3 Sheets--Sheet 1.

J. S. MOSELEY.

Improvement in Scroll-Sawing-Machines.

No. 114,180. Patented April 25, 1871.

Fig. 1.

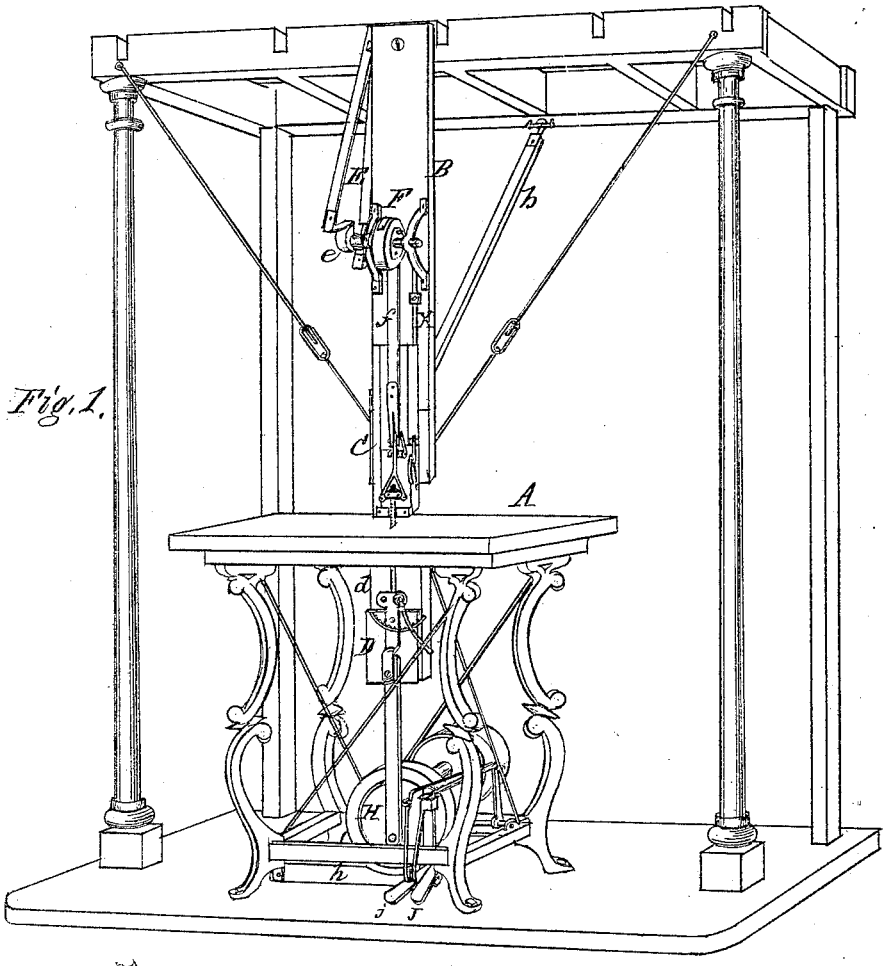


Fig. 2.

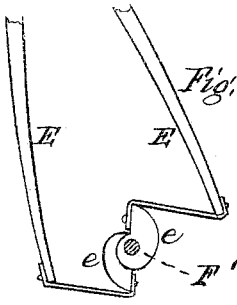


Fig. 3.

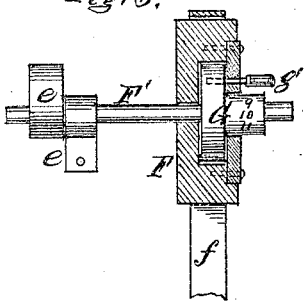
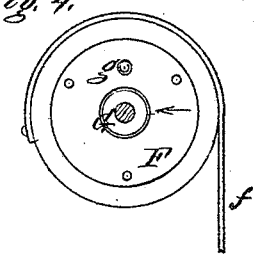


Fig. 4.



Witnesses.

