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R. A. MOORE
SOCKET WRENCH

2,909,090

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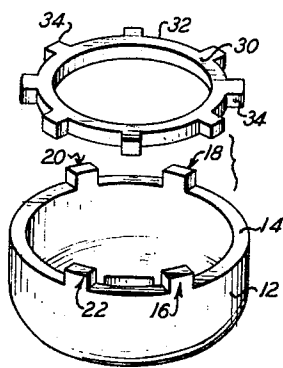


Fig. 1

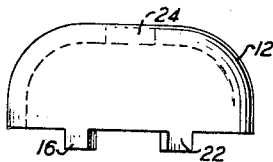


Fig. 2

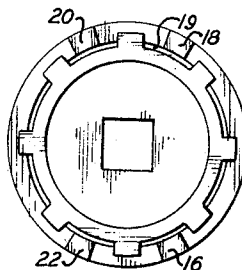


Fig. 3

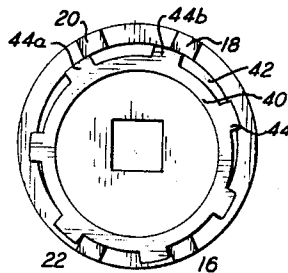


Fig. 4

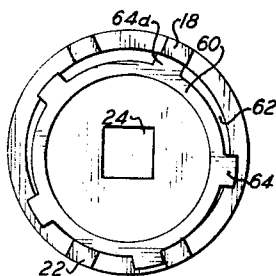


Fig. 5

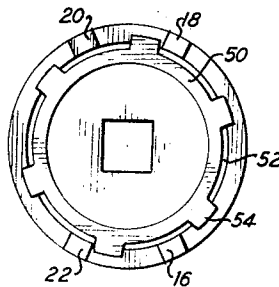


Fig. 6

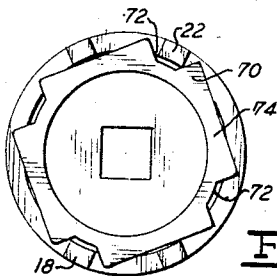


Fig. 7

INVENTOR

ROLLIN A. MOORE

BY *Fisher Kristens & Goodson*
ATTORNEYS

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2,909,090

SOCKET WRENCH

Rollin A. Moore, Eugene, Oreg.

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1 Claim. (Cl. 81—90)

This invention relates to a wrench and more particularly to a wrench for turning multi-sided lock nuts. This application is a continuation-in-part of my co-pending application Serial Number 683,572, filed September 12, 1957.

Lock nuts of the type with which the invention is useful take various shapes. Generally, they are provided with projections spaced equally about the periphery of the nut, the peripheral recesses being formed by adjacent projections.

The lock nuts normally used in the electrical trade may have anywhere from 4 to 8 sides, meaning that there are 4, 5, 6, 7, or 8 projections and recesses respectively.

It is the object of the present invention to provide a wrench which has universal application to any of the above-mentioned four-, five-, six-, seven-, or eight-sided lock nut.

It is another object of the invention to provide a socket for a wrench, the socket having at one side thereof, projections for engagement with the recesses on the lock nuts described above, and on the other side thereof a socket for accommodating a ratchet or other turning implement.

It is still another object of the invention to provide a socket as described above having its recess engaging projections spaced at precise angles from each other whereby the socket will accommodate any four-sided, through eight-sided lock nut.

It is a still further object of the invention to provide a socket as described, having its opposing projections spaced apart more than the diameter between the bottoms of the recesses of the lock nuts by an amount slightly greater than the length of one of the lugs of the lock nut.

These and other objects of the invention will become more readily apparent from the following detailed description of the invention taken in conjunction with the accompanying drawings in which:

Fig. 1 is a perspective view of the invention;

Fig. 2 is a side elevational view of the invention;

Fig. 3 is a bottom plan view showing engagement of the socket with an eight-sided lock nut;

Fig. 4 is a bottom plan view showing engagement of the socket with a seven-sided lock nut;

Fig. 5 is a bottom plan view showing engagement of the socket with a six-sided lock nut;

Fig. 6 is a bottom plan view showing engagement of the socket with a five-sided lock nut; and

Fig. 7 is a bottom plan view showing engagement of the socket with a four-sided lock nut.

