

(No Model.)

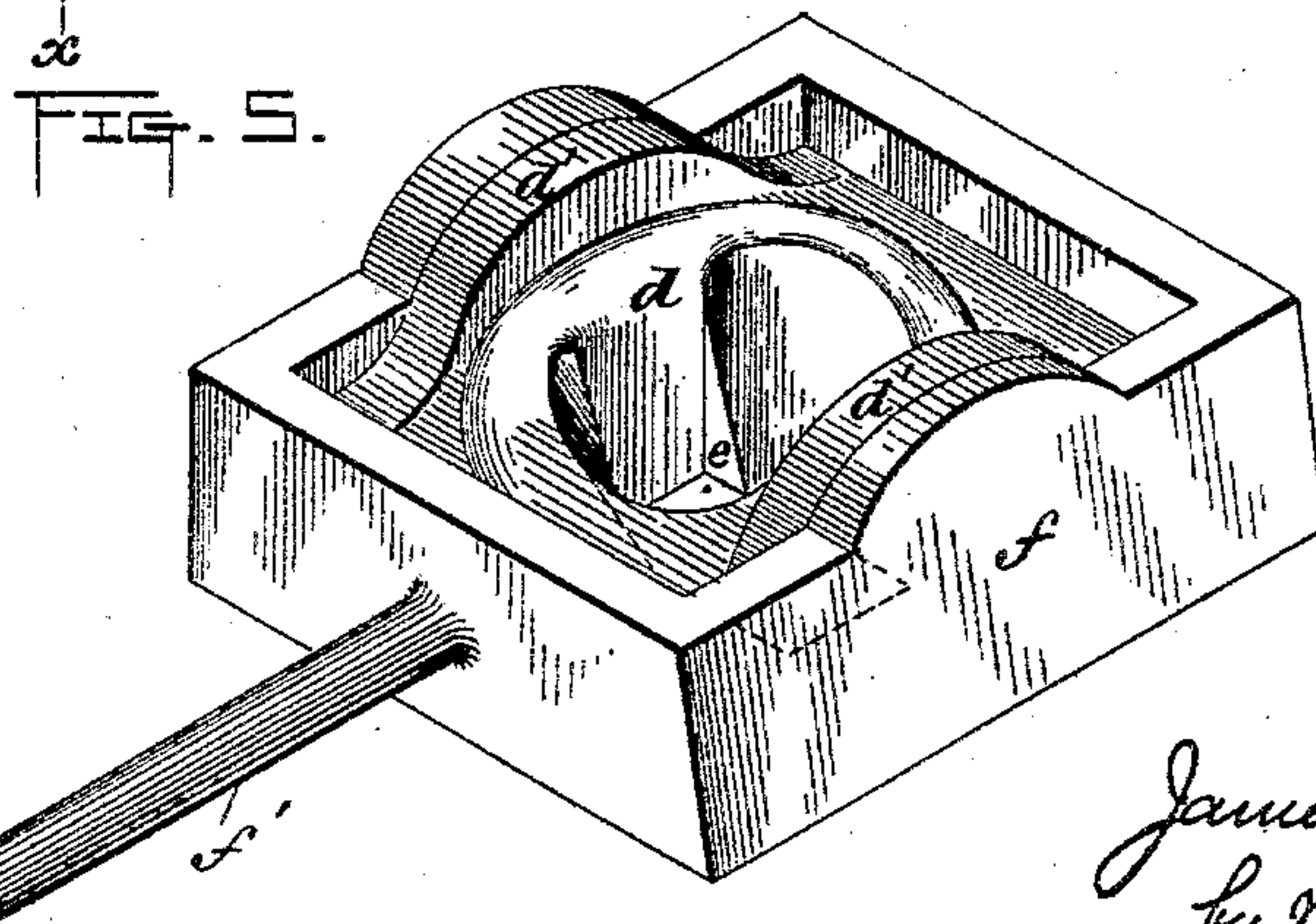
