J. ATKINSON & W. H. KIMBALL.

Improvement in Scroll-Saws.

No. 131,323. Patented Sep. 17, 1872.

Fig 1

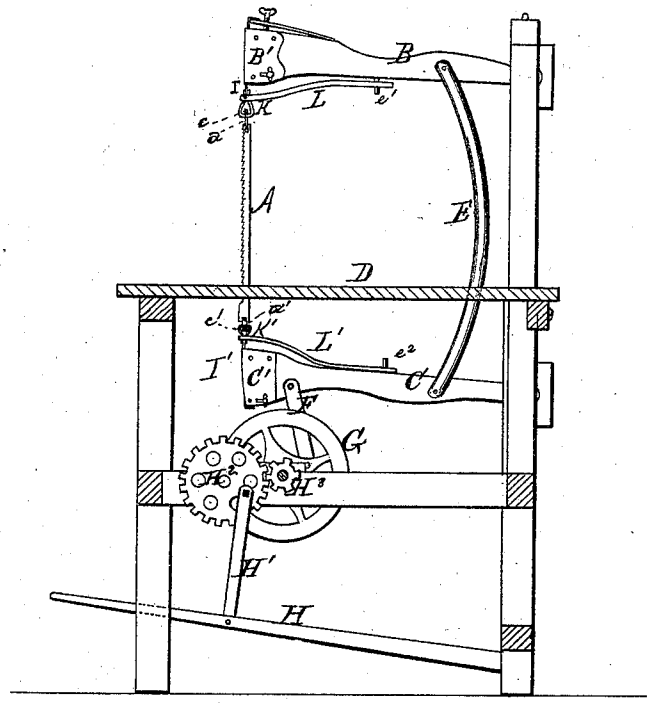


Fig 2

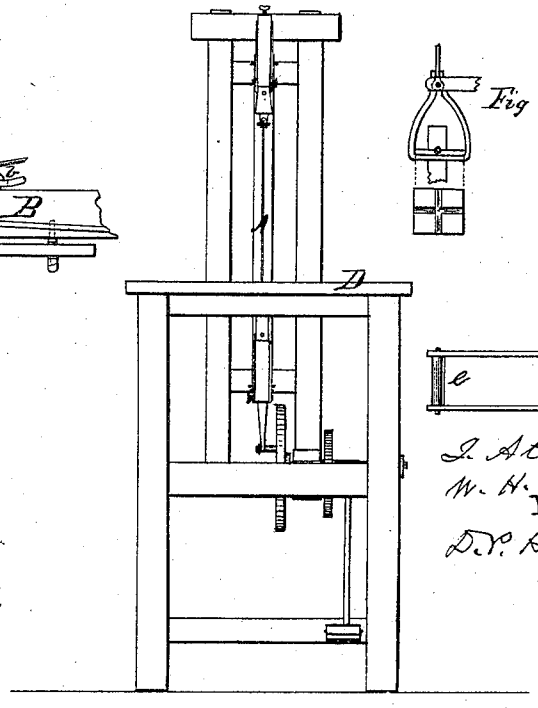


Fig 4

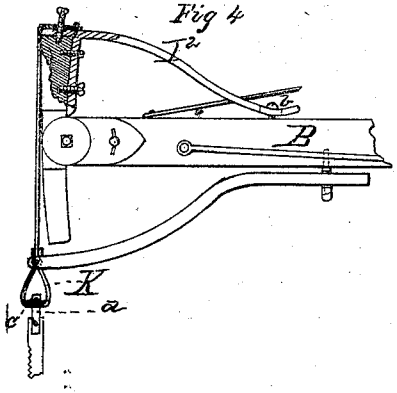


Fig 6.

Fig 3

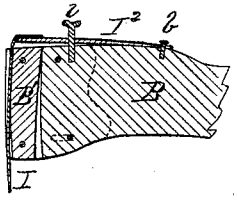
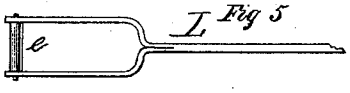


Fig 5



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UNITED STATES PATENT OFFICE.

JOSEPH ATKINSON AND WILLIAM H. KIMBALL, OF BURLINGTON, NEW JERSEY, ASSIGNORS TO JOSEPH ATKINSON, OF SAME PLACE.

IMPROVEMENT IN SCROLL-SAWS.

Specification forming part of Letters Patent No. **131,323**, dated September 17, 1872.

