Dec. 2, 1952 A. A. TRYPANIS 2,619,862

OPEN-END WRENCH FOR PENTAGONAL NUTS, ETC

Filed Dec. 15, 1950 2 SHEETS—SHEET 1

FIG. 1

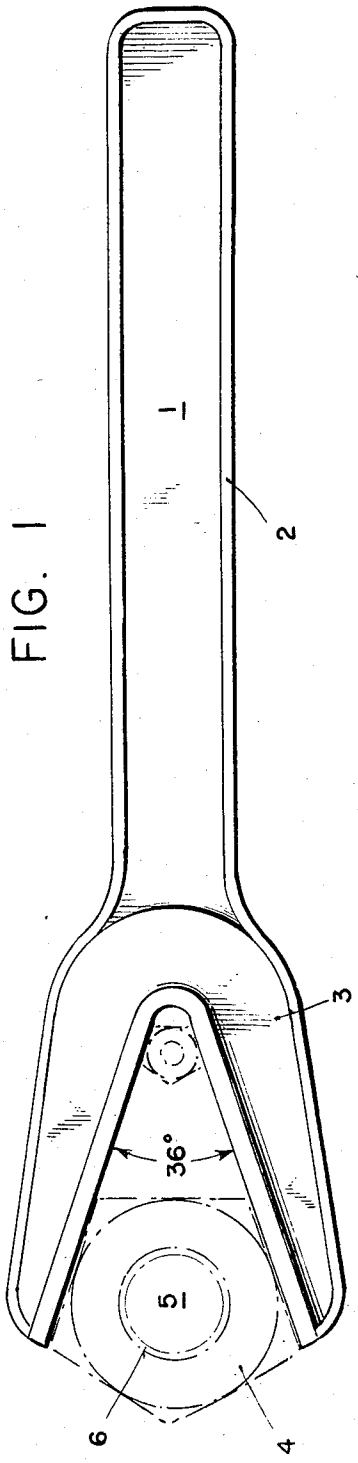
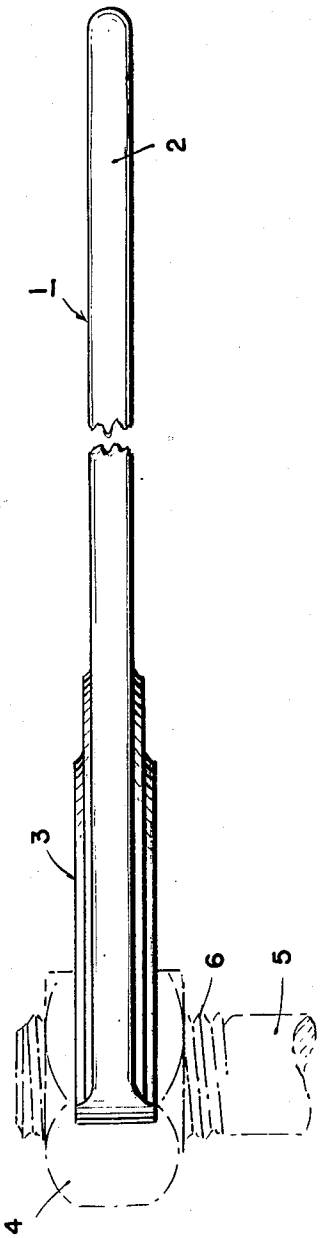


FIG. 2



INVENTOR

ALEXANDER A. TRYPANIS,

BY James M. Drysdale

ATTORNEY

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FIG. 3

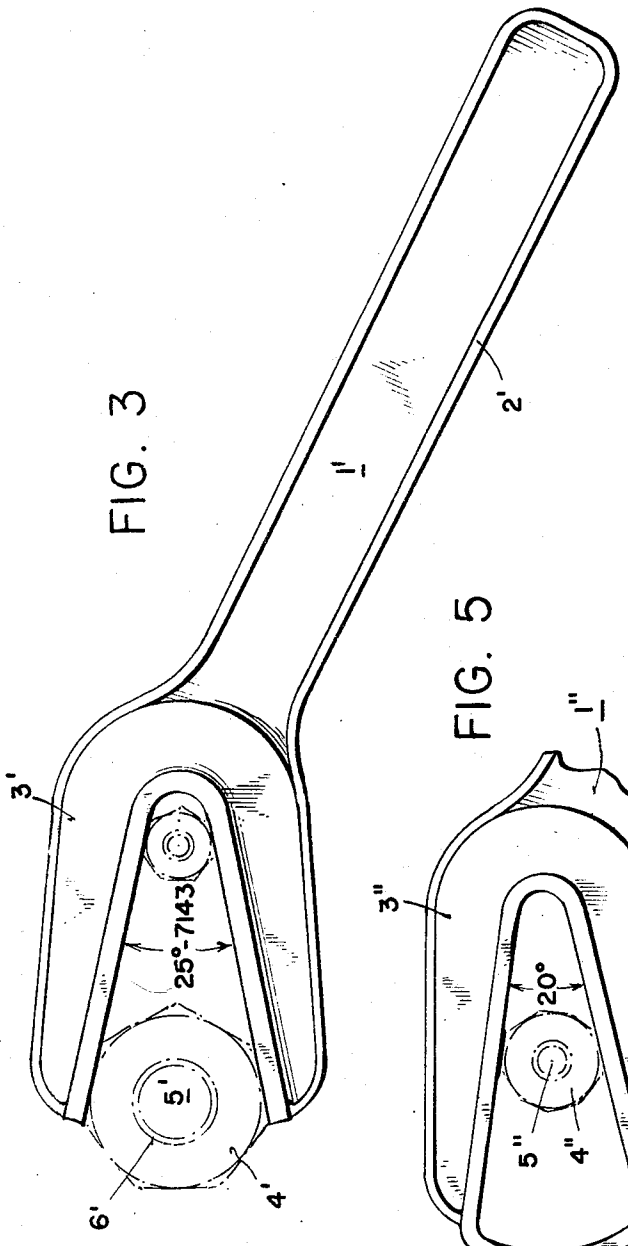
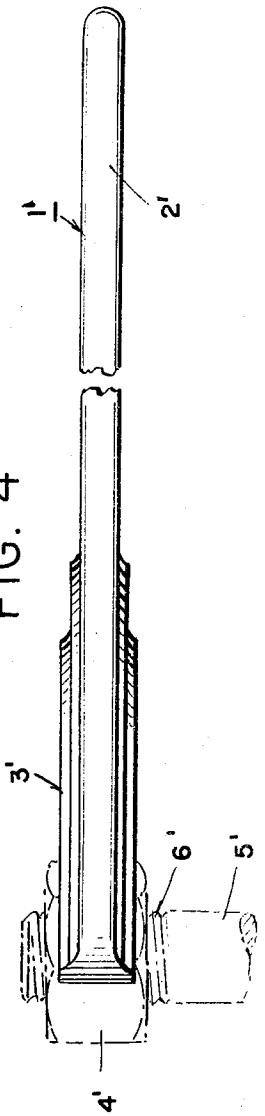


