

(No Model.)

J. REESE.

APPARATUS FOR REDUCING METAL RODS OR WIRE.

No. 338,362.

Patented Mar. 23, 1886.

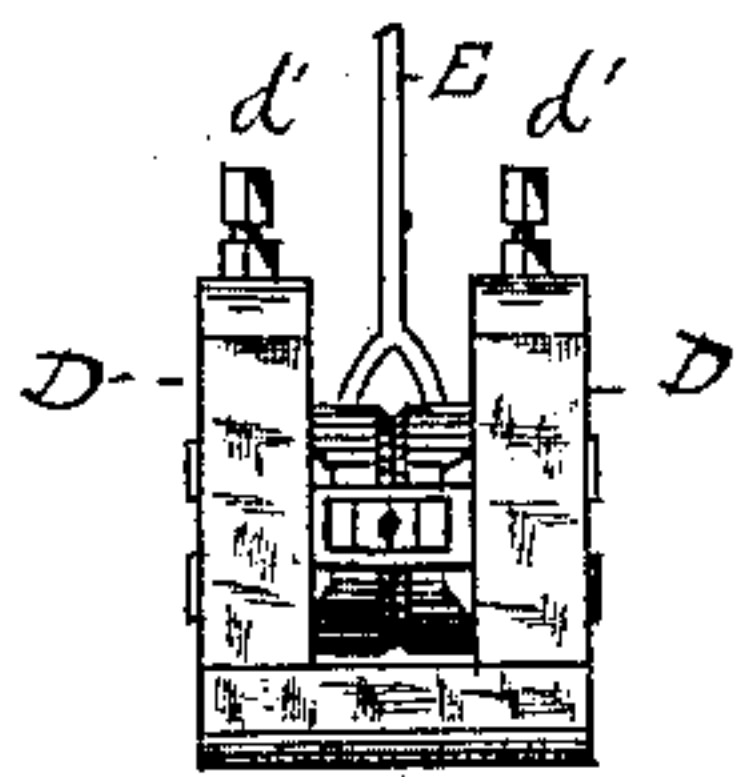
