J. Miller,

Making Sheet Iron,

No. 63,805. Patented Apr. 16, 1867.

Fig. 3.

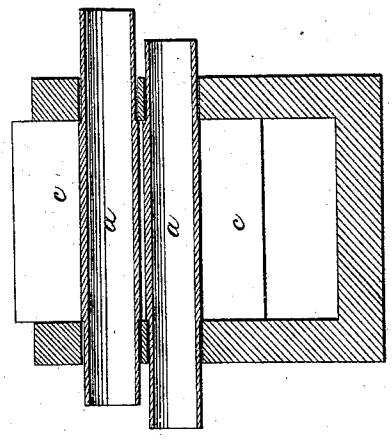


Fig. 1.

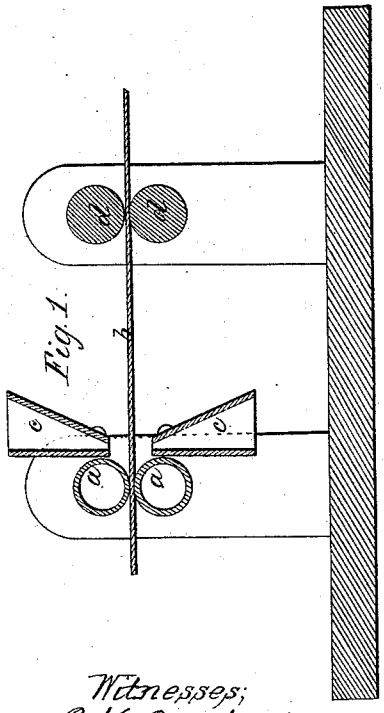
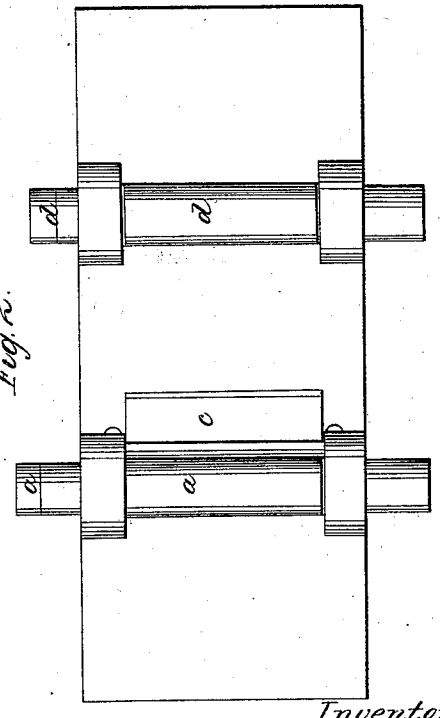


Fig. 2.



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Letters Patent No. 63,805, *dated April* 16, 1867.

IMPROVEMENT IN THE MANUFACTURE OF SHEET IRON.

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

Be it known that I, JOSEPH MILLER, of Cuba, in the county of Alleghany, and State of New York, have invented a new and useful Improvement in the Manufacture of Sheet Iron; and I do hereby declare the following to be a full and exact description thereof, which will be more fully understood by reference to the accompanying drawings, which are to be considered a part of this specification, and in which—

Figure 1 is a longitudinal section.

Figure 2, a top view; and

Figure 3, a transverse section in the vertical plane *x x* of fig. 1.

The object of my invention is to produce an article of sheet iron which shall be flexible and not liable to break when bent longitudinally or transversely. In other words, I propose to furnish a commodity which shall possess, in this respect, the qualities of Russia sheet iron as contradistinguished from American sheet iron, which, although it has been manufactured so as to be tolerably flexible when bent in one direction, is always brittle when bent longitudinally.

To secure my object, I prepare the sheets of iron in the usual way, of a thickness a little greater than that which it is proposed to give them when finally finished. As they are passing through the rollers for the last time I bring a flame or other heat to bear upon the sheets throughout their entire breadth just at the moment they are entering between the rollers, sufficient to bring them to a welding heat. Being rolled in that condition, the iron comes out in a soft and flexible condition, and the fibres are thoroughly welded to each other, so that they will become flexible and not liable to break or separate when bent either longitudinally or transversely.

In the accompanying drawings, *a a* represent the rollers; *b* the sheet; *d d* the rollers which sustain and push forward the sheet, and *c c* are contrivances by which the heat is brought upon the sheet from below and above just as it is to pass between the rollers *a a*. A shelf may be arranged for the sheet *b* to rest upon at the right-hand side of the rollers *a a*, and another shelf upon the left-hand side of those rollers. These shelves may be made inclined to the horizon, so that the sheets will move forward by their own gravity. Rollers may also be placed at the left-hand side of the rollers *a a*, for the purpose of drawing the sheets forward after they cease to be pushed by the rollers *d d*, or other contrivances may readily be devised for these purposes. Flame or heat may be brought from a furnace, through suitably-arranged contrivances, into the body of the longitudinal tubes *c c*, and be made to pass out at the narrow openings at their converging extremities, so as to impinge upon the sheet just as it is entering between the rollers *a a*. Instead of bringing heat from a furnace, as just contemplated, hydrogen or other inflammable gas may be forced into these tubes when properly constructed, and ignited as they issue from those tubes and are brought to bear upon the sheet of iron.

To prevent the rollers from being too highly heated, I construct them with a small cylindrical cavity in each. There should be a considerable thickness of metal outside of this cavity to prevent the surface of those rollers from becoming too cool.

To prevent the oxidation of the sheets of metal at the high heat to which they are brought, I usually coat them with a covering of borax or plumbago. This may be done by pulverizing those substances, mixing them with oil, and then applying them with a brush. Other modes of protecting them from the atmosphere, which are well known to those skilled in working in iron, may be used for this purpose.

Having thus fully described my invention, what I claim as new, and desire to secure by Letters Patent, is—

The improved mode of manufacturing sheet iron, as herein shown, by raising it to a welding heat just as it is about passing between the finishing rollers, substantially as and for the purpose described.

JOSEPH MILLER.

Witnesses:

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