J. F. C. RIDER.

Machine for Making Scroll-Saws.

No. 221,253. Patented Nov. 4, 1879.

Fig. 1.

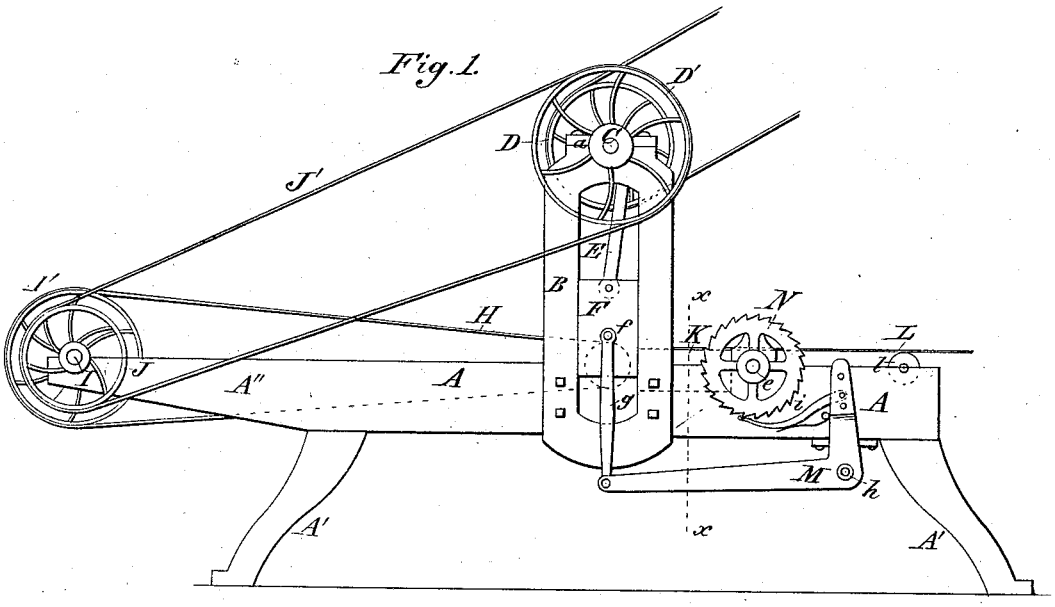


Fig. 2.

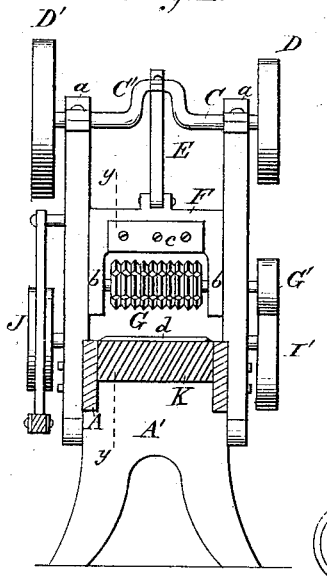


Fig. 3.

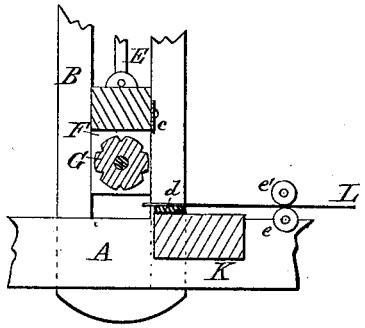
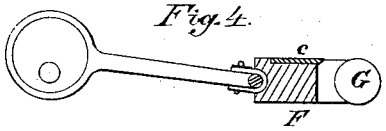


Fig. 4.



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UNITED STATES PATENT OFFICE.

JOHN F. C. RIDER, OF SOUTH NEW MARKET, NEW HAMPSHIRE, ASSIGNOR TO HELEN A. RIDER, OF SAME PLACE.

IMPROVEMENT IN MACHINES FOR MAKING SCROLL-SAWS.

Specification forming part of Letters Patent No. **221,253**, dated November 4, 1879; application filed December 28, 1878.

To all whom it may concern:

Be it known that I, JOHN F. C. RIDER, of South New Market, in the county of Rockingham and State of New Hampshire, have invented certain new and useful Improvements in Machines for Making Webs; and I do hereby declare that the following is a full, clear, and exact description of the invention, which will enable others skilled in the art to which it appertains to make and use the same, reference being had to the accompanying drawings, and to letters of reference marked thereon, which form a part of this specification.

This invention relates to that class of machines used in the manufacture of saws, being especially adapted to the production of those used for scroll or fret sawing, usually called "webs" by the trade. These saws are generally very narrow, to enable them to turn short curves in sawing ornamental work. They are therefore very liable to be broken in use, requiring the frequent replacement of a broken saw by a new one, thus making it an object to render their manufacture as cheap as possible.

