

(Model.)

S. UREN.

Apparatus for Converting Scrap into Bar Steel.

No. 231,693.

Patented Aug. 31, 1880.

Fig. 1

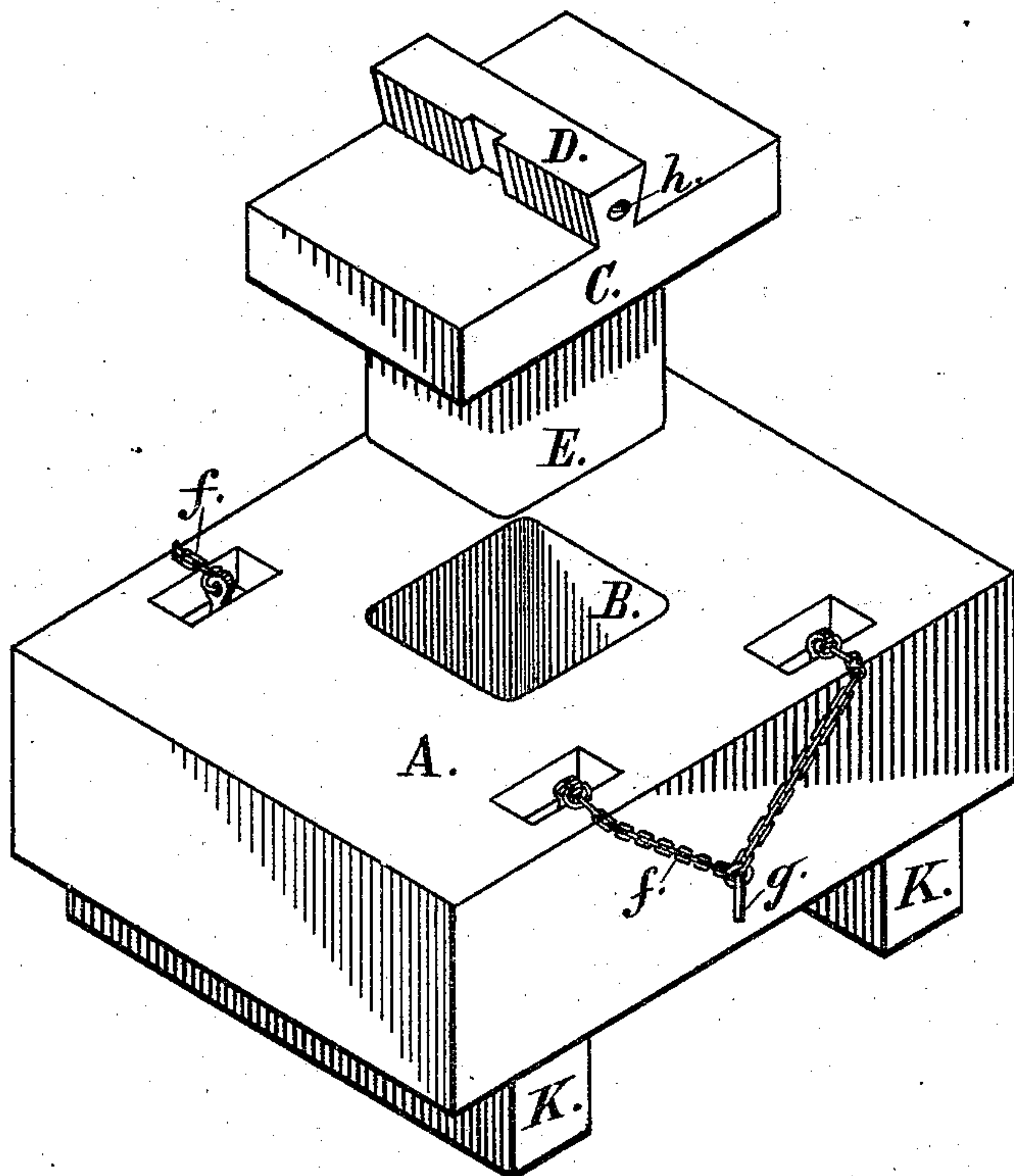
