2 Sheets--Sheet 1.

E. S. PIPER.

Improvement in Machines for Making Saw-Handles.

No. 126,232. Patented April 30, 1872.

Fig. 1.

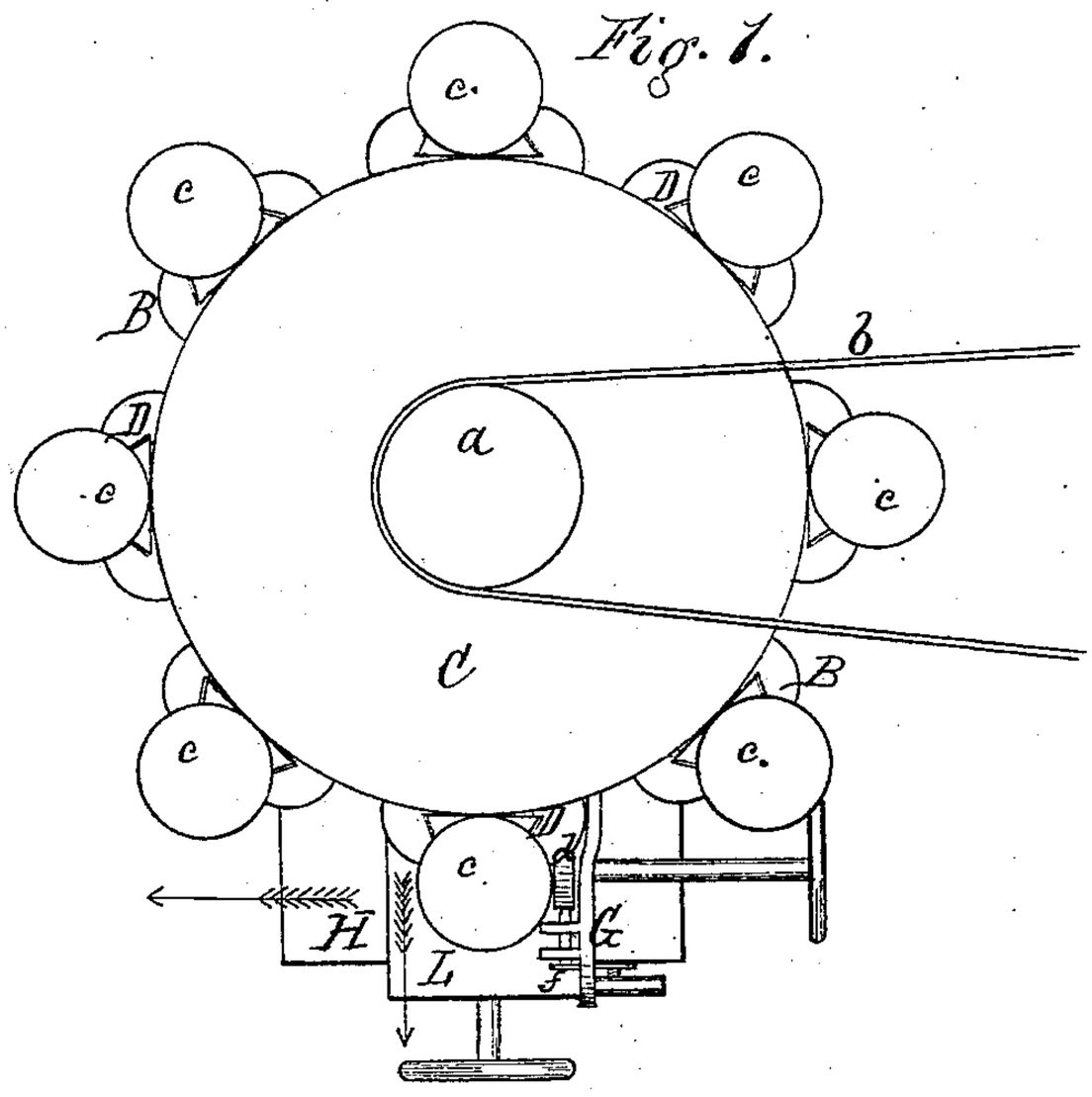
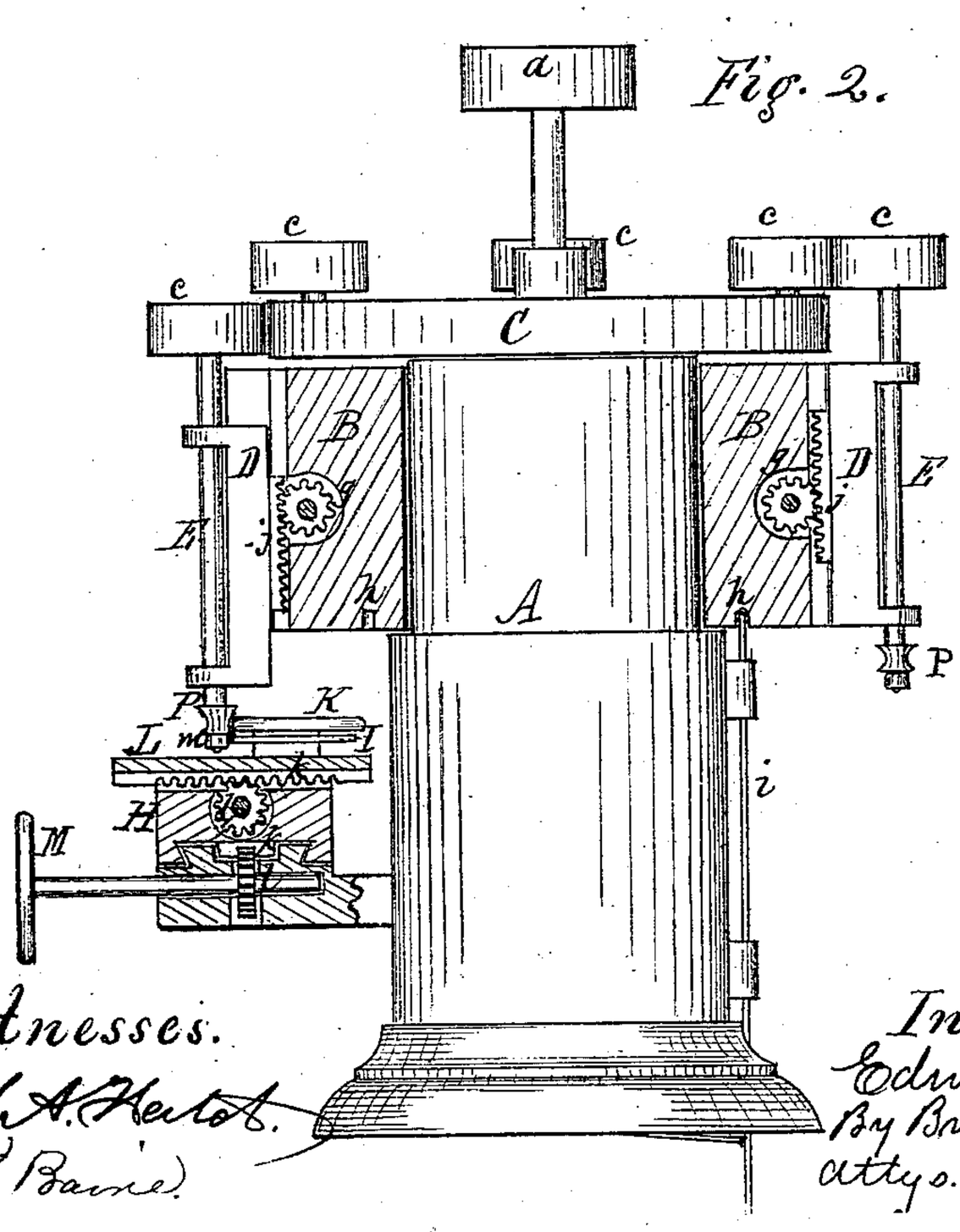


