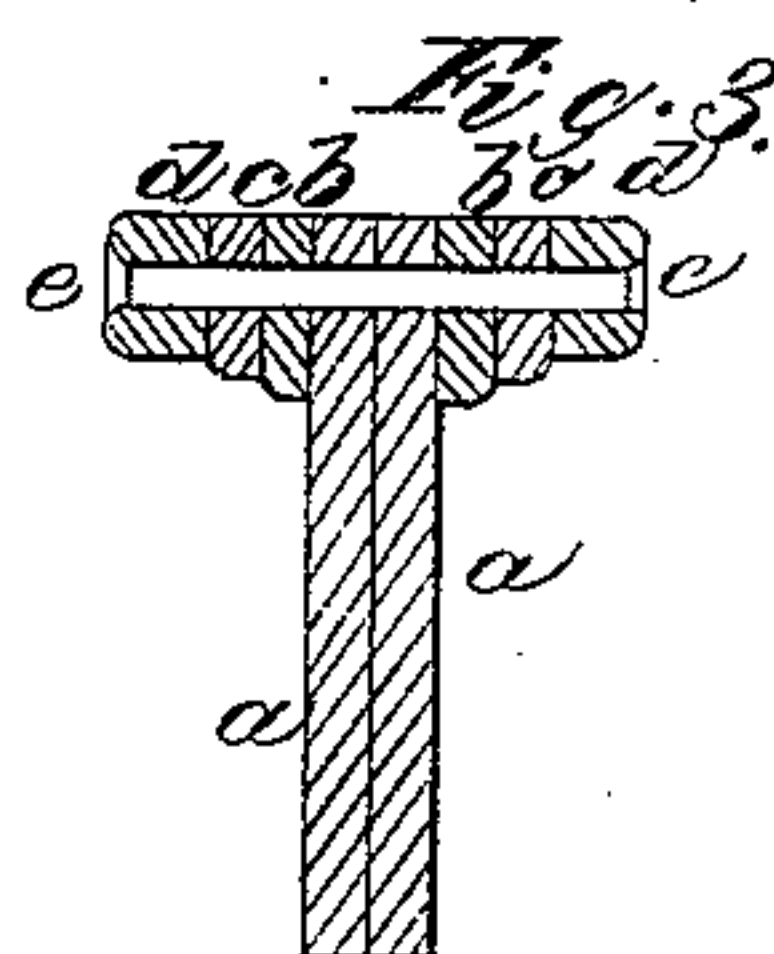
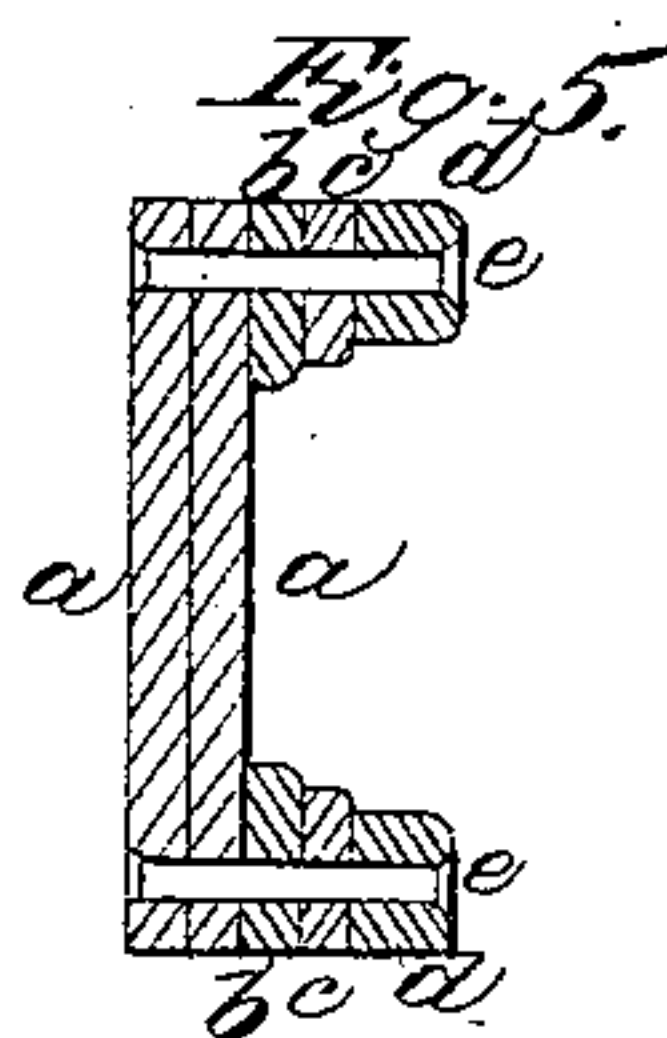
