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J. C. FRANCESCONI ET AL

2,624,383

SCREW DRIVER WITH APERTURED HANDLE

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FIG. 1

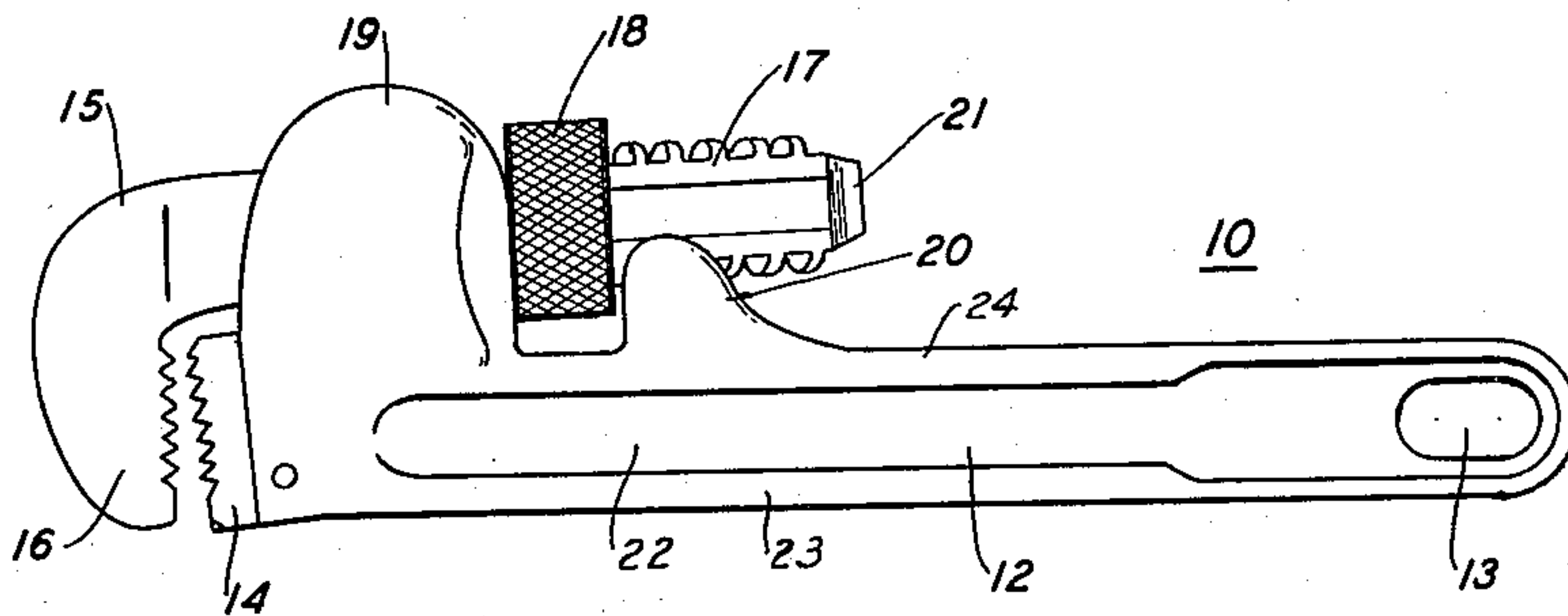


