R. MONTGOMERY.

METHOD OF PUNCHING BETWEEN ROLLERS.

No. 7,073. Patented Feb. 5, 1850.

Fig. 2.

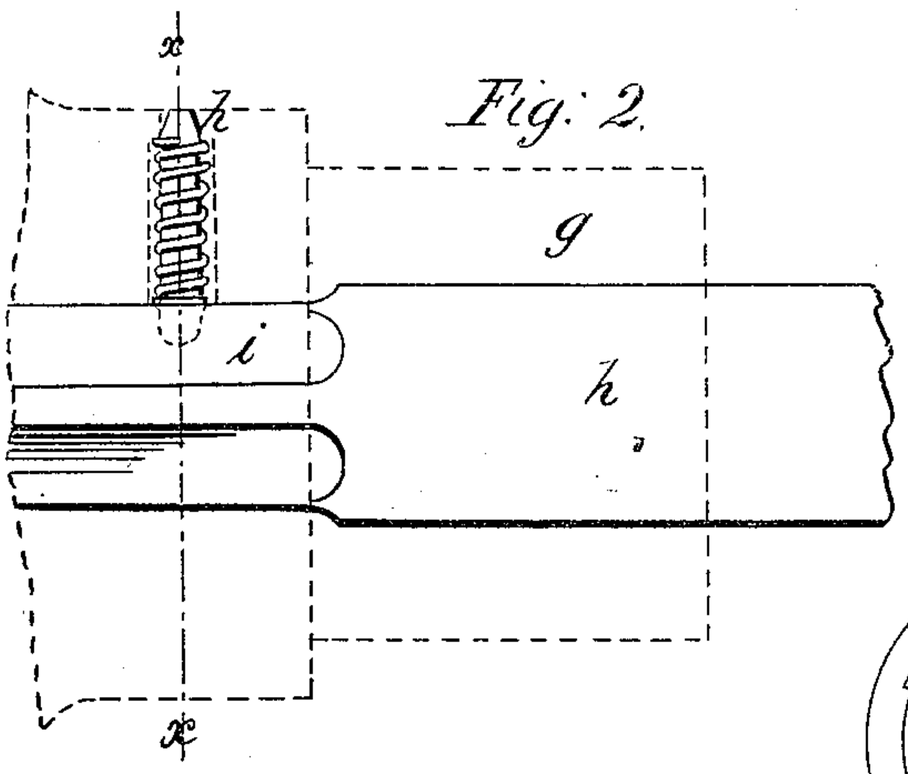
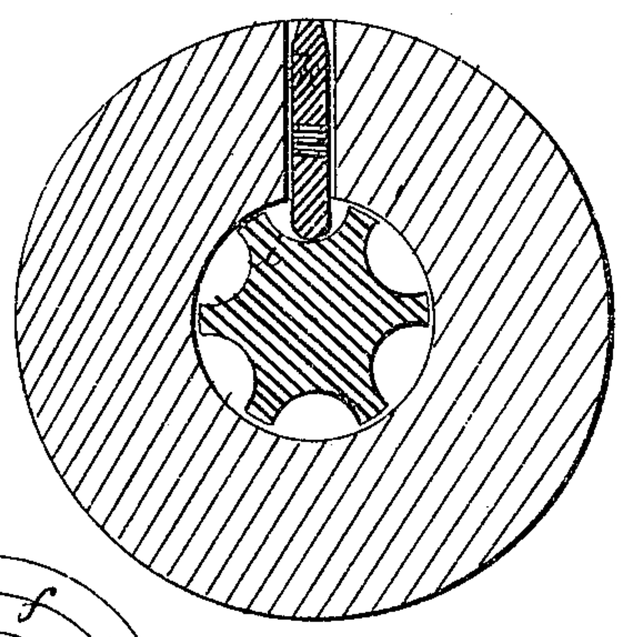


Fig. 3.



