# I. HIRD.

## Scroll Sawing Machines.

No. 158,083. Patented Dec. 22, 1874.

*Fig. 1.*

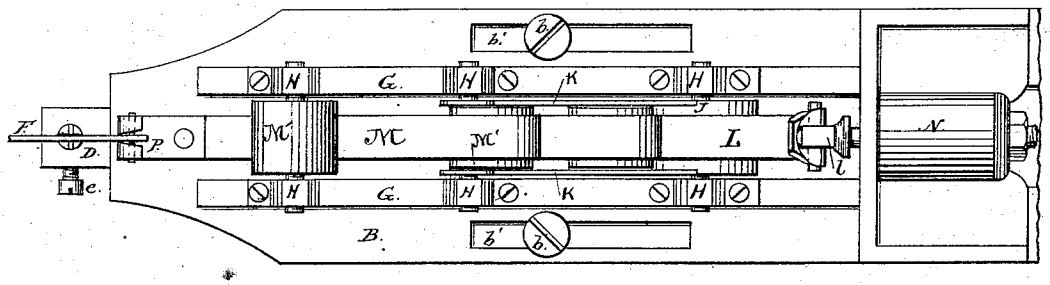



*Fig. 2.*

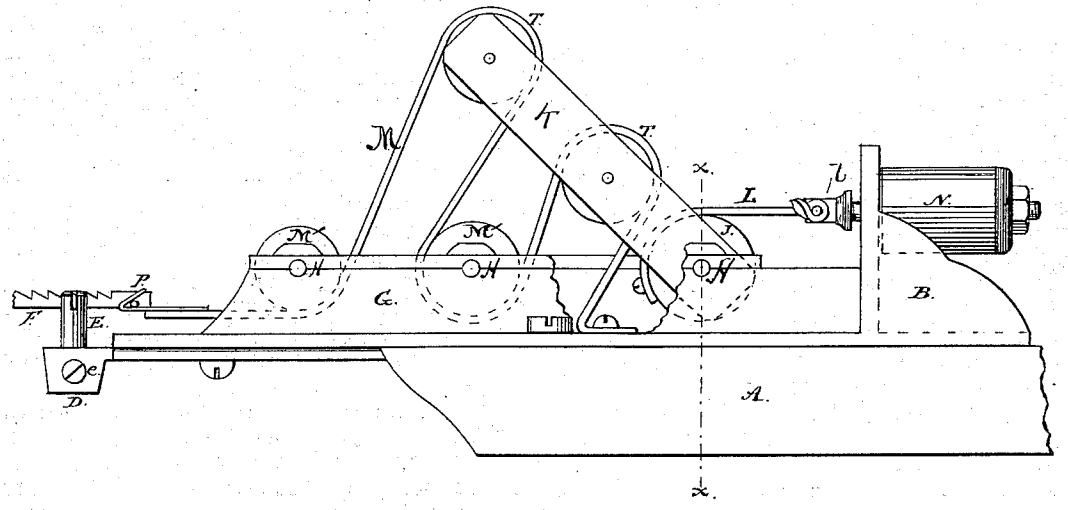
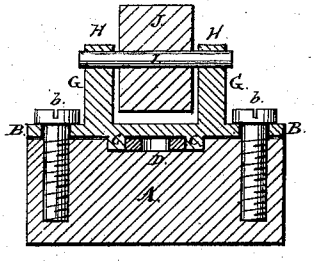



*Fig. 3.*




WITNESSES

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# UNITED STATES PATENT OFFICE.

ISAAC HIRD, OF CINCINNATI, OHIO.

## IMPROVEMENT IN SCROLL-SAWING MACHINES.

Specification forming part of Letters Patent No. **158,083**, dated December 22, 1874; application filed March 4, 1874.

*To all whom it may concern:*

Be it known that I, ISAAC HIRD, of Cincinnati, county of Hamilton, and State of Ohio, have invented a new and useful improvement in Scroll-Saws; and I do hereby declare that the following is a full, clear, and exact description of the same, reference being had to the annexed drawing, making a part of this specification.

Figure 1 is a front elevation; Fig. 2 is a side elevation; and Fig. 3 is a transverse section taken in the line *x* of Fig. 2.

Similar letters of reference indicate like parts.

The nature of my invention relates to that class of scroll-saws wherein a serrated straight blade is given a vertical reciprocating motion, and refers more particularly to the apparatus keeping the said blade under tension while a crank and pitman below give it the required motion.

It consists, in the main, of a wheel and axle with a pair of vibrating arms attached, the former being connected by a strap to a spring, and the latter operating in connection with the saw-strap to keep the same always in tension. This construction will allow a very rapid motion with the least strain on the working parts arising from their inertia.

In construction my invention is as follows: A is the pendant attached to the ceiling, to which a cast-iron plate, B, is held by two screws, *b b*, passing through slots *b' b'*. The back of said plate has two beads, C C, running longitudinally, which are let into the pendant, thus holding it in line with the same when it becomes necessary to adjust it. Between the beads C is placed the foot-slide D, which may be adjusted vertically independent of the plate B, and is provided with a stud, E, notched to receive the back of the saw F, thus forming an adjustable guide and support for the same. The slide D is held in any desired position by a screw, *d*, and the stud E is held by set-screw *e*. On the front of plate B are cast two ribs, G G, running from top to bottom, which give strength to the structure, and form the permanent part of the journal-boxes H H, taking the shaft I on which is fastened the wheel J. To the wheel J the arms K K are rigidly secured, and a strap, L, is also secured to said wheel, and, passing partly around the same, is secured to the rod *l* of the spring N, so that the tension of said spring causes said arms to be raised up, as shown. A series of friction-rollers, T T, are mounted upon said arms K, and the saw-strap M passes over said rollers and under a corresponding series of rollers, M'. The arms K vibrate, or are drawn downward at each downward movement of the saw, and the spring N is thereby contracted, the strap M being drawn out by the same movement. The upward movement of the saw permits the spring N to retract and draw the arms K upward again. The effect is a very rapid take-up of the motion of the saw and strap M by the vibrating arms K, and a very small motion of the spring to effect said take-up, and it is therefore feasible to employ a very strong and quick spring of very short range.

In operation my invention is as follows: Motion being given the blade F by any suitable mechanism, the spring N yields while making the downward stroke. All the working parts moving in straight lines or concentric curves, give the least strain on those parts which may arise from their inertia.

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

In combination with the saw F and strap M the rollers M' and vibrating arms K, and the strap L, and spring N, substantially for the purpose set forth.

ISAAC HIRD.

Attest:
T. VAN KANNEL,
F. HUESMAN.