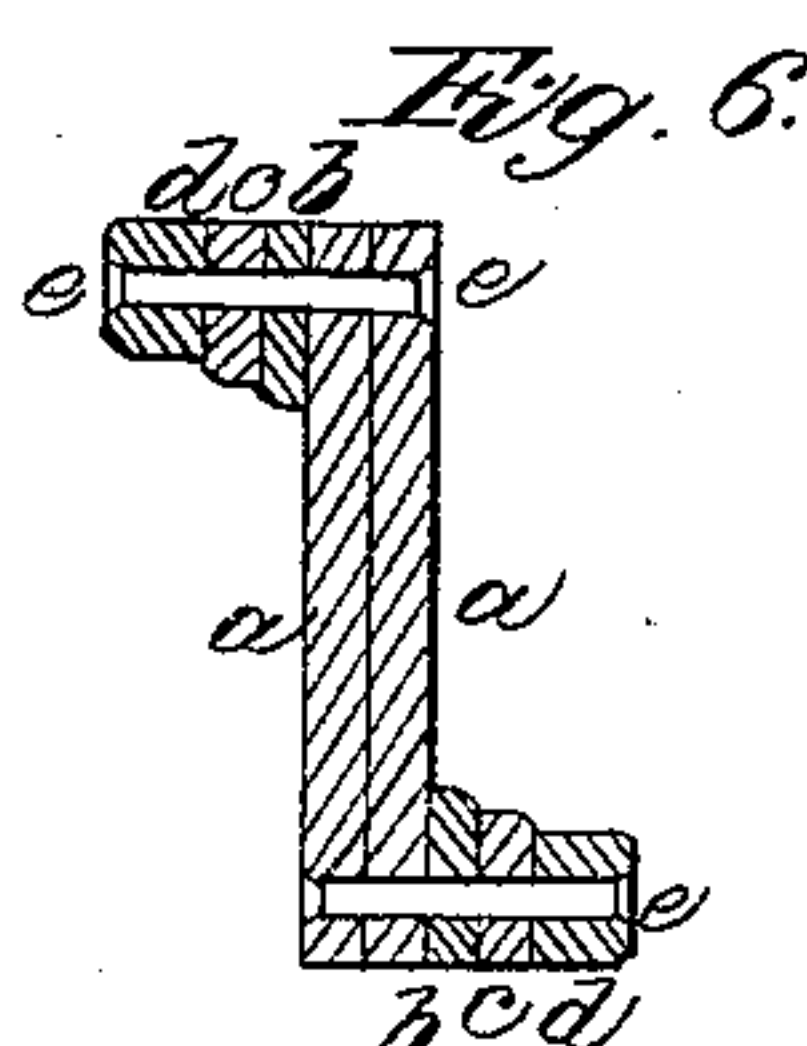
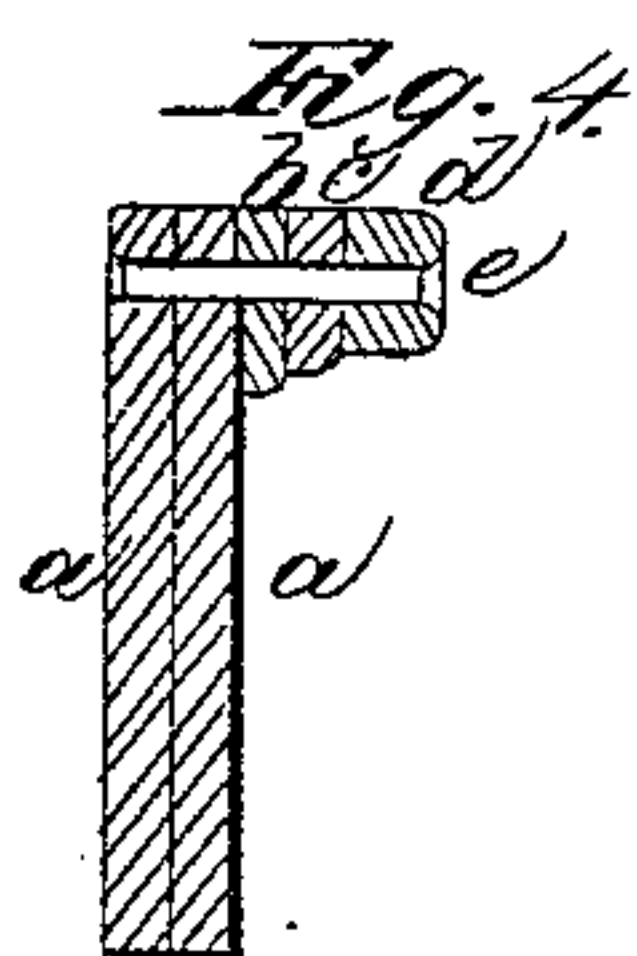