FIG. 2

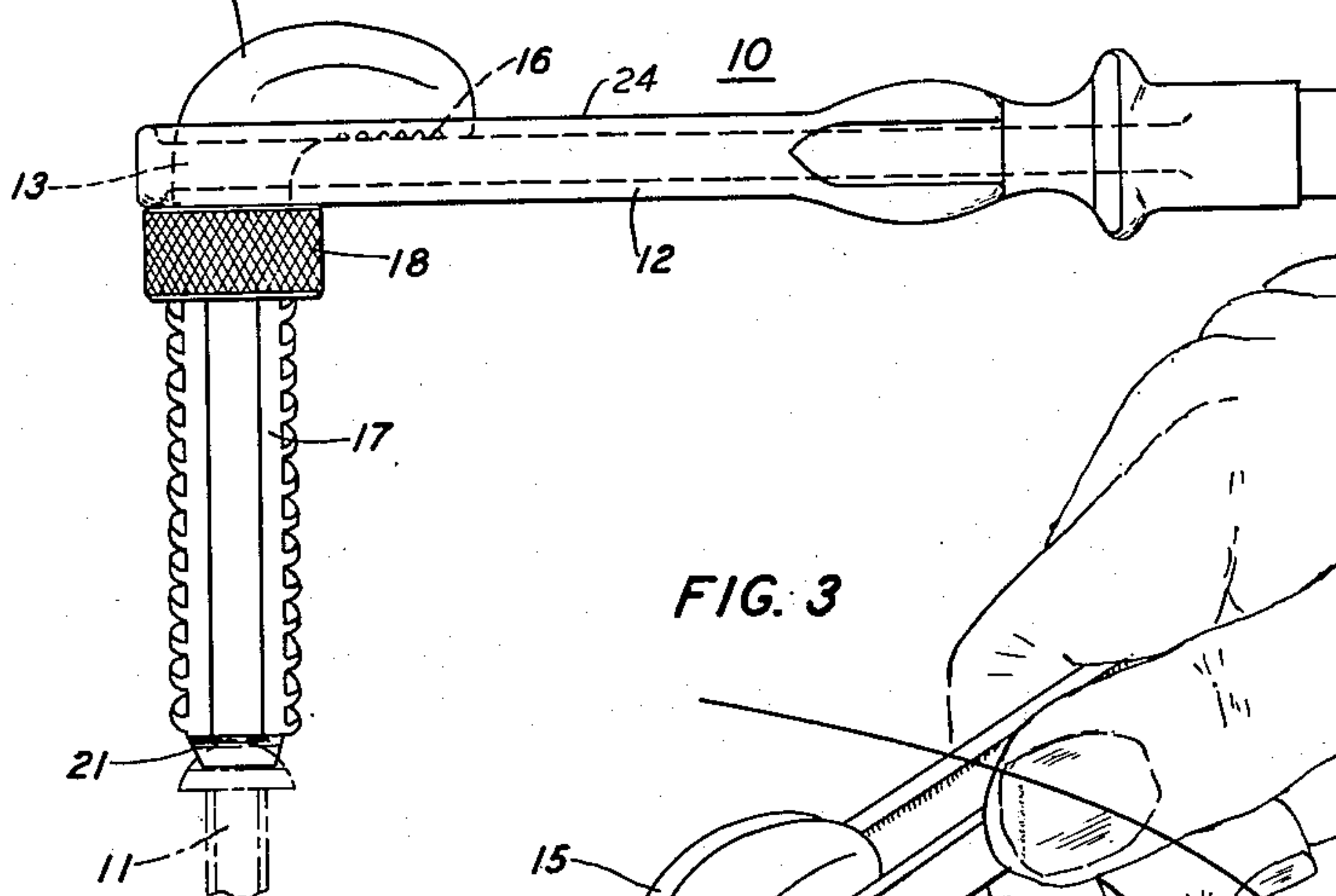
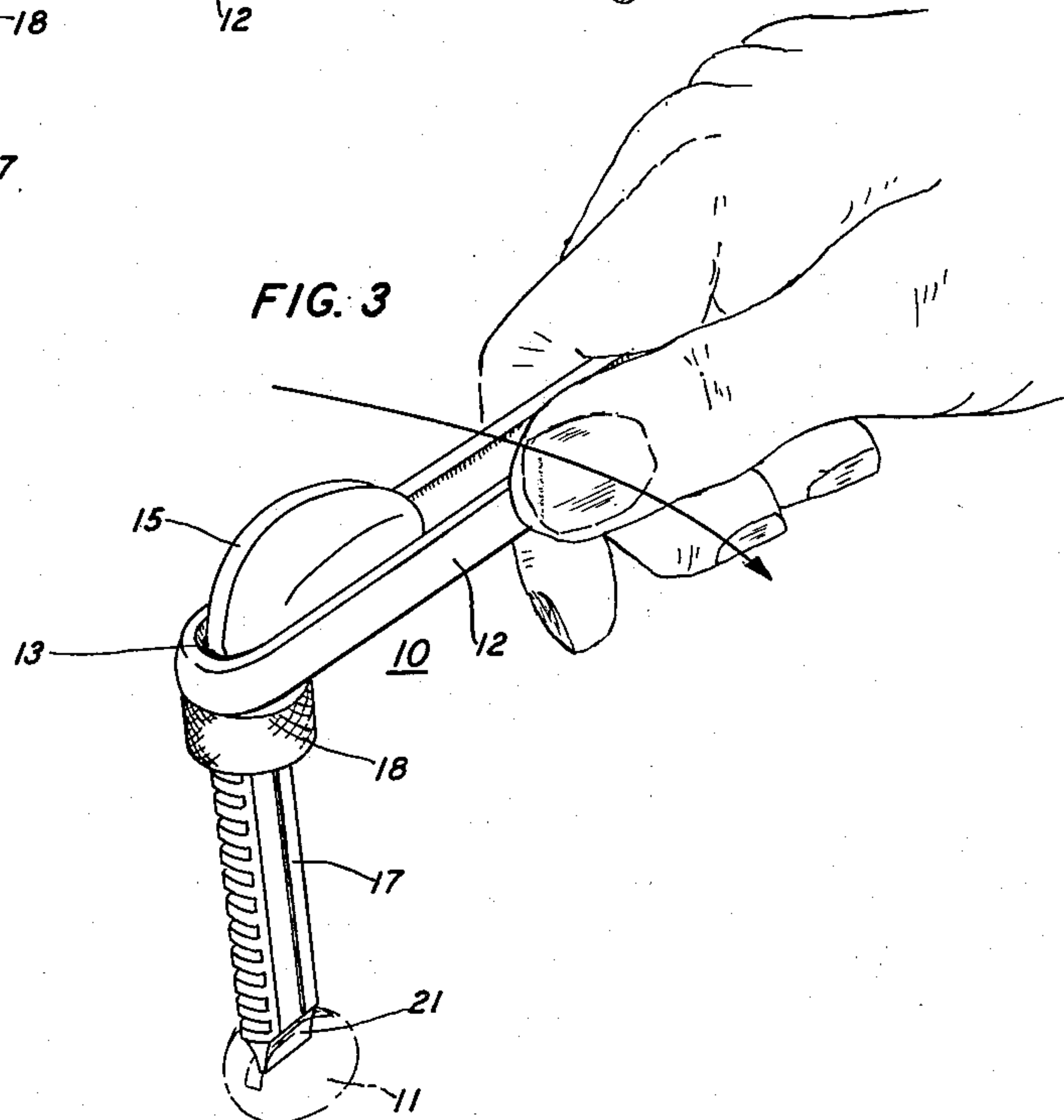


