2 Sheets—Sheet 1.

I. ARTHUR.

SCROLL-SAWING MACHINE.

No. 188,225. Patented March 13, 1877.

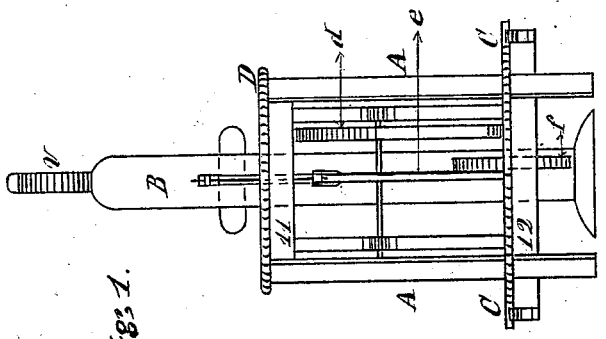

Fig. 1.

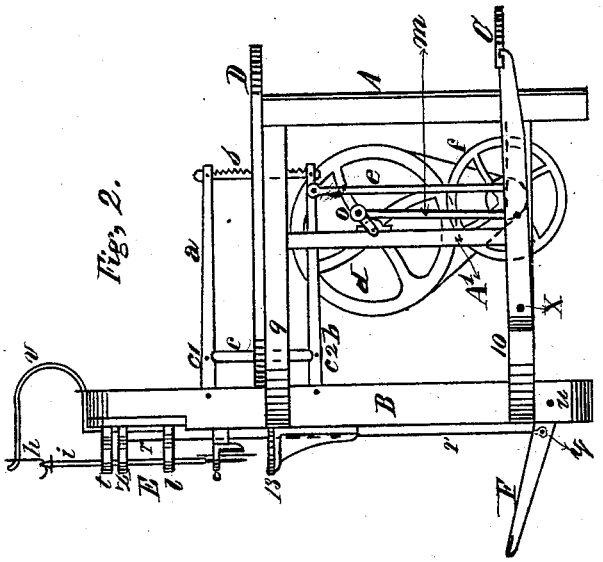

Fig. 2.

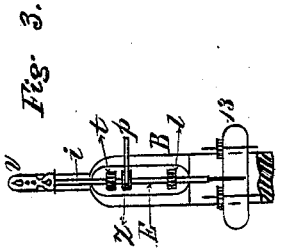

Fig. 3.

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Inventor.
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2 Sheets—Sheet 2.

I. ARTHUR.

SCROLL-SAWING MACHINE.

No. 188,225. Patented March 13, 1877.

Fig. 6.

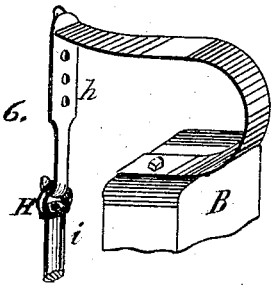


Fig. 4.

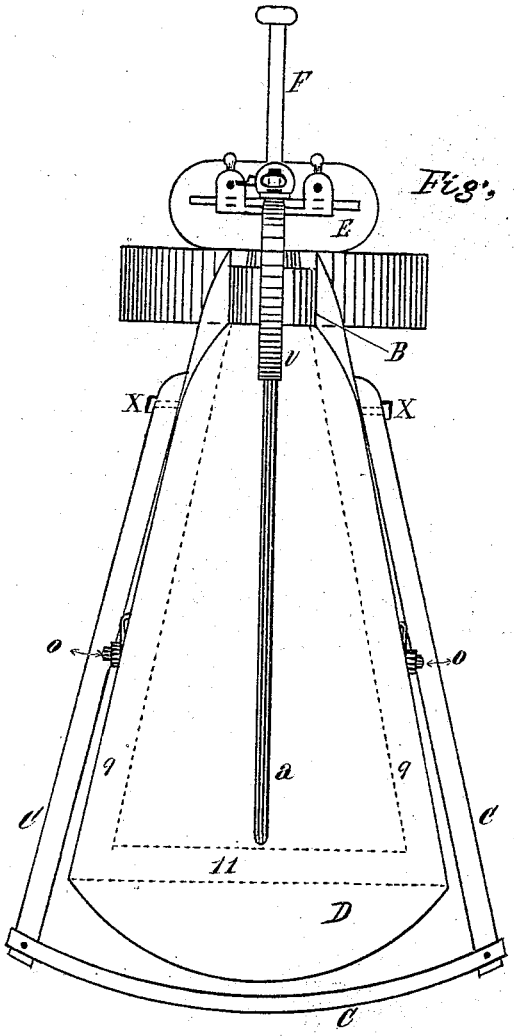
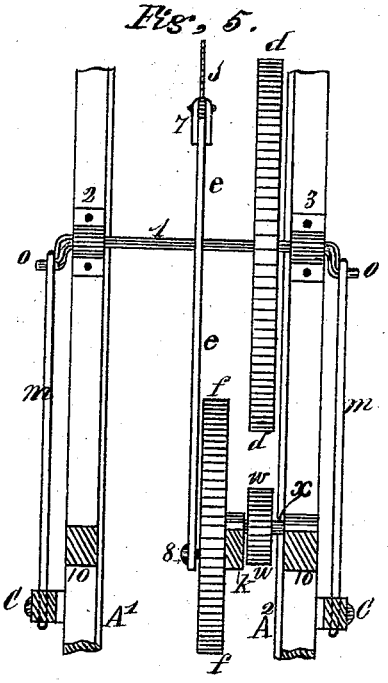


