A. H. SHIPMAN.

SCROLL-SAWING MACHINE.

No. 183,029. Patented Oct. 10, 1876.

Fig. 1.

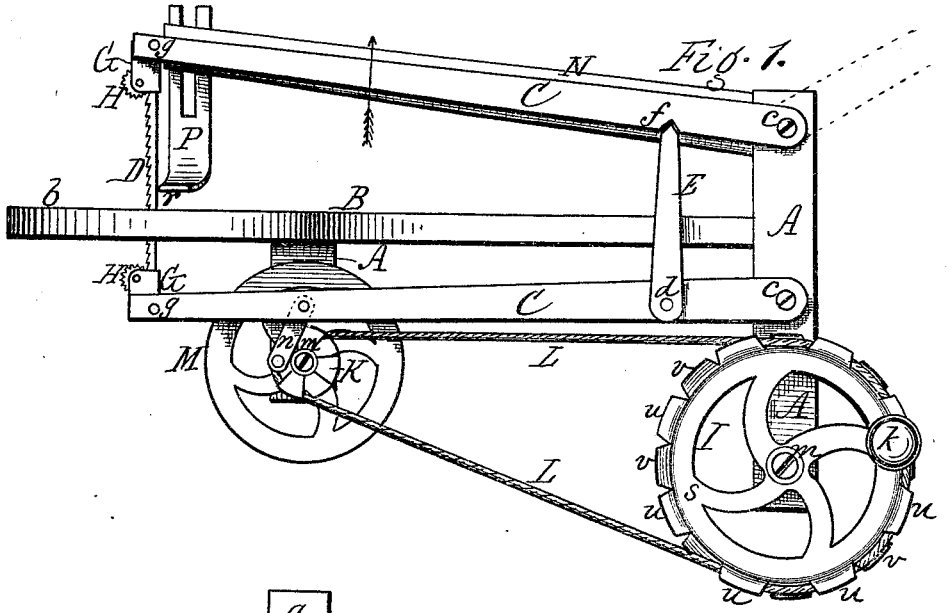


Fig. 2.

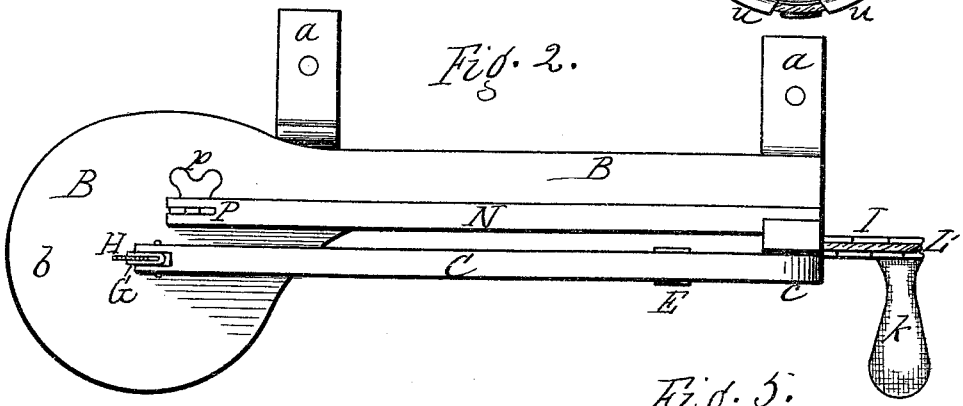


Fig. 3.

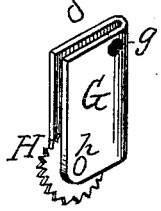


Fig. 4.

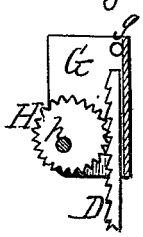
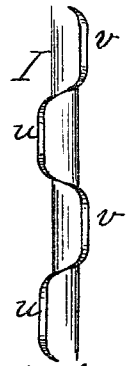


Fig. 5.



Witnesses.
E. B. Scott.
N. Campbell

Inventor.
Albert H. Shipman,
per R. F. Osgood.
Atty.

UNITED STATES PATENT OFFICE.

ALBERT H. SHIPMAN, OF ROCHESTER, NEW YORK, ASSIGNOR OF ONE-HALF HIS RIGHT TO JULIUS F. BINDER, OF SAME PLACE.

IMPROVEMENT IN SCROLL-SAWING MACHINES.

Specification forming part of Letters Patent No. **183,029**, dated October 10, 1876; application filed March 31, 1876.

To all whom it may concern:

Be it known that I, ALBERT H. SHIPMAN, of the city of Rochester, in the county of Monroe and State of New York, have invented a certain new and useful Improvement in Scroll-Sawing Machines; and I do hereby declare that the following is a full, clear, and exact description of the construction and operation of the same, reference being had to the accompanying drawings, in which—

Figure 1 is a side elevation. Fig. 2 is a plan. Figs. 3, 4, and 5 are detail views.

