

(No Model.)

C. D. ROGERS.  
SCREW NAIL.

No. 264,479.

Patented Sept. 19, 1882.

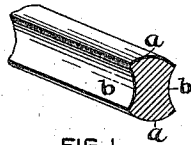


FIG. 1.

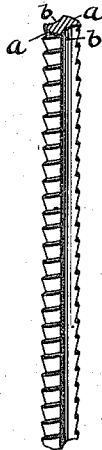


FIG. 2.

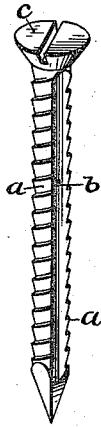


FIG. 3.

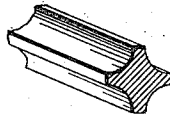


FIG. 4.



FIG. 5.

WITNESSES.

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## SCREW-NAIL.

SPECIFICATION forming part of Letters Patent No. 264,479, dated September 19, 1882.

Application filed December 15, 1881. (No model.)

To all whom it may concern:

Be it known that I, CHARLES D. ROGERS, of the city and county of Providence, and State of Rhode Island, have invented a new and useful Improvement in Screw-Nails; and I do hereby declare that the following specification, taken in connection with the accompanying drawings, forming a part of the same, is a full, clear, and exact description thereof.

My improvement consists in a screw-nail having a slotted head, or a head to which a screw-driver or equivalent instrument can be applied to turn the nail axially, a sharpened or driving point, and a shank portion having threaded or serrated longitudinal sections and intermediate plain or unthreaded sections which are in the form of concave or V shape grooves.

The objects of my invention are to produce a nail having a maximum of strength with a minimum amount of material, which can be turned axially after it is driven home, and the threaded section thereby be made to enter the wood which abuts the plain or unthreaded sections when the nail is driven, which wood is practically undisturbed by the driving, and to give to the plain or unthreaded sections the form of longitudinal grooves, into which tongues of wood will enter for the purpose of forming a tongue-and-groove connection between the wood and nail, and thereby diminish the liability of the nail becoming loosened by turning on its axis from the effect of vibration of the wood when in use.

Referring to the drawings, Figure 1 represents on an enlarged scale a portion of a longitudinally-grooved rod. Fig. 2 shows the same on a smaller scale, provided with a spiral or screw thread. Fig. 3 represents a screw-nail made from such a rod. Fig. 4 shows a portion of another form of rod, and Fig. 5 represents a screw-nail made from such rod.

In Figs. 1 and 4 of the drawings I have shown sections of rolled rods of the forms which I prefer for use in making my improved screw-nail. The surface of these rods is formed into longitudinal convex sections *a* and longitudinal concave sections *b*. The precise form, however, of the rod shown is not material, as the number of the convex sections relatively to

the concave sections may be varied, and the sections which are shown as concave may be V shape. In rods which are rolled with the grooved sections shown the least amount of material can be employed for the shank and be accompanied with the greatest amount of stiffness as the incident of the rolled grooves or sections. Having selected a rod of this character of suitable size and form for the intended screw-nail I cut upon the longitudinal convex sections *a* a screw-thread, as shown, and afterward form the head *c* on the rod in a heading-machine, such as is employed for heading screw-blanks, and also form the end into a driving-point by the usual machinery for such purpose. The nick in the head, or other device for enabling the screw-nail to be turned axially, is also made by the usual machinery employed. If preferred, the rods before they are threaded may be headed, nicked, and pointed.

While I have shown the thread as of the variety known as the "ratchet-thread," and consisting of sections of a continuous spiral, it will be within my invention if the longitudinal convex surfaces of the nail-shank are not provided with sections of one or more regular convoluted threads, but are formed with serrations not constituting sections of spirals, for the reason that one important advantage which my improved screw-nail affords will be equally secured in case the convex surfaces *a* be simply serrated, like the sides or corners of some shoe-nails in common use in the market. The advantage referred to is this: A screw-nail when driven into wood must, to a large extent, tear away the fibers of the wood which lie in the path of the serrated or screw-threaded surface of the nail.

In my improved nail—from the circumstance that I furnish it with a head, which enables the nail to be turned axially after it has been driven home by a hammer—it follows that the screw-threads or the serrations made upon the convex longitudinal sections of the shank will, after the nail has been given a partial revolution with a screw-driver, or equivalent tool applied to the head, enter the untorn fibers of the wood, which have been in the operation of the driving of the nail forced hard

against the plain longitudinal sections *b* of the nail-shank, and thus my screw-nail, which can be driven with a hammer as easily as a common cast or wrought nail, can be made to hold itself in sound wood nearly as firmly as if it were a full-threaded screw and sent home by a screw-driver. I prefer, however, to make sections of regular convoluted threads upon the convex portions of the shank, as shown in the drawings, for the reason that the nail can then, if desired, be unscrewed from its hold in the wood, like an ordinary screw.

The form or contour of the plain longitudinal sections *b*, which is the material feature of my invention, is of great importance, since by making said sections in the form of concave or V shape grooves the nail not only possesses great strength for the amount of stock employed, but the shape of said sections allows of a tongue-and-groove connection between the wood and the nail, whereby the latter will be more securely held in place than any other of its class of which I am aware. This will not only be the case if the nail is driven home and not turned by a screw-driver after being driven, but it will also be the case if the nail be partially turned by a driver, and the threaded sections thereby be made to engage the wood which abutted the groove-sections when the nail was driven, for that portion of the wood which abutted the threaded sections when the nail was driven will spring or expand into the grooves after the nail is turned and the tongue and groove feature will be present.

I am aware that screw-nails have heretofore been made having threaded or serrated sections which are combined with plain or unthreaded sections in the form of flat planes, and I do not claim such a nail as my invention.

The screw-nail herein described, having unthreaded sections in the form of longitudinal grooves, is an improvement upon a nail having its unthreaded sections in the form of flat planes, in that not only is greater strength obtained with the same amount of stock, but the form of the nail allows of a tongue-and-groove connection between it and the wood into which it is driven, thereby insuring a more secure retention of the nail against becoming loosened when in use.

What I claim as my invention, and desire to secure by Letters Patent, is—

As an improved article of manufacture, a screw-nail having a pointed or driving end, a shank portion provided with threaded or serrated longitudinal sections *a* and intermediate plain longitudinal groove-sections, *b*, and a head adapted, as described, to be engaged by a screw-driver or equivalent instrument for turning the nail axially, substantially as set forth.

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Witnesses:

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