B. F. JACOBS.

SET SCREW.

APPLICATION FILED AUG. 4, 1921.

1,438,648. Patented Dec. 12, 1922.

Fig. 2.

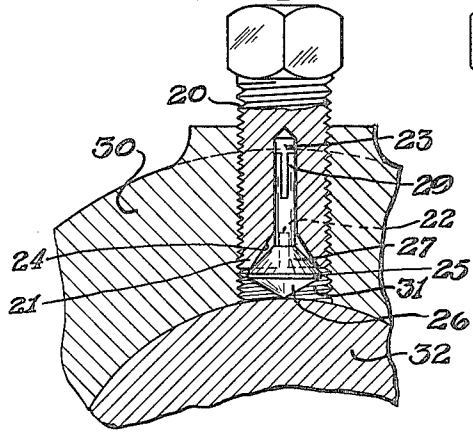


Fig. 1.

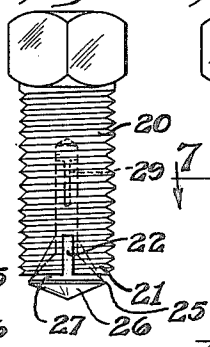


Fig. 3.

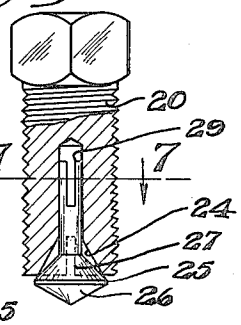


Fig. 4.

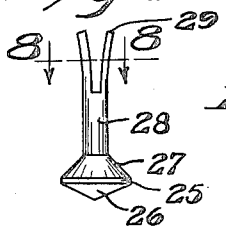


Fig. 8.



Fig. 5.

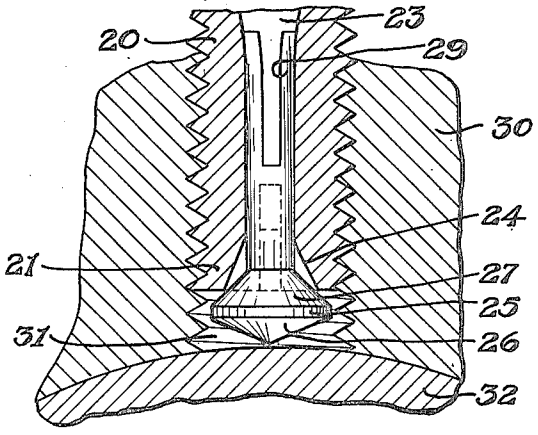


Fig. 7.

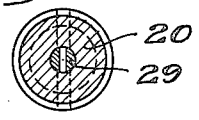


Fig. 9.

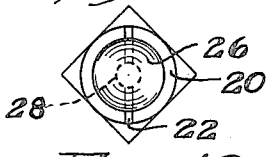


Fig. 6.

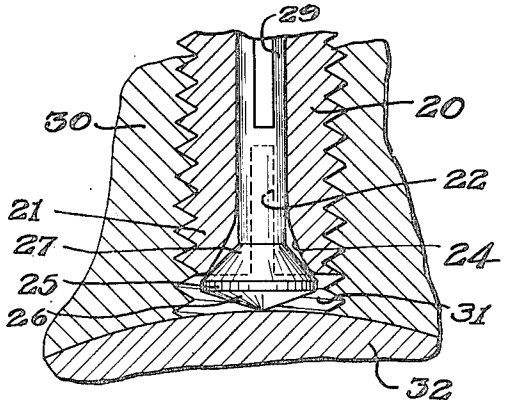
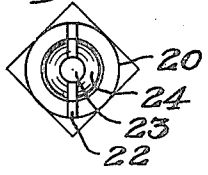


Fig. 10.



INVENTOR.

Benjamin F. Jacobs

BY

David Lichtenstein

ATTORNEYS.

Patented Dec. 12, 1922. 1,438,648

UNITED STATES PATENT OFFICE.

BENJAMIN F. JACOBS, OF BOSTON, MASSACHUSETTS.

SET SCREW.

Application filed August 4, 1921. Serial No. 489,876.

