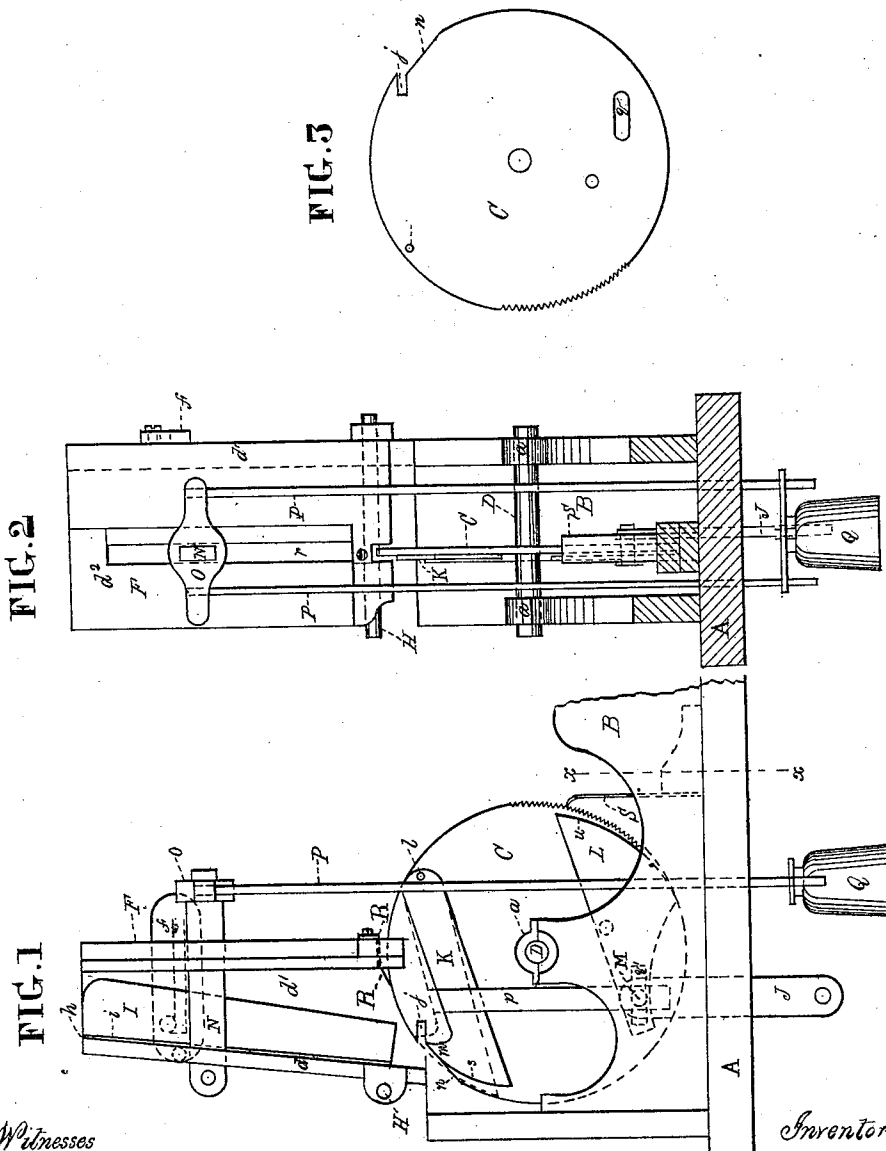


J. M. PICKERING.
BRUSH-MAKING MACHINE.

No. 178,556.

Patented June 13, 1876.



Witnesses
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JOSEPH M. PICKERING, OF PHILADELPHIA, PENNSYLVANIA.

IMPROVEMENT IN BRUSH-MAKING MACHINES.

Specification forming part of Letters Patent No. **178,556**, dated June 13, 1876; application filed November 18, 1875.

To all whom it may concern:

Be it known that I, JOSEPH M. PICKERING, of the city and county of Philadelphia, in the State of Pennsylvania, have invented a new and useful Improvement in Machines for Gaging out Bristles for Making Brushes, which improvement is fully set forth in the following specification, reference being had to the accompanying drawings.

My invention consists, in the first place, in the combination, with a hopper for holding the bristles, of a disk which has a slot in its periphery to receive the bristles, and a cut-off jointed thereto in such a manner that the reciprocating action of a treadle or other suitable device vibrates the disk, to open the cut-off and fill the slot with bristles, as the slot is brought into the hopper, and move the cut-off to separate the superabundance of bristles from the slot, as the disk is turned in the opposite direction to carry the tuft of bristles outside of the hopper to be transferred to the brush-stock, as hereinafter fully set forth.

In the second place, the invention consists in the combination, with the said disk, of a hopper having one side hinged at the bottom, whereby it may be thrown outward at the top to widen the hopper to receive the bristles, and drawn in after the hopper has been filled to contract the latter at the top, for the purpose of causing the body of the bristles to descend readily by their own gravity, to fill, as they are removed, at the bottom of the hopper.

