A. DOBLE.

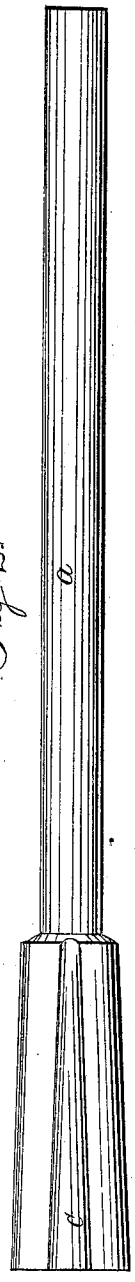
Tamping-Bars.

No. 42,278. Patented Apr. 12, 1864.

Fig. 1.



Fig. 2.



Witnesses.
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UNITED STATES PATENT OFFICE.

ABNER DOBLE, OF SAN FRANCISCO, CALIFORNIA.

IMPROVEMENT IN TAMPING-BARS.

Specification forming part of Letters Patent No. 42,278, dated April 1', 1864.

To all whom it may concern:

Be it known that I, ABNER DOBLE, of San Francisco, in the State of California, have invented a certain new and useful Improvement on Tamping-Bars; and I do hereby declare the following to be a full, clear, and exact description thereof, reference being had to the accompanying drawings, and to the letters and marks thereon.

In quarrying and mining where the rocky strata is hard, as in quartz, trap, and other hard rocks, if an iron tamping-bar be used, sparks may be produced and the charge for the blast thereby be exploded prematurely, causing serious accident and injuries. Hence has arisen the necessity of arming the lower end of the tamping-bar with a metal or alloy that should, if possible, not be liable to the objections against the iron-end tamping-bar. Copper and the usual alloys of copper and tin, or copper and zinc, have been suggested for this purpose; and it is probable, in some instances, that other metals or other alloys might be preferable. The difficulty of properly attaching the copper or alloyed arm to the end of the iron rod or bar is obvious, for, if the usual ways of securing two metals together by riveting, or soldering, or brazing be resorted to, the arm will be insecurely held, liable to be broken off and clog the drilled hole for the charge, and the expense of making the tamping-bar be greatly increased. Now, my invention looks to the overcoming of the objections to the iron tamping-bar, and to the producing of such implement so armed that it shall be perfectly secure and the expense thereof but little, if any, increased—in other words, to the making of a better and cheaper armed tamping-bar than is now known or used by others; and my invention consists in arming the end of the tamping-bar by casting around it copper or an alloy of metals, and thus making the armed end substantially a solid part of the bar.

Figure 1 of the drawings forming part of this specification shows the end of the tamping-bar as prepared before the attachment of the arm, and Fig. 2 the end of the bar with the arming affixed.

The lower end of the rod or bar *a* may be of the form represented, or of any preferred irregular form, and have one or more holes, *b*, through it. When placed in the mold, which has been properly prepared, the copper or alloy designed for the arming, being in a molten state and poured into the mold or flask, will surround the end of the bar, filling up the holes and the space allotted to it in the mold, and thus the arming will become a firm and solid part of the tamping-bar.

In preparing the flask for the casting the pattern used will have a groove or recess, so that when cast the arming will have the groove *c* for the fuse or powder tube, if the cased explosives be used.

What I claim as my invention, and desire to secure by Letters Patent as an improvement on tamping-bars, is—

Arming the end with or attaching thereto in the manner herein recited copper or an alloy of copper, or any other metal or metals, substantially as and for the purpose herein set forth.

ABNER DOBLE.

Witnesses:
THOMAS NELSON,
JOHN DOBLE.