United States Patent [19]

Callahan

[11] **3,766,811**

[45] **Oct. 23, 1973**

[54] **ALLEN WRENCH HOLDER**

[76] Inventor: **Earnest C. Callahan,** 7121 Chandler Dr., Indianapolis, Ind. 46217

[22] Filed: **Mar. 2, 1972**

[21] Appl. No.: **231,334**

[52] **U.S. Cl.** ..... **81/180 R,** 81/177 A

[51] **Int. Cl.** **B25b 13/00**

[58] **Field of Search** ..... 81/180 R, 180 C, 81/71, 177 A; 279/93

[56] **References Cited**

UNITED STATES PATENTS

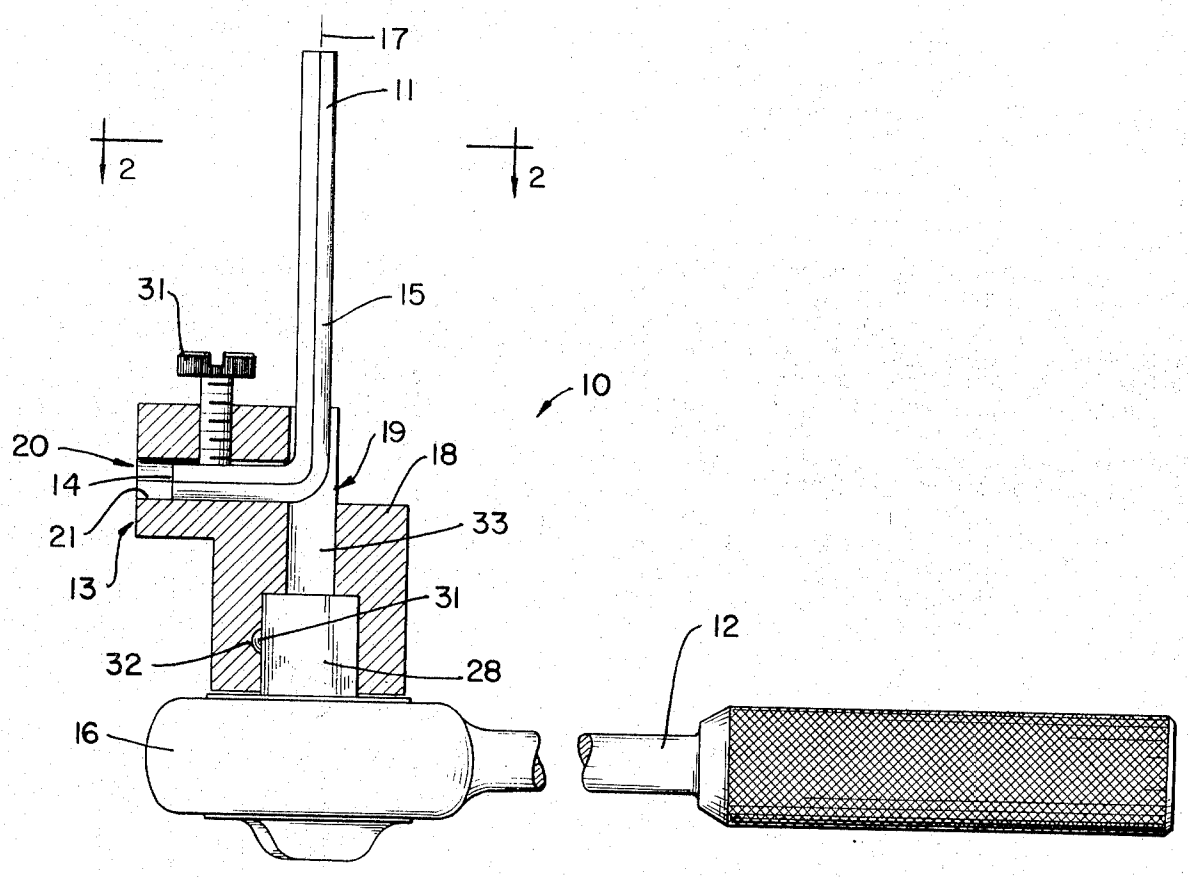
2,713,281 7/1955 Poteet ..... 81/177 A

Primary Examiner—Othell M. Simpson
Assistant Examiner—James G. Smith
Attorney—Joseph A. Naughton, Jr.

