

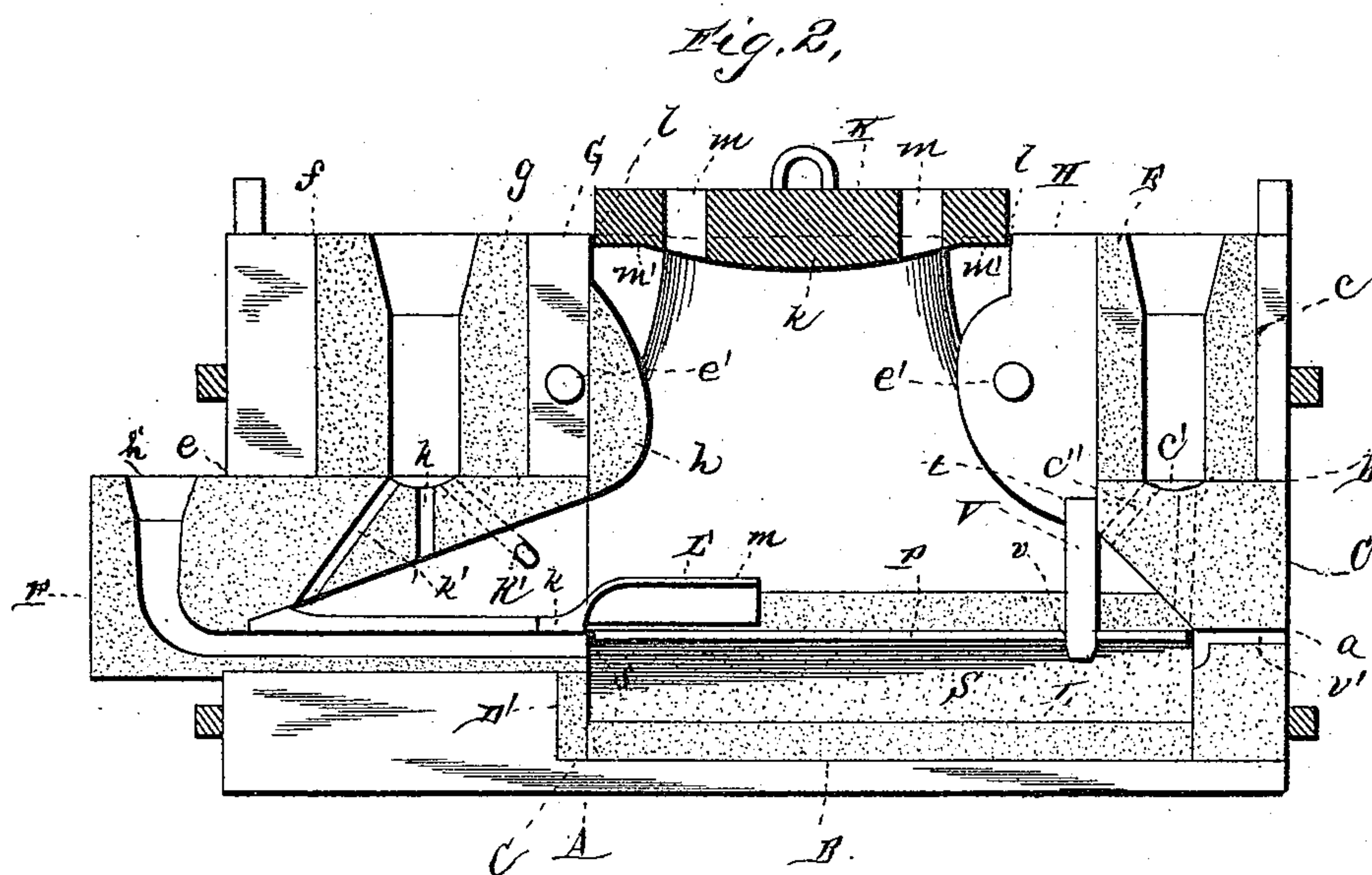
