(No Model.)

T. S. VERY.

MEANS FOR MANUFACTURING METAL BARS OR RODS.

No. 494,659. Patented Apr. 4, 1893.

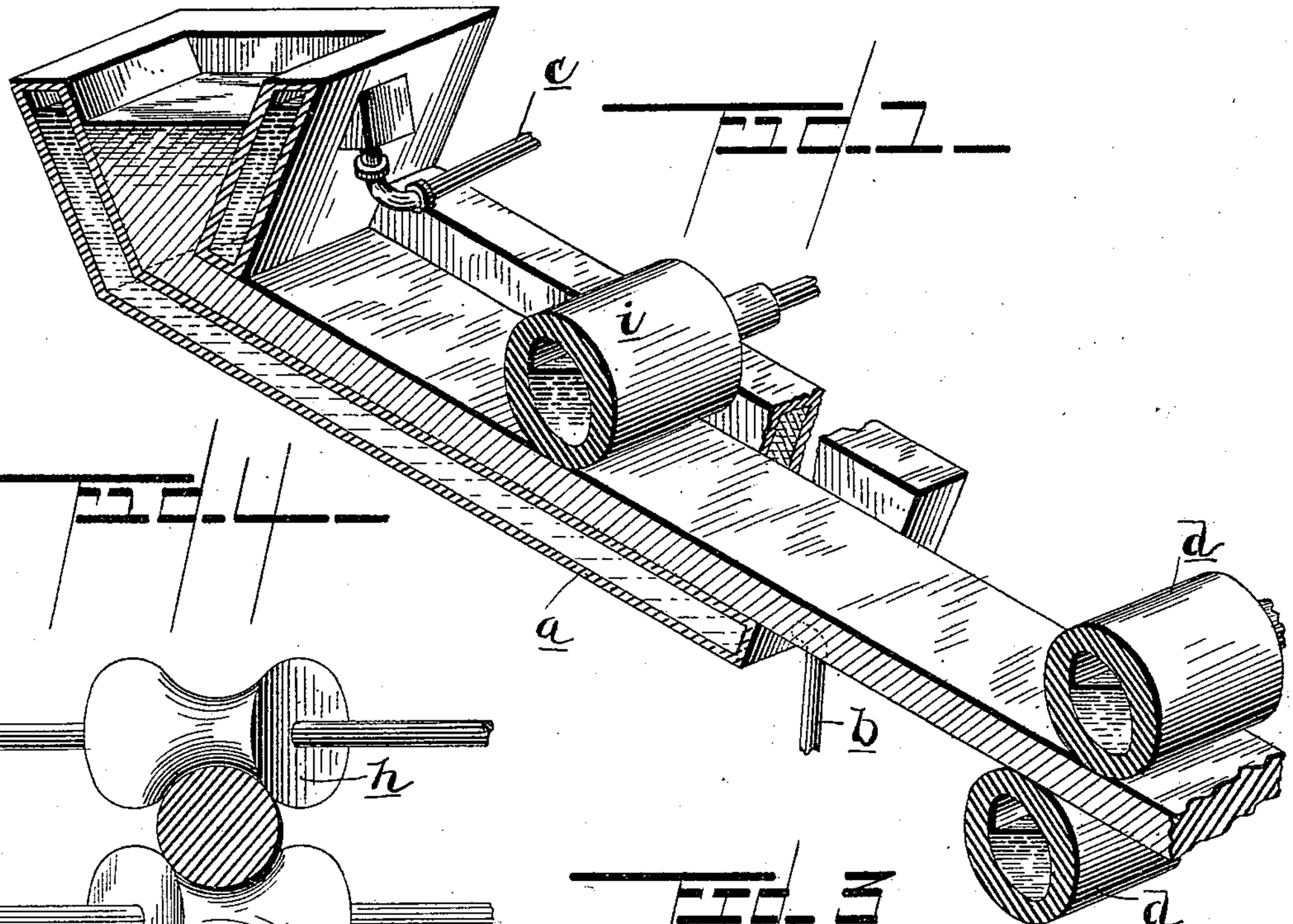

FIG. 1.

