

(No Model.)

M. HELLWIG.

BRUSH MACHINE.

No. 311,985.

Patented Feb. 10, 1885.

Fig. 1.

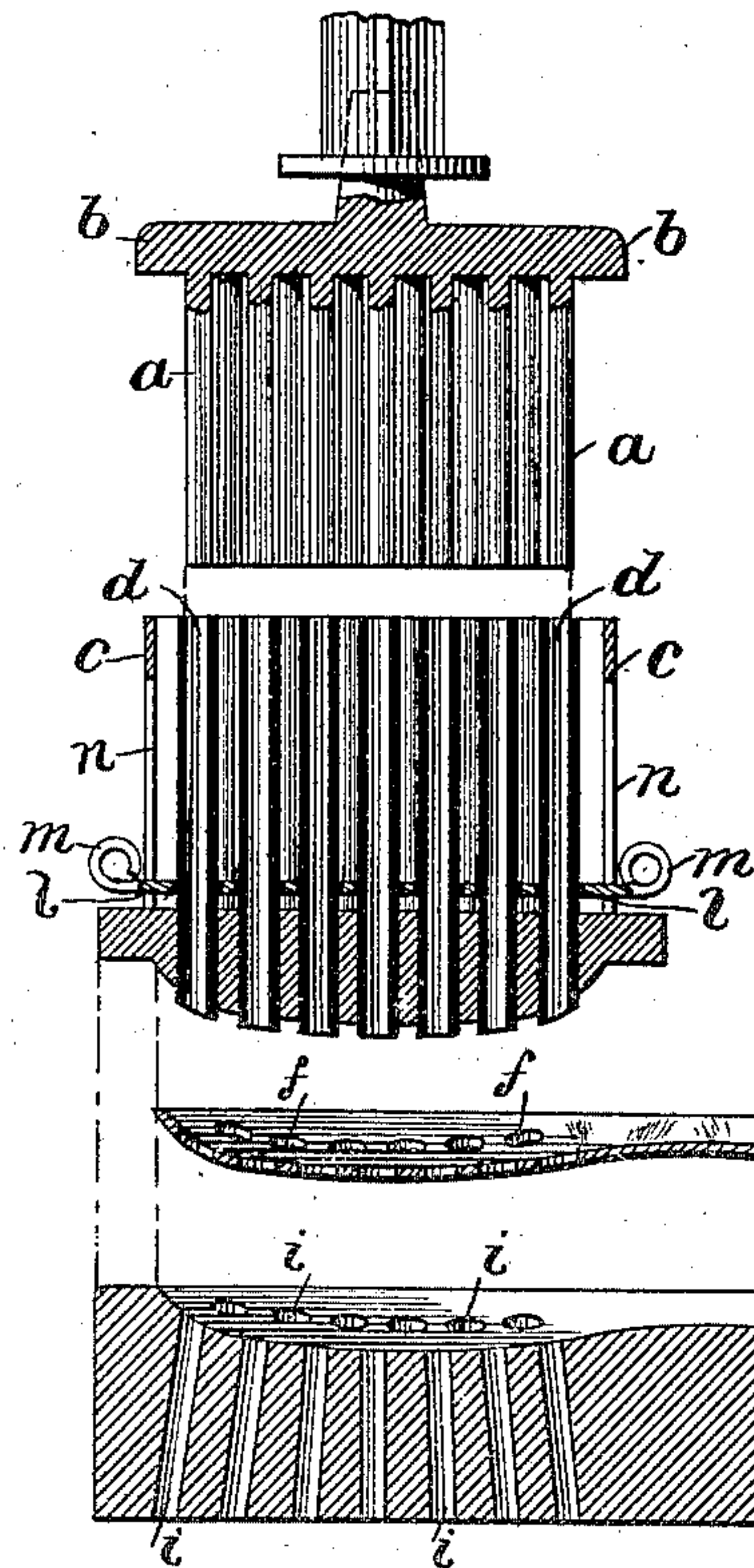


Fig. 2.



Fig. 3.