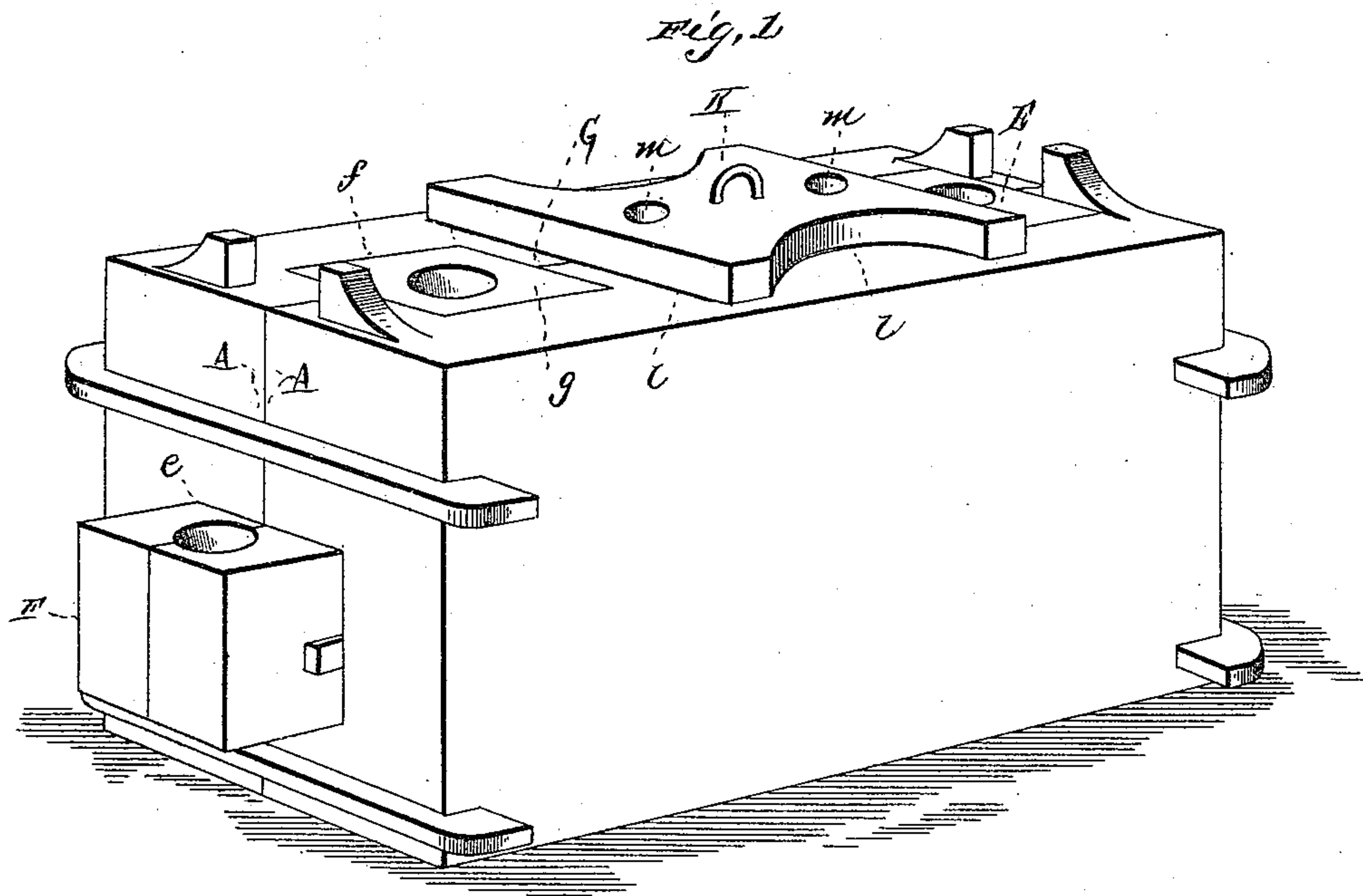
(No Model.)