In the drawings, the invention appears as a socket and it should be understood that the invention could appear as a possible type wrench, for example, with the handle fixed to the head shown in the drawings.

The socket consists of a body portion 12 which is cup-shaped and terminating at one end by an edge 14. Projecting longitudinally from the edge 14 are projections 16, 18, 20 and 22. The projections lie in a circle and are

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spaced apart alternately by angles of 50° and 130°. For example, the angle between projections is as follows:

16-18	-----	130°
18-20	-----	50°
20-22	-----	130°
22-16	-----	50°

It will be appreciated that there can be a slight variation from the angle set forth without affecting the operation of the invention. However, as demonstrated by Figs. 3-7 the variation cannot be more than five degrees, depending on the width of the projections. The end of the body member remote from the projections is formed with a square hole 24. The square hole receives the square fitting of a ratchet type wrench or other similar tool which is used to apply leverage for the turning of a lock nut. A hexagonal hole would also be within the scope of the invention for use with hexagonal fittings.

In the perspective view of Fig. 1, an eight-sided lock nut is shown to indicate the manner of engagement of the invention with a lock nut. The lock nut indicated at 30 has eight peripheral recesses 32 formed by the sides of the nut 34. The projections communicate with the recesses of the lock nut and push against the sides 34 for turning, as shown in Fig. 3.

It should be noted here that the projections 16, 18, 20 and 22 are spaced from the bottom of the recesses 32 distance designated by the numeral 19. The space 19 is slightly greater than 1/2 the height of the lugs 34. The value of space 19 becomes apparent when referring to Fig. 4 which shows the socket 12 used in association with a seven-sided lock nut 40. This lock nut has recesses 42 defined by seven lugs 44. When projections 16 and 22 are placed in two of the recesses 42, the projections 18 and 20 will extend beyond the extremities of lugs 44a and 44b. Thus, the fact that projections 16 and 20 and 18 and 22 respectively are spaced apart in an amount slightly greater than the diameter of the lock nut plus one lug height permits the utilization of the socket with all conventional lock nuts.

Fig. 5 shows the socket 12 being utilized with a six-sided lock nut 50 having recesses 52 and lugs 54. In this instance each of the projections 16, 18, 20 and 22 will fall within a recess.

Fig. 6 shows the socket 12 being utilized with a five-sided lock nut 60 having recess 62 and lug 64. Here again, when one of the projections such as 22 is placed within a recess, the opposing projection 18 extends beyond the lug 64a. In other words, this operation is approximately the same as that when using the seven-sided lock nut.

Fig. 7 shows the socket 12 being utilized with a four-sided lock nut 70 having recesses 72 and lug 74. Here, two of the projections such as 18 and 22 fit within the recesses to obtain turning forces.

It can thus be seen that when an even numbered (4, 6, or 8) lock nut is used, the opposing projections in the socket will fit within a recess, and when odd numbered (5 and 7) lock nut is used, one of the opposing projections will engage the bottom of the recess and the other will extend beyond the lugs on the opposite side of the lock nut. When using the even numbered lock nuts, the projections will strike the lugs approximately midway of their length.

In a general manner, while there has been disclosed in the above description, what is deemed to be the most practical and efficient embodiment of the invention, it should be well understood that the invention is not limited to such embodiment as there might be changes made in the arrangement, disposition and form of the parts without departing from the principle of the present

invention as comprehended within the scope of the accompanying claim.

I claim:

A socket for turning locknuts of the type having a plurality of lugs and recesses spaced along their outer edge, comprising a cup shaped body portion having a work-engaging end and a ratchet receiving end, said ratchet receiving end having an opening for receiving an operating member; four angularly spaced projections extending from said work-engaging end and lying generally in the same plane, said projections being angularly spaced apart alternatively approximately 50° and 130° and the distance between opposing projections being slightly greater than the diameter of a circle formed by drawing a line through the bottom-most portions of said

recesses by an amount equal to the height of one of said lugs, whereby said socket is adapted to turn locknuts having different numbers of recesses.

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