In the third place, the invention consists of a weighted slide, which rests upon the bristles in the hopper, to keep them close together, to give greater efficiency to the operation of the working of the separating device.

In the accompanying drawings, Figure 1 is a side elevation of my machine. Fig. 2 is a front view, partly in section, at the line *x x* of Fig. 1. Fig. 3 is a rear view of the disk C.

Like letters of reference in all the figures indicate the same parts.

A represents a bench, on which is a box, B, in which is placed the vertical disk C, which has a shaft, D, that has a partial turn in bearings *a a* of the box. F is a hopper, into which the bristles are placed to be divided into tufts of equal size for insertion into the brush-stock. The rear side of the hopper is hinged, by means

of the rod H, for the purpose of throwing the upper end outward to widen the hopper at top for an easy reception of the bristles, and then contracting the same at top by drawing the top of the side *d* inward, as seen in Fig. 2, thus making the bottom of the hopper relatively wider than the top, to cause an easy descent of the bristles as they are taken out from the bottom of the hopper in the dividing operation.

In the practical working of the machine I have found it necessary to make the hopper wider at bottom than at top, to insure a free downward movement of the bristles, which are inclined to stick to the sides of the hopper; and they are not of sufficient weight without such form of the hopper to overcome the tendency to stick.

Connected with the rear edge of the side *d* is a slotted arm, *f*, through which a set-screw passes into the contiguous side *d'* of the hopper for securing the side *d* in its adjusted position. I is a sheet-metal plate, which lies against the side *d'* of the hopper to close the joint at *h* when the side *d* is withdrawn. It has a flange, *i*, which is fastened, by means of screws or otherwise, to the side *d*.

The disk C has a slot, *j*, in its periphery, into which the bristles crowd, while the disk is drawn around in the direction of the arrow by the treadle connecting-rod J before the slot reaches the position shown in full lines in Fig. 1. K is a plate, which is hung on the pivot *l* at one end, which confines it at that point to the disk. The other end has a pointed projection, *m*, for dividing the proper quantity of bristles to form the tuft from the main body. From the dividing-point of the inner edge of the slot *j* the edge of the disk is cut away, forming an incline, *n*, to admit of the bristles falling into the slot under the overhanging point *o*. The slot at this edge is made square across, whereby, in the forward movement of the disk, the bristles are kept in position at right angles to the sides of the disk with a sufficient degree of accuracy.

The plate K has an arm, *p*, connected with the inner end of the plate L, by means of the joint-pin M of the connecting-rod J, which passes through the slot *q* of the disk, (seen in Fig. 3,) and slot *q'* of the inner end of the plate L, to admit of the said plates K and L chang-

ing their positions on their pivots, and thus admitting of the movement of the treadle.

The sides d and d' of the hopper have vertical slots r , in which is a horizontal bar, N , on one of which is a cross-piece, O , with which are connected the upper ends of the vertical rods $P P$. To the lower ends of the rods is connected the weight Q , for drawing the bar N tightly on the bristles, to keep them in a sufficiently compact form for their division into tufts.

The treadle in its downward movement turns the disk C into the position shown in Fig. 1, and draws the inner end of the plate K from the slot j open, as shown by full lines, which allows the bristles to fill it, and in the upward motion of the treadle the inner end of the plate is pushed upward, the point of the projection m separating the surplus bristles from the slot, and closing the latter, as shown by dotted lines.

The inner end of the plate has a curve, s , which is concentric with the center of the disk C , and in the same concentric line as the periphery of the disk when the plate is in this position, so as to pass immediately under the spring R , and thereby prevent loose bristles being drawn out of the hopper in the reverse movement of the disk.

S is a spring, the resilient end of which falls into the serrated edge of the disk C to hold the latter in position, until, by the movement of the cut-off plate K , the separation of the bristles has been effected, during which time the joint-pin M of the connecting rod J has moved in the slot q of the disk, and when it reaches the upper end of the slot, the curve u , on the outer

end of the plate L , is brought to bear against the spring, and pushes it outward, and the disk, being thus released, is carried far enough around by the action of the treadle to bring the tuft of bristles out of the hopper to be removed by hand to the brush-stock.

I claim as my invention—

1. The disk C , having a slot, j , and incline u , in combination with the hopper F and cut-off plate K , having a projection, m , and curve s , the plate being operated by any suitable mechanism for dividing the bristles, and inclosing them in the slot j , substantially as set forth.

2. The combination of the disk C , plates K and L , connecting rod J , and spring R , the several parts being constructed and arranged for joint operation, substantially in the manner and for the purpose set forth.

3. The hopper F , having a hinged side, d , provided with a closing-plate, I , in combination with the disk C , having a tuft-slot, j , substantially as and for the purpose set forth.

4. The weighted bar N , in combination with the hopper F , having vertical slots r for keeping the bristles compactly together in the hopper while being divided into tufts, substantially as set forth.

5. The combination of the plate L , having a concentric part, u , at its outer end, and the spring S , with the disk C , substantially as and for the purpose set forth.

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Witnesses:

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