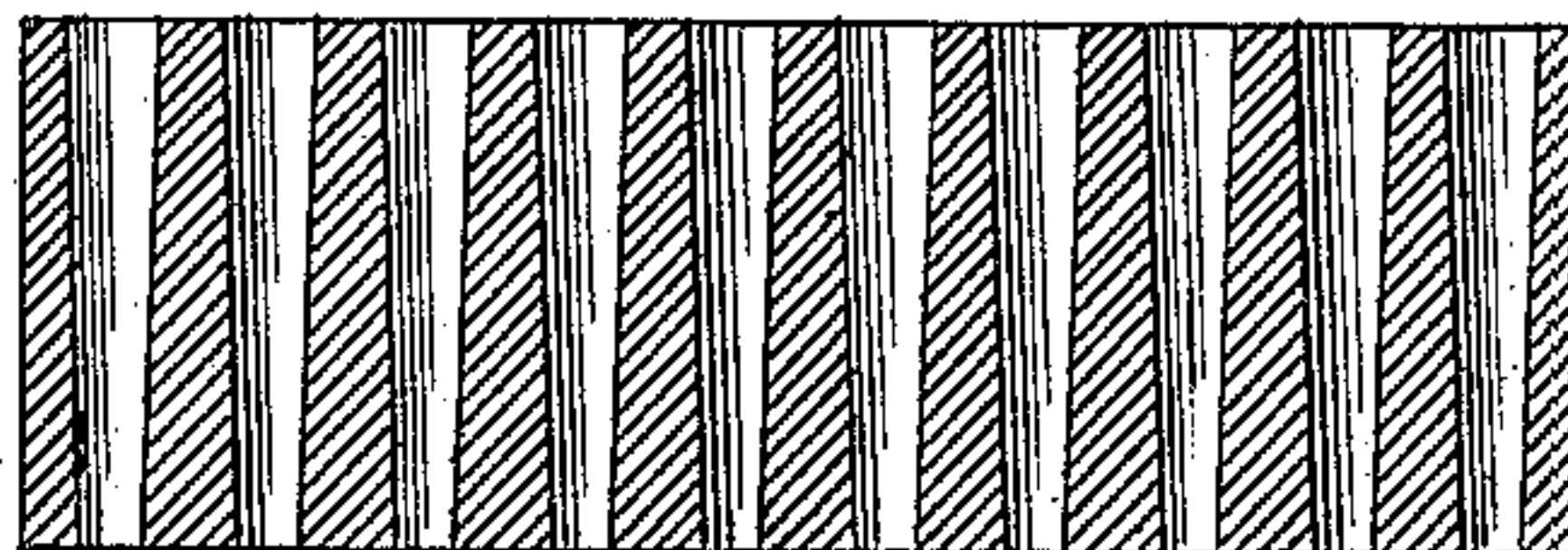


Fig. 5.