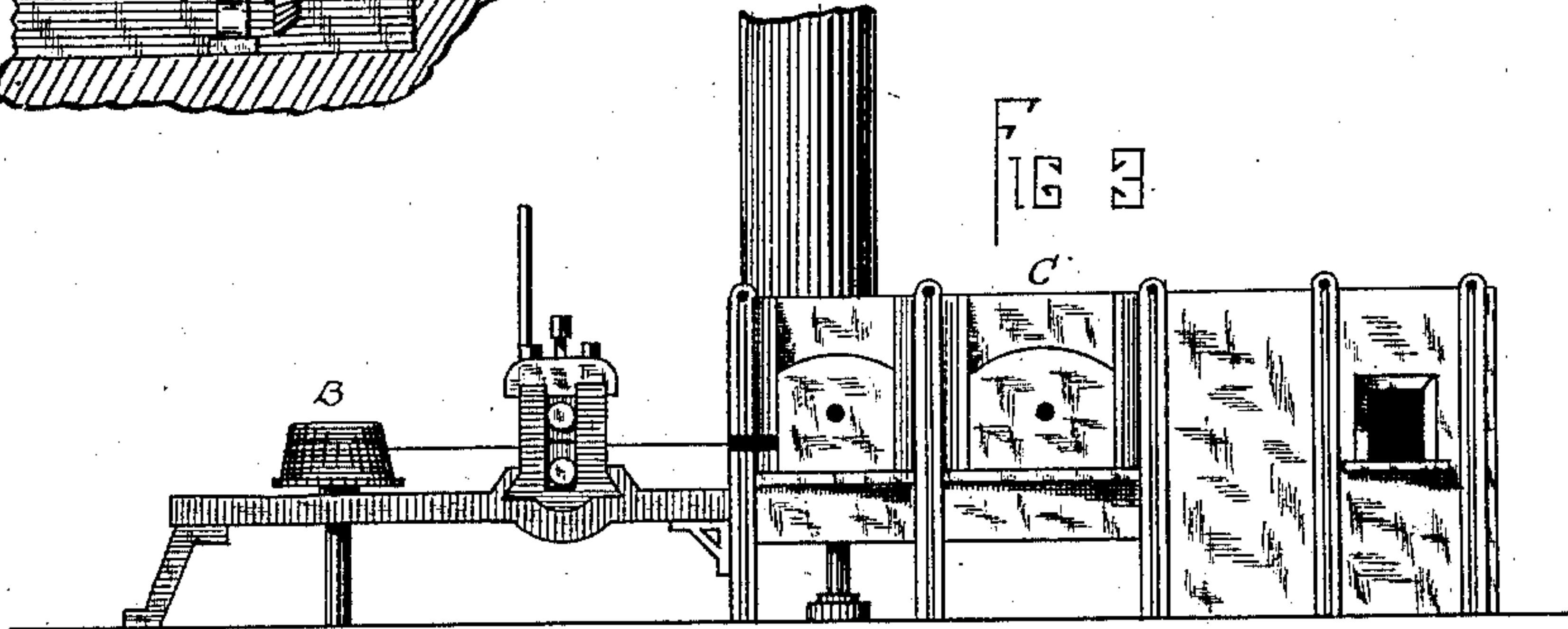
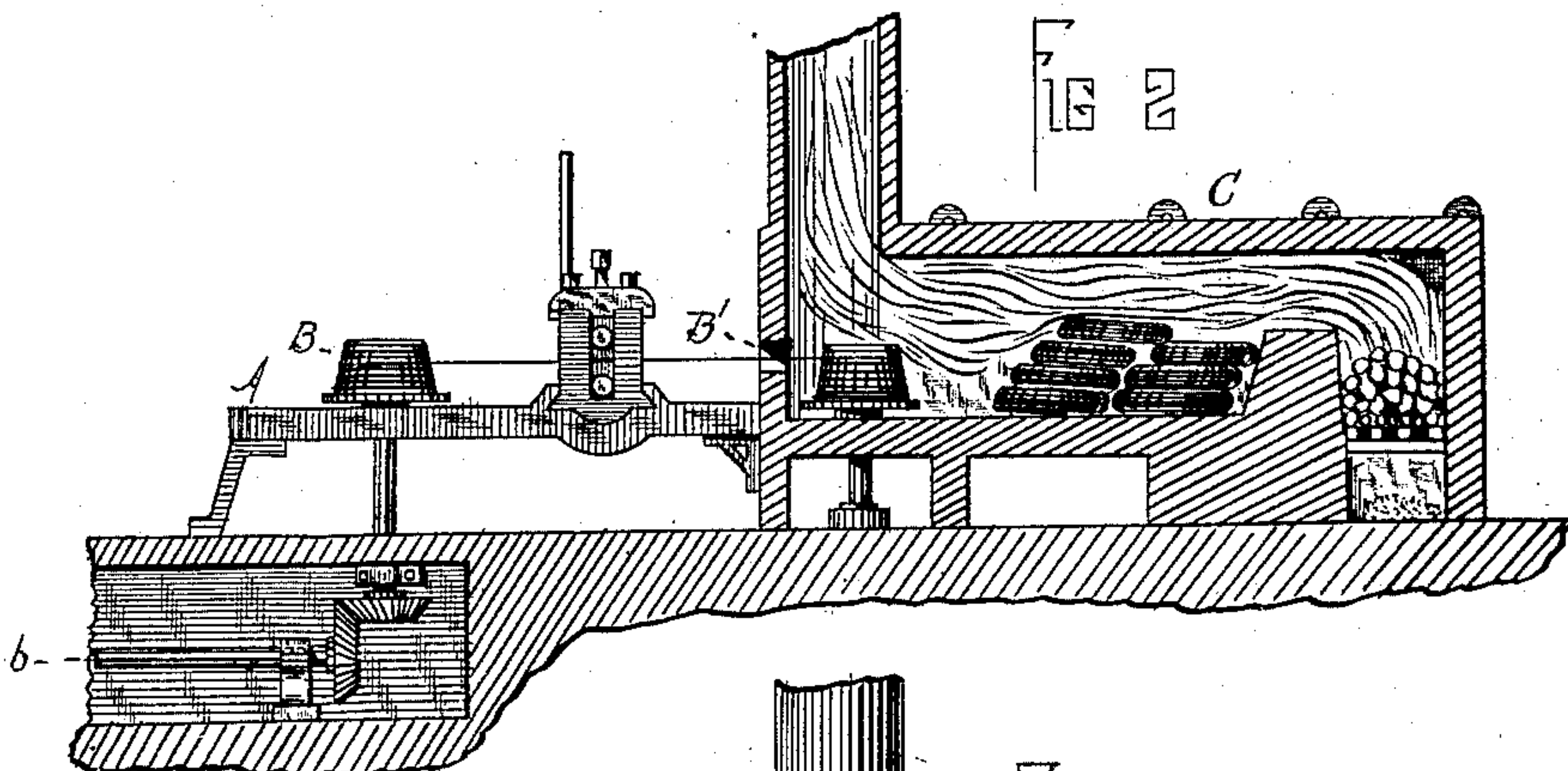
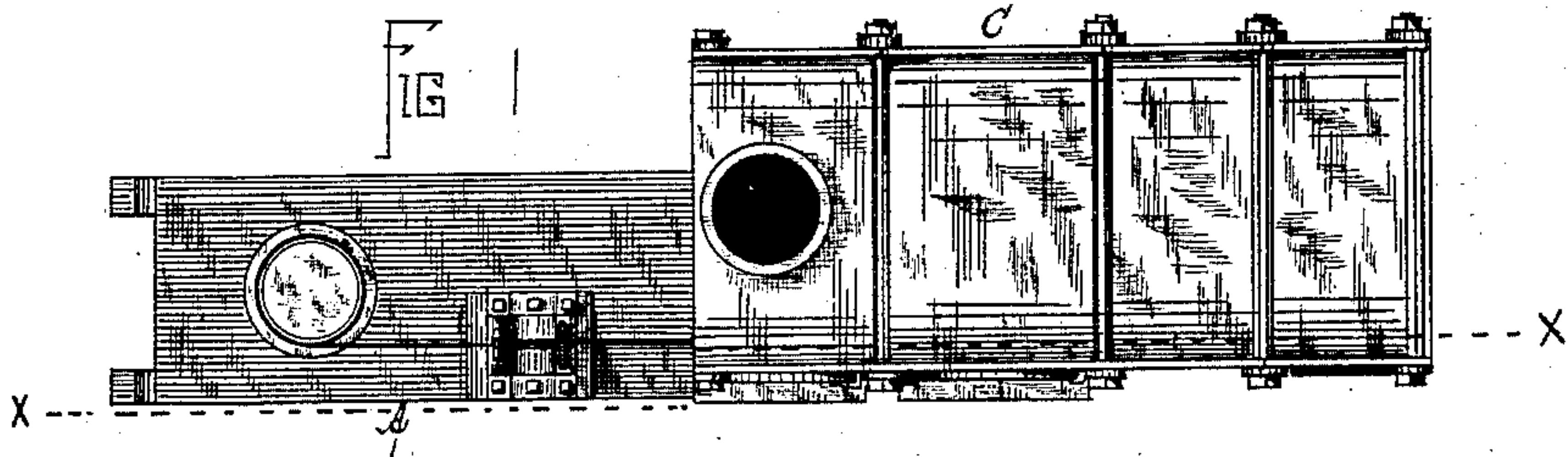


