

J. FREARSON.
SCREW-DRIVER.

No. 179,695.

Patented July 11, 1876.

FIG. 1.

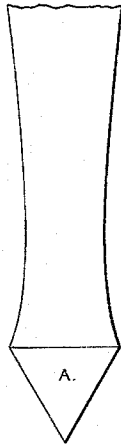


FIG. 2.

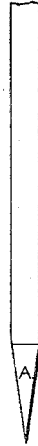


FIG. 5.

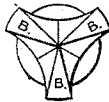


FIG. 3.

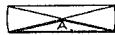


FIG. 7.

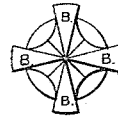
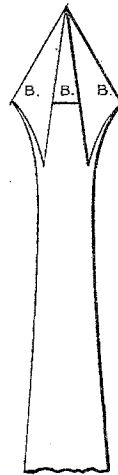


FIG. 4.



FIG. 6.



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UNITED STATES PATENT OFFICE.

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IMPROVEMENT IN SCREW-DRIVERS.

Specification forming part of Letters Patent No. 179,695, dated July 11, 1876; application-filed March 23, 1876.

To all whom it may concern:

Be it known that I, JOHN FREARSON, of 16 and 17 the Crescent, Birmingham, in the county of Warwick, England, mechanical engineer, have invented certain Improvements in Screw-Drivers, for which invention a patent was granted to me for England on the 12th day of July, A. D. 1870, and of which invention the following is a specification:

A patent was granted to me on the 9th day of December, A. D. 1873, No. 145,411, for the United States of America, for the invention of screws, to which the said invention of improvements in screw-drivers is applicable.

My invention in screw-drivers consists of the improvements hereinafter described, and illustrated in the accompanying drawings.

Before describing my said invention in screw-drivers I may remark, by way of contrast, that the termination or acting end of the ordinary screw-driver is of a rectangular figure, so as to fit the rectangular groove or nick which extends across the head of the ordinary screw. To this kind of screw and screw-driver there are many well-known objections, some of which I will mention. For instance, when the screw-driver properly fits the width and whole length of the said groove or nick in the head of one size of the ordinary screw it will not properly fit any other size, because the blade of the screw-driver will not extend to the whole length of the grooves of screws of a larger size, and therefore there will be a loss of the requisite power to drive such larger-sized screws, and the said screw-driver will extend beyond the heads of screws of smaller size, so that the two edges of the acting end of the driver, protruding beyond the heads of smaller screws, come in contact with the countersunk material, so as to disfigure the work, and the protruding edges of the screw-driver prevent the screw from being driven to its required position. When the said screw-driver is ground taper on its two flat sides, for the purpose of driving screws of different sizes, there is a tendency for the driver to slip out of the groove or nick in the act of driving the screw, and also to deface the finished work. As the ordinary screw-heads are upset by a flat-faced die or punch, the heads are generally fractured, and when the nick happens to be in one of these

fractures the tendency is to burst the head asunder.

Now, the object of my invention in screws and screw-drivers is to remove or diminish all the before-mentioned objections, and I effectually remove or diminish the said objections in the following manner:

By reference to the specification of my patent screws, dated the 9th day of December, A. D. 1873, No. 145,411, and also to that of my patent for their manufacture, dated 27th of April, A. D. 1875, No. 162,642, (both for the United States of America,) my screws and the mode of manufacturing them will be easily understood. In one of the heads of my said screws there is a single cavity or nick, which terminates within the head of the screw. This cavity is of a combined V shape—that is, its sides and its ends all incline, or converge to or toward one point; therefore its greatest depth is in the center of the head of the screw. In another head of a screw there are two V cavities or nicks crossing each other at right angles at the center of the screw-head, thus forming four radial grooves or nicks; and in another head of a screw there are three V-nicks crossing each other at the center of the screw-head, thus forming six radial grooves or nicks, each making, with the adjacent one, an angle of about sixty degrees. Each crossing nick in the two last-mentioned screws are of precisely the same angles as the single one first described.

My invention of improvements in screw-drivers is applicable to the said screws.

The screw-driver, which is applicable to the said single nick in the head of my screw, or to any one of the combined V-nicks, has a flat blade, its acting end being of a combined V shape.

The other screw-drivers, which are applicable to those of the screws which contain several V-nicks, have several radial V-branches, all converging to or toward one point. In making these screw-drivers I first make that part which is to enter the cavity in the head of the screw of a conical shape, and then, by means of cutting-tools or other means, I make three or more flutes or grooves in the said conical part, thus leaving a corresponding number of radial V-branches, the three sides of each

branch from the base to the apex of the cone converging to or toward one point.

I will now describe my invention with reference to the accompanying drawings.

A, Figure 1, represents in elevation the broad side, and A, Fig. 2, represents in elevation the narrow side, and A, Fig. 3, represents in plan the acting end, of a screw-driver according to my invention. Fig. 4 represents, in elevation, the acting end of a screw-driver which has three radial V-branches, each marked B, and all the said branches, from the base to the apex of the fluted cone, converge to or toward one point; and Fig. 5 is a plan of the same. This screw-driver is applicable to a screw-head having three or six radial V-grooves therein. Fig. 6 represents, in elevation, the acting end of a screw-driver which has four radial V-branches, which are at right angles to each other, and each marked B, and all the said branches, which form the fluted cone, incline or converge to or toward one point; and Fig. 7 is a plan of the same. This screw-driver is applicable to the cavities in the heads of screws having two V-nicks crossing each other in the center of the heads.

By preference I make the screw-driver of the last description as illustrated, Figs. 6 and 7; and as the cavities in the heads of my screws will be made to correspond with the acting ends of the said screw-drivers, the angles being the same in all sizes of screws and screw-drivers, every size of screw can be driven by one screw-driver, each size of screw possessing a cavity exactly proportionate to its size and the power required to drive it. As the cavities in the heads of my patent screws

are deepest in the center, and of great depth, the screw-driver takes a firmer gripe of the screw than the ordinary driver takes in the nicks of the ordinary kinds. The screw-driver, according to my invention, at once takes its axial position, and when pressed in the cavity as the ordinary driver is pressed it cannot slip out of the cavity so as to deface the work; and as the cavities do not extend to the sides of the screw-head, the screw-head is much stronger than that of the ordinary kind, and from the construction of the driver and the cavity the driver can never come in contact with the countersunk portion of the work.

I make, by preference, the angle marked A, Fig. 1, of about thirty degrees, and the angle marked A, Fig. 2, of about ten or twelve degrees.

Having described my invention, and the manner it may be performed, I wish it to be understood that I do not confine myself to the precise details herein described and illustrated, as the same may be varied without departing from the nature of my invention; but

I claim as my invention of improvements in screw-drivers—

A screw-driver having two or more radial branches extending from the center or axis, and describing a cone in revolving, all the acting sides of the said radial branches converging toward an axial point, substantially as and for the purposes described, and as illustrated in the accompanying drawings.

JOHN FREARSON.

Witnesses:

JOHN B. GOULD,
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