

H.D. Hinterneesch,
Scroll Sawing Machine,
No 76,191, *Patented Mar. 31, 1868.*

Fig 1.

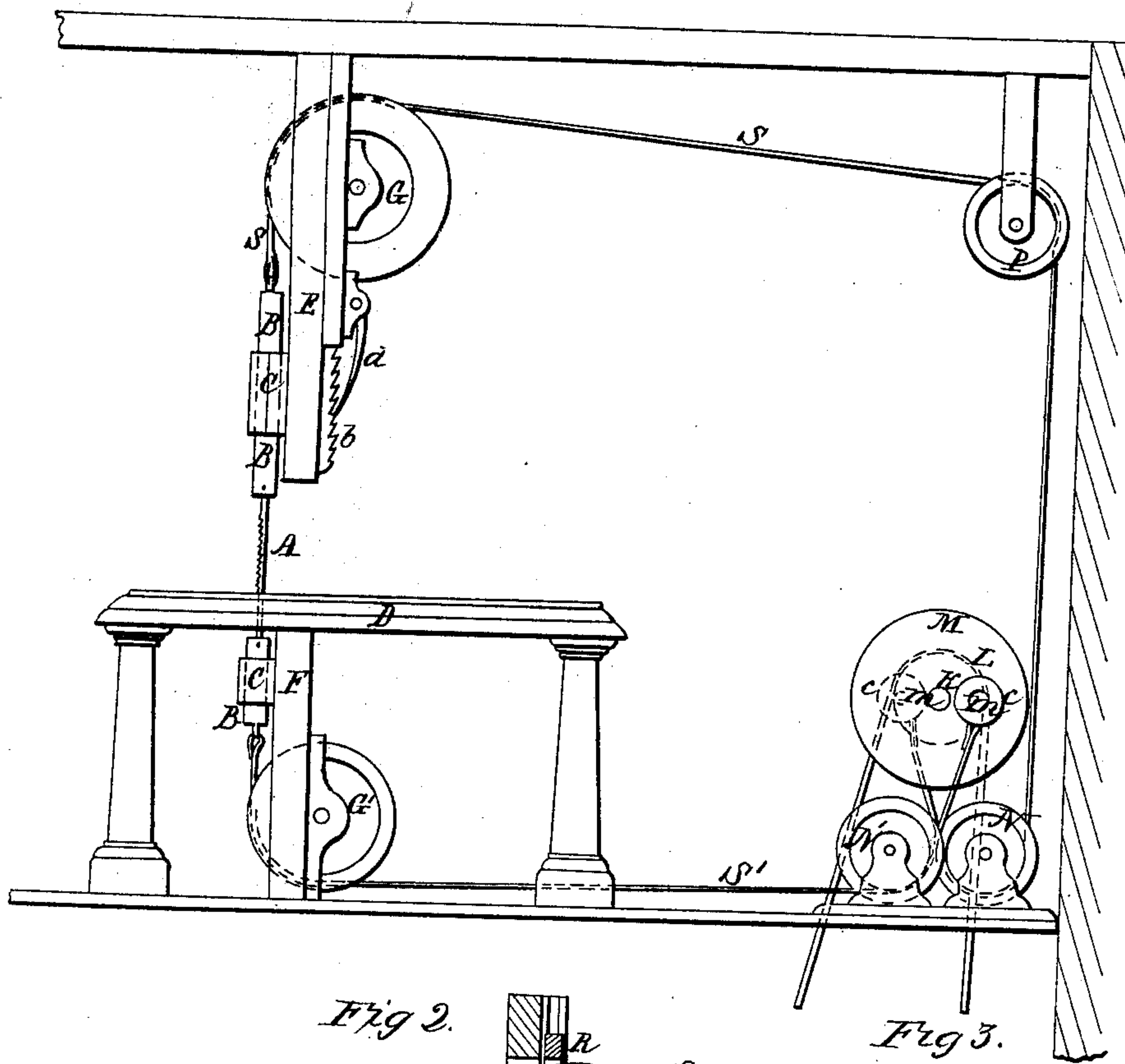


Fig 2.

