

E. J. FOREMAN.
SCREW.

APPLICATION FILED MAY 27, 1913.

1,088,892.

Patented Mar. 3, 1914.

Fig. 1.

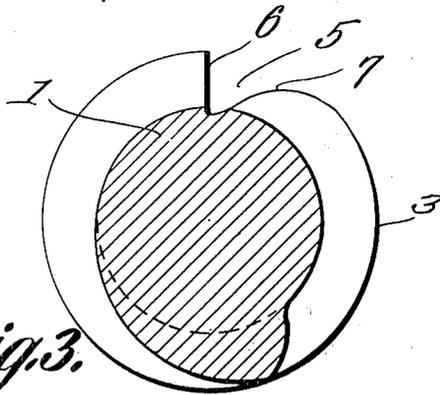
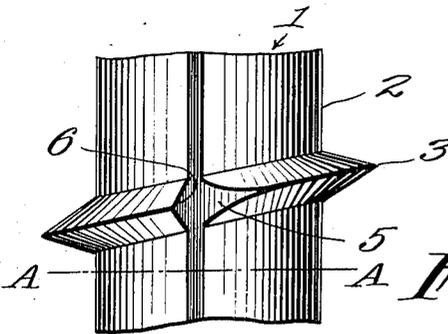
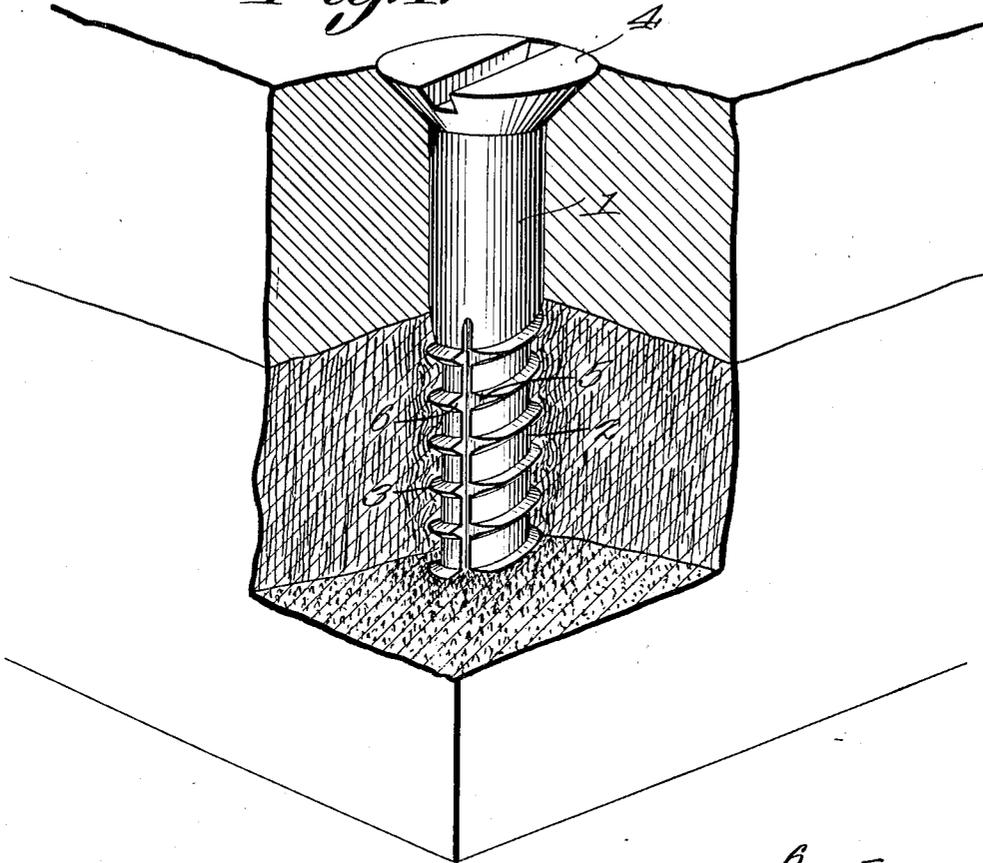


Fig. 2.

Witnesses

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UNITED STATES PATENT OFFICE.

ERNEST JAY FOREMAN, OF TRINIDAD, COLORADO.

SCREW.

1,088,892.

Specification of Letters Patent.

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To all whom it may concern:

Be it known that I, ERNEST J. FOREMAN, a citizen of the United States, residing at Trinidad, in the county of Las Animas and State of Colorado, have invented a new and useful Screw, of which the following is a specification.

This invention relates to improvements in wood screws and more particularly to a wood screw with the threaded portion thereof provided with a longitudinal groove to prevent the accidental displacement of the screw.

A further object is to provide a wood screw with a mutilated portion which offers no increased resistance to the insertion of the screw within a substance but successfully prevents the retraction thereof unless a large force is applied.