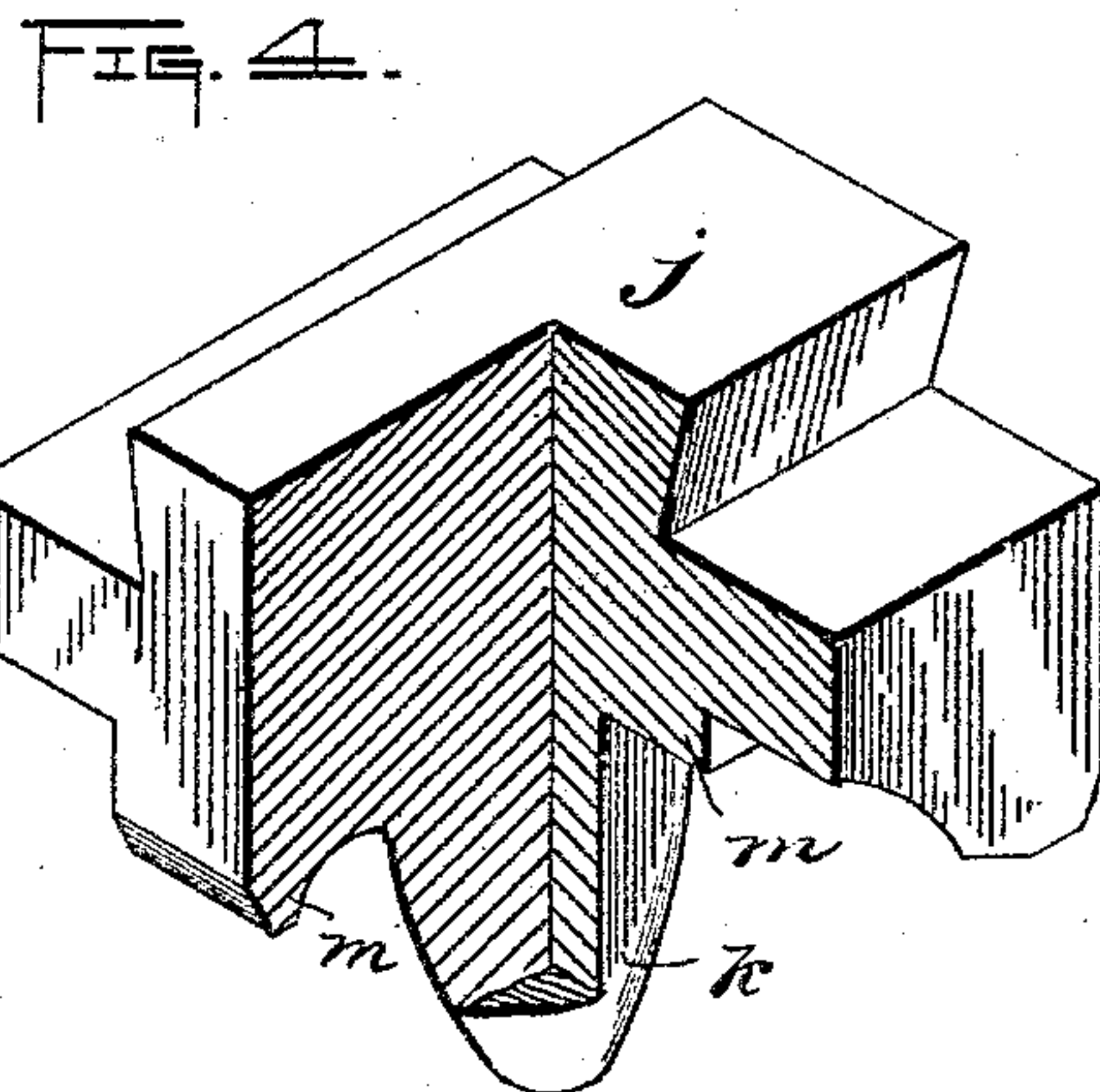
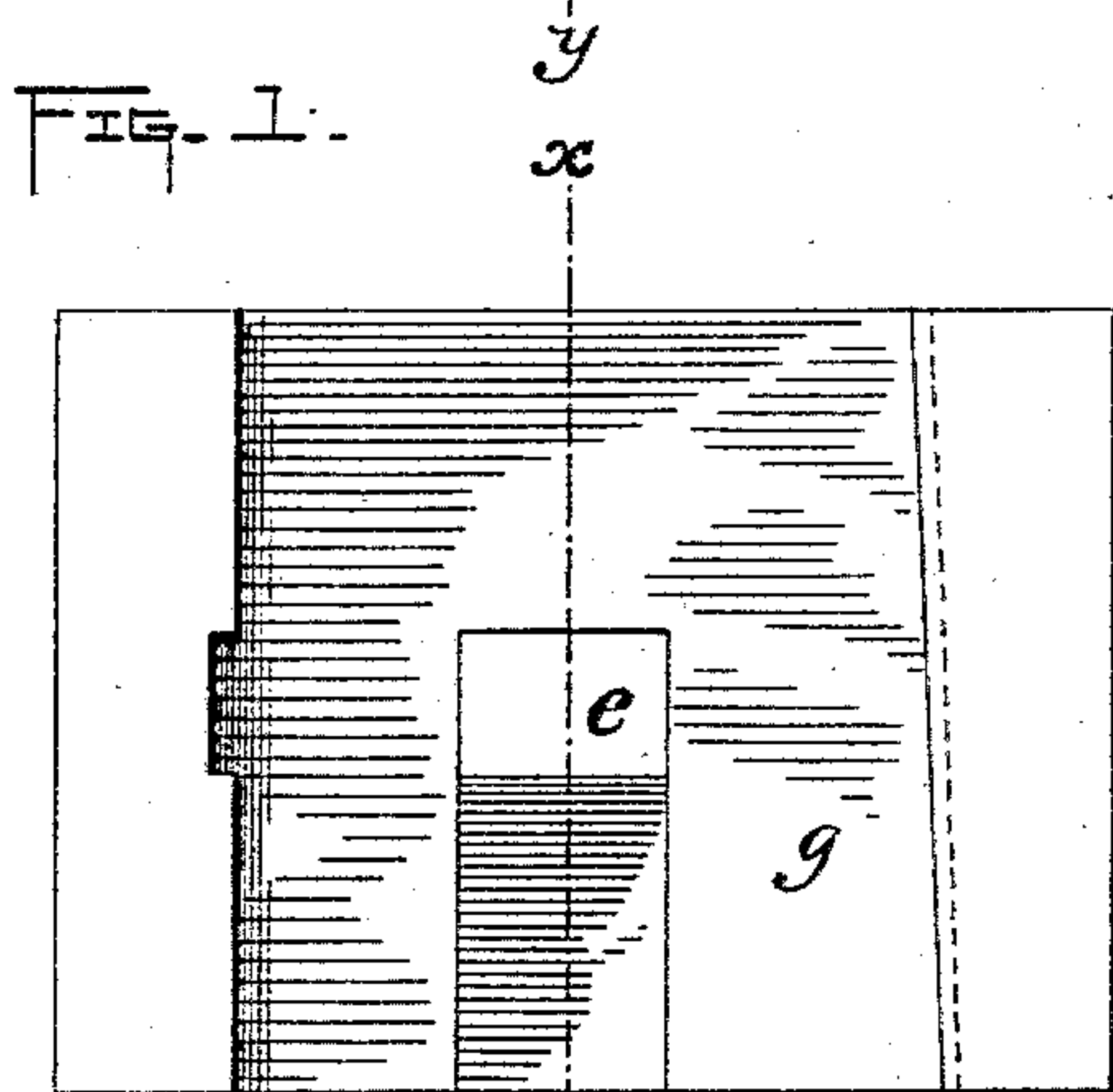
