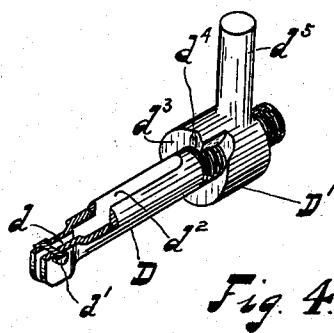
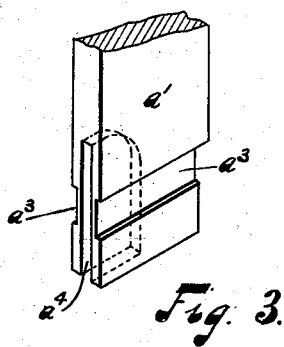
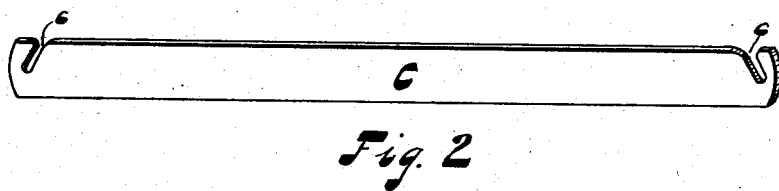


No. 867,218.

PATENTED SEPT. 24, 1907.

C. SMITH.  
SAW.

APPLICATION FILED MAR. 29, 1906.



Witnesses:  
Edw. Lindmuller.  
Jno. F. Oberlin

*Inventor:*  
*Charles Smith*  
*By J. G. Fay*  
*His Attorney.*

# UNITED STATES PATENT OFFICE.

CHARLES SMITH, OF CLEVELAND, OHIO.

SAW.

No. 867,218.

Specification of Letters Patent.

Patented Sept. 24, 1907.

Application filed March 29, 1906. Serial No. 308,860.

*To all whom it may concern:*

Be it known that I, CHARLES SMITH, a citizen of the United States, resident of Cleveland, county of Cuyahoga, and State of Ohio, have invented a new and useful Improvement in Saws, of which the following is a specification, the principle of the invention being herein explained, and the best mode in which I have contemplated applying that principle, so as to distinguish it from other inventions.

My invention relates to hand saws, and particularly to saws such as hack-saws, butcher-saws and the like in which a comparatively narrow and flexible blade is mounted in a rigid frame.

The object of my invention is to provide means whereby the blades may be more readily inserted in and removed from saws of this class than has heretofore been possible; as also to provide in connection therewith means for easily and quickly adjusting the tension of the blades.

To the accomplishment of these several ends my invention consists of means hereinafter fully described and particularly set forth in the claims.

The annexed drawing and the following description set forth in detail certain means embodying the invention, such disclosed means constituting but one of various mechanical forms in which the principle of the invention may be used.

In said annexed drawing:—Figure 1 represents a side elevation of a complete saw embodying my improvements; Fig. 2 is similarly a side elevation of the form of blade preferably employed in connection with my improved saw; while Figs. 3 and 4 are perspective views on a larger scale of one end of my saw frame, and of an adjustable member designed to be mounted thereon, respectively.

The frame A of my improved saw is of the usual form consisting, as shown in Fig. 1, of a metal bar of elongated U shape at one end of which is rigidly secured a handle B. The saw-blade C, Fig. 2, is also of the usual form except in the means provided for effecting its attachment to frame A. These comprise, instead of the customary pins transversely mounted in its ends, simply recesses or notches *c* cut into the back of the blade one at each end, and diverging outwardly. To receive one end of such blade, outer end *a* of frame A is longitudinally slotted as indicated by dotted lines in Fig. 1, and a pin *a*<sup>2</sup> transversely mounted therein is adapted to engage the corresponding notch *c* in blade C. To similarly receive the other end of the blade, the rear, or handle, end *a*' of frame A is, instead of being itself slotted, provided with a slotted member D, Figs. 1 and 4, movably mounted thereon. Member D is essentially a bolt, as will clearly appear from an inspection of Fig. 4. Such bolt in addition to being provided at its inner end with a slot *d* and transverse pin *d*' designed to receive and secure the inner end of the blade

