

J. J. SAFELY.
Portable Punches.

No. 138,201.

Patented April 22, 1873.

Fig. 1.

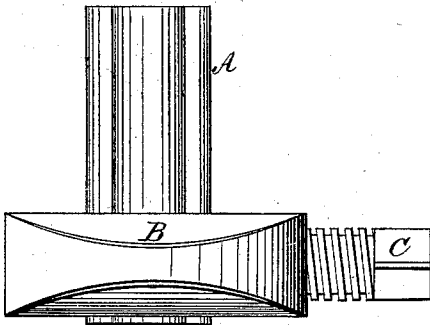


Fig. 2.

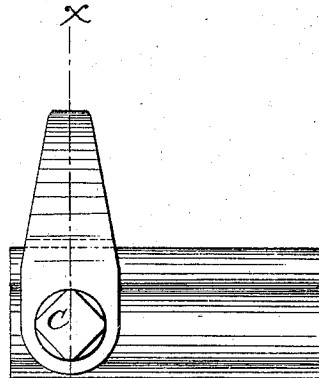
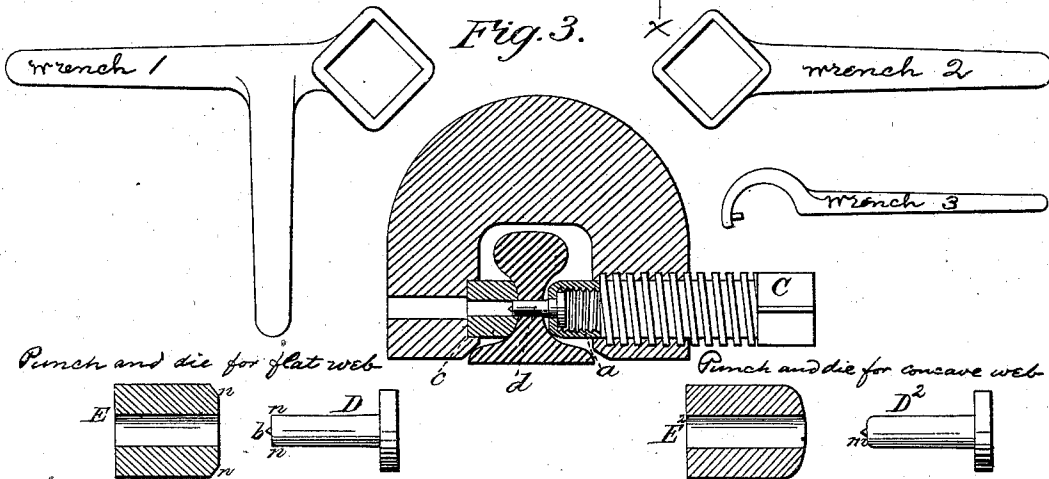


Fig. 3.



Witnesses.
W. H. Burnett
W. H. Frozier

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 Inventor.
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UNITED STATES PATENT OFFICE.

JOHN J. SAFELY, OF OTTUMWA, IOWA.

IMPROVEMENT IN PORTABLE PUNCHES.

Specification forming part of Letters Patent No. 138,201, dated April 22, 1873; application filed March 14, 1873.

To all whom it may concern:

Be it known that I, JOHN J. SAFELY, of Ottumwa, in the county of Wapello, in the State of Iowa, have invented a new and useful Portable Screw-Punch for punching T-rails and other iron, of which the following specification, taken in connection with the accompanying drawing, is a full, clear, and exact description.

In fish-plating railroad rails it has heretofore been necessary to heat and punch them in the shops. This invention enables them to be punched while in the track, without being heated, removed, or at all disturbed in their position.

In the drawing, Figure I represents a plan view; Fig. II, a side elevation; and Fig. III, a cross-section through the line *x x*, Fig. II.

A represents an ordinary railroad rail, and B a rail-clamp of sufficient size and weight, so as to permit of its being used as a bed-plate upon which to cut off the end of a rail. In this clamp are inserted different sizes and kinds of removable punches and dies for making either large or small holes in the rail, (or in other iron to be punched,) and so that the punch and die may fit either the flat or concave web of the rail, of whatever pattern, before the punching process in the rail is begun. The punch *d* is operated by means of a right-hand screw, C, and it is held securely in place by inclosing it within a removable cap, *a*, fastened by a left-hand screw upon the main or operating screw. The die *e*, with a hole bored through its center a little larger than the largest hole intended to be punched in the rail or other iron, is secured in the clamp just opposite to and upon a line with the punch and its operating screw. The clamp has also a hole bored on a line with the center of the die still larger than the hole through the die, so that when the punch goes through and breaks off the metal of the rail the refuse metal may be easily cleaned from the device. The punches, cap, and dies are all made of cast-steel, separate and independent, and they can all be quickly removed and replaced. The punch is solid at the butt, and of the same size throughout its entire length. It has the usual sharp point *b* on its end, so as to facilitate an entrance into

the iron. This punch does not turn during the punching process, or, in other words, the punch is swiveled to its stock or turns in the cap; it is pushed straight through the iron. Therefore it is evident that holes of any form desired can be punched with this implement, and it is just as easy to punch the usual oblong or rectangular slot (so as to permit expansion and contraction of a rail) as a round hole; hence fish-plates can be made to fit railroad rails exactly. The modifications in the drawing D D² E E² each show a punch and die to be used for punching a flat and a concave web. For a flat web the punch and die are made with sharp angles, but for a concave web the angles are rounded off into a convex form, so that in either case they may exactly fit the web of the rail before the punching process is begun, because otherwise the whole end surface of the punch and die does not sustain an equal pressure or resistance from the rail—that is, there will be a greater pressure either upon the convex portion, *m*, or upon the outer edge, *n n*, than upon the entire end surface of the punch and die, which would tend to break the punch.

The mode of operation is as follows: The proper kind of punch is first secured in place by means of wrench No. 3. The clamp is then set over the rail, or other iron, when the punch and die are quickly brought into close contact therewith by means of the hand-wrench No. 2. The large wrench No. 1 is then put upon the head of the screw, and it is worked by two men, it being provided with two handles for that purpose.

A thorough trial of this invention has demonstrated that the whole process, from the time of setting the clamp over the rail until the hole is punched, does not exceed three minutes.

When it is desired to replate rails already fastened by chairs three machines can be used to great advantage: while one set of men are adjusting one of the punches another set of men can be punching the holes in the rail, while still another set of men can be removing the machine last used.

It is evident that an ordinary punch might be used with great facility in this implement.

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

1. The device, consisting of a clamp, B, right-handed screw C, the left-handed screw-cap *a*, punch *d*, and die *e*, all constructed as herein described, for the purposes set forth.

2. The combination with each other, within a clamp, of a cylindrical die, punch, and cap, the die, punch, and the cap which incloses the punch being removable and interchangeable, and also being provided with flat or convex ends, so as exactly to fit the web or contour of

the rail to be punched before the punching process is begun, all substantially as herein described.

In witness whereof I hereunto subscribe my name, at the city of Washington, D. C., this 4th day of January, 1873, in the presence of two attesting witnesses.

JOHN J. SAFELY. [L. S.]

Witnesses:

W. H. BURNETT. [L. S.]

B. W. FRAZIER. [L. S.]