Fig. 2.



Witnesses.
Fredk. A. Hertel.
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By Burke Fraser & Bigood,
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2 Sheets--Sheet 2.

E. S. PIPER.

Improvement in Machines for Making Saw-Handles.

No. 126,232. Patented April 30, 1872.

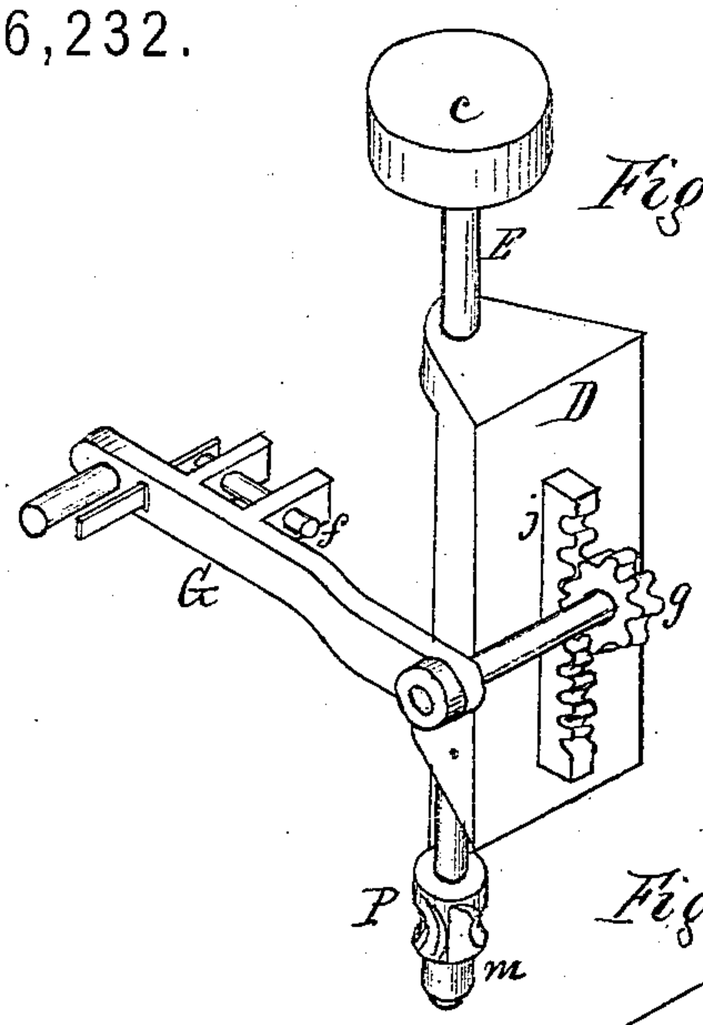


Fig. 3.

Fig. 4.