FIG. 5

FIG. 4



INVENTOR
ALEXANDER A. TRYPANIS,

BY James M. Drysdale
ATTORNEY

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OPEN-END WRENCH FOR PENTAGONAL NUTS, ETC.

Alexander A. Trypanis, Athens, Greece

Application December 15, 1950, Serial No. 200,990

1 Claim. (Cl. 81—119)

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The wrench described and claimed in this application is of the spanner type having dihedral jaws and is adapted to operate only on nuts or bolt heads having an odd number of equal sides. The acute angle formed by the jaws of the wrench is always equal to one-half the exterior angle of the nuts or bolt-heads operated upon.

An important object of the invention is to provide a wrench that when circumposed about a nut or bolt head the possibility of slippage is reduced to a minimum as a relatively light endwise pressure serves to hold the jaws interlocked with the companion nuts or bolt heads.

A further object is to provide a wrench and bolt head or nut of the character described which is very simple in construction, thoroughly reliable for its intended purpose, strong, durable and compact and comparatively inexpensive to manufacture.

Other objects and advantages of the invention will be apparent during the course of the following description.

In the accompanying drawings, forming a part of this application and in which like numerals are employed to designate like parts throughout the same.

Fig. 1 is a side elevation of a wrench suitable for pentagonal nuts or bolt heads.

Fig. 2 is a top view of Fig. 1.

Fig. 3 is a side elevation of a wrench suitable for use on heptagonal nuts or bolt heads.

Fig. 4 is a top view of Fig. 3.

Fig. 5 is a side elevation of a wrench head suitable for use on nonagonal nuts or bolt heads.

In Figs. 1 and 2 of the drawings wherein for the purpose of illustration is shown a preferred embodiment of my invention, the numeral 1 indicates the handle portion of the wrench which is preferably rectangular in cross-section and provided with rounded edges 2. Integral with the handle portion is the wrench head 3 of the fixed jaw type having a dihedral angular opening of 36° which is circumposed about a pentagonal nut 4 adapted to be screwed onto the end of the bolt 5 provided with threads 6.

In Figs. 3 and 4 of the drawing is shown a modified form of wrench and nut or bolt head in which the wrench head 3' is mounted on the handle 1' provided with rounded edges 2'. The wrench head is also of the fixed jaw type having a dihedral angular opening of 25.7143° adapted to accommodate heptagonal nuts 4' adapted to be screwed onto the end of the bolt 5' provided with threads 6'.

In Fig. 5 is disclosed another modified form of

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wrench and nut or bolt head wherein the wrench head 3'' is provided with a dihedral angular opening of 20° adapted to be circumposed about a nonagonal nut or bolt head 4''.

In order to counteract any tendency of the wrench to disengage when force is applied the wrench shank or handle may be placed at an angle to the bisector of the wrench head's angular opening as shown in Fig. 3.

For the purpose of increasing the strength of the wrench head the angular opening of the wrench head may be closed at its outer end as indicated at 7 in Fig. 5.

The drawings show a handle or shank with a wrench head at one end but it is obvious that a like wrench head or even a wrench of a different size may be mounted on the other end of the handle or shank. Where both forms of wrench heads are combined in the one wrench therefor, the wrench may be turned end for end and used with one head or the other to suit the work in hand.

The other mentioned features, wherein the handle is placed at an angle as shown in Fig. 3, or where the wrench head is closed as shown in Fig. 5, or where the handle is provided at each end with a wrench head, are admittedly old in the art and are therefore not specifically claimed herein.

The specification and drawings show wrenches adapted to be used, with nuts of 5, 7 or 9 sides but it is obvious that a similar type of wrench could be used with other nuts having a greater number of odd sides.

A single spanner type wrench of the class described could be used on several nuts or bolt heads of different sizes, generally from ¼ inch to 1 inch provided the nuts or bolt heads had the same number of sides as clearly shown in Figs. 1 and 3.

It is to be understood that the form of my invention, herewith shown and described, is to be taken as a preferred example of the same, and that various changes in the shape, size and arrangement of parts may be resorted to, without departing from the spirit of my invention, or the scope of the subjoined claim.

I claim:

An open end, one piece wrench having dihedral and smooth active jaw faces which form an acute angle of divergence equal to one-half the exterior angle of equilateral nuts or bolt heads of various sizes to be operated upon.

ALEXANDER A. TRYPANIS.

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