2 Sheets—Sheet 1.

T. W. VARE.
ANVIL MOLD.

No. 441,080.

Patented Nov. 18, 1890.



Witnesses
Charles Taylor
Phillips.

Inventor
J. W. Ware
by E. W. Anderson
his Attorney

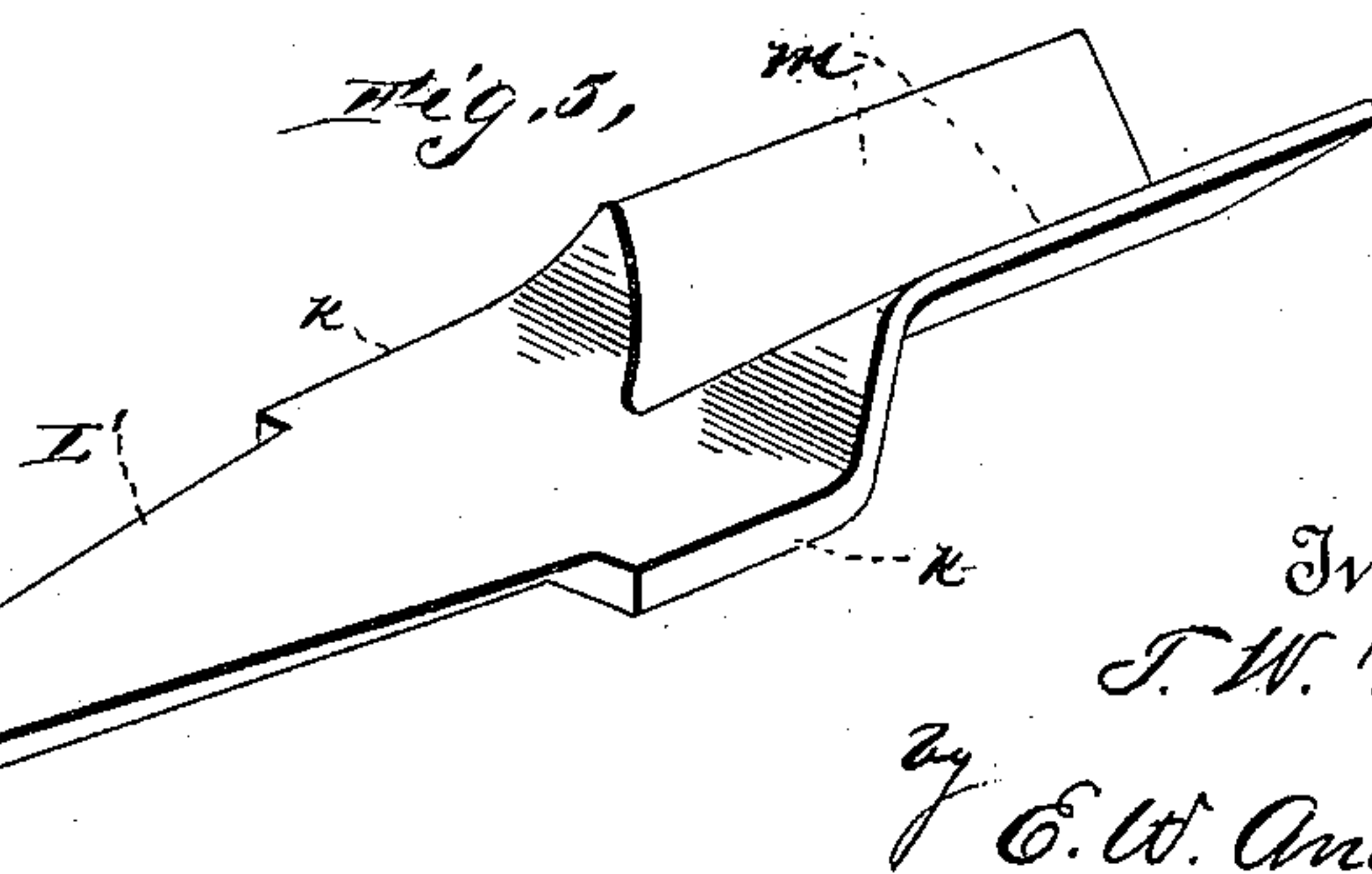
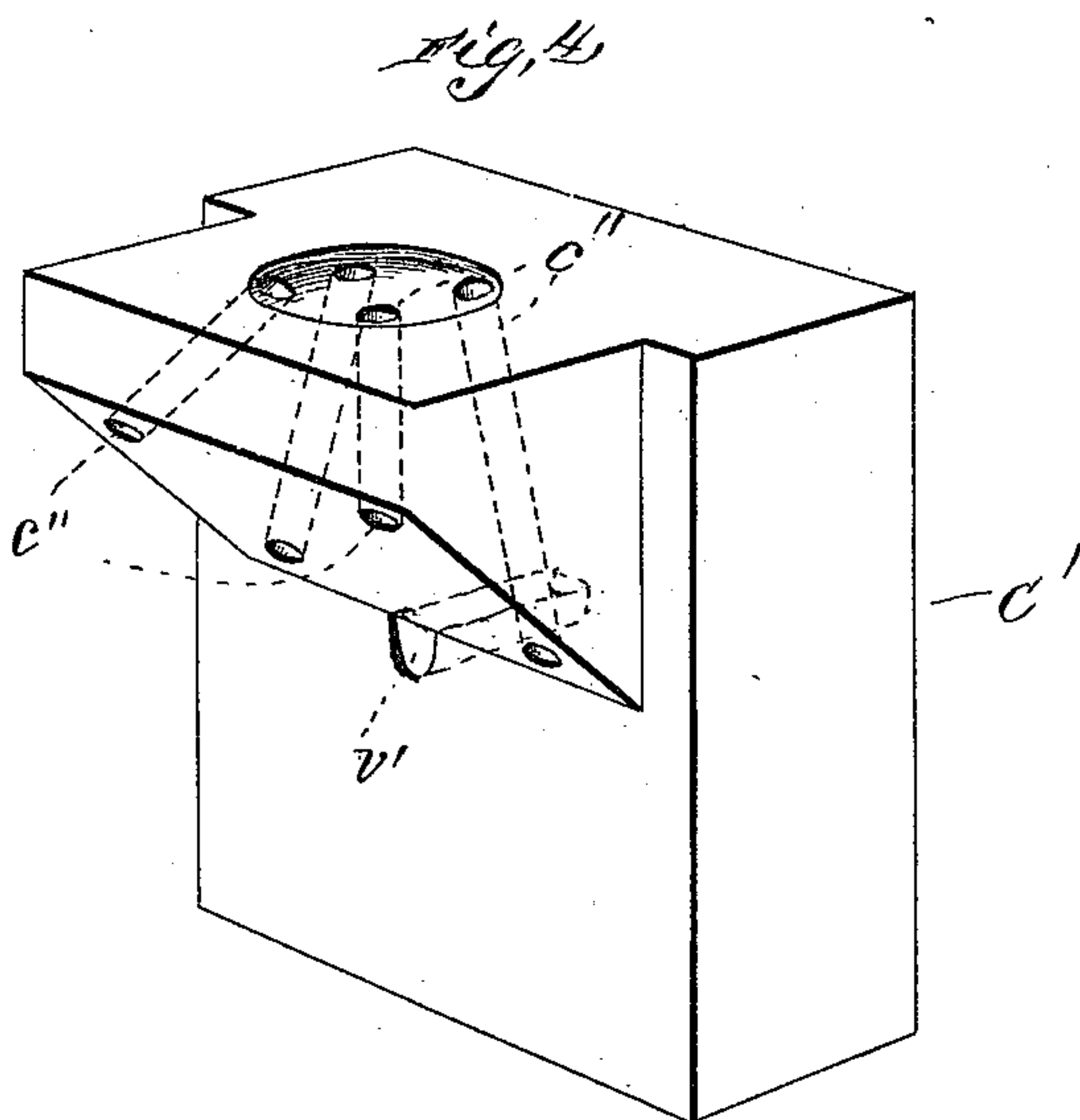
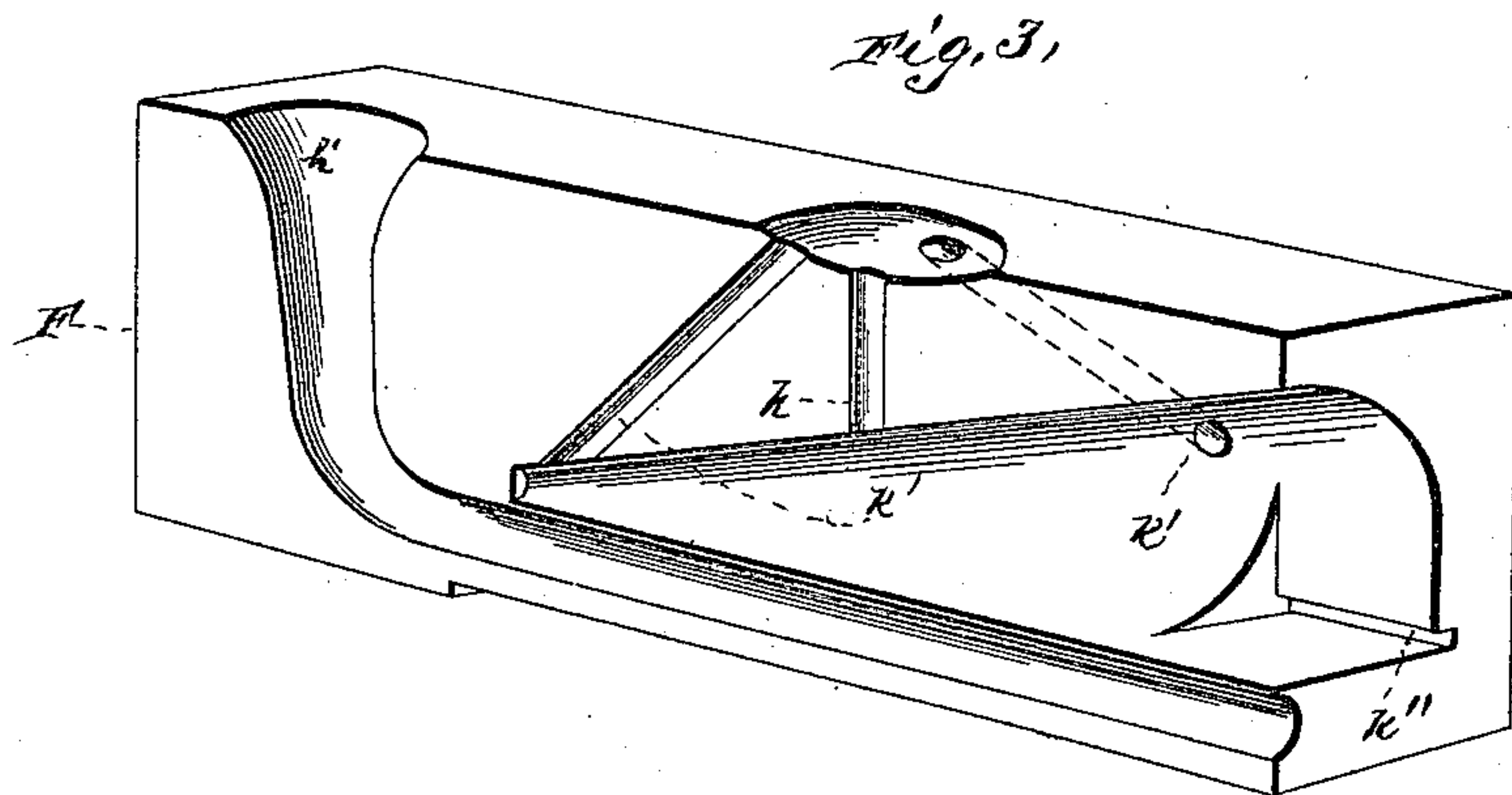
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Witnesses
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Inventor
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UNITED STATES PATENT OFFICE.

