J. Jeavons, 2. Sheets, Sheet. 1.

Armor Plate File.

No. 110,143. Patented Dec. 13. 1870.

FIG. 1.

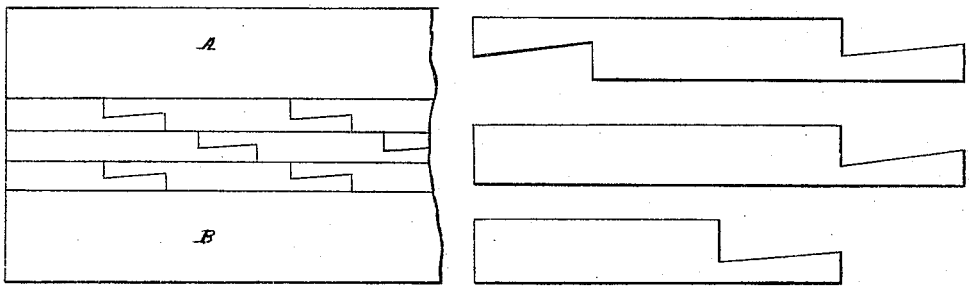


FIG. 2.

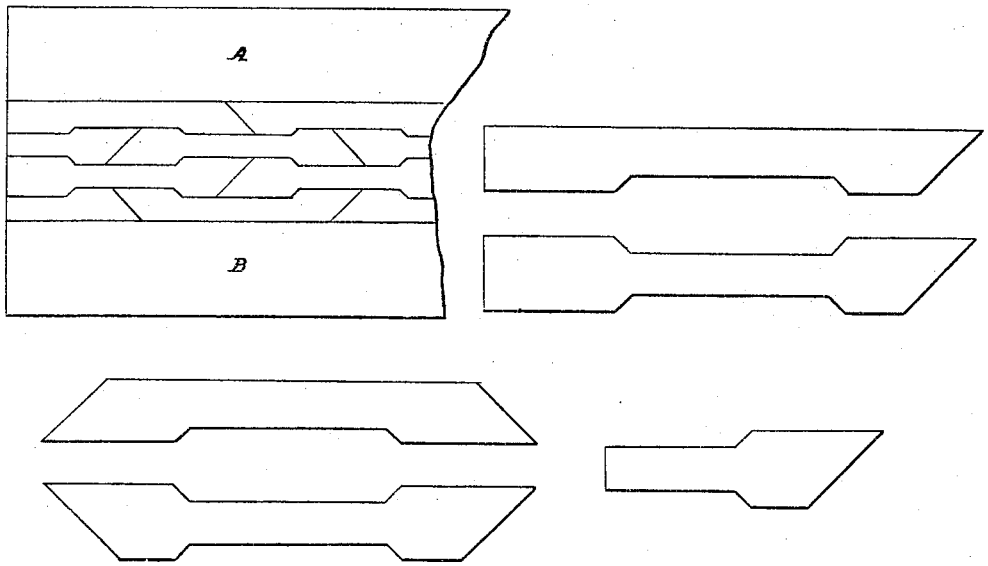
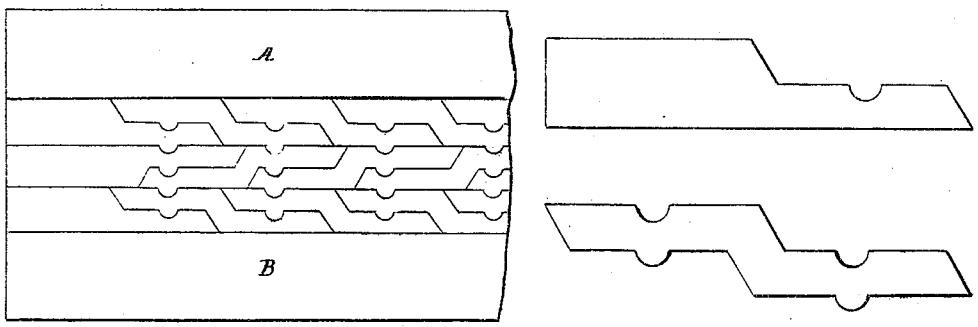


FIG. 3.



Witnesses: M. Bailey. John Bulkley

Joshua Jeavons by atty Mouse

J. Jeavons, 2. Sheets. Sheet 2.

Armor Plate File.

No. 110,143. Patented Dec. 13. 1870.

FIG. 4.

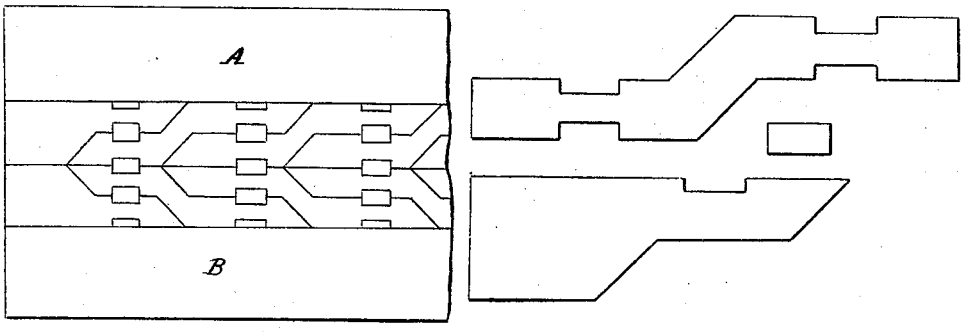
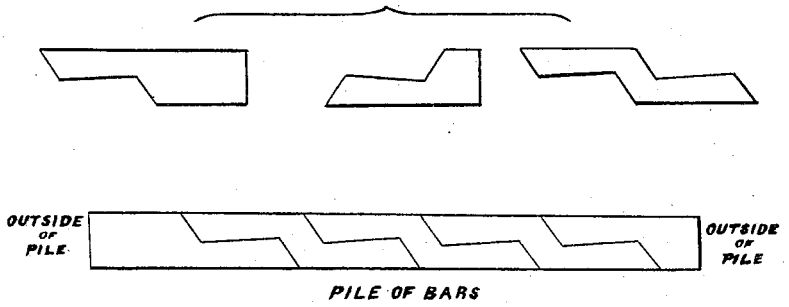


FIG. 5.



