2 Sheets, Sheet 1.

A. M. Schilling,

Scroll Saw.

No. 109,060. Patented Nov. 8, 1870.

Fig: 1.

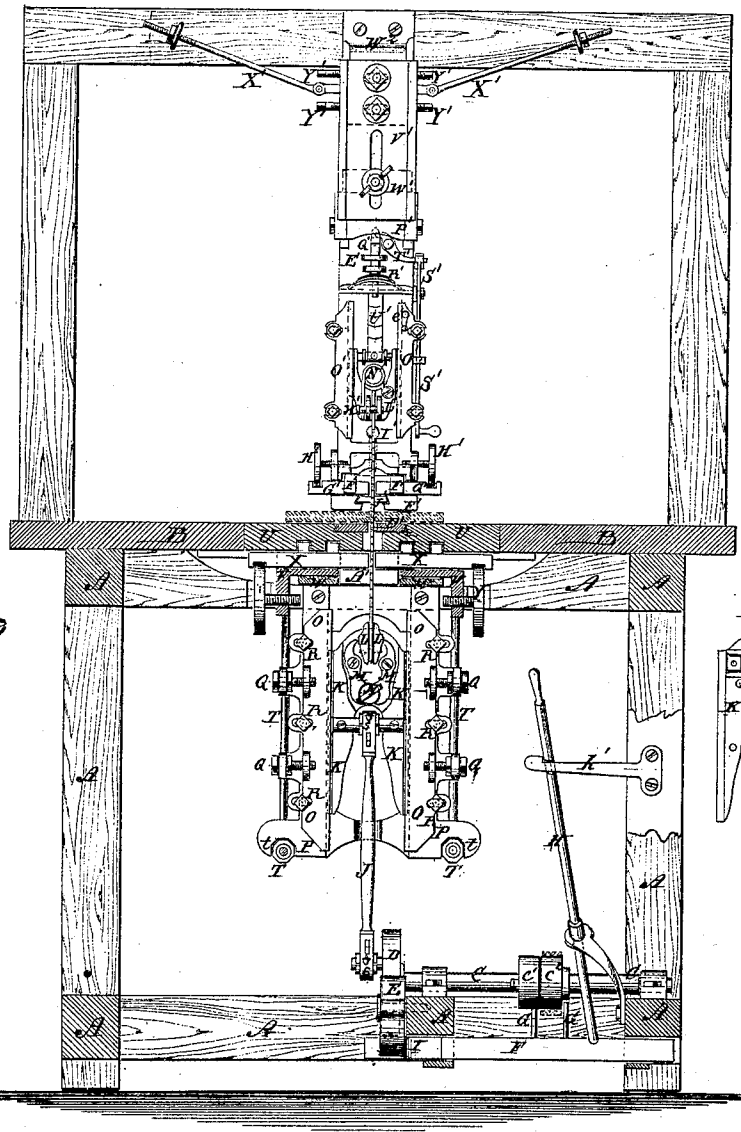
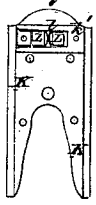


Fig: 3

Fig: 2



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2 Sheets, Sheet 2.

Scroll Saw.

No. 109,060. Patented Nov. 8, 1870.

Fig. 5.

