(No Model.) 2 Sheets—Sheet 1.

C. A. MAHLE.

MACHINE FOR BORING BRUSH BLOCKS.

No. 305,209. Patented Sept. 16, 1884.

Fig. 1.

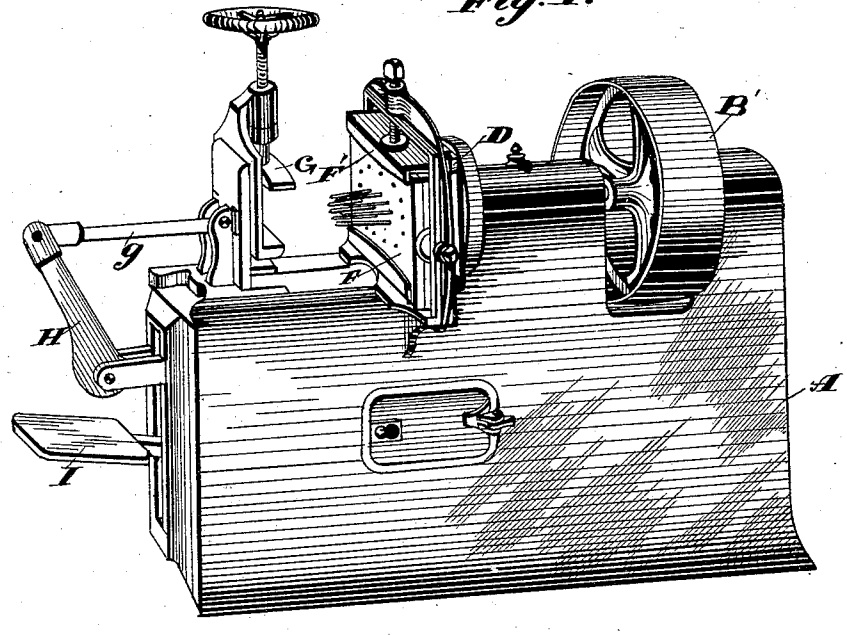
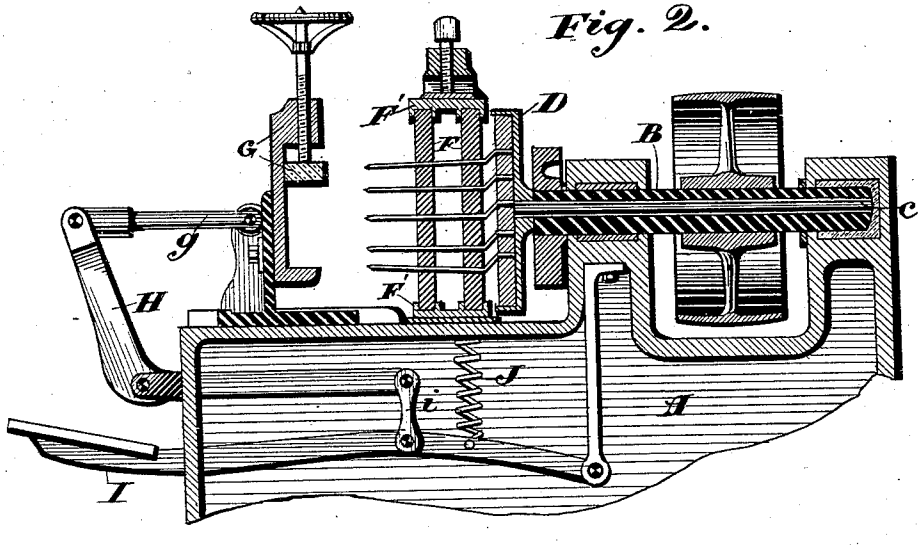


Fig. 2.



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(No Model.) 2 Sheets—Sheet 2.

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Fig. 3.

