J. McLellan,

Furnace for Heating Railroad Bars,

No. 14,695, Patented Apr. 15, 1856.

Fig. 1.

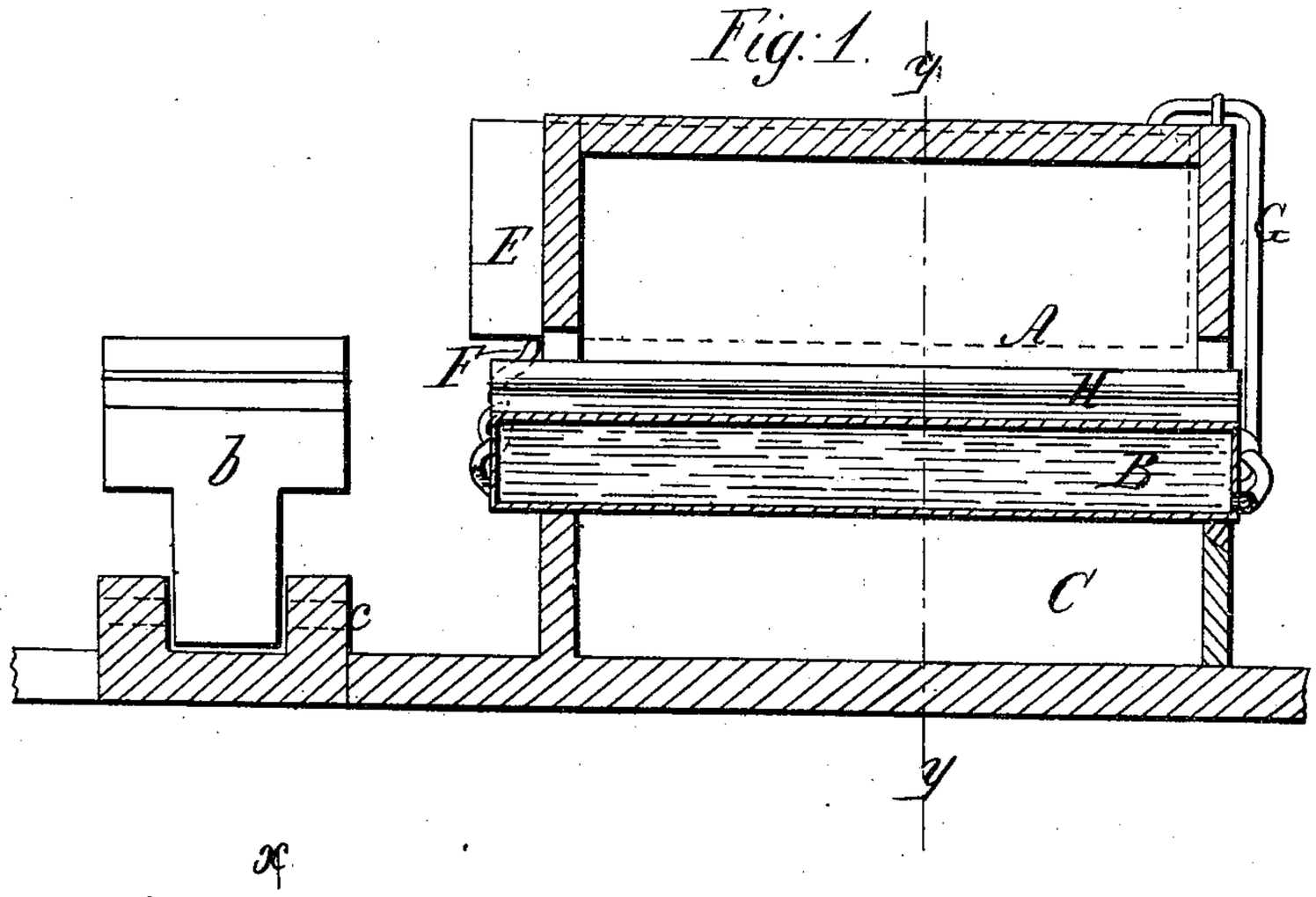


Fig. 2.

