E. K. DEGENER.

BOLT RETAINING ATTACHMENT FOR WRENCHES.

APPLICATION FILED JAN. 27, 1921.

1,426,847. Patented Aug. 22, 1922.

Fig. 1.

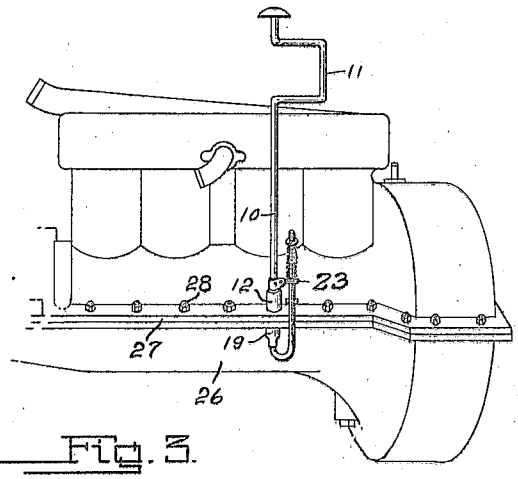


Fig. 2.

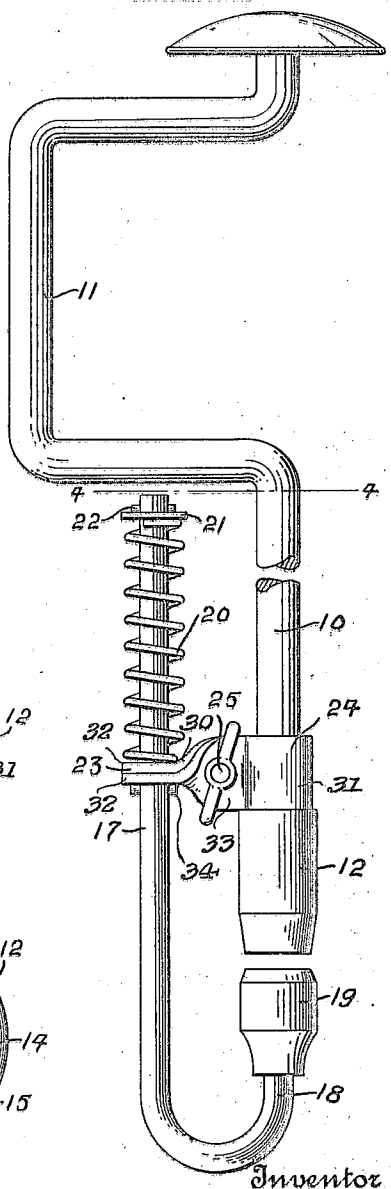


Fig. 3.

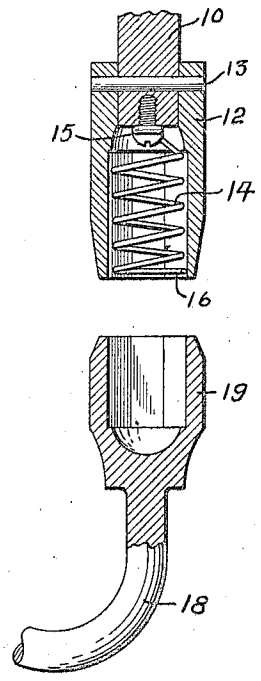


Fig. 4.

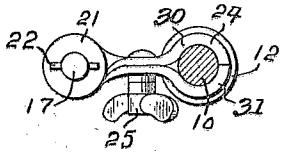
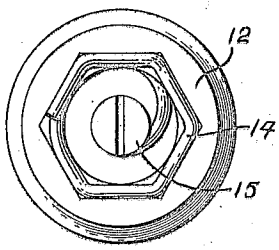


Fig. 5.



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BOLT-RETAINING ATTACHMENT FOR WRENCHES.

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Application filed January 27, 1921. Serial No. 440,393.

To all whom it may concern:

Be it known that I, EDWARD K. DEGENER, a citizen of the United States, residing at Lewistown, in the county of Fergus and State of Montana, have invented certain new and useful Improvements in Bolt-Retaining Attachments for Wrenches, of which the following is a specification.

The present invention relates to tools, and more particularly to an attachment for application to bolt removing wrenches of the brace and socket type and wrenches of the general character which require the retention of either the nut or the bolt head during the loosening of the opposite member.

An object of the present invention is to provide a simply and economically constructed device which may be quickly and easily applied to an ordinary T or brace socket wrench, and which is adapted to operate in opposition to the wrench for holding either the nut or the head relatively stationary while the other member is turned by the wrench.

The invention has for a further object the provision of an attachment which may be clamped upon the wrench by means of a thumb screw and clamp of approved type, and which in itself is provided with means for resiliently drawing the attachment toward the socket of the wrench for maintaining both the wrench socket and the socket of the attachment in correct position upon the opposite ends of the bolt; whereby the attachment may be applied to a socket wrench and the wrench with the attachment may then be used by one man in the removal of transmission and crank case bolts without a second man or assistant to hold the bolts stationary while the nuts are being removed.

A still further object of the present invention is to provide an attachment to a socket wrench, which, when applied thereto, forms a complete tool adapted to do the work of two men, and which may be operated by one man, and a tool which will accurately and positively hold the bolt in place after the nut has been removed.

The above, and various other objects and advantages of this invention will in part be described in and in part be understood from the following detailed description of the present preferred embodiment, the same being illustrated in the accompanying drawing, wherein—

Fig. 1 is a perspective view of an internal combustion engine having a socket wrench with the attachment of this invention mounted thereon and applied to the coupling bolts of the engine crank case.

