

F. S. ALLEN.
Improvement in Boring-Tools.

No. 127,209.

Patented May 28, 1872.

Fig. 9.

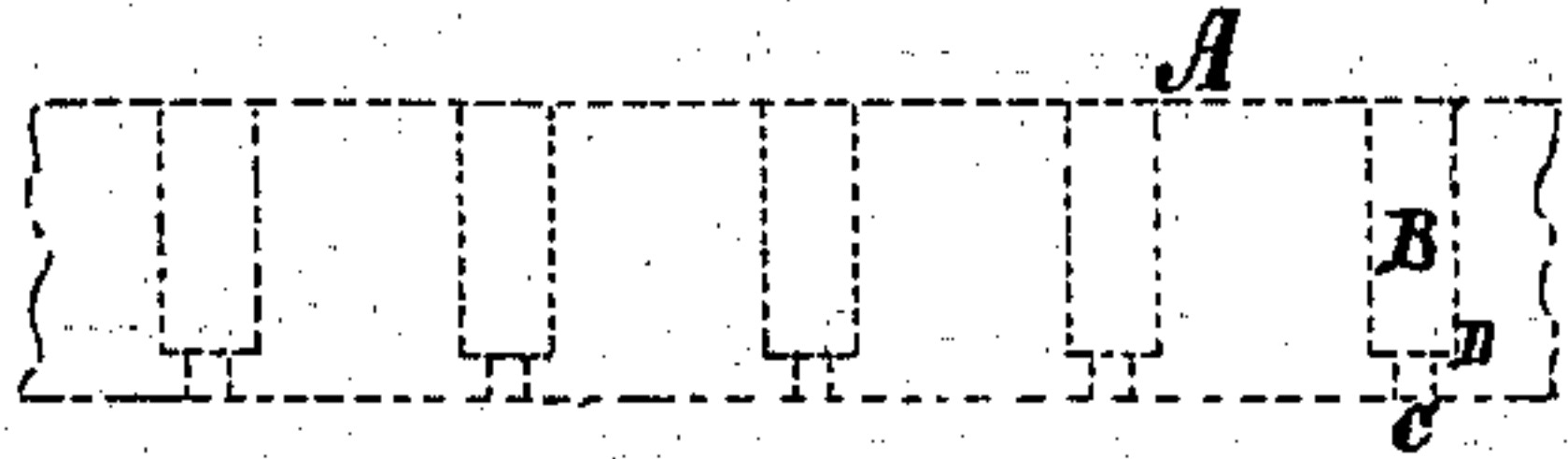


Fig. 1.

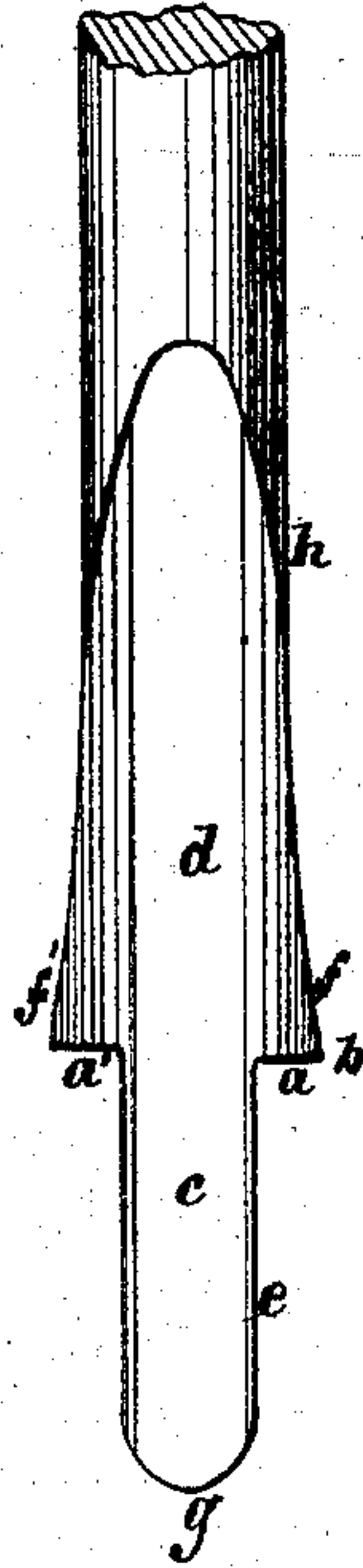


Fig. 6.

