

S. W. YOUNG.
Wood Screw.

No. 66,766.

Patented July 16, 1867.

Fig. 1

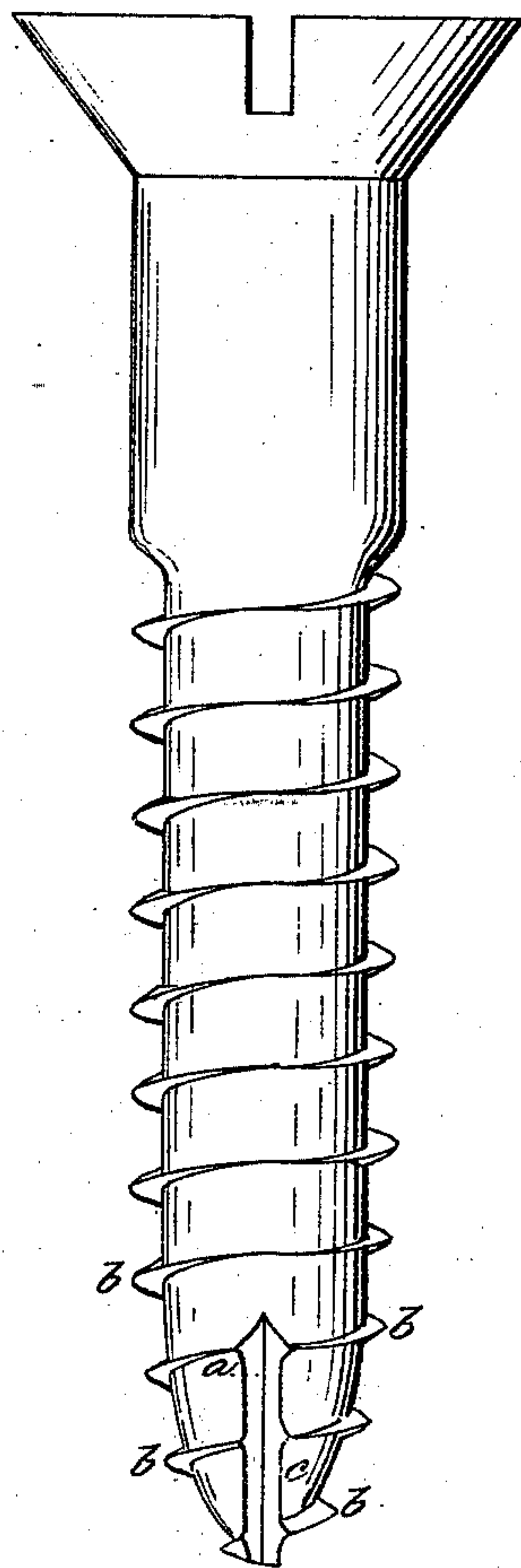


Fig. 3

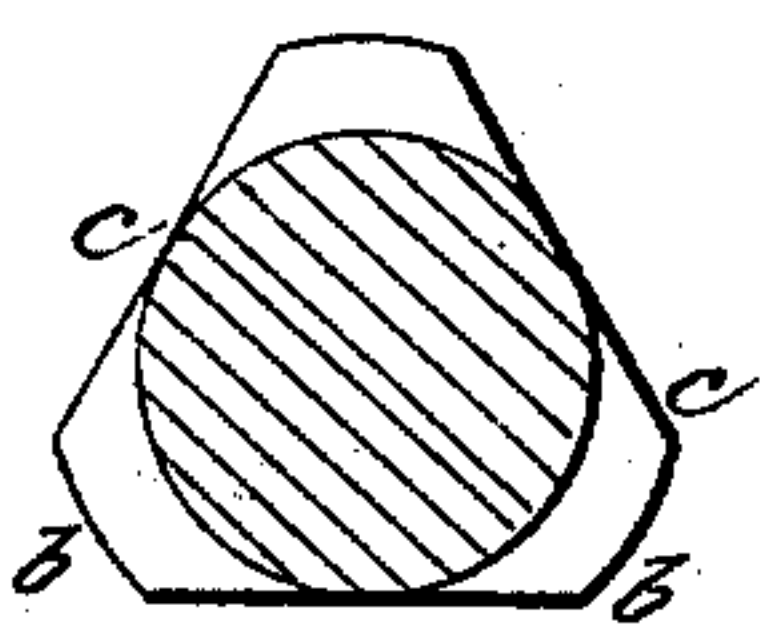
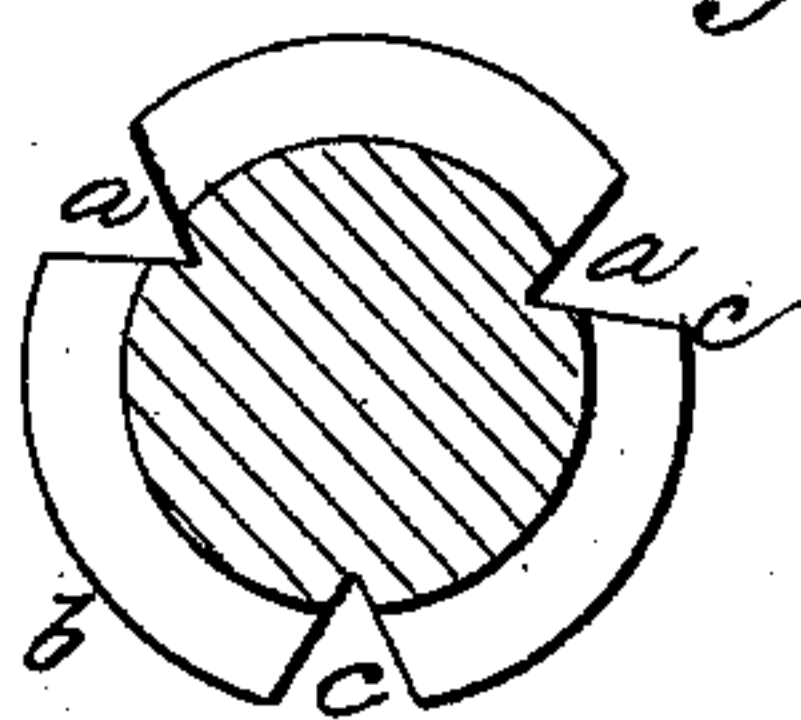


Fig. 2



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Inventor:
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by
J. Pollok
his atty

United States Patent Office.

SOLOMON W. YOUNG, OF PROVIDENCE, RHODE ISLAND, ASSIGNOR TO
HIMSELF AND J. W. HOARD, OF THE SAME PLACE.

Letters Patent No. 66,766, dated July 16, 1867.

IMPROVEMENT IN WOOD-SCREWS.

The Schedule referred to in these Letters Patent and making part of the same.

TO WHOM IT MAY CONCERN:

Be it known that I, S. W. YOUNG, of Providence, in the county of Providence, and State of Rhode Island, have invented certain new and useful Improvements in Screws; and I hereby declare the following to be a full, clear, and exact description of the same, reference being had to the accompanying drawings, in which—

Figure 1 is an elevation on an enlarged scale of so much of a screw as is needed to illustrate my invention.

Figure 2 is a transverse section of the same on the line $x y$, fig. 1, and

Figure 3 is a like section of a screw in which is represented a modification of my invention.

My invention relates to that kind of screws known as wood-screws, and particularly to that class in which the end of the screw tapers to a point. This latter screw is known as the gimlet-pointed screw, and the object to be attained by its particular construction is to facilitate the entrance of the screw into the wood, and to overcome the resistance offered by the latter when the hole in which the screw is inserted is small, or of too contracted dimensions to admit it easily. The screw, however, only accomplishes these results to a certain extent, there being defects in its construction and drawbacks to its use which my invention is intended to obviate. For instance, the screw when being forced into place, will jam the wood away, the small end or point entering the wood first, being followed by the gradually-swelling shank which jams or compresses the wood and forces it aside. This renders the operation of inserting the screw in hard or close-grained wood, especially where the hole formed for its reception is small, quite difficult and laborious, oftentimes causing the screw to be broken or otherwise injured, and, particularly when the wood is thin, rendering it liable to be split or cracked by the screw.

