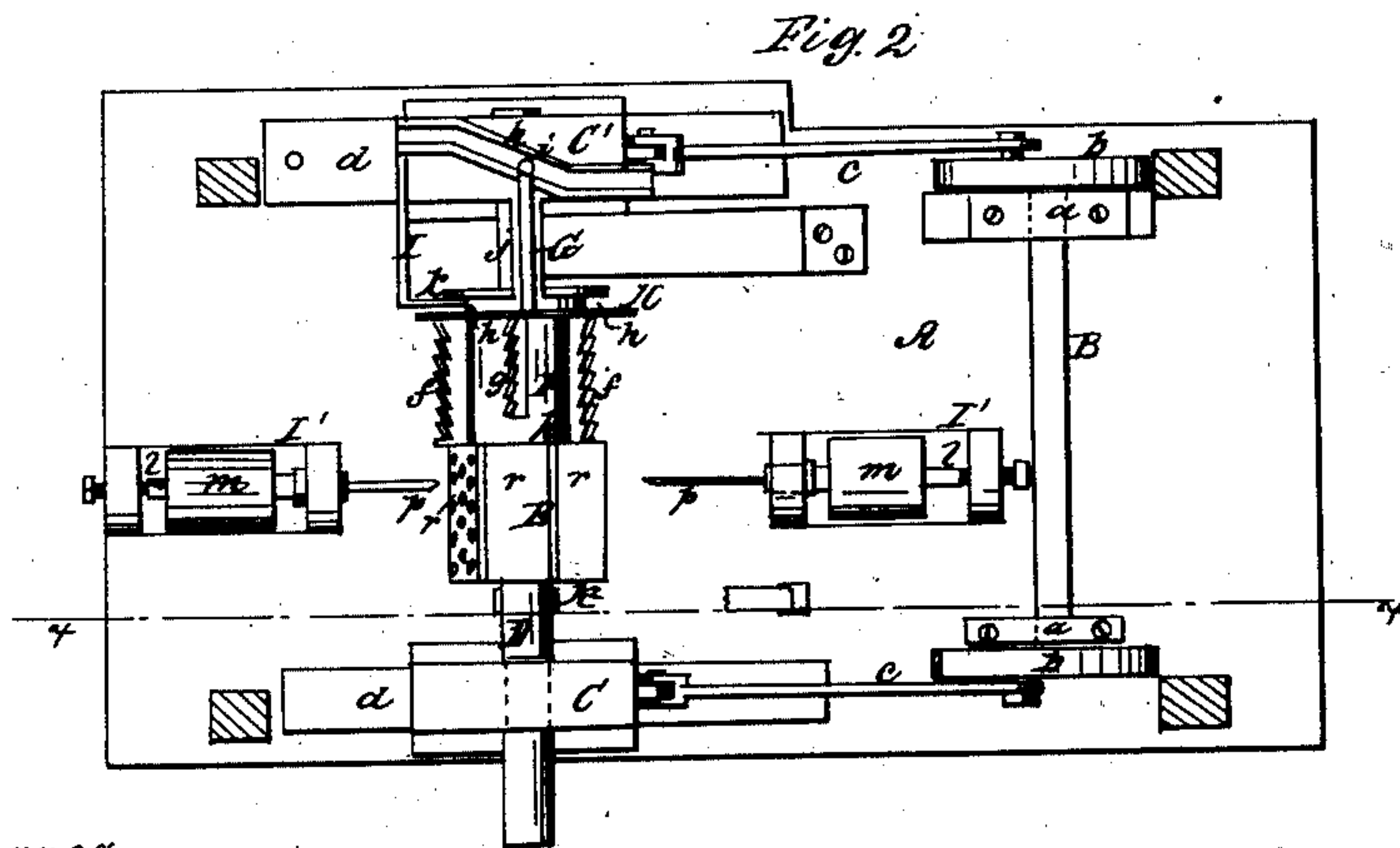
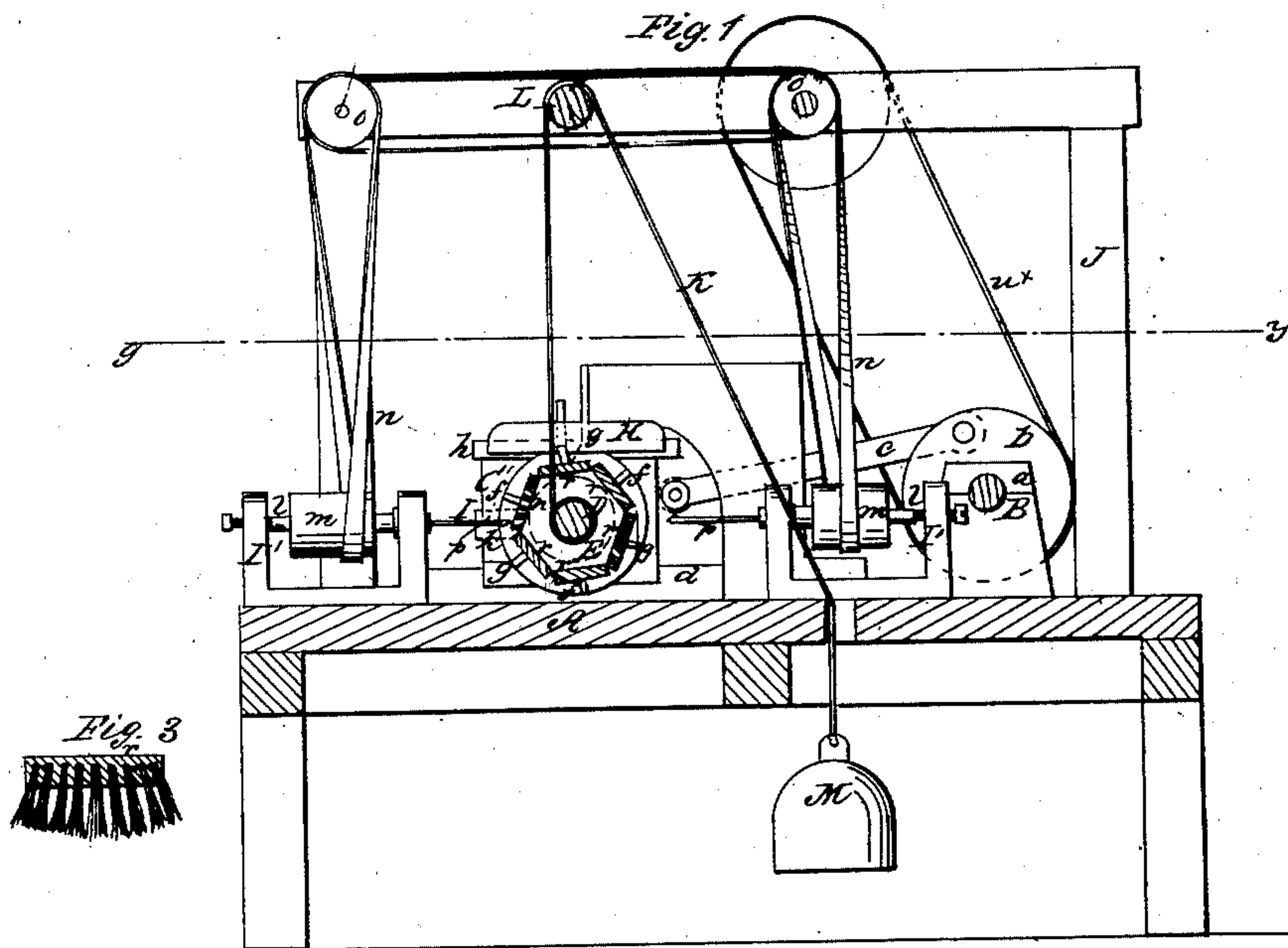


