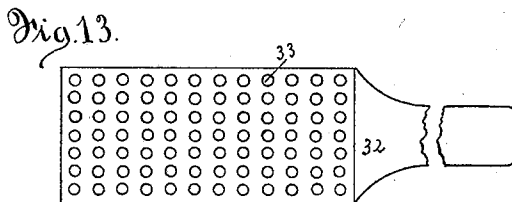
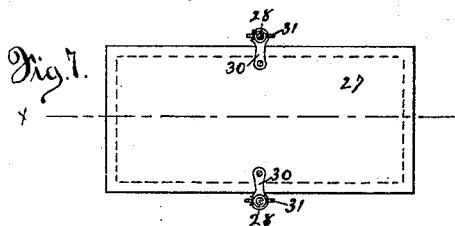
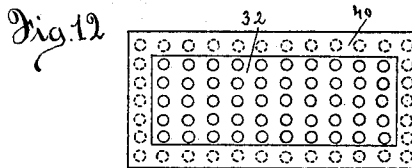
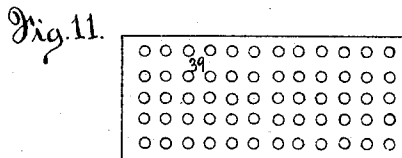
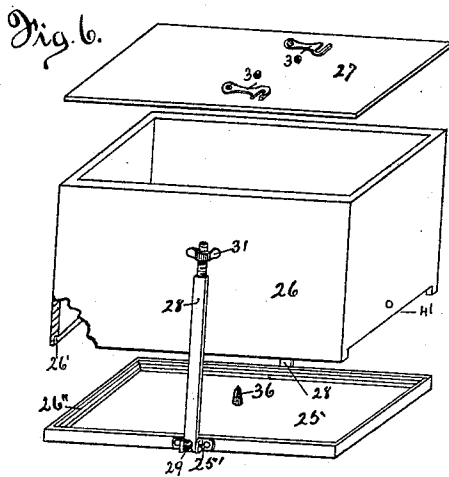
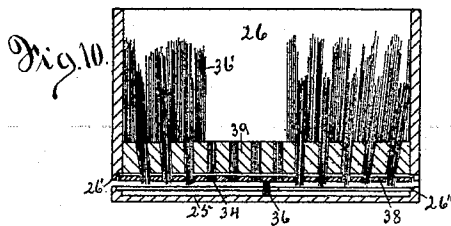
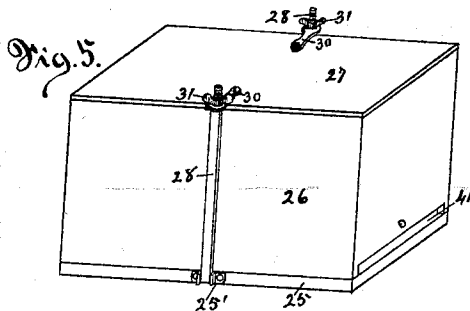
Patented Apr. 11, 1899.

M. HELLWIG.
BRUSH MACHINE.

(Application filed June 30, 1896.)

(No Model.)

3 Sheets—Sheet 3.



Witnesses
George C. Moody
A. Edwards

Inventor
Maurice Hellwig
By his Attorney
A. Clinton Tanner

UNITED STATES PATENT OFFICE.

MAURICE HELLWIG, OF NEW YORK, N. Y.

BRUSH-MACHINE.

SPECIFICATION forming part of Letters Patent No. 622,768, dated April 11, 1899.

Application filed June 30, 1896. Serial No. 597,531. (No model.)

To all whom it may concern:

Be it known that I, MAURICE HELLWIG, a citizen of the United States, residing at New York, (Brooklyn,) in the county of Kings and State of New York, have invented certain new and useful Improvements in Brush-Machines, which improvements are fully set forth in the following specification and accompanying drawings, in which—

10 Figure 1 is a perspective view representing a jolting-machine constructed in accordance with my invention with four platforms. Fig. 2 is a vertical transverse section of same on the line *xx* of Fig. 3. Fig. 3 is a side elevation of a jolting-machine constructed in accordance with my invention with but three platforms. Fig. 4 is a horizontal section of same on the line *yy* of Fig. 3. Fig. 5 is a perspective view of the bristle-receiver made use of. Fig. 6 is a view similar to Fig. 5 with cover and bottom portion shown somewhat removed. Fig. 7 is a plan view of the bristle-receiver made use of. Fig. 8 is a central vertical section of said receiver on the line *xx* of Fig. 7 and shows one form of brush-back made use of. Fig. 9 is a detailed sectional view and shows another form of brush-back made use of. Fig. 10 is a view similar to Fig. 8 and shows a device for guiding the bristles into openings in thin brush-backs. Fig. 11 is a plan view of the device referred to in description of Fig. 10. Fig. 12 is a plan view of brush-back referred to in description of Fig. 9 and shows disposition of fender made use of. Fig. 13 is a plan view of brush-back provided with handle portion. Fig. 14 is a perspective view showing modified form of receiver-body.