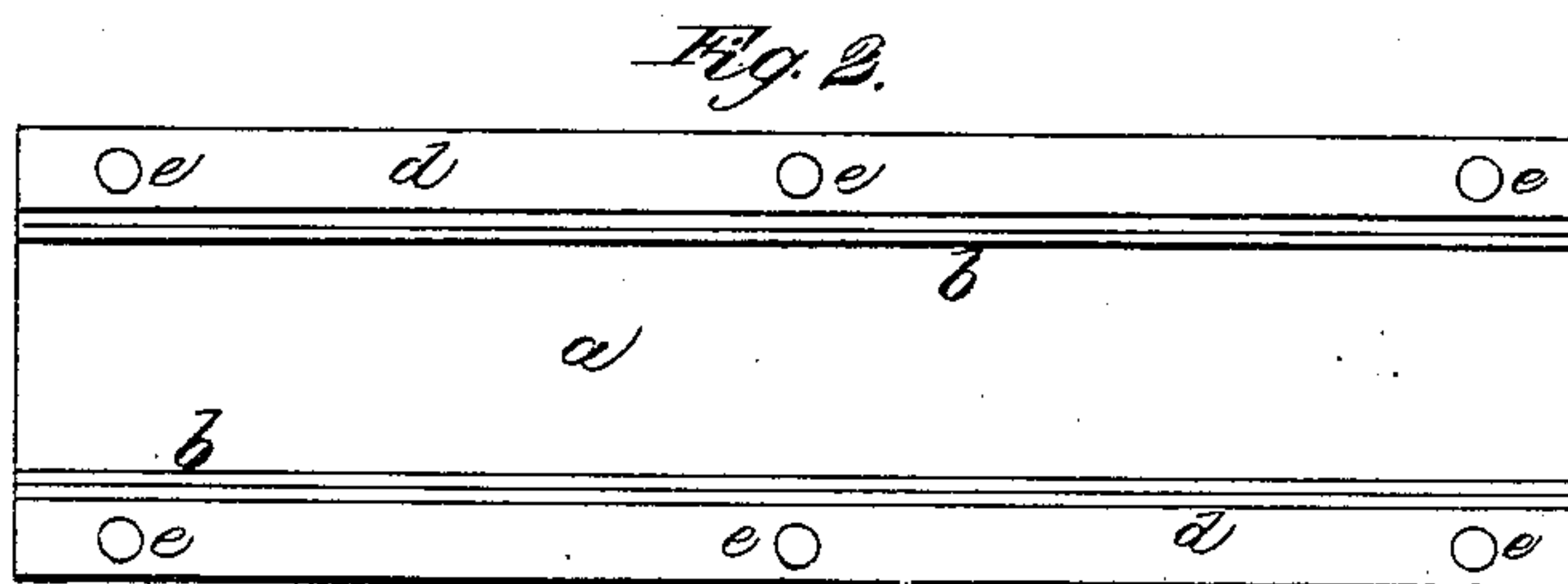
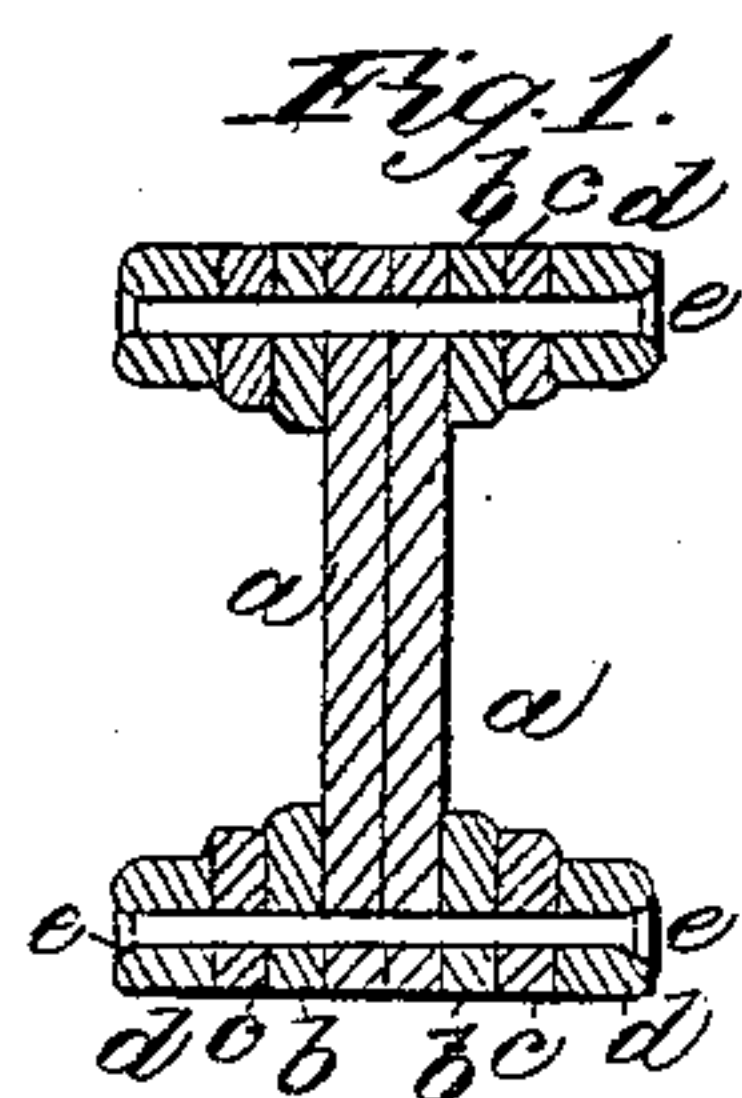


