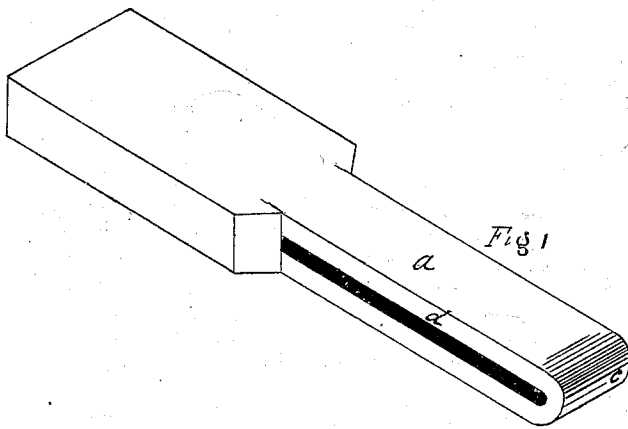
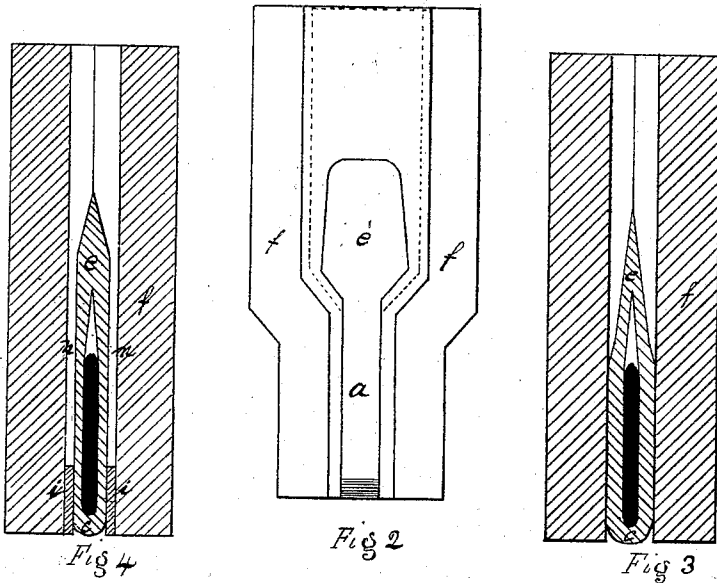


T. J. BLAKE.
Manufacture of Shovels.

No. 151,077.

Patented May 19, 1874.



WITNESSES

James D. Kay
 E. G. Titler.

INVENTOR

Thomas J. Blake
 by Bakewell & Kerr
 Attys

UNITED STATES PATENT OFFICE.

THOMAS J. BLAKE, OF PITTSBURG, PENNSYLVANIA, ASSIGNOR TO HIMSELF
AND ELMORE A. BARNES, OF SAME PLACE.

IMPROVEMENT IN THE MANUFACTURE OF SHOVELS.

Specification forming part of Letters Patent No. **151,077**, dated May 19, 1874; application filed
February 14, 1874.

To all whom it may concern:

Be it known that I, THOMAS J. BLAKE, of Pittsburg, in the county of Allegheny and State of Pennsylvania, have invented a new and useful Improvement in Manufacture of Steel Shovels; and I do hereby declare the following to be a full, clear, and exact description thereof, reference being had to the accompanying drawing forming a part of this specification, in which—

Figure 1 is a perspective view of the blank. Fig. 2 is a plan view of one-half the mold, the soft-metal strap being in position for casting the steel thereon. Fig. 3 is a longitudinal section of the mold, the strap being in position. Fig. 4 is a similar view, indicating the method adopted for plating or partially plating the strap.

Like letters of reference indicate like parts in each.

My invention relates to improvements in the manufacture of blanks for shovels, spades, and scoops; and it consists in a method of forming the blank with soft-metal straps extending into the center of the upper part of the cast-steel ingot, and welding with the ingot at the time of casting; and, also, in the blank, having soft-metal straps extending into the center of the upper portion of the ingot or casting, said straps being plated or not, and welded to the ingot at the time of casting.

To enable others skilled in the art to make and use my invention, I will now describe it in detail.

I take a bar of wrought iron or soft steel, of sufficient thickness and width to form the strap, as shown at *a*, bend it as at *c*, and fold the ends together, forming the loop *d*. The loose ends are then spread by forging, forming the tapering portion *e* wider than the strap, but not so thick, and it is this portion of the strap that extends for a limited distance into the upper central portion of the cast-steel ingot welding therewith.

The strap, formed as described, and in either a hot or cold state, is then placed in a suitable mold, such as is seen at *f*, Fig. 2, the spread end *e* extending beyond the narrow portion of the mold—say, about half-way of the fin-

ished ingot—and molten cast-steel is poured into the mold onto the lower end of *a*, uniting with it, and filling the body of mold *f*.

If desired, the straps may be plated at the time the blank is cast. This I do by placing pieces of iron *i* in the end of the mold on opposite sides of the straps; then the molten steel will fill the spaces *n* and weld onto the straps. When rolled out the straps will have an outer surface of cast-steel and an inner one of soft metal.

In rolling, the two metals of which this blank is composed keep their relative positions, and form a shovel having soft-metal straps extending into the upper central portion of the cast-steel blade, and securely welded thereto. The straps do not unite when rolled out.

Heretofore the straps have been of cast-steel, formed with the ingot at the time of casting; or, if of soft metal, such as wrought-iron, the old way of welding has been adopted for uniting the soft strap to the cast-steel shovel.

The first-named method is defective on account of the straps being too hard and liable to crack, and the second is too expensive to allow the article to come into general use.

In the present case these objections are overcome by welding the iron strap to the steel in the process of casting the blank.

Having thus described my invention, I claim—

1. The method herein described of producing shovel-blanks, viz., by folding a bar of soft steel or iron to form the straps, having spread ends, the strap thus formed being secured in a suitable mold, and united to the cast-steel which is poured into said mold, as and for the purpose specified.

2. A shovel-blank having a soft-metal strap or straps united or welded to the cast-steel ingot at the time of casting.

In testimony whereof I, the said THOMAS J. BLAKE, have hereunto set my hand.

THOMAS J. BLAKE.

Witnesses:

FREDERICK STANDISH,
JAMES I. KAY.