40 Similar reference - numerals denote like parts throughout the several views.

This invention relates to improvements in brush-machines—that is, machines adapted to use in the manufacture of brushes—and particularly to that class of brush-machines the construction of which calls for the presence of one or more vertically-reciprocating platforms, means for reciprocating said platforms, one or more receivers suitable in construction to contain the brush hairs or bristles and when properly manipulated adapted to effect the introduction of said hairs or bristles into openings formed in brush-backs, and one

or more receiver-compartments adapted to contain the bristle-receivers and admitting in some instances of being heated by steam, 55 hot air, or other suitable heating medium. A machine of this general character is described and claimed in Patent No. 506,397, granted to myself under date of October 10, 1893.

The object of my invention is to provide a 60 machine for inserting the hairs or bristles into openings formed in brush-backs in the manufacture of brushes which shall be simple in construction and which shall be capable of filling a large number of brush-backs at one 65 operation either with or without the employment of a heating medium.

The several improved features of my invention, together with the various details of construction pertaining to the entire machine, 70 will now be described, and thereafter the former will be specifically pointed out in the claims.

Having reference to the accompanying drawings, 2 denotes the bed-plate, preferably 75 rectangular in general outline, and 3 vertical guide-rods, one at each corner of the bed-plate 2.

The guide-rods 3 may be secured to the bed-plate 2 in any convenient manner, as by providing each of same at its lower end with a threaded tap adapted to enter a suitable opening in the bed-plate 2 and applying a nut to the tap from the under side of the bed-plate. The guide-rods 3 are held rigidly in an upright position by means of the braces 4, which 85 are provided with suitable openings at their respective ends, through which pass the guide-rods 3, which are threaded at their upper ends to receive the nuts 5. 90

6 6' 6'' 6''' are platforms, corresponding in general outline with the bed-plate 2, arranged one above the other and movable up and down on the guide-rods 3, the latter passing through suitably-located openings with which the respective platforms 6 6' 6'' 6''' are provided. 95

The base 2 and platforms 6 6' 6'' 6''' may be of iron, wood, or other suitable material. The guide-rods 3 are preferably of iron. 100

The rod 7 passes vertically through brackets 8, the latter secured to the respective ends of the platforms 6 6' 6'', and carries the pipe 9, which intervenes between the brackets 8, and

it will be further seen that by using different lengths of pipe 9 the distance between the platforms last named may be varied accordingly.

5 Any desired number of platforms, as 6 6' 6", may be employed and may be duly separated, as indicated above. The platforms 6" and 6'" are separated by the intervening walls 44 and the angle-iron supports 44', and by reason
10 of this disposition of the parts named the several platforms are bound together and work as a unit when motion is imparted thereto. I impart to the platforms 6 6' 6" 6'" a vertical reciprocating motion, and to effect this end
15 I use the shaft 10, journaled in the floor-supports 11, secured to the bed-plate 2. This shaft carries eccentrics 12, which when the shaft 10 is rotated serve to impart to the said platforms a vertical reciprocating motion
20 through the medium of the connecting-rods 13, the upper ends of which work on pivots in the hangers 14, secured in any convenient manner to the under side of the platform 6". The shaft 10 also carries a fixed pulley 15,
25 whereby a rotary motion is imparted to said shaft.

Each of the guide-rods 3 is provided with a shoulder or collar 16, intervening between which and the platform 6'" is a spiral spring
30 17. These springs serve to overcome any tendency on the part of the platforms to bind against the guide-rods 3, as they exert a lifting force against the platforms at the point where the guide-rods pass through the
35 latter.

A rectangular structure 18, preferably of sheet-iron, is placed one on each of the reciprocating platforms 6 6' 6" and within the chamber 46' and may be secured thereto in any
40 convenient manner, as by providing the same with a flange 19, adapted to take under the cleats 20, held firmly in position on the platforms or bottom of chamber 46' by screws 21, and providing the structure 18 with a pro-
45 jection 22 at the opposite side, through which projection passes the screw 21'. The structure 18 is in the form of a box open at top and bottom and is divided into compartments 23, into which I place the bristle-receiver, which
50 is fully illustrated in the drawings and will now be described.

