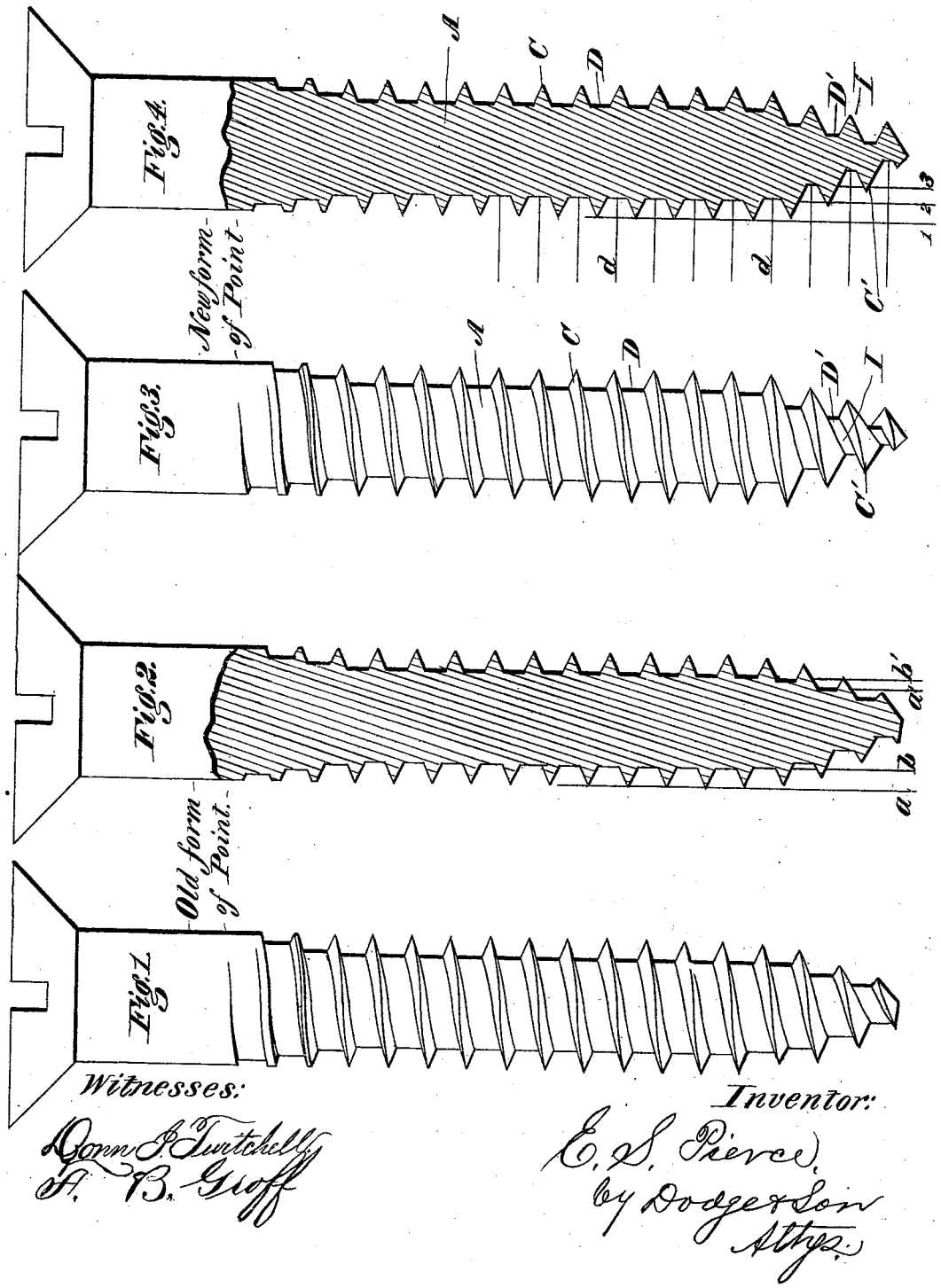
E. S. PIERCE.
Wood Screws.

No. 196,309. Patented Oct. 23, 1877.



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UNITED STATES PATENT OFFICE.

ELIJAH S. PIERCE, OF HARTFORD, CONNECTICUT.

IMPROVEMENT IN WOOD-SCREWS.