H. L. Sorille

F. A. Wheeler

Inventor.

Jerome S. Moseley

3 Sheets--Sheet 2.

J. S. MOSELEY.

Improvement in Scroll-Sawing-Machines.

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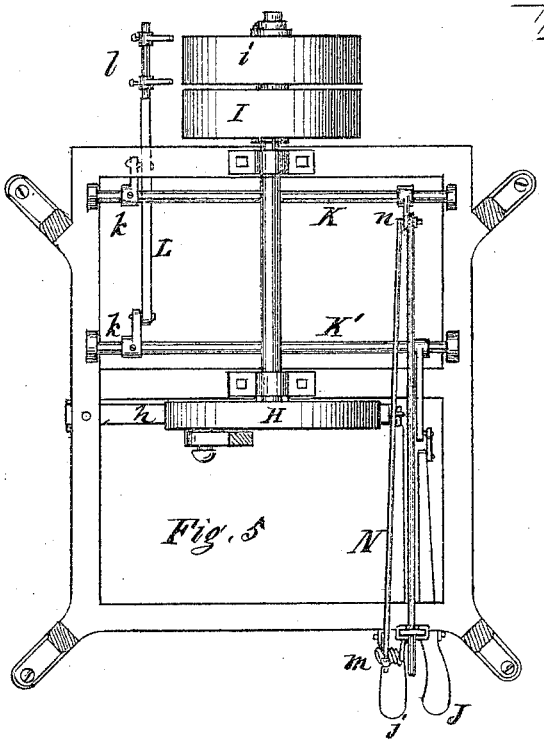

Fig. 5

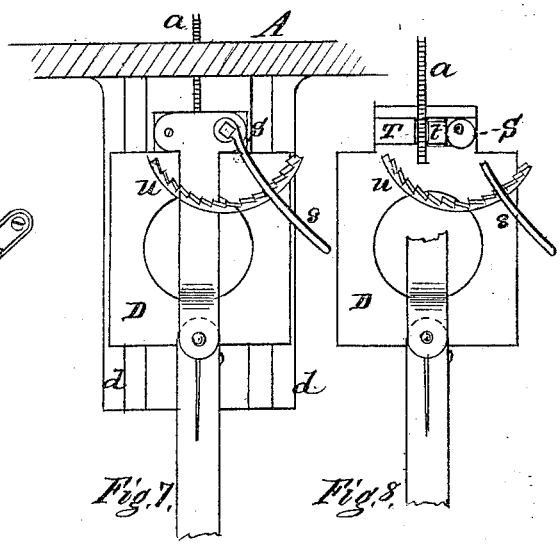

Fig. 7.

Fig. 8.

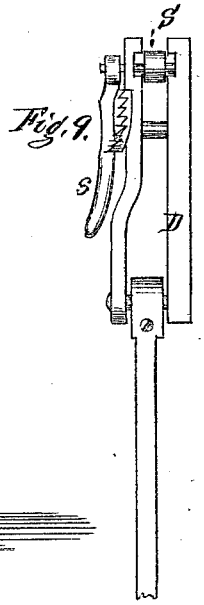

Fig. 9.

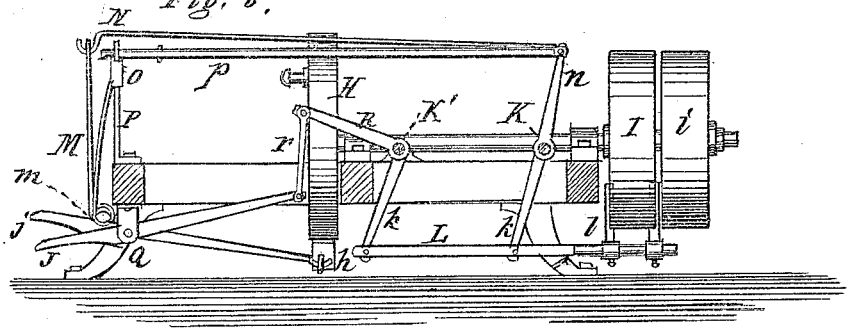

Fig. 6.