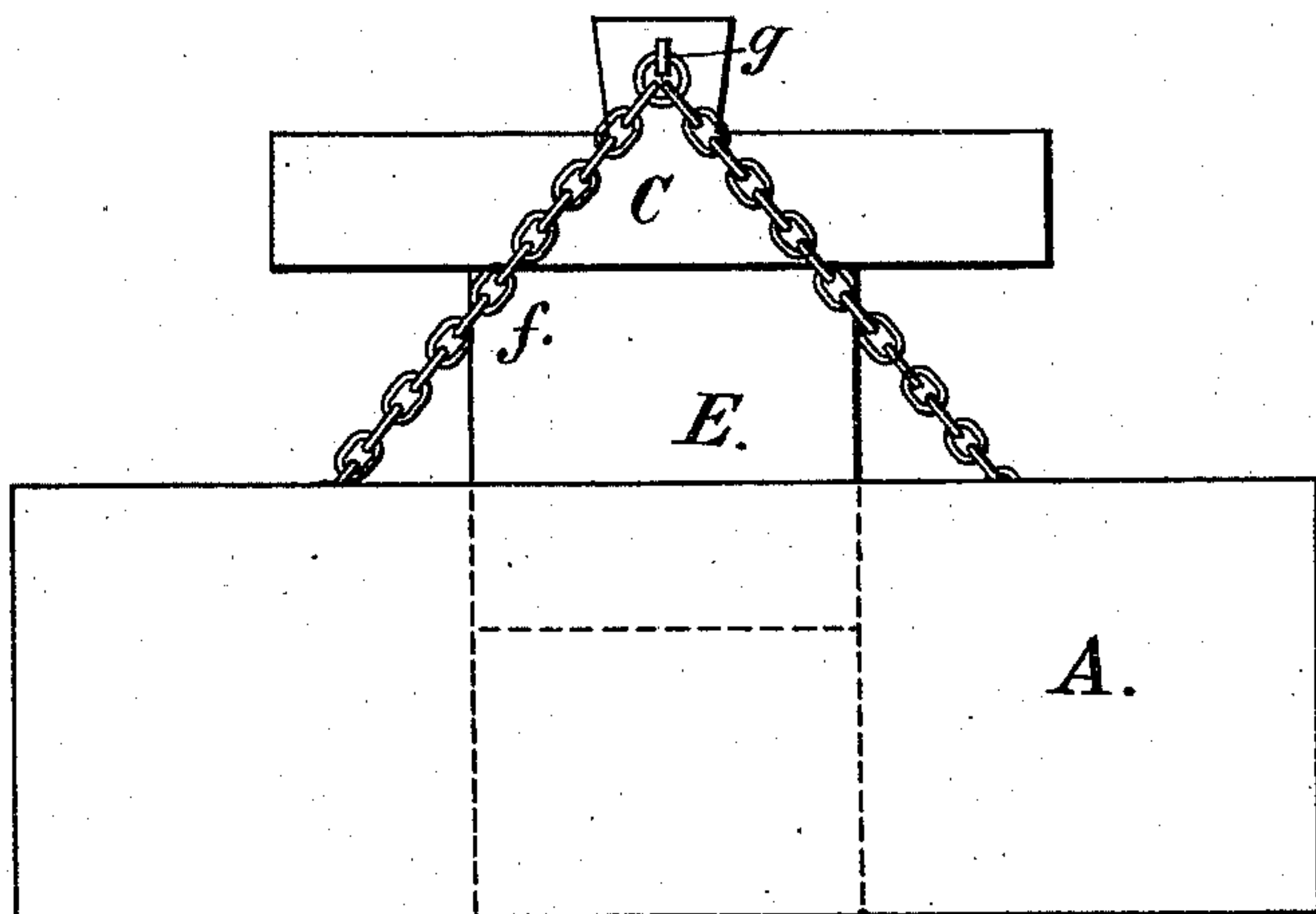


Fig. 2



Witnesses
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UNITED STATES PATENT OFFICE.