FIG 4

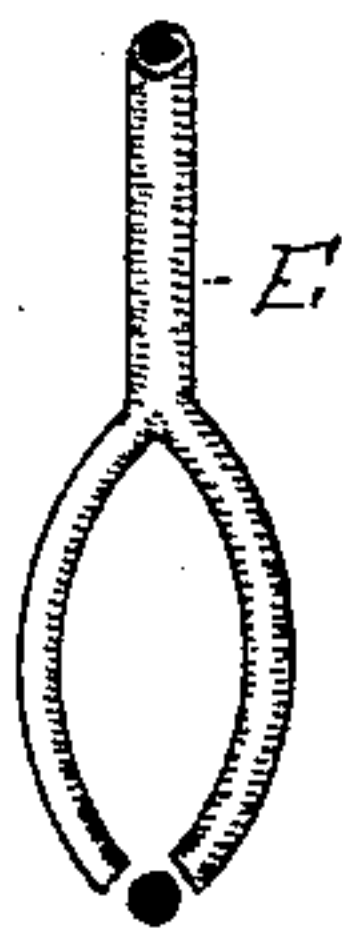


FIG 5



FIG 6

WITNESSES

Halter Reese,
Frank McRee.

INVENTOR

Jacob Reese

UNITED STATES PATENT OFFICE.

JACOB REESE, OF PITTSBURG, PENNSYLVANIA.

APPARATUS FOR REDUCING METAL RODS OR WIRE.

SPECIFICATION forming part of Letters Patent No. 338,362, dated March 23, 1886.

Application filed March 17, 1884. Serial No. 124,450. (No model.)

To all whom it may concern:

Be it known that I, JACOB REESE, a citizen of the United States, and a resident of Pittsburg, in the county of Allegheny and State of Pennsylvania, have invented a certain new and useful Improvement in a Plant for Reducing Metals; and I do hereby declare the following to be a full, clear, and exact description thereof, reference being had to the accompanying drawings, in which—

Figure 1 indicates a plan view of an improved apparatus for reducing metals. Fig. 2 indicates a longitudinal vertical sectional view of the same, taken through at the lines $x x$ shown in Fig. 1. Fig. 3 indicates a side elevation of the same. Fig. 4 indicates a front elevation of a set of roll-standards in which a set of rolls and a guide-box are mounted. Fig. 5 indicates a plan view of the same. Fig. 6 indicates a front view of a section of a bifurcated water-pipe in position over the rod or wire, to allow the cooling medium to flow down upon and cool the same.

