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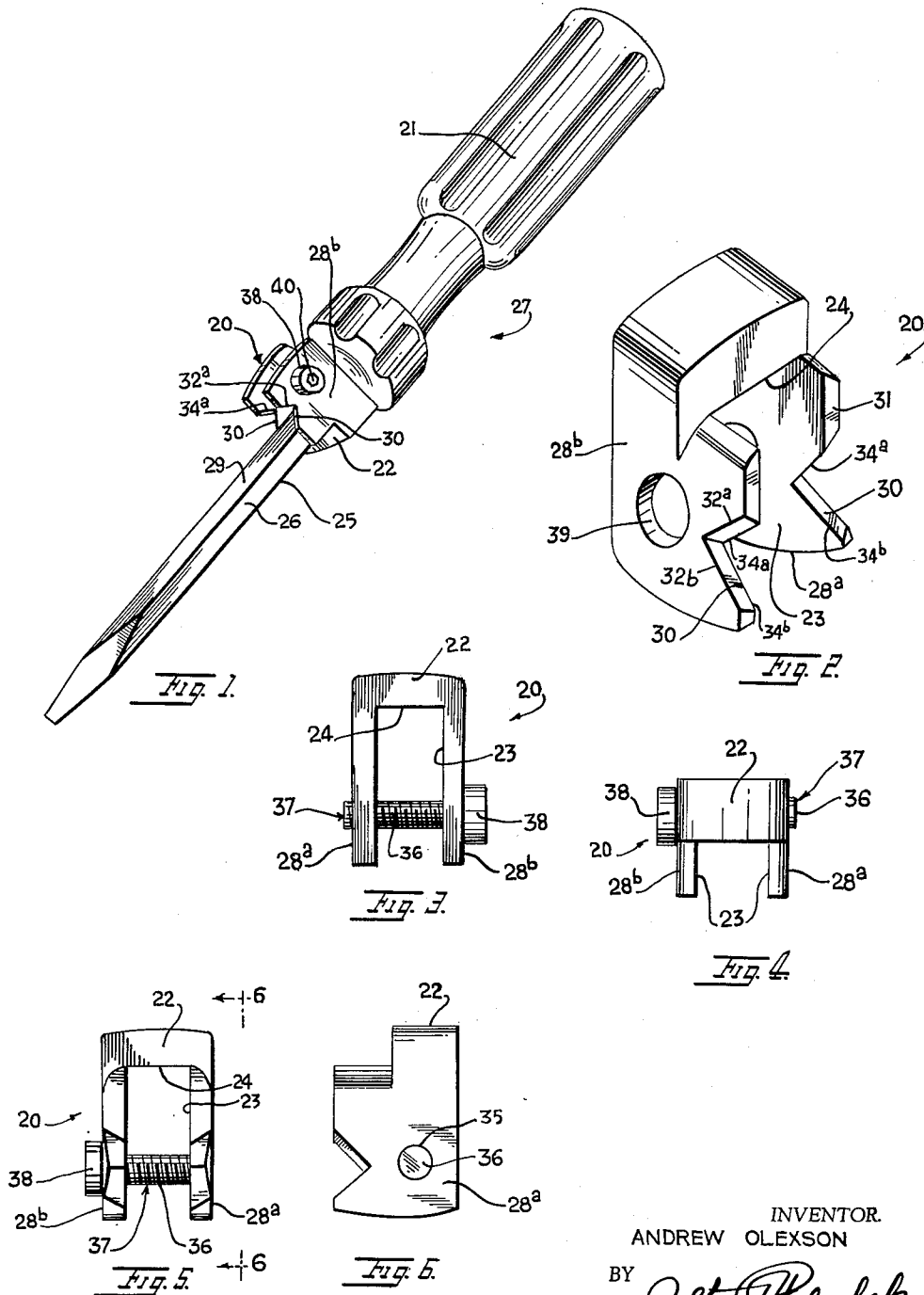
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3,138,044