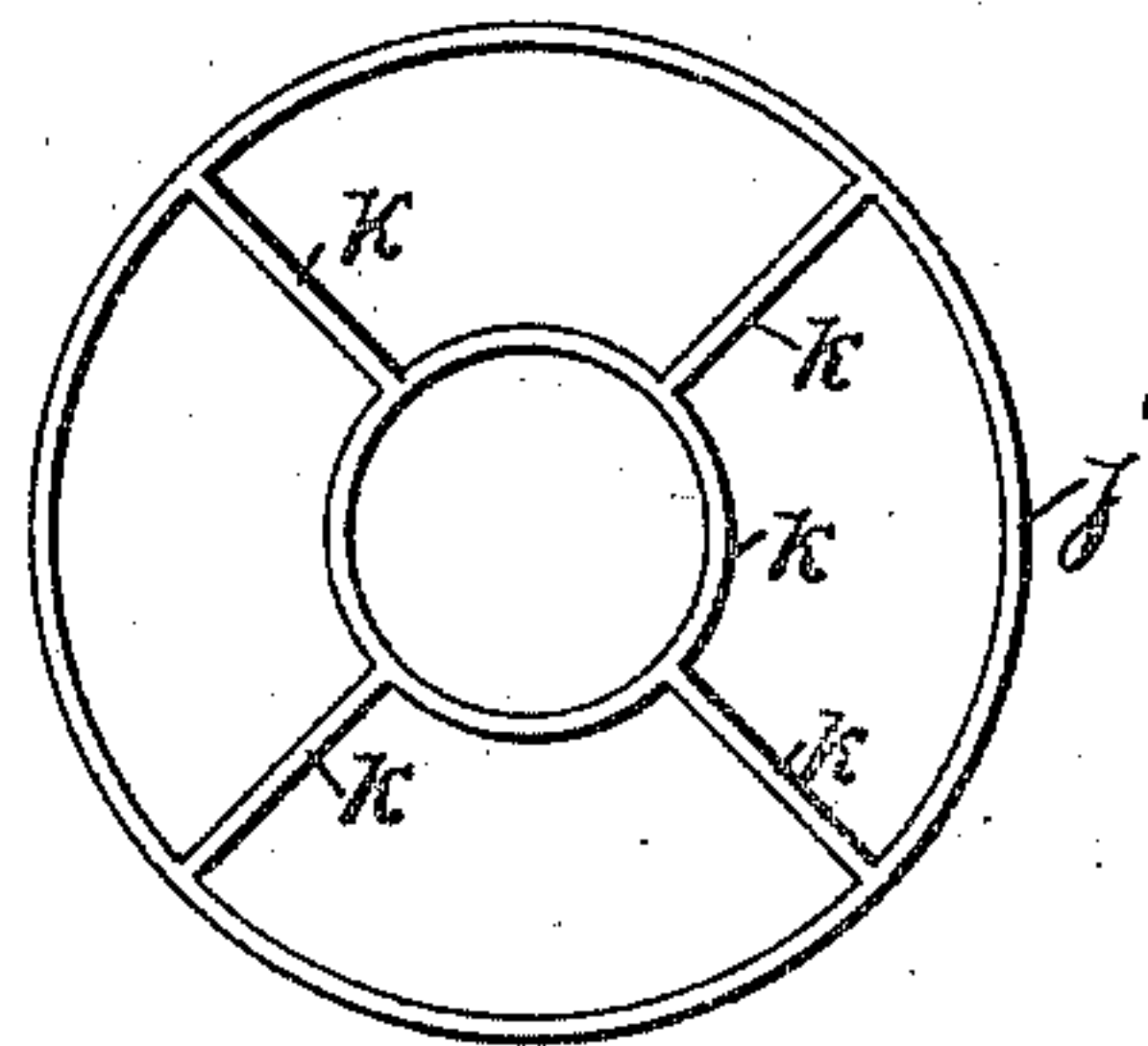
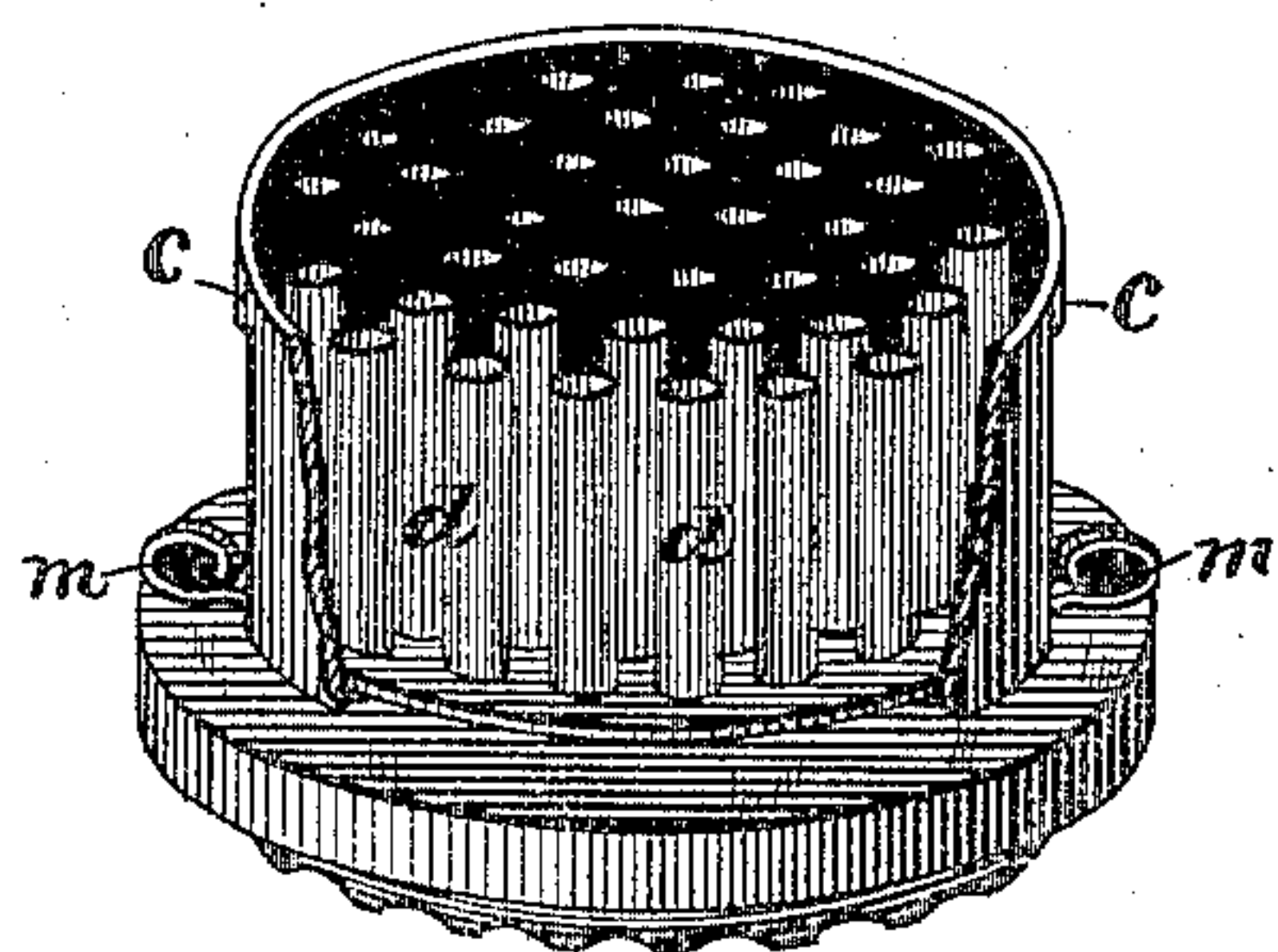


