

Oct. 1, 1946.

R. D. SCHRADER

2,408,450

BROKEN STUD REMOVER

Filed March 24, 1944

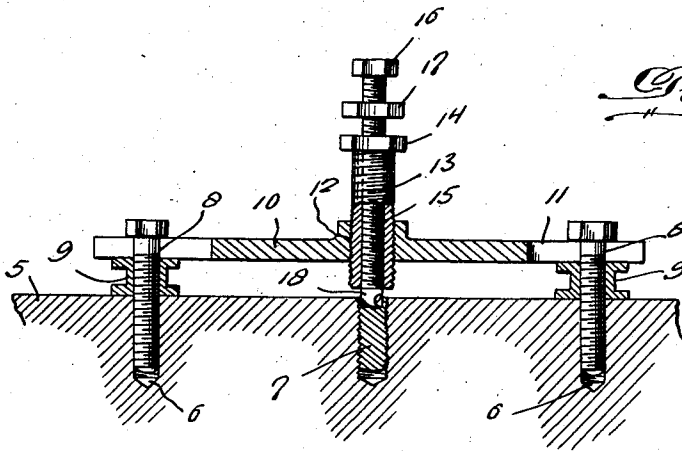
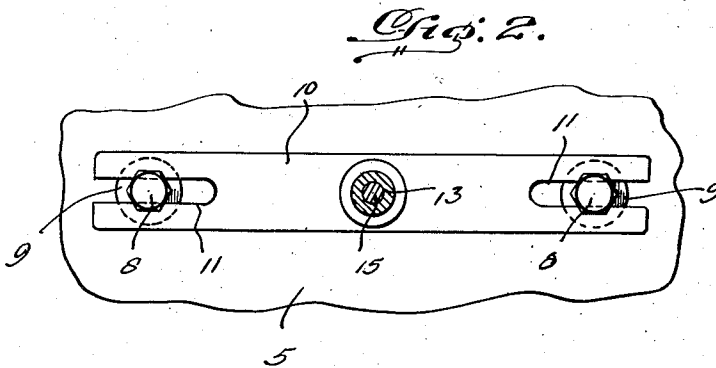
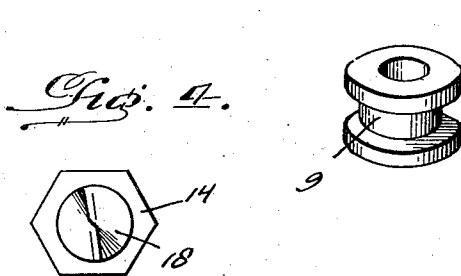
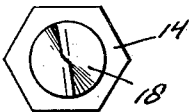


Fig. 4.



Inventor
Raymond D. Schrader,

McMurry & Brown
Attorneys

UNITED STATES PATENT OFFICE

2,408,450

BROKEN STUD REMOVER

Raymond D. Schrader, Peoria, Ill., assignor to
V. Ray Van Wey, Pekin, Ill.

Application March 24, 1944, Serial No. 527,983

1 Claim. (Cl. 81—71)

1

The present invention relates to new and useful improvements for removing broken studs from engine blocks and other places where the bolt or stud has been broken off below the surface of the block.

An important object of the present invention is to provide a screw-threaded member having a bit formation at its lower end and adapted to bite into the end of the broken stud and also to provide means for rigidly supporting the screw threaded member while the same is engaging the broken stud and while the screw threaded member and stud are being removed.

A further object is to provide a device of this character of simple and practical construction, which is efficient and reliable in performance, relatively inexpensive to manufacture, easy to operate and otherwise well adapted for the purposes for which the same is intended.

Other objects and advantages reside in the details of construction and operation as more fully hereinafter described and claimed, reference being had to the accompanying drawing forming part hereof, wherein like numerals refer to like parts throughout and in which—

Figure 1 is a fragmentary vertical sectional view of an engine block showing the tool in position for removing a broken stud therefrom and with parts of the tool shown in section.

Figure 2 is a top plan view,

Figure 3 is a perspective view of one of the spacing members, and

Figure 4 is an end elevational view of the broken stud removing member.

Referring now to the drawing in detail wherein for the purpose of illustration I have disclosed a preferred embodiment of the invention, the numeral 5 designates an engine block having the threaded tap or bolt holes 6 therein for securing the engine head (not shown) in position. The numeral 7 represents a stud or bolt which has been broken off in one of the bolt holes 6.

In carrying out my invention bolts 8 are threaded in the opening 6 at opposite sides of the broken stud 7 and positioned on the bolt and resting on the top of the engine block are spacing spools 9 on which are supported the ends of a bridge member 10, the bridge member having slots 11 in its end portion for adjustably receiving the bolts 8 and the bridge member is secured in a fixed position by the head of the bolt.

The bridge member is also formed with a central threaded opening 12 adapted to receive an internally and externally threaded sleeve 13 having a hexagonal head 14 at its upper end for re-

2

ceiving a wrench or other tool for threading the sleeve into and out of the opening in the bridge member.

A screw 15 is threaded through the sleeve 13, said screw having a polygonal head 16 for the reception of a wrench or like tool. Mounted in threaded engagement on the screw 15 is a nut 17 which is adapted to engage the head of the sleeve 13, and thereby augment the latter's resistance to pressure.

The lower end of the screw 15 is formed with a head 18 adapted to bite into the top of the broken stud 7 and to firmly engage the broken stud to remove the latter from the bolt holes 6 by a retracting movement of the sleeve 13.

It will also be understood that the screw 15 and sleeve 13 may be constructed of various sizes for use in extracting or removing various sized broken studs.

It will be apparent that the device of the present invention may be employed effectively on any broken off stud regardless of the pitch of the threads thereon. Likewise, it is effective for the removal of any broken off stud irrespective of whether such stud be flush with the plane surface of the block, or countersunk in the block, or with its end protruding from the block, and without requiring any prior drilling or like action thereon. Furthermore, it is obvious that this device

may be used for the insertion of bolts or screws into position in blocks where the conventional means for such positioning can not be employed.

It is believed the details of construction, operation and advantages of the device will be readily understood from the foregoing without further detailed explanation.

Having thus described the invention, what I claim is:

A broken stud remover comprising a bridge member, slots in each end of said bridge member, bolts positioned in said slots and adapted for securing said bridge member to the work at opposite sides of a broken stud to be removed from said work, removable spacing members on the bolts for spacing said bridge member above the work, a threaded opening in said bridge member intermediate its ends, an internally and externally threaded sleeve threaded in said opening and having a tool engaging head for threading the sleeve into and out of position, a screw threaded in said sleeve and having a tool engaging head at one end and means at the other end of the screw adapted for biting into the broken stud.

RAYMOND D. SCHRADER.