To remedy these and other defects which need not be here recited, I construct the screw so that instead of jamming the wood away it shall cut its own thread as it gradually enters the wood. In the shank of the screw, and extending upwards from the point, one or more longitudinal grooves or their equivalents are formed in the plane of, but obliquely to, the axis of the said shank. The effect of thus cutting away the surface of the screw is to form on each side of the groove or grooves a cutting edge on both the screw-thread and the shank. When the screw thus constructed is put into the wood and then turned, so as to be forced down into place, these edges cut their way into the surrounding wood, enabling the operator to insert the screw to its full extent with ease, and as the edges do not jam or compress the wood, but cut it or force it away, there is not that danger of splitting the wood or damaging the screw which arises when the ordinary screw is used, especially when the wood is tough or close-grained.

To enable those skilled in the art to understand and use my invention, I will now proceed to describe the manner in which the same is or may be carried into effect by reference to the accompanying drawings.

The screw shown in Figure 1 in its general conformation resembles an ordinary wood-screw with a tapering or gimlet point. Extending upward from the point are one or more longitudinal grooves a , formed in the shank of the screw by suitable means, either by grinding, milling, or in any other convenient manner. The number of these grooves may vary, though I have found it preferable to adopt the number (three) shown in the drawing. The grooves start from the point or lower extremity of the screw and extend upward divergingly to a point at or near which the shank ceases to taper and becomes cylindrical. At this point the grooves cease to be of any great use, as the part of the shank above the tapering portion follows in the thread or hole formed by the latter without expanding or enlarging it, or forcing away the wood in any degree. The course of the grooves a , as will be seen by reference to fig. 1, is transverse to that of the screw-thread b , and consequently at the points where the grooves intersect it a cutting edge, c , is formed, the projecting threads giving it a serrated formation, which materially aids the screw in its passage through the wood. For instance, suppose the screw in fig. 1 to be inserted in a piece of wood and turned so as to be forced into the same, the edges c formed by the grooves would cut their way and the screw would gradually enter the wood, not by jamming and forcing the wood before or aside from it, but by cutting its path, thus displacing the wood with much greater ease than can be done with the old wood-screw, and avoiding in great measure all danger of splitting or cracking the material. It is very difficult, if not almost impossible, to force the ordinary gimlet-pointed screw into hard wood, unless the hole first formed for its reception is large, so as to nearly fit the same. But a screw constructed under my

invention may be forced into a small hole in such wood without difficulty, and is thus not only better adapted for general use, but will hold more effectually and strongly than the screw of ordinary manufacture. In fig. 3 I have shown a modification of my invention by which the same effect may be produced in a degree as is accomplished by the grooves. The surface of the screw, instead of being grooved, is ground or milled off, forming, as will readily be seen, a cutting edge, *c*, as before.

Other equivalent means may also be employed instead of those already suggested, as it does not matter, so far as the principle of my invention is concerned, how the screw is cut away, so that the edge *c* or its equivalent is formed. I have found, however, that the groove will best effect the object I have in view, and I prefer to use it in most instances. It will of course be understood that my invention is equally applicable to gimlets, augers, and other tools of a similar nature having a gimlet-point.

Having now described my invention, and the manner in which the same is or may be carried into effect, I would observe that I am aware that wood-screws have been heretofore made with a longitudinal cutting edge formed both in the shank and in the thread, extending throughout their whole length. Such screws are not only of difficult construction, and consequently expensive, but have a cutting edge which, beyond a certain point, *i. e.*, where the shank becomes cylindrical, is useless.

I therefore do not claim broadly the forming upon a wood-screw of a cutting edge transversely to the thread, but what I do claim and desire to secure by Letters Patent, is—

As a new manufacture, a gimlet-pointed screw, having one or more grooves or indentations in the shank and thread thereof, in the plane of, but obliquely to, the axis of the said shank, that is to say, having the grooves formed between the point and cylindrical part of the shank, substantially in the manner and for the purposes set forth.

In testimony whereof I have signed my name to this specification before two subscribing witnesses.

SOLOMON W. YOUNG.

Witnesses:

HENRY MARTIN,
CHARLES SELDEN.