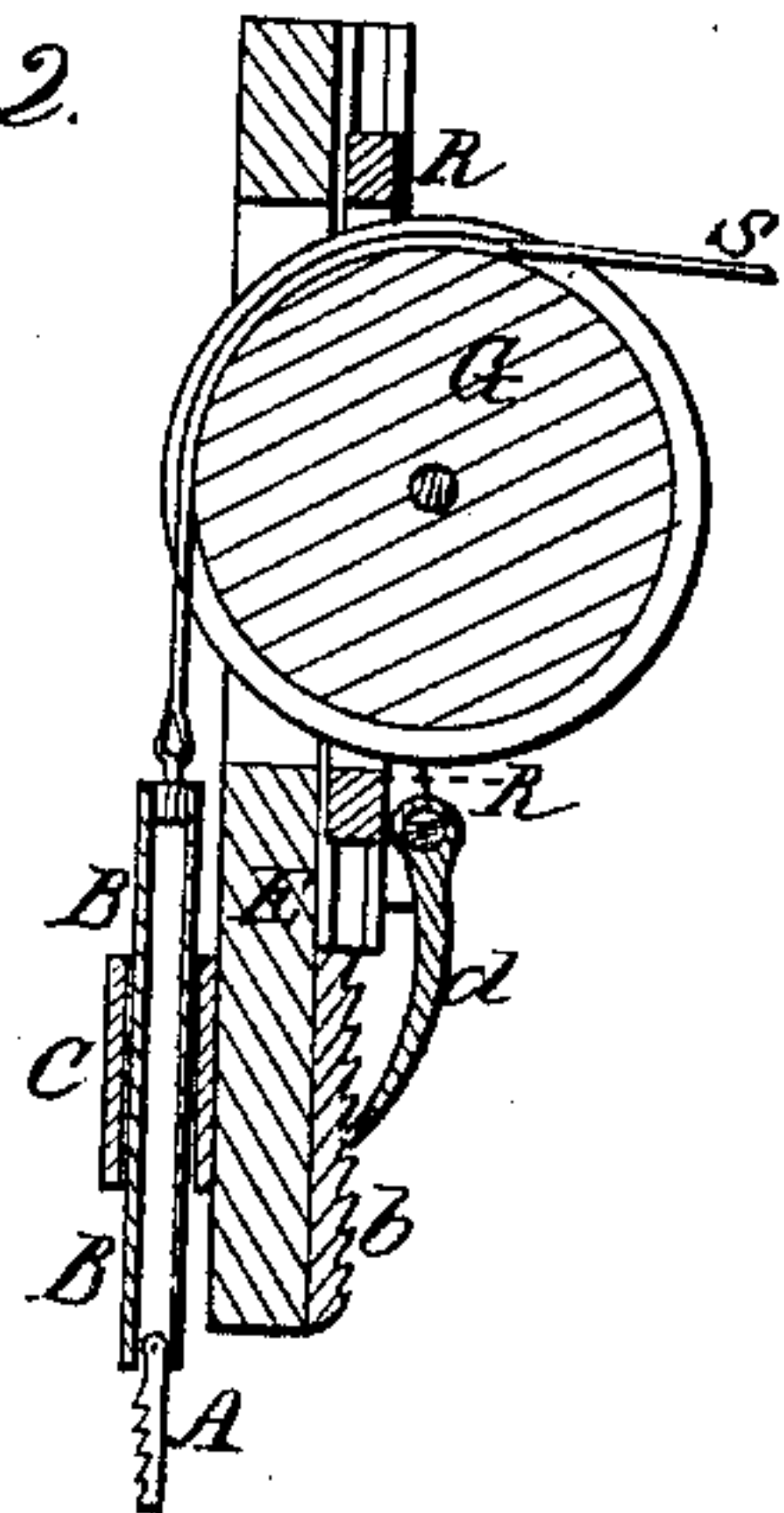
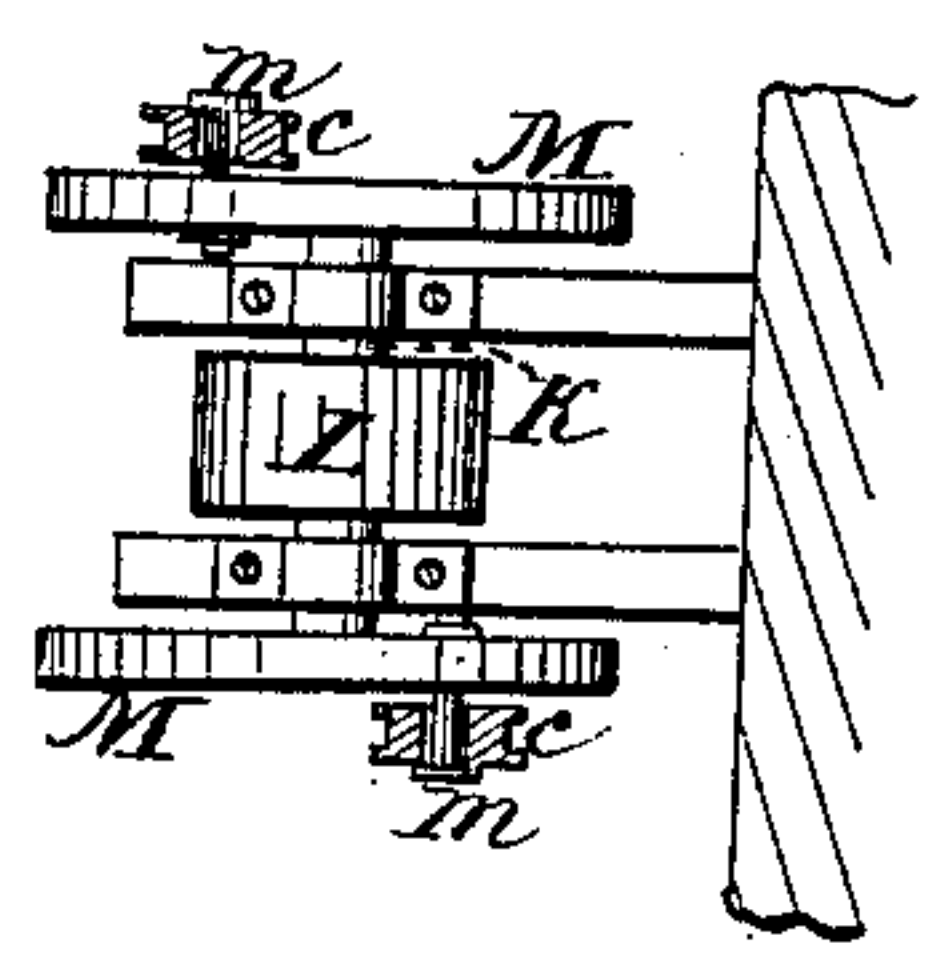