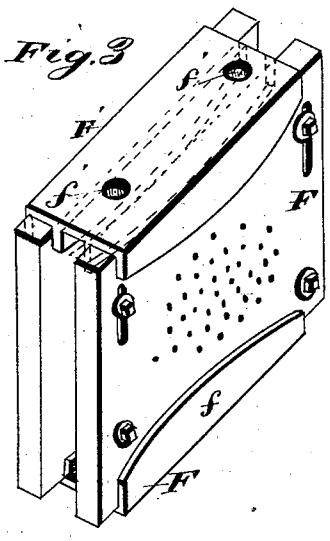


Fig. 6.

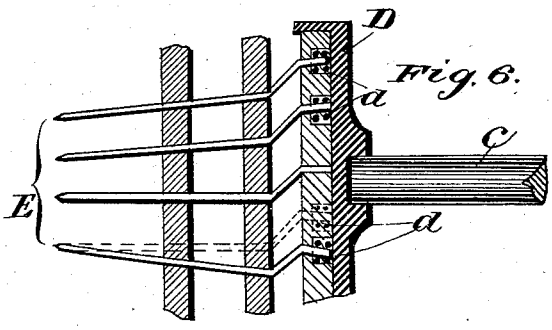


Fig. 4.

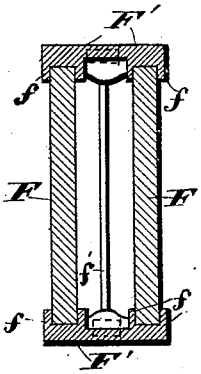


Fig. 7.

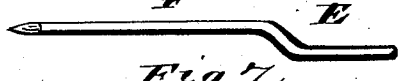
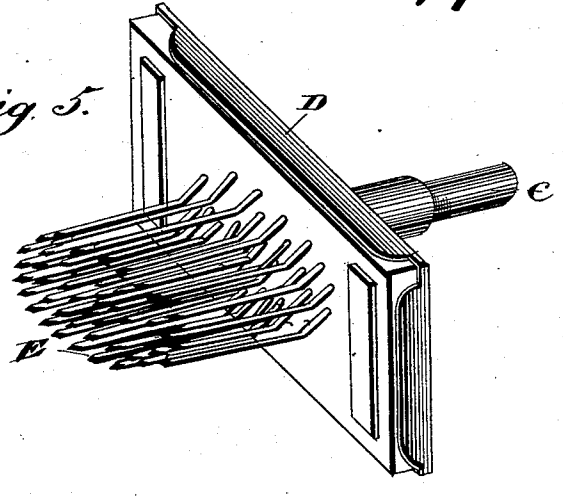


Fig. 5.



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UNITED STATES PATENT OFFICE.

CLEMENCE A. MAHLE, OF CORRY, PENNSYLVANIA.

MACHINE FOR BORING BRUSH-BLOCKS.

SPECIFICATION forming part of Letters Patent No. 305,209, dated September 16, 1884.

Application filed February 12, 1884. (No model.)

To all whom it may concern:

Be it known that I, CLEMENCE A. MAHLE, of Corry, in the county of Erie and State of Pennsylvania, have invented certain new and useful Improvements in Machines for Boring Brush-Blocks; and I do hereby declare the following to be a full, clear, and exact description of the invention, such as will enable others skilled in the art to which it pertains to make and use the same.

My invention relates to improvements in machines for boring brush-blocks.

The object of my invention is, first, to provide clamps to support and keep from swelling, warping, and splitting the guide-block, through which the boring-tools pass, and in which they are journaled. A further object is to provide springs in the driving-board to press upon the ends of such cranks as revolve in a plane that is inclined to the plane in which the driving-board moves to equalize the end-pressure on the cranks in all parts of their throw.

With these objects in view, my invention consists in certain features of construction, and in combination of parts hereinafter described, and pointed out in the claims.

My invention is designed as an improvement on Patent No. 284,128, and Reissue Patent No. 8,647, of April 1, 1879.

