Aug. 3, 1926. 1,595,035

C. L. TROUTMAN

HACK SAW

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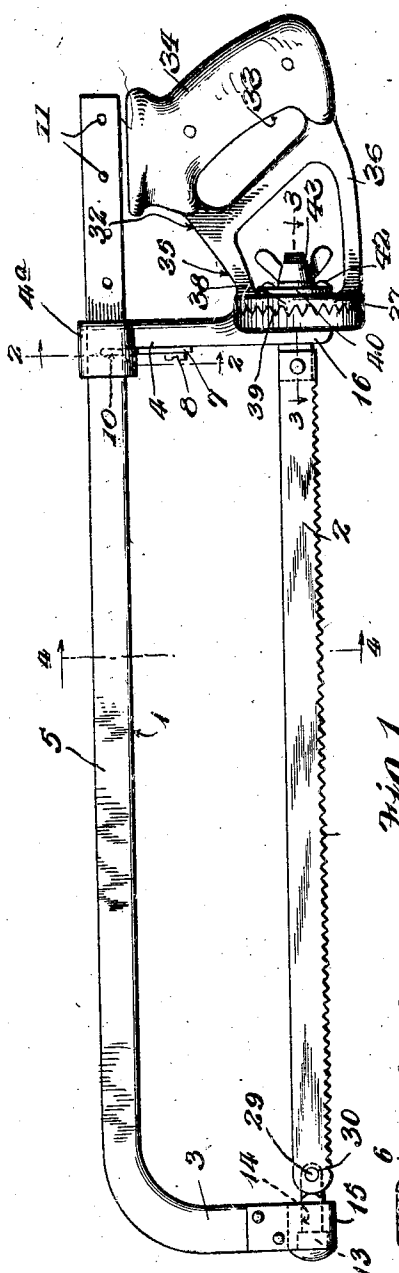


Fig. 1.

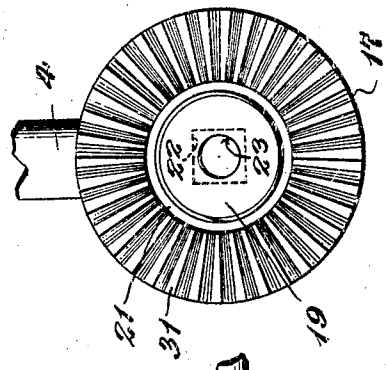


Fig. 3.

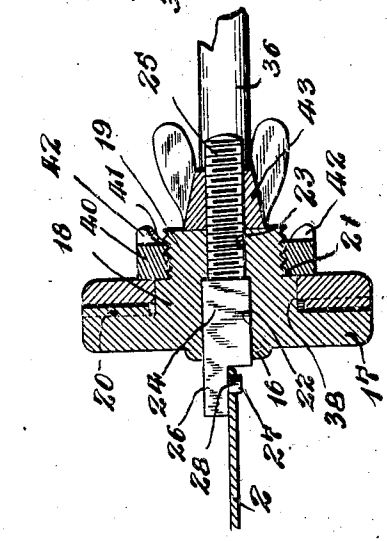


Fig. 5.

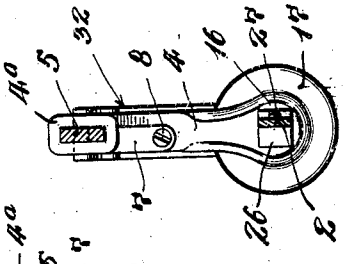


Fig. 4.

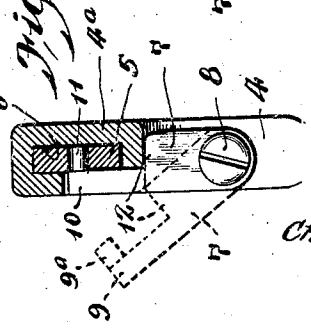


Fig. 2.

WITNESSES

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Patented Aug. 3, 1926. 1,595,035

UNITED STATES PATENT OFFICE.

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HACK SAW.

Application filed June 11, 1925. Serial No. 36,453.

My invention relates to improvements in hack saws, and it consists in the combinations, constructions and arrangements herein described and claimed.