My improvement relates to portable or hand-machines for scroll-sawing, adapted to cutting small articles, and capable of being attached to the leaf of an ordinary table or bench.

The invention consists of a self-adjusting device for straining the saw; also, of an improved construction of the gate or arms for operating the saw; and of other parts which will be hereinafter more fully described.

A A are standards, to which is attached the table or bed B. The standards have bearings *a a*, which fit on the under side of an ordinary table-leaf, and may be secured thereto by screws or by iron clamps, as may be desired. The bed B is made enlarged at its forward end, as shown at *b*, to hold the stuff for sawing. C C are two arms forming the vibrating gate of the saw. These are situated one above and the other below the bed B, and are pivoted at the rear ends to the standard by ordinary wood-screws *c c*. The front ends of the arms are left open, and with them is connected the saw D, which passes through a slot in the bed. E is a stiffener or fulcrum, pivoted at *d* to the lower arm. It is made sharp-edged at the top, and fits in a notch, *f*, in the under side of the upper arm, thereby forming a loose connection. The stiffener is near the rear end of the gate, but inside of the pivots *c c*, upon which the arms turn. G G are metallic hangers, pivoted at *g g* to the ends of the upper and lower arms of the gate. They consist of plates which are folded double, having a space between the sides in which rest the ends of the saw-blade. H H are serrated eccentric wheels, pivoted at *h h* to the hangers. The eccentricity of these wheels is such that when turned inward their teeth catch the teeth of the saw and hold the saw from being drawn out. I K are band-wheels, around which passes the band L. The wheel I is driven by a crank, *k*. On the hub of the small wheel K is cast a balance-wheel, M. These wheels are pivoted to the standards by ordinary wood-screws *m m* passing through their hubs. *n* is a pitman connecting the lower arm C of the gate with the wheel K, by which means the proper vibrating motion is imparted to the gate. N is a stiff arm attached to the top of the rear standard A, and projecting forward to the saw. P is a gage which adjusts up and down in the front end, being secured in any desired position by a set-screw, *p*. The gage has at its lower end a foot, *r*, which rests close to or bears against the back of the saw. This gage serves a double purpose: First, it acts as a stiffener or guide to the saw to prevent back-action; and, second, as a presser to rest on top of the stuff, thereby keeping it down to the work. The advantage of the open gate C C and the hangers G G is that the saw is thereby rendered self-straining. To strain or tighten the saw, the ends of the arms C C are simply pressed toward each other, and the ends of the saw passing by the serrated eccentrics H H are caught by the teeth of the latter and held at any position. The arms C C are, to a certain extent, elastic, and the stiffener E serves as a fulcrum over which the arms bend. Therefore, any desired degree of tension may be given to the saw. To release the saw to remove the stuff, the ends of the arms C C are sprung together, the upper eccentric is thrown back, and the upper arm can then be thrown up or over to any extent, as indicated by the dotted lines, Fig. 1, thereby enabling the stuff to be removed where inside sawing is done. This open form of the gate and free turning of the upper arm of the same is a great convenience. In ordinary scroll-saws of this kind the ends of the arms C C project some distance back or beyond the pivots *c c*, and the arms are connected by rods or other attachments which prevent the turning back of the arm. Therefore, the saw is not easily removed or adjusted. The device for straining the saw and allowing its ready removal is also

convenient and effective. The wheels I K are each cast in one piece, and the latter has the fly-wheel M cast solid with it. The band-wheels consist of a rim, *s*, having alternate flanges *u u* and *v v*, turned outward in opposite directions laterally, as shown in Figs. 1 and 5. These flanges form the sprockets which receive the band between them. This construction renders the wheel very thin and light, and it can be cast without difficulty.

Another advantage of the construction is that a firm seating of the band is produced, the flanges being situated nearer together upon the opposite side than in ordinary sprocket-wheels that have the sprockets directly opposite each other.

This machine may not only be used as a portable or hand-machine, attached to a table or bench, but also as a treadle-machine, or it may be operated by power of any kind, and it may be made of any desired size.

I do not claim, broadly, a saw-frame composed of two arms pivoted at one end and holding the saw at the other, as I am aware that the same is not new; but

What I claim as new is—

1. In a scroll-sawing machine, the combination, with the saw D, of the hangers G G, and serrated eccentrics H H, arranged to operate in the manner and for the purpose specified.

2. The hangers G, constructed of a folded or double metallic plate to receive the saw D and eccentric H, and pivoted to the gate to turn freely, as shown and described, and for the purpose specified.

3. In a scroll-sawing machine, the combination, with the straight, open-ended spring-arms C C, having an inherent elasticity for straining the saw, of the fulcrum-bar E, pivoted permanently to the lower arm, and constructed at the top with a wedge-shaped end, which fits loosely into the notch *f* of the upper arm, whereby the said arm may be thrown open for the insertion or removal of the saw without disconnection of any of the parts, as shown and described, and for the purpose specified.

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

A. H. SHIPMAN.

Witnesses:

R. F. OSGOOD,

E. B. SCOTT.