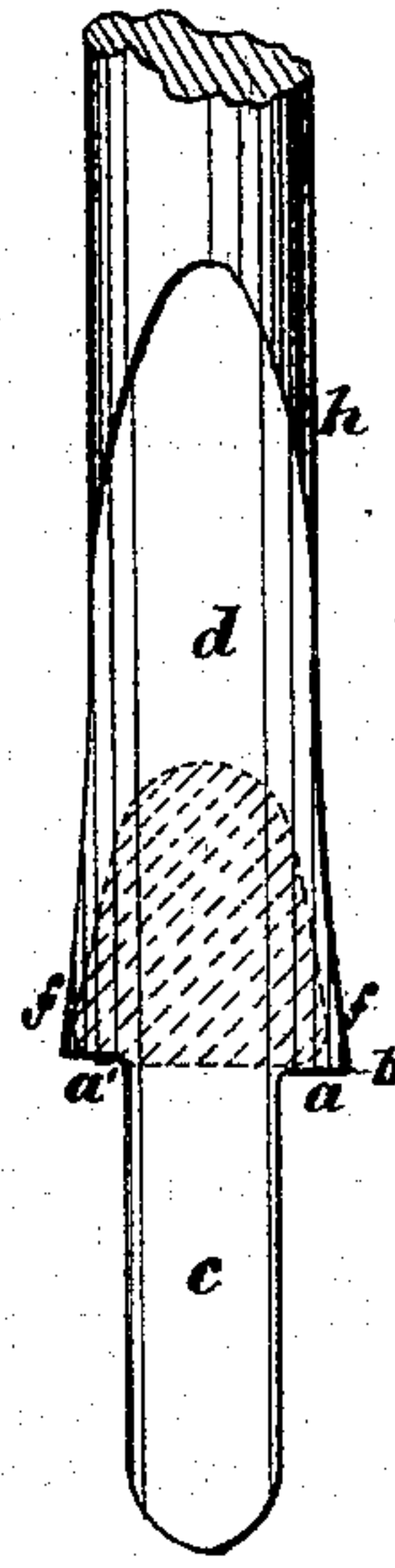


Fig. 3.