Fig. 4.



WITNESSES:
Arthur C. Webb.
Geo. G. Jewett.

INVENTOR
Maurice Hellwig
BY *Ernest C. Webb.*
ATTORNEY

UNITED STATES PATENT OFFICE.

MAURICE HELLWIG, OF BROOKLYN, NEW YORK.

BRUSH-MACHINE.

SPECIFICATION forming part of Letters Patent No. 311,985, dated February 10, 1885.

Application filed December 7, 1883. (No model.)

To all whom it may concern:

Be it known that I, MAURICE HELLWIG, a citizen of the United States, residing at Brooklyn, in the county of Kings and State of New York, have invented certain new and useful Improvements in Brush-Machines, of which the following is a full, clear, and exact description.

This invention relates to machinery for introducing the bristles or hair in the manufacture of brushes.

In an application for Letters Patent filed by me on September 22, 1883, and designated as Serial No. 107,097, I have described and shown certain mechanism for this purpose, and in my present invention I employ some of the devices described and shown in said prior application with additional features of improvement, as will be hereinafter described, and particularly pointed out in the claims.

In the accompanying drawings, in the several figures of which like parts are designated by similar letters of reference, Figure 1 is a longitudinal section through the plungers, receptacle for hair or bristles, brush-back, and gage or form, these several devices being shown detached. Fig. 2 is a detail of an artist's or marking brush. Fig. 4 is a perspective view of the receptacle for hair or bristles, one side being broken away. Fig. 3 is a longitudinal section of a gage or form for artists' and marking brushes. Fig. 5 is a top view of a device for facilitating the introduction of the bristles or hair into the tubes.

a designates a number of plungers fixed to the under side of a plate, *b*, adapted to be removably attached to the slide-bar of any suitable power-press, and *c* designates a receptacle, as here shown in the shape of a cylinder with its upper end open and having a convex bottom. A number of tubes, *d*, are arranged vertically in this receptacle, the upper ends extending to the top of the receptacle, and the lower ends projecting slightly through holes in the convex bottom.

e designates a plate forming the lower half of a brush-back, (that shown being intended for a blacking-brush,) having a series of holes, *f*, for the hair or bristles. This brush-back, which is not claimed in the present application, when finished, consists of two concavo-convex plates, of the construction described

and shown in an application for Letters Patent filed by me on September 22, 1883, and designated as Serial No. 107,096, although a brush-back of the ordinary construction may be employed, if desired. This plate *e* is adapted to be held in a gage or form, *g*, having a central concavity, *h*, of the same size and shape as the bottom of the plate *e*, and having a series of holes, *i*, therein corresponding in number and shape to the holes *f*, and of a depth sufficient to give the hair or bristles the desired length.

