March 3, 1959 F. D. SVENSON 2,875,660

SELF-ADJUSTING, MULTIPLE SOCKET WRENCH

Filed May 23, 1957

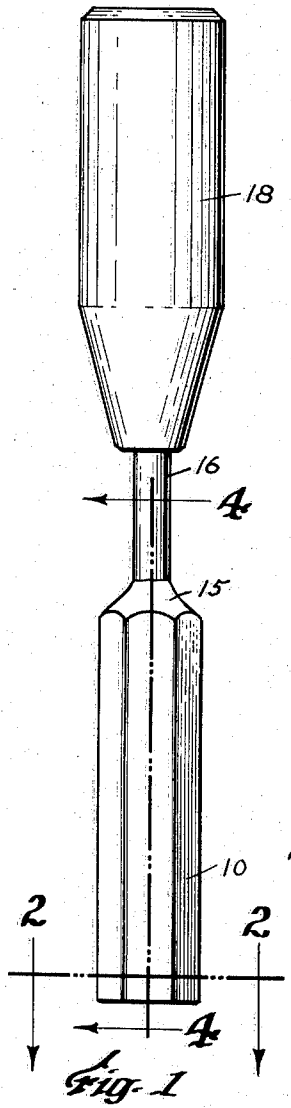


Fig. 1

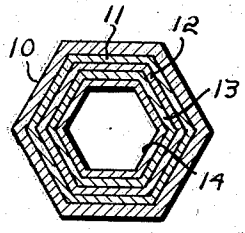


Fig. 2

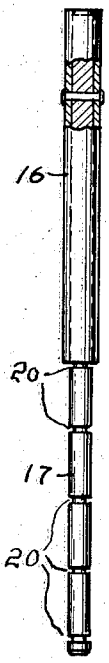


Fig. 3

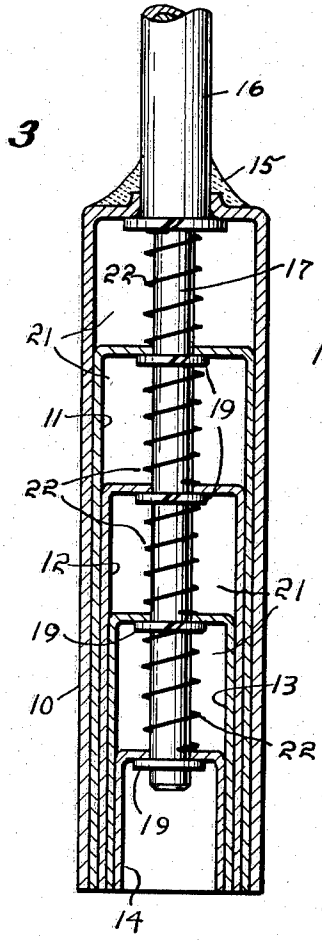


Fig. 4

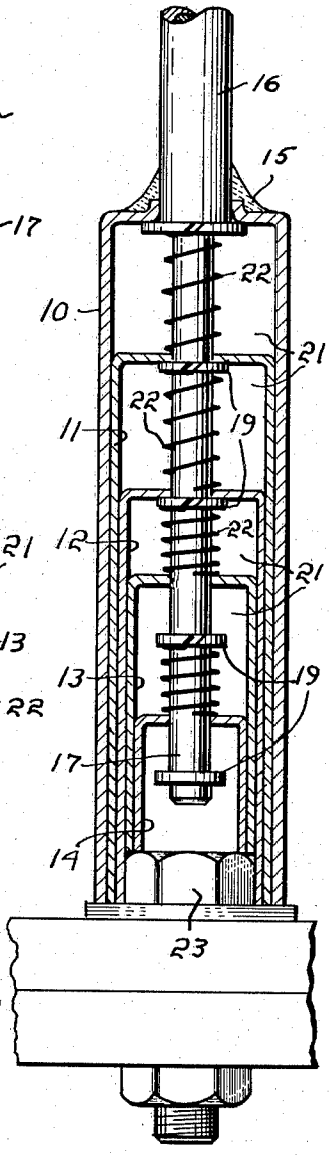


Fig. 5

Fred D. Svenson
Inventor
by James R. Hodder
Attorney

United States Patent Office 2,875,660 Patented Mar. 3, 1959

2,875,660

SELF-ADJUSTING, MULTIPLE SOCKET WRENCH

Fred D. Svenson, Sanbornton, N. H.

Application May 23, 1957, Serial No. 661,120

1 Claim. (Cl. 81—185)

This invention relates to a tool for use in tightening or releasing any one of a series of fastener parts of a predetermined equilateral shape but of different sizes.

