

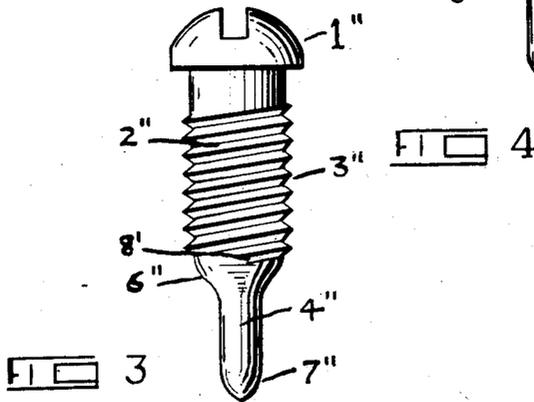
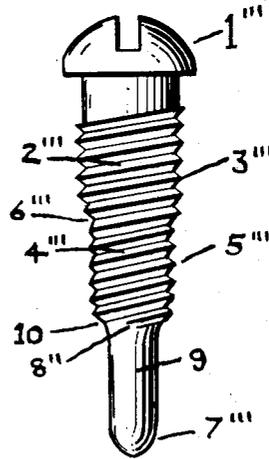
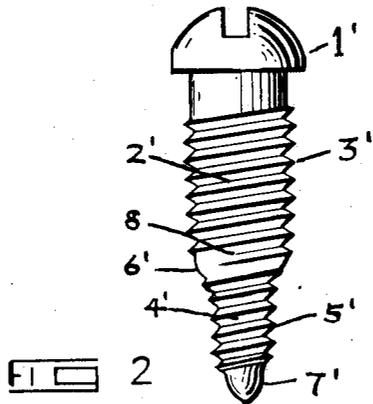
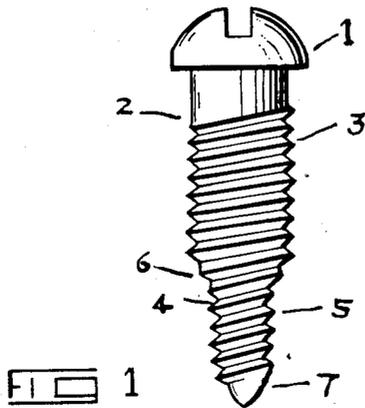
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2,382,019

E. A. MILLER

COMPOUND SCREW

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## COMPOUND SCREW

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### 1 Claim. (Cl. 85-41)

This invention relates to compound screws and more particularly to screws axially provided integrally with plural shank sections of which the lower section is of a lesser diameter than that of the next upper one.

The applicant is aware that the previous art discloses screws having gimlet terminals, and conical and pin points, but each of terminals and points thus shown is a part of the ordinary formation of screw having but a single shank.

Referring to the accompanying drawing, the Figure 1 illustrates a compound screw with a conoidal terminal and of which the thread of the lower section is an unbroken continuance of the thread of the upper section; Figure 2 illustrates a similar compound screw, but of which the thread of the upper section terminates in a cutting shoulder; Figure 3 illustrates another similar compound screw having the thread of the upper section terminate in a cutting shoulder, but the lower section being unthreaded and having a conoidal terminal; and Figure 4 illustrates still another similar compound screw, but of three sections of which the intermediate section comprises a threaded shank of a lesser diameter than that of the uppermost section, and of a greater diameter than that of the lowest section.

With more particular reference to the accompanying drawing, the numeral 1 designates the head of the compound screw, which head may be as illustrated in the various figures, or may be of any other desired form, or entirely omitted. In the Figure 1 the upper shank section 2 of substantially cylindrical form is provided with the screw thread 3. The numeral 4 designates the lower shank section of lesser diameter than that of the shank section 2 and also of substantially cylindrical form. The section 4 is peripherally provided with the screw thread 5 of the same number of convolutions to the inch with which the section 2 is provided, the thread of the section 4 being a continuation of the convolutions of thread 5 of the section 2. The periphery of the compound screw structure at place of association of the sections 2 and 4 is of such form as to eliminate angles, as at 6. The terminal 7 of the compound screw structure is of conoidal formation, as distinguished from the more common pointed terminal.