In operation the plate *b*, carrying the plungers *a*, is fixed to the slide-bar of any suitable power-press. The plate *e*, forming the lower half of the brush-back, is placed in the concavity *h* of the gage or form *g*, so that its holes *f* are brought in line with the holes *i*, and the plate and gage or form are then secured by any suitable means to the bottom of the receptacle *c*, so that the lower ends of the tubes enter the holes *f*, the convex bottom of the receptacle and the concave plate fitting snugly together. The tubes *d* are now to be filled with hair or bristles, and for this purpose I employ an open-ended cylinder, *j*, of the same diameter as the receptacle *c*, into which a solid mass of hair or bristles is to be packed by hand, said hair or bristles having first been cut to the desired length to form the brush and to leave a portion projecting above the holes *f*, so that such hair or bristles may be fastened to the plate *e*.

For convenience in manipulating the hair or bristles and inserting it into the cylinder *j*, I divide the interior of said cylinder into a series of compartments by means of a series of vertical partitions, *k*.

To fill the tubes *d*, the cylinder *j*, after it has been packed with hair or bristles, is placed on top of the receptacle *c*, and the hair or bristles forced out of the cylinder into the tubes by wooden plungers, operated by hand or in any other suitable manner, each compartment of the cylinder fitting over a number of the tubes, and the partitions *k* being brought in line with the spaces between the tubes. The cylinder *j* is then removed, and the hair or bristles which may have become, in the process of filling the tubes *d*, packed in the spaces around the tubes in the receptacle is removed. For this purpose I employ a perforated plate, *l*, which rests on the

bottom of the receptacle, the tubes projecting through the perforations. This plate is adapted to be raised and lowered by means of lugs *m*, which project through vertical slots *n* in the receptacle *c*.

To remove the hair or bristles in the spaces around the tubes, the plate *l* is raised up as far as the slots *n* will permit it to go, carrying the hair or bristles with it, and such hair or bristles is then lifted out by hand. The plungers, which consist of cylindrical rods of a diameter sufficient to enter the tubes *d*, are then operated to force the hair or bristles out of all the tubes simultaneously into the plate forming the lower half of the brush-back, and this is done by setting the press in motion. The receptacle *c* is then removed from the plate and gage or form, the hair or bristles fastened to the plate, and the plate removed from the gage or form and united to the upper plate to form the finished article.

In the manufacture of artists' and marking brushes my invention will be of large practical value, as in these brushes as now made the hair or bristles is inserted by hand, which is necessarily a slow process, and only one brush can be filled at a time; while by my machine a gross or more can be filled at one and the same time by employing the necessary number of plungers, tubes, &c.

In the manufacture of such brushes a gage or form will be employed having holes of sufficient depth to receive the tubular ends *o* of such brushes, as shown in Fig. 3.

The size and shape of the plungers, receptacle and tubes, filling cylinder, and gage or form will be varied according to the size and shape of the brush they are intended to be employed to fill with hair or bristles, and all

these parts may be made of any material best suited for the purpose, although I prefer to make the plungers of steel, the receptacle and tubes and filling-cylinder of light sheet metal, and the gage or form of wood.

When my improvements are utilized in the manufacture of brushes having different-shaped backs, the shape of the bottom of the receptacle and the shape of the gage or form will be made to conform therewith.

I am aware that a partitioned box or receptacle for bristles has heretofore been employed in the manufacture of brushes. The partitions in such box were for the purpose of keeping the bristles erect. The backs of the brushes were filled by means of this receptacle for the bristles by shaking the same endwise over the holes in the backs to be filled.

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

1. The combination of the plungers and form with the receptacle *c*, having the series of tubes, and the plate *l*, filling the spaces between said tubes, substantially as and for the purpose described.

2. The combination of the receptacle *c*, having a perforated bottom, and tubes *d* in said perforations, with the perforated plate *l* in said receptacle, adapted to be moved to lift the surplus bristles or hair therefrom, substantially as described.

In testimony whereof I have hereunto set my hand this 30th day of November, A. D. 1883.

MAURICE HELLWIG.

Witnesses:

ERNEST C. WEBB,
ARTHUR C. WEBB.