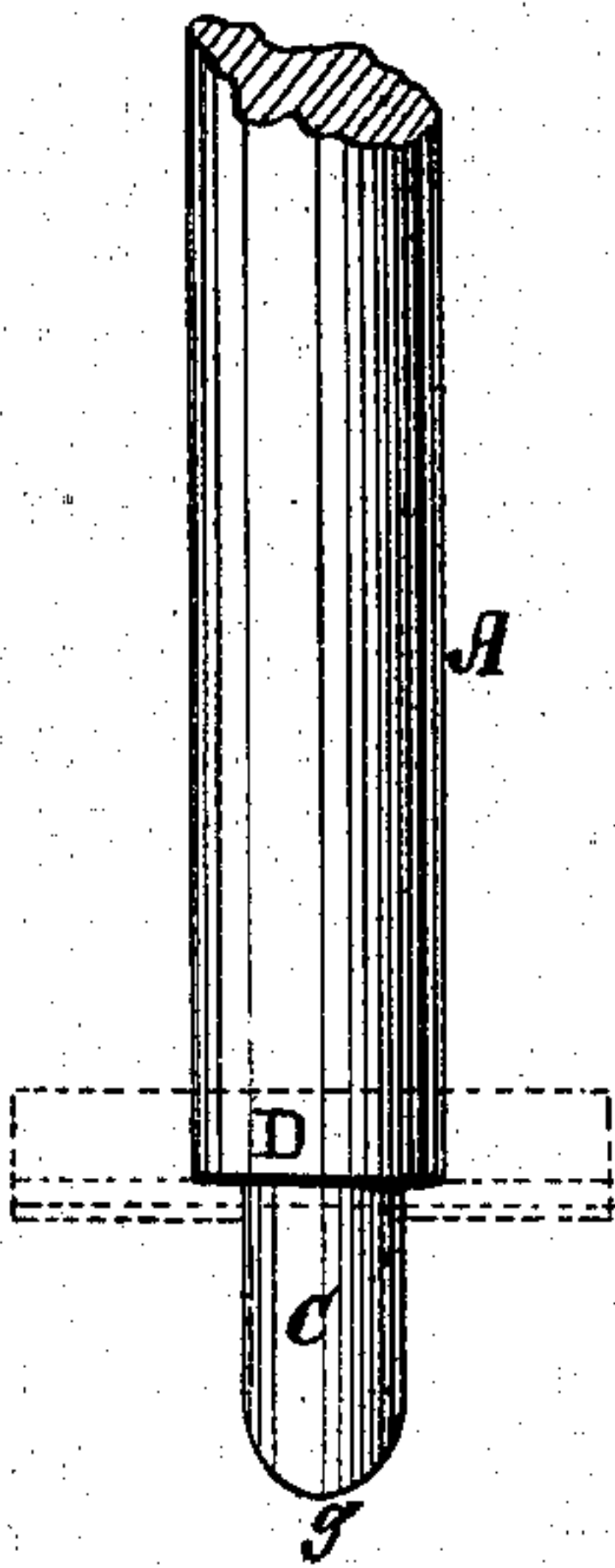


Fig. 2.



Fig. 8.

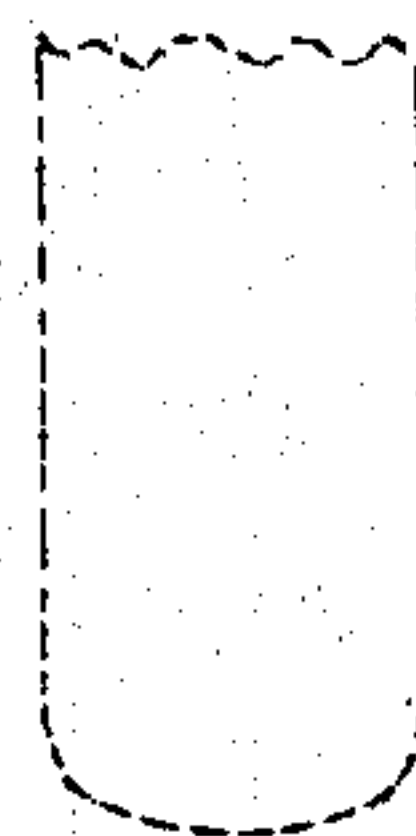


Fig. 4.