Fig. 5.



Witnesses.

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John H. Weitmyer

Inventor:

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UNITED STATES PATENT OFFICE.

ISAIAH ARTHUR, OF SHEPHERDSTOWN, PENNSYLVANIA.

IMPROVEMENT IN SCROLL-SAWING MACHINES.

Specification forming part of Letters Patent No. **188,225**, dated March 13, 1877; application filed February 19, 1877.

To all whom it may concern:

Be it known that I, ISAIAH ARTHUR, of Shepherdstown, Cumberland county, Pennsylvania, have invented an Improvement in Scroll-Sawing Machines; and I hereby declare the following to be a full, clear, and exact description of the same, reference being had to the accompanying drawings, and the letters of reference marked thereon, in which—

Figure 1 represents a front-end elevation; Fig. 2, a side elevation. Fig. 3 is a view of a portion of the mortiser. Fig. 4 is a top or plan view of the combined device. Fig. 5 represents the driving mechanism of the scroll-sawing machine in proper position upon its supporting-frame. Fig. 6 represents the upper part of the mortiser on an enlarged scale.

My invention consists in a peculiarly-constructed saw-straining frame, used in combination with proper actuating mechanism, whereby the saw is given a proper vertical reciprocatory motion, while, at the same time, great freedom for the handling of work is provided in the rear of the saw-blade.

The frame or supporting uprights consist, mainly, of three vertical pieces, marked A, A, and B in the drawings. (See Figs. 1 and 2.) Said pieces are placed so that the two, A A, are at the front end of the sawing-table, a proper distance apart, and that their front faces will lie in the same vertical plane. The vertical piece B is placed a proper distance in the rear of the two vertical pieces A A, and equally distant from each. The three vertical pieces are rigidly connected together by the side pieces 9 and 10. These are four in number, two above that are framed into the upper ends of the vertical pieces A A, their other ends being firmly secured by screw-bolts, or other suitable means, to the vertical piece B. The two lower side pieces 10 10 are framed into the three vertical pieces A A B a short distance from the lower ends of same. Two parallel braces, 11 12, (see Fig. 1,) are framed into the vertical pieces A A, so as to insure strength and proper stability. The vertical pieces of timber A^1 A^2 (see Figs. 2 and 5) are framed into the side pieces 9 9 10 10 upon each side of the frame-work of the sawing-machine. Said pieces A^1 A^2 are intended to support the crank-shaft 1 and main band-wheel *d* that gives motion to the scroll-saw *s*. Said saw *s* is secured, by suitable means, at each of its ends to the parallel bars *a b*. These bars are made of tough hard wood of such a width and thickness as to insure the requisite strength and stiffness, and of sufficient length to furnish the proper amount of room or space between the vertical piece B and the rear edge of the saw-blade, so that the material to be sawed can be readily moved in any desired direction without obstruction. The bars *a b* are pivoted at their rear ends to the vertical piece B, slots or mortises of suitable size being made in the front face of the same for their reception. A brace, *c*, made of wood or other suitable material, is secured in position at a point, c^1 c^2, between the ends of the bars *a b*, and serves to support and secure the saw-blade *s*, and enable a proper degree of tension to be given the same. Upon the upper faces of the side pieces 9 9 and the parallel brace 11 the saw-table D is secured. Its form is clearly shown in the plan view, Fig. 4, being triangular, with its front edge rounded to form an arc of a circle from the outer edges of the vertical pieces A A. (See Figs. 1 and 4.)

