

Nov. 9, 1943.

E. T. COLLINS ET AL

2,334,069

SPANNER WRENCH

Filed June 20, 1941

2 Sheets-Sheet 1

Fig. 1.

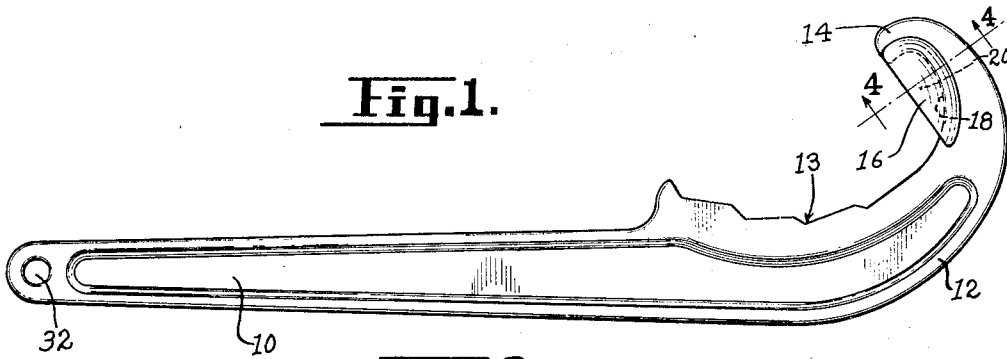


Fig. 2.

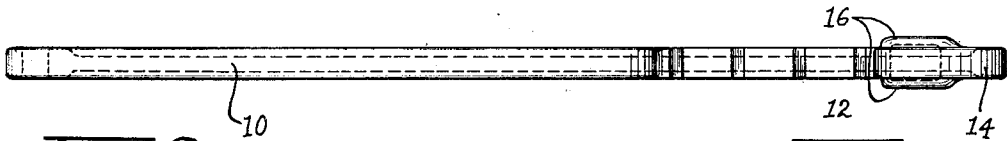


Fig. 3.

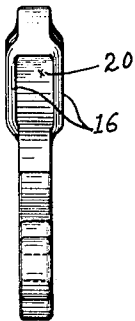


Fig. 4.

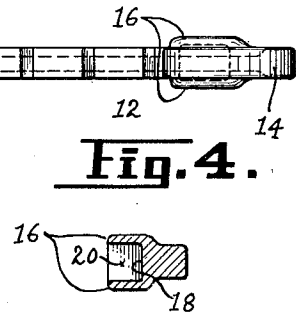
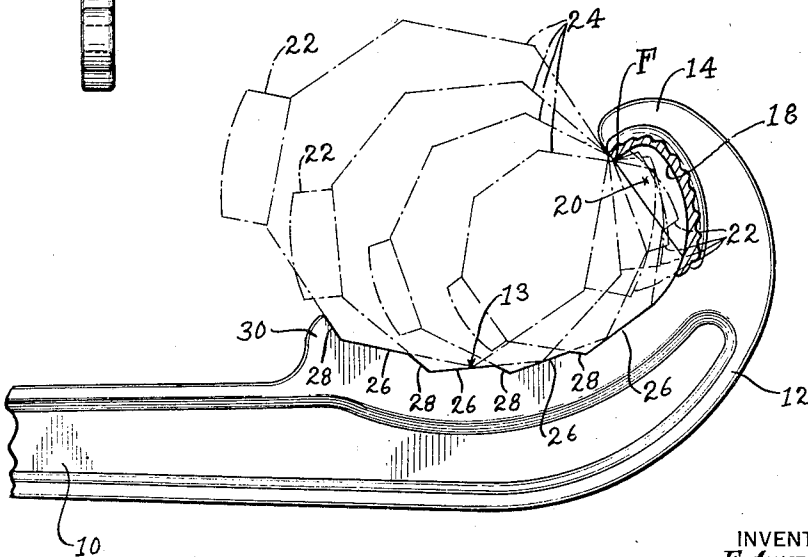


Fig. 5.