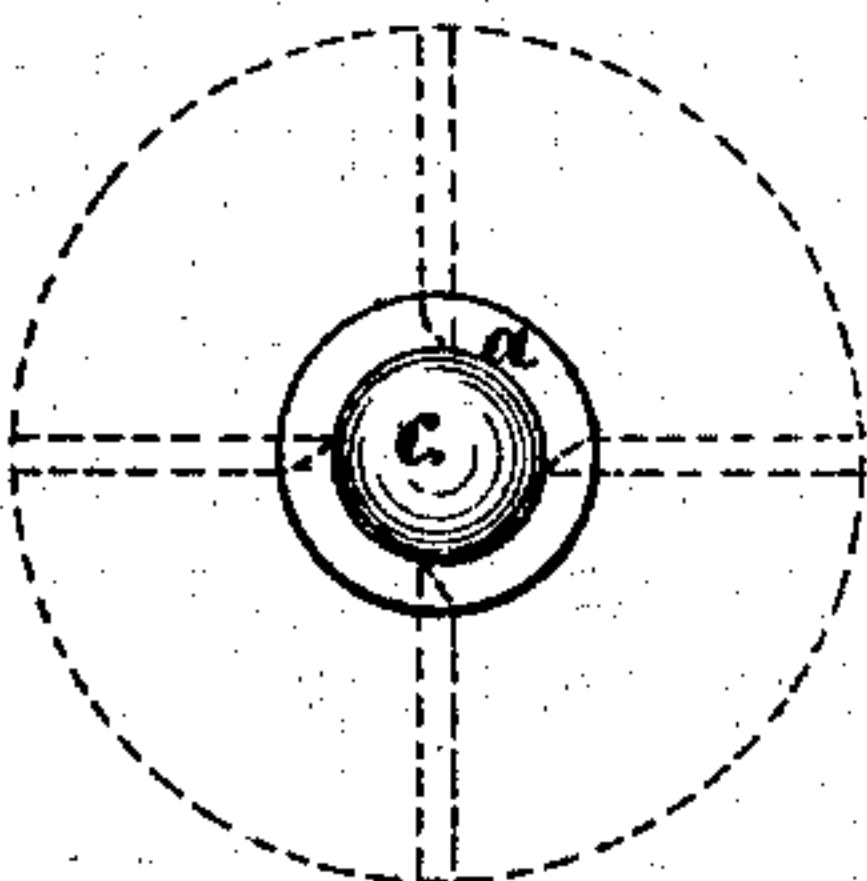


Fig. 5.