Witnesses.

W. L. Scoville

H. A. Mosley

Inventor.

Jerome S. Moseley

3 Sheets--Sheet 3.

J. S. MOSELEY.

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Fig. 10

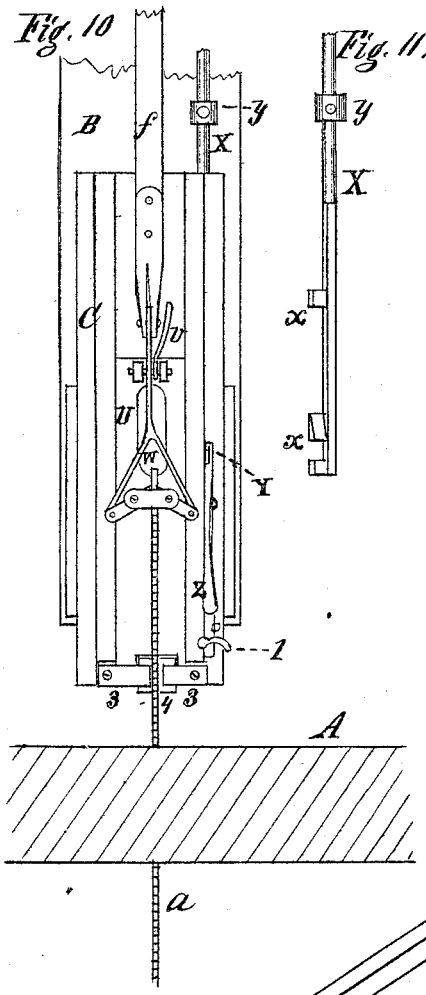

Fig. 11.

Fig. 12.

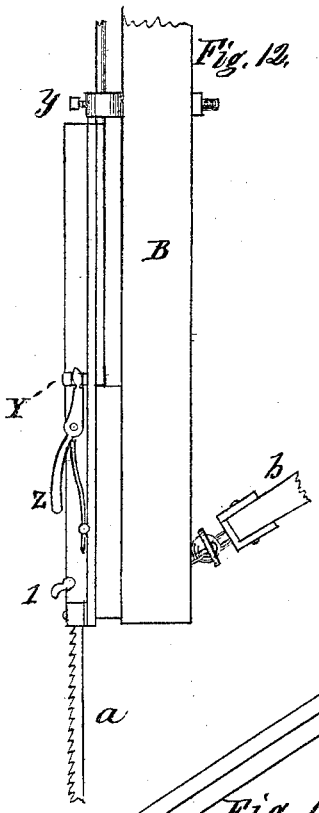

Fig. 13.

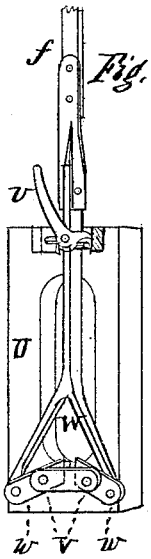

Fig. 14.