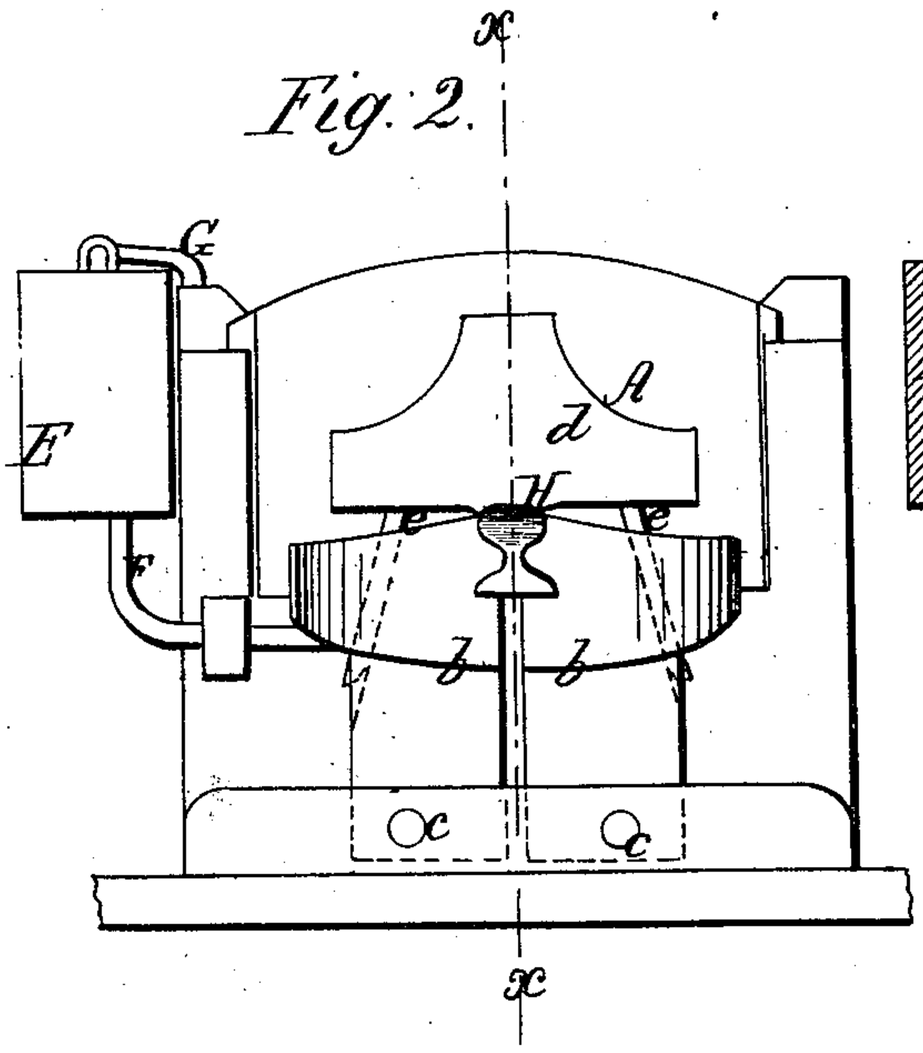
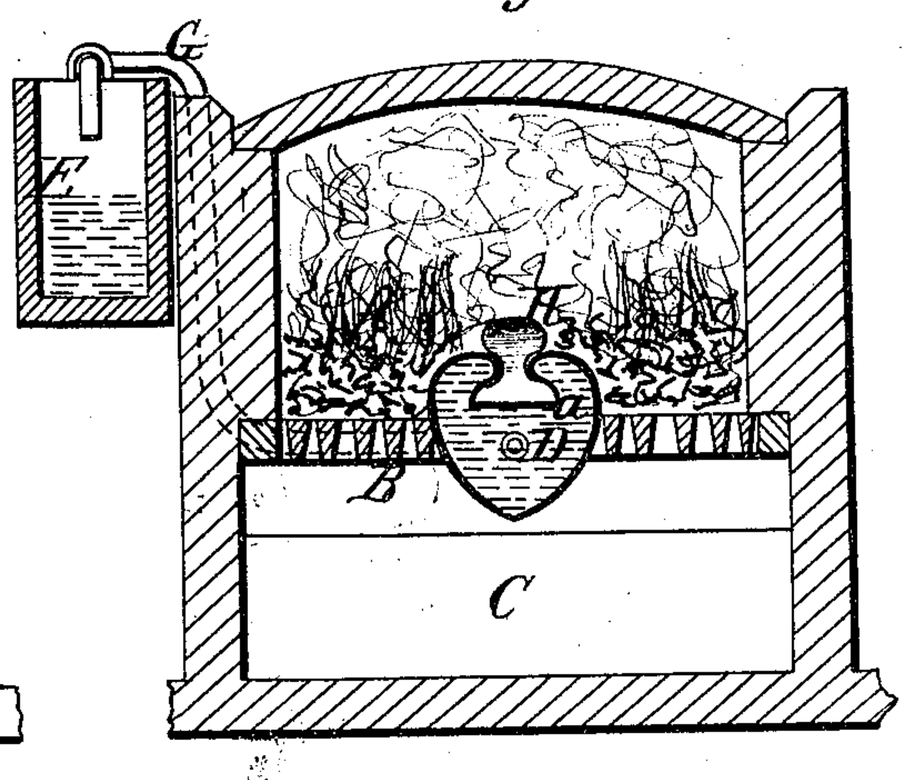


Fig. 3.