COMBINATION REAMER AND PIPE DEBURRER

Filed Feb. 18, 1963

2 Sheets-Sheet 1



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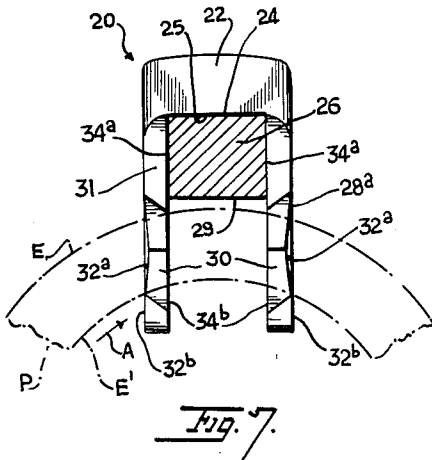
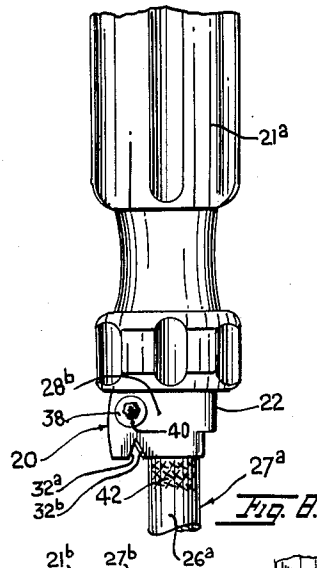
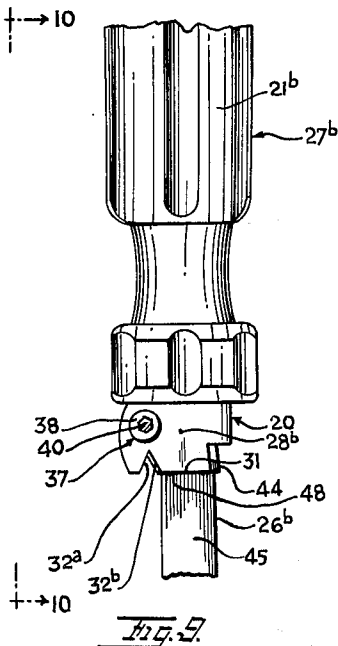
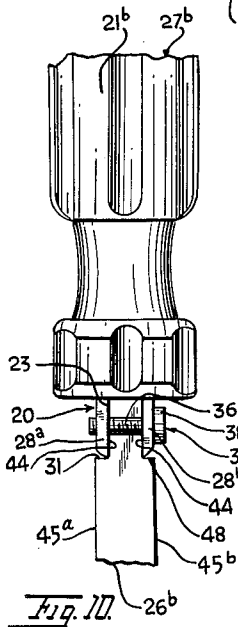
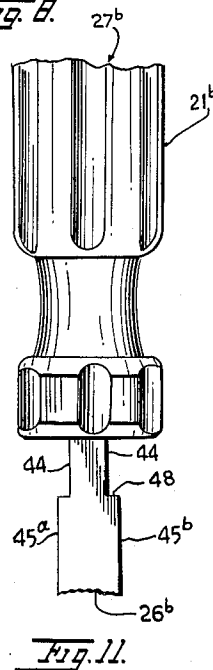
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COMBINATION REAMER AND PIPE DEBURRER

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2 Sheets-Sheet 2



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COMBINATION REAMER AND PIPE DEBURRER

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6 Claims. (Cl. 77-73)

This invention relates to a pipe deburrer, reamer and shaving tool, and more particularly concerns a tool which can be detachably mounted as an accessory upon a screwdriver or other tool for convenient use when required.

According to the invention there is provided a tool having a generally U-shaped body which can be placed on the shank of a screwdriver, file or the like and secured thereto. The bight of the tool will abut its support and the legs of the U-shaped body will extend outwardly of the support. The legs of the tool body are formed with generally V-shaped cuts having hard, sharp cutting edges. The cutting edges can be carbide tipped. The end of a cylindrical pipe can be inserted into the V-shaped cuts or recesses and as the pipe is turned, inner and outer edges of the end of the pipe will be shaved and dressed free of burrs, sharp projections, and other irregularities and a slight bevel or fillet will be imparted to each contacted edge.

The V-shaped cuts can treat pipes of various diameters from thin wall tubing to thick wall pipes. The tool is therefore quite versatile in its applications. The tool is provided with a screw for detachably holding it on its support. The support can be round, rectangular, hexagonal or have other geometrical shape. The support can be provided with special flats, lands or recesses to prevent undesired rotation of the tool on its support.

It is therefore one object of the invention to provide a novel tool for deburring, reaming and shaving the end of a pipe.

It is another object to provide a pipe deburring tool including a generally U-shaped body provided with legs having V-shaped cutouts or notches with hard, sharp cutting edges.

