Aug. 8, 1961 W. J. DOWLEY 2,994,955

NUT SPLITTING TOOL

Filed Nov. 14, 1958

FIG. 1.

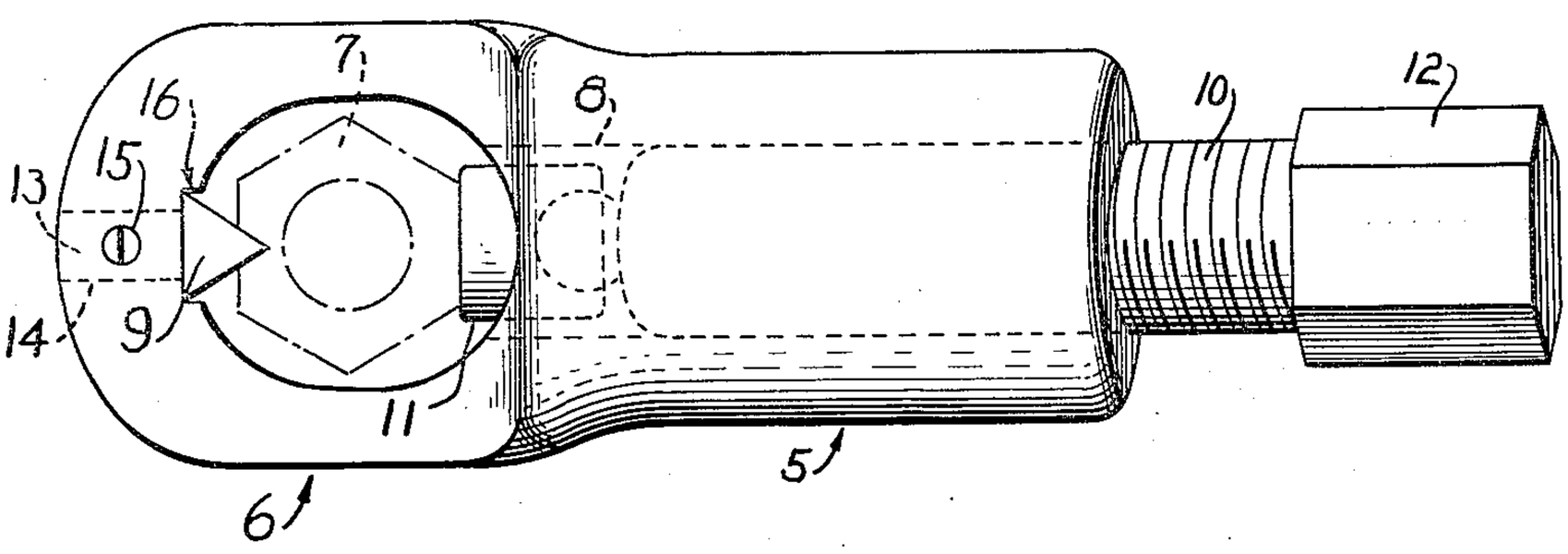


FIG. 2.