# WALTERS & SHAFFER.

## Pile for Iron Beams.

No. 68,266.

Patented Aug. 27, 1867.



Witnesses;  
*Wm. Albert Steel*  
*John Parker*

*Inventor;*  
*J. Walters & T. Shaffer*  
*By their Atty*  
*H. Howson*

# United States Patent Office.

GEORGE WALTERS AND THOMAS SHAFFER, OF PHOENIXVILLE, PENNSYLVANIA.

*Letters Patent No. 68,266, dated August 27, 1867.*

## IMPROVED PILE FOR WROUGHT-IRON BEAMS OR GIRDERS.

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

### TO ALL WHOM IT MAY CONCERN:

Be it known that we, GEORGE WALTERS and THOMAS SHAFFER, both of Phoenixville, county of Chester, State of Pennsylvania, have invented an Improved Pile or Fagot for Wrought-Iron Beams or Girders; and we do hereby declare the following to be a full, clear, and exact description of the same.

Our invention consists of a pile or fagot (for wrought-iron beams or girders) composed of one or more bars for the web and any appropriate number of bars for the flange or flanges, the said bars being arranged and permanently secured together by bolts or rivets in the manner and for the purpose of effecting the advantageous results described hereafter.

In order to enable others skilled in the art to practise our invention, we will now proceed to describe the mode of carrying the same into effect, reference being had to the accompanying drawing, which forms a part of this specification, and in which—

Figure 1 represents a transverse section of our improved pile or fagot for wrought-iron beams or girders.

Figure 2, a side view.

Figure 3 illustrates our improvement as applied to the formation of a fagot for a T-beam; and

Figures 4, 5, and 6, our improvement applied to fagots for forming beams of different transverse shape.

Similar letters refer to similar parts throughout the several views.

On reference to figs. 1 and 2, *a a* represent two bars placed side by side, and cut to the desired length of the pile or fagot, these two bars forming the web, on each side of and near the upper and lower edges of which are placed the bars *b*, *c*, and *d*, holes having been punched through the latter, as well as through the web, for receiving the transverse rivets or bolts *e*, by which the bars are permanently secured to the web, there being in the present instance three such bolts or rivets, as seen in fig. 2. The pile, which approximates to the shape of an H-beam, is now placed in the furnace, reduced to a welding heat, and subjected to the action of the rolls, which reduce it to the desired form and size.

The above mode of constructing a pile or fagot of bars permanently secured together possesses several advantages, which are of especial importance in the manufacture of wrought-iron beams of large size: first, the shape of the pile remains unaltered while it is in the furnace; second, the bars being firmly bound together, no cinder or other impurities can be lodged between them; third, the bars used in the fagot being all plain, whatever impurities there may be in the iron are easily worked out; fourth, the bars *b*, *c*, and *d* may be made of varying widths to suit the desired shape of the flanges into which the said bars have to be converted by rolling; fifth, the beam rolled from a pile or fagot of bars arranged and bound together as described is more uniform, solid, and of a better finish than beams rolled from ordinary piles.

It will be understood that the web of the pile may be composed of a single bar or of more than two bars, and that more or less than three bars may be used for each flange, and that our invention may be applied to the construction of T-beams or girders, as shown by fig. 2, or to piles for angle-beams, as seen in fig. 3, or for piles of the character shown in figs. 4 and 5, without departing from the main feature of our invention.

We do not confine ourselves to any specific number or size of the bars for the web or flanges of the pile, as this must be controlled in a great measure by the size of the beam or girder to be rolled from the pile; but we claim as our invention, and desire to secure by Letters Patent—

A pile or fagot (for wrought-iron beams or girders) composed of one or more bars for the web, and any appropriate number of bars for the flange or flanges, when the said bars are arranged and permanently secured together by bolts or rivets as and for the purpose herein set forth.

GEORGE WALTERS,  
THOMAS SHAFFER.

Witnesses:

P. G. CAREY,  
JOHN R. DOBSON.