INVENTORS
Edward T. Collins.
Henry M. Miller.
BY *H. F. Johnston*
ATTORNEY

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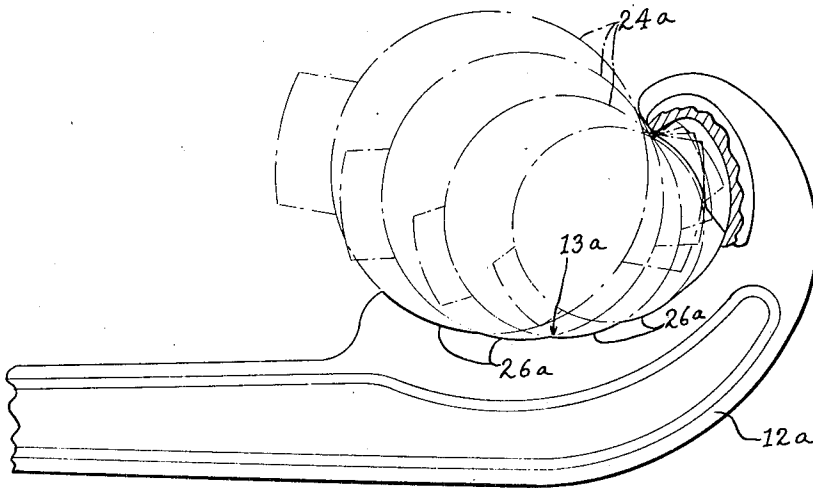
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Fig. 6.



INVENTORS
Edward T. Collins.
BY **Henry M. Miller**
H. M. Johnston
ATTORNEY

UNITED STATES PATENT OFFICE

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SPANNER WRENCH

Edward T. Collins and Henry M. Miller, Waterbury, Conn., assignors to Scovill Manufacturing Company, Waterbury, Conn., a corporation of Connecticut

Application June 20, 1941, Serial No. 398,862

8 Claims. (Cl. 81—90)

This invention relates to spanner wrenches, and particularly to a wrench designed to accommodate the lug type of sleeve or coupling nuts such as used in couplings for joining together pieces of fire hose, oil hose, etc. There are in common use three general types of lug type coupling nuts, namely the cylindrical sleeve nut having two diametrically opposed pin lugs such as used in fire hose couplings, the polygonal type of coupling nuts which are principally octagonal shaped with relatively wide diametrically opposed lugs, and also the cylindrical or sleeve coupling with relatively wide diametrically opposed lugs.

The principal object of this invention is the construction of a simple and efficient wrench formed in one piece, and designed to accommodate several different sizes of coupling nuts of like design of the types mentioned above for facilitating the tightening or loosening of the same in coupling unions.

A further object of this invention is to provide a wrench of the above nature having means wherein the head end of the wrench is held upon the nut without the need of the operator having to manually support the entire weight of the same.

A still further object is to provide a wrench having a common fulcrum to engage the several sizes and types of coupling nuts for which the wrench is adapted at a common point and further formed with a series of independent sections to accommodate the surfaces of the different sizes of couplings at a position sufficiently removed from the fulcrum of the wrench to assure a good turning grip.

The full nature of this invention along with other objects and various advantages thereof will be more apparent from a consideration of the following description when read in connection with the accompanying drawings, in which

Fig. 1 is a front elevational view of the spanner wrench embodying the invention.

Fig. 2 is a longitudinal end view of the same looking into the front part of the wrench or the top end view according to Fig. 1.

Fig. 3 is an end view looking into the wrench from the handle end of the same.

Fig. 4 is a sectional view through the hooked end of the wrench taken along the line 4—4 of Fig. 1.

Fig. 5 is a view similar to Fig. 1 showing principally the head portion of the wrench on a slightly enlarged scale and illustrating the manner in which it is used with the several different

sizes of the octagonal type of coupling lug nuts shown in dot-and-dash outline, and

Fig. 6 is a view similar to Fig. 5 showing the head part of the spanner wrench modified to accommodate a plurality of the cylindrical or sleeve type of coupling lug nuts.

Referring to the drawings in which like numerals designate like parts throughout the several views, the numeral 10 indicates a longitudinal bar or operating handle of the wrench, having a generally curved head part 12 integrally formed at one end thereof and which head part 12 terminates in a hooked portion 14. The concave edge portion of the head part 12 constitutes the working face of the wrench and generally is indicated by the numeral 13. The major portion of the head 12 is preferably located to one side of the longitudinal axis of the handle 10 and the working face 13 lies entirely to one side of said handle axis for convenience in operating the wrench and for accommodating in a like manner the various sizes of coupling nuts for which the wrench is adapted. The hooked portion 14 is provided with a pair of spaced side walls 16 cast integrally on opposite sides thereof and which walls in conjunction with the base wall 18 of the hooked portion define a socket 20 opening toward the handle portion of the wrench. The socket is proportioned to accommodate the various sizes of lugs 22 forming an integral and opposed projecting members of their respective coupling nuts 24 as best shown in dot-and-dash outline in Fig. 5. As here shown the wrench is designed to accommodate the octagonal lug type coupling nut, but it is to be understood that this wrench can be properly delineated to accommodate the other types of coupling nuts stated in the preamble of the specification and as hereinafter will be more fully explained.