STEPHEN UREN, OF SACRAMENTO, CALIFORNIA.

APPARATUS FOR CONVERTING SCRAP INTO BAR STEEL.

SPECIFICATION forming part of Letters Patent No. 231,693, dated August 31, 1880.

Application filed June 25, 1880. (Model.)

To all whom it may concern:

Be it known that I, STEPHEN UREN, of the city and county of Sacramento, in the State of California, have invented an Improved Apparatus for Converting Scrap and Burned Steel into Homogeneous Bar-Steel; and I do hereby declare that the following is a full, clear, and exact description thereof, reference being had to the accompanying drawings.

My invention contemplates certain improvements in machines for the manufacture of steel; and it consists of a block with a hole or cavity through it and provided with chains having keys, combined with a hammer having a plunger with holes to receive the aforesaid keys, substantially as hereinafter more fully set forth.

Referring to the accompanying drawings, Figure 1 is a perspective view of my improved apparatus, and Fig. 2 represents a front elevation of the same.

Let A represent a block of metal, in the center of which a hole or cavity, B, is made, which passes entirely through the block. This hole or cavity forms the mold or matrix in which the heated scrap is condensed and welded into a bar or ingot. The block is arranged to be placed upon the anvil of a drop-hammer and fixed in the proper position, as hereinafter described.

C is a hammer, which is provided with a dovetail rib, D, so that it can be secured to the lower end of the drop hammer or weight in place of the ordinary hammer-face. This hammer has a plunger, E, extending downward from it, which is of the proper size to enter the hole or cavity in the block A.

The block A is secured upon the anvil so that when the hammer or weight falls the plunger will enter the hole or cavity. These parts having been thus arranged, so as to be ready for the subsequent operation, I take the pieces or scraps of old waste steel or burned steel and pile them in a furnace in a fagot or bundle of such a size that the whole pile or bundle will enter the hole or cavity in the block A. I then heat the pile until the scraps are near the point of fusion, so that they stick together. I then remove the pile from the furnace and drop it into the hole or cavity in the

block A, and by several drops of the hammer I condense and weld the pieces or scraps into a homogeneous bar, block, or ingot corresponding in length and width with the interior dimensions of the hole or cavity.

To each side of the block A, I secure a chain, *f*, by attaching one end of the chain to the block near each end. To the middle of each chain I attach a plug or key, *g*, which can be inserted into a corresponding hole, *h*, in the hammer-head, and thus connect the two together, so that when the hammer is raised it lifts the block A with it.

The heated metal having been condensed sufficiently by the hammer or plunger, I connect the block and hammer-head by means of the chains and key, as above specified, and lift it high enough to admit of bars or wooden blocks K being placed under each end of the block A, as shown at Fig. 1. Block A is then lowered so that its ends will rest upon the blocks or bars K, after which I disconnect the key from the hammer-head so as to free the hammer. The hammer is then allowed to descend upon the bar or ingot in the matrix, so that the plunger acts as a punch to force the bar out through the lower end of the hole or cavity. The ingot is then ready to be drawn into bars.

This process enables me to produce a homogeneous steel bar or ingot out of worthless scraps of steel.

Any convenient device can be used for temporarily connecting the block and hammer for lifting the hammer above the anvil to admit of the bars being placed under its ends.

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

The block A, having the hole or cavity B, chains *f*, and plugs or keys *g*, in combination with the hammer C, having the plunger E and holes *h*, substantially as and for the purpose set forth.

In witness whereof I have hereunto set my hand and seal.

STEPHEN UREN. [L. S.]

Witnesses:

ABRAHAM B. VENABLE,
A. C. SWEETSER.