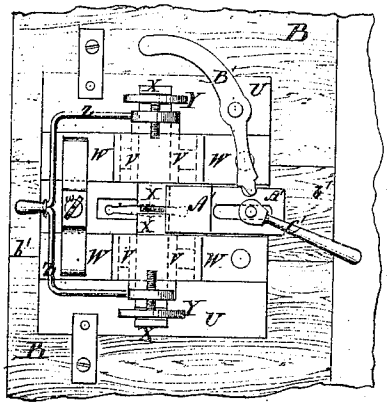
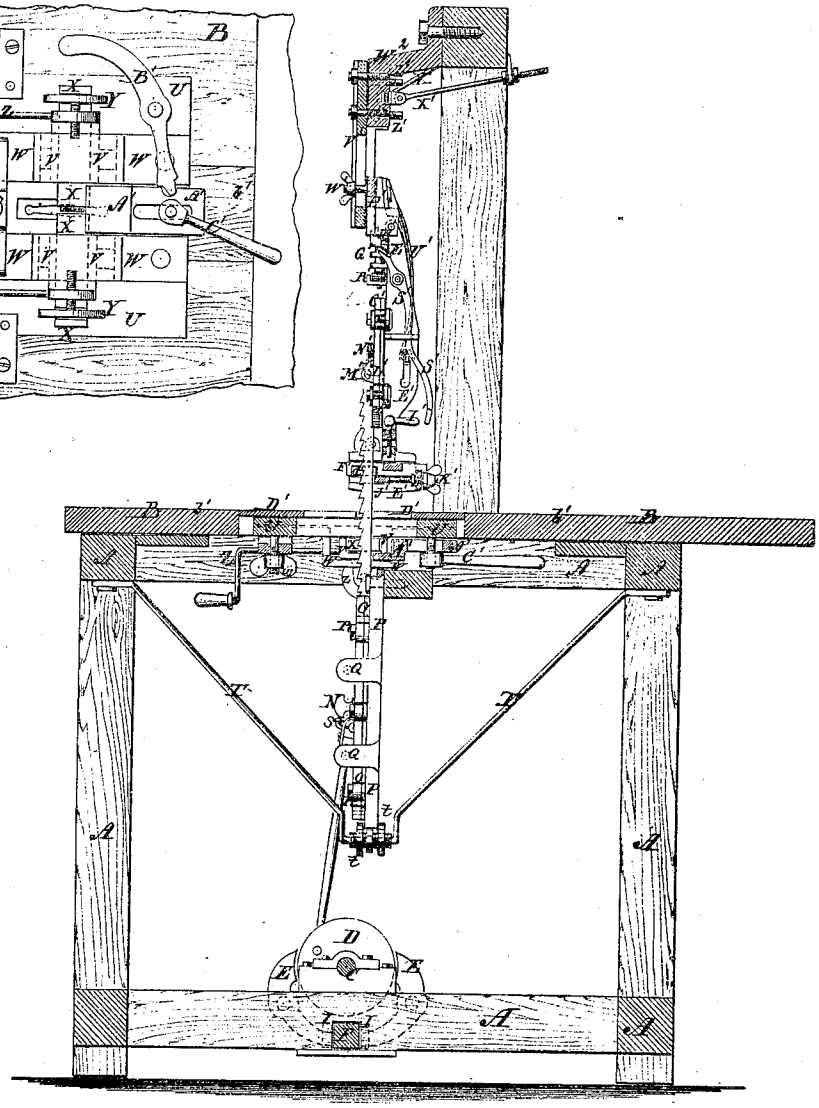


Fig. 4.

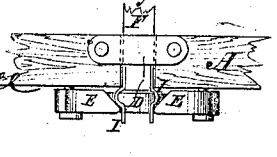


Witnesses:

C. Raetting

G. S. Mabee

Fig. 6



Inventor:

A. M. Schilling

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Attorneys.

United States Patent Office.

AUGUST M. SCHILLING, OF CHICAGO, ILLINOIS.

Letters Patent No. 109,060, dated November 8, 1870.

IMPROVEMENT IN SCROLL-SAWS.

The Schedule referred to in these Letters Patent and making part of the same.

To all whom it may concern:

Be it known that I, AUGUST M. SCHILLING, of Chicago, in the county of Cook and State of Illinois, have invented a new and useful Improvement in Scroll-sawing Machine; 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 part of this specification, in which—

Figure 1, Sheet I, is a front view of my improved sawing-machine, partly in section, to show the construction.

Figure 2, Sheet I, is a detail view of the rear side of the cross-head.

Figure 3, Sheet I, is a detail view of the cam or wedge thumb-screw.

Figure 4, Sheet II, is a detail sectional view of the machine.

Figure 5, Sheet II, is an under-side view of the middle part of the table and its attachments.

Figure 6, Sheet II, is a detail under-side view of the brake.

Similar letters of reference indicate corresponding parts.

My invention has for its object to improve the construction of my improved scroll-sawing machine, patented March 30, 1869, and numbered 88,417, so as to make it more durable, more effective in operation, and more convenient in use; and

It consists in the construction and combination of various parts of the machine, as hereinafter more fully described.

A is the frame, and B is the table of my improved machine.

C is the driving-shaft, which revolves in bearings attached to the lower part of the frame A, and to which is attached a fast pulley, c^1, and a loose pulley, c^2, to receive the driving-belt.

To the inner end of the driving-shaft C is attached a crank-wheel, D, that drives the saw.

E are two brake-levers, pivoted to a cross-bar of the frame A, upon each side of the crank-wheel D, so that, when their lower ends are forced apart, their upper ends are forced toward each other, and against the face of the said crank-wheel D, to stop the movement of the saw without bearing upon the journals of the driving-shaft.

F is a bar, sliding longitudinally in keepers attached to the frame A, and which has two pins, G, attached to it, between which the driving-belt passes.

The slide F is moved to shift the belt from one to the other of the pulleys c^1 c^2, as required, by the lever H, pivoted to a support attached to the frame A, and the upper end of which moves along an arm, h', attached to the frame A, and provided with a stop, stops, or notches, to indicate when the belt has been properly shifted.