[57] **ABSTRACT**

A tool for operably engaging an Allen type wrench. An adapter is mounted to a handle and is rotatable by the handle about a driving axis. The adapter includes a groove extending along the axis and a bore opening into the groove and extending at an approximate right angle with respect to the groove. A locking member is threadedly mounted to the adapter and projects into the bore. One shank of the Allen type wrench is locked within the bore by the member whereas the second shank of the Allen wrench is received in the groove. The bore is provided with a cross sectional shape identical with the shank cross sectional shape of the Allen wrench.

7 Claims, 7 Drawing Figures



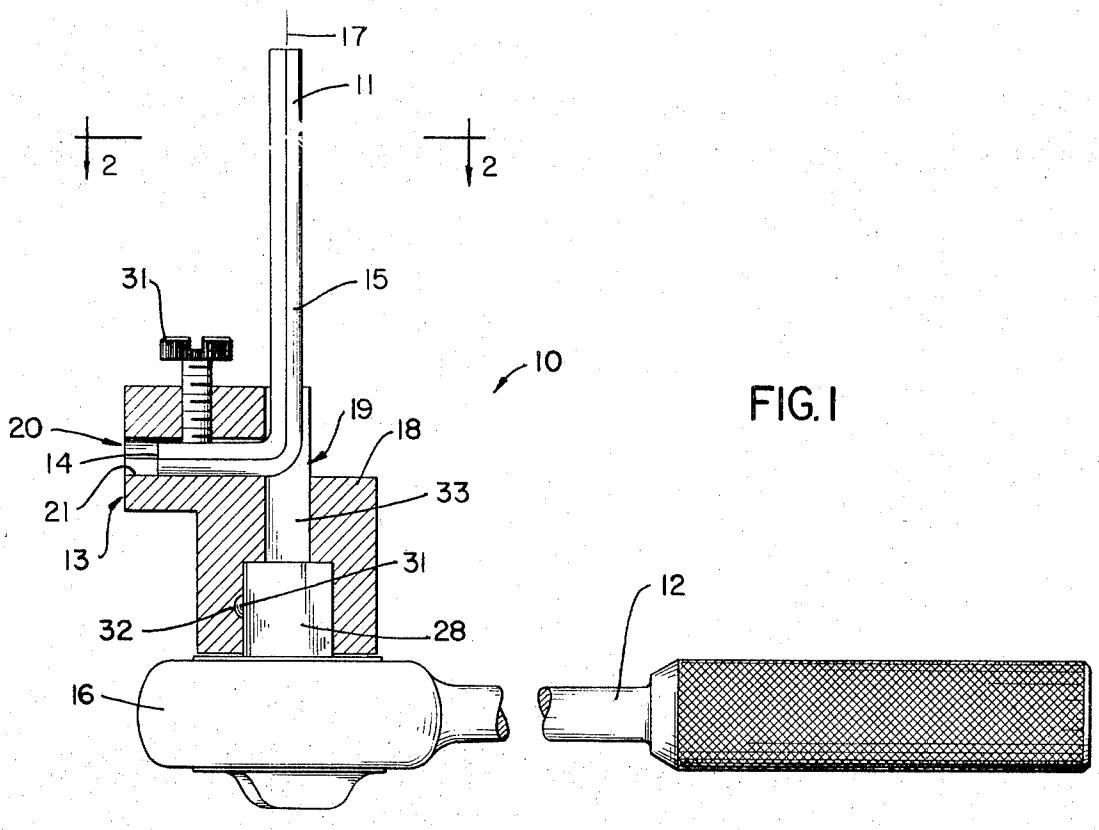


FIG. 1

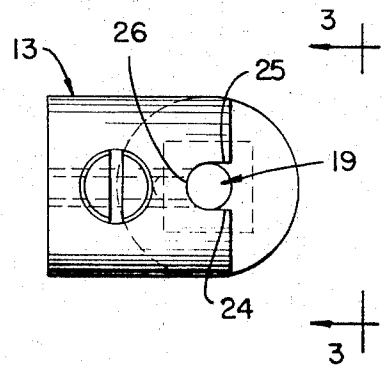


FIG. 2

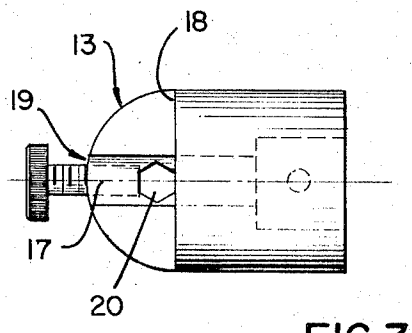


FIG. 3

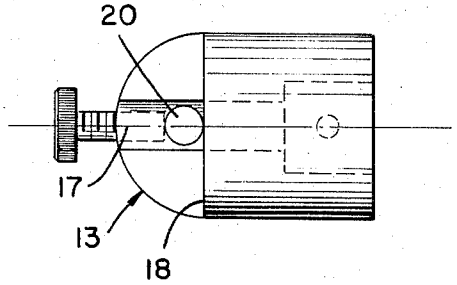


FIG. 4

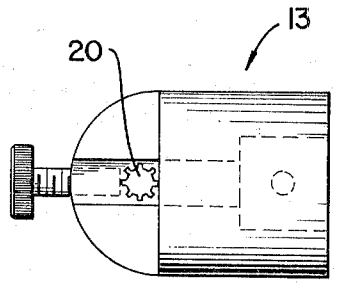


FIG. 5

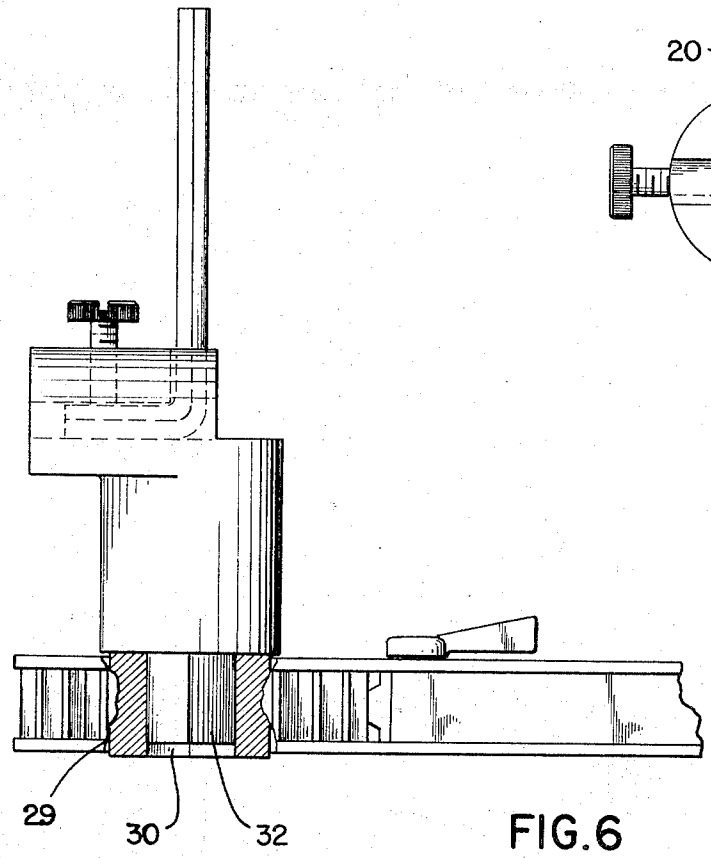


FIG.6

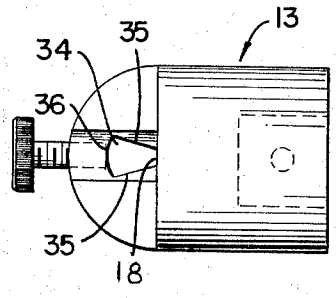


FIG. 7

ALLEN WRENCH HOLDER

BACKGROUND OF THE INVENTION

1. Field of the Invention

This invention relates to wrench holders and more particularly to a holder for mounting an Allen type wrench.

