Nov. 17, 1953 J. DILLARD 2,659,258

BOLT-HOLDING BOX WRENCH

Filed May 20, 1952

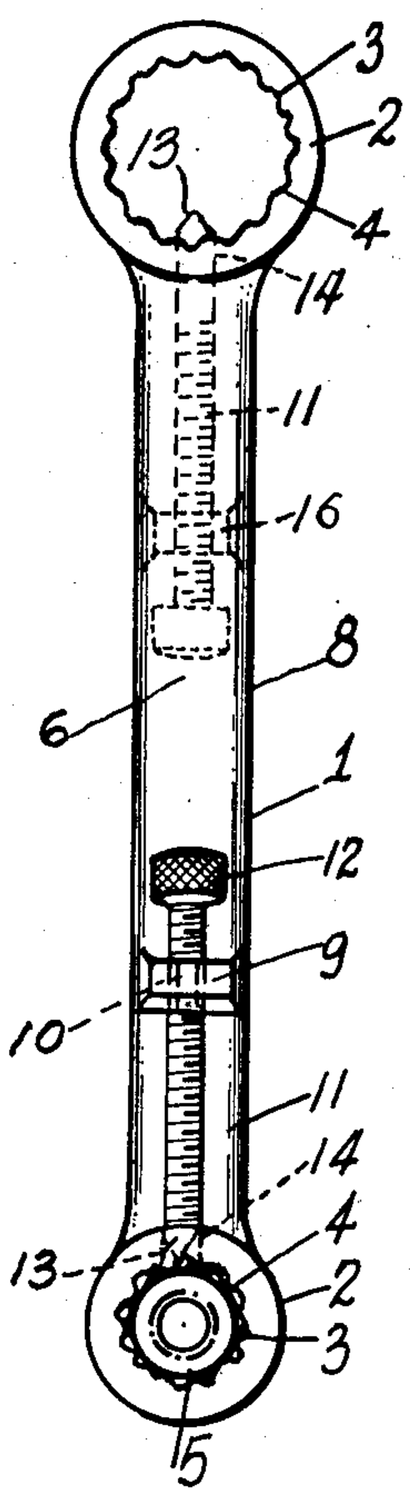


FIG 1

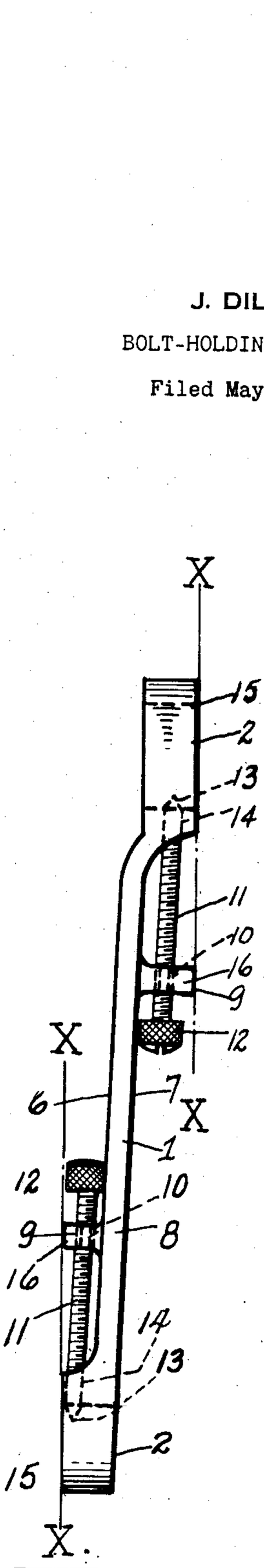


FIG 2

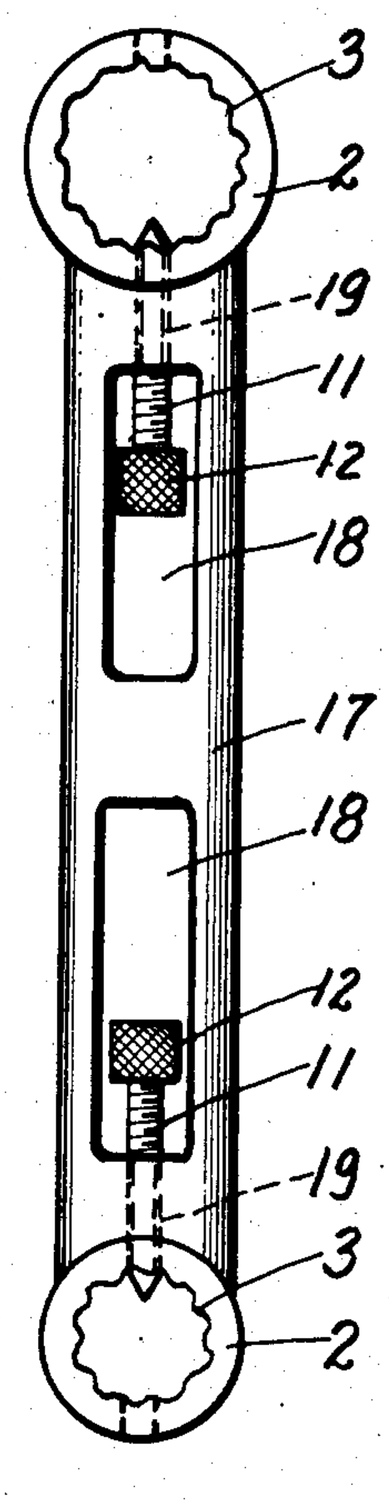


FIG 3

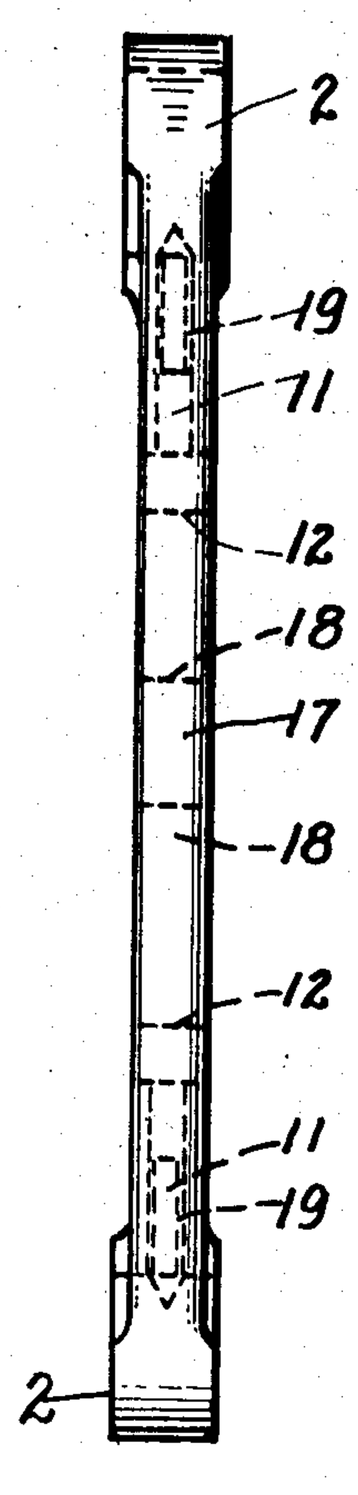


FIG 4

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Patented Nov. 17, 1953

2,659,258

# UNITED STATES PATENT OFFICE

2,659,258

## BOLT-HOLDING BOX WRENCH

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Application May 20, 1952, Serial No. 288,850

1 Claim. (Cl. 81—125)

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This invention relates to improvements in bolt-holding box wrench and other types of nut and bolt tightening devices.

The primary object of my invention is to provide a self-holding-on wrench.

An object of my invention is to provide a means for utilizing a wrench during a nut and bolt tightening operation that will eliminate the necessity to hold said wrench on said bolt and/or nut by hand.

Another object of my invention is to provide a wrench that can be secured to a nut or bolt head to prevent turning of the nut or bolt head and accomplish a tightening operation by a single operator when the material being fastened by a nut and bolt is of such size and/or shape that it would be impossible for a single operator to handle both a holding and tightening wrench because of inaccessibility of one or the other wrench.