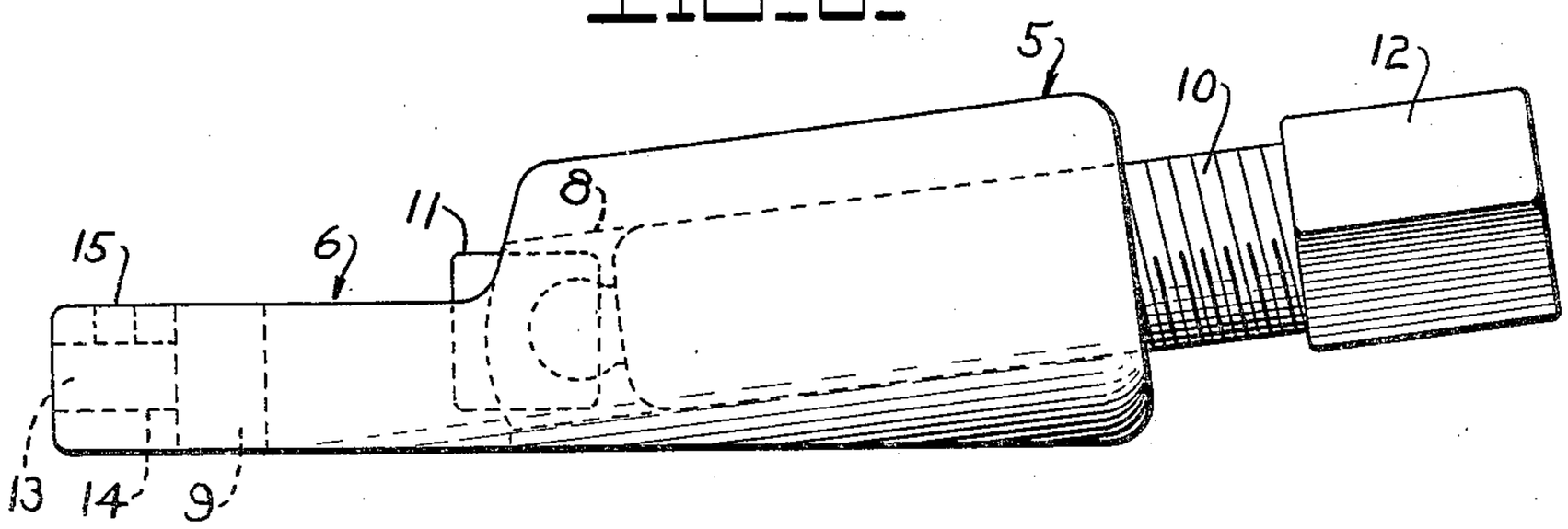
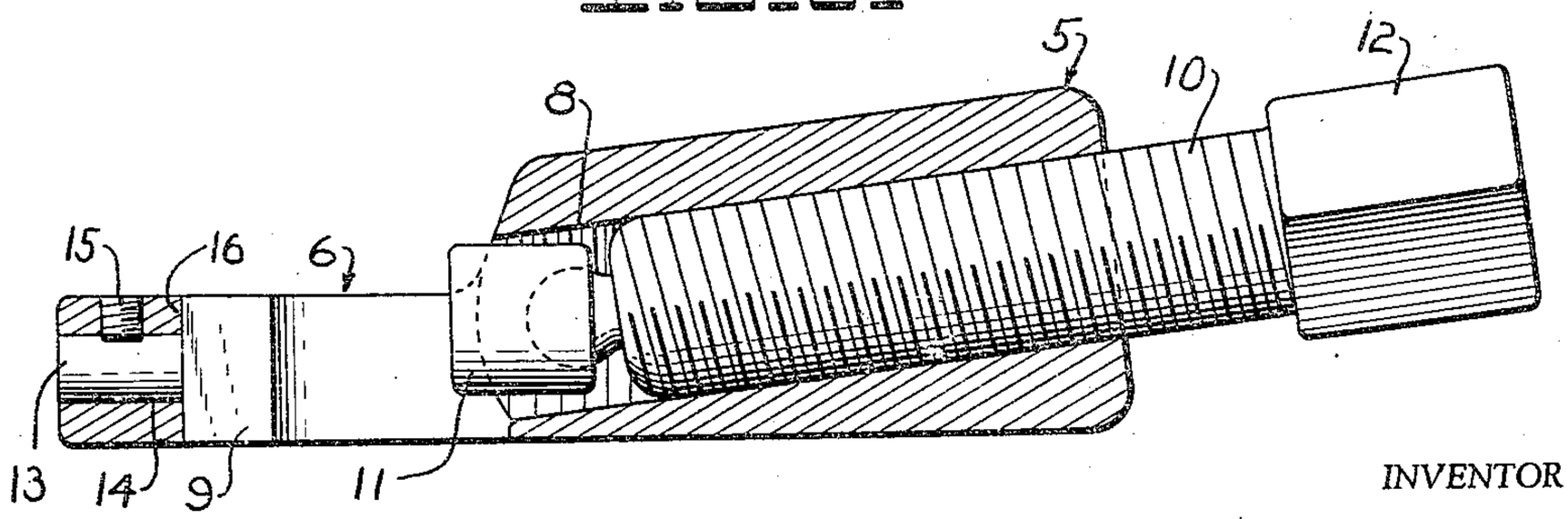


FIG. 3.



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NUT SPLITTING TOOL

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4 Claims. (Cl. 30—272)

The present invention relates broadly to tools and in its specific phases to a device for splitting nuts.