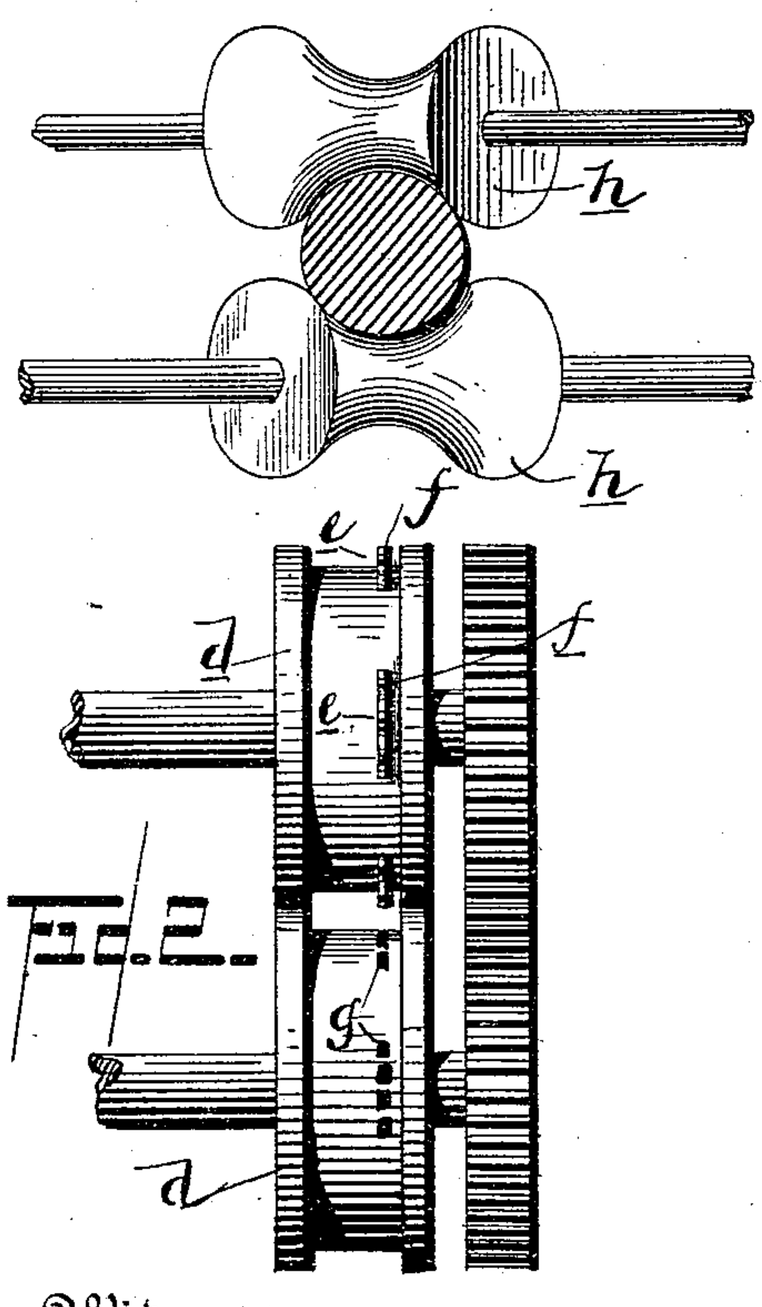

FIG. 2.

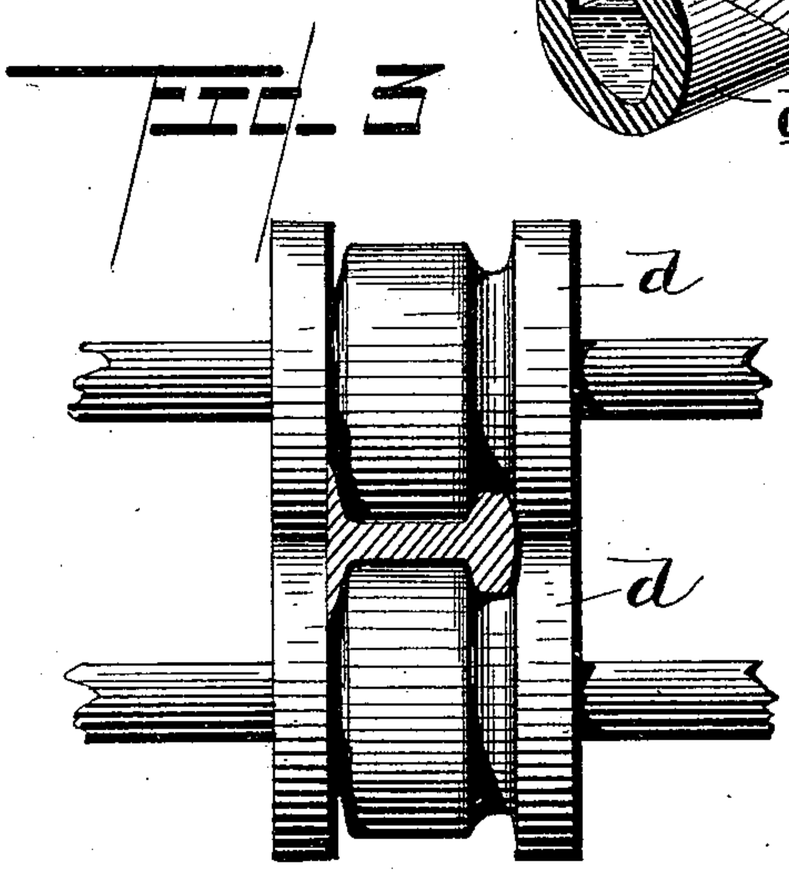

FIG. 3.

FIG. 4.

Witnesses
H. G. Seitz
Rollo Fleischl.

Inventor
Theodore S. Very,
by Wright, Brown & Crossley
His Attorneys.

UNITED STATES PATENT OFFICE.

THEODORE S. VERY, OF BOSTON, MASSACHUSETTS.

MEANS FOR MANUFACTURING METAL BARS OR RODS.