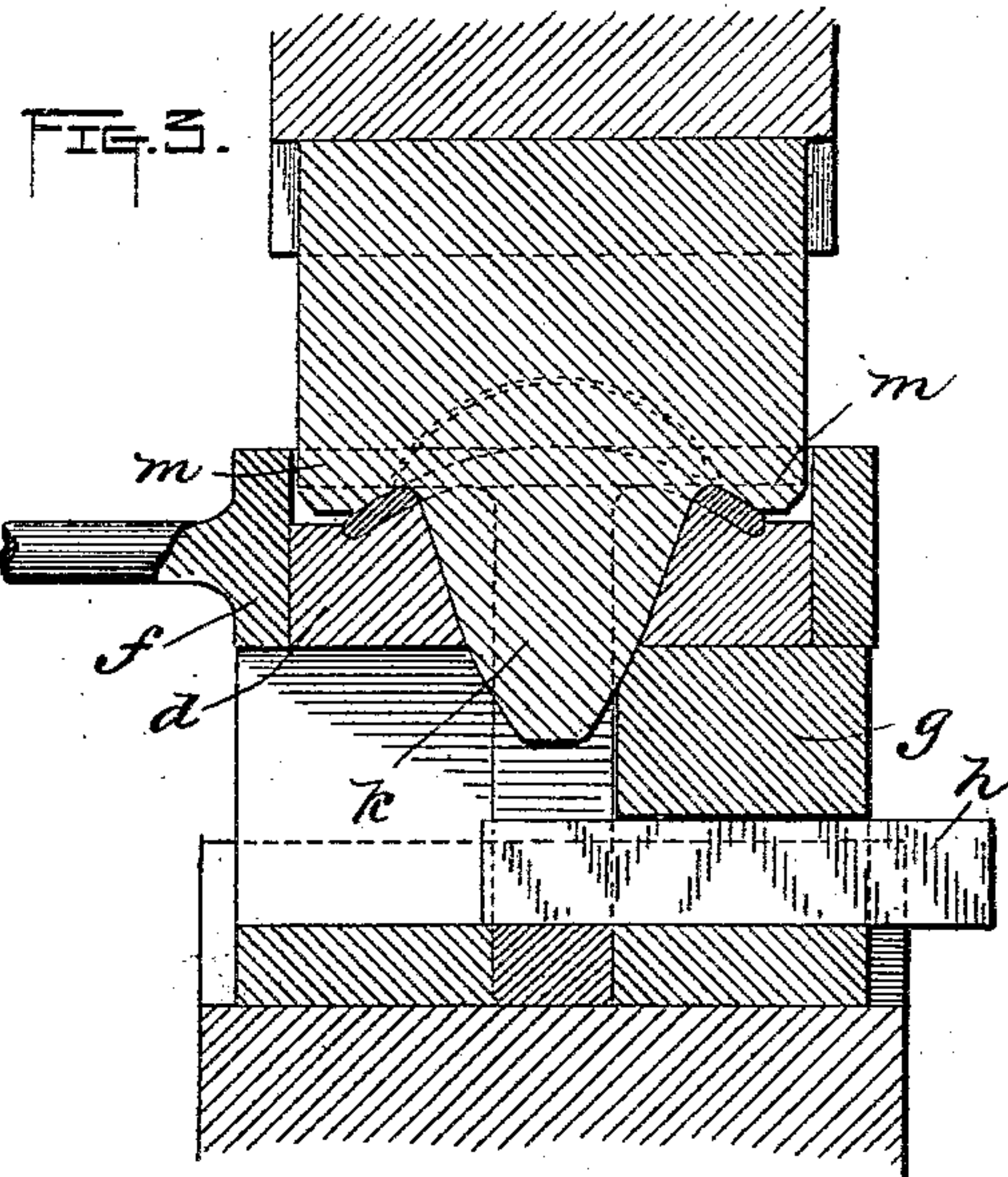