UNITED STATES PATENT OFFICE.

JAMES McLELLAN, OF DETROIT, MICHIGAN.

REPAIRING RAILROAD-BARS.

Specification of Letters Patent No. 14,695, dated April 15, 1856.

To all whom it may concern:

Be it known that I, JAMES McLELLAN, of Detroit, in the county of Wayne and State of Michigan, have invented a new and Improved Device or Apparatus for Heating Rails or Bars for Railroads for the Purpose of Renovating or Repairing Them; and I do hereby declare that the following is a full, clear, and exact description of the same, reference being had to the annexed drawings, making a part of this specification, in which—

Figure 1, is a longitudinal vertical section of my improvement; the plane of section being through the center, as indicated by the line, (*x*), (*x*), Fig. 2. Fig. 2, is an end view of the same, showing the swaging device. Fig. 3, is a transverse vertical section of the same, (*y*), (*y*), Fig. 1, showing the plane of section.

Similar letters of reference indicate corresponding parts in the several figures.

My invention consists in placing within a furnace, a cooler, which is a chamber or vessel supplied with water and so formed as to embrace the portion of the rail or bar not intended to be heated, and thereby keeping said portion in a comparatively cool state while the portion exposed to the fire may be heated to a welding heat.

A, represents a furnace which may be formed of masonry and constructed in any proper manner.

B, represents the grate of the furnace; and C, is the ash-pit.

D, represents the cooler, which may be constructed of boiler plate. This cooler is fitted longitudinally in the grate, B, and extends the whole length of the furnace. The cooler is formed with a longitudinal groove, (*a*), at its upper part, said groove corresponding in form with either the upper or lower flanch of the rail or bar, according to which part of the rail or bar the groove is to receive. It is designed to have the coolers one formed with a groove to receive the upper, and the other with a groove to receive the lower flanch of the rail. Other forms may also be used according to the nature of the work required to be done.

E, represents a water reservoir at the outer side of the furnace; and F, is a supply pipe, which extends from the lower part of the reservoir, E, to one end of the cooler, D.

G, is a vent or safety pipe which extends from the opposite end of the cooler, and is bent over the upper part of the reservoir, see Fig. 3.

The groove, (*a*), in the cooler represented in the drawings, is formed to receive the lower flanch of the rail or bar which is designated by H. The upper edge of the cooler touches the under side of the upper flanch, and the lower flanch and neck or thin center of the rail, it will be seen, are encompassed by the cooler.

The rail or bar being fitted in the groove, (*a*), of the cooler, as shown in Fig. 3, has only its upper flanch and the bar or piece of metal to be welded to it, exposed to the action of the fire; the lower flanch and thin center of the rail being protected by the cooler, D, which is supplied with water from the reservoir, E. The lower flanch and thin center cannot therefore be heated much above the temperature of boiling water, while the upper flanch and bar to be welded to it are fully exposed to the action of the fire and may be brought to a welding heat.

By this invention either the upper or lower flanch of the rails or bars may be renovated or repaired by welding pieces or bars to them, and the portions of the rails or bars which do not require to be heated are kept comparatively cool, so that said portions will not be burned, "upset", or hammered out of proper shape or form during the operation of welding.

The welding device is placed at one end of the furnace so that the rail or bar when properly heated may be shoved forward and welded. In the drawings the welding device is formed of two jaws, (*b*), (*b*), the lower ends of which are hung upon pivots, (*c*), (*c*), and a hammer, (*d*), works over the jaws, said hammer having guide rods, (*e*), (*e*), attached to it, which rods work in holes in the jaws. The jaws are grooved on their inner sides to receive each one half of the lower or cool portion of the bar or rail, leaving the heated portion exposed to the action of the hammer, which, as it rises and falls in consequence of the guide rods, (*e*), (*e*), works laterally, the jaws, (*b*), (*b*), causing them, as the hammer descends, to strike lightly the sides of the rail or bar while the hammer strikes a heavy blow on the upper and heated surface. Various welding devices, however, may be employed.

I do not confine myself to any precise form of cooler or groove therein, for it is obvious that the cooler and groove must be

varied or modified according to the nature of the work to be done, or the parts of the rail or bar to be operated upon.

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

Placing the rail or bar, H, to be heated, within a cooler, D, which is fitted within the furnace, A, and supplied with water from a reservoir, E, at the outer side of the furnace; the cooler being so formed or arranged as to encompass or be in contact with the parts of the rail or bar not designed to be heated, substantially as described for the purpose specified.

JAMES McLELLAN.

Witnesses:
ANDREW McLELLAN,
HENRY CHASE.