Joshua Jeavons
by atty A Pollock

Witnesses: M Bailey
John B Bulkley

United States Patent Office.

JOSHUA JEAVONS, OF SHEFFIELD, ENGLAND.

Letters Patent No. 110,143, dated December 13, 1870.

IMPROVEMENT IN PILES FOR ARMOR-PLATES.

The Schedule referred to in these Letters Patent and making part of the same.

To all whom it may concern:

Be it known that I, JOSHUA JEAVONS, of the Atlas Works, Sheffield, in the county of York, England, forge manager, have invented Improvements in the Manufacture of Armor-Plates and other heavy forms of malleable iron or steel, or of steel and iron combined, of which the following is a specification.

This invention relates to a peculiar process of manufacturing armor-plates, bars for fortification works, and other heavy forms of malleable iron or steel, or of steel and iron combined, whereby not only is the manufacture of such articles greatly improved, but considerable economy in their production is effected.

In the ordinary process of manufacturing armor-plates or other heavy forms of malleable iron for fortification works, the puddled iron or scrap-iron is rolled into flat bars about twelve, fifteen, or eighteen inches wide, which are generally cut into smaller pieces, which are piled, reheated, hammered, and rolled into similar flat bars again.

These bars are repiled and rolled in a plate-mill into a plate, or what is commonly called "small molds."

These small molds or plates are afterward sheared into a given size, as required.

A number of these small molds or plates is then piled one on the other, and rerolled into a "thicker plate," or what is commonly called "large molds."

A number of these large molds is then piled one on the other, and rolled into an armor-plate.

This process involves the use of costly plant, and necessitates a great expenditure of time and labor, which is obviated by my improvements.

According to my improved process, I produce the piles for the class of articles above referred to by piling between top and bottom flat plates or molds, A and B of the drawings, flat bars with rabbeted edges, or with what may be termed semi-dovetailed edges, (see Figure 1,) so that the edges shall lap over, or dovetail or lock one on the other when the said bars are arranged side by side in the pile.

A modification of this form of pile is represented in Figure 2, where I have represented a plate formed by piling between top and bottom large molds bars of iron or steel, or both in combination, provided with scarfed edges, and having a longitudinal channel on the upper and under surface, or on one of such surfaces only.

Or, in lieu of the above, I sometimes pile between the top and bottom molds bars of iron or steel, or iron and steel, of a section somewhat similar to what is known as double angle-iron, Figure 3, but with beveled edges, such bars being provided with longitudinal channels and ribs on opposite sides so as to interlock and break joint with similar bars in the next layer; or the same section may be used without either ribs or channels by having the overlapping sides slightly semi-dovetailed, as shown in Figure 5.

The molds may have channels or ribs in or on their inner surfaces locking into the ribs or channels in the top and bottom layer and bars; or, in lieu of making channels on one side, and projections on the other of the said bars, I sometimes make rectangular or other shaped channels on one or both sides of the bars, and fill in the cavities with ordinary merchant bars of corresponding shape. (See Figure 4.)

The bars of these series on the outer edges of the pile are made with one edge vertical in lieu of beveled, such vertical edge being about double the thickness of the inner edge of the said bars, as will be seen on referring to the half-sized sectional detail of the bars represented opposite the corresponding piles in the drawing annexed.

In all these instances, however, the pile consists of rabbeted, dovetailed bars, with scarfed joints, between top and bottom large molds, with or without projections and hollows for insuring a still further interlocking of such bars.

The large molds employed may be of the ordinary construction, but I prefer to construct them for this purpose as follows:

I pile ordinary merchant flats or bars of any suitable section, of iron or steel, or steel and iron in combination, so as to form a box or cavity between the top and bottom plates or small molds, which box or cavity I fill with iron or steel, or iron and steel scrap, and, after heating the pile, I weld the same into a homogeneous mass by rolling or hammering.

The bars, hereinbefore referred to, are arranged or piled either longitudinally and transversely, alternately, or longitudinally or transversely only, or at any other angle, as required; but, in all cases, the pile consists of rabbeted, dovetailed bars, with scarfed joints arranged between top and bottom large molds, thus producing the thorough and intimate interlocking of the parts necessary in articles of this class.

Having described my invention, and the manner in which the same is, or may be, carried into effect,

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

The manufacture of armor-plates and other heavy forms of malleable iron and steel from piles composed of layers of rabbeted, dovetailed bars, with scarfed joints, in combination with top and bottom large molds, as herein shown and described.

In testimony whereof I have signed my name to this specification in the presence of two subscribing witnesses.

JOSHUA JEAVONS,
Burngrave Villa,
Burngrave Road,
Sheffield.

Witnesses:

WILLIAM HUGHES,
148 *Grimesthrope Road, Sheffield.*

WILLIAM WAPLINGTON,
Attercliffe, Sheffield.