FIG. 3



INVENTORS J. C. FRANCESCONI
J. P. HUBBELL

BY

Hugh S. Wertz

ATTORNEY

UNITED STATES PATENT OFFICE

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SCREW DRIVER WITH APERTURED HANDLE

James C. Francesconi, Brooklyn, N. Y., and Jesse P. Hubbell, Fanwood, N. J.; said Hubbell assignor to said Francesconi

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4 Claims. (Cl. 145—50)

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This invention relates to hand tools and more specifically to a combination wrench and screw driver.

It frequently happens that a screw must be tightened or loosened in a spot where there is not much room above it. Moreover, the situation frequently arises wherein the screw or bolt to be turned requires more force to move it than can be obtained with the average screwdriver.

It is accordingly an object of this invention to provide a hand tool which can be readily carried in the pocket and which is capable of use in the above-described situations.

It is another object of this invention to provide a combination hand wrench and right-angle screw driver which is fully as capable of performing one function as the other.

In accordance with the invention, there is provided a hand tool which normally (that is, when it is in the condition in which it is carried in the pocket) functions as a wrench but which, by making a change in the relative positions of the parts, becomes a very strong and efficient right-angle screw driver.

The invention will be more readily understood by referring to the following description taken in connection with the accompanying drawings forming a part thereof, in which:

Fig. 1 is a side view of a hand tool in accordance with this invention when the various parts thereof are arranged to form a wrench;

Fig. 2 is a side view of the said hand tool when the parts are arranged to produce a right-angle screw driver; and

Fig. 3 is a perspective view of the arrangement of Fig. 2 showing how the device is used as a screw driver.

Referring more particularly to the drawings, Figs. 1, 2 and 3 show, by way of example for purposes of illustration, a hand tool 10 in accordance with the invention. In the arrangement of Fig. 1, the device 10 has its various component parts positioned with respect to one another in such a manner that the device functions as a hand wrench while in the arrangement of Figs. 2 and 3, by using the same parts but in different relationship with one another, the device becomes a very sturdy screw driver with a high leverage factor and which requires a minimum of space above the screw head 11.

The device 10, as shown in Fig. 1, has a handle 12 which is of the type usually found in hand wrenches but which has an oval-shaped aperture 13 at one end for a purpose which will be described below. A stationary jaw member 14 is integral

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with or is attached to the handle 12 and is adapted to cooperate with a movable jaw member 15. The member 15 has a jaw 16 and a threaded portion 17 which engages complementary internal threads in a knurled nut 18 which is nested between a shoulder 19 of the handle 12 and a raised portion 20 thereof. Turning the nut 17 in one way causes the distance between the jaws 14 and 16 to be increased and turning it the other way causes this distance to be decreased in a manner well understood by all users of hand wrenches.

The extreme end 21 of the movable jaw member 15 is machined to form a screw driver bit. Provided the threads of the portion 17 of the member 15 are carried sufficiently high on the member, the bit 21 and the aperture 13 are the only changes which have to be made in certain forms of conventional wrenches.

Reference will now be made specifically to Figs. 2 and 3 wherein is shown the position of the parts described above when the device 10 is assembled as a right-angle wrench. The member 15 has its threaded portion 17 passed through the aperture 13 in the handle 12 and the knurled nut 18 is tightened so that it is against the underside of the handle 12 when it is in the position shown in these figures. The jaw 16 makes contact with the upper side of the handle. If desired, in order to relieve somewhat the pressure against the sides of the aperture 13 (although it is usually not necessary since both the aperture 13 and the threaded portion 17 are of (approximately) elliptical cross-section of about the same size and thus make a good contact which discourages turning with respect to the handle and member 15), the jaw 16 can nest within a groove 22 between two raised edge portions 23 and 24 as indicated in Fig. 2. The right-angle wrench 10 shown in Figs. 2 and 3 has a height equal to the length of the member 15 and thus requires little headroom (much less than the usual screw driver). Because of its handle 12, a great force (due to the leverage) can be exerted on the screw 11. It is equivalent in this respect to a brace and screw driver bit without taking up as much room. Moreover, it is small enough to carry in the pocket.

Because of the sturdy nature of the parts, the handle 12 of the device 10 can be used in some cases as a hammer head (in sharp contrast to the usual wooden or plastic headed screw driver).

While the present invention has been described in terms of a preferred illustrative embodiment, it will be realized that the invention and its several features are susceptible of embodiment in a

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wide variety of other forms and hence the invention is to be understood as comprehending such other forms as may fairly come within the spirit and letter of the claims.

What is claimed is:

1. A right-angle screw driver comprising a threaded member having a screw driver bit at one end and a right-angle extension at the other end thereof, a handle having an aperture at one end through which said threaded member protrudes, and a knurled nut having internal threads to engage those on said threaded member and screwed tightly against one surface of said handle to force said extension tightly against a surface of said handle opposite said one surface.

2. The combination of elements as in claim 1 in which said threaded member has an elongated cross-section and said aperture also has an elongated cross-section.

3. The combination of elements as in claim 1

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in which said extension has a corrugated face on the surface thereof in contact with said handle.

4. The combination of elements as in claim 1 in which said extension nests within a channel in said handle to prevent turning motion between the extension and the handle.

JAMES C. FRANCESCONI.
JESSE P. HUBBELL.

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