

Oct. 31, 1933.

D. M. MAY

1,933,332

SCREW

Filed June 6, 1931

Fig. 1.

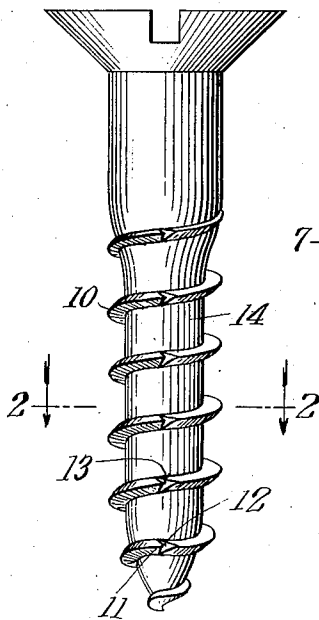


Fig. 6.

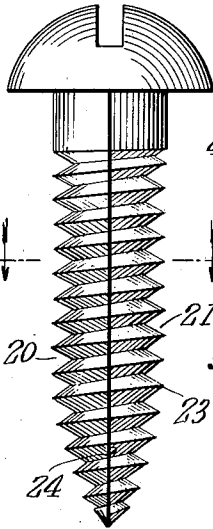


Fig. 3.

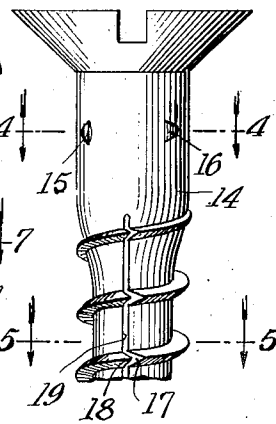


Fig. 4.

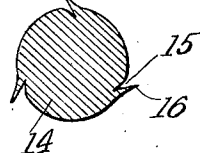
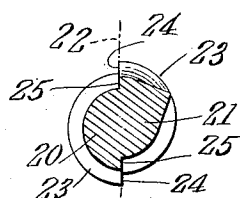


Fig. 2.

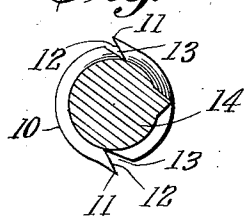


Fig. 7.

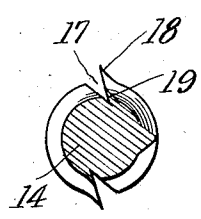


Fig. 5.

Fig. 8.

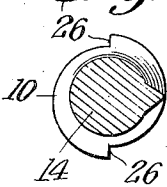
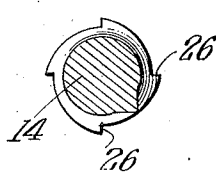


Fig. 9.



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SCREW

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Application June 6, 1931. Serial No. 542,474

1 Claim. (Cl. 85—47)

The objects of this invention are to provide a simple, practical, inexpensive and readily manufactured form of screw of self-locking design which can be driven in the ordinary way with the usual tools, which will not injure the structure into which it is set, which will hold itself securely in place by the mere act of driving and which while securely locked in place, may in case of necessity be released and removed.

These objects are attained by the novel features of construction described in the following specification and illustrated in the accompanying drawing, to which reference is directed. Fig. 1 is a side elevation of a form of wood screw embodying the invention; Fig. 2 is a cross sectional view of the same as on line 2—2 of Fig. 1; Fig. 3 is a broken side elevation of another embodiment of the invention in a wood screw; Figs. 4 and 5 are cross sectional views respectively, on the lines 4—4 and 5—5 of Fig. 3; Fig. 6 is a side elevation of a screw for metal, embodying features of the invention; Fig. 7 is a cross sectional detail as on line 7—7 of Fig. 6; Figs. 8 and 9 are cross sectional views of other forms of the invention.

In the form of the invention illustrated in Figs. 1 and 2, the locking effect is obtained by gashing, cutting or otherwise forming the thread 10 of the screw to provide out-turned hooks, barbs or teeth 11 with abrupt shoulders 12 in back of the same. In the particular form shown, gashes 13 are cut into the finished thread of the screw from opposite sides and on lines generally tangential to the shank portion 14. This may be accomplished by suitable cutters in a swaging machine, such cutters having the effect of displacing the cut metal forwardly in the direction of driving rotation of the screw and throwing it outwardly to form outstanding barbs which cut their way out beyond the normal circle or track described by the screw parts, entering fresh wood not cut by the screw threads and interlocking therein to oppose the reverse rotation of the screw.

The gashes or cuts for throwing out the barbs, without removing metal may be made only in the thread of the screw, as just described, or be made only in the shank of the screw, or be made in both the shank and the thread. The latter two constructions are illustrated in Figs. 3, 4 and 5, where the shank is shown as gashed at 15 to throw out the barbs 16 adjacent the head of the screw and the thread is shown gashed at 17 clear into the shank of the screw to throw out the barbs 18, these latter being reinforced at the base by that part of the metal at 19 which is struck out of the shank.

For use in metal, a screw like that illustrated in Figs. 5, 6 and 7, 8, 9 may be used, the same consisting in Figs. 6 and 7 of the diametrically

displaced half-screw portions 20, 21 displaced laterally of a diametrical plane 22 so that the half sections 23 of the screw threads will have the abrupt shoulders 24 outstanding and faced to the rear in the direction of screw entry rotation. These outstanding screw portions 24 and adjacent shank portions 25 strain the metal or other material in which the screw is entered and give it a tendency to contract in back of the shoulders 24, 25, locking the screw in place in the position to which it is driven.

Generally similar results are attained by the screw constructions of the cross sections illustrated in Figs. 8 and 9 where screw thread 10 is shown as cut in at two, or four or other number of places, at 26, to provide abrupt shoulders serving in the nature of rigid pawls to lock the screws against reverse rotation in the material.

In all forms of the invention the tapered screw may be driven by an ordinary screw driver, or if it has a bolt or other type of head, by a wrench or equivalent tool suited to driving the same. During the driving operation the outstanding prongs or pawl elements cut or force their way at the forward sharp edge and at the end of the driving operation the abrupt rearwardly facing shoulders of these elements hold in the material to prevent loosening of the screw. If the screw needs be withdrawn, this can be accomplished by applying sufficient power to force the holding pawls back through the material. This action naturally cuts away the material to some extent, which may require the use of a larger screw for replacing the screw which has been removed. The screw may be produced by forging, swaging, machining, molding or other processes, it is entirely practical and may be manufactured inexpensively.

What is claimed is:

An initially complete and self-locking tapered screw as herein disclosed and comprising a screw shank provided with a screw thread and having incorporated therewith a holding spur projecting from the shank beyond the track described by the elements of the screw in the driving of the same into the material in which the screw is used, the leading edge of said spur being inclined tangentially away from the axis of the screw in the direction of driving rotation, and terminating in an outwardly curled hook portion.

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