When a nut becomes so badly rusted onto its bolt that it is frozen thereon, it is many times impossible to remove it with a wrench without danger of wringing off the end portion of the bolt. It is therefore customary to split the nut with a cold chisel and hammer. However, this is often very difficult, due to lack of space in which to so swing the hammer, to deliver really effective blows to the chisel, and even where there is hammering space there is the danger of bending the bolt on which the nut is fastened. This is particularly true with respect to some of the nuts used in mounting automobile shock absorbers, and which are exposed to the elements which facilitate rusting. It was a recognition of this problem and the lack of any thoroughly satisfactory commercial device on the market for such use which led to the conception and development of the present invention.

Accordingly among the objects of the present invention is the provision of a device aimed to overcome the above difficulty by providing a simple tool operable with a wrench and effective to quickly and easily split the nut.

Another object is to provide an exceptionally strong and compact tool useable for splitting nuts.

A further object is to provide a nut splitting tool having a fixed cutting anvil and with a swivel ended screw for forcing the nut against the cutting anvil.

A further object is to provide a nut splitting tool wherein same has a splitting force delivering screw which is set at a small angle of inclination from the side of the nut to provide clearance for operating a wrench when the nut is up against the side of a frame or the like.

Still further objects and advantages of the invention will appear as the description proceeds.

To the accomplishment of the foregoing and related ends, the invention, then, consists of the means hereinafter fully described and particularly pointed out in the claims, the annexed drawing and the following description setting forth in detail certain means for carrying out the invention, such disclosed means illustrating, however, but one of various ways in which the principle of the invention may be used.

In the annexed drawing:

FIGURE 1 is a top plan view of a preferred form of the nut-splitting tool of the present invention.

FIGURE 2 is a side elevation.

FIGURE 2 is a central longitudinal sectional view.

An elongated steel body **5** is provided, having a base portion with an integral preferably flat yoke **6** at one end of same to receive a nut **7** to be split. The body **5** has a longitudinal bore **8** which opens into one end of the yoke **6**; and a nut-splitting wedge **9** is secured on the inside of the other end of said yoke with the cutting edge of said wedge in position to engage one facet of the nut **7**. A steel pressure screw **10** is threaded into the bore **8** and is provided at its inner end with a swiveled head **11** to abut the facet of the nut **7** opposite to that which is to be split. The outer end of the screw **10** has an integral wrench-engaging head **12**.

The bore **8** is so positioned as to dispose the axis of the screw **10** at a wide obtuse angle to the axis of the nut **7** to make the screw head **12** more accessible for engagement by a wrench. The included angle between the underside or base of the tool body portion and the axis of the screw **10**, as seen in FIGURES 2, and 3, is generally in the range of 9° to 15° and a preferred angle

for same is 12°. Thus the wide angle is generally in the range of 75° to 81° and preferably 78°.

The wedge **9** preferably has an attaching shank **13** received in an opening **14** in the end of yoke **6** and, if desired, may be held therein by a set screw **15**. To prevent any possible rotation of the wedge, the yoke **6** has a seat **16** in which the base of said wedge is snugly and non-rotatably received, so that the cutting edge of the wedge is substantially parallel to the longitudinal axis of the nut to the split when in splitting position.

To operate the tool, the screw **10** is backed out sufficiently to allow reception of the nut **7** between the swiveled head **11** and the cutting edge of the nut-splitting wedge **9**. Then the screw is finger tightened and finally turned with a wrench until it draws the cutting edge of wedge **9** into the nut and splits it for easy removal.

While the specific construction disclosed is a preferred one, attention is invited to the possibility of making variations within the spirit and scope of the invention as shown and described. Also while the tool has been described, for ease of explanation, in the position shown in the drawing, the directional terms such as, "base" are not to be construed as limiting upon the invention since obviously the tool can be used in various positions.

Other modes of applying the principle of my invention may be employed instead of the one explained, change being made as regards the tool and combinations herein disclosed, provided the means stated by any of the following claims or the equivalent of such stated means be employed.

I therefore particularly point out and distinctly claim as my invention:

1. A nut-splitting tool comprising a body having a base portion with an integral yoke extending along said base at one end of the latter so as to surround a nut to be split, said body having a longitudinal bore which opens into one end of said yoke, a nut-splitting wedge secured in the other end of said yoke to engage one facet of the nut, the cutting edge of said wedge being substantially parallel to the longitudinal axis of said nut when the latter is in splitting position, and a pressure screw threaded into said bore and having a swiveled head at its inner end to abut the facet of the nut opposite the one to be split, the outer end of said screw being provided with a wrench-engaging head, and in which said nut-splitting wedge has an attaching shank and said yoke has an opening receiving and securing said shank at the remote end of said yoke from the entrance thereto of said longitudinal body bore, and in which said yoke has a seat non-rotatably receiving the base of said wedge.