Fig 3.



Witnesses:
E. H. Young
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Inventor:
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per David A. Burr attorn

United States Patent Office.

HERMANN D. HINTERNESCH, OF BALTIMORE, MARYLAND.

Letters Patent No. 76,191, dated March 31, 1868.

IMPROVEMENT IN SAW-MILLS.

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, HERMANN D. HINTERNESCH, of the city and county of Baltimore, in the State of Maryland, have invented a new and useful Scroll-Sawing Machine; and I do hereby declare the following to be a full and exact description thereof, reference being had to the accompanying drawings, forming a part of this specification, in which—

Figure 1 is a side elevation of my "non-pitman" sawing-machine.

Figure 2, a section in the line $x x$ of fig. 1; and

Figure 3 a plan view, partly in-section, of the driving-shaft and eccentrics thereon.

Similar letters indicate like parts in all of the figures.

The nature of my invention consists in imparting reciprocating movement to a scroll-saw from a revolving shaft, placed at any distance therefrom, by means of flexible bands, attached to the upper and lower ends thereof, passing over suitable pulleys, and connected to pins disposed eccentrically upon driving-wheels secured on said shaft, (or to bands encircling wheels secured eccentrically thereon,) dispensing entirely with pitman-rods, or other rigid connections or links, between the saw and its motive-power.

In my new machine the saw A is suspended in the usual manner, between sliding bars $B B$, as illustrated in figs. 1 and 2, working in suitable boxes, $C C$, arranged vertically on a suitable supporting-piece, E , dependent from a beam above, and upon a standard, F , projecting from the floor below, the table D , through which the saw plays. I prefer to make my sliding bars $B B$ of hollow metal, as illustrated in fig. 2, so as to obtain the least possible weight with the maximum of strength required therein, and I enclose them usually in boxes of hard wood, which are at all times easily repaired and adjusted. I am enabled to use saws of the most slender description.

