March 13, 1934. G. C. CROSS 1,950,973

HACK SAW

Filed July 6, 1933

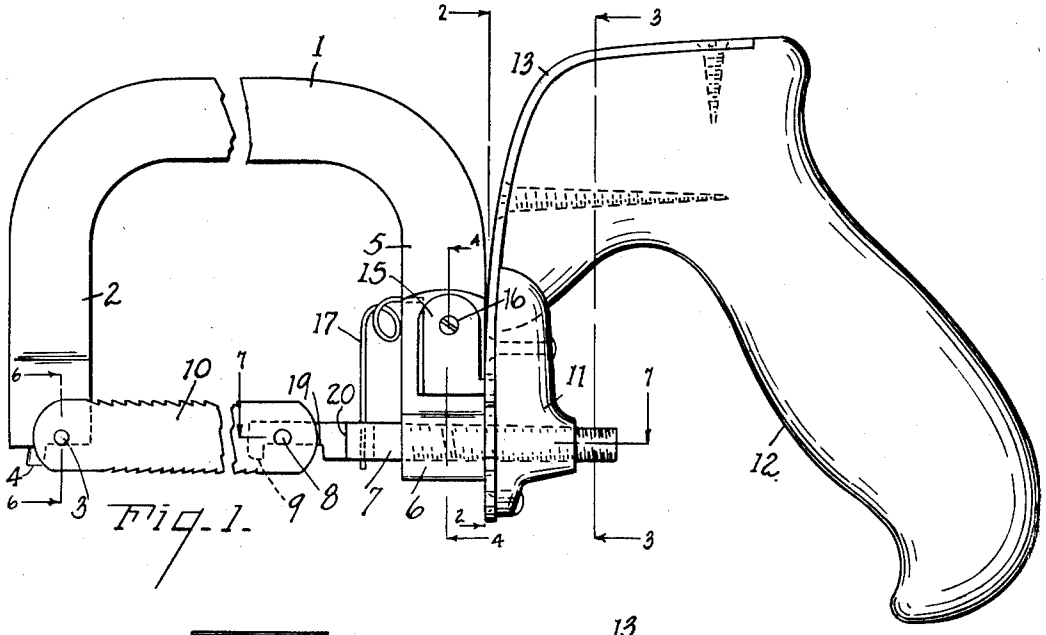


Fig. 1.

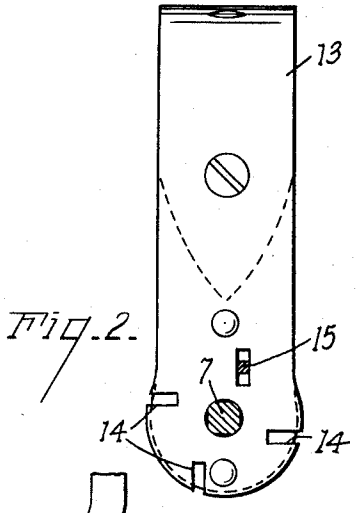


Fig. 2.

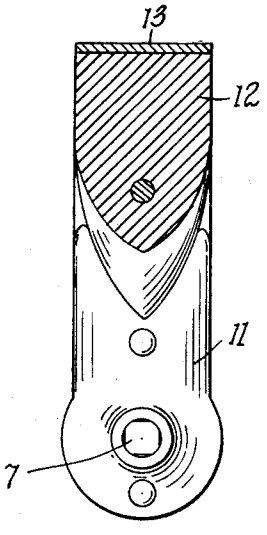


Fig. 3.

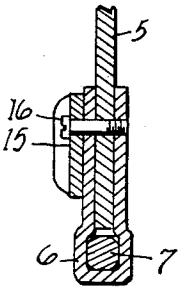


Fig. 4.

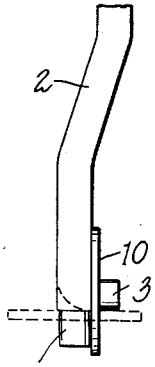


Fig. 5.

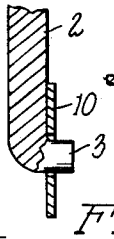


Fig. 6.

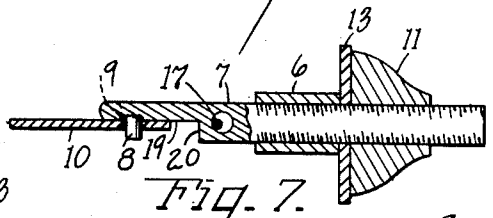


Fig. 7.

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HACK SAW

Guy C. Cross, Watervliet, Mich.

Application July 6, 1933, Serial No. 679,211

5 Claims. (Cl. 145—33)

The main object of this invention is to provide a hack saw in which the blade may be easily adjusted to different positions relative to the frame and to adapt the saw for various working conditions and one in which the handle may be likewise adjusted to different positions for convenience in use.

A further object is to provide a hack saw having these advantages which is very simple in structure and easily manipulated for the different uses or manipulated to meet different conditions.

Objects relating to details and economies of my invention will appear from the description to follow. The invention is defined and pointed out in the claims.

A structure which is a preferred embodiment of my invention is illustrated in the accompanying drawing, in which:

Fig. 1 is a fragmentary side elevation of my improved hack saw with the blade adjusted in a plane parallel to the plane of the yoke-shaped frame.

Fig. 2 is a section on line 2—2 of Fig. 1.

Fig. 3 is a section on line 3—3 of Fig. 1.

Fig. 4 is an enlarged detail section on line 4—4 of Fig. 1.

Fig. 5 is an enlarged detail or fragmentary section on line 5—5 of Fig. 1.