Fig. 2 is a detail enlarged side elevation of a brace socket wrench having the bolt retaining attachment of this invention applied thereto.

Fig. 3 is a detail enlarged sectional view taken through the opposed sockets or heads of the wrench and the attachment.

Fig. 4 is a transverse section taken through the socket wrench substantially on the line 4—4 of Fig. 2, and showing the clamp of the attachment in engagement with the shank of the wrench.

Fig. 5 is an end elevation of the open end of the socket of the wrench.

Referring to the drawing, and first to Fig. 2, 10 designates the shank of a type of brace or quick acting socket wrench provided on its upper end with a crank portion 11 adapted to be manually turned for rotating the wrench. As shown in Fig. 3, the lower end of the shank 10 carries a socket 12 fixed to the shank by a pin 13 so that the socket or head 12 rotates with the shank.

The head 12 is open at its lower end and provided with a non-circular opening extending for a considerable distance up into the head 12.

An ejecting spring 14 is fitted in the head 12, as best shown in Fig. 5, and has one end anchored by a nut 15 to the bottom of the shank 10, and has its other end 16 terminating in substantially the plane of the open end of the head. The spring 14 is adapted to be compressed upon movement of a nut into the open end of the socket for the purpose of steadying the wrench upon the nut as will subsequently appear.

The attachment of the invention comprises a rod 17 of a length preferably greater than that of the shank 10, and which is provided with a return bend 18 upon its lower end adapted to aline with the shank 10.

The return bend 18 carries a socket or head 19, shown in Fig. 3, and which has a non-circular opening or bore therein in axial alinement with the head 12. The upper end of the rod 17 carries a spring 20, the upper end of which is seated against a washer 21 held upon the upper end of the rod by a transversely extending pin 22.

The lower end of the spring 20 bears against a bracket 23 which is preferably

made in two parts 30 and 31. Each of the parts 30 and 31 includes a half circle sleeve portion 24, and a flat apertured portion 32, which is bent into a plane substantially at right angles to the axis of the half circle sleeve portion 24. In use, the flat portions 32 of the parts 30 and 31 are placed one upon the other, in order that the apertures therein align for slidably and pivotally receiving the rod 17 therethrough. In this position, the half circle sleeve portions 24, of each part 30 and 31, are in facing relation to provide an enclosed sleeve, which is adapted for attachment about the shank 10; the half sleeves 24 being of such construction that the ends thereof will meet and hold said sleeve from binding upon the shank 10. An adjusting bolt means 25 is provided for engagement through intermediate portions 33 of the parts 30 and 31, which extend radially from the half circle sleeve portion 24. The lower end of the spring 20 rests solely upon the upper flat portion 32 of the part 30, as clearly illustrated in Figure 2.

Thus, the brace wrench may be freely rotated in the sleeve provided by the parts 30 and 31. It is preferred that the spring 20 be maintained under compression between the fixed washer 21 and the flat portion 32 of the bracket 23 by aid of a pin 34, which engages the under surface of the lower flat portion 32, belonging to the bracket part 31.

As shown in Fig. 1, the crank case 26 of an engine is provided with the coupling flanges 27 secured together by nut and bolts 28 of any approved type. The return bend 18 of the attachment is of such size as to extend and hold the head 19 in proper alinement with the bolt heads and the rod 17 is adapted to strike the flanges 27 of the casing for holding the attachment from turning in either loosening or tightening the bolts 28. It is thus seen that when the wrench and the attachment are applied to a bolt 28, turning of the wrench will rotate the nut upon the bolt and the latter is held stationary by the attachment.

The spring 20 holds the socket 19 upwardly in engagement with the bolt head so that but one man is required to operate the tool and the operator has both hands free to manipulate the crank of the wrench.

It is, of course, understood that various changes and modifications may be made in the details of construction and design of the above specifically described embodiment of the present invention, such changes and modifications being restricted only by the scope of the following claims.

What is claimed is:

1. A socket wrench comprising a shank and a socket head, a retaining rod including a shank and a socket head, a two part bracket member adapted for attachment of said retaining rod to said socket wrench, and whereby the shank of said retaining rod lies substantially parallel with the shank of said socket wrench, said part of said two part member including a relatively flat arcuated portion and a half circular sleeve portion, the axis of the latter being substantially at right angles to the plane of the flat portion, said part adapted for pivotal mounting on said rod independent of the other portion so that the half circle sleeve portions extend forwardly to provide an enclosed sleeve for loose gripping about the shank of said socket wrench, and adjusting means engaging both parts of said two part member intermediate the flat and sleeve portions thereof, whereby the sleeve portions can be readily adjusted with said rod as a pivot point for said parts, and spring means for engaging said two part member and said retaining rod for normally forcing the latter in direction to have the socket head thereof disposed adjacent the socket head of said socket wrench.

2. A device of the class described comprising a socket wrench including a shank and a socket head, a retaining rod including a stem and a socket head, said socket head adapted for alignment with the socket head of said wrench, and to have the stem of said rod lying substantially parallel with the shank of said wrench, a two part member, each part of said member having an apertured end and a half circular sleeve end, each apertured end of the two part member being adapted to pivotally receive said rod independent of the other apertured end and when so positioned having the half circle sleeve portion thereof providing a sleeve for gripping the shank of said wrench, a clamping screw for maintaining said parts of said two part member in position whereby the wrench may be rotated with respect to said sleeve, and a spring engaging about said rod and abutting the apertured end of but a single one of said parts for normally forcing the socket head of said rod upwardly toward the socket head of said wrench.

EDWARD K. DEGENER.