A further object of my invention is to provide a holding means on a wrench that will keep the wrench on a nut or bolt head and secure it thereto during a tightening operation.

These and other objects will be more specifically set forth in the description and the drawing forming part of my application. Throughout the description the same indicia will identify similar parts.

In the drawings:

Figure 1 is a top plan view of my particular wrench.

Figure 2 is a side view of my particular wrench.

Figure 3 is a top plan view of an alternate form of my wrench.

Figure 4 is a side view of the alternate form of my wrench.

In the art of securing structural elements together by nuts and bolts it is customary to use two persons when both ends of bolts and nuts are not accessible to one person.

This is especially true in body building for automotive trucks and cars. Usually it requires one mechanic on each side of the part being assembled or attached to the chassis or body of the motor vehicle.

This extra help is necessary because present day wrenches will not stay put on a nut or bolt head without manually keeping them in place or by other makeshift means.

End and/or socket wrenches as made at present fit loosely about nuts and bolt heads and therefore cannot be depended upon to remain of and by themselves on the nuts and bolt heads during a tightening operation.

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In many cases limited space prevents a single operator from using both hands; i. e. one for holding and one for tightening, therefore the nut and bolt must be coaxed to a tightened position with undue amount of turning of both the nut and bolt together.

To overcome the foregoing difficulties and accomplish a saving in man hours I have invented a wrench that will permit one person to do the work of two and permit a lone person to tighten bolts and nuts to home position without another person's assistance.

In Figures 1 and 2 is shown a typical double ended offset box wrench 1 having hollow cylindrical bosses 2 known to the trade as socket wrenches. The inner circumferences 3 of the bosses have serrations 4 which prevent a nut 5 from turning with relation to the wrench during a tightening operation. On opposite faces 6 and 7 of a handle 8 there are fixed lugs 9. These lugs have tapped holes 10 for set screws 11 having hand tightening knurled heads 12 with screw driver slots for forcing an end 13 of each of the set screws against the nut 5 whereby it is retained within the hollow bosses of the wrench.

The ends 13 of the set screws extend through and are rotatable in holes 14 within the cylindrical bosses 2. These ends are pointed to insure the securing of the wrench to a nut or bolt head.

Surfaces 15 of the bosses and tops 16 of the lugs 9 are constructed on a straight line as indicated by line X—X, Figures 1 and 2, so as to eliminate interference by the set screws when placing the wrench on a nut and/or bolt head.

An alternate structure of my invention is shown in Figures 3 and 4 and is known to the trade as a flat socket wrench. This double ended wrench has the same cylindrical bosses 2 with the serrated inner circumferences 3.

In a handle 17 slots 18 are provided to permit free rotation and longitudinal movement of set screws 11. The screws have knurled heads 12 for manual rotation of the set screws in threaded holes 19 within the handle. Rotation of the set screws cause them to move into contact with and hold the nut securely within the cylindrical bosses of the wrench. The wrench is released from the nut by rotating the set screws away from the nut.

The essential difference between the two types of my wrenches becomes obvious upon examining the drawing illustrating my invention. My alternate form of wrench is for use in close quarters where offset wrenches can not be used.

In using my wrench a nut is first threaded on a bolt as far as possible by hand. The wrench

is then placed about the nut and secured to the nut by means of the set screw, so that the wrench will not fall away from the nut. An opposite end of the wrench is then brought into contact with any obstruction that will prevent the wrench and the nut from rotating when the bolt is subsequently rotated to accomplish complete tightening.

The mechanic now has both of his hands free to apply another wrench on the opposite end of the bolt to bring the bolt and nut home to the desired holding power without the assistance of another person.

Having thus described my invention I claim as new and novel and desire to secure by Letters Patent the following:

A flat wrench for tightening a nut on a bolt, said wrench comprising a rectilinear handle having a hollow boss in at least one of the extremities thereof, a surrounding interior wall surface of



said hollow boss being provided with serrations to inhibit the rotation of said nut in relation to said handle, a slot in said handle communicating with said hollow boss by means of a threaded hole, a set screw rotatably mounted in said threaded hole and said slot to engage said nut so as to secure said wrench on said nut.

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