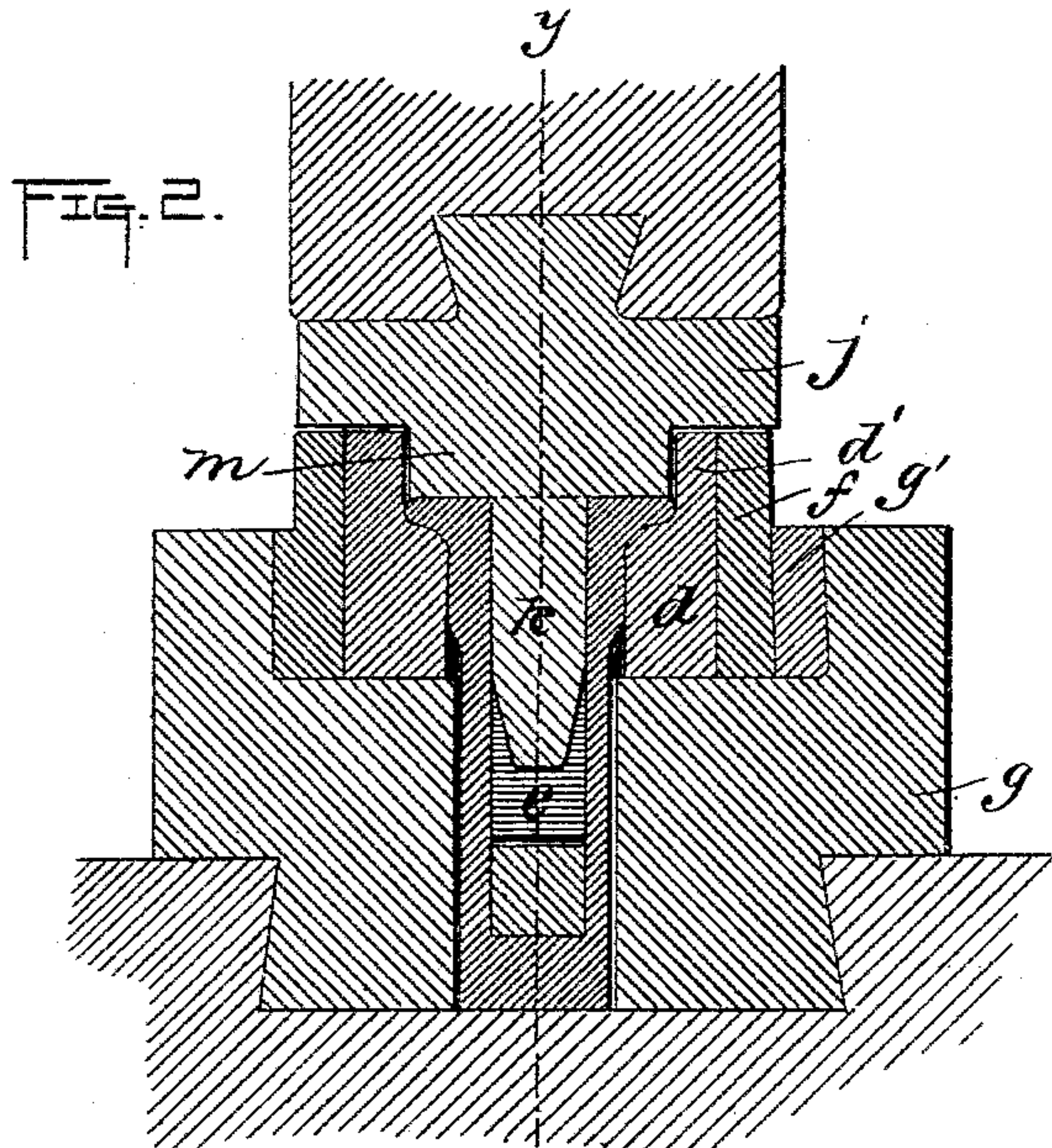
2 Sheets—Sheet 1.