25 is the bottom in the form of a shallow box and provided with clips 25', one at each end or side, 26 the body portion in the form
55 of a rectangular box open at top and bottom, and 27 the cover. The body portion 26 is provided with an internal recess 26' at its lower edge, and the bottom portion 25 is provided with a like recess 26". The parts 25, 26, and 27 are when in use locked together
60 by means of the links 28, each working at its lower end on a pivot 29, passing through the clip 25', and when brought to an upright position the links 28 are held there by means of
65 the fasteners 30, each of which is pivotally secured to the cover 27 and has a hook-shaped free end adapted to take around the upper

end of the link 28, which is threaded to receive the thumb-nut 31, and the parts 25, 26, and 27 are brought and firmly held together
70 by turning the thumb-nut 31 in the proper direction. Before locking the parts 25, 26, and 27 together, as just described, I place a brush-back 32 into the bottom of the receiver, the same being of suitable dimensions to fit
75 into the internal recess 26' and provided with perforations or recesses, into which tufts of hair or bristle are to be inserted, as will be hereinafter described.

In the manufacture of brushes backs that
80 may be divided into two kinds are used, one with recesses, as 33, extending only partially through the back, and the other with perforations, as 34. In the latter case the back is inserted into the recess 26' at the lower
85 edge of the receiver, and after the operation of locking the parts 25, 26, and 27 together the bottom 25 is held slightly away from the brush-back by reason of the latter resting in the recess 26" and to the end that the bottom
90 25 may serve as a gage to limit the protrusion of the bristles 36' through the perforations 34 in the brush-back. To obviate central vibration of the brush-back, particularly of the
95 type shown in Fig. 10, which vibratory effect might take place during the operation of jolting, to be explained hereinafter, I employ the plug 36, which is interposed centrally between the brush-back and the bottom portion 25. It is not essential that the plug 36 be secured in
100 any manner in the bottom portion 25, it being designed to slightly force the pointed end of the plug into the brush-back and allow the opposite end thereof to merely abut against the bottom portion 25. Pins 37, each passing
105 through a suitable perforation in the receiver-body and penetrating the edge of the brush-back, may be employed, and to the end that when the bottom 25 is removed the back 32 will not drop from the receiver. It will be under-
110 stood that the perforations in the brush-back may be formed at any desired angle to the latter; but where thin metallic backs, as 38, are used it is desirable to use a block 39 above the brush-back, the said block being provided
115 with perforations formed at suitable angles and through which perforations the bristles 36' are guided into the perforations in the brush-back and retained in the proper position until cemented or otherwise secured in
120 the brush-back. The block 39 should conform in general outline to the shape of the body portion of the receiver. It is also at times desirable, particularly where a continuous row of tufts are to be different in color
125 from the remaining ones, to cover the corresponding row of perforations or recesses in the brush-back during the operation of filling, and to accomplish this I use the fender 40, (see Figs. 9 and 12,) which may be of felt, leather,
130 or other suitable material. In cases where the brush-back is provided with a handle the lower edge of one end of the body portion of the receiver may be cut away, as at 41, to

allow the handle, Figs. 9 and 13, to project outward from the receiver.

The relative dimensions of the compartment 23 and the bristle-receiver should be such as to allow the latter to freely move about in the former and tilt in different directions during the jolting operation, which will be described hereinafter.

In case brush-backs provided with recesses, as 33, are used there should be placed in each of the recesses 33 a small quantity of some suitable adhesive agent, as cement, which when subjected to the application of heat may be reduced to a thin liquid state. The back should then be placed in the receiver, as hereinbefore described, the latter filled with the bristles 36', and the parts locked together, as before explained. The receiver should then be placed in the compartment 23 of the structure 18 in a chamber or oven heated sufficiently to liquefy the cement in the recess 33, the whole then being subjected to a jolting operation. To the end that heat may be thus utilized, I provide a box-like structure by utilizing two of the reciprocating platforms, say 6'' 6''', as the top and bottom portions and then interposing between them the vertical wall 44 and interiorly at the respective corners of the box-like structure thus formed the vertical angle-irons 44', all preferably of sheet-iron. Within this structure is another corresponding in form, though somewhat less in dimensions. This latter is formed by the vertical walls 45 and horizontal walls 46, arranged so as to form a chamber 46', within which the structure 18 is located. This chamber has one open side, which may be closed by the sliding door 47. The dimensions of the chamber 46' being somewhat less than the dimensions of the outer box-like structure, a space entirely surrounding the chamber 46' excepting on one side is formed for the admission of steam, hot air, or other suitable heating medium, which is conveyed thereto by means of the inlet-pipe 48 and taken therefrom by way of the exhaust-pipe 49, the said inlet and exhaust pipes being provided with suitable valves 48' 49'.

It will be understood that a structure 18 may be applied to any number of reciprocating platforms and the bristle-receivers used in connection therewith irrespective of the heating facilities described, and this is so where the perforated brush-backs are used, the heating facilities being essential only where the recessed backs are used. My improved jolting-machine, however, may be used in the manufacture of brushes whether the backs be recessed or perforated, as will be observed.

