

W. COTTER.

Improvement in Saw-Frames.

No. 132,140.

Patented Oct. 15, 1872.

Fig. 1.

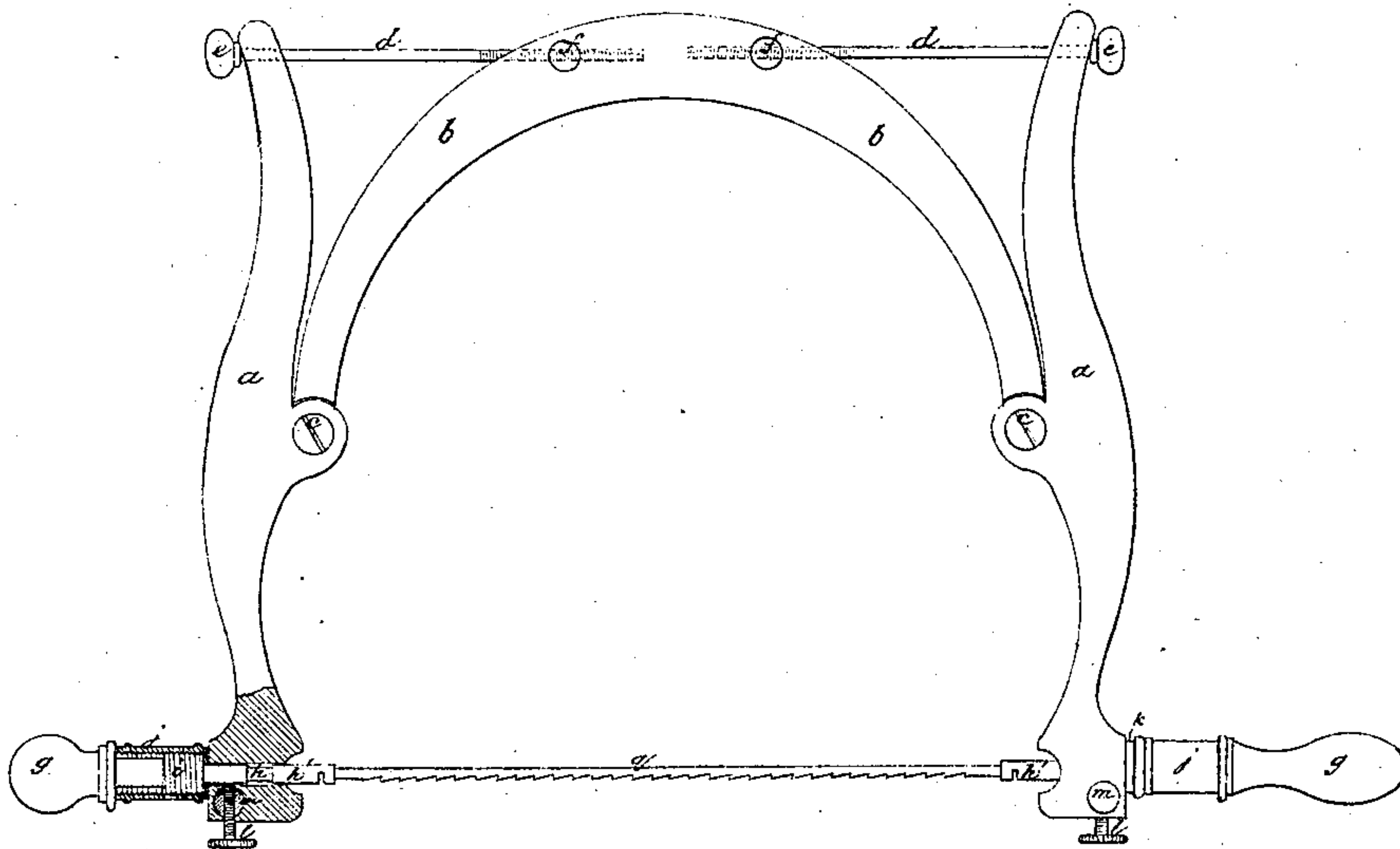


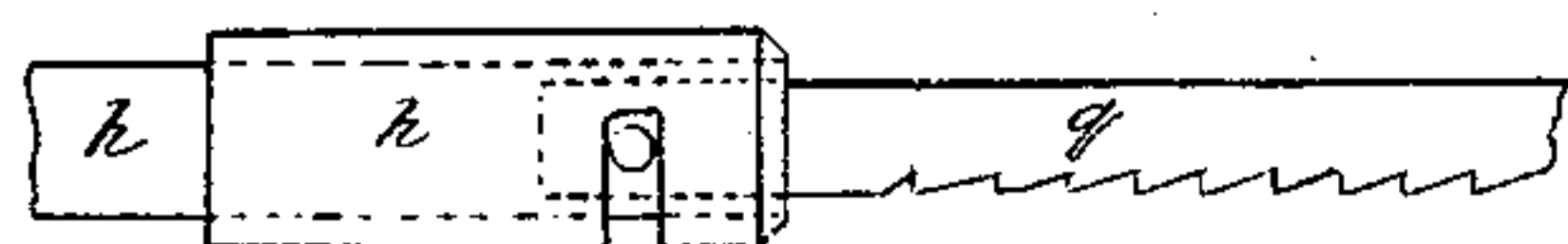
Fig. 2.



Fig. 3.



Fig. 4.



Witnesses.

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# UNITED STATES PATENT OFFICE.

WILLIAM COTTER, OF LONDON, ENGLAND, ASSIGNOR OF ONE-HALF HIS  
RIGHT TO EDWARD NEWTON, OF SAME PLACE.

## IMPROVEMENT IN SAW-FRAMES.

Specification forming part of Letters Patent No. **132,140**, dated October 15, 1872.

*To all whom it may concern:*

Be it known that I, WILLIAM COTTER, of London, England, have invented certain Improvements in Bow Saw-Frames, to be called "Cotter's flexible bow saw-frame," of which the following is a specification:

This invention relates to certain improvements in the construction of bow saw-frames, whereby the saw-blade is more easily adjusted to or removed from the frame, and the operation of cutting is also greatly facilitated, more especially for sharp curves and fret work. More than double the depth of cut may also be obtained than with the ordinary bow-saw, in which the stretcher of the frame is straight and rigid. The saw-blade itself has, in the old arrangement, to maintain the requisite adjustment of the parts of the frame, thereby presenting at all times a difficulty in inserting the saw-blades. By my invention I dispense altogether with the rigid bar-stretcher, and in place thereof employ a stretcher (by preference semicircular) rising from the fulcrums, through or over which is attached a tension-bar or bars, adjustable by thumb-screws on either side of the frame for regulating the tension of the saw-blade. I also employ an improved spindle-adjustment for locking the saw-blade in position, by which it is prevented from falling out, such falling out being a source of annoyance and loss of time in manipulating with the old bow-saw. The handles are also constructed so as to regulate the tension of the saw, and I employ set-screws for fixing the spindles so that the saw-blade is prevented from turning while in use. The large amount of play of the side bars of the frame obtained by my improvements, in conjunction with the screw-ferrule arrangement, also allow saw-blades of different lengths being used, which could not be done with the old bow-saw frame, and the flexibility of the frame prevents the breakage of the saw-blade from a sudden jar, and the contact of the side bars with the lower parts of the spring-stretcher prevents the breakage of the side bars.

To make my invention better understood I will proceed to describe the same by reference to the accompanying drawing, in which—

Figure 1 represents an elevation (partly in section) of my improved bow-saw frame with

a saw-blade applied thereto; and Figs. 2, 3, and 4, details on a larger scale of the spindle-locking arrangement.