In the accompanying drawings, Figure 1 is a view in perspective of a machine for boring-blocks for brushes that embodies my invention. Fig. 2 is a vertical longitudinal section of the same. Fig. 3 is a view in perspective of the guide-blocks with my improved clamps attached. Fig. 4 is a transverse vertical section of the same. Fig. 5 is a view in perspective of the driving-board with the boring-bits in position. Fig. 6 is a vertical section of a portion of the guides and driving-board with a portion of the bits in position and showing the springs in the driving-board. Fig. 7 is an elevation of a boring-bit.

A represents the supporting-frame, upon which is mounted the shaft B, provided with the driving-pulley B'.

C is a shaft journaled in shaft B, but to one side of the center, so that it operates as a crank, and has attached the driving-board D. This driving-board embraces the wrists of the cranks of the boring-bits, so that the motion of the driving-board revolves the bits or boring tools E, the shape of which is shown in Fig. 7. The respective shanks of these bits are journaled in the guide-blocks F, that are preferably of bass wood. This kind of wood, with all of its good qualities that render it valuable for this purpose, is liable to warp, shrink, swell, and consequently to crack. Any of these changes in the blocks interfere with the working of the bits, and is especially liable to cramp them at the crank ends in the engagement with the driving-block. I have therefore invented the clamps F', by means of which the guide-blocks are held firmly in the proper position. The clamps are each of a single metal plate provided with ribs *f*, that embrace the sides of the blocks, and are secured by the bolts *f'*, that pass between the blocks near the end thereof. The bits, in the main, are parallel with each other, or nearly so; but it is desirable to have those on the outside of the group converge toward this point. The bits are small, elastic, and project some distance beyond the guide-boards, and the brush-blocks are thin and the wood yielding, so that no difficulty is encountered with this part when the bits converge, as shown in Fig. 6. The end-thrust of the bits are held by the wrists of the cranks bottoming in the holes in which they are respectively journaled in the driving-block D. The cranks of these converging bits aforesaid would not revolve in a plane parallel with the plane in which the driving-board moves, and consequently, if thrust back so that the wrist would bottom in its hole during each revolution, the bits (the motions of which are very rapid) would be subject to a reciprocating end motion that would wear the parts rapidly. I have therefore introduced the coiled springs *d* into such of the holes in the driving-board D as engage the cranks of the inclined or converged bits. These springs, pressing against the end of the wrist, keep about an equal end pressure on the bit during all parts of the revolution of the crank, and at the same time prevent that vibrating end motion that is so objectionable.

G is a clamping device for holding the brush-blocks, and may be made in a variety of ways according to the work to be performed. The clamp and its attachments are made to slide

on suitable ways or guides on the part A. A rod, *g*, connects this part to the bell-crank H, the horizontal arm of which is connected by the link *i* to the foot-lever I. When one end of the foot-lever is pressed down, the clamp G is advanced toward the bits. When the pressure is removed, the lever, by means of the spring J, is drawn up, by means of which the clamp is drawn back from the bits.

What I claim is—

1. The combination, with a series of boring-tools operated simultaneously by suitable mechanism, and guiding-blocks for holding the boring-tools in position, of the metallic clamps F′, having side lips or flanges, *f*, and bolts for binding the clamps and guiding-blocks together.

2. The combination, with a series of boring-tools constructed as shown, and the driving-board D, of the guiding-blocks F, the clamps F′, and bolts *f*′, all of the above parts combined as described.

3. In a machine for boring brush-blocks, the combination, with the boring-tools constructed as described, the driving-board and guiding-blocks, of the springs *d*, seated in the driving-board, and operating as described.

In testimony whereof I sign this specification, in the presence of two witnesses, this 7th day of January, 1884.

CLEMENCE A. MAHLE.

Witnesses:

ALBERT E. LYNCH,

CHAS. H. DORER.