

1,372,291.

Patented Mar. 22, 1921.

Fig. 1.

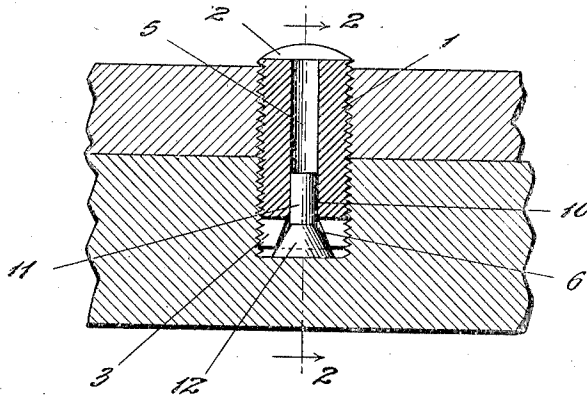


Fig. 2.

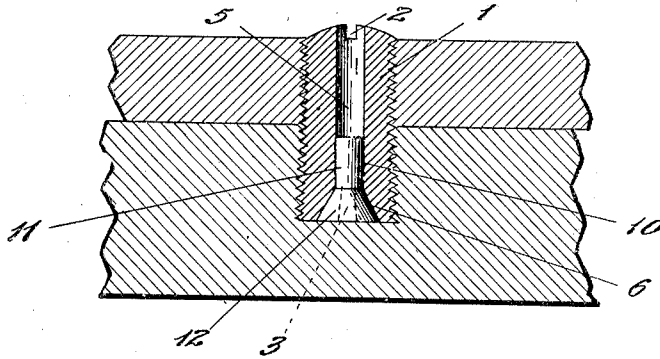


Fig. 6. Fig. 3.

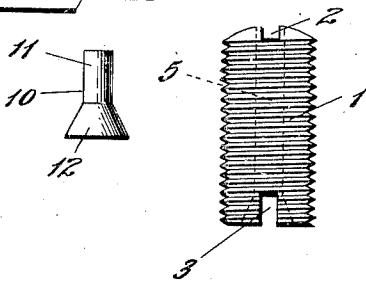
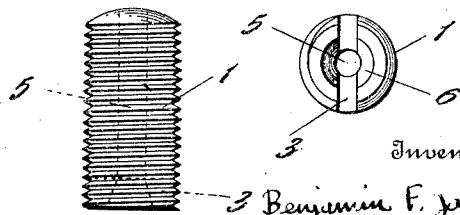


Fig. 4. Fig. 5.



Inventor

Benjamin F. Jacobs

By

Harry H. Schmeck

Attorney

UNITED STATES PATENT OFFICE.

BENJAMIN F. JACOBS, OF BOSTON, MASSACHUSETTS.

EXPANDING SCREW.

1,372,291.

Specification of Letters Patent. Patented Mar. 22, 1921.

Application filed May 3, 1920. Serial No. 378,663.

To all whom it may concern:

Be it known that I, BENJAMIN F. JACOBS, a citizen of the United States, residing at South Boston, in the county of Suffolk and State of Massachusetts, have invented certain new and useful Improvements in Expanding Screws, of which the following is a specification.

This invention relates to certain new and useful improvements in driven screw threaded fastenings, and it more particularly belongs to that class known as expanding sleeves, the plug in this instance being adapted to enter the same from the lower end.

With screw threaded fastenings as now constructed one of the disadvantages found in practice is to secure a fastener which if it becomes upset or jammed in its hole, can be readily accessible and removable.

One of the objects, I have in view, is to overcome the difficulty encountered and this I accomplish by constructing my device in such a manner that with the plug used at the bottom end, it rests conjointly upon that part of the machine upon which it is placed, thus co-acting at this point to largely if not entirely obviate the jamming of the screw.

Another object I have in view is to provide means whereby should it become necessary at any time to remove the screw, there will be little or no difficulty in so doing.

Another object of my invention is to construct a device of the character indicated which will be reliable in use and of extremely simple design so that it will be capable of easy manufacture by automatic machinery, thus insuring cheap production.

With these and other objects in view which may be incident to the use of the improvements, the invention consists of the parts and combinations thereof hereinafter set forth and claimed with the understanding that the several necessary elements constituting the same may be varied in proportions and arrangement without departing from the nature and scope of the invention.

In order to make the invention more clearly understood there are shown in the accompanying drawings means for carrying the same into practical effect without limiting the improvements in their useful applications to the particular constructions which, for the purpose of explanation have been made the subject of illustration.

In the drawings—

Figure 1 is a sectional view of my device showing the angle between the plug and the expansible sleeve.

Fig. 2 is a sectional view on the line 2—2 of Fig. 1 showing the position of the plug after it has been driven home.

Fig. 3 is a side elevation of my device showing the slots in the top and bottom thereof.

Fig. 4 is a side elevation of the same.

Fig. 5 is a bottom view thereof.

Fig. 6 is a detail plan view of the plug.

The numeral 1 represents a metallic screw, the upper end or face of which, if desired, may be made square or of hexagon configuration or simply plain as shown in the drawings. A slot is cut across its face as shown at 2, and its lower face is also slotted as shown at 3. The object of the slot at 2 is to permit of the use of a screw driver to drive the screw into its proper place. The slot in the lower face, however, is made somewhat deeper than the one in the upper face so as to allow for the expansion of the screw as hereinafter more fully appears. Said screw is provided with an interior longitudinal bore 5, which at its lower portion is tapered as shown at 6 to form a conical seat.

The numeral 10 refers to a plug, the upper end of which terminates in a tip 11, adapted to fit closely in cross section the diameter of the bore, but its lower conical portion is widened as at 12 to an angle somewhat greater, say 65 degrees, than the conical recess into which it is adapted to sit, which may be, say 60 degrees. As a result of constructing the lower portion of the plug of a greater diameter in cross section than its seat, the plug when first inserted in the screw will bear against the side of the seat unevenly, but when it shall have been driven home, the angles of the two members will approximate each other, the pressure against the conical seat will be much greater than if there were no such angles, and the sides of the screw will fit the closer against the walls of the hole in which it is contained.

The object in having the bore extend entirely through the screw is to permit of the insertion of a tool to reach the plug should the screw become jammed.

With screws as now constructed, when one becomes upset in its hole, it has been found in practice almost impossible to dislodge it and in an effort to do so, the head not infrequently becomes disrupted rendering it impossible to remove the screw, save by boring it out. A screw constructed, however, as shown in the drawings hereto annexed, can easily be dislodged by the insertion of a small drift or other appropriate tool through the top of the screw and by giving it a blow, whereupon the plug at the bottom which is jarred somewhat from its angle of pressure against the screw allows the lower end of the latter to contract slightly and renders it more adaptable to be unscrewed readily from the top.

While I have herein shown and described the preferred embodiment of my invention, I wish it to be understood that I do not confine myself to the precise details of construc-

tion herein set forth by way of illustration, as it is apparent that many modifications and variations may be made therein by those skilled in the art without departing from the spirit of the invention or exceeding the scope of the appended claim.

I claim:

An expanding screw comprising an externally threaded body whose upper end is provided with means for receiving an operating tool and whose interior is provided with a central longitudinal bore terminating at its lower end in a conical seat, a plug having a cylindrical part and a conical part adapted to enter and bear against said seat, the angle of the plug being made greater than that of the seat so that the angles of the plug and seat will more nearly approximate each other as the screw is driven home.

In testimony whereof I affix my signature.
BENJAMIN F. JACOBS.