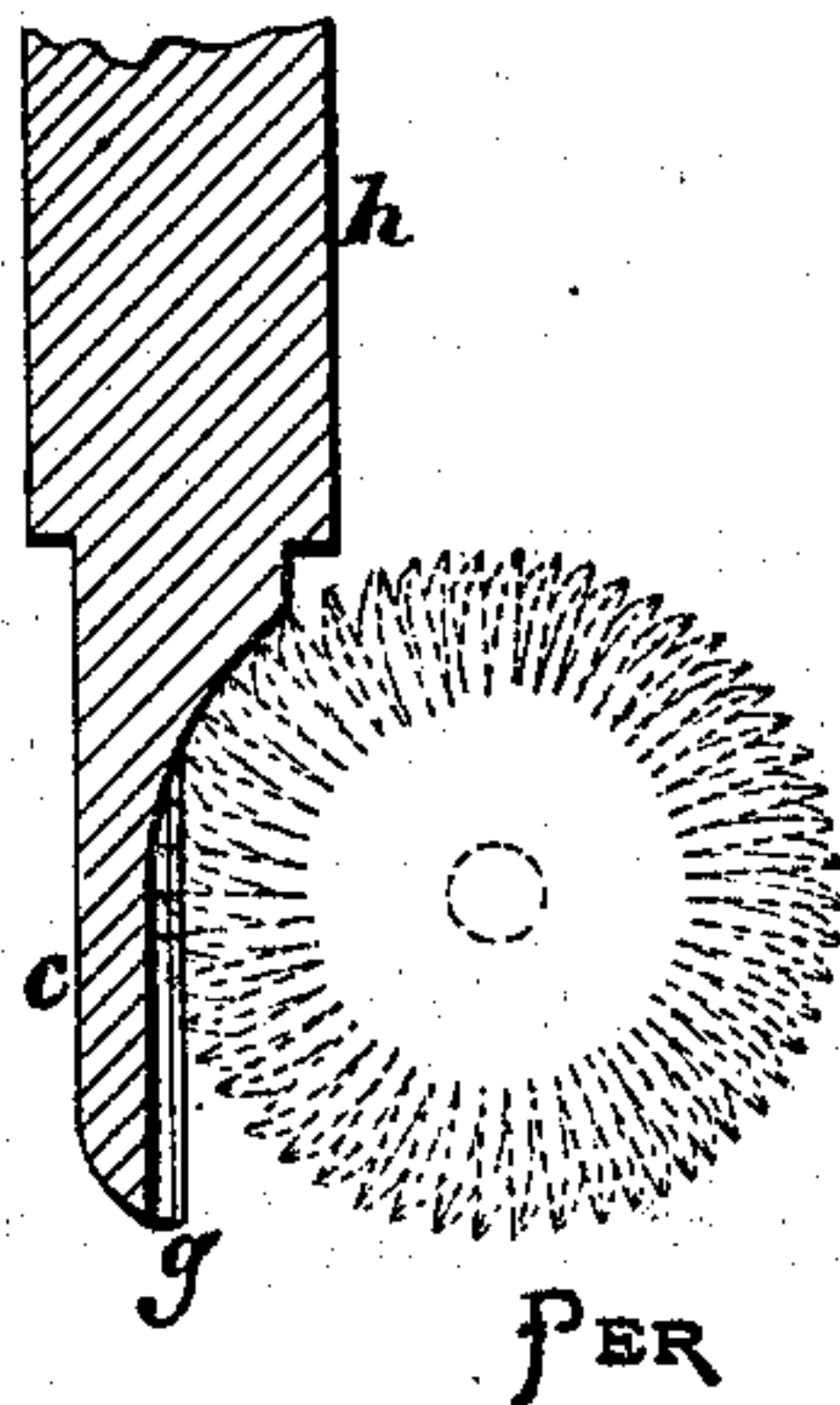
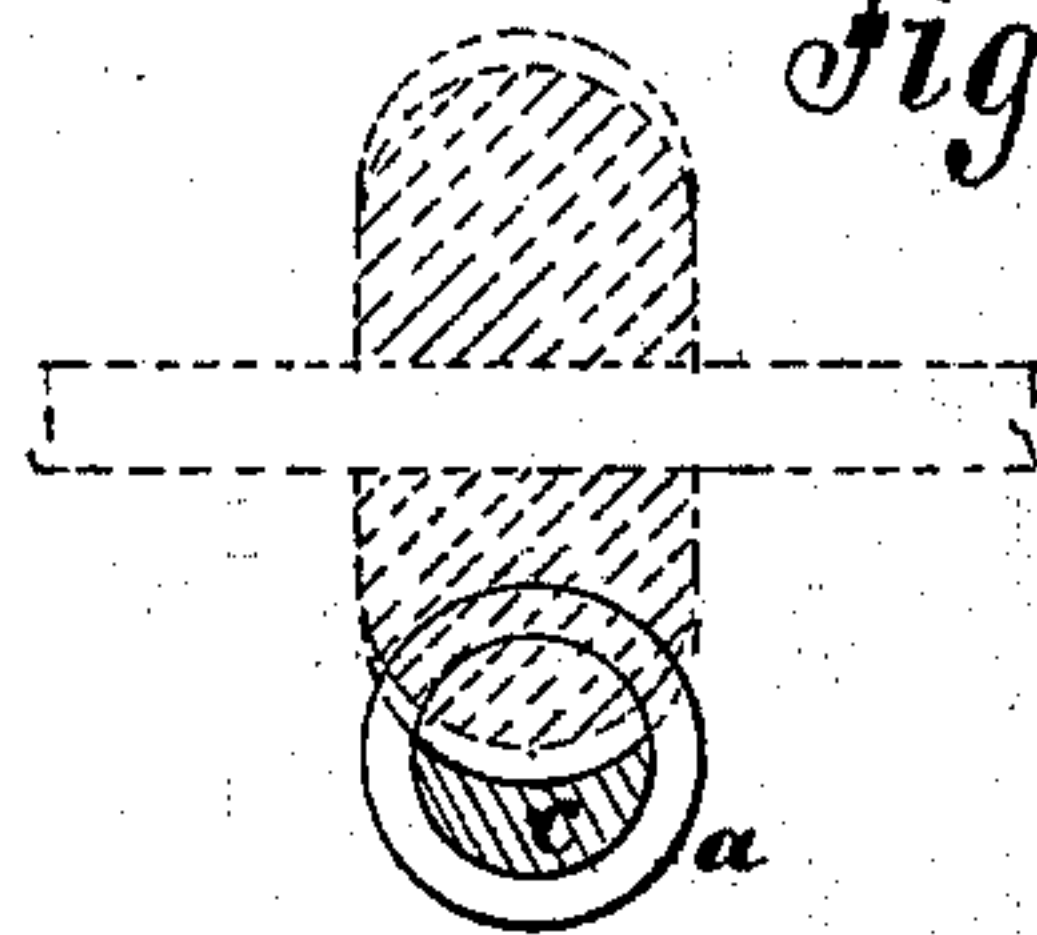


Fig.