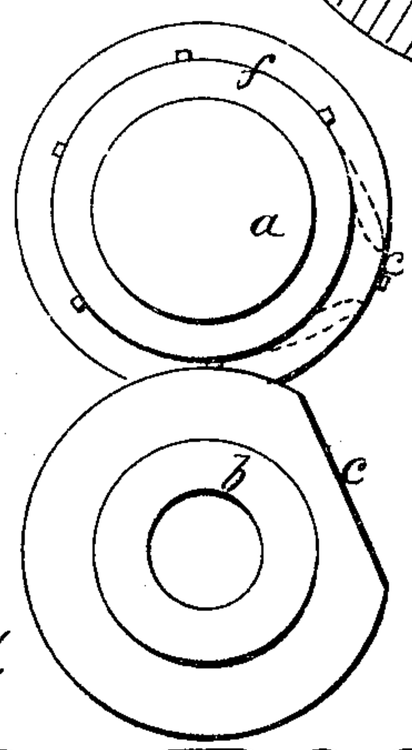
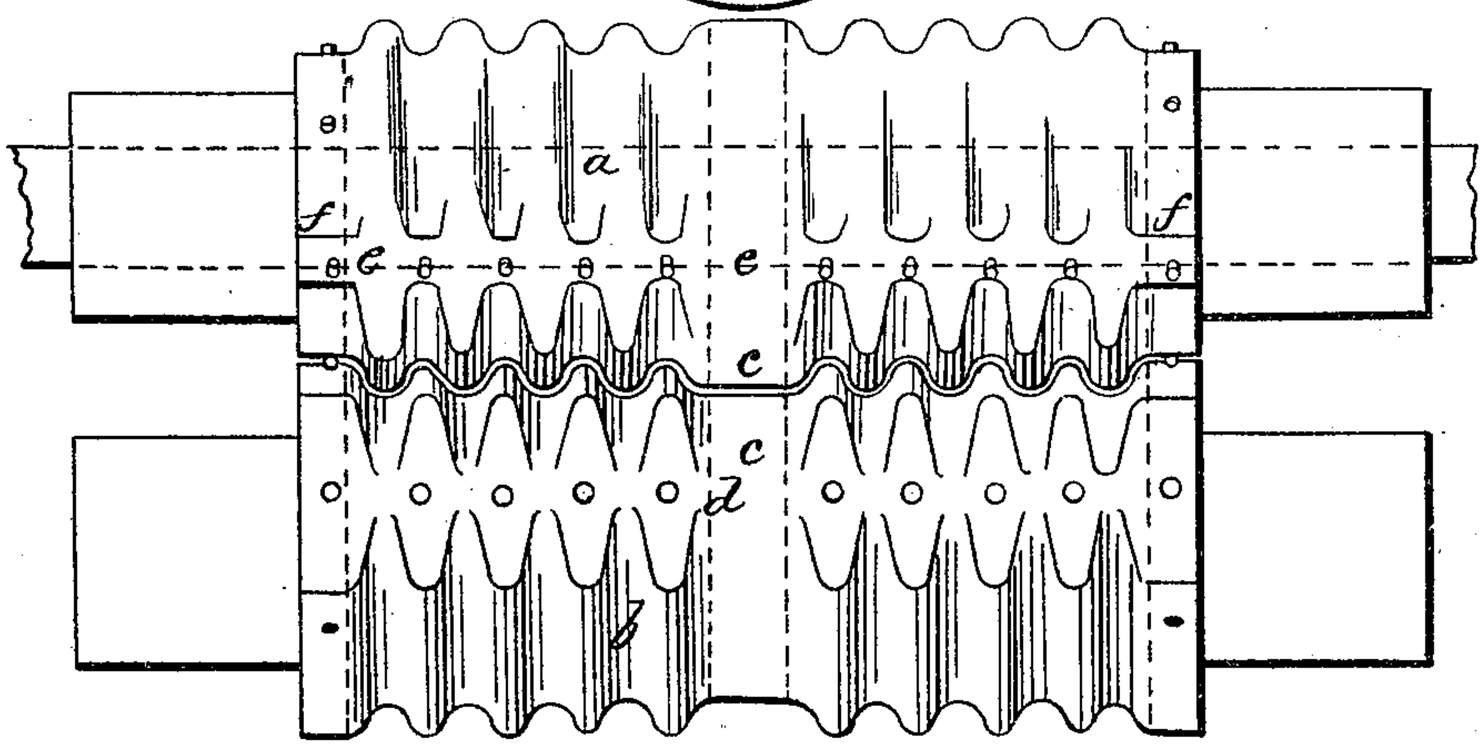


Fig. 1.