In Fig. 1, *a a* are the side bars or armatures of the frame, and *b* is the improved stretcher, made by preference of bent wood so as to form a spring, but which may be made of steel or other suitable metal. The ends of this stretcher are knuckle-jointed at *c c* to the side-bars *a a*, and the upper ends of these bars are connected to the spring-stretcher *b* by the tension-rods *d d*, furnished at their outer ends with thumb-screws *e e*, their inner ends being screw-threaded and passing, as shown by the dotted lines, into holes in the stretcher *b* and through female screws cut in the metal pieces *f f*, which pass through the whole thickness of this stretcher. By this arrangement if the thumb-screws be turned the side-bars *a a* will be moved on the joints *c c* and the lower ends of the bars will thereby be moved toward or from one another (according to the direction in which the tension-rods are turned) and thus regulate the tension of the saw-blade. The handles *g g* are each furnished with a spindle, *h*, and sliding tube *h'* passing through holes in the lower ends of the side bars *a a* of the frame, as shown by the sectional part of Fig. 1; the inner ends of these spindles receive the ends of the saw-blade, as hereinafter described. On each handle, outside the frame, I fix a ferrule, *i*, cut with a male screw, and on this ferrule I pass another ferrule, *j*, having a female screw cut therein, a washer, *k*, being placed between the ends of the ferrules *j* and the side-bars *a a*. This screw-ferrule arrangement allows of regulating the tension of the saw-blade, for by merely turning the outer ferrules *j* by the hands the spindles *h h*, holding the ends of the saw-blade, will be moved outward or inward, according to the direction in which the ferrules *j j* are turned. *l l* are set-screws fixing the spindles *h*, and thereby preventing the saw-blade turning when being used. These set-screws pass through female screws cut in the metal rods *m m*, which fit in holes passing through the side bars *a a*.

I will now describe the spindle-locking arrangement for holding the ends of the saw-blade: Fig. 2 shows a plan of part of the spindle and its tube, and of the saw-blade *q* de-



tached, the spindle and tube being shown in the position to receive the end of the saw-blade; Fig. 3, side elevation of same, and also end elevation of spindle; Fig. 4, side elevation, showing the end of the saw-blade applied to the spindle and locked by the tube. The spindle *h* has a longitudinal slot, *n*, cut completely through it, the width of the slot being somewhat greater than the thickness of the saw-blade; the spindle has, also, a transverse slot, *o*, cut in it, and which is to receive the pin *p* of the saw-blade. On the spindle *h* is placed, so as to slide freely thereon, a tube, *h'*, also cut with a longitudinal and a transverse slot, as seen in plan, Fig. 2. By this arrangement to fix the end of the saw-blade in the spindle the end of the saw-blade must be passed into the longitudinal slot *n* of the spindle, and the pin *p* in the transverse slot *o*; the tube *h'* must then be turned a quarter of a revolution so as to bring its longitudinal slot in a line with the pin *p*, and then moved forward until the pin is brought into the transverse slot of the tube *h'*, which latter is finally turned another quarter of a revolution so as to occupy the position shown in Fig. 4, and the end of the saw-blade will be firmly locked. To remove the end of the saw-blade the tube *h'* must be moved in the opposite directions to

that described for locking it. The pin *p* may be loose in the saw-blade, and can be headed at both ends, as it does not require to be removed.

Having thus described my invention and the manner of operating the same, I wish it to be understood that the arrangements described and shown may be modified without departing from the principle of the invention—for example, instead of employing two tension-rods, *d d*, one only may be employed, fixed at one end to one of the side bars *a*, and passing above the stretcher *b*, and be furnished with a thumb-nut at the other end. The screw-ferrules *i j* may also be dispensed with, and ordinary hinges may be employed instead of the knuckle-joints *c c*; but

What I claim is—

The spindle-locking apparatus *h h'*, set-screws *l l*, and screw-ferrules *i j*, when combined and operating together, as described.

In testimony whereof I, the said WILLIAM COTTER, have hereunto set my hand and affixed my seal this twenty-ninth day of June, one thousand eight hundred and seventy-two.

WM. COTTER. [L. S.]

Witnesses:

EDWARD NEWTON,  
G. F. REDFERN.