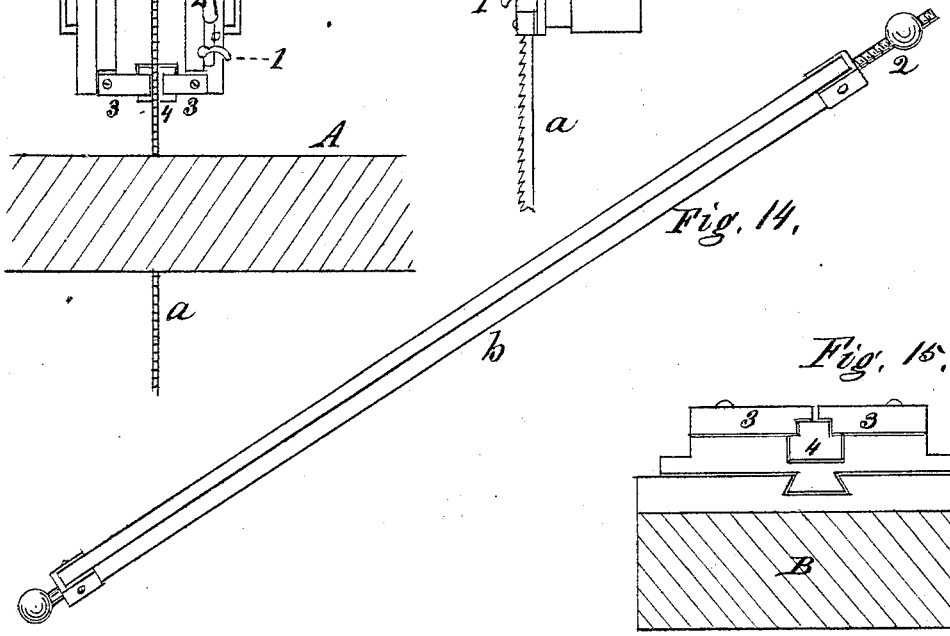

Fig. 15.

Witnesses.

W. L. Scoville

F. C. Morley

Inventor.

Jerome S. Moseley

UNITED STATES PATENT OFFICE.

JEROME S. MOSELEY, OF SYRACUSE, NEW YORK.

IMPROVEMENT IN SCROLL-SAWING MACHINES.

Specification forming part of Letters Patent No. **114,180**, dated April 25, 1871.

To all whom it may concern:

Be it known that I, JEROME S. MOSELEY, of Syracuse, in the county of Onondaga and State of New York, have invented certain new and useful Improvements in Scroll-Sawing Machines; and I do hereby declare that the following is a full, clear, and exact description thereof, which will enable others skilled in the art to make and use the same, reference being had to the accompanying drawing, forming a part of this specification, in which—

Figure 1 is a perspective view of my invention. Figs. 2, 3, and 4 are detail views of the saw-straining devices. Fig. 5 shows a plan view of the devices for changing the belt, and Fig. 6 shows a side view of the same. Figs. 7, 8, 9, 10, 11, 12, 13, 14, and 15 are detail views of various other parts of the machine, as hereinafter more fully described.

Similar letters of reference indicate like parts in the several figures.

In the accompanying drawing, A, Fig. 1, is the table. B is the hanging standard above the table that supports the saw-straining devices and the adjustable guide. C is the upper adjustable guide, and D is the cross-head, running on a guide, *d*, below the table. The saw-straining devices consist of a double spring, E, that connects with a shaft and pulley, F, which, in turn, connects with the head of the saw by means of a flexible strap, *f*, as ordinarily. The springs E are arranged vertically, and are placed upon opposite sides of the actuating-shaft F′, as shown in Fig. 2, so that their strain upon said shaft is balanced, thereby reducing the working friction of the shaft. The springs E E connect with the shaft F′ by flexible straps passing over cams *e e*, which are so arranged on the shaft that as the springs are wound up and their tension increased the radius or diameter of the cams decrease, and the tension of the springs E on the saw is thereby equalized or made uniform throughout the stroke.

By this construction of straining devices, and by arranging the springs E so that their movements are horizontal instead of vertical, the parts work with less jar, and the floor above is relieved from shake or swing.

The wheel F, on which the strap *f* is wound, is placed loosely on the shaft F′, and within this wheel is a collar, G, Fig. 3, that is keyed to the shaft. The wheel F is secured to the shaft by a pin, *g*, that passes through one of its sides into the internal wheel or collar G; and for taking up or letting out the strap *f* in using saws of different sizes and lengths, the pin *g* is withdrawn and the wheel F rotated to the proper position and again secured by the said pin *g*, which passes into a new hole in the collar. The said collar G is provided with a series of holes for the pin *g*, and on the projecting central portion of G is marked a series of figures, as shown in Fig. 3, the figures being distributed opposite to the several holes of the series in such manner as to indicate in inches the length of saw to be used for each position of the wheel. If a twelve-inch saw is to be used the wheel is turned so that the indicating mark or arrow on its face, Fig. 4, is brought opposite to the mark 12 on the collar, when it is again secured by the pin *g*, and in this manner the saw is changed for one of a different size at any time with the greatest readiness.