By inspection of Fig. 5 it will be noticed that the crank-shaft 1 is secured near its outer ends in journal-boxes 2 3. Said crank-shaft 1 is made of such size, in proportion to the capacity of the machine, as to insure sufficient strength, and is constructed with journaled cranks *o o* at each end that lie in the same plane. (Shown in Figs. 2, 4, 5. Upon said crank-shaft 1 is rigidly secured the main band-wheel *d*. (See Fig. 5.) Immediately beneath the crank-shaft 1, and in a line parallel to it, is located a short shaft, *x*. This is secured by boxes in position upon the frame-piece *k* and side piece 10. (See Fig. 5.) Upon the short shaft *x* is mounted and securely fastened the pulley *w*, which is so adjusted as to be in line with the main band-wheel *d*, from which it receives motion by means of a belt. Upon the inner projecting end of the short shaft *x* the fly-wheel *f* is secured. To the outer face of said wheel the pitman or connecting-rod *e* is attached by the crank-pin 8, the point of insertion of said pin in an arm of said wheel *f* being such a distance from the axial center of the short shaft *x* as to insure the required crank-motion to

give the saw *s* a sufficient vertical reciprocatory movement.

In Figs. 1, 2, 4, and 5 is shown the actuating-treadle C. As will be noticed in Figs. 2 and 4, said treadle C is pivoted at its rear end to the side pieces 10 10 upon their outer faces. The treadle is, preferably, made of hard tough wood, and is given the form substantially as shown in Fig. 4. It consists of two pieces of timber, that are secured as stated, at their rear ends to the side frame of the scroll-saw, their front ends being connected together by a curved piece that is securely bolted at each of its ends to the same. The crank-shaft 1 is connected to the treadle C by the parallel connecting-rods *m m* passing through slots cut in the side bars of the treadle C, their lower ends being pivoted therein, the upper ends having a movable connection with the journaled cranks *o o*.

It is evident from the foregoing description that a movement of the treadle C will cause a rapid vertical reciprocatory motion of the saw *s*.

The vertical piece B of the frame of the sawing-machine also carries the mechanism of the mortising-machine E, as is shown in Figs. 2 and 4. It is of simple construction, and consists, mainly, of a vertical chisel-stock, *i*, held in position by the guide-brackets *l t* that project from a metallic plate that is secured to the rear face of the upper end of the vertical piece B. Between said brackets *l t* upon said plate a guide-slot is formed that is intended to receive the inner end of the traveling-block *z*, which is rigidly secured to the chisel-stock *i*. The upper end of said chisel-stock *i* has a swivel-loop attached thereto, into which is inserted the adjustable hook *h*. Said hook is plainly shown in Fig. 6. It has several holes of proper size made in its body for the reception of the free end of the curved spring *v*. (See Figs. 1 and 6.) An arm, *p*, projects at a right angle to the body of the chisel-stock *i*, by the use of which the said stock can be given a semi-revolution, and so reverse the cutting-edge of the chisel. An adjustable supporting-table, 13, is provided, upon which the stuff to be mortised is laid and secured by clamps. The chisel-stock *i* is caused to move up and down by the joint action of the treadle F connected to the traveling-block *z* by the rod *r*, and the curved spring *v* secured upon the top of the vertical piece B.

The only feature of novelty claimed for this mortiser is the adjustable hook *h*, the use of which enables the tension of the curved spring *v* to be increased or weakened, as may be necessary in the mortising of wood of different thicknesses and degress of hardness.

Having given a description of my invention and its manner of operation, what I claim as new, and desire to secure by Letters Patent of the United States, is—

The combination of the bars *a b*, brace *c*, saw *s*, parallel connecting-rods *m m*, crank-shaft 1, main band-wheel *d*, pulley *w*, fly-wheel *f*, pitman-rod *e*, treadle C, and frame A A B, as herein set forth, and for the purpose specified.

ISAIAH ARTHUR. [L. S.]

Witnesses:
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WM. P. PATTON.