An object of the invention is the provision of a hack saw having a handle connected with the blade holding frame of the hack saw so that the handle can be adjusted about an axis parallel to the direction of length of the blade holding frame and can be secured firmly, although releasably to the blade holding frame in any adjusted position, whereby the hack saw can be manipulated conveniently and easily in places where a hack saw having a handle fixed to the frame could be manipulated only imperfectly and with difficulty, if at all.

A further object of the invention is the provision in a hack saw of the character described of a frame adjustable as to length to accommodate blades of various lengths together with an improved means for locking the relatively movable members of the frame against movement with respect to each other from any adjusted position.

Other objects and advantages of the invention will be apparent from the following description, considered in conjunction with the accompanying drawings, in which

Figure 1 is a side elevation of the improved hack saw,

Figure 2 is a relatively enlarged section along the line 2—2 of Fig. 1,

Figure 3 is a similar section along the line 3—3 of Fig. 1,

Figure 4 is a section along the line 4—4 of Fig. 1, and

Figure 5 is a fragmentary view showing in end elevation the coupling element at the lower end of the rear end member of the blade holding frame of the device.

The improved hack saw comprises a frame generally indicated at 1 for holding a saw blade 2. The frame 1 comprises a front end bar 3, a rear end bar 4, and a longitudinal connecting bar 5. The front end bar 3 preferably is joined integrally at one end with the connecting bar 5 and extends substantially at right angles to the latter. The bar 5 is non-circular in cross sectional contour and the rear end bar is formed with an enlarged end portion 4^a. A transverse opening 6 in the enlarged portion 4^a of the rear end bar 4 conforms substantially in cross section to the cross sectional contour of the bar 5 and is of sufficient area to permit the rear end of the bar 5 to be extended through the opening 6 and to permit the rear end bar 4 to be slid along the bar 5 toward and away from the front end bar 3. The rear end bar 4 is placed in engagement with the bar 5 so that the bar 4 will be substantially parallel to the bar 3 and this relation of the bars 3 and 4 will be maintained since the engagement of the wall of the opening 6 with the bar 5 will prevent turning of the bar 4 about the longitudinal axis of the bar 5. A latch 7 is pivotally attached by a screw 8 to the rear end bar 4 and has a hook-shaped free end portion 9 swingable to and from position to enter a slot 10 in the enlarged portion 4^a of the end bar 4. When the hook shaped end portion of the latch 7 has been swung into the slot 10, the bill or projection 9^a on the latch at the free end of the latter will enter and engage with a transverse opening 11 in the longitudinal bar 5 and will lock the bar 4 to the bar 5. A series of the openings 11 in the bar 5 is provided, the respective openings 11 being spaced longitudinally of the bar 5, and the bar 4 therefore can be locked to the bar 5 in any one of a plurality of positions along the latter. Accidental swinging movement of the latch 7 from latching position is prevented by the frictional engagement of a laterally extending shoulder 12 on the latch with the under side of a part of the enlarged portion 4^a of the bar 4.

A headed pin 13 has a shank which preferably is of non-circular cross-sectional contour and is extended through a correspondingly configured opening 14 in an enlarged portion 15 at the free end of the bar 3. The free end portion of the bar 4 is enlarged laterally in opposite directions at 16 and is integral with an enlarged rearward extension 17. The extension 17 is substantially circular in cross sectional contour and is formed with a rearwardly extending central boss 18 having a reduced rear end portion 19, whereby a relatively wide annular shoulder will be defined at the juncture of the extension 17 and the portion 18 of the boss and a narower annular shoulder 21 will be defined at the juncture of the portions 18 and 19 of the boss. An opening which is formed through the enlarged free end por-

tion 16 of the bar 4 and through the extension 17 and boss 18—19 in alinement with the opening 14 comprises a relatively large front end portion 22 of non-circular cross section and a smaller rear end portion 23 which may be circular in cross section. A blade attaching rod has a portion 24 conforming in cross sectional contour to the cross sectional configuration of the portion 22 of the opening 22—23 and a reduced screw threaded rear end portion 25 extending through the portion 23 of the opening 22—23 beyond the rearward end of said opening. The portion 24 of the attaching rod extends from the opening 22—23 in advance of the free end portion of the bar 4 and has a laterally cut away reduced front end portion 26 formed with a laterally extending stud projection 27 which is adapted to extend through and engage with a transverse opening 28 in the rearward end portion of the blade 2. A lateral stud 29 which is similar to the stud 27 extends laterally of the shank of the pin 13 at the rear side of the enlarged free end portion of the bar 3 and is adapted to engage with a transverse opening 30 in the front end portion of the blade 2. The blade 2 thus will be secured between the bars 3 and 4 when the bar 4 is secured in such position on the bar 5 that the blade 2 is kept taut or under tension and the attaching rod 26—24—25 is held against axial movement from the position shown in Fig. 3 by means which will be hereinafter described.