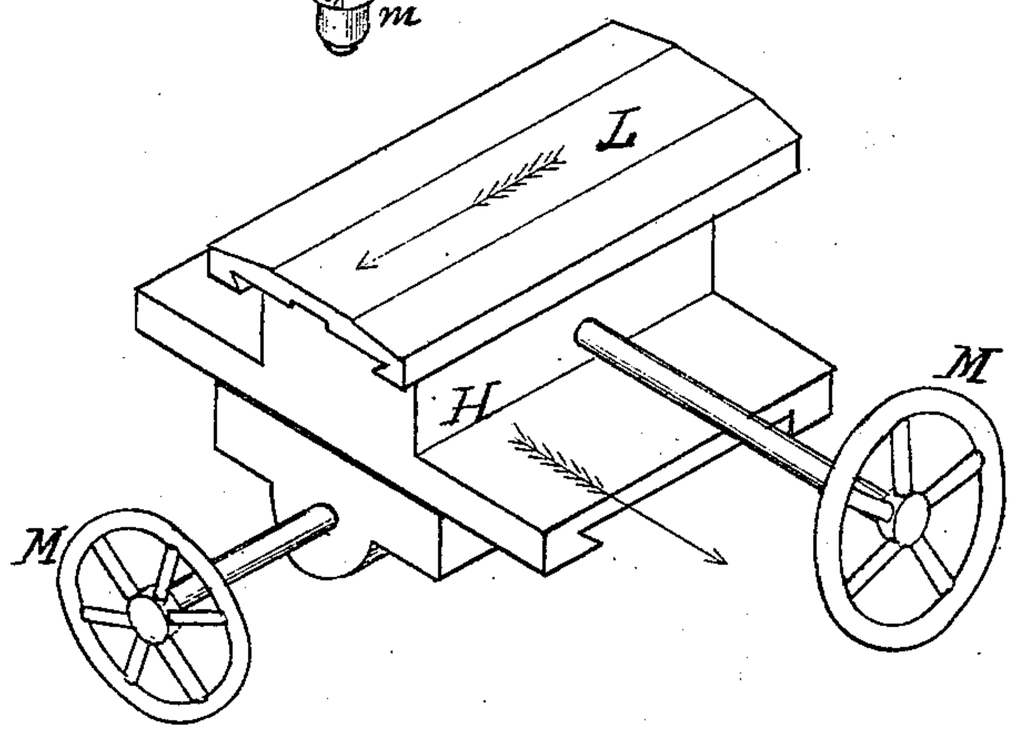
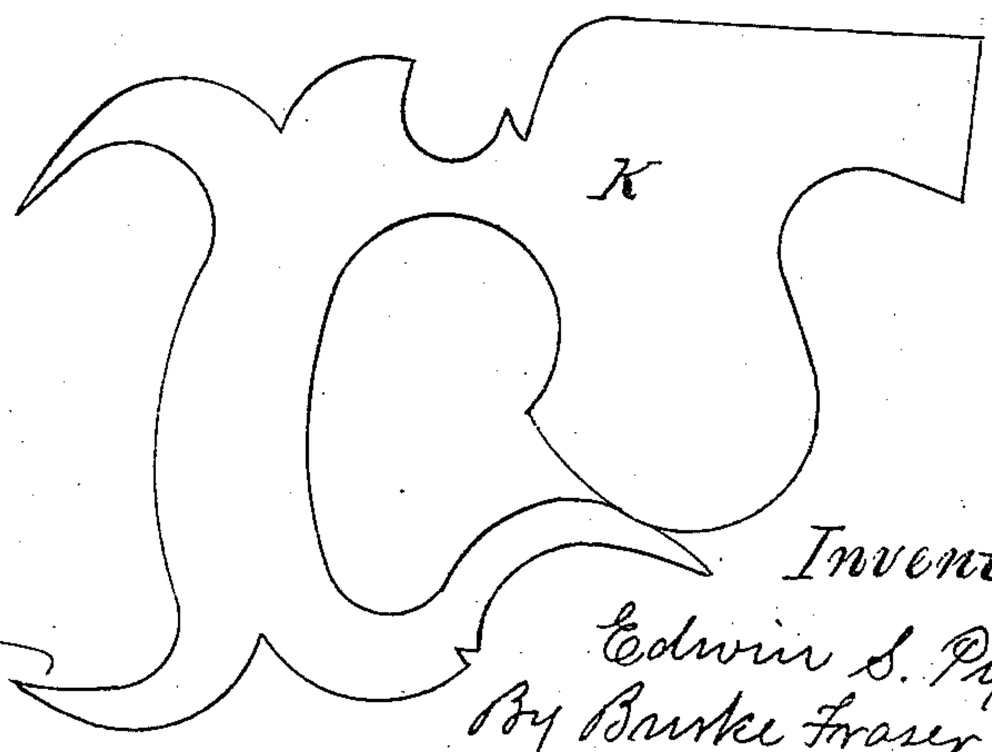


Fig. 5.



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126,232

UNITED STATES PATENT OFFICE.

EDWIN S. PIPER, OF ROCHESTER, NEW YORK.

IMPROVEMENT IN MACHINES FOR MAKING SAW-HANDLES.

Specification forming part of Letters Patent No. 126,232, dated April 30, 1872.

Specification describing a certain Improvement in Machines for Making Saw-Handles, invented by EDWIN S. PIPER, of the city of Rochester, in the county of Monroe and State of New York.

My invention consists essentially of a set of tools mounted in a revolving drum, and operating, in connection with a fixed pattern, in such a manner that they may be brought into successive use to cut and finish the several surfaces of the handle. It also consists in the arrangement for giving motion to the tools, and in the means for guiding and operating them.

In the drawing, Figure 1 is a plan; Fig. 2, a vertical section; Fig. 3, a perspective view of one of the cutters and its connecting parts; Fig. 4, a perspective view of the double carriage; Fig. 5, a plan of the finished handle.

This machine is intended more especially for forming the wooden handles of hand-saws.