I, Fig. 5, is the fast pulley, and *i* is the loose pulley.

The frame-work of the machine supports two horizontal cross-shafts, K K′, and these shafts are provided with arms *k k*, which carry a rod, L, on the outer end of which two arms, *l*, are secured by set-screws, the arms *l* guiding the driving-belt from one pulley to the other, as required. By this construction and arrangement of the parts the machine can accommodate itself readily to a belt running in any direction in a plane with its driving-pulley, so that the machines are complete as they leave the shop in all cases.

If the belt runs from such a direction that the shifting-rod L *l* should be on the opposite side of the driving-pulley, then the set-screws that secure the arms *k k* in position are slackened and the arms are slid over to the opposite ends of their shafts K K′ and secured, this bringing the belt-changer on the opposite side of the pulley.

The arms *k k* can also be set in a raised position when the belt runs from overhead, instead of being set in the hanging position shown in Fig. 6; and other changes of direction in the driving-belt are accommodated by

setting the arms *l* at a different angle on the end of the rod L, and by these means all the varying changes of direction in the driving-belts are accommodated.

In Figs. 5 and 6, H is the crank-wheel, and *h* is a brake for said crank-wheel, that is so arranged with relation to the devices for shifting the driving-belt that it is applied to the crank-wheel by the same movement that changes the belt, thereby stopping the crank-wheel and saw instantaneously with the change of belt from the fast to the loose pulley.

Two pedals, J *j*, are employed, and they are so arranged or connected with each other that by pressing down upon J the belt is thrown onto the fast pulley, and the pedal *j* is thrown in the opposite direction and the crank-wheel brake released; and when pressure is applied to the pedal *j* the brake is applied and the opposite pedal reversed and the belt carried to the loose pulley.

The pedal *j* has two rods of spring metal, M, Fig. 6, that project upward, one of them connecting with the shaft K by an arm, *n*, and rod N, and the other carrying a sleeve, *o*, that slides vertically on a standard, P.

A second rod, *p*, extends from the arm *n* to the standard P, one of its ends being attached to the said arm *n* and the other sliding in the upper end of the standard *p*.

The sleeve *o* engages with a notch in the rod *p* to hold the changing devices in position while the belt is on the fast pulley, and the spring of the coil *m* and the two rods M hold the parts in position when the belt is on the loose pulley and the brake is applied.

Each pedal has a long arm beyond its fulcrum Q, by which the pedal *j* connects with the end of the brake *h*, and the other pedal, J, connects with the shaft K by means of the arm R and link *r*. By this construction an elastic and secure movement is obtained for starting and stopping devices, and the saw is stopped instantaneously.

The cross-head is formed by a plate, D, Fig. 7, that travels on a guide, *d*, below the table A, and on this plate or cross-head is mounted a cam-lever, S *s*, for making the connection with the lower end of the saw *a*.

The cam S acts upon a sliding block of steel, *t*, Fig. 8, and the saw is clamped to the cross-head by being pressed against a stationary block of steel, T, by the movable block *t*. The movable block *t* slides laterally in grooves. (Shown at S, edge view, Fig. 9.)

By placing the sliding block *t* between the cam and the saw, the saw is clamped by flat surfaces, and the tendency to bend it by a direct application of the cam thereto is obviated.

The cam-lever is held in the desired position by a toothed rack, *u*. The lower end of the saw is slightly upset usually, to give the clamping devices a more secure hold of it.

The upper end of the saw is connected to the strap *f* by a catch, Fig. 13, which is made by a forked spring, W, the upper end of which is riveted to the tension-strap *f*, while its fork connects with two jaws, *w w*, which are pivoted to the bed-plate V.