J. H. SIMPSON.

MANUFACTURE OF DRAW BARS.

No. 369,264.

Patented Aug. 30, 1887.



Witnesses

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(No Model.)

2 Sheets—Sheet 2.

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FIG. 7.

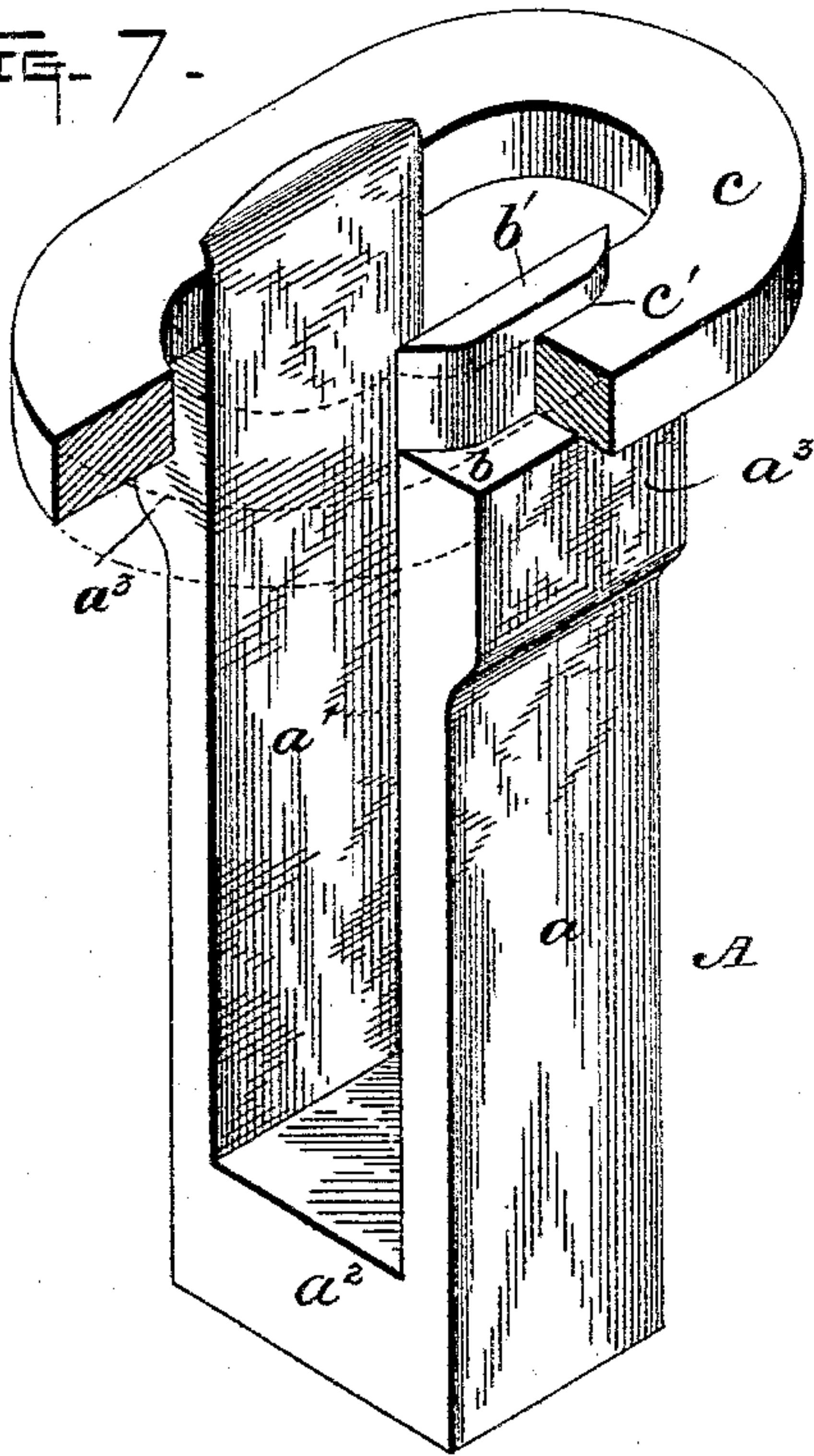


FIG. 8.