2. Description of the Prior Art

A representative sample of the prior art is shown in the following U. S. Pat. Nos. 2,569,069 issued to J. Motel: 2,713,281 issued to C. A. Poteet; 2,726,091 issued to L. P. Topar; 2,842,020 issued to C. S. Tarquinio; and, 2,851,915 issued to T. L. Martinez. The devices disclosed in these patents all facilitate the holding and driving of an Allen type wrench. Disclosed herein is another tool for operably engaging an Allen type wrench which has several advantages over the prior art holders. For example, spring biased members and various sliding members are not employed in the holder disclosed herein thereby alleviating the possibility of the components of the holder becoming stuck together. In addition, the holder disclosed herein allows for a relatively quicker and easier manner of mounting and demounting of the Allen type wrench to the holder. Various components do not have to be disassembled and assembled as is required by some of the prior art holders.

SUMMARY OF THE INVENTION

One embodiment of the present invention includes a tool for operably engaging an Allen type wrench which has a first shank and second shank integrally joined together at an approximate right angle. The tool includes a handle, an adapter for holding the wrench, means mounted on the handle connecting the adapter to the handle and operable to rotate the adapter about a driving axis as the handle is moved. The adapter has a goove extending in the direction of the axis and a bore opening into the groove and extending at an approximate right angle with respect to the axis. A locking member is threadedly mounted to the adapter and extends into the bore to lockingly engage the first shank which is slidably received therein when the second shank is positioned in the groove.

It is an object of the present invention to provide a new and improved tool for operably engaging an Allen type wrench.

It is the further object of the present invention to provide an Allen wrench holder which allows for the mounting of the Allen type wrench in a relatively easier and quicker manner.

It is yet another object of the present invention to provide a holder which allows for the mounting of an Allen type wrench wherein the holder is capable of holding a variety of sizes.

Related objects and advantages of the present invention will be apparent from the following description.

BRIEF DESCRIPTION OF THE DRAWING

FIG. 1 is a fragmentary side view of a tool incorporating the present invention.

FIG. 2 is a top view of adapter 13 of FIG. 1 looking in the direction of arrows 2—2.

FIG. 3 is a side view of adapter 13 looking in the direction of the arrows 3—3 of FIG. 2.

FIG. 4 is the same view as FIG. 3 only showing an alternate embodiment of the adapter.

FIG. 5 is the same view as FIG. 3 only showing yet another alternate embodiment of the adapter.

FIG. 6 is a fragmentary side view of an alternate embodiment of a tool incorporating the present invention.

FIG. 7 is the same view as FIG. 3 only showing still another alternate embodiment of the adapter.

DESCRIPTION OF THE PREFERRED EMBODIMENTS

For the purposes of promoting an understanding of the principles of the invention, reference will now be made to the embodiments illustrated in the drawings and specific language will be used to describe the same. It will nevertheless be understood that no limitation of the scope of the invention is thereby intended, such alterations and further modifications in the illustrated device, and such further applications of the principles of the invention as illustrated therein being comtemplated as would normally occur to one skilled in the art to which the invention relates.

Referring now more particularly to FIG. 1, there is shown a tool 10 for operably engaging an Allen type wrench 11. Tool 10 includes a handle 12 and an adapter 13, shown in cross section, for holding wrench 11. Allen type wrenches are well known and have a pair of shanks 14 and 15 integrally joined together at an approximate right angle with each shank having an identical cross section. The shank cross section may be of a variety of configurations including hexagonal.

