

(No Model.)

E. M. FERGUSON.
APPARATUS FOR SHAPING METALS.

No. 570,010.

Patented Oct. 27, 1896.

Fig. 1.

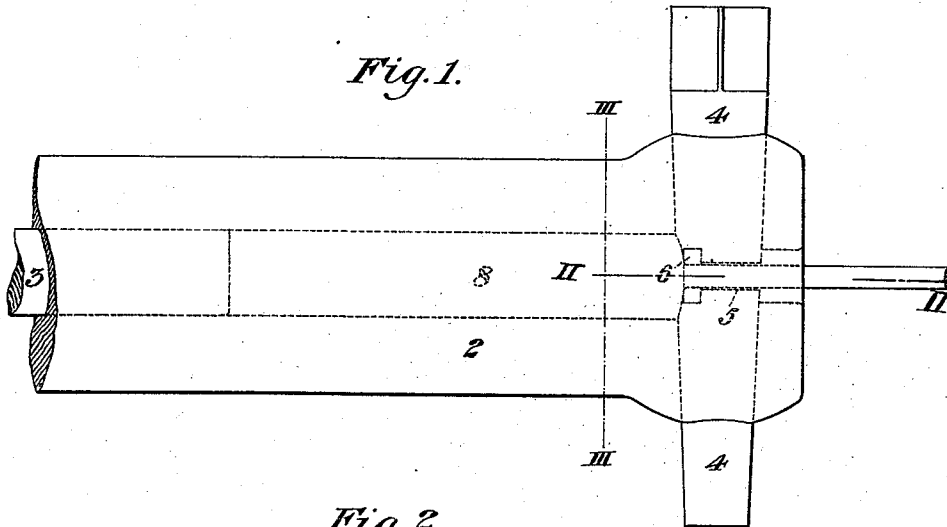


Fig. 2.

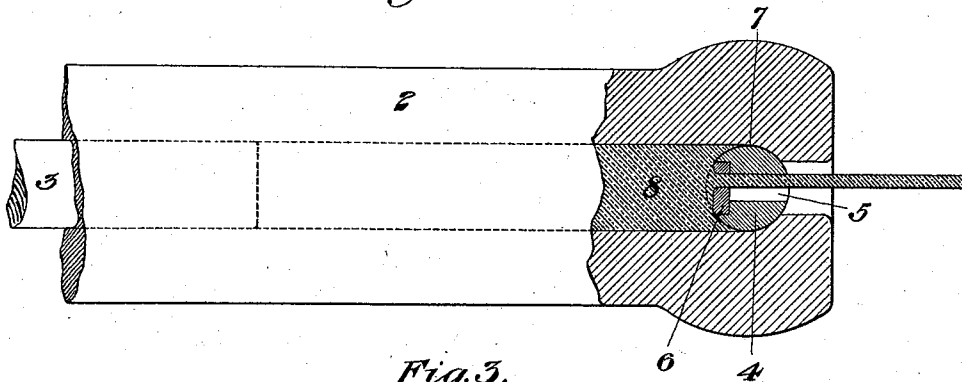


Fig. 3.

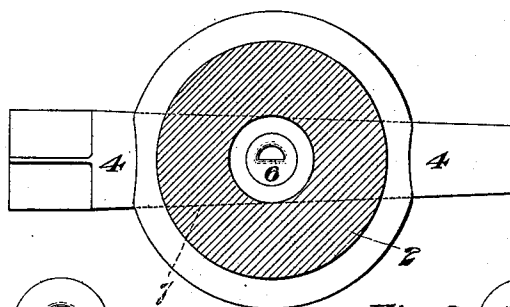


Fig. 4.



Fig. 6.

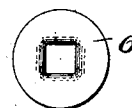


Fig. 5.

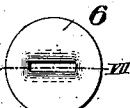


Fig. 7.



WITNESSES

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UNITED STATES PATENT OFFICE.

EDMUND M. FERGUSON, OF PITTSBURG, PENNSYLVANIA.

APPARATUS FOR SHAPING METALS.

SPECIFICATION forming part of Letters Patent No. 570,010, dated October 27, 1896.

Application filed April 7, 1896. Serial No. 586,542. (No model.)

To all whom it may concern:

Be it known that I, EDMUND M. FERGUSON, of Pittsburg, in the county of Allegheny and State of Pennsylvania, have invented a new and useful Improvement in Apparatus for Shaping Metals, of which the following is a full, clear, and exact description, reference being had to the accompanying drawings, in which—

10 Figure 1 shows my improved apparatus in plan view. Fig. 2 is a vertical section on the line II II of Fig. 1. Fig. 3 is a vertical cross-section on the line III III of Fig. 1. Figs. 4, 5, and 6 are views of dies, and Fig. 7 is a vertical section on the line VII VII of Fig. 5.

15 The object of my invention is to provide means whereby such metal as aluminium and its alloys can be formed into bars, rods, &c., by ejection through dies whose cavity is of the cross-sectional shape desired.

20 By use of the apparatus which I have invented I am enabled to hold the dies in place rigidly and to overcome many difficulties which heretofore have proved fatal to the obtaining of satisfactory results.

25 In the drawings, 2 represents a cylinder adapted to contain the metal which by pressure is to be forced through a die and to be shaped thereby. 3 is a plunger which works in said cylinder and is actuated by a powerful motor, such as a hydraulic motor or the like. At the delivery end of the cylinder is a transverse hole 7, intersecting the bore of the cylinder and of tapering form, adapted to receive a tapering plug or block 4 of corresponding shape. This plug or block 4 has a transverse hole 5, adapted to receive on one side thereof a hollow die 6, whose cavity is of the shape desired to be given to the metal, round in cross-section, if a round rod or bar is desired, or square, angular, or irregular, according to the cross-section of the product.

30 In use of the apparatus the die 6 is seated in the hole 5, and the plug 4 is driven into the transverse hole 7 at the end of the cylinder, so that the die shall be within the bore of the cylinder and on the inner side of the plug. An ingot of aluminium 8, suitably heated, is then placed in the cylinder and is subjected to powerful compression by means

of the plunger 2. The effect of such compression is to cause the aluminium to flow through the die and to emerge therefrom in the form of a rod or bar having the same cross-sectional shape as the die. This operation can be continued until all of the metal in the cylinder has been ejected, and then a second ingot may be inserted and the operation continued as before. By means of the plug the die is held in the cylinder rigidly and a perfect rod is produced. The die can be changed at any time by knocking out the plug from its hole and then inserting another die.

By my improved apparatus I have been enabled to produce perfect bars of aluminium, of round, flat, and I-shaped section, which for many purposes are better than those produced by rolling, since they are softer and do not require annealing.

70 If desired, the metal to be treated may be heated or maintained in heated condition in the cylinder by application of external heat.

Within the scope of my invention as defined in the claims modifications may be made by the skilled mechanic, since

What I claim is—

1. In apparatus for shaping metals by pressure, the combination with a cylinder for containing the metal, of a plunger for applying pressure thereto, a removable plug passing transversely through the cylinder across the bore thereof, and a separate die carried by the plug and registering with the cavity of the cylinder, substantially as described.

2. In apparatus for shaping metals by pressure, the combination of a cylinder for containing the metal, a plunger for applying pressure thereto, and a plug seated transversely in the cylinder and carrying a die, said plug being tapering and being fitted in a transverse tapering hole in the cylinder; substantially as described.

In testimony whereof I have hereunto set my hand.

EDMUND M. FERGUSON.

Witnesses:

THOMAS W. BAKEWELL,
C. E. MACKORON.