Nov. 15, 1949 A. HAZARD 2,488,060

GRINDING JIG

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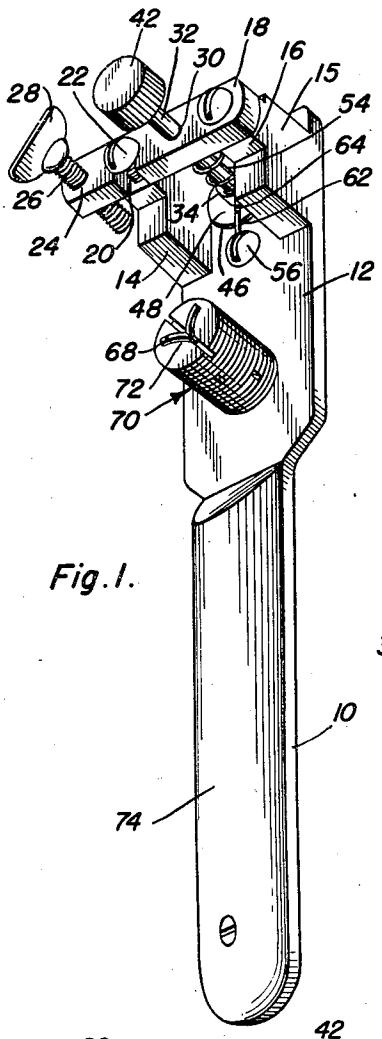


Fig. 1.

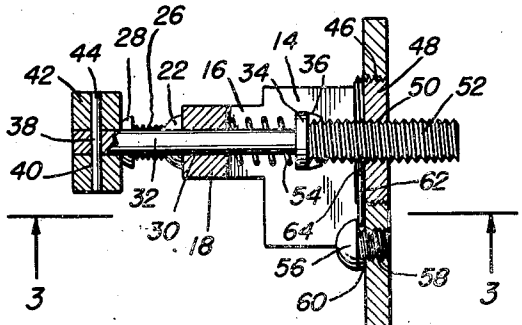


Fig. 4.

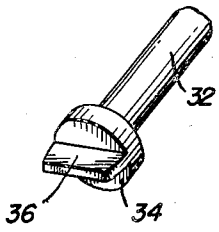
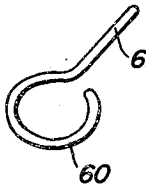


Fig. 5.



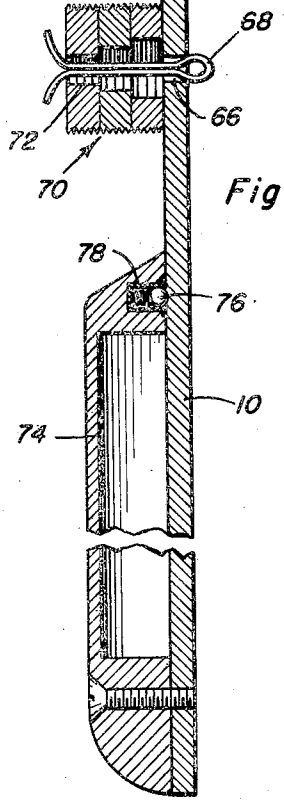


Fig. 2.

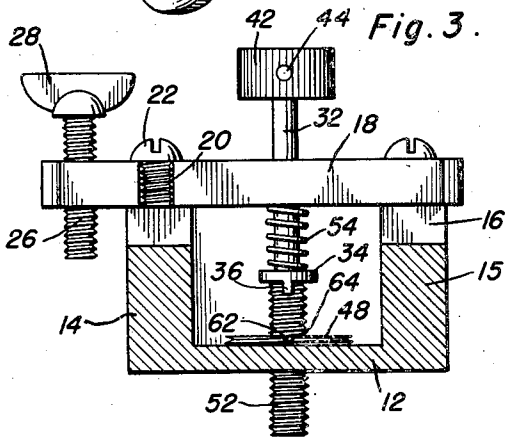


Fig. 3.

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GRINDING JIG

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5 Claims. (Cl. 51—216)

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This invention relates to new and useful improvements in grinding jigs and the primary object of the present invention is to provide a device applicable for positioning fasteners to be worked on a grinding machine and so designed as to permit a person to conveniently hold the same by hand at a selected position to the grinding machine.

Another important object of the present invention is to provide a grinding jig including means for holding fasteners to be worked with heads, without heads, or fasteners having kerfs.

A further object of the present invention is to provide a device for holding fasteners to be worked embodying novel and improved means for retaining the fasteners against rotation during the working thereof.

A still further aim of the present invention is to provide a grinding jig that is simple and practical in construction, strong and reliable in use, neat and attractive in appearance, relatively inexpensive to manufacture, and otherwise well adapted for the purposes for which the same is intended.

Other objects and advantages reside in the details of construction and operation as more fully hereinafter described and claimed, reference being had to the accompanying drawings forming part hereof, wherein like numerals refer to like parts throughout, and in which:

Figure 1 is a perspective view of the present invention;

Figure 2 is a longitudinal vertical sectional view taken substantially through the center of Figure 1, and with parts broken away and shown in section;

Figure 3 is a transverse vertical sectional view taken substantially on the plane of section line 3—3 of Figure 2;

Figure 4 is a fragmentary perspective view of one end of the fastener engaging member; and

Figure 5 is a perspective view of the means for holding the fastener supporting plug against rotation.

