J. FREARSON.

Screws.

No. 145,411. Patented Dec. 9, 1873.

FIG I

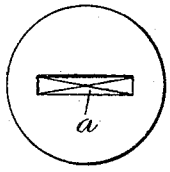


FIG IV

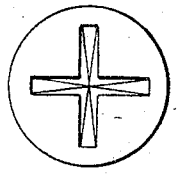


FIG II

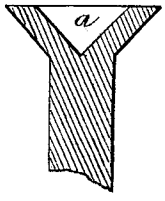


FIG III

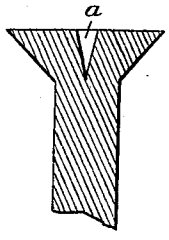


FIG V

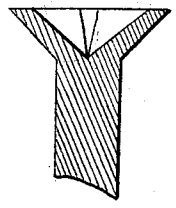


FIG VI

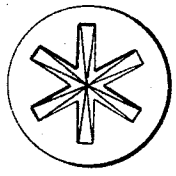
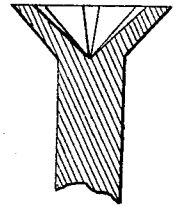


FIG VII



Witnesses,
George Shaw
Richard Skerrett

Inventor
John Frearson

AM. PHOTO-LITHOGRAPHIC CO. N.Y. (OSBORNE'S PROCESS)

UNITED STATES PATENT OFFICE.

JOHN FREARSON, OF BIRMINGHAM, ENGLAND.

IMPROVEMENT IN SCREWS.

Specification forming part of Letters Patent No. **145,411**, dated December 9, 1873; application filed October 22, 1873.

To all whom it may concern:

Be it known that I, JOHN FREARSON, of Birmingham, in the county of Warwick, England, mechanical engineer, have invented certain Improvements in Screws and Screw-Drivers, of which the following is a specification:

My invention consists of the improvements, hereinafter described and illustrated in the accompanying drawings, in screws.

According to my invention I make the slit or groove in the head of the screw, commonly called the nick, of an angular figure, the said nick being of greatest depth at the center of the head, and terminating within the edge of the head; or, instead of making a single nick of the kind described, two or more of the said nicks may be made in the head of the screw. When two nicks are made they cross each other at right angles at the center of the head. When three nicks are made they cross each other at the center of the head, each nick making, with the adjacent one, an angle of about sixty degrees.

I prefer, in all cases where more than one nick is made, that the nicks cross each other, so that the circle shall be equally divided by the said nicks.

By making the nick or nicks of the screw-heads according to my invention, the nicks do not extend all across the head, and the tendency of the head to burst, under the action of the screw-driver, is prevented or diminished, and the injury to which an article is exposed during the driving or withdrawal of the screw, by the screw-driver protruding from the end of the nick, is prevented.

With screws thus made, I prefer to use a screw-driver, whose end or acting part has the form of the nick or nicks, hereinbefore described, in the head of the screw. For screws with two or more nicks crossing one another, I prefer to make the screw-driver from iron or steel, grooved or fluted, so as to have the figure proper to make it fit into the said crossing nicks.

Figure 1 of the accompanying drawings represents, in plan, the head of a screw having a single nick in it, according to my invention; and Figs. 2 and 3 represent vertical sections of the same taken at right angles to one another.

The said nick is marked *a*, and has the angular figure represented, the greatest depth being in the center of the head, the ends of the nick terminating within the edge of the head.

It will be seen by an examination of Figs. 2 and 3 that the nick *a*, besides being angular in the direction of its length, has inclined sides. I do not, however, limit myself to making the sides of the angular nick inclined, as represented, as they may be parallel; but I prefer to make them inclined.

Fig. 4 represents, in plan, and Fig. 5 in vertical section, the head of a screw, in which two nicks of the kind represented in Figs. 1, 2, and 3 are employed, said nicks being situated at right angles, and crossing one another at the center of the head.

Fig. 6 represents in plan, and Fig. 7 in vertical section, the head of a screw, provided with three nicks crossing each other at the center of the head, each nick making with the adjacent one an angle of about sixty degrees.

It will be seen by reference to Figs. 5 and 7 that the double or compound V-shaped nicks converge to the center of the head, and serve as guides to the screw-driver, guiding it when introduced into the nick to its proper position.

The nicks, hereinbefore described, in the heads of screws, may be made in various ways. I prefer, however, to make them by punches or pressing tools, the metal being operated upon either in a heated or cold state. In cast screws the said nicks may be made by the casting process.

It is well known to persons who use screws that if the nicks are narrow and shallow it is difficult to drive the screw without the screw-driver slipping out of the nicks, and if the nicks are wide and deep to afford a good gripe, the head of the screw is weakened, and the screw-driver is liable to slip out sidewise and deface the finished surface of the work, and if the screw-driver is the same width as or wider than the head of the screw, the countersink work is liable to be defaced, and the angles of the screw-driver are often broken.

By the use of screws constructed according to my invention, these inconveniences are prevented or diminished. The improved nicks being much deeper in the center than the ends,

the screw-driver takes a firmer gripe of the screw than with nicks of the ordinary kind. The screw-driver is also kept central, and if but slightly pressed it cannot slip out of the nick or deface the work.

As the nicks of screws made according to my invention can be made much wider than those of the ordinary screws without weakening the heads, a stronger screw-driver may be used, and the liability of the screw-drivers to break thus diminished.

Having now described the nature of my invention, and the manner in which the same is to be performed, I wish it to be understood that I claim as my invention of improvements in screws—

A screw, provided in its head with one or more nicks of angular figure, or of a combined angular and V figure, the said nick or nicks being of greatest depth at the center of the head, and terminating within the edge of the head, as herein described and illustrated in Figs. 1, 2, 3, 4, 5, 6, and 7 of the accompanying drawing.

Witnesses: JOHN FREARSON. [L. S.]
GEORGE SHAW,
RICHARD SKERRETT,
Of 37 Temple street, Birmingham.