H. HOLMES.

Machine for Punching Brush-Blocks.

No. 162,750. Patented May 4, 1875.

Fig. 1.

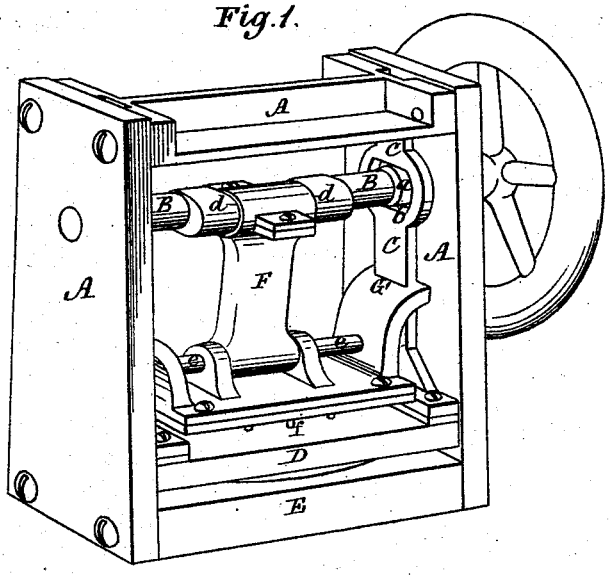


Fig. 3.

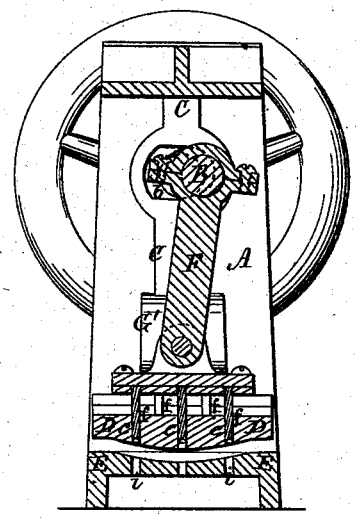
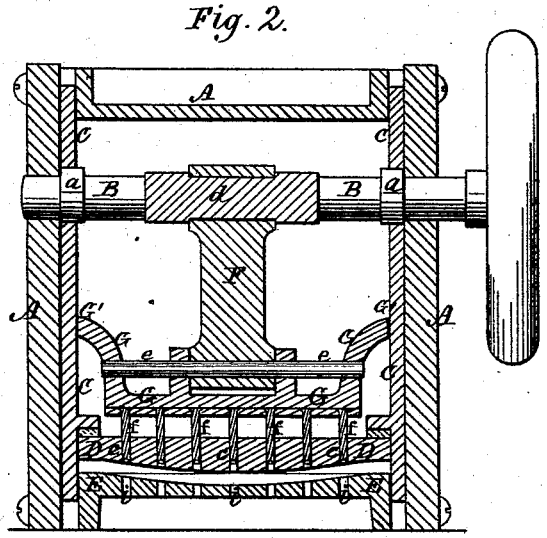


Fig. 2.



Witnesses.

D. P. Cowl

Edmund Masson

Inventor.

Henry Holmes.

By atty A. B. Stoughton.

THE GRAPHIC CO. PHOTO-LITH. 39 & 41 PARK PLACE, N.Y.

UNITED STATES PATENT OFFICE.

HENRY HOLMES, OF TROY, NEW YORK.

IMPROVEMENT IN MACHINES FOR PUNCHING BRUSH-BLOCKS.

Specification forming part of Letters Patent No. **162,750**, dated May 4, 1875; application filed April 9, 1875.

To all whom it may concern:

Be it known that I, HENRY HOLMES, of Troy, in the county of Rensselaer and State of New York, have invented certain new and useful Improvements in Machines for Punching Holes in Brush Blocks or Backs; and I do hereby declare the following to be a full, clear, and exact description of the same, reference being had to the accompanying drawings making a part of this specification, in which—

Figure 1 represents a perspective view of the machine. Fig. 2 represents a vertical longitudinal section, and Fig. 3 represents a vertical cross-section taken through the same.

My invention relates to a machine in which brush blocks or backs are first compressed into a concave or curved shape or form, and in that position punched with a series of holes, and by parallel punches, so that, when said brush block or back is flattened out, the holes will be inclined, so as to spread the tufts of bristles set in them, and better fill the brush, as will be explained.

A represents a stout frame, in which a shaft, B, is supported, and turned by suitable gearing of any kind. Upon this shaft B are arranged two cams, *a a*, which revolve in slots *b* in the upper ends of the arms C C, and to the lower ends of these arms is fastened a platen, D, the under surface of which is convex both in its longitudinal and cross section, and furnished with a series of guide-holes, *c c*, for the punches to pass through. The bed-piece E of the machine is made concave, both longitudinally and transversely, so as to match the convexity of the platen D. Centrally upon the shaft B there is a crank or eccentric, *d*, to which a pitman, F, is connected by its upper end, the lower end thereof being attached to a shaft, *e*, which passes through the stock or frame G, which carries the series of punches *f f*, the arms G′ of said stock being guided in their ascending and descending motions by moving against the arms C of the platen D. The pitman F is shown as in one single piece. It may be made in two parts with a toggle connection, as very great power is required and used in the machine. The arms C C at both of their ends move in openings or guides in the frame, so that they not only afford a direct and true movement to the platen, but also to the punch-stock and the punches that pass through said platen. The platen where it is united to the arm C has an interposed rubber cushion or packing, so that it may yield slightly when forced to do so. The punches *f* are of uniform diameter throughout their length, so as to snugly fit the holes in the platen, and be steadied and guided thereby; and they are countersunk in their lower ends, so as to form a cutting-edge at and around their perimeters. The bed E is also furnished with a series of holes, *i*, corresponding with the punches *f*, and the holes *c* in the platen D. The holes *i* are for the punches to enter, and for the punched-out pieces to pass through and out of the machine. The leather, wood, or other material of which the brush block or back is to be made, is placed in between the platen and the bed-piece, and when the power is applied the platen first compresses the material into a concave form, and then the punches, descending, punch out the series of holes. When the back or block so punched is flattened out, the holes through it will assume an inclined position, which is necessary so that the tufts of bristles in the brush may spread out and better fill the brush. The holes, too, while punched with a series of reciprocating punches of uniform diameters, and in parallel planes, will be found to be slightly tapering, as well as inclined. Gages may be used for properly placing the block or back between the platen and bed-piece, and a delivering mechanism may be used for throwing the punched block or back out of the machine.

What I claim as my invention is—

The combination of the bed and platen for pressing the brush block or back into a concave or arched form, and the series of punches for punching said block or back while held in that form, as and for the purpose described and represented.

HENRY HOLMES.

Witnesses:

A. B. STOUGHTON,

EDMUND MASSON.