THOMAS W. VARE, OF TRENTON, NEW JERSEY.

ANVIL-MOLD.

SPECIFICATION forming part of Letters Patent No. 441,080, dated November 18, 1890.

Application filed September 6, 1890. Serial No. 364,124. (No model.)

To all whom it may concern:

Be it known that I, THOMAS W. VARE, a citizen of the United States, and a resident of Trenton, in the county of Mercer and State of New Jersey, have invented certain new and useful Improvements in Anvil-Molds; and I do declare the following to be a full, clear, and exact description of the invention, such as will enable others skilled in the art to which it appertains to make and use the same, reference being had to the accompanying drawings, and to letters of reference marked thereon, which form a part of this specification.

Figure 1 of the drawings is a perspective view. Fig. 2 is a vertical longitudinal section, and Figs. 3, 4, and 5 are detail views.

This invention relates to improvements in metallic anvil-molds designed to form an iron anvil with steel face-plates welded thereto; and it consists in the construction and novel combination of devices designed to simplify the construction of the mold and increase its efficiency, all as hereinafter set forth.

In the accompanying drawings, illustrating this invention, I have shown a sectional metallic mold, the sections being laterally applied to each other, as indicated at A A. The sections are similar, each being usually rectangular in exterior shape and being recessed in its inner wall to provide those portions of the matrix which form the walls of the pedestal portion of the anvil and to provide the seats for the gate-pieces. Each section therefore is formed with a longitudinal bottom recess B, having its floor C formed with a front abutment D'. This recess opens in rear at a, providing a gate-seat b for a distributing-gate or heel-forming piece C', said gate-seat communicating above with a gate-seat c for the pouring-gate E, the opening or throat c' of which is quite large enough to span the small openings c'' in the top of the distributing-gate C''. The gate-pieces and heel-forming piece are made of destructible material. In front each metallic mold-section is provided with a gate-seat e for the destructible horn-mold section F, and above said gate-seat e is the seat f for the destructible pouring-gate g. The gate-seat c is separated from the pedestal-matrix by means of the partition G, which is provided with the swell or convex face-piece h, which is made of sand composition.

The gate-seat c is separated from the rear portion of the pedestal-matrix by means of the partition H, which also has an interior convex face, which, however, need not be of sand composition. The partitions G and H are usually provided with guide pins or studs e' on one section, said guide pins or studs being designed to engage recesses or seats in the other section, in order that the sections shall be brought together in true relation to each other.

The top of the pedestal-matrix, which is reversed in position, as shown in the drawings, is open, in order to receive the bottom mold-piece K, which is formed with a convex portion k, surrounded by a plain marginal surface l. Air-vents at m are made through the bottom mold-piece, as shown, and in order to further insure the escape of air the bottom mold-piece is loosely placed upon the top opening of the mold, resting thereon by its shoulders m' m'. In the bottom recess is placed the destructible lining L for the heating-chamber S under the face-plate P. This lining may be made in two pieces—one to each section—and it has near its upper edge a groove adapted to provide a seat for the edge of said face-plate to keep it in proper position to form temporarily the top of the heating-chamber. The lining forms the sides and front of the heating-chamber, and it is let into the receiving-recesses of the mold-body flush with the matrix-wall, as indicated. This lining in front abuts against the front abutment D', projecting, however, above its level, as shown, to form the lateral matrix-walls along the welding line.

Upon the abutment D', between the partition G and the abutment, is placed the detachable and destructible horn-mold section F, which is provided with the pouring-gates h, k', and k'', leading from and communicating with the lower end of the sprue of gate g. Said section F also has the sprue h' near its outer or forward end. The gate h' carries the molten iron directly into the heating-chamber until it is filled; also, the upper portion of the gate-channel within the mold being open, the metal poured therein assists in heating the horn-plate L'. The horn-plate is provided with the lateral wings k, which enter grooves k'' in the horn-mold sections.

It is also provided with the angular holding-flange *m*, which when the horn-piece is in position extends along above the face-plate *P* for a short distance, and is entirely embedded
 5 in the rim of the body of the anvil when the latter is molded, its angular form giving it a very strong anchorage. The gates *k'k'* are obliquely directed, one of them extending toward the horn-mold at its point, as at *b'*, and
 10 the other toward the middle portion of the same, as indicated.