In order to provide a common pivot point or fulcrum means about which the wrench may be swung relative to the coupling nut when bringing the wrench into operating position, the outer end of the base wall 18 of the socket 20 joins into the outer adjacent edge of the hooked portion at a relatively sharp angle which is in the drawings shown as approximately 90° and it could be an angle of less degrees. This point of merger of the base wall 18 and the outer surface of the hooked portion is considered the common fulcrum point of the wrench and is designated by the letter F. The fulcrum F conveniently engages into the angle where one end of the coupling nut lug 22 merges with the immediate adjacent flat of the coupling nut 24 and about which point the

wrench swings into operating position. It is to be noted that the outer face of the hooked portion lies in a common plane with the free edges of the side walls 16 and that this plane is disposed at an acute angle to the longitudinal axis of the handle 10. By this particular arrangement of the parts to the handle axis it allows the wrench to engage securely and uniformly upon the several sizes of couplings.

The socket base wall 18 opposite from the fulcrum point F curves outwardly from the socket 20 and gradually merges into the working face 13 of the wrench, which face 13 in turn is broken up into a series of flat stepped sections 26, each of which stepped sections 26 are connected with each other by upwardly off-set planes 28. The outermost plane 28 constitutes the inner face of an upstanding lug 30 that defines the outer end of the general working face 13 of the spanner wrench. The stepped sections 26 with their complementary off-set planes 28 constitute independent surfaces that engage a portion of at least two adjacent angular flats of the nut next to the lug 22 opposite from the one that the hooked portion 14 of the wrench engages for assuring a suitable grip upon the nut for turning the same. Further, the complementary off-set planes 28 of each stepped section 26 in engaging a portion of the immediate nut flat adjacent the opposite lug from which the wrench fulcrums serves as a stop means to preclude the wrench from slipping off the nut in case a force is applied to the handle axis and toward the head end.

For convenience in storing the wrench when not in use the end of the handle 10 opposite from the head part 12 may be provided with an opening 32 by means of which the wrench may be hung upon a hook.

The modified form of wrench illustrated in Fig. 6 is identical in all respects to the first form described except that the working face 13a of the head part 12a is divided into several independent arcuate surfaces 25a corresponding in shape to a portion of the cylindrical shape of the sleeve type lug nut 24a for which this wrench particularly is adapted.

It will be further apparent that this wrench is also adaptable to fit the cylindrical or sleeve type of coupling nuts provided with pin lugs instead of the wide lugs such as shown in the modified form Fig. 6.

While we have herein described and in the drawings shown two illustrative embodiments of the invention, it is to be understood that the invention is not limited thereto but may comprehend other constructions, arrangements and detail of parts without departing from the spirit of the invention.

We claim for our invention:

1. In a spanner wrench adapted to operate on a plurality of different sizes of lug type coupling nuts of common design comprising a single piece tool of a longitudinal handle and a generally curved head part at one end of said handle, said head part having a work face located entirely to one side of the handle axis and continuing into a hooked portion designed to circumvent the ends of the nut lug to be engaged and terminating at its extreme end in an angular point adapted to engage snugly into the angle defined by a lug edge and the adjacent surface of each of the different sizes of coupling nuts, the work face of said head part formed into a series of independent surfaces conforming substantially

to a corresponding portion of the exterior surface of the different size coupling nuts, substantially as described.

2. In a spanner wrench adapted to operate on a plurality of different sizes of lug type polygonal shaped coupling nuts of common design comprising a single piece tool of a long handle and a generally curved head part at one end of said handle, said head part having a work face located entirely to one side of the handle axis and continuing into a hooked portion designed to circumvent the ends of the nut lug to be engaged and terminating in a fulcrum point for engaging directly in the angle defined by one end of the lug and adjacent nut facet, the face of said head part having a series of independent complementary angular surfaces capacitated to engage two of the adjacent flats of the different sizes of polygonal shaped coupling nuts at least two facets away from the fulcrum point of the wrench, substantially as described.