In practice the bristles 36' are placed in the receiver, the back inserted in the bottom of the receiver, as already described, whereupon the parts 25, 26, and 27 are locked together, as before explained. If the back is perforated, the receiver is placed in the compartment 23 of the structure 18 on one of the reciprocating platforms. Motion is then im-

parted to the shaft 10 through the medium of the pulley 15, thereby rotating the shaft 10, which carries with it the eccentrics 12, the latter, through the medium of the connecting-rods 13, imparting to the platforms 6 6' 6'' 6''' a vertical reciprocating motion. This results in the bristle-receiver being jolted about in the compartment 23, thereby propelling the bristles 36' through the perforations 24, as shown in Fig. 8, whereupon the receiver is taken from the compartment 23, the bottom 25 removed from the receiver, and the tufts cemented or otherwise secured in the brush-back. If the back is provided with recesses, a quantity of cement or other suitable adhesive agent is placed in each of said perforations, and a similar operation is gone through, save that the receiver when ready is placed in the compartment 23 in the chamber 46', which is heated and jolted, as hereinbefore described, thus forcing the bristles 36' into the recesses 33, containing the now liquefied adhesive agent, whereupon the receiver is taken from the compartment 23, the bottom 25 removed from the receiver, and the adhesive agent in the recesses 33 allowed to cool, thereby fixing the bristle-tufts firmly in said recesses in the brush-back.

48'' is a flexible section of the inlet-pipe, and 49'' is a like section of the exhaust-pipe. These are essential to the end that the pipes named may not interfere with the movement of the reciprocating platforms, as will be clearly understood.

Having now fully described my invention, what I claim, and desire to secure by Letters Patent, is—

1. In a brush-machine, in combination with vertical guide-rods, an inclosed box-like structure, adapted to be vertically reciprocated on said guide-rods, means for heating said structure, and means for vertically reciprocating the same on said guide-rods, all substantially as herein described.

2. In a brush-machine, in combination with vertical guide-rods, each provided with a stop or collar, an inclosed box-like structure, adapted to be vertically reciprocated on said guide-rods, a spring on each of said guide-rods, between said collar and said structure, means for heating the latter, and means for reciprocating the same on said guide-rods, all substantially as herein described.

3. In a brush-machine, in combination with vertical guide-rods, an inclosed box-like structure, adapted to be vertically reciprocated on said guide-rods, a device within said box-like structure adapted to contain one or more bristle-receivers, means for heating said box-like structure, and means for reciprocating the same on said guide-rods, all substantially as herein described.

4. In a brush-machine, in combination with vertical guide-rods, a box-like structure having one open side, arranged within a similar larger structure, so as to form a compartment for steam, or other suitable heating medium,

the said compartment surrounding the first-named structure, save at the open side; a door for closing the latter, an inlet-pipe, consisting in part of a flexible section, and communicating with said compartment, an exhaust-pipe, consisting in part of a flexible section, leading from said compartment, and means for reciprocating said box-like structure on said guide-rods, all substantially as herein described.

5. In a brush-machine, in combination, a series of vertical guide-rods, a series of platforms, adapted to be vertically reciprocated on said guide-rods, tubular parts interposed endwise between said platforms, rods passing through said tubular parts, and binding the said platforms together, so that they may be acted upon as a unit, and means for reciprocating said platforms on the guide-rods, substantially as herein described.

6. In a receiver for holding hair or bristles, in combination with the body portion, a detached bottom provided with clips, fastening-links, each arranged to swing in one of the clips above named, and threaded at its free end, a thumb-nut on the threaded end of each of said links, a cover for the receiver-body, fasteners pivotally secured to said cover, and each provided with a hook-shaped free end adapted to take around the free end of one of said links, below the thumb-nut mentioned, all substantially as herein described and for the purpose set forth.

7. In a receiver for holding hair or bristles, in combination with the body portion, a detached bottom, one or more steadying devices 36, a cover for said body portion, and means for locking the parts together, substantially as herein described.

8. In a receiver for holding hair or bristles, in combination with the body portion, means for retaining the brush-back within the body portion after the bottom portion has been removed, a detached bottom portion, a cover for said body portion, and means for locking the parts together, all substantially as herein described.

9. In a receiver for holding hair or bristles, in combination with the body portion, a cover for said body portion, a detached bottom therefor, a plug at the center of the latter, a perforated block, for guiding the bristles into the brush-back, within the said body portion, and means for locking the parts together, all substantially as herein described.

10. In a receiver for holding hair or bristles, in combination with the body portion, a cover therefor, a detached bottom for the same, a fender for covering a portion of the perforations in the brush-back, and means for locking the parts together, all substantially as herein described.

MAURICE HELLWIG.

Witnesses:

W. L. SAWYER,
B. ZALAMEA.