To all whom it may concern:

Be it known that I, BENJAMIN F. JACOBS, a citizen of the United States of America, and resident of Boston, in the county of Suffolk and State of Massachusetts, have invented a new and useful Improvement in Set Screws, of which the following is a specification, reference being had to the accompanying sheet of drawing, forming part thereof.

My invention relates to set-screws and the like, and has for its object to provide a set-screw with an automatic self-locking means, which normally serves to anchor the set-screw in set position when driven home and otherwise serves to free the set-screw when being backed out from the aforesaid set and anchored position.

Another object of my invention is to provide a self-locking set-screw with an independent projecting purchase peg in the bottom thereof, which is so designed as to permit of its being frictionally held in working relation with the set-screw for coupling the peg therewith to form a unit device therefrom.

Still another object of the invention is to provide a peg tip set-screw which comprises the combination of a split screw member and a wedging peg, which in the first instance serves to radially expand or contract the split section of said screw member, and in the second instance serves to provide a purchasing element for the set-screw.

To accomplish the aforesaid objects, I employ a split-screw member which is designed with a central, longitudinal bore in the lower end thereof, said bore being countersunk to provide a flared or tapered section at the entrance thereof, together with a peg or plug which is designed with a tapered head adapted to wedge and spread the split section of said screw member as the same is being driven home, and an expanding stem section adapted to fit the bore of said screw member and frictionally hold said peg secured thereto.

Other objects and advantages of the invention will be gathered from the description following herein and considered in connection with the accompanying drawing wherein the invention is shown embodied.

The terms employed herein are used in the generic and descriptive sense to designate the elements illustrated, and are therefore not intended as terms of limitation.

In order to illustrate my invention, but without being limited thereto, I have shown an embodiment thereof in the accompanying sheet of drawing wherein:

Fig. 1 represents an elevational view of my type of peg-tip set-screw;

Fig. 2 represents a sectional view showing the set-screw in operation;

Fig. 3 represents a part sectional view of the set-screw showing the peg or plug frictionally held therein;

Fig. 4 represents an elevational view of the peg or plug removed from the set-screw;

Fig. 5 represents an enlarged sectional view of the peg end of the set-screw, showing the set-screw before being driven home and about to make purchase with the shaft;

Fig. 6 represents a similar view to Fig. 5, but shows the set-screw driven home;

Fig. 7 represents a sectional view taken on line 7—7 on Fig. 3;

Fig. 8 represents a sectional view taken on line 8—8 on Fig. 4;

Fig. 9 represents a view showing the peg end of the set-screw; and

Fig. 10 represents the same view as Fig. 9, but shows the peg removed from the screw member.

Like numerals refer to like parts throughout the several views of the drawing.

The numeral 20 represents a machine screw which is more particularly known and referred to as a set-screw; it being understood that while I have shown the same provided with a square-shaped wrench head my invention applies as well to all other shapes and types of set-screws. The working end 21 of the set-screw 20 is split longitudinally, as the slot 22 indicates, which provides for a radial spread to the set-screw, as will be hereinafter more fully explained. 23 represents a central bore or chamber which is provided longitudinally in the set-screw and which may be blind, as the drawing indicates, or may pass clear through the set-screw, according as may be desired. Said bore at the working end of the set-screw is countersunk to provide the tapered or flared seat section 24.

25 represents a peg or plug which is provided with the purchasing head or tip 26, the flared or conical shoulder section 27, the stem 28 which fits the bore 23 of the set-screw, and the expansion or clutching elements 29. The conical shoulder section 27 of said peg or plug 25 is preferably inclined

at an angle approximating, but greater than, the angle of slope to the countersunk section 24 of the set-screw bore, as the drawing indicates.

30 represents a collar which is provided with the radial tapped hole 31 for receiving the set-screw 20 therein, as shown in Fig. 1; the set-screw serving to securely couple said collar 30 with the shaft 32.

Having thus described the parts of my invention in detail, the same is employed as follows: First, it will be noted that the peg 25 is slidably fitted in the chamber provided therefor in the screw member 20, said peg being held therein by means of the expansion or clutching elements 29 which frictionally expand against the walls of the bore 23 and hold the peg coupled with the screw member against dropping out therefrom, as might otherwise be possible.