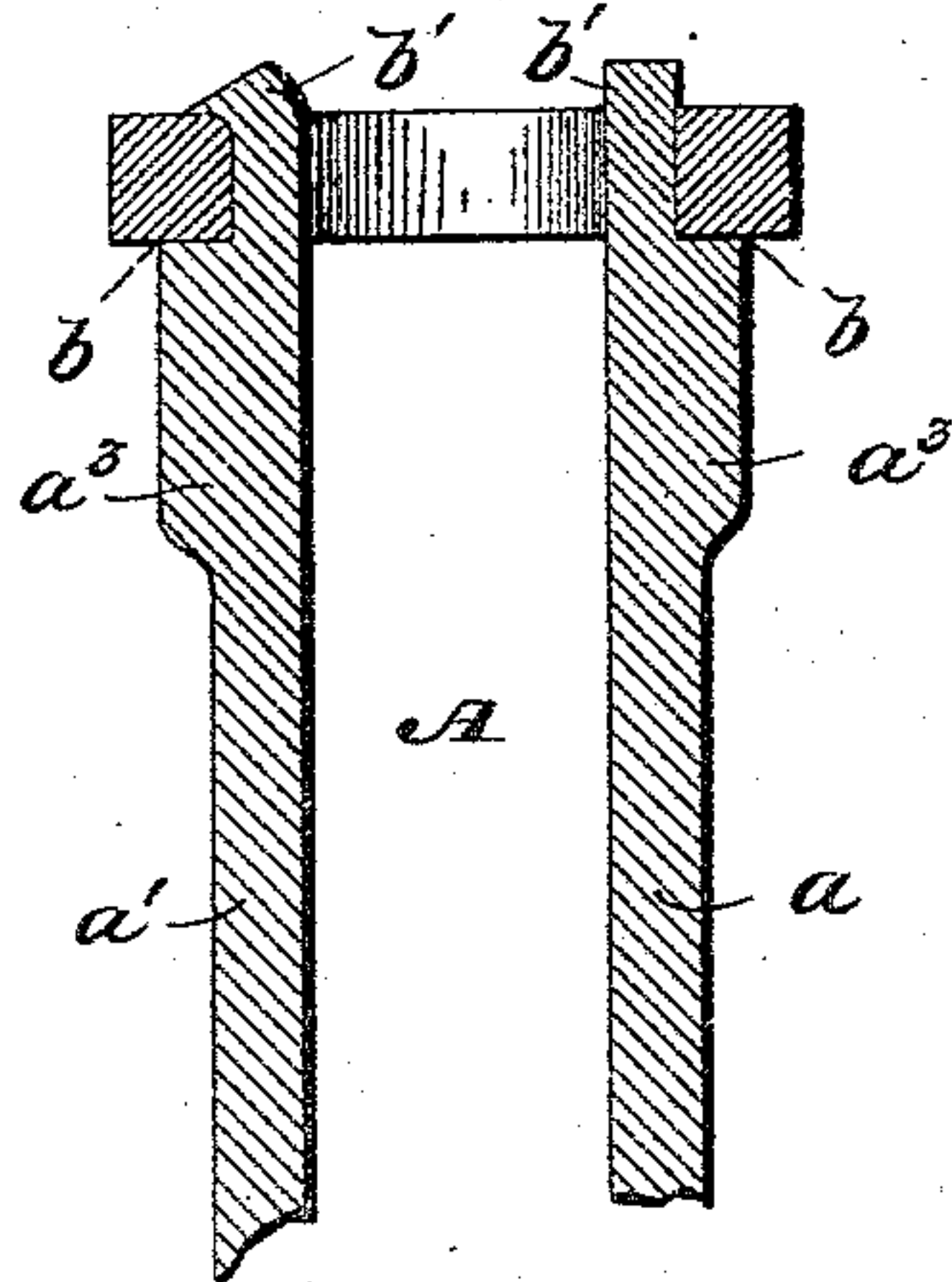


FIG. 9.