Fig. 6 is an enlarged detail view mainly in section on line 6—6 of Fig. 1.

Fig. 7 is an enlarged fragmentary view mainly in section on line 7—7 of Fig. 1.

In the accompanying drawing, the frame 1 is yoke-shaped, its outer arm 2 having a blade engaging stud 3 projecting laterally therefrom and a blade engaging stud 4 projecting longitudinally therefrom. These studs are disposed at an angle of approximately 90° relative to each other.

The inner arm 5 of the frame is provided with a socket 6 for the tension bar 7. This tension bar is of non-circular shape so that the bar is non-rotatably supported. The tension bar has a laterally projecting stud 8 disposed in the plane of the stud 3 and a second stud 9 disposed in the plane of the stud 4 so that the blade 10 may be selectively engaged with these studs and thereby supported either in the plane of the frame or in a plane parallel thereto or at right angles to such plane.

It is to be noted that the laterally projecting stud 3 on the arm 2 is formed by turning up and properly shaping a portion of the end of the arm and that it is positioned so that it constitutes a support for the blade when the blade is engaged with the stud 4—see Fig. 5. The laterally projecting stud 8 of the tension bar is disposed so that its lower side is in the plane of the bottom of the notch 19 formed on the underside of the tension bar so that when the blade is engaged with the stud 9, the stud 8 constitutes a support therefor. The tension bar is shouldered at 20 so that a pull on the blade is substantially centered. With this arrangement of studs, the blade is supported against rocking movement on a longitudinal axis as it has a substantial side supporting surface when adjusted in either position.

The tension bar is threaded as indicated in the drawing to receive the nut 11 which is mounted on the shank or constitutes a part of the shank of the handle 12, this handle 12 being suitably shaped for grasping and being preferably of wood or like suitable material and has an angled metal part 13 secured thereto and extending to constitute the shank, the nut 11 being extended to reinforce this metal part and being rigidly secured thereto.

The shank of the handle is provided with a plurality of keepers 14 spaced 90° from each other; that is, spaced to correspond to the angular relation of the lugs, a latch 15 being pivotally mounted at 16 on the inner arm of the frame so that this latch may be engaged with the proper keeper in the handle to hold the handle in adjusted position so that the handle may be adjusted to correspond with the adjustment of the blade.

The thread on the tension bar is preferably very fine so that the nut may constitute a part of the handle and the tension bar constitute an attaching means for the handle to the frame, at the same time permit its adjustment. With the fine thread, it is found that the desired tension is not disturbed by the adjustment of the handle in its angular relation to the frame.

A tension spring 17 is provided, this tension spring acting to urge the tension bar outwardly and hold the handle in position in the absence of a blade and also in position to facilitate the adjustment of the blade to the lugs.

With the parts thus arranged, the blade may be quickly adjusted to the desired position relative to the frame as best adapted to the particular type of work and also the handle may be correspondingly adjusted if desired so that it is out of the way and also renders the saw easier of operation.

I have illustrated and described my improvements in an embodiment which I have found

very practical. I have not attempted to illustrate or describe certain embodiments and adaptations which I contemplate as it is believed that this disclosure will enable those skilled in the art to embody or adapt my improvements as may be desired.

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

1. In a hack saw, the combination of a yoke-shaped frame having a laterally projecting blade-engaging stud and a longitudinally projecting blade-engaging stud on its outer arm, a tension bar slidably and non-rotatably mounted on its inner arm and threaded to receive an adjusting nut and having blade-engaging studs disposed in the planes of said studs on the outer arm, a handle provided with a nut coacting with said tension bar and with keepers having 90 degree spacing, a latch pivoted on the inner arm of said frame and selectively engageable with said keepers for holding said handle in its adjusted positions and at selected angles relative to said frame, and a spring mounted on the inner arm of said frame and engaging said tension bar acting to urge the same outwardly.

2. In a hack saw, the combination of a yoke-shaped frame having a laterally projecting blade-engaging stud and a longitudinally projecting blade-engaging stud on its outer arm, a tension bar slidably and non-rotatably mounted on its inner arm and threaded to receive an adjusting nut and having blade-engaging studs disposed in the planes of said studs on the outer arm, a handle provided with a nut coacting with said tension bar and with keepers having 90 degree spacing, and a latch pivoted on the inner arm of said frame and selectively engageable with said keepers for holding said handle in its adjusted positions and at selected angles relative to said frame.

3. In a hack saw, the combination of a yoke-shaped frame, a tension bar slidably and non-rotatably mounted on its inner arm and threaded to receive an adjusting nut, a handle provided with a nut coacting with said tension bar and with keepers having 90 degree spacing, a latch pivoted on the inner arm of said frame and selectively engageable with said keepers for holding said handle in its adjusted positions and at selected angles relative to said frame, and a spring mounted on the inner arm of said frame and engaging said tension bar acting to urge the same outwardly.

4. In a hack saw, the combination of a yoke-shaped frame, a tension bar slidably and non-rotatably mounted on its inner arm and threaded to receive an adjusting nut, a handle provided with a nut coacting with said tension bar and with keepers having angular spacing, and a latch pivoted on the inner arm of said frame and selectively engageable with said keepers for holding said handle in its adjusted positions and at selected angles relative to said frame.

5. In a hack saw, the combination of a yoke-shaped frame, a blade, a non-rotatable tension bar for the inner end of said blade connected to the inner arm and threaded to receive a nut, a handle provided with a nut coacting with said tension bar and with keepers, and a latch pivoted on the inner arm and selectively engageable with said keepers for holding the handle in its adjusted positions and at selected angles relative to the frame.

GUY C. CROSS.