To the inner end of the sliding bar F are attached two springs, I, having projections or cams formed upon them in such a way that, when the belt has been shifted to the loose pulley c^2, the said cams or projections will force out the lower ends of the brake-levers E, applying said brakes to the crank-wheel D.

If the lever H is moved past the stop upon the arm h', the projections of the springs I will pass the levers E and release the brake while the belt is still upon the loose pulley, allowing the machine to be conveniently turned and adjusted by hand, thus saving much time and friction.

To the crank-pin of the crank-wheel D is pivoted the lower end of the connecting-rod J, the upper end of which is pivoted to the cross-head K.

The lower end of the saw is placed between, and is held by, the jaws L, which have tenons formed upon them, which pass through a slot in the cross-head K, and are held in place by a dovetailed piece, k', as shown in fig. 2.

The jaws L are forced and held together, to clamp the lower end of the saw, by the levers M, the lower ends of which are forced apart by the thumb-screw N, the body of which is made conical, as shown in fig. 3, so as to act as a cam or wedge to operate said levers, and so as to hold thick or thin saws, by simply screwing it in a lesser or greater distance.

The jaws L are held apart, to allow the end of the saw to be conveniently inserted between them, by a small spring, l, interposed between their tenons, as shown in fig. 2.

By this construction the saw will be in the same place, whether thick or thin, wide or narrow, the back of the saw resting against the cross-head, and the said saw is secured in place by simply tightening the thumb-screw N.

The cross-head K slides up and down in ways O, adjustably attached to the way-bed P.

The ways O are made in two parts or pieces, as shown in fig. 4, and are adjusted by the set-screws Q, which are swiveled to ears formed upon the way-bed P, and screw into ear-nuts formed upon the ways O, so that, by turning the said screws Q, the ways O can be easily adjusted in place or straightened when worn.

The ways O are secured in place, when adjusted, by the screws R, which pass through transverse slots in the said ways O, and screw into the said way-bed P.

S are oil-cups fastened to each end of the connecting-rod J, to oil the pivoting-pins. Similar oil-cups should be placed upon each of the ways O, to keep them oiled.

The way-bed P is adjusted and held in vertical po-

sition by the rods T, which have screw-threads formed upon their middle parts, which pass through eyes formed upon the side edges of the lower end of the said way-bed P, and upon which are placed nuts, *t*, one upon each side of the said ears, so that the said way-bed may be conveniently and accurately adjusted in a vertical position, and, when adjusted, securely and firmly held.

U is a plate, slotted in its center for the passage of the saw, and which is sunk into the table B so that its upper surface may be flush with the upper surface of the said table, as shown in figs. 1 and 4.

Upon the under surface of the plate U are placed two guide-beds, V, which move in grooves in the under side of the said plate U, to cause them to move squarely, and which are held in place by two bands, W, which are secured to the said plate U by screws or bolts, and by the thumb-screw *w*, so as to clamp the said guide-beds V in place, or allow them to be moved as may be desired.

In the guide-beds V are placed two guides, X, which are moved or adjusted by two screws, Y, the heads of which work in slots in the said guides X, and which screw into nut-ears formed upon the guide-bed V.

By this construction, by turning the screws Y the guides X may be moved in or out to adjust them to the thickness of the saw, and, by moving the guide-beds V, the guides X may be adjusted according to the width of the saw.

The guide-beds V are connected to each other by a bar, Z, by which, when the bands W are loosened, they may be moved together.

A' is a guide for the back of the saw, which is moved back and forth along the under surface of the plate U by the lever B', which is pivoted to the plate U, and the end of which enters a notch in the side edge of the said guide A', as shown in fig. 5.

The guide A' is guided in its movements by a screw attached to the plate U, and which passes through a slot in the said guide A', and has a lever-nut, C, placed upon it, by means of which the said guide A' may be securely clamped when adjusted.

In a groove in the upper surface of the plate U works two slides, D', which are attached to the ends of the two middle leaves *b'* of the table B.

The forward or adjacent ends of the slides D' are slotted or notched, as shown in figs. 1, 4, and 5, for the passage of the saw.

The slides D' are moved back and forward, according to the width of the saw, so as to always form a close surface around the saw.

E' is the upper guide-arm, upon the lower end of which are formed grooved and slotted flanges, in which the guide-bars F' work.

G' are the guides, which work in and out of the guide-beds F' as they are operated by the screws H', which work in nut-ears formed upon the flanges of the arm E', and the heads of which enter grooves in the guides G'.

The guide-beds F' and guides G' are secured in place, when adjusted, by the thumb-screw I', as shown in fig. 4.