The extension 17 may be termed a ratchet disk and it has radial teeth 31 on its rearward face which is the shoulder 20.

A handle for the device is generally indicated at 32 and comprises a plate or casting apertured at 33 and fashioned rearwardly of the aperture 33 as indicated at 34 to produce a piston grip portion. The handle has a pair of forwardly convergent arms 35 and 36 respectively which are joined integrally to a ratchet disk 37 at diametrically opposite points on the rearward face of the latter. The ratchet disk 37 has a central opening 38 through which the portion 18 of the boss 18—19 may extend so that teeth 39 on the front face of the ratchet disk 37 will mesh with the teeth 31 on the ratchet disk 17. A nut 40 is in threaded engagement at 41 with the portion 19 of the boss 18—19 and can be turned on the latter to and from position to clamp the ratchet disk 37 to the disk 17, whereby the handle 32 will be locked to the frame 1 with the angular relation of the handle to the plane of the frame adjusted as desired. The nut 40 has rearward projections 42 adapted to be engaged by a suitable tool so that the nut can be manipulated conveniently.

A wing nut 43 is screwed on the rearward end portion 25 of the rod 26—24—25 against the portion 19 of the boss 18—19 and secures the rod 26—24—25 against forward axial movement from the position shown in Fig. 3.

From the foregoing description of the various parts of the device, the operation thereof may be readily understood. The frame 1 can be adjusted to hold blades of various lengths. The handle can be locked to the frame 1 in any one of a plurality of angularly adjusted positions. A rigid structure is produced in any of the possible adjustments of the device. The frame 1 and the blade which is held therein can be manipulated conveniently under various service conditions since the angular relation of the handle to the plane of the frame can be varied to suit particular conditions.

Obviously, the invention is susceptible of embodiment in form other than that which is illustrated in the accompanying drawings and I therefore consider as my own all such modifications and adaptations thereof as fairly fall within the scope of the appended claims.

I claim:

1. In a hack saw, a frame comprising a front end bar, a longitudinal bar rigid with the front end bar and being formed with a series of spaced transverse openings, a rear end bar having an apertured end portion through which said longitudinal bar slidably extends, and a pivoted latch carried by said rear end bar having a lateral projection adapted to be projected into said openings in the longitudinal bar selectively to lock said rear end bar to the longitudinal bar, said front and rear end bars having means for engaging with opposite end portions of a saw blade, said rear end member having an enlarged portion formed with a slot for the reception of the free end portion of the latch when said latch is in latching position, said latch having a shoulder spaced from said lateral projection and adapted to frictionally engage with said enlargement to hold said latch against accidental displacement from latching position.

2. In a hack saw, a frame comprising a front end bar, a longitudinal bar rigid with the front end bar and being formed with a series of spaced transverse openings, a rear end bar having an apertured end portion through which said longitudinal bar slidably extends, a pivoted latch carried by said rear end bar having a lateral projection adapted to be projected into said openings in the longitudinal bar selectively to lock said rear end bar to the longitudinal bar, said front and rear end bars having means for engaging with opposite end portions of the saw blade, said rear end member having an enlarged portion formed with a slot for the reception of the free end portion of the latch when said latch is in latching position, said latch having a shoulder spaced from

said lateral projection and adapted to frictionally engage with said enlargement to hold said latch against accidental displacement from latching position, a pistol grip handle swivelly connected with said rear end bar and adapted to turn about an axial line which extends longitudinally of the hack saw blade, and cooperative means on said handle and said rear end bar for releasably holding said handle against turning about the axes of its connection with said rear end bar.

CHARLES LINCOLN TROUTMAN.