T. Mitchell,
Boring Brush Blocks.
N^o 26,778. Patented Jan. 10, 1860.



Witnesses
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UNITED STATES PATENT OFFICE.

THOMAS MITCHELL, OF LANSINGBURG, NEW YORK.

MACHINE FOR BORING BRUSH-BLOCKS.

Specification of Letters Patent No. 26,778, dated January 10, 1860.

To all whom it may concern:

Be it known that I, THOMAS MITCHELL, of Lansingburg, in the county of Rensselaer and State of New York, have invented a new and Improved Machine for Boring Brush-Blocks to Receive Their Bristles; and I do hereby declare that the following is a full, clear, and exact description of the same, reference being had to the annexed drawings, making a part of this specification, in which—

Figure 1, is a side sectional view of my invention taken in the line x, x , Fig. 2. Fig. 2, a horizontal section of the same taken in the line y, y , Fig. 1. Fig. 3, a detached transverse section of a brush-block.

Similar letters of reference indicate corresponding parts in the several figures.

This invention consists in the employment or use of a polygonal drum having the brush-blocks attached to it and so arranged as to have an intermittent longitudinal sliding movement, an intermittent rotary movement, and a reciprocating movement, said drum being used in connection with drills substantially as hereinafter described, whereby the blocks may be bored very expeditiously and a considerable number operated upon simultaneously or at the same time.

To enable those skilled in the art to fully understand and construct my invention I will proceed to describe it.

A, represents a platform which is supported at a suitable height in any proper way, and B, is a driving shaft which is placed in suitable bearings a, a , on said platform. This driving shaft B, has a crank pulley b, b , at each end of it and these crank pulleys are connected by rods c, c , to slides C, C', which are fitted on ways d, d , said ways being secured longitudinally on the platform as shown clearly in Fig. 2.

D, is a shaft which has its bearings in the slides C, C', and is allowed to turn freely in its bearings and also to slide longitudinally therein. On this shaft D, a polygonal drum E, is placed and also a cylinder F, the latter being attached to one end of the drum E. To the periphery of the cylinder F, racks are attached longitudinally at proper distances apart. These racks are provided with ratchet-shaped teeth, and the teeth of one rack have a reverse position to those of its adjoining racks; the alternate racks f, f , having their teeth coinciding with

each other in position, but in a position reverse to the first named racks. This will be fully understood by referring to Fig. 2. The racks f, g , do not extend the full length of the cylinder F, a space h, h , is allowed at one end of each, the racks f, f , allowing the spaces at one end of the cylinder and the racks g, g , allowing the spaces at the opposite end.

