(No Model.)

C. D. ROGERS.

WOOD SCREW.

No. 386,092. Patented July 10, 1888.

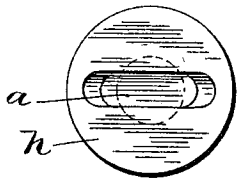


FIG. 2.

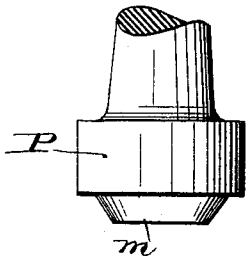


FIG. 3.

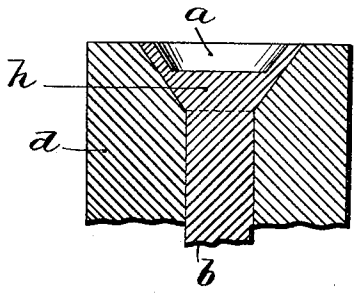


FIG. 1.

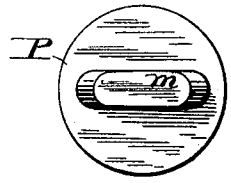


FIG. 4.

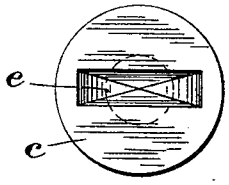


FIG. 7.

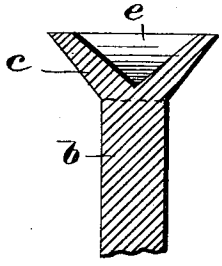


FIG. 5.

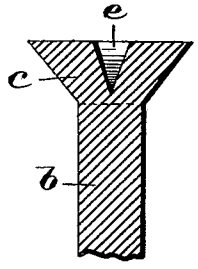


FIG. 6.

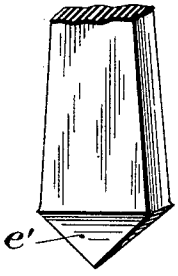


FIG. 8.

WITNESSES.

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UNITED STATES PATENT OFFICE.

CHARLES D. ROGERS, OF PROVIDENCE, RHODE ISLAND, ASSIGNOR TO THE AMERICAN SCREW COMPANY, OF SAME PLACE.

WOOD-SCREW.

SPECIFICATION forming part of Letters Patent No. 386,092, dated July 10, 1888.

Application filed July 7, 1887. Serial No. 243,675. (No model.)

To all whom it may concern:

Be it known that I, CHARLES D. ROGERS, a citizen of the United States, residing at Providence, in the county of Providence and State of Rhode Island, have invented certain new and useful Improvements in the Manufacture of Wood Screws; and I do hereby declare the following to be a full, clear, and exact description of the invention, such as will enable others skilled in the art to which it appertains to make and use the same, reference being had to the accompanying drawings, and to letters or figures of reference marked thereon, which form a part of this specification.

My invention relates to the manufacture of wood-screws having conical or cylindrical heads with flat faces and slots across the faces to receive the blade of a common screw-driver. Probably more than nine-tenths of the wood-screws used have these features. As heretofore made the slots and surfaces of the heads are produced by cutting-tools, which remove a considerable portion of the metal required for the heads.

The object of this invention, in connection with some others for which I have made application for patents, is to produce a stronger head at less cost for labor and material than has heretofore been done, and at the same time preserve the essential features as to form and manner of use of screw-heads as heretofore made.

The saving of labor and material I secure by substituting a process of forging to produce the required forms and slots for the operations of "shaving" and "nicking," so called, as heretofore practiced. The increased strength I secure by preserving the forged surface of the head or the "skin" of the metal formed against the surface of the die in swaging or forging and by an unbroken contour of the conical or cylindrical surface of a screw-head.

In an application filed by me upon even date herewith, Serial No. 243,672, I have described a method of making finished screw-heads by forging the heads in a solid die. To apply this method to the making of flat-faced screw-heads, I found it necessary to make an important change in the form of the slot to receive the screw-driver.

I make the slot of the ordinary form, except that the ends are closed by a web of the metal sufficiently thick to substantially strengthen the head against the torsional strain of a screw-driver, but not thick enough to reduce the width of the blade of a screw-driver, which may be used sufficiently to impair its efficiency in turning the screw. In this way the conical or cylindrical surface of a screw-head is made continuous, and a resistance is furnished at the ends of the slot to the strain of a screw-driver. The common screws heretofore made with slots extending completely across the head have a tendency to fail, especially if made of steel, either by splitting in the line of the slot or by breaking off one side of the head at the bottom of the slot. The metal which I leave at the ends of the slot acts as an effectual stay to counteract this tendency. In the use of crystalline or non-fibrous iron or steel it is important to avoid sharp entering angles or corners in the metal from which cracks or breaks may be easily extended under moderate strains. I therefore make the ends of the slots round or oval. This not only reduces the liability to breaking, but it facilitates the flow of the metal under pressure of the hammer which upsets the metal in the die.

In the drawings hereto annexed, Figure 1 is a sectional view taken through the center of a die having a slotted headed screw-blank therein. Fig. 2 is a top view of the screw-head. Fig. 3 is a perspective view of the slot-forming hammer or punch. Fig. 4 is an inverted end view thereof. Fig. 5 is a vertical central sectional view of a screw-head having a rectangular pyramidal slot formed therein for the reception of a driver. Fig. 6 is a similar sectional view taken transversely of the slot. Fig. 7 is a plan view of the head. Fig. 8 is a perspective view of the end of a driver adapted to engage the slot.

Many attempts have been made to provide a substitute for the common slot across the face of a screw as a means for the insertion of the screw into wood; but none of them have come into use, mainly, I believe, because they either weakened the head of the screw or involved the use of some other instrument than a screw-driver of the common form. An instance of

this is shown in a patent granted to J. Frearson, December 9, 1873, No. 145,411. A peculiar recess is described in that patent for the use of a peculiar screw driver. In its most simple form it is represented in the drawings hereto annexed by Figs. 5, 6, and 7, (the driver being shown in Fig. 8.) They show a cavity, *e*, formed in the head *c* of a screw, which is rectangular at the face of the head, but which terminates in a point at the axis of the screw. It requires a screw-driver with a blade forming a rectangular pyramid, as *e'*, and its sharp angles expose the screw-head to destruction by the strain required to insert it in the wood. The screw is, I believe, of no practical value. In making it, a pointed blade or punch is forced into the metal, cutting its way at the point and spreading the metal from its four sides like a wedge.

In making the slot *a*, which I have described as a feature of my improved screw, a punch, *m*, with substantially parallel sides and a flat and nearly rectangular face, is forced into the metal, compelling it to flow away from the face of the punch as it advances.

d indicates a solid die having a conical-shaped cavity in its upper face, forming the counterpart of the screw-head *h*, Fig. 1. The head has a slot, *a*, across its face, closed at the ends, adapted to receive the blade of an ordinary screw-driver. By means of this construction the head, as before stated, is materially strengthened and adapted to withstand the strain of the screw-driver without injury.

I claim—

A wood-screw with a flat-faced head formed by forging in a solid die and having a slot across the face, with walls or sides vertical, or nearly so, and closed at the ends and so adapted to receive the blade of an ordinary screw-driver to force the screw into the wood.

In testimony whereof I have affixed my signature in presence of two witnesses.

CHARLES D. ROGERS.

Witnesses:
CHARLES HANNIGAN,
GEO. H. REMINGTON.