A represents a standard or frame of suitable form, on which is mounted a drum, B, which revolves in a horizontal plane. On top of the drum is a disk, C, which revolves freely and is driven by means of a pulley, *a*, and band *b*, or by any desirable means. The periphery of this wheel may be covered with a band of rubber, and it forms a friction-gear to drive the pulleys of the tool-shafts when brought in engagement therewith, as will presently be described. In the periphery of the drum is mounted a series of slides, D D, which move up and down vertically in suitable ways in the drum, and carry the tool-shafts E E. The upper ends of these shafts have pulleys *c c*, which, when not in use, stand elevated above the disk C, as shown at the right in Fig. 2; but when brought down engage with it, and consequently give motion to the shafts and the tools attached thereto, as shown at the left in Fig. 2. The slides which carry the shafts are raised and lowered by means of crank-handles G G, which move over segments *d d* of the drum, and have spring-pawls *f f*, by which they engage to hold the parts either up or down. These parts engage by means of a rack, *j*, and pinion *g*, or equivalent. This is clearly shown in Fig. 3. This arrangement of the tool-shaft, slides, and operating-handles forms one feature of my invention. The operator, by holding the crank in his hand, can bring the cutter in operation and guide it in its work without difficulty. The under side of the drum has a concentric series of holes or notches, *h h*, or an equivalent rack, into which strikes a spring-rod, *i*, passing down and having a treadle within reach of the foot of the operator. These notches are at a distance apart equal to the movement of the drum to bring the tools into action upon the block to be cut, one after another. This arrangement also forms one feature of my invention. Beneath the drum is located the double carriage, which carries the pattern I and the block or board from which the handle K is to be formed. The pattern is of the same form as the finished handle. The lower carriage, H, which carries the upper one, L, runs in one direction, while the other, L, runs at right angles to it. Both slide on ways, which keep them in position, and both are driven by racks and pinions *k l*, operated by hand-wheels M. The pattern, with the block on top, is clamped, by screw or otherwise, on top of the upper carriage and directly under the tools, in such a manner that its position can be readily changed to bring its different sides, as well as its center, into connection with the proper tools.

By this arrangement of the double carriages the pattern can be brought into the desired position with the greatest facility and exactness, and be held in close contact with the tool, as well as be fed along as the tool does its work. Both carriages are necessary to do this—one to bring the pattern up to the work against the tool, and the other to feed it along to produce the cutting action. Ordinary arrangements for feeding would not answer.

The tools P P are of various forms—one being an auger, for boring the center hole in the handle; another being a cutter, for dressing out the center opening; others straight cutters, for dressing the outer edges; and others still concave cutters, for producing the round or convex upon the center and edges of the handles, which edges are of different degrees of convexity. These, being all mounted upon the drum and being concentric, can be brought into requisition as needed by simply turning them into position over the pattern. These tools are preferably made of solid steel, and are attached fast on the lower end of the shaft, with loose rollers *m m* beneath, which roll in

contact with the edge of the pattern. The roller, however, is not required on the shaft that carries the auger for boring the center hole of the handle.

By the apparatus above described saw-handles can be made with great rapidity and exactness, and all complete, with the exception of the sharp angles or notches, into which the cutters will not fit. These notches, however, are made only in the finer qualities of saw-handles, and are finished by hand without much trouble. Heretofore these handles have been sawed out by jig-saws and the rounding or convex edges formed by hand, which involves a good deal of labor.

So far as I am aware I am the first to mount a series of tools upon a revolving drum in such a manner that they may be brought successively or in order over the pattern for forming the handles by machinery.

What I claim, and desire to secure by Letters Patent, is—

1. In a machine for forming saw-handles, I claim the revolving drum B, slides D, concentric tool-shafts E, cutters P, and pulleys *c*, arranged and operating, in connection with the disk C, substantially as and for the purpose set forth.

2. I claim, in combination with the tool-shafts E, the slides D carrying the same, and the crank-levers G G, and racks and pinions *j g*, for raising and lowering said shafts, as described.

In witness whereof I have hereunto signed my name in the presence of two subscribing witnesses.

EDWIN S. PIPER.

Witnesses:

R. F. OSGOOD,

ARCHD. BAINE.