This invention is therefore intended to lessen the cost of production of these saws, as well as furnish an article perfect in all respects for the purpose to which it is to be applied, the method of manufacture being such as to insure regularity in the teeth as well as in the width of the webs; and the invention consists in the construction and combination of devices for accomplishing this result, as will be hereinafter fully described, and then specifically claimed.

In the drawings, Figure 1 is a side elevation of the machine, showing the general construction and relative arrangement of the parts. Fig. 2 is a transverse vertical section on the line *x x* of Fig. 1. Fig. 3 is a longitudinal section of part of the machine on the line *y y* of Fig. 2. Fig. 4 shows a modification of the means used for giving motion to the vertically-reciprocating cross-head of the machine.

The bed A of the machine is of rectangular form, and carried upon suitable legs or other supports, A′, so as to bring the working parts of the machine to a convenient height for the operator. Attached to each side of this bed, by bolts or other suitable means, are the slotted uprights B B, carrying upon their tops the journal-boxes *a a*, in which rests and revolves the driving-shaft C. This shaft receives its motion from any suitable prime mover through a belt upon the pulley D. The shaft C is formed with a crank or cam, C′, between the journal-boxes *a a*, to which is attached the connecting-rod E, the lower end of which is pivoted in the top of the cross-head F, which reciprocates vertically in the slots of the uprights B B. Depending from the lower part of the cross-head are two side extensions, *b b*, carrying the journal-boxes in which rotates the tooth-cutter G. This cutter has its periphery formed with sharp threads, corresponding in depth, pitch, and shape to the teeth of the saw to be made, and longitudinal grooves cutting said threads transversely, forming cutting-edges running from end to end. It also has a rotating motion communicated to it by the belt H, running upon the pulley G. This belt receives motion from the pulley I′ upon the counter-shaft I, running in bearings placed at the end of the extension A″ of the side pieces of the frame A. Upon the opposite end of this counter-shaft I from the pulley I′ is secured the pulley J, which receives a belt, J′, from the pulley D′ upon the driving-shaft C.

It will thus be seen that the rotation of the driving-shaft not only communicates a reciprocating movement to the cross-head, but, through the system of gearing, gives a quick rotating movement to the cutter G at the same time that it is reciprocated vertically.

Upon the front of the cross-head F is secured the cutting-blade *c*, placed the width of a saw-blade in advance of the cutter G, which, as the cross-head descends, comes in close proximity to a hardened-steel edge, *d*, of the bed K, severing a completed saw from the steel plate or stock L at each reciprocation of the cross-head.

In order to feed the stock properly to the cutters a pin, *f*, is attached to the cross-head, and, by means of the pitman *g*, is connected with one arm of a bell-crank, M, which is pivoted to the frame at *h*. To the opposite end of this bell-crank is pivoted the pawl *i*, which engages with the ratchet-wheel N upon the feed-roll *e*. This roll is connected by means of spur-gears with the feed-roll *e′*, placed above it. By this arrangement, when the cross-head and cutters ascend after having formed a web

or saw, the feed-rolls will be rotated in such a manner as to feed the stock L forward a sufficient distance to furnish material for another web, which is formed and cut off by the descent of the cross-head.

It is evident that other means may be used for feeding and holding the stock in position while being operated upon by the machine without departing from the spirit of the invention; but the apparatus described is preferred to any hitherto tried.

Additional supporting-rolls *l* may be placed wherever needed on the frame to support the stock properly.

In order to cut webs of different widths the cutter *c* may be advanced in its seat by placing one or more thicknesses of paper or pasteboard behind it before the screws which hold it are set up, the cutters *d* upon the bed K being placed sufficiently far back to allow of the adjustment. Other means might be used to produce this result, such as changing the position of the rotating cutter by shifting the position of the journal-boxes in which it revolves; but this would require a more costly and complicated mode of construction.

Having thus described my invention, I claim as new, and desire to secure by Letters Patent, the following:

1. In a machine for making saws, operating as described, the combination of the devices for cutting all the teeth in the web simultaneously with the devices for severing each web from the stock alternately with the cutting of the teeth, substantially as set forth.

2. In a machine for making saws, the combination of a rotating and vertically-reciprocating tooth-cutter, a reciprocating web-cutter, and feeding mechanism, substantially as shown and described, for feeding the stock to the cutters, as set forth.

3. The vertically-reciprocating cross-head F, carrying the rotating tooth-cutter and web-cutter *c*, in combination with the bed K, provided with the stationary cutter *d*, all constructed and arranged for joint operation in the manner shown and described.

In testimony that I claim the foregoing as my own I hereunto affix my signature in presence of two witnesses.

JOHN F. C. RIDER.

Witnesses:

DAVID WHISTON,

W. J. QUINN.