When a socket has to be selected to fit a particular fastener part, the failure to make the correct selection is obviously a nuisance to a workman even though it is recognized that it is difficult for even those highly skilled to determine, at a glance, the exact size of a fastener part to be engaged and either held or turned. Conversely, it would obviously be an advantage for a workman, when assembly or disassembly entails the engagement and holding or turning of a number of fastener parts of the same shape but of different sizes, to have a tool that would quickly and accurately fit any one of those sizes.

The general objective of this invention is to provide a tool adapted to fit itself to any one of a series of fastener parts of the same shape but of different sizes. This objective is attained with a tool having a set of closed end sockets of the same equilateral shape and slidably nested one within another, with each socket being for a particular one of the different sized fastener parts and longer than any socket slidable within it. A stem is provided to which the closed end of the outermost socket is anchored and which extends through the closed ends of the other sockets in slidable support thereof.

The stem has a plurality of axially spaced seats, one for engagement by the end wall of each slidable socket to limit its movement towards the free end of the outermost socket and there are compression springs, one for each socket and in engagement with the closed end thereof and with the seat of the next larger socket.

In the accompanying drawings, there is shown an illustrative embodiment of the invention from which these and other of its objects, novel features, and advantages will be readily apparent.

In the drawings:

Fig. 1 is a side elevation of a tool in accordance with the invention;

Fig. 2 is a section, on an increased scale, taken along the indicated lines 2—2 of Fig. 1;

Fig. 3 is a fragmentary elevation of the stem;

Fig. 4 is a fragmentary section, on an increased scale, taken approximately along the indicated lines 4—4 of Fig. 1, and

Fig. 5 is a view similar to Fig. 4 but with the tool in engagement with a fastener part.

In the embodiment of the invention shown in the drawings, there are shown a plurality of nested, closed end sockets **10**, **11**, **12**, **13**, and **14**. This set of sockets is of hexagonal section and each is substantially longer than any socket slidable within it.

The outermost socket **10** has its closed end anchored as at **15** to the shouldered end portion **16** of the stem **17**. The end portion **16** has a handle **18** anchored thereto

and the stem **17** extends through the ends of each of the other sockets in slidable support thereof for movement into and out of engagement with appropriate ones of the stops **19** which may conveniently be C rings, each caught in an annular groove **20**.

The grooves **20** are so spaced and the lengths of the sockets are so proportioned that, when each socket is in engagement with its stop **19**, the open ends of all the sockets of the set are approximately in the same plane. This arrangement provides a chamber **21** between each socket and the next smallest socket. The chambers **21** are shown as of substantially the same length and in each there is a compression spring **22** disposed about the stem **18** with one end seated against the stop **19** located at one end of that chamber, and the other end yieldably bearing against the closed end of the next smallest socket to urge it into engagement with the stop for said next smallest socket.

In Fig. 5, there is shown a bolt head **23** of hexagonal shape which the socket **12** is dimensioned to fit. It will be apparent from Fig. 5 that it is only necessary for the user to place the tool with the open ends of its set of sockets against the bolt head **23**. Either then or as the tool is turned, any sockets that are too small yield to admit the bolt head **23** into the appropriately sized socket. It will also be noted that the length of the sockets and the arrangement of the stops are such that when a fastener part is engaged, there is a substantial distance between it and the end of the stem, and the springs **22** of the sockets that have yielded are not fully compressed.

I claim:

A tool for use in tightening and releasing any one of a series of fastener parts of a predetermined equilateral shape but of different sizes, said tool comprising a set of closed end sockets of the same equilateral shape slidably nested one within another, each socket being for a particular one of said different sizes and being substantially longer than any socket slidable within it, a stem to which the closed end of the outermost socket is anchored, and which extends through the closed ends of the other sockets in slidable support thereof and including a plurality of spaced annular recesses, axially spaced seats, each of the C-ring type, one in each recess for engagement by the end wall of each slidable socket and limiting its movement towards the free end of said anchored socket, and a compression spring for yieldably maintaining each slidable socket against its seat, each spring engaging the closed end of that socket and being backed by the seat of the next larger socket, said seats being so spaced and the difference in the length of said sockets being such that when each slidable socket is in engagement with its seat, the spaces between proximate closed socket ends are approximately equal.

References Cited in the file of this patent

UNITED STATES PATENTS

1,471,451	Crimp	Oct. 23, 1923
1,539,136	Neel	May 26, 1925
1,618,715	Lammers et al.	Feb. 22, 1927
1,896,949	Greiner	Feb. 7, 1933
2,350,097	Conner	May 30, 1944
2,485,169	Roeschke	Oct. 18, 1949
2,735,325	Rudd	Feb. 21, 1956

FOREIGN PATENTS

709,756	Germany	Aug. 26, 1941
1,123,111	France	June 4, 1956