A further object is to provide a pipe deburring tool as described wherein the tool has an adjustable screw for detachably mounting the tool on a shank of a screwdriver, file, or other support.

For further comprehension of the invention, and of the objects and advantages thereof, reference will be had to the following description and accompanying drawings, and to the appended claims in which the various novel features of the invention are more particularly set forth.

In the accompanying drawings forming a material part of this disclosure:

FIG. 1 is a perspective view of the tool or device embodying the invention shown mounted on the shank of a screwdriver.

FIG. 2 is a perspective view of the tool alone taken on an enlarged scale.

FIG. 3 is a rear elevational view of the tool on a reduced scale.

FIG. 4 is an end view of the tool.

FIG. 5 is a front view of the tool.

FIG. 6 is a side view of the tool.

FIG. 7 is a front view of the tool on an enlarged scale with a part of a pipe shown by dotted lines to illustrate operation of the tool.

FIG. 8 is a side view of the tool shown mounted on a cylindrical tool support.

FIG. 9 is a side view of the tool shown mounted on a rectangular tool support.

FIG. 10 is a view of the tool and support taken on line 10-10 of FIG. 9.

FIG. 11 is a view of the tool support of FIG. 10 with the tool removed.

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Referring first to FIGS. 1-7, there is shown tool 20 embodying the invention. This tool has a generally U-shaped body with a bight 22 having a flat inner edge 24. This edge abuts flat side 25 of rectangular shank 26 of a screwdriver 27, as shown in FIGS. 1 and 7. The tool has parallel legs 28^a, 28^b extending outwardly of bight 22. Inner opposing sides 23 of the legs are substantially flat. The legs are longer than the width of shank 26 so that free ends of the legs protrude or extend outwardly of the side 29 of the shank 26.

V-shaped notches or cutouts 30 are formed in front ends 31 of the legs. The notches have outer edges 32^a, 32^b which may be specially hardened and have outer edges 34^a, 34^b.

A threaded hole 35 may be formed in leg 28^a to receive the threaded shank 36 of a screw 37. This screw may have a head 38 which will bear on the outer side of leg 28^b. The head 38 may have a recess 40 for engagement by an Allen wrench or the like. Leg 28^b has a hole 39 through which passes shank 36. When the screw 37 is tightened the free ends of the legs can be drawn together sufficiently to secure the tool body on the shank 26 of the screwdriver 27. The screwdriver has a handle 21 which may be conveniently held while the tool 20 is used.

FIG. 7 shows a pipe P which has at one end, its outer peripheral edge E and inner peripheral edge E' positioned across sharp edges 32^a and 32^b, respectively, in notches 30 of tool 20. The end of the pipe is inserted into the notches 30 and the pipe is rotated clockwise as indicated by arrow A. This will cause the left edges 32^a, 32^b on leg 28^b to cut or shave all burrs and projections from the edges E and E'. As the deburred edges E, E' encounter the right edges 32^a and 32^b of leg 28^a edges E, E' are dressed and dulled. If the pipe is rotated in reverse direction, edges 32^a, 32^b of leg 28^a at the right as shown in FIG. 7 will do the cutting or shaving and left edges 32^a, 32^b of leg 28^b will do the dressing and polishing. In each case the sharp edges E, E' will be dulled and a slight fillet will be formed at each of these edges.

The same sizes of notches can be used to treat ends of pipes and tubing having a wide range of wall thickness and wide range of diameter. The angle defined by the adjacent edges of the notches may be any magnitude depending on the diameters and thicknesses of the pipes and tubes to be treated. Angles ranging from 30° to 60° will serve for most purposes.

FIG. 8 shows the tool 20 mounted on round or cylindrical shank 26^a of a tool support 27^a. It is preferred that the end of the shank near handle 21^a be knurled or roughened as indicated at 42 to prevent rotation of the tool 20 on the shank 27^a during use. The parts of tool 20 are the same as described above.

FIGS. 9-11 show a shank 26^b of a tool support 27^b which has recesses or keyways 44 formed in opposite sides 45^a, 45^b of the shank near handle 21^b. The front edges 31 of the legs of the tool 20 abut shoulders 48 of the recesses and prevent the tool 20 from sliding longitudinally along the shank. In addition, the flat sides 23 of the legs abut sides 45 and the legs are held by screw 37 so that the tool body cannot rotate or loosen on the shank of tool support 27^b.