The spread of the forked portion is such as to hold the jaws *w w* closed upon the saw, and the strain on the strap *f* causes these jaws to clamp the head of the saw with still greater force.

For opening the jaws *w w* to release the saw, a small lever, *v*, is pivoted to the head of the plate, and so arranged as to force the spring W downward with its short end, and this opens said jaws *w*.

The lever *v* can take hold of W by acting on a pin or projecting part thereof; or they may be made to engage with each other like a rack and pinion, the short arm of the lever acting as the pinion. This makes a connection between the straining devices and the head of the saw that never slips or loses its hold, and it is detached by a single movement of the hand, so that in the aggregate much time is saved in changing the head of the saw into the different holes in the work.

When it is necessary to change the head of the saw to another part of the work the guide-plate C has to be raised, so that the work can be lifted over the head of the saw, and this has to be done so often that a material saving of time is made by facilitating the raising and replacing of this guide C. This I accomplish by suspending behind the guide-plate C a rod, X, having stops *x x*, Fig. 11, and mounting upon the side of the guide C a spring-catch, Y, that is released by a thumb-lever, Z, Figs. 10 and 11.

To raise the said guide-plate C, the operator first releases the head of the saw by pressing upon lever *v*, and then, placing the forefinger under the hook 1, raises the guide-plate when the thumb has depressed the lever Z to withdraw the catch Y, the guide-plate being thus released and thrown up out of the way by a single movement of the hand.

The rod X is fastened to the standard B in an adjustable manner by an eyebolt and set-screw, *y*, Fig. 12, so that the stops *x x* can be adjusted vertically to allow the guide-plate to drop more or less, as the thickness of the work may require.

The brace *b* has the ordinary ball-and-socket terminations; but, instead of cutting the brace at its center and making an adjustable joint for regulating its length, I attach a screw, 2, Fig. 14, to its upper end, and also use the ball at this end as a nut. This simplifies its construction and makes it more convenient, as, when the operator wishes to give the saw more rake or feed, he has only to reach to the rear of the standard B and turn the brace without changing his position, and, having the saw before him, has the advantage of being able to see the effect.

The lower end of the guide-plate C is provided with two lignum-vitæ steadying-guides, 3 3, which embrace the sides of the saw at its

rear edge; and a hardened-steel block, 4, is secured in a cavity at the lower end of the plate, and the back of the saw runs on the said block of hard steel.

Having thus described my invention, what I claim, and desire to secure by Letters Patent, is—

1. The arrangement of the springs E E, as herein shown and described, in connection with the shaft F′ from opposite sides by means of cams *e e* and flexible bands, all operating as and for the purposes set forth.

2. The combination of the movable wheel F *g* and fixed collar G with the shaft F′ and tension-strap *f*, for adjusting the length of said strap to the several sizes of saws, substantially as specified.

3. The shafts K K′, adjustable arms *k k*, rod L, and adjustable arms *l*, and saw-driving devices I *i*, all constructed and arranged as shown in Fig. 5, and for the purpose specified.

4. The double pedal J *j*, spring-connections M *m*, shafts K K′, arms R *n k*, connections N *p* L *r*, brake *h*, and sleeve or catch *o*, all arranged and operating as and for the purpose specified.

5. The sliding block *t*, interposed between the saw and the cam S, in connection with the opposite flat bearing-surface T, cam S, lever *s*, rack *u*, and cross-head D, substantially as and for the purpose specified.

6. The forked spring W, saw-clamping jaws *w w*, and releasing-lever *v*, in connection with the plate U and tension-strap *f*, substantially as and for the purpose specified.

7. The combination of the catch Y Z and adjustable stop-rod X with the guide-plate C and standard B, substantially as and for the purpose specified.

The above specification of my invention signed by me this 29th day of August, 1870.

JEROME S. MOSELEY.

Witnesses:
WM. J. DODGE,
F. A. MORLEY.