To the slide C', on its upper surface a curved and grooved bar h, h , is attached. The shape of this bar is clearly shown in Fig. 2, and into the groove of bar h, h , a pin i, i , is fitted, said pin being attached to the outer part of a bar G, which is fitted in a guide j, j , and allowed to slide freely therein. To the inner end of the bar G, a plate H, is attached at right angles and this plate engages with the uppermost rack on the cylinder F.

To the slide C', a bar I, is attached horizontally. This bar I, projects inward toward the cylinder F, and its inner end k, k , is bent at right angles to its main portion, said end k, k , fitting between the racks f, g .

On the platform A, two heads I', I' , are secured, and in these heads mandrels l, l , are placed, said mandrels having pulleys m, m , on them around which pulleys belts n, n , pass, said belts also passing over drums o, o , in the upper part of a framing J, which is placed on the platform A. In the inner end of each mandrel l, l , a plate p, p , is placed.

Around the shaft D, a belt K, is wound, said belt passing over a roller L, in the upper part of the framing J, and having a weight M, attached to its lower end.

The operation of the machine is as follows: A brush-block r, r , is secured in any proper way to each face of the polygonal drum E, and the shaft D, is turned so that the weight M, will be fully wound up, the weight touching the under side of the platform A. The shaft B, is then rotated by any convenient power and the drills p, p , are rotated from said shaft by means of the belts n, n , and n^x . A reciprocating motion is given the slides C, C', and consequently the shaft D, by means of the connecting rods c, c , and crank pulleys b, b . By this reciprocating movement the blocks r, r , are presented to the drills p, p , and a hole is drilled in the blocks r, r , opposite the drills at each movement of the shaft D. The drum E, is shifted or moved longitudinally at each feed movement or stroke so as to space properly between the holes, by means of the plate H,

catching into the uppermost rack of the cylinder F, the plate H, being moved in consequence of the pin *i*, of bar G, fitting in the curved grooved bar *h*. When the drum E, 5 has been moved longitudinally a distance equal to the length of a rack, the part *k*, of the bar I, will have reached a space *h*, at the end of the rack above it and the weight M, will rotate the drum E, a distance equal 10 to the space between the racks, the bar I, serving as a stop and preventing the rotation of the drum E, except at the proper time, the racks determining the distance of the rotary movement of the drum. Each 15 time the drum E, rotates a fresh surface of the blocks *r*, are presented to the drills *p*, and a succeeding row of holes bored, the drum E, being moved longitudinally in a direction opposite to that in which it moved 20 before in consequence of the plate H, engaging with a rack having its teeth in a reverse position to those of the preceding rack. The succeeding rows of holes is then bored and when finished the drum E, is again rotated the same distance as before, the drum 25 moved longitudinally in an opposite direction and another row of holes bored; the operation is thus repeated until the blocks *r*, on the polygonal drum E, are all bored.

30 From the above description it will be seen that the rotary movement of the drum E, determines the distance between the rows of holes while the longitudinal movement of said drum caused by the racks *f*, *g*, and 35 plate H, and bars G, *h*, determine the length of the spaces between the holes in the rows. It will be seen also the length of the spaces between the holes in the rows may be varied as desired by varying the form of the 40 grooved bar *h*, and the width of the spaces between the rows of holes may be varied by attaching a greater or less number of racks to the periphery of the cylinder F.

45 In consequence of presenting the brush-blocks *r*, to the drills *p*, attached to the faces

of a polygonal drum E, as shown and described, the holes will be bored from an oblique to a right angular direction in the blocks *r*, as shown clearly in Fig. 3, the central row being at right angles with the face 50 of the block *r*, and the rows each side of it having oblique positions. This result is due to the varying positions the blocks *r*, assume in being presented to the drills *p*, and will be fully understood by referring to Fig. 1. 55

I would remark that the length of the racks correspond with the length of the rows of holes, and in oval brushes the racks will of course be of varying lengths as the rows of holes will vary in length in order to be 60 embraced within an oval.

The drum E, may be provided with any suitable number of faces or sides and it may be made of any suitable length so that several blocks *r*, may be attached to each 65 face, side by side, a corresponding number of drills being employed.

Having thus described my invention what I claim as new and desire to secure by Letters Patent, is— 70

1. Attaching brush-blocks *r*, to the faces of a polygonal drum E, having an intermittingly rotating movement an intermittingly longitudinal sliding movement, and a reciprocating feed movement in connection 75 with rotary drills *p*, *p*, one or more for the purpose of boring the blocks to receive their bristles.

2. The arrangement of the racks *f*, *g*, on the cylinder F, plate H, bar G, connected 80 with the grooved bar *h*, the stop bar I, and slides C, C', operated as shown and having the shaft D, of the drum and cylinder fitted in them with weight M, attached for giving the necessary movements to the polygonal 85 drum E, for the purpose set forth.

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Witnesses:

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