The invention as described is preferably made of tool steel with the cutting and dressing edges hardened or tipped with tungsten carbide as above mentioned. The tool serves as a convenient accessory for use by plumbers, repairmen and all who work with pipes and tubing requiring deburring at the ends after cutting or working.

It is to be understood that this reamer and pipe deburring tool may be integral portion of any other tool such as a screwdriver, file, etc.

While I have illustrated and described the preferred embodiments of my invention, it is to be understood that I do not limit myself to the precise constructions herein disclosed and that various changes and modifications may be made within the scope of the invention as defined in the appended claims.

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

1. A deburring, reaming and shaving tool for ends of pipes and tubes, comprising a massive, generally U-shaped body with a thick bight and two spaced legs extending outwardly of the bight, said legs being spaced apart a sufficient distance so that said body can be mounted on a rod-like support with the bight and inner sides of said legs abutting said support, each of said legs having a front portion extending outwardly of the bight, each of the legs having a V-shaped notch formed in the front portion thereof, the notches of the legs being aligned transversely of said body, and means carried by said body for securing said body to said support, lateral edges of the notch in each leg being sufficiently hard to deburr and dress inner and outer edges of the end of a tubular member inserted into the notches and rotated with respect to said body.

2. A deburring, reaming and shaving tool for ends of pipes and tubes, comprising a massive, generally U-shaped body with a thick bight and two spaced legs extending outwardly of the bight, said legs being spaced apart a sufficient distance so that said body can be mounted on a rod-like support with the bight and inner sides of said legs abutting said support, each of said legs having a front portion extending outwardly of the bight, each of the legs having a V-shaped notch formed in the front portion thereof, the notches of the legs being aligned transversely of said body, said notches having hardened lateral edges for deburring and dressing inner and outer edges of the end of a tubular member inserted into the notches and rotated with respect to said body, said legs having aligned holes in the plane of the bight, and a screw engaged in said holes for detachably securing said body to said support.

3. A deburring, reaming and shaving tool for ends of pipes and tubes, comprising a massive, generally U-shaped body with a thick bight and two spaced legs extending outwardly of the bight, a rod-like support, said body being mounted on said support with said bight and inner sides of said legs abutting said support, each of said legs having a front portion extending outwardly of the bight and longitudinally of said support, each of the legs having a V-shaped notch formed in the front portion thereof, the notches of the legs being aligned transversely of said body, and means connecting the legs and holding said body on said support.

4. A deburring, reaming and shaving tool for ends of pipes and tubes, comprising a massive, generally U-shaped body with a thick bight and two spaced legs extending out-

wardly of the bight, a rod-like support, said body being mounted on said support with said bight and inner sides of said legs abutting said support, each of said legs having a front portion extending outwardly of the bight and longitudinally of said support, each of the legs having a V-shaped notch formed in the front portion thereof, the notches of the legs being aligned transversely of said body, said notches having hardened lateral edges for deburring and dressing inner and outer edges of the end of a tubular member inserted into the notches and rotated with respect to said body and support, and means holding said body non-rotatably on said support.

5. A deburring, reaming and shaving tool for ends of pipes and tubes, comprising a massive, generally U-shaped body with a thick bight and two spaced legs extending outwardly of the bight, a rod-like support, said body being mounted on said support with said bight and inner sides of said legs abutting said support, each of said legs having a front portion extending outwardly of the bight and longitudinally of said support, each of the legs having a V-shaped notch formed in the front portion thereof, the notches of the legs being aligned transversely of said body, said notches having hardened lateral edges for deburring and dressing inner and outer edges of the end of a tubular member inserted into the notches and rotated with respect to said body and support, said support being multilateral and having recesses therein receiving and engaging the legs of said body, whereby said body is held non-rotatably on said support.

6. A deburring, reaming and shaving tool for ends of pipes and tubes, comprising a massive, generally U-shaped body with a thick bight and two spaced legs extending outwardly of the bight, a rod-like support, said body being mounted on said support with said bight and inner sides of said legs abutting said support, each of said legs having a front portion extending outwardly of the bight and longitudinally of said support, each of the legs having a V-shaped notch formed in the front portion thereof, the notches of the legs being aligned transversely of said body, said notches having hardened lateral edges for deburring and dressing inner and outer edges of the end of a tubular member inserted into the notches and rotated with respect to said body and support, said support being multilateral and having recesses therein receiving and engaging the legs of said body, whereby said body is held non-rotatably on said support, and screw means adjustably connecting the legs so that said body is detachably secured to said support.

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