The rear distributing gate-piece is provided with four pouring-channels, as indicated at *c'' c''*, these channels extending obliquely
 15 downward and outward, one set being directed toward the rear corner of the face-plate and the other set being directed obliquely along the top of the face-plate.

The square opening in the face-plate is indicated at *v*, and it is filled by the square core-pin *V*, which is held in position by the notches *t* in the lower part of the partition *H*, said core-pin forming the square opening through the rear portion of the anvil.

25 The operation is as follows: The sections being provided with the gate-pieces, the lining-sections and the core-pin are clamped together and the horn-piece and face-plate set in position, being held by the grooves provided therefor. The forward end of the face-plate
 30 abuts against the shoulders of the horn-plate. The melted iron being poured into the heating-chamber *S* through the gate *h'* fills said heating-chamber, the air from the
 35 latter escaping through the vent *v'* in the rear or closing gate-piece. The face-plate and horn-plate are brought to a high temperature by this molten metal, and are thereby prepared to form a weld-joint with the metal
 40 of the body of the anvil and of its horn, which is poured in through the proper gates of the gate-pieces in front and rear. As the welding surfaces, or surfaces adjacent to the parts to be welded of the matrix, are of destructible
 45 material, chilling at the weld is avoided. The removable bottom piece covering the opening in the top of the mold is not placed in position for welding until the heating-chamber is filled, as the opening is designed
 50 to serve to provide for inspection of the steel face-plates to determine their heated condition and when they are ready to receive the melted iron.

What I claim as my invention, and desire
 55 to secure by Letters Patent, is—

1. In a sectional iron anvil-mold, the combination, with the recessed sections, of the destructible lining-pieces forming the walls of the heating-chamber under the face-plate,
 60 said lining having the grooves for the face-plate and extending up to form the lateral matrix-walls along the welding line, substantially as specified.

2. In a sectional iron anvil-mold, the combination, with the recessed sections, of the destructible lining-pieces of the heating-

chamber, the heel-forming gate-piece *C'*, gate-pieces *g* and *E*, and horn-mold gate-section *F*, all of said sections being destructible, substantially as specified. 70

3. The sectional iron anvil-mold having its recessed lining-pieces of destructible composition and the destructible pouring-gates for the heel-section, the horn-mold section, and the heating-chamber, substantially as specified. 75

4. The sectional anvil-mold having the heating-chamber and the destructible lining therefor, the destructible sectional horn-mold section, said lining and horn-mold having grooves
 80 to receive the steel face and horn plates, respectively, the destructible heel-forming gate-piece, the pedestal-forming chamber having the convex destructible face, and the bottom-piece adapted to close an opening in
 85 the top of said mold and provide an air-vent, substantially as specified.

5. A metallic anvil-mold having destructible pouring-gates and destructible welding surfaces, in combination with the steel face-plate and horn-plate and the heating-chamber for said plates, substantially as specified. 90

6. The combination, with the metallic anvil-mold sections, the face-plate, and horn-plate, of the destructible horn-mold, the destructible grooved lining-pieces forming the heating-chamber below the face-plate, and the destructible pouring-gates, substantially as specified. 95

7. In an anvil-mold, the combination, with the pedestal-forming portion and the pouring-gates, of the destructible sectional horn-mold piece having the horn-forming chamber, the groove for the horn-plate, the obliquely-directed sprues, and the sprue communicating with the heating-chamber, substantially as specified. 100

8. In an anvil-mold, the combination, with the pedestal-forming portion and the pouring gates, of the destructible heel-forming gate-piece adapted to form the heel of the anvil and having therein the two series of sprues leading from and communicating with the sprue in the upper rear gate-piece, substantially as specified. 105

9. The metallic anvil-mold formed of the two lateral sections having the recesses for the pedestal portion of the anvil, the heel-forming section, the horn-mold section, and the heating-chamber, in combination with the destructible gate-pieces, horn-mold sections, and lining for the heating-chamber, said lining and horn-mold sections having grooves to receive the face and horn plates, substantially as specified. 110

In testimony whereof I affix my signature in presence of two witnesses. 115

THOMAS W. VARE.

Witnesses:

A. W. MAINS,

THOMAS H. HILL.