UNITED STATES PATENT OFFICE.

RICHD. MONTGOMERY, OF NEW YORK, N. Y.

METHOD OF PUNCHING BETWEEN ROLLERS.

Specification of Letters Patent No. 7,073, dated February 5, 1850.

To all whom it may concern:

Be it known that I, RICHARD MONTGOMERY, of New York, in the county of New York and State of New York, have invented certain new and useful Improvements in the Manufacture of Boiler-Plates, and that the following is a full, clear, and exact description of the principle or character which distinguishes them from all other things before known, and of the usual manner of making, modifying, and using the same, reference being had to the accompanying drawing, in which—

Figure 1, is a front view of the rollers. Fig. 2, shows the cam to work the punches. Fig. 3, is a cross section of Fig. 2 on line *x*, *x*.

My improvements consist in a combination of several elementary processes in one, for the purpose of facilitating the manufacture, the advantages of which are a greater expedition in the construction of a boiler, and greatly reducing the cost, while I am enabled thereby also to increase the strength over an ordinary boiler.

The apparatus is constructed as follows: A pair of corrugated rollers, (*a* and *b*,) are made sufficiently long to admit two sheets of metal lapped at the center far enough to weld; at this center point, the rollers are made flat, as shown at (*c*,), so as to leave that portion of the plates that are welded, plane surfaces. On one side of one of the rollers, the corrugations are cut off down to the surface of the cylindrical portion of the rollers, as seen at (*d*,); the indentations on the opposite roller are filled up between thet projecting flutes, as shown at (*e*,); this leaves a flat portion on the plates at certain intervals, for the purpose of attaching stays in the formation of the boiler. On one roller, at (*e*,) are projecting punches, that fit into holes in the opposite roller at (*d*) and around both ends of the first named roller are punches, as shown at (*f*); these punches are made to slide out and in by the arrangement as shown at Figs. 2 and 3, and consist of the following parts: A hole is made in the roller bearing the punches through the center of the journal (*g*,) on the line of its axis; into this hole is inserted a cylindrical axis (*h*,) on which cams (*i*,) are formed, the punches (*k*,) are arranged in radial holes in the roller, with their ends resting against the cams above named. They are held back in place by springs, in the ordinary way well known to mechanics, and are thrust out by the revolution of the cams, when brought into proper position to punch. This is effected by the cam being made to move faster or slower than the roller, by means of ordinary gearing, which any competent mechanic can supply, and which is not therefore necessary to be shown or described. It is obvious that they can be used alone or they may be employed with the other parts. The corrugations can be made as in the drawing, or parallel with the axis, or in any other direction, so that the feature of plane straight surfaces are left for stays. In operating this machinery the rollers are first placed in the position shown in the drawing, and the sheets are entered where the flat surfaces parallel to the axes of the rolls come together, first being properly heated, they are made to lap at the center enough to be welded, and are punched along their first edge by the rollers closing in on their flat side; they then run through and are corrugated and welded during the revolution of the rollers, the two outer edges being at the same time punched, as the flat portion of the rollers comes around, and a straight flange is formed, with a row of holes in it for the attachment of stays, as above noted. I thus greatly expedite the manufacture of corrugated boiler plates.

Having thus fully described my improvements in the preparation of iron plates for boilers, what I claim therein as new, and for which I desire to secure Letters Patent, is—

The apparatus for the purpose of punching consisting of a series of punches thrown out at proper intervals substantially as above described either with or without the combined operation of corrugating said plates, as above described.

R. MONTGOMERY.

Witnesses:
W. M. WALKER,
WM. GREENOUGH.