July 23, 1929. M. H. KROISS 1,721,822

FILE

Filed May 29, 1928

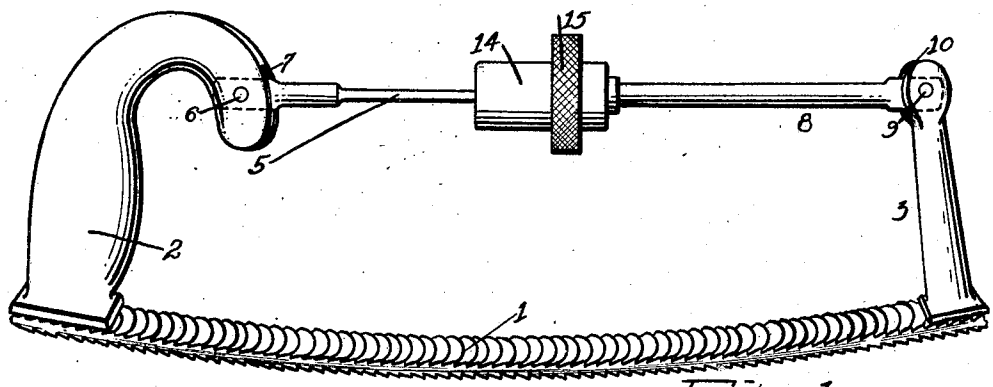


Fig. 1

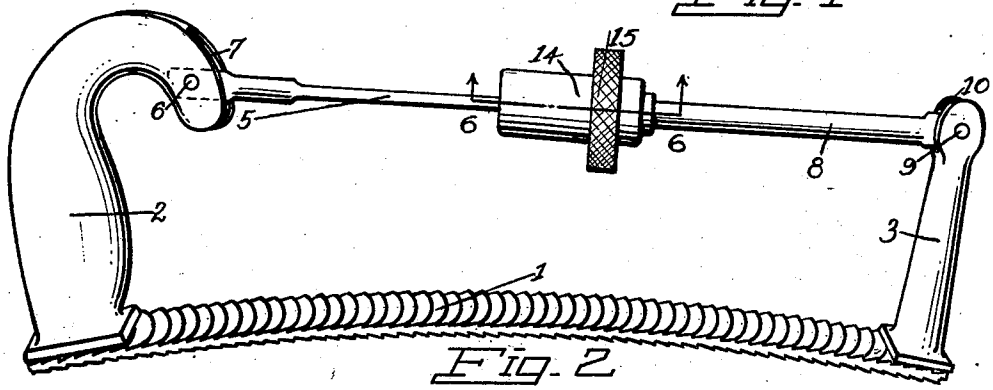


Fig. 2

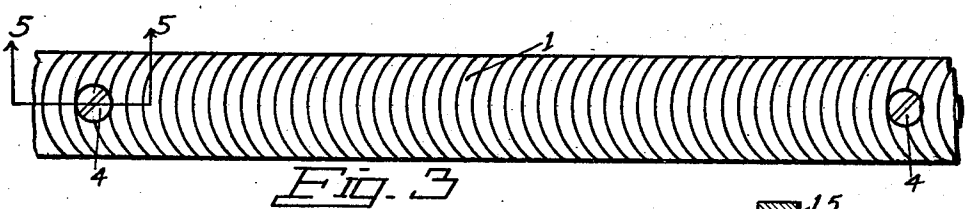


Fig. 3

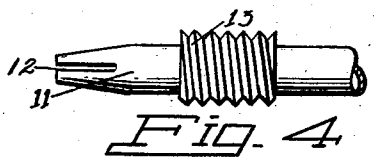


Fig. 4

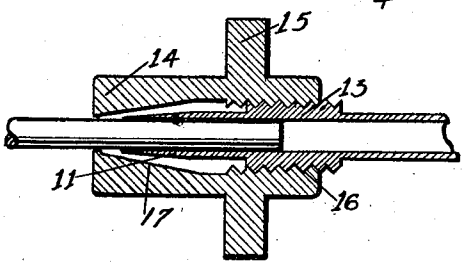


Fig. 6

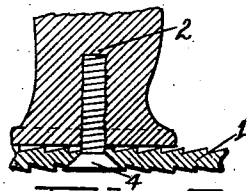


Fig. 5

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UNITED STATES PATENT OFFICE.

MICHEAL H. KROISS, OF SPOKANE, WASHINGTON.

FILE.

Application filed May 29, 1928. Serial No. 281,580.

My present invention relates to improvements in files and is designed especially for use on either plane surfaces or curved surfaces. In certain classes of work as for instance in the repair of automobile bodies, fenders, etc., it is frequently necessary to use a file having either a concave working face or a convex working face, and the primary object of my invention is the provision for means whereby a file may be flexed to bowed shape for the purpose of providing either a convex or a concave working face.