With the peg thus coupled with the screw member the two form a unit set-screw which may be employed wherever set-screws are ordinarily used.

The peg serves as the purchasing element of the set-screw, as may be understood, for the head 26 of the peg is forcibly brought up against the shaft 32 as the set-screw is driven home. The driving home action of the set-screw forces the countersunk action 24 of the screw member to ride onto the wedging or cone shoulder 27 of the peg. This naturally expands the split section of the screw member radially and serves to anchor and lock the latter in the set position in the collar carrying the same.

Consequently the set-screw, when driven home, is thus set and locked in position and is held against accidental backing out, which is a most common and troublesome occurrence with the ordinary types of set-screws.

Incidentally the employment of the peg or plug, as herein described, provides for a much more effective purchasing feature for the set-screw inasmuch as the take-up between the peg and the screw member, when driving the set-screw home, provides for a grip or purchase against the shaft which is not possibly attainable in the ordinary set-screw which is designed to bottom directly on the shaft. This bottoming of the screw member directly on the shaft has its disadvantages and often is responsible for upsetting the end of the set-screw, which in many instances makes it impossible to remove the set-screw from the member carrying the same. Forcing a set-screw under such circumstances usually results in the breaking off of the head of the set-screw and requires boring or drilling out of the set-screw.

With my type of set-screw herein described, the occurrence of the upsetting feature above referred to is impossible, and thus one of the most objectionable features of the common types of set-screws is eliminated. Then again it must be apparent that in removing my type of set-screw the mere starting to back off of the set-screw immediately permits the split section of the screw member to contract and thereby releases the screw member so that the removal feature of the set-screw becomes much simpler and easier than the common types of set-screws in use.

In backing off the set-screw, the plug is carried with it, since the frictional elements 29 thereof will normally hold the peg coupled with the screw member so that the set-screw, as a unit is always intact and ready for service.

It will thus be noted that the set-screw may be designed to serve any purpose for which set-screws are ordinarily intended; that any type of head may be employed in connection with the peg or plug; that the construction of the within described set-screw is simple and may be produced at a very low cost; that said set-screw possesses features which are not possibly included or attainable in the present types of set-screws; and finally that said set-screw yields results which are both beneficial and advantageous in the machinery line.

While the preferred embodiments of my invention have been described in detail, it will be understood that I do not wish to be limited to the particular construction set forth, since various changes in the form, material, and in the details of construction may be resorted to without departing from the spirit and scope of the invention, or destroying any of the advantages contained in the same, heretofore described and defined in the subjoined claims.

Having thus described my invention in detail, what I claim as new is:

1. The combination of a split set-screw having a central and flared chamber in the working end thereof; and a peg slidably fitting said chamber and adapted to wedgedly spread the split portion of the set-screw for radially expanding the same and provided with spring means integral therewith for frictionally holding said peg in coupled relation with said set-screw.

2. The combination of a split set-screw having a longitudinal chamber therein provided with a countersunk seat section at the mouth thereof; and a peg having a purchasing head provided with a flared shoulder for wedgedly engaging the countersunk seat section of the set-screw for radially spreading the split section thereof, and an expansion stem integral with said peg and fitting the chamber of said set-screw to frictionally hold said peg in coupled relation therewith.

3. The combination of a set-screw having a longitudinal split therein and a longitudinal countersunk bore at the working end thereof, and a peg provided with a project-

ing, purchasing head, a wedging shoulder adapted to wedgedly engage with the countersunk bore of the set-screw for radially spreading the split section thereof, and a centering stem provided with expansion elements adapted to frictionally engage the peg with the set-screw for frictionally coupling the two together.

4. A set-screw peg having a purchasing head, a wedging shoulder, and a centering stem provided with integral expansion elements adapted to frictionally engage the peg with the set-screw.

In testimony whereof, I affix my signature this thirtieth day of July, 1921.

BENJAMIN F. JACOBS.

Witness:

DAVID LICHTENSTEIN.