

(No Model.)

J. Q. EVERSON.

AX.

No. 352,972.

Patented Nov. 23, 1886.

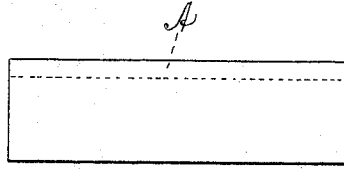


FIG 1

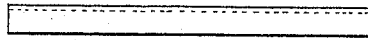


FIG 2



FIG 3

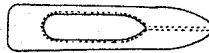


FIG 4

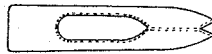


FIG 5

Witnesses.

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SPECIFICATION forming part of Letters Patent No. 352,972, dated November 23, 1886.

Application filed July 12, 1886. Serial No. 207,762. (No model.)

To all whom it may concern:

Be it known that I, JOHN Q. EVERSON, a citizen of the United States, and a resident of Pittsburg, in the county of Allegheny and State of Pennsylvania, have invented a certain new and useful Improvement in Axes; and I do hereby declare the following to be a full, clear, and exact description thereof, reference being had to the accompanying drawings, forming a part thereof, in which—

Figure 1 indicates a side view of a compound iron and steel bloom, bar, or billet adapted to the use of my improvement. Fig. 2 indicates a side view of the ordinary form of an ax mold or blank previous to the eye swaging or rolling operation. Fig. 3 indicates the ordinary form of ax-mold after the eye swaging or rolling operation. Fig. 4 indicates the mold after being doubled, welded, and drawn to shape. Fig. 5 indicates a partly-finished ax-mold showing the mode of scarfing or splitting its tapered end for the reception of the piece of high steel, which, after welding and subsequent finishing operation, forms the cutting-edge of the ax.

My invention relates to steel axes, and its principal object is to secure an ax having a solid, strong, uniformly welded structure. Heretofore, so far as I am aware, this object has not been obtained on account of the impracticability or extreme difficulty of welding the steel mold, so as to effect a complete union of the material from the eye to the edge of the ax; hence, although far superior in many other respects, steel has failed so far to supplant iron in ordinary ax-manufacture, and is used only to a limited extent for such purpose up to the present time.

In the use of my invention low-carbon-steel ingots are reduced by rolling or hammering to any suitable size or form, say, preferably, to blooms or bars of two by three inches in cross-section. A bar of good welding-iron, and of a suitable length, width, and thickness, is then welded to the bloom by any welding operation, preferably by rolling, so as to produce a compound bloom, billet, or bar composed mainly of steel, but having one surface of iron, as is indicated by the reference-letter A. (Shown in Fig. 1.) This bloom, bar, or billet is then rolled down to a proper size—say three by three and one-quarter inches in cross-section—and is cut into suitable lengths to meet the purpose desired. These blanks are then swaged, dou-

bled, welded, and tapered in the usual manner, as indicated by Figs. 3 and 4. The edge of the tapered part of the blank is then split, and, after being brought to a suitable temperature, a piece of high-carbon steel is inserted within the lips so formed, as indicated by Fig. 5, and welded thereto. The ax is then finished, ground, tempered, and polished in the usual manner.

Some of the advantages of my invention are, first, a uniform, strong, and perfect weld is always had from the eye to the lips of the mold during and after the eye forming and finishing operations, whereas in the use of the ordinary steel blank or mold it is impracticable to secure a sufficiently strong and uniform weld at such part as to prevent it from becoming more or less separated or forced apart during the eye-finishing and the shaping and tapering operations; secondly, the high-carbon steel to form the cutting-edge may be more uniformly and perfectly welded; third, as steel is cleaner, freer from dross, and possesses a closer, finer texture than iron, it takes a higher, more uniform, and perfect polish; hence, as my compound material only costs about the same as ax-iron and welds equally as well, a finer-polished article of better quality may be had at the same cost.

The distinguishing characteristics of my ax are chiefly, first, it is composed of three different grades of material, viz: high steel, low steel, and wrought-iron; second, the perfect union of these three materials and the perfection and strength of the ax at the lines of welding.

By the use of the term "high steel" is to be understood steel having hardening or tempering qualities, whereas by the term "low steel" a steel having a low grade of carbon is designated.

Having described my invention, what I claim, and desire to secure by Letters Patent, is—

As a new article of manufacture, an ax having a cutting-edge of high steel and a body composed of low steel and wrought-iron, constructed substantially as and for the purpose set forth.

JOHN Q. EVERSON.

Witnesses:

W. MACRUM,
EDW. F. GEARING.