Like letters of reference refer to like parts wherever they occur.

My invention relates to a new and useful plant for reducing metallic rods, blanks, or wires, which consists in drawing the metal by tension through a set of rolls.

The principal objects of the invention are to secure a rapid reduction of the metal, and to secure economy and durability in the operation and construction of the drawing mechanism.

I shall now proceed to describe the construction and operation of mechanism adapted to the use of my invention, so that others skilled in the art may make and use the same.

In the drawings, A indicates the frame which supports the drawing mechanism.

B indicates the drawing spool or pulley, which is mounted on the upper end of a vertical spindle provided at its lower end with a beveled gear-wheel, which meshes into and receives motion from a similar beveled gear-wheel mounted on one end of the horizontal main driving-shaft b .

B' indicates the delivering-spool, which is mounted on the upper end of a vertical shaft journaled in the forward part of the furnace C in such a manner as to allow its ready ro-

tation by the tension produced on the metal by the rotary movement of the receiving or drawing spool.

D D indicate a set of roll-housings, open at the top to admit the insertion and withdrawal of a set of rolls, and provided with cap-pieces $d d$, which are secured and held in position by the cap-bolts $d' d'$.

$d'' d''$ indicate the tightening-screws, which work in threaded-boxes in the cap-pieces and project down into the top journal-boxes of the upper roll, in order to regulate the pressure of the same upon the metal during the drawing operation. These standards are provided with a guide-box immediately in front of the rolls, to hold the metal up and enter it properly into the groove of the rolls.

E indicates a section of a bifurcated pipe, which extends down at the rear of the housings to convey water or other cooling medium onto the metal directly after it has passed through the rolls, the idea being to cool the metal after its passage, so that the tension upon it will be incapable of reducing its cross-sectional area, except at the instant it passes from the rolls to the cooling medium.

The operation of the improvement is as follows: Coils of rods or wire pointed in the usual manner are placed in the furnace and properly heated. One of the coils is then placed on the delivering-spool, and the pointed end of the coil is drawn forward through an aperture in the front of the furnace, then through the guide-box and groove of the rolls, and is attached to the drawing-spool in the usual manner. The mechanism now being in condition for operating, power is applied to the main driving-shaft, rotating the same and imparting a rotary movement through the medium of its gearing to the drawing-pulley. This movement of the drawing-pulley pulls the wire forward through the groove of the rolls and imparts a rotary movement to the latter, and also causes the metal to unwind from and rotate the delivering-spool. At the moment the wire commences to draw forward, jets of water or the cooling medium are permitted to flow down through the bifurcated pipe onto the metal as the latter passes from the rolls to the drawing-pulley. This operation is continued until all the metal is drawn through the rolls

and wound up upon the receiving-spool, when another coil is operated upon in a similar manner.

When it is desired to reduce the metal cold, the furnace, the heating, and the use of the cooling-jets are dispensed with, and the metal is drawn from the delivering to the receiving spool in a similar manner.

It will be observed that my mode of reduction differs from the ordinary mode of rolling in that the metal is drawn by tension through the rolling-surfaces.

Heretofore wire rods have not been rolled down below No. 5 gage. One of the reasons why such has been the case is, the size of the rolls should be decreased in proportion to the decreased size of the metal to be rolled, and the difficulty in gearing up the rolls to run at the required rate of speed increases in proportion to the reduction of the size of the gearing which must be employed. Consequently the rolls and their gearing could not be reduced sufficiently in size and rotated at the extremely-high rates of speed demanded for successful operation upon smaller gages; but in the use of my invention, where I dispense with roll-gearing and draw the metal through the rolls by a direct tensile pull, none of these difficulties exist, and the rolls may be decreased to any size desired, and the metal may be

drawn at a high rate of velocity through the groove. Another difficulty is, ordinary rolls frequently slip over the metal and do not draw into the groove when a heavy draft is made upon the metal; but in this invention the amount of draft is only limited by the breaking strength of the metal.

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

1. In a plant for reducing metals, the combination, with delivering and receiving spools, of an intermediate set of reduction-rolls revolved solely by the moving wire, substantially as set forth.

2. In a plant for reducing metals, the combination, with delivering and receiving spools, of an intermediate set of reduction-rolls revolved solely by the moving wire, and a roll guide-box located between the delivering and receiving spools, substantially as set forth.

3. In a plant for reducing metals, the combination, with a set of reducing-rolls, of a pipe for conveying a cooling agent to the heated metal after its passage from the rolls, substantially as set forth.

JACOB REESE.

Witnesses:

FRANK M. REESE,
WALTER REESE.