In driving the compound screw, illustrated by the Figure 1, into unbored wooden material, or the like, the conoidal terminal 7 is first placed upon the surface of the material and then driven therein by means of hammer blows, or the like, until the thread 5 begins to enter the wood.

Then, by turning the compound screw by means of a screw-driver or the like, the lower threaded section 4 enters the depression made by the terminal and, further compressing the material therein, marginally forms its own threaded course so that, when the section 4 has entirely entered the material, the continued turning of the compound screw causes the threaded section 4 to gradually draw the threaded section 2 within the material to further marginally depress and to form its threaded course of increased diameter therein. The advantage of having the section 4 first enter the material is at least two-fold: The section 4 is of course easier to enter the material, it being of lesser diameter than that of the section 2, and, having fully entered, draws the section 2 therein after it, and the lateral strain upon the material which would have occurred had the section 2 first been introduced is avoided by means of the compound structure.

In the Figure 2 there are shown the head 1', upper section 2', upper section thread 5', the periphery 6' and the conoidal terminal 7', the thread 3' however terminates with the cutting shoulder 8. In driving this compound screw into unbored material, the operation is similar to that of the Figure 1, excepting that the threaded section 4' having entered the material will, upon further turning of the compound screw therein, draw the cutting shoulder 8 of the thread 3' of the section 2' of the greater diameter into contact with the material to marginally cut its enlarged threaded course therein, thereby further depressing the material as in the Figure 1.

In the Figure 3, as in the previous figure, there are illustrated the head 1'', upper section 2'', upper section thread 3'', the lower section 4'', the periphery 6'', the conoidal terminal 7'' and the cutting shoulder 8' of the thread 3'', the lower section 4'' of less diameter than that of the section 2'' being shown as unthreaded. In driving this compound screw into unbored material, the operation is similar to that of the previous figures, excepting that sufficient hammer blows, or the like, are necessary to drive the lower section 4'' entirely into the material until the cutting shoulder 8' of the threaded section 2'' of greater diameter is drawn into the material wherein it may marginally cut its enlarged threaded course therein upon the turning of the compound screw.

In the Figure 4, there is illustrated a compound screw in which the component integral sections combine the head 1''', the uppermost shank section 2''' having the thread 3''' with the inter-

mediate section 4''' having the thread 5''', the periphery 6''' connecting the sections 2''' and 4''', and the unthreaded section 9, the periphery 10 connecting the sections 4''' and 9, the compound screw terminating with the conoidal formation 7'''. In driving this form of compound screw into unbored material, the operation is similar to that of the Figure 3, with the exception that hammer blows, or the like, will have driven the unthreaded section 9 into the material before the threaded intermediate section 4''' can be turned into the material to be followed by the threaded section 2''' which finally is turned therein. This last described form of compound screw is well adapted for easy driving into material where a longer compound screw of greater section diameters may be used to advantage.

While the threaded sections are above described as having, in each instance, similar convolutions of uniform number to the inch, it is to be understood that such number may be varied with reference to sections of the same compound screw. Also, while the threaded sections are shown as having single convolutions of thread, they may just as well be provided

with multiple convolutions, if desired. It is further understood that the invention herein disclosed is not to be confined to the illustrations shown, they being merely illustrative of different embodiments of the invention, and other combinations of compound screw sections, within the spirit of the invention, are intended to be included herein.

I claim:

10 A compound screw adapted to be driven into nonbored wooden material, or the like, the screw comprising a headed cylindrical shank section threaded from adjacent said head throughout its length; one or more other cylindrical shank sections, each of less diameter than that of the  
15 headed and preceding section, certain of said other sections being threaded throughout and the convolutions of all threaded sections being of the same number to the inch; nonthreaded tapered sections integrally connecting the cylindrical sections; a substantially abrupt cutting shoulder with which each terminal of the  
20 threaded sections is provided; and a conoidal terminal provided by the screw.

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