3. In a spanner wrench adapted to operate on a plurality of different sizes of lug type coupling nuts of common design comprising a longitudinal handle and an integral head member having a work face located entirely to one side of the handle axis and continuing into a hooked portion, said hooked portion having a fulcrum point for snugly engaging each of the coupling nuts of the different sizes in the angle where the edge of one lug intersects with the adjacent surface of the coupling nut, and a series of independent surfaces formed in one edge of said head member conforming to and adapted to engage the corresponding surface of the different size coupling nuts at a sufficient distance from the engaged lug of the nut to afford a good gripping action, substantially as described.

4. In a spanner wrench adapted to operate on a plurality of different sizes of lug type coupling nuts of common design comprising a longitudinal handle and an integral generally curved head member having a work face disposed entirely to one side of the handle axis, said work face continuing into a hooked portion terminating in a relatively sharp angular nose constituting a common fulcrum designed to engage snugly each of the coupling nuts of the different sizes in the angle where one edge of the engaged lug intersects with the adjacent surface of said nuts as a means to conveniently swing the wrench thereabout into operating position, the outer face of said hooked portion disposed at an acute angle to the axis of said handle, and a series of independent surfaces formed in the work face of said head and adapted to engage the corresponding surfaces of the different size nuts upon which the wrench is adapted to operate, substantially as described.

5. In a spanner wrench adapted to operate on a plurality of different sizes of polygonal shaped lug type coupling nuts of common design comprising a longitudinal handle and an integral generally curved head member having a work face disposed entirely to one side of the handle axis, said work face continuing into a hooked portion terminating in a relatively sharp angular nose constituting a common fulcrum designed to engage coupling nuts in the angle where one edge of the engaged lug intersects with the adjacent surface thereof as a means to swing conveniently the wrench thereabout into operating position, the outer face of said hooked portion disposed at an acute angle to the axis of said handle, and a series of independent complementary angular surfaces capacitated to engage at least two of the adjacent flats

of the different sizes of polygonal shaped coupling nuts, substantially as described.

6. In a spanner wrench adapted to operate on a plurality of different sizes and styles of lug type coupling nuts of common design comprising a longitudinal handle and an integral generally curved head member having a work face and terminating in a hooked portion, said hooked portion having a common fulcrum designed to engage snugly the nuts in the angle wherein one edge of the engaged lug intersects into the adjacent surface of the different sizes of said nuts, a pair of spaced walls formed on opposite sides of said hooked portion and defining with the inner surface of said hooked portion a socket adapted to accommodate the lugs of different sizes and styles of coupling nuts and prevent the wrench head from laterally slipping thereoff, the outer face of said hooked portion and the exposed edges of said walls lying in a common plane disposed at an acute angle to the axis of said handle, and a series of independent surfaces formed in the working face of said head member designed to conform to and engage corresponding surfaces of the different sizes and styles of nuts upon which the wrench is adapted to operate, substantially as described.

7. In a spanner wrench adapted to operate upon cylindrical shaped lug type coupling nuts of a plurality of sizes of common design comprising a longitudinal handle and an integral generally

curved head member having a work face continuing into a hooked portion designed to circumvent the ends of the nut lug to be engaged, said hooked portion terminating at its extreme end in an angular point adapted to engage snugly in the angle defined by the lug edge and the adjacent surface of each of the different sizes of coupling nuts, and a series of independent arcuate surfaces formed in the work face, removed a distance from the hooked portion and corresponding substantially in shape to a portion of the cylindrical shape of the respective size of coupling nuts that the wrench is designed to operate upon.

8. In a spanner wrench adapted to operate upon cylindrical shaped lug type coupling nuts of a plurality of sizes of common design comprising a longitudinal handle and an integral generally curved head member having a work face continuing into a hooked portion, said hooked portion disposed at an acute angle to the handle axis for the purpose of circumventing the coupling lug and adapted to engage in the angle defined by one edge of the lug with the adjacent coupling surface, and a series of independent arcuate surfaces formed in the work face, removed a distance from the hooked portion with each arcuate surface corresponding to the specific shape of the different sizes of coupling nuts upon which the wrench is adapted to operate.

EDWARD T. COLLINS.
HENRY M. MILLER.