To all whom it may concern:

Be it known that we, JOSEPH ATKINSON and WILLIAM H. KIMBALL, residing at Burlington, in the county of Burlington and State of New Jersey, have invented certain Improvements in Scroll-Saws, of which the following is a specification:

The nature of this invention consists, first, in fastening the saw-blade by flexible straps to eccentric heads on the ends of the arms by which the saw is reciprocated, in such a manner that the saw must advance during the down stroke and retreat during the up stroke; second, in securing the eccentric heads adjustably to the saw-arms, so that the extent of the advancing and retreating movements of the saw may be regulated according to the kind of stuff it is acting upon; third, in certain means for adjusting the saw, so that it may either cut parallel to the plane of oscillation of the arms, or at right angles thereto, and for preventing the twisting of the flexible straps by which the saw is secured to the eccentric heads on the oscillating arms, all as will be generally set forth in the ensuing description, and specifically pointed out in the claims.

Figure 1 is a side elevation of our improved cross-cut scroll-saw. Fig. 2 is a front elevation of the same. Figs. 3, 4, 5, and 6 are views in detail, on an enlarged scale, showing the special points of novelty.

The same letters of reference are employed in all the figures in the designation of identical parts.

The saw-blade A is stretched between the outer ends of the arms B and C, one of which is located above the table D and the other below it. The arms are secured to suitable rock-shafts at their other ends, and held the proper distance apart by the curved brace E, pivoted to them in the manner shown. The arms may be oscillated through the medium of a pitman, F, hitched to the lower arm C, and reciprocated by a crank on the fly-wheel G, which is keyed to a shaft rotated by means of a treadle, H, connecting-rod H^1, and intermediate gearing H^2 H^3. Other means may, however, be adopted for this purpose, if preferred. The arms B and C terminate with heads B′ and C′, the outer edges of which are of segmental form, and which are so connected to the arms that the arcs of the segments will be eccentric to the centers of oscillation of the arms and the upper ends of the segments the most distant from such centers. The lower end of the saw is fastened permanently to the lower edge of the head C′ by the flexible strap I^1, which passes over the segmental edge of the head, and is bent over the lower corner thereof to be secured. The upper end of the saw is connected to a similar flexible strap, I, which passes in like manner over the segmental edge of the head B′, around the upper corner thereof, and is secured to the outer end of a bar, I^2, which is loosely connected to the arm B at *b*, so that its outer end may be elevated or depressed by means of a set-screw, *i*, for the purpose of regulating the tension of the saw-blade. It will be apparent that, by reason of the eccentricity of the head B and C and their manner of arrangement, the saw-blade will be advanced during the down stroke, and caused to retreat during the up stroke. The heads B′ and C′ are adjustably connected to their respective arms by slots and set-screws, either in the manner shown in Figs. 1 and 3, or as illustrated in Fig. 4, to regulate their amount of eccentricity, and consequently the advancing and retreating movements of the saw. The segmental edges of the heads B′ and C′ are provided with projecting flanges within which the straps I and I^1 play. These are provided with stirrups K and K′, to which the saw is connected by bolts *a* and *a′*, secured at one end to the saw and passing with their other ends through apertures in the soles of the stirrups. The inwardly-protruding end of each bolt is provided with a transverse knife-edge, *c* and *c′*, which rest in V-shaped notches in the soles of the stirrups. There are two of these notches crossing each other at right angles in each of the stirrups, so that the saw-blade may be hung to cut either parallel to the plane of oscillation of the arms, or at right angles thereto to saw long stuff. Braces L and L′ are employed to prevent the twisting of the flexible straps I and I^1, and to aid in holding the saw steady. They are forked at their outer ends to embrace the stirrups, and are connected thereto, and to the respective straps I and I^1, by means of pins or bolts *l*, which

pass through the upper end of the stirrups, and around which the straps are bent. The braces pass through bearings l^1 and l^2, through which they move endwise with the advancing and retreating movements of the saw. The straps I and I^1 may be made of thin bands of steel, or of any other suitable flexible material; and the arms B and C may be strengthened by truss-braces in manner like the walking-beams of marine-engines, as indicated in Fig. 4.

What we claim as our invention, and desire to secure by Letters Patent, is—

1. The combination of the saw A, flexible straps I and I^1, and eccentric heads B′ and C′, arranged with reference to one another, as specified, so as to cause the saw to advance during its descent and to retreat during its ascent.

2. The combination of the saw, flexible straps, and eccentric heads, when the latter are adjustably secured to the arms B and C, substantially as and for the purpose specified.

3. The combination of the stirrups K and K′, having each two V-shaped notches at right angles to each other, saw-blade A, bolts *a* and *a′*, and knife-edges *c* and *c′*, substantially as and for the purpose specified.

4. The combination of the saw, flexible straps, arms B and C, and braces L and L′, substantially as and for the purpose specified.

In testimony whereof we have signed our names to this specification in the presence of two subscribing witnesses.

JOSEPH ATKINSON.
W. H. KIMBALL.

Witnesses:
WM. F. LE ROY,
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