

W. B. Scaife,
Planging Boiler Heads.

No. 111,478.

Patented Jan. 31. 1871.

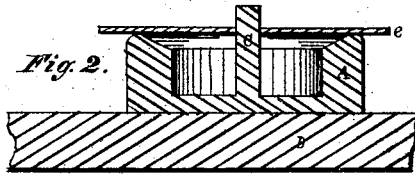


Fig. 3.

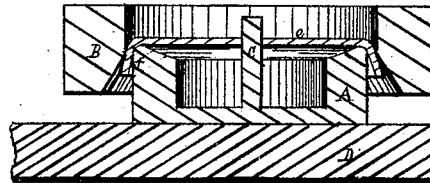


Fig. 4.

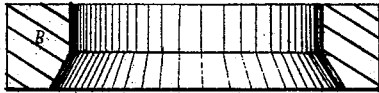


Fig. 5.



Fig. 6.

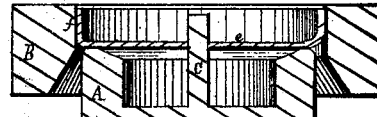


Fig. 7.

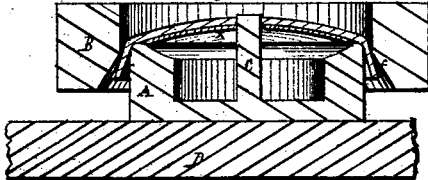


Fig. 8.



Fig. 9.



Fig. 10.

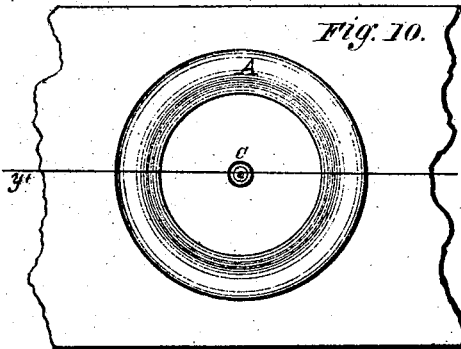
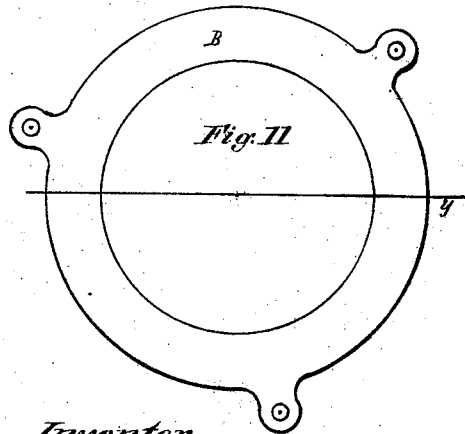


Fig. 11.



Witnesses
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WILLIAM B. SCAIFE, OF PITTSBURG, PENNSYLVANIA.

Letters Patent No. 111,478, dated January 31, 1871.

IMPROVEMENT IN METHODS OF FLANGING BOILER-HEADS.

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, WILLIAM B. SCAIFE, of Pittsburg, in the county of Allegheny and State of Pennsylvania, have invented a new and useful Improvement in Dies for Flanging Boiler-Heads; and I do hereby declare that the following is a full, clear, and exact description thereof, reference being had to the accompanying drawing and to the letters of reference marked thereon.

The nature of my invention relates to the use of dies of peculiar construction, and, jointly therewith, of the method of using said dies, and of manipulating the disk of metal to be flanged during the operation.

To enable others skilled in the art to make and use my invention, I will proceed to describe its construction and operation.

In the accompanying drawing which forms part of my specification—

Figure 1 is a transverse and vertical section of the female part of the dies, at line Y in fig. 11.

Figure 2 is a transverse and vertical section of the male part of the dies, at line Y' in fig. 10.

Figure 3 represents the position of the dies and form of the boiler-head after the first stroke or fall of the female-die.

Figures 4 and 6 represent the dies separated, and the boiler-head inverted on the male-die.

Figure 5 represents the dies and the form of the boiler-head after the female-die has made the second or finishing stroke for flanging the boiler-head.

Figure 7 represents the dies after the female-die has made the first stroke for flanging a "spherical head" for a boiler; also represents the male part of the die furnished with a forming-disk, X.

Figures 8 and 9 represent the dies separated, and the spherical head inverted preparatory to receiving the second or finishing stroke of the dies.

Figure 10 is a top view or plan of the male part of the dies.

Figure 11 is a top view or plan of the female part of the dies.

In the accompanying drawing—

A represents the male part of the dies, the central part of which is cored out, and is provided with a pin, C, which is arranged concentric with the die A, projecting upward in it and above its upper surface sufficient for the purpose of holding the disk from which the boiler-head is formed concentric with the dies A and B.

The die A is secured on a base, D; and the female-die B is attached to suitable mechanism for elevating and dropping it down over the male-die A.

The lower part of the female-die is made bell-mouthed, for the purpose of bringing the force of the die on the outer edge of the disk from which the

boiler-head is formed, and gradually bending that portion which is to form the flange *f* down over the male-die A.

The skillful mechanic will readily understand the construction and arrangement of the dies, and the relation they bear to each other, from the foregoing description and by reference to the accompanying drawing. I will therefore proceed to describe the operation and manipulation of the dies, and the disk from which the flanged head is formed.

The disk *e* for forming the boiler-head is cut so as to form a true circle, and in the center of it is made an opening.

The disk is then heated to a red heat, after which it is placed on the die A, with pin C projecting up through the opening made in the disk *e*. This will bring the disk concentric with the dies A and B.

The female-die is then allowed to drop down, and its force will first come on the outer edge of the disk *e* and gradually bend down over the die A, as shown in fig. 3, that portion of it which is for the flange *f*.

The female-die is then raised up, and the disk *e* is then inverted, as indicated in fig. 6. The die B is then allowed to drop, giving the second and finishing stroke for forming the flange.

The position of the dies A and B, and the finished boiler-head with relation to them after the second stroke of the die B, is clearly shown in fig. 5.

When a spherical head is desired, a convex disk, as indicated at X, in fig. 7, is placed on the die A; and after the first stroke of the die B it is removed, and the partially-flanged boiler-head is inverted, as shown in fig. 9, in which position it receives its second and finishing stroke from the die B.

By constructing the dies and arranging them with relation to each other, and manipulating the dies and the disk from which the flanged head is made, as hereinbefore described, the flange *f* is formed with ease and great facility, and without subjecting that portion of the iron which forms the flange of the boiler-head to undue strain or disturbance of the fiber of the iron; and therefore produce a stronger and better boiler-head than is produced by the ordinary means used for forming the flange on them.

Having thus described the nature of my improvement,

What I claim as of my invention is—

The method hereinbefore described of turning the edges of a disk of metal to a position at right angle to the plane of the disk, for boiler-heads and analogous articles.

W. B. SCAIFE.

Witnesses:

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