In carrying out my invention I utilize a steel file that is flexible and resilient so that it may be bowed to provide either a convex or concave working face and an extensible frame is provided whereby the flexure of the file blade may be accomplished.

By the utilization of the device of my invention the flexible resilient file may with facility and convenience be employed as desired for special work, and the tool may be manipulated with facility in the performance of its functions.

My invention consists in certain novel combinations and arrangements of parts for accomplishing the above objects as will hereinafter be more fully set forth and claimed.

In the accompanying drawings I have illustrated one complete example of the physical embodiment of my invention wherein the parts are combined and arranged according to the best mode I have so far devised for the practical application of the principles of my invention.

Figure 1 is a view in side elevation showing the file of my invention provided with a convex working face. Figure 2 is a similar view with the working face of the file changed to concave form. Figure 3 is a face view of the file blade. Figure 4 is a detail view at the end of the tubular screw bar forming part of the extensible frame. Figure 5 is a detail sectional view showing the manner of securing the file blade to its handle and to a complementary post. Figure 6 is a sectional detail view of the adjusting nut and tubular screw bar, as at line 6—6, Figure 2, together with portion of a rod forming part of the frame.

In Figure 1 I have shown the tool with a convex working face and in Figure 2 the tool is provided with a concave working face. The file blade 1 is provided with abrading teeth on both of its faces and this blade as usual is fashioned from steel and is flexible and resilient so that it may be fashioned with a bowed shape to provide either the convex working face of Figure 1 or the concave working face of Figure 2.

The blade 1 is attached to a handle 2 and to a complementary post 3 at opposite ends of the blade and countersunk screws 4 are used to secure the blade to the handle and post.

The extensible frame which connects the handle and the post comprises a pair of telescopic members one of which as indicated at 5 is a rod that is pivoted to the handle at 6, the handle being bifurcated or forked to receive the pivoted end of the rod 5. The telescoping extensible frame also includes a tubular screw bar 8 which is pivoted at 9 in the bifurcated handle 10 of the post 3 and this screw bar receives the rod 5 as indicated in the drawings.

The tubular screw bar is fashioned with a tapered end 11 which is slotted at 12 in order that this tapered end may be compressed in to close frictional contact with the end of the rod 5 which rod is clasped by the split resilient end. Near its tapered resilient split end the tubular screw bar is provided with exterior screw threads 13 with which an adjusting nut 14 is designed to co-act.

The adjusting nut is preferably round and is fashioned with a circular head 15 that is knurled to facilitate the turning of the nut. The nut has an interior threaded bore 16 for co-action with the screw 13 on the tubular screw bar 8. The nut 14 also has a tapered seat or bore 17 which conforms to the shape of the tapered resilient split end 11 of the tubular screw bar 8.

From an inspection of the drawings it will be apparent that by turning the nut on the screw bar the nut may be run to the right in Figure 6 so that its tapered bore will frictionally engage and clamp the split resilient end 11 of the tubular screw bar on the end of the rod 5. In adjusting the file, the nut is first loosened so that the rod 5 may be adjusted in the tubular screw bar 8. Thus if the blade is to be bowed outwardly as in Figure 1 to provide a convex working face, the blade is first flexed and then the rod is pushed into the tubular screw bar, after which the clamp nut is turned to frictionally lock the nut upon the tubular screw bar and the rod 5.

In order to provide for a concave working face of the file blade, while the nut is loose the blade is flexed or bowed as indicated in Figure 2 and as the blade is bowed the free

end of the rod 5 is pulled toward the tapered split resilient end of the tubular bar 8, and then the nut is turned to clamp the tapered resilient end of the screw bar on the rod. The telescopic members 5 and 8 are of proper dimensions in order to maintain the telescopic relation at all times regardless of the manner in which the file blade is bowed or flexed.

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

1. The combination with a flexible resilient file blade having a handle and a post at its opposite ends, of an extensible frame comprising telescopic members pivoted to said handle and post, and a clamp nut for securing said members in adjusted position.

2. The combination with a flexible resilient blade having a handle and a post at opposite ends, of a tubular screw bar pivoted to the post and a telescoping rod pivoted to the handle and a nut on the tubular screw bar adapted to clamp the telescoping parts.

3. The combination with a flexible resilient file blade, a handle and a post secured to said blade, of a tubular screw bar pivoted to the post and provided with a tapered resilient free end, a telescoping rod pivoted to the handle and encased within the resilient end of the tubular screw bar, a nut threaded on the tubular screw bar and said nut having a tapered interior bore conforming to tapered resilient end of the tubular screw bar.

In testimony whereof I affix my signature.

MICHEAL H. KROISS.