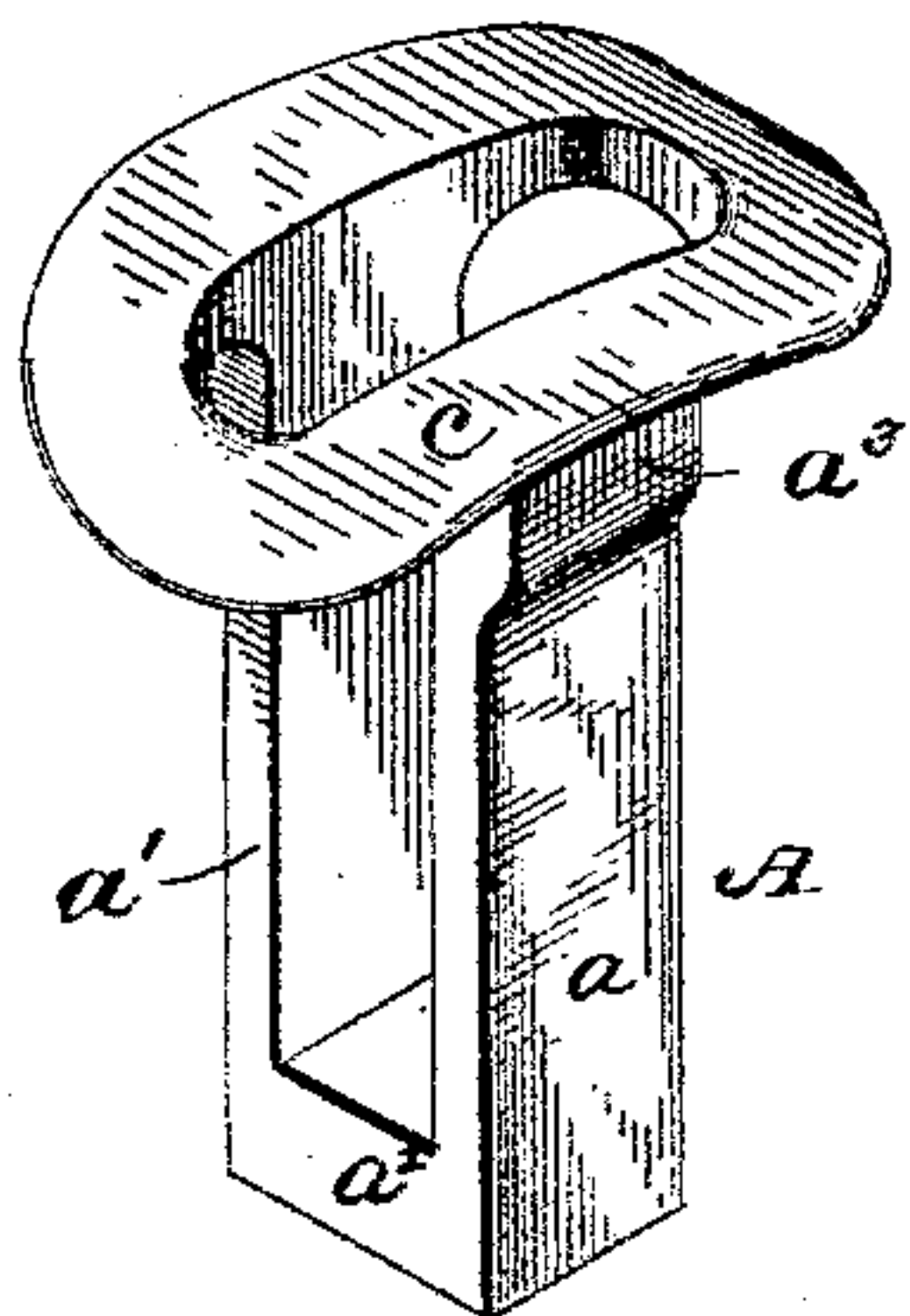
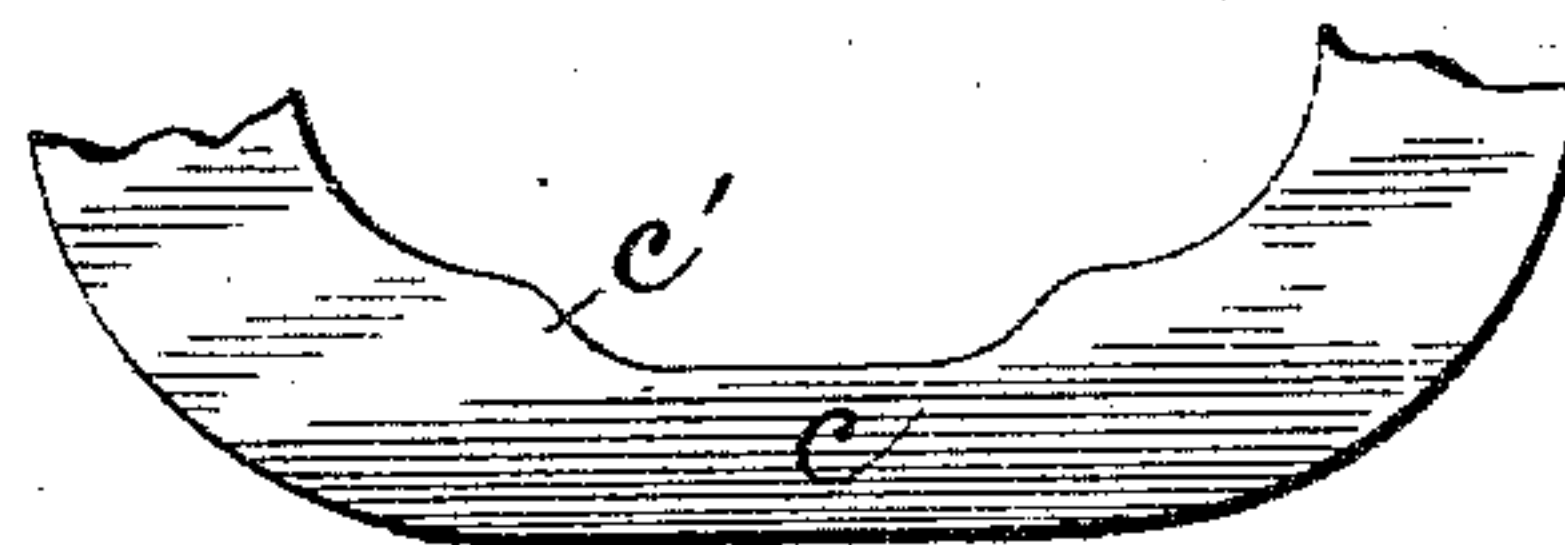