Specification forming part of Letters Patent No. **196,309**, dated October 23, 1877; application filed May 12, 1876.

To all whom it may concern:

Be it known that I, ELIJAH S. PIERCE, of Hartford, in the county of Hartford and State of Connecticut, have invented certain new and useful Improvements in Wood-Screws; and I do hereby declare that the following is a full, clear, and exact description thereof, whereby a person skilled in the art can make and use the same, reference being had to the accompanying drawings, and to the letters of reference marked thereon.

Like letters in the figures indicate the same parts.

My invention relates to wood-screws; and it consists in a point having its thread of a uniform pitch with the thread on the body of the screw, and of greater depth or height than usual, whereby the point is made to penetrate the wood more readily and take a better hold therein, and the thread of the body made to follow in the groove cut by the thread of the point.

Figures 1 and 2 are a side elevation and a longitudinal section of the gimlet-pointed screw as ordinarily constructed, and Figs. 3 and 4 are similar views of a screw embodying my improvement.

Since the introduction of the gimlet-pointed screw many forms have been devised in order to render it more perfect in operation; but, as found in the market, these screws are usually, if not uniformly, made as represented in Figs. 1 and 2.

In making these screws, the thread is usually cut with the same tool from end to end, the consequence of which is that when the tool reaches the taper portion which constitutes the point the thread becomes very shallow, as is clearly shown in Fig. 2, where the depth of the score or height of the threads on the point is indicated by the space between the lines *a'* *b'*, while the depth on the body is indicated by the space between the lines *b* and *a*.

It will be seen, by comparing these spaces, that the depth of the score or groove between the threads, and consequently the height of the threads on the point, is less than half that on the body of the screw, and that the point is comparatively blunt. When such a screw is used the blunt point does not readily penetrate the wood, and the shallow thread of the point, instead of taking a good firm hold on the wood, so as to draw or force the screw in, is apt to merely rupture the fibers of the wood, in which case the screw will not enter.

Now, to overcome these difficulties, and produce a screw that will more readily enter the wood, I make the point as shown in Figs. 3 and 4. It will be seen by the lines *d* that the thread is of a uniform pitch throughout its entire extent, so that the thread on the cylindrical body of the screw will travel or follow in the channel or groove cut by the thread of the point in the wood.

The thread C' on the body is of a uniform height, and the score or groove D between the threads is a uniform width and depth until it reaches the point where the screw begins to taper to form the point; and there it will be seen that the score D' is made narrower on its bottom, which is caused by cutting it deeper than on the old style. In doing this the inclined faces of the thread are continued inward at the same angle or inclination, which necessarily makes the score or groove D' on the point narrower on its bottom than is that on the body of the screw.

By this mode of making the point it will be seen that the thread on the point of the screw is made almost as high as that on the body, as indicated by the vertical lines 1, 2, and 3, the space between the lines 1 and 2 showing the height of the thread on the body, and the space between the lines 2 and 3 shows the height of the thread on the point. By comparing the space between the lines 2 and 3 and that between the lines *a'* and *b'* of Fig. 2 the difference in height between the threads on the new and the old style point will be readily seen.

The process of cutting the score D' on the point deeper will be readily understood by those skilled in the art, and therefore need not be specially described.

It will be seen that just in proportion as the score on the point is deepened, just in that proportion will the solid metal which forms the core of the point be reduced in diameter, thereby making the point more slender, and enabling it to penetrate the wood more easily and readily. It will therefore be seen that, instead of a blunt point with a shallow thread,

I make a slender point with a deeper or higher thread. By thus reducing the diameter of the solid core I of the point there is less tendency to displace or crowd the wood outward, while the thread of the point cuts deeper into the wood, thereby operating to force or draw the screw into it, and at the same time cutting therein a channel or groove in which the thread of the body will follow as it advances.

I am aware that it is not new to make a gimlet-pointed screw with a thread of uniform pitch, and that a screw has been represented with the groove or score on its point made narrower than that on its body by making it of a different pitch on its point and body, and therefore I do not claim either of these as my invention; but

What I do claim is—

A wood-screw provided with a thread in the form of a vertical section of a truncated cone, and of uniform pitch on the body and point of the screw, with the thread C′ on the point made of greater height than it otherwise could be by deepening the score D′ on the point, substantially as shown and described.

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Witnesses:

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