SPECIFICATION forming part of Letters Patent No. 494,659, dated April 4, 1893.

Application filed August 19, 1889. Serial No. 321,237. (No model.)

To all whom it may concern:

Be it known that I, THEODORE S. VERY, of Boston, in the county of Suffolk and State of Massachusetts, have invented certain new and useful Improvements in Means for Manufacturing Metal Bars, Rods, &c., of which the following is a specification.

It is the object of my invention to provide such improvements in the means for manufacturing metal bars, rods or shafts, railroad rails, &c., as will enable such articles to be made more expeditiously and economically than heretofore.

My invention comprises a mold or former into which the molten metal is poured or delivered and by which it is slightly chilled and given its initial shape, one side of said mold being open and a feeding and compacting roll located opposite the open side of the mold. From the mold the metal passes between rolls which compact it or compress it, giving it its finished form. Both the mold and the rolls may be made hollow so that they may be kept cool by the circulation of water therein. The form of the mold I make to correspond with the form of the passage or port between the finishing rolls, so that the work left to be done by the latter device may be as little as possible.

The invention is well adapted to the formation of horseshoe bars, and when it is employed to produce articles of this kind the finishing rolls may be equipped with devices which will channel the bar and puncture it at the proper point to form nail holes.

My invention will first be described in connection with the accompanying drawings and the letters of reference marked thereon, forming a part of this specification, and then be pointed out in the claims.

In the said drawings Figure 1— is a perspective sectional view of my invention and showing the interior construction of the same. Fig. 2— is a plan view of finishing rolls, constructed and arranged to form horseshoe bars. Fig. 3— is a plan view of rolls calculated to form railroad rails; and Fig. 4— is a plan view of cross rolls adapted to the production of round bars or shafts.

The same letters of reference designate the same parts or features wherever they occur.

a, in the drawings, designates a mold or former, preferably made flaring at its upper end to form a kind of hopper into which the molten metal may be poured or discharged. The said mold or former may be hollow so that water may be circulated therein for the purpose of keeping the mold cool or comparatively cool. As shown in Fig. 1, the mold may be provided with an inlet water pipe *b*, connecting with the said mold at the bottom and with outlet or overflow pipes *c*, at or near the top from which the water may be discharged as it becomes heated and rises in the mold. The metal, in passing through the mold *a*, is slightly chilled and given its initial form, and from the said mold is passed to the finishing rolls *d* by which it is compacted or compressed and finished. The finishing rolls may be made hollow, as shown in Fig. 1, so that water can be circulated therein for the purpose of keeping the rolls comparatively cool, adapting them to chill the bar or rod of metal at the same time that they compact or compress it. If a horseshoe bar is to be formed, the aperture of passage between the rolls *d* may be of a form suitable to giving the final shape to the bar as it passes therethrough, and one of the rolls may be provided with flange strips *e*, having on their outer edge prods or pins, *f*, coinciding with and adapted, in the rotation of the rolls, to enter holes or depressions *g*, in the other roll, so that the bar will be properly creased and punctured to make provision for the reception of the shoe attaching nails. If the bar is to be formed into a railway rail, the rolls *d*, will be so constructed as to make the passage therebetween have the form of a rail in cross section, as shown in Fig. 3; and if a round rod or shaft is to be formed, the passage between the rolls may be made round, or the cross rolls *h* may be employed to act upon the metal after it is delivered from the mold *a*, as shown in Fig. 4. In this latter case, the rolls will act spirally upon the metal delivered to them, and if need be, the mold may be rotated in the same direction that the cross rolls will tend to rotate the rod upon which they act, or in a direction contrary thereto, or it may be maintained in stationary position, as circumstances and the article to be produced, may suggest.

As before stated, it is preferred to so con-

struct the mold *a* that it may give a form to the metal passed through it, resembling the shape that is finally given it by the finishing rolls, and it is desirable to roll the metal in the mold for the purpose of compacting it to a certain degree, and to feed it forward to the finish rolls. In Fig. 1 I have shown an arrangement of this character, *i* designating a hollow chilling roll for compressing the metal against the side of the mold *a* and moving it forward through the latter to the finishing rolls. It is understood, of course, that rolls may be employed intermediate of the mold and the finishing rolls for working the metal before it is finally treated and delivered by the finishing rolls, but this, and other variations which may be made, in the invention, would not depart from the nature or spirit thereof.

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

1. The combination of an initial forming and chilling mold having open ends, hollow chilling finishing rolls at the exit end, means for cooling the rolls and mold, and a roll located one side of the mold between its ends and having its periphery arranged to compact and feed the metal in said mold, substantially as described.

2. The combination of an initial forming and chilling mold, having an open side and ends with a roll above said mold for compacting and feeding the metal forward in said mold, finishing rolls at the exit end, and means for cooling the mold and rolls, as set forth.

In testimony whereof I have signed my name to this specification, in the presence of two subscribing witnesses, this 13th day of August, A. D. 1889.

THEODORE S. VERY.

Witnesses:
ARTHUR W. CROSSLEY,
W. C. RAMSAY.