A further object is to provide a longitudinal groove along the threaded portion of a wood screw with one face thereof cut sharply and in a radial manner and to round off the opposite face of the groove. The sharp or radial face is so positioned that it will be leading portion or face of the groove as the screw is being inserted into wood. The rounding of the following face provides that no decided increase of resistance will be had due to the said groove. However any tendency to retract the screw will, as will be apparent, change the leading or sharp-cut face to what might be termed a following position and which will contact with the fibrous material so as to hold the said screw against retraction.

With the foregoing and other objects in view which will appear as the description proceeds, the invention resides in the combination and arrangement of parts and in the details of construction hereinafter described and claimed, it being understood that changes in the precise embodiment of the invention herein disclosed, can be made within the scope of what is claimed, without departing from the spirit of the invention.

In the drawings accompanying this specification and forming a part thereof, the preferable form of my invention is illustrated, in which:—

Figure 1 is a perspective view of the improved wood screw inserted within a wooden block and illustrating the manner in which the fibers crowd into the cut groove of the screw to offer considerable resistance to the

retraction thereof. Fig. 2 is a fragmental view in elevation of a wood screw constructed along the lines of my invention. Fig. 3 is a cross sectional view taken on the line A—A of Fig. 2 looking in an upward direction, and with the head or upper portion of the screw omitted.

Referring to the drawings in which similar reference numerals designate corresponding parts throughout the several views, 1 is the shank of a wood screw provided with the threaded portion 2, the threads consisting of the raised helical flanges 3 of the ordinary contour. The upper extremity of the shank is provided with the usual enlarged head 4 for the engagement of the screw and affords means for the rotating thereof.

In order that the wood screw as herein disclosed may be inserted or driven into wood or similar material with approximately the same force as necessary in the inserting of a wood screw of the ordinary type, and to further provide that the screw having once assumed its inserted position, any tendency to retract the same will encounter a greatly increased resistance to thus prevent the accidental displacement of the screw, a groove or channel 5 is cut along the threaded portion of the screw and the cross sectional contour of the said channel as illustrated in Fig. 2 lends particular properties to the screw.

The leading face 6 of the channel when the screw is being driven inwardly, extends substantially radial and provides sharp abrupt faces for the mutilated threads. The following face 7 of the channel taken with respect to the inserting of the screw is formed along a gradual slope and may be likened to a spiral curve of constantly increasing radii, the result of so cutting this face being that the face gradually decreases in width due to the triangular cross sectional contour of a thread so that the wood fibers which come in contact with the spiral face of the groove are compressed by the same in a gradually increasing manner so that the fibers of the substance in which the screw is inserted, usually wood, are compressed by the threads and crowded into a limited space and due to the sloping face the groove will not cut or mutilate the fibers during the inserting of the screw into the wood. When, however, a force is exerted upon the screw tending to retract the same, the fibers

immediately crowd into the groove and as the spiral face is now the leading one and the abrupt or radial face the following one the fibers will crowd down into the space left by the receding face of the groove and thus the sharp abrupt following face of the groove will come into contact with the said fibers and thus a rotation to retract the screw will tend to dislodge and tear the fibrous structure of the wood which will therefore offer considerable resistance to the same. The abrupt face therefore will securely lock the screw in its embedded position and prevent the accidental retraction thereof.

Attention is called to the fact that in the usual screw the same after being embedded within a fibrous structure forces the said fibers apart and for a certain length of time the fibers will resiliently engage and hold the screw in position. However, after a period of time has elapsed the fibrous structure becomes set and will no longer resiliently engage the surface of the screw and when a slight shrinkage of the wood now takes place the set position of the fibers draw away from the surface of the screw which will allow it to become accidentally displaced. With the screw as disclosed in the present application the abrupt leading face during the inserting of the screw has no effect upon the forming of the aperture or the displacing of the wooden fibers. The following spiral face compresses the fibrous structure and crowds the same to one side of the threads. When the screw has assumed its final position, the fibrous structure crowd into the opening between the faces of the groove and become set in this position. Should the wood now shrink it

will not loosen the screw and it does not shrink enough to draw entirely from out of the faces of the groove. The retraction of the screw is therefore effectually prevented unless considerable force is exerted by the abrupt face coming into contact with the fibrous structure and wedging the same in front of the said abrupt face.

The device as herein disclosed is to be distinguished from and not to be confused with those devices which are provided with grooves for the cut material to deposit in so that the device cuts its way clear. Also mention is made of the fact that the number, and exact shape of the longitudinal axis, of the groove may be varied as will be apparent.

What I claim is:—

A wood screw comprising a threaded shank, said threaded shank provided with a groove extending longitudinally thereof, the front or leading face of the groove considered during the insertion of the screw extending substantially radial of the said threaded shank, the opposite face of said groove of sloping outline, the said sloping face adapted to compress material in contact therewith during the insertion of the screw, the radially extending face of the groove adapted to contact with the compressed fibrous material to greatly increase the effective resistance to the movements of the screw during the retraction thereof.

In testimony that I claim the foregoing as my own, I have hereto affixed my signature in the presence of two witnesses.

ERNEST JAY FOREMAN.

Witnesses:

THOS. A. CORBOULD,
FRANK R. DUNLAVY.