Mounted to end 16 of handle 12 is a conventional rachet mechanism which connects lug 28 to the handle and is operable to rotate the lug about a driving axis 17 as handle 12 is pivoted about the axis. Although the handle shown and described includes a ratchet mechanism it should be understood that the present invention includes all types of handles even those without ratchet mechanisms. Likewise, the present invention includes any type of Allen wrench. Groove 19 (FIG. 2) is provided in adapter 13 and extends in the direction of axis 17 from the top of the adapter to ledge 18. Bore 20 opens into groove 19 and extends at an approximate right angle with respect to axis 17. A locking member 31 is threadedly mounted to adapter 13 and extends into bore 20 to lockingly engage shank 14 of the Allen wrench. To mount the Allen wrench to adapter 13, shank 14 is slid into bore 20 so that shank 15 is positioned in groove 19. Member 31 is then tightened. Ledge 18 is aligned with continuous surface 21 of bore 19 facilitating alignment of shank 14 into the bore and is perpendicular to axis 17. Bore 20 may have a variety of cross sectional shapes such as circular (FIG. 4), or hexagonal (FIG. 3). Other bores could include a spline cross section such as shown in FIG. 5 or a tapered cross section. Groove 19 includes a pair of spaced apart mutually opposed flat surfaces 24 and 25 (FIG. 2) which are tangentially joined to a semi-circular surface 26 whose radial center is positioned along axis 17.

A variety of different handles may be employed to receive adapter 13. In addition, adapter 13 may be provided either with a socket or a lug for mounting the adapter to the handle. In FIG. 1, adapter 13 is shown in cross section illustrating that the adapter is provided with a socket for receiving lug 28 which is rotatably mounted to handle 11. The socket has a recess 32 for receiving a friction ball 31 mounted on lug 28. Other means may be used to secure the adapter to lug 28 such as spring biased locking buttons or pin and ring combi-

nations. The socket receiving lug **28** opens into bore **33** which is aligned with groove **19.** Axis **17** extends centrally through bore **33,** lug **28** and shank **15.** In FIG. **6,** the handle is fragmented at area **29** illustrating that the handle is provided with a socket **30** for receiving a protruding lug **32** which is a part of the adapter. In the embodiment in FIG. **1,** as the handle is rotated about the driving axis, lug **28** is rotated by the ratchet means within the handle thereby driving the adapter. On the other hand, in the embodiment of FIG. **6,** a casing is provided within the handle defining socket **30** with the casing being rotatably driven by the ratchet means thereby driving the lug.

FIG. **7** shows yet another alternate embodiment of adapter **13** which is identical to the other adapters shown in my drawings with the exception that a tapered hole **34** is provided to receive shank **14.** Hole **34** includes a pair of diverging flat sides **35** joined to radiused side **36.** Hole **34** is particularly advantageous in that it will receive a variety of sizes and shapes of shank **14.**

While the invention has been illustrated and described in detail in the drawings and foregoing description, the same is to be considered as illustrative and not restrictive in character, it being understood that only the preferred embodiments have been shown and described and that all changes and modifications that come within the spirit of the invention are desired to be protected.

The invention claimed is:

1. A tool for operably engaging an Allen type wrench which has a first shank and a second shank integrally joined together at an approximate right angle, comprising a handle, an adapter for holding said wrench, means on said handle connecting said adapter to said handle and operable to rotate said adapter about a driving axis as said handle is moved, said adapter having a groove extending in the direction of said axis and a bore opening into said groove and extending at an approximate right angle with respect to said axis, a locking member threadedly mounted to said adapter and extending into said bore to lockingly engage said first shank which is slidably received therein when said second shank is positioned in said groove, said groove extending from an outer surface of said adapter to a line parallel to said axis and on a side of said axis opposite said outer surface, to locate said second shank concentrically on said axis.

2. The tool of claim **1** wherein said bore is defined by a continuous surface and said adapter includes a ledge perpendicular to said axis and aligned with said continuous surface of said bore facilitating alignment of said first shank with said bore.

3. The tool of claim **2** wherein said bore cross sectional shape is hexagonal.

4. The tool of claim **3** wherein said means includes an outwardly projecting ratchet lug, said adapter includes a socket complimentary in shape to said lug into which said lug projects.

5. The tool of claim **4** wherein said adapter has a second bore opening into said socket and aligned with said groove.

6. The tool of claim **5** wherein said socket includes a recess and said lug includes a friction ball projecting into said recess.

7. The tool of claim **6** wherein said axis extends centrally through said second shank, said second bore, and said lug.

* * * * *