Witnesses:

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IMPROVEMENT IN BORING-TOOLS.

Specification forming part of Letters Patent No. 127,209, dated May 28, 1872.

Specification describing a new Improvement in Boring-Tools, invented by FRANK S. ALLEN, of the city, county, and State of New York.

My invention consists of a boring-tool with a double bit or cutting-part in two different sizes, for "double-boring" brush-blocks, which said tool is particularly devised with reference to cutting with the least possible friction, to allow of running a great number in a gang together for boring all the holes of a block at once without over-straining the block or the driving-gear; also for being constructed with as little expense as possible, and for being sharpened economically, which, in view of the great numbers used in the manufacture of brush-blocks, is of very material consequence. The invention also consists in a mode of constructing the said tools, all as hereinafter described.

Figure 1 is a front elevation of my improved boring-tool, complete. Fig. 2 is an end elevation of the complete tool. Fig. 3 is a side elevation of the tool-blank and a cutter, showing the first operation in the construction of the tool, the said cutter being shown dotted. Fig. 4 is an end elevation of Fig. 3. Fig. 5 is a section of the blank, and side elevation of a milling-tool, (the latter dotted,) showing the second operation in the construction of the tool. Fig. 6 is a transverse section of Fig. 5. Fig. 7 is a front elevation of the blank, showing the application of a punch or swaging-tool for performing the third and last material operation in the construction, said tool being shown dotted. Fig. 8 is a side elevation of the said swaging-tool, shown in Fig. 7; and Fig. 9 is a section of a bored brush-block, showing the manner of boring them.

Similar letters of reference indicate corresponding parts.

A represents the block; B, the large part of the hole; and C, the small part. It is desirable to have the large part of the hole extend as nearly through the block as it may, and have the shoulder D strong enough to arrest the tuft of bristles when drawn up against it by the wires which pass through the small hole and are pulled by the hand of the operator;

consequently a tool must be used with a cutter, *a*, square to the long axis of the tool for cutting the shoulder D, and without any extension of the point *b* downward, as in some wood-boring bits. This cutter *a* is formed on a shoulder or enlargement of the part C, which is cut spiral to the long axis of the tool, as shown by the higher position of said shoulder at *a*. The parts C and *d* are grooved out, as more clearly shown in Fig. 2, to form cutting-edges *e f*, and the point of C is rounded, as shown at *g*, forming a point similar to other small bits for boring wood. In order to form clearance for the cutting-edge *f*, also for clearance for the shank *h*, and also in order to make bits of different sizes from wire of the same size, I swage out the lips *f f'*, as clearly indicated in Figs. 1, 2, and 6, by which I can readily make several different sizes from wire of one size, by simply swaging out said edges more or less, and using tools of different size for milling off the parts C.

To make these boring-tools I select a round wire or rod of steel, A, of suitable size, and mill it down to form the part C by any suitable tool of the character indicated in Figs. 3 and 4; then I cut the groove in *c* and *d* by a milling-tool of the character represented in Figs. 5 and 7, and then swage out the lips *f* and *f'*, as shown in Figs. 1 and 6, by a swage or punch suitably adapted therefor, as indicated in Figs. 6 and 8, which is forced into the groove *d*, while the tool is laid in a grooved holder of suitable shape. After these operations the shoulder *a a'* will be filed back to make the clearance, and the point *g* will be finished up, which completes the tool, except the shaping of the shank for connecting it to its holder.

These tools are very easily and quickly sharpened when dull, by rotary grinding-tools of suitable shape run along the grooves *c d*, and after considerable wear they can be re-worked into smaller sizes.

In the brush-boring machines for which this improved tool is intended, there are in each machine two gangs of tools, being as many as all the holes to be bored in the blocks; and besides these, there must be reserve sets of

each different size used in boring the brushes of different sizes, making in the aggregate a very large number, which makes it very important to be able to furnish the bits as cheaply as possible.

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

Double-boring bits, consisting of the parts C and D, constructed and arranged substantially as specified.

FRANK S. ALLEN.

Witnesses:

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