The back of the saw rests against the guide J', which is moved back and forward in a groove in the lower end of the guide-arm E' by a hand-nut, K', swiveled to the said arm E', and working upon a screw formed upon or attached to the said guide J'.

When a very narrow saw is to be used, its upper end is fastened to a light cross-head, L', where it is secured in place by a pin, M', passing through ears formed upon the said cross-head, entering a notch in the forward edge of the saw, and held forward to its place by a spring, N'.

The cross-head L' works in ways O', secured to the guide-arm E' by bolts passing through slots in said ways, and screwing into said guide-arm, so that the said ways may be conveniently adjusted as required.

The cross-head L', when not required for use, is secured to the upper part of the guide-arm E' by a small button, *i'*, pivoted to one of the ways O'.

The guide-arm E' is pivoted to the slide-block P' by a bolt or pin, so that it may be conveniently swung back out of the way, for convenience in passing the upper end of the saw through a hole in the timber to be sawn.

The guide-arm E' is held in place, to guide and support the upper end of the saw, by the catch-hook Q', which is forced upward by the spring R', to enter a slot in the lower end of the sliding block P'.

The catch Q' is drawn down, to unfasten the guide-arm E', by the lever S', which is pivoted to the said arm E', and the upper end of which works against the outer end of the short lever T', which is pivoted to the arm E', and the inner end of which works against a shoulder formed upon the said catch Q'.

U' is a spring, the lower end of which is connected with a pin, the ends of which slide in slots in the rear part of the arm E'.

The upper end of the spring U' is connected with the slide-block P', so that, when the catch Q' is withdrawn, the said spring U' may move the guide-arm E', rearward and upward.

The sliding block P', to which the guide-arm E' is pivoted, is secured to the extension-plate V' by a hand-nut, W^1, placed upon a screw attached to or passing through the said sliding block P', and through a vertical slot in the said extension-plate V', so that the guide-arm E' can be conveniently raised and lowered, to adjust it to the thickness of the stuff being sawn.

The extension-plate V' is secured by bolts to a plumb-block, W^2.

The plumb-block W^2 is made narrower than the extension-plate V', and is secured to a beam, or to a post projecting downward from a beam, and is secured, as nearly plumb as possible, by three brace-rods or bolts, X'.

The holes for the bolts that secure the extension-plate V' to the plumb-block W^2 are elongated laterally, so that the said extension-plate may be moved to either side to adjust it.

In each side of the extension-plate V' are two set-screws, Y', and in the block W^2 are four set-screws, Z', so that, by means of the eight set-screws Y' Z', the guide-arm E' may be conveniently adjusted to an exact vertical position.

Having thus described my invention,

I claim as new and desire to secure by Letters Patent—

1. The brake formed by the levers E and spring-cams I, in combination with the belt-shifter F G H and crank-wheel D, attached to the driving-shaft, substantially as herein shown and described, and for the purpose set forth.

2. The jaws L, levers M, and cam or wedge-screw N, for securing the lower end of the saw to the cross-head K, substantially as herein shown and described, and for the purpose set forth.

3. The jaws L L, (for holding a scroll-saw,) distended by a spring, *l*, interposed between their tenons, and applied to secure a more convenient insertion of the saw, as described.

4. The oil-cups S, applied to the connecting-rod J and ways O, as and for the purpose described.

5. The combination of the screw-nuts *t'* and threaded sleeve with the brace-rods T and way-bed P, to support said way-bed and enable it to be accurately plumbed, substantially as herein shown and described.

6. The combination of the guides X, guide-beds V, bands W, set-screw *w*, and adjusting-screws Y, with each other, and with the plate U, substantially as herein shown and described, and for the purpose set forth.

7. The combination of the rear guide A', lever B', and lever-nut C', with the plate U and guides X, substantially as herein shown and described, and for the purpose set forth.

8. The combination of the guides G', guide-beds F',

adjusting-screws H′, and clamping-screw I′, with each other and with the swinging or pivoted arm E′, substantially as herein shown and described, and for the purpose set forth.

9. The combination of the rear guide J′ and swiveled nut K′ with the swinging guide-arm E′, and with the adjustable guide G′, guide-beds F′, and clamping-screw I′, substantially as herein shown and described, and for the purpose set forth.

10. The combination of the spring U′, spring-catch Q′ R′, and levers S′ and T′, with the guide-arm E′, and with the sliding block P′, substantially as herein shown and described, and for the purpose set forth.

11. The combination of the plumbing-block W^2, supporting and adjusting-rods X′, and set-screws Y′ Z′, with each other, and with the extension-plate V′ and swinging guide-arm E′, substantially as herein shown and described, and for the purpose set forth.

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Witnesses:

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