Referring now to the drawings in detail, wherein, for the purpose of illustration, there is disclosed a preferred embodiment of the present invention, the numeral 10 represents a flat substantially rectangular shank terminating in an enlarged head 12 at one end.

Preferably integrally formed with the head 12 is a pair of spaced parallel side members 14 and 15 having outwardly projecting reduced extensions 16.

Pivotally mounted on the extension 16 of side

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member 15 is one terminal of a cross-member 18 having its opposite terminal projecting outwardly past the opposite extension. A notch 20 is provided in the cross-member for engaging a fastener 22 carried by the extension of side member 14 to retain the cross-member in a fixed position between the side members. The outwardly projecting terminal of the cross-member is provided with an internally threaded holding aperture 24 that engageably receives the threaded shank portion 26 of a fastener 28 that is to be retained until worked.

A bore 30 provided in cross member 18 slidably engages a rod 32 having a retaining plate 34 fixedly secured to one end. A kerf engaging rib 36 is integrally formed with plate 34 for a purpose which will later be described. At the opposite end of rod 32 there is provided a transverse aperture 38 that aligns with an aperture 40 provided in a finger-gripping ring 42 insertable on the end of the rod. A locking pin 44 extends through these aligned apertures to retain the ring in position to the rod.

An internally threaded aperture 46 is provided in the head 12 and engageably receives a plug 48 having a centrally formed internally threaded aperture 50 that receivably engages the threaded shank portion 52 of a fastener to be worked. This fastener is provided with a kerf that engages rib 36 of the retaining plate 34. A coil spring 54 loosely mounted on rod 32 is biased between member 18 and ring 34 to normally hold the rib 36 in position to the kerf provided in the portion 52 and to frictionally restrict rotation of the shank portion 52.

A further fastener or bolt 56 receivably engages an aperture 58 provided in the head 12. Interposed between the head of bolt 56 and one face of the head 12 is a hook member 60 having an outwardly projecting arm 62 that engages a kerf 64 provided in the plug 48 to prevent rotation of the plug.

Near the inner end of head 12 there is provided an opening 66 that receives a cotter pin 68 supporting a plurality of plugs 70 having various sizes of internally threaded apertures 72 that selectively receive fasteners of various diameters that are to be worked. The plugs 70 are replaceable in apertures 46.

The numeral 74 represents a substantially channel shaped handle that is removably and pivotally secured at one end to the shank 10. A spring-biased ball 76 mounted in a cylindrical member 78 in the other end of the handle 74 en-

gages a recess in the shank 10 for normally holding the handle in a fixed position to the shank.

In practical use of the device, a selected fastener such as 52 provided with a kerf is threadingly engaged in aperture 50 and held against rotation by the rod 32. Obviously, should the fastener to be worked, such as 28, be provided with a head and no kerf, the cross member 18 is first removed from the side members 14 and 16, and then the locking pin 44 is removed from finger grip 42 and rod 32 so that the rod 32, retaining plate 34 and spring 54 may be inserted in position to holding aperture 24. In this position the threaded rod 26 may be engaged in bore 30 to threadingly engage and extend through plug 48 whereby the same may be conveniently worked on a grinding machine, without having to employ the rod 32, since the head 28 of the fastener may be rotated.

In view of the foregoing description taken in conjunction with the accompanying drawings, it is believed that a clear understanding of the device will be quite apparent to those skilled in this art. A more detailed description is accordingly deemed unnecessary.

It is to be understood, however, that even though there is herein shown and described a preferred embodiment of the invention, the same is susceptible to certain changes fully comprehended by the spirit of the invention as herein described and within the scope of the appended claims.

Having described the invention, what is claimed as new is:

1. A grinding jig comprising a shank, a pair of spaced parallel side members carried by said shank at one end, a cross-member pivoted at one end to one of said side members, a plunger mounted on said cross-member, an aperture in said shank opposing said plunger, a plug receivably engaging said aperture, an aperture in said plug engaging an article to be worked, means carried by said plunger engaging the article to be worked, and means for preventing rotation of said plug.

2. A grinding jig comprising a shank, a pair of spaced parallel side members carried by said shank at one end, an aperture provided in said shank, a plug receivably engaging said aperture, an aperture provided in said plug for engaging a fastener to be worked, a cross-member carried by said side members, a plunger slidably mounted on said cross-member, a fastener kerf engaging member carried by said plunger, means for preventing rotation of said plug, and spring means normally retaining said fastener kerf engaging member in the kerf of a fastener to be worked.

3. A grinding jig comprising a shank, a pair of spaced parallel side members carried by said shank at one end, a cross-member pivotally mounted on one of said side members, means for fastening the opposite end of said pivotal member to said other side member, one end of said pivotal member projecting outwardly from one of said side members, an aperture provided in the outwardly projecting end of said pivotal member for engaging a fastener to be worked, a rod slidably engaging a bore provided in said pivotal member, an aperture provided in said shank opposing said rod, a plug receivably engaging the aperture in said shank, an aperture provided in said plug for engaging a fastener to be worked, a kerf-engaging member carried by said rod, means normally retaining said kerf-engaging member in the kerf of a fastener to be worked, and means for holding said plug against rotation.

4. The combination of claim 3 wherein said means for retaining said kerf-engaging member in the kerf of a fastener to be worked includes a plate integrally formed with said rod, and a kerf engaging rib integrally formed with said plate.

5. The combination of claim 3 wherein said means for holding said plug against rotation includes a hook member removably secured to said shank and having an outwardly projecting arm, said plug having a recess in one face for receiving said outwardly projecting arm.

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The following references are of record in the file of this patent:

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