2. A nut-splitting tool comprising a body having a base portion with an integral yoke extending along said base at one end of the latter so as to surround a nut to be split, said body having a longitudinal bore which opens into one end of said yoke, a nut-splitting wedge secured in the other end of said yoke to engage one facet of the nut, the cutting edge of said wedge being substantially parallel to the longitudinal axis of said nut when the latter is in splitting position, and a pressure screw threaded into said bore and having a swiveled head at its inner end to abut the facet of the nut opposite the one to be split, the outer end of said screw being provided with a wrench-engaging head, and in which said bore is so positioned as to dispose the axis of said screw at an angle in the approximate range of 75° to 81° to the axis of the nut in position to be split, and at a small acute angle to the base of said body portion, and in which said nut-splitting wedge has an attaching shank and said yoke has an opening receiving and securing said shank at the remote end of said yoke from the entrance thereto of said longitudinal body bore, and wherein said

yoke has a seat non-rotatably receiving the base of said wedge.

3. A nut-splitting tool comprising a body having a base portion and an integral yoke extending in an unobstructed plane along said base at one end of the latter so as to surround a nut to be split, said body having a longitudinal bore which opens into one end of said yoke, a nut-splitting wedge secured in fixed location at the other end of said yoke in position to engage one facet of the nut, the cutting edge of said wedge extending from the base of said yoke and being substantially parallel to the longitudinal axis of said nut when the latter is in splitting position, a pressure screw threaded into said bore, a head on the inner end of said pressure screw with said head adapted to abut the facet of the nut opposite the one to be split, and a ball and socket swivel means for rotatably mounting said head on the inner end of said pressure screw, the outer end of said screw being provided with a wrench-engaging head, said bore being so positioned as to dispose the axis of said screw at a wide acute angle to the axis of the nut in position to be split, and at a small acute angle to the base of said body portion to generally facilitate engaging said screw head with a wrench.

4. A nut-splitting tool comprising a body having a substantially flat faced base portion with an integral yoke extending from one end of said body and with the under face of said yoke forming a substantially aligned continuation of the plane of said base, said yoke for rigidity being formed so as to completely surround a nut to be slit, said body having a longitudinal bore at a small acute angle to said base and which bore, at its end nearest said

base, opens into one end of said yoke, a nut-splitting wedge mounted in said yoke at the end of the latter remote from the adjacent end of said bore, said wedge being supported by said yoke against endwise movement away from the adjacent end of said bore when the cutting edge of said wedge is in engagement with one facet of the nut in position to be split and splitting pressure is being applied, the cutting edge of said wedge extending approximately from the under face of said yoke and being substantially in lengthwise alinement with the longitudinal axis of said nut when the latter is in splitting position with its base approximately in alinement with the base of said yoke, a pressure screw threaded into said bore, a movable head at the inner end of said pressure screw with said head adapted to abut and apply pressure to the facet of the nut opposite the one to be split, said head being mounted for endwise movement through pressure applied to it through the inner end of said pressure screw, the outer end of said screw being elevated above said base and provided with a wrench-engageable outer end for use in applying said pressure.

References Cited in the file of this patent

UNITED STATES PATENTS

870,441	Kerr	Nov. 5, 1907
1,736,041	Huff	Nov. 19, 1929
1,774,328	Huff	Aug. 26, 1930
2,161,335	Cherry	June 6, 1939
2,558,641	Beezley	June 26, 1951
2,666,985	Sewell	Jan. 26, 1954
2,879,592	Paul	Mar. 31, 1959

UNITED STATES PATENT OFFICE

CERTIFICATE OF CORRECTION

August 8, 1961

Patent No. 2,994,955

William J. Dowley

It is hereby certified that error appears in the above numbered patent requiring correction and that the said Letters Patent should read as corrected below.

Column 1, line 53, for "2" read -- 3 --; line 67, strike out "obtuse"; same column 1, line 71, after "2" strike out the comma; column 2, line 10, for "the", second occurrence, read -- be --; column 3, line 4, for "and" read -- with --; line 31, for "slit" read -- split --.

Signed and sealed this 30th day of January 1962.

(SEAL)

Attest:

ERNEST W. SWIDER

Attesting Officer

DAVID L. LADD

Commissioner of Patents