C, has a wider slot *d*<sup>2</sup> continuous with the first slot and extending longitudinally for the greater part of the bolt's length. The portions of the bolt on either side of slot *d* are widened out as shown in order to provide a greater bearing surface for the saw blade. To secure bolt-member D to the rear end *a*' of the saw frame, the latter is simply passed through the slot in such bolt. This end *a*' is preferably grooved laterally at *a*<sup>3</sup> *a*<sup>3</sup>, Fig. 3, to receive the respective side portions of the bolt. The latter is thus held against disengagement from the frame after once pin *d*' has been inserted in its inner end. Groove *d*<sup>2</sup> is of sufficient length to permit bolt member D more or less longitudinal movement on frame end *a*'. The amount of this movement should be sufficient to permit the ready disengagement of the saw blade C when the bolt occupies its inmost position, while such blade should be drawn tense before the other limit of the bolt's movement has been reached. Such longitudinal movement of the bolt is effected by means of a member D' screw-threaded upon its outer end, and having its inner face, the one contiguous with frame-end *a*, in the form of a cam *d*<sup>3</sup> of helical conformation and of pitch great enough to permit the bolt to occupy the two positions above indicated when first one then the other part of such cam-face is opposed to the adjacent frame-end. The farthest advanced portion of cam-face *d*<sup>3</sup>, whereby bolt D is moved outwardly, is formed with a slight depression *d*<sup>4</sup> that assists in normally retaining the nut against rotation when once it is so positioned. It is readily rotated in either direction when desired, however, by means of a handle *d*<sup>5</sup> or other equivalent means. Since the end of blade C that is held by bolt D may project slightly within slot *d*<sup>2</sup> in such bolt, rear end *a*' of the frame requires to be partially slotted to receive such projecting end as shown at *a*<sup>4</sup>, Fig. 3. This construction lends further rigidity to the attachment of the blade to the handle, as will be obvious.

Having thus described the construction of my improved saw, I shall now briefly indicate the manner of its adjustment and use. Assuming the blade to be detached, to insert the same, nut D' is first screwed onto bolt D so as to produce approximately the desired tension of the blade when the latter shall be inserted. The nut is then rotated so as to bring the retracted portion of its cam-face into contact with the frame end; by this means the bolt is allowed to project far enough within the frame to permit notch *c* of the corresponding end of the blade to readily engage pin *d*' in the bolt end, the other end of the blade having been previously secured to the pin in the front end of the frame. By now giving nut D' a turn in the proper direction, the advanced portion of its cam-face is brought into juxtaposition with the frame end and bolt D thus retracted an amount sufficient to put the blade under tension. If this tension be not great enough by turning

the nut back again to its original position the blade may be freed and several additional turns then taken on the screw-thread. In this manner any desired degree of tension can be easily and quickly secured, when the nut is turned to its second position, and the blade still be left loose enough to permit of its ready removal when such nut is in its first position. Indeed the blade does not need to be removed but nut D' may be given an extra turn or two with all the parts assembled.

10 By the foregoing construction I combine in a very simple manner means for the ready insertion and removal of blades from the frame and also means for quickly adjusting the tension of a blade when it has been inserted. Obviously when the latter function would be of no consequence, the nut might be simply rotatably mounted upon the bolt, although even then it would probably be easier to screw-thread it thereon as I have done. Variation, furthermore, may be made in the manner in which bolt D is mounted in the frame-end. It may simply be inserted in an aperture in such end if desired. So, too, the cam-face  $d^3$  need not be necessarily on the nut but may be formed on the contiguous bearing surface of the frame; and other minor changes in the mechanical details of the saw's construction are comprehended in my invention.

Having thus described my invention in detail, that which I particularly point out and distinctly claim is:—

1. In a saw, the combination of a frame provided with a blade-seat in one of its ends, a member slidably mounted

on its other end, said member being also provided with a blade-seat, a blade mounted in said seats, and a second member rotatably mounted upon said first member and having a cam-engagement with the adjacent frame-end, such cam having a fall which permits a single rotation or less of said rotating member to either place the saw under tension or to relieve it from such tension.

2. In a saw, the combination of a frame provided with a blade-seat in one of its ends, a bolt slidably secured to its other end, said bolt being provided with a blade-seat at its inner end, a blade removably mounted in said seats, and a nut screw-threaded upon the outer end of said bolt, said nut being provided with a cam-face adapted to engage the adjacent frame-end and having a fall sufficient to place said blade under tension and to relieve said tension upon a single rotation of said nut in opposite directions, respectively.

3. In a saw, the combination of a frame having one of its ends slotted and a pin transversely fitted therein so as to provide a blade-seat and having its other end laterally grooved, a slotted bolt engaging such grooved end and having a pin transversely fitted to its inner end so as to provide a second blade-seat, a blade removably mounted in said seats, and means for positioning said bolt on its frame end, such means comprising a nut screw-threaded on the outer end of said bolt and having a cam engagement with the adjacent frame end, such cam having a fall sufficient to place the blade under tension and to relieve such tension upon a single rotation of said nut in opposite directions, respectively.

Signed by me, this 19th day of March 1903.

CHARLES SMITH.

Attested by—

JNO. F. OBERLIN,  
G. W. SAYWELL.