Above and below the sliding bars $B B$, I place band-wheels or pulleys $G G'$, in such positions as that the plane of movement of the sliding bars shall be as nearly as possible tangential to their peripheries. The bearings of the lower pulley, G' , may be fixed to the floor, but those of the upper pulley, G , are supported in or on a sliding frame or plate, R , having a vertical movement, and which may be adjusted at pleasure to any required height by means of a pawl, a , engaging a ratchet-plate, b , fixed on the supporting-piece, E ; this pawl acting as a brace to maintain the proper tension of the bands passing over the pulleys. In the plane of these pulleys $G G'$, placed above and below the saw, I support in suitable bearings, at the side of the shop, or at any other point therein convenient to the motive-power, more or less remote from the saw, a shaft, K , having a pulley, L , fixed centrally thereon, as seen in fig. 3, to receive a band connecting the same with the arbor from whence motive-power is derived. This shaft K terminates at either end in suitable driving-wheels $M M$, having pins $m m$ projecting eccentrically from their outer faces, the distance of these pins from the axis of the shaft being in each precisely the same, and being determined always by the extent of motion desired in the play of the saw. These pins $m m$ are each fitted with encircling friction-rollers $c c$, which turn freely and loosely thereon.

Immediately below the drivings-wheels $M M$, and on either side of the line of their axis, I place pulley-wheels $N N'$, securing their bearings in standards projecting from the floor in the plane of the lower front pulley-wheel, G' . I place, also, an additional pulley-wheel, P , above the rearmost pulley, N , in the plane of the upper front pulley, G . I then connect the pins $m m$ on the driving-wheels $M M$ with the saw A , by means of flexible bands $S S'$, of leather or other suitable material, which are secured to the rollers $c c$ upon said pins m , and pass respectively, the one, S' , under the pulley-wheels N' and G' , to the lower end of the saw, to which it is then attached, and the other, S , under the pulley N and over the upper pulleys P and G , to the upper end of the saw, to which it is likewise secured.

The strain upon said bands $S S'$ and upon the saw A may be increased or diminished by an adjustment of the sliding plate R , carrying the upper pulley, G . Although it is more convenient to make the upper front pulley, G , adjustable, to regulate thereby the tension of the bands, as described, either of the band-pulleys may thus be arranged to accomplish the same purpose. The driving-wheels $M M$ and pulleys are all made light, and are carefully adjusted in their bearings. Instead of securing the ends of the bands $S S'$ to pins placed eccentrically upon the outer faces of the driving-wheels $M M$, as described, I contemplate securing them to

bands or encircling collars fitted loosely yet closely upon wheels keyed or secured eccentrically upon the driving-shaft, or otherwise, by similar mechanical equivalents, obtaining directly from the revolution of the shaft a draught upon the one and the other alternately, as herein set forth, without the employment of pitman-rods or bars.

With the bands, saw, and pulleys adjusted as described, the continuous revolution of the driving-shaft K and wheels M carrying the eccentric-pins *m* will alternately draw and release the one band and the other, causing them to pull alternately upon the upper and lower ends of the saw, and thus impart thereto a constant reciprocating movement. The employment of friction-rollers upon the crank-pins *m*, in combination with the adjustment of the bands by means of the sliding frame R, carrying the upper front pulley, G, and kept braced by the pawl *a*, as above set forth, prevents wholly any jar or rattle of the parts in their movements, the tension of the bands upon the pins *m* and saw A being readily kept equal and constant, so that the machine is absolutely noiseless, as well as perfectly steady in operation, even at its highest speed.

Thus, by means of my invention, I am enabled to drive the saw at an extraordinary speed without noise or strain, or the jar occasioned in all the ordinary forms of reciprocating machines by the change in the direction of the movements of the saw. The highest rate of speed yet attained with ordinary jig-saws has not, to my knowledge, exceeded four hundred and fifty strokes a minute, whereas in my machine I obtain twelve hundred strokes a minute with perfect steadiness and ease of movement, enabling the operative to accomplish with ease twice the amount of work, and to produce it in a smoother and more finished state.

By dispensing wholly with pitman-rods and cranks, and the ordinary saw-gates, I avoid the annoyance and expense resulting from the constant need of attention and repairs in the use of such devices, whilst the simplicity of all the parts of my machine enables it to be manufactured at a greatly reduced first cost.

I do not claim broadly the use of flexible bands for the purpose of operating a jig or scroll-saw, as such are now in use in combination with pitman-rods and levers in other machines; but having fully described my invention,

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

Bands or cords S S', when combined directly with cranks or eccentrics upon a revolving shaft, K, and so arranged as to communicate therefrom a reciprocating movement to a scroll-saw, A, substantially in the manner herein set forth.

The foregoing specification of my new and useful sawing-machine signed by me, this third day of February, A. D. 1868.

H. D. HINTERNESCH.

Witnesses:

EDM. F. BROWN,
DAVID A. BURR.