W. N. FISHER.

MANUFACTURE OF ANCHORS.

No. 193,237. Patented July 17, 1877.

Fig. 1.

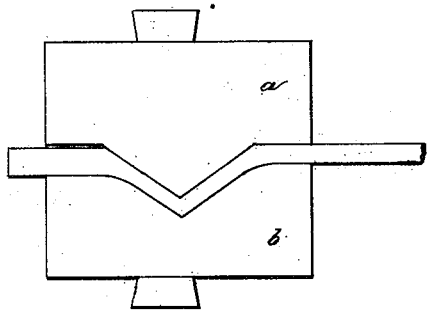


Fig. 2.

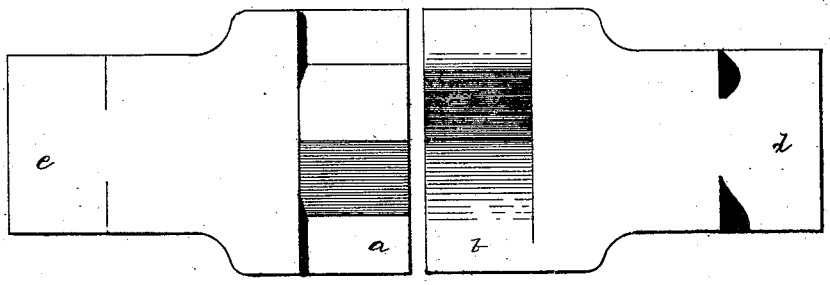


Fig. 3.

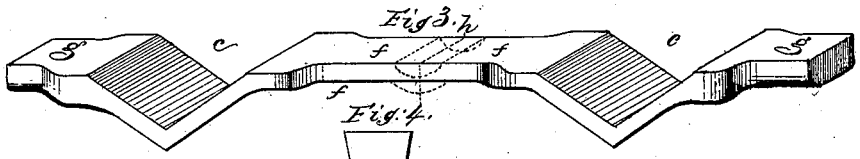


Fig. 4.

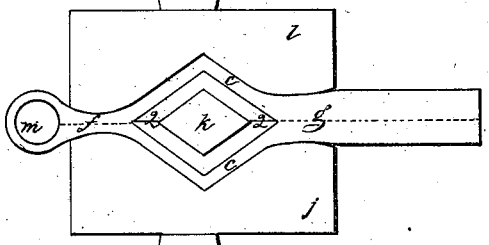


Fig. 6.

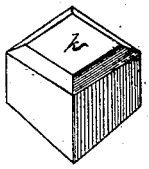
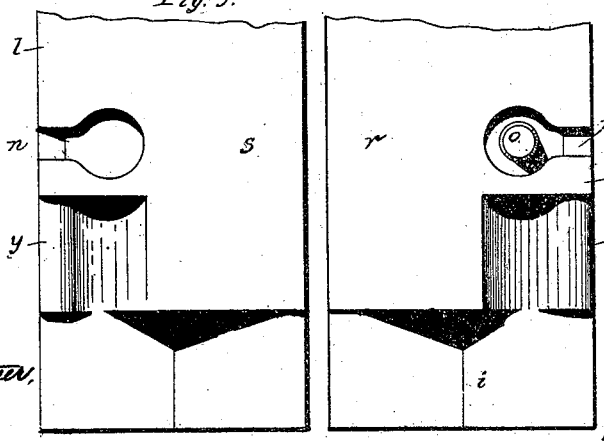


Fig. 5.



Witnesses.
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UNITED STATES PATENT OFFICE.

WILLIAM N. FISHER, OF BOSTON, MASSACHUSETTS, ASSIGNOR TO BOSTON FORGE COMPANY, OF SAME PLACE.

IMPROVEMENT IN THE MANUFACTURE OF ANCHORS.

Specification forming part of Letters Patent No. **193,237**, dated July 17, 1877; application filed April 17, 1877.

To all whom it may concern:

Be it known that I, WILLIAM N. FISHER, of Boston, county of Suffolk, and State of Massachusetts, have invented an Improvement in Manufacture of Anchors, of which the following is a specification:

This invention relates particularly to that class of anchors having wooden stocks, and commonly known as "fishermen's anchors."

Such anchors have a large quadrangular eye for the stock, which is made by forcing a wedge or series of wedges into a space left between the folded and welded portions of the iron, bent to form the head of the anchor. This is a slow process. The wedges are apt to strain the iron and pull it apart at the welded portions, and does not result in the production of, and by their use it is very difficult, if at all possible, to produce a smooth and uniform eye.

In my improved plan I employ a set of dies to form the head and shape the eye for the stock, thereby saving time, and making a stronger and more uniform eye at fewer heats. I first take a bar of iron of the proper length for the head, and swage it at proper intervals between the first pair of dies, that form one-half the eye; then I bend such bar so that the two open halves of the dies come opposite each other, when the parts at *g g* and *f f* are welded together; then, while the bar is hot, it is placed in the second pair of dies, with an eye-block within the eye, and the follower-die is then permitted to descend, shaping the eye uniformly and quickly.

I denominate the first pair of dies the "bending-dies," and the second pair the "eye-forming dies."

Figure 1 represents the bending-dies in front elevation, a piece of iron being shown between them. Fig. 2 represents the same dies opened; Fig. 3, a piece of iron for one head, after being operated upon by such dies; Fig. 4, the forming-dies, with material between them; Fig. 5, the forming-dies opened, and Fig. 6 the eye-block.

In the manufacture of an anchor after this my improved plan, I take a piece of iron of suitable length and size to form one head, and, after heating, place it between the members *a b* of the bending-dies, shaped to form in the bar one-half the eye for the stock, as at *c*. Two such angular depressions, *c*, for the eye are formed, as shown in Fig. 3. The same dies will preferably have portions *d e*, between which the central portion *f* and ends *g* of the bar may be shaped, as shown in Fig. 3.

Having formed the bar as described, it is bent at the central line *h*, so as to bring the portions *c* with their open faces opposite each other. In this condition the bar is welded at the points *g* between the flat faces of the dies, and at the points *f* by the portions *y* of dies, and then opening *m*, for the usual ring, is formed by the means of the portion *n* of the forming-dies, one portion containing a pin, *o*, to enter and shape the part *m*. The bar, welded together and provided with an eye, is then placed in the space *i* of the lower member *j* of the forming-dies, and the eye-block *k*, substantially equal in cross-section with the size of the stock, is placed in the space bounded by the portions *c*, and the upper member *l* of the forming-dies is then brought down upon the bar, shaping it to the eye-block, and fitting it closely up to the corners 2 2 of such block.

In this way the opening or eye for the stock is made uniform, and so as to touch the stock at each corner, and the weld of the bar at the ends of the eye is never strained after welding, as in the old plan.

In my plan I can, and do, so shape the members of the dies as to give increased thickness and strength at such corners.

If desired, a semi-round depression may be formed by a die in the bar, as represented in dotted lines at *p*, and when such bar is bent it will substantially form the opening *m*.

The portion *r s* of the forming-dies is used as an ordinary anvil and trip-hammer for any flat work. In the old plan of forcing the eye by means of wedges the head was made weakest at the corners 2.

I claim—

1. The series of dies herein described for

forming the heads of anchors, having stock-eyes and ring-openings, substantially as specified.

2. As an improvement in the art of manufacturing anchor-heads, forming a bar of metal with half-eyes, bending and welding the same to make a whole eye, and finally shaping the head and producing the ring-opening, substantially as specified.

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

WILLIAM N. FISHER.

Witnesses:
G. W. GREGORY,
E. C. PERKINS.