FIG. 10.



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UNITED STATES PATENT OFFICE.

JAMES H. SIMPSON, OF PITTSBURG, PENNSYLVANIA, ASSIGNOR TO CARNEGIE, PHIPPS & CO., (LIMITED,) OF SAME PLACE.

MANUFACTURE OF DRAW-BARS.

SPECIFICATION forming part of Letters Patent No. 369,264, dated August 30, 1887.

Application filed May 28, 1887. Serial No. 239,648. (No model.)

To all whom it may concern:

Be it known that I, JAMES H. SIMPSON, of Pittsburg, in the county of Allegheny and State of Pennsylvania, have invented a new and useful Improvement in the Manufacture of Draw-Bars; and I do hereby declare the following to be a full, clear, and exact description thereof.

My invention relates to an improvement in the manufacture of draw-bars of the kind shown in Figure 6 of the accompanying drawings; and it consists in forming a body-blank, securing the head-blank on this body-blank mechanically as a preliminary step, and then reheating and welding them together.

It also consists in certain preferred methods for practicing this invention.

The object of my invention is to obviate the defects existing in prior methods of manufacture of draw-bars, which were the difficulty in properly uniting the head and body of the bar, getting them in proper relation to each other, and making a secure union.

It has also for its object to reduce the labor and time consumed in the manufacture, and, generally, to produce a cheaper, stronger, and otherwise better bar than heretofore.

The invention is illustrated in the accompanying drawings, in which Fig. 1 is a plan view of the die-block preferably used in my improved manufacture. Fig. 2 is a vertical cross-section of the complete bed-die, the section being on the line *x x* of Fig. 1. Fig. 3 is also a vertical section of the complete bed-die, the section being on the line *y y* of Fig. 2 and at right angles to the sectional plane of that figure. Fig. 4 is a perspective sectional view of the plunger or moving die. Fig. 5 is a perspective plan view of the matrix or bed-die. Fig. 6 is a perspective view of the completed draw-bar. Fig. 7 is a perspective view of the blanks constituting the straps and head or ring of the draw-bar before they are welded, to more clearly illustrate the mode of manufacture.

Fig. 8 is a vertical longitudinal section of the parts shown in Fig. 7. Fig. 9 is a perspective view showing the ring-blank for the draw-bar head in an incomplete state. Fig. 10 is a plan view of a part of the ring-blank adapted to be set on the draw-bar straps.

Like symbols of reference indicate like parts in each.

In carrying out my invention I first form a blank, A, Figs. 7 and 8, in the form of a substantially rectangular fork having two side bars or straps, *a a'*, and an end piece, *a²*, connecting these straps. This blank forms the or body shank of the draw-bar. The free ends of the straps *a a'* have on their outer sides recesses or shoulders *b*, above the bases of which the ends of the straps extend to form stems *b'*, preferably of curved or irregular form. The blank is thickened up at *a* near its ends to strengthen it. The head of the draw-bar is constituted by a ring-blank, *c*, of the usual oval outline, whose inner periphery is provided with lateral notches or recesses *c'*, Fig. 10, which are substantial counterparts of the stems *b'*, which form the shank of the recesses *b*. The ring *c* is made by lap-welding and shaping a metal bar as shown in Fig. 9, and then punching out or otherwise forming the recesses *c'*. The ring thus made is set on the shoulders *b* of the straps *a a'*, the ends of which then project above the ring, as shown in Figs. 7 and 8. I then prefer to upset the end of one or both of the straps, as shown at the upper end of one of the stems *b'*, Fig. 8, to confine the ring in position during the succeeding steps. The remaining steps in the manufacture consist in the upsetting and welding of the ends of the straps down onto the ring, welding the ring to the straps in the recesses *c'*, and finally shaping the ring to form the draw-bar head. This I do by the dies shown on the first sheet of the drawings.

As shown in Figs. 2, 3, and 5, the surface of the bed-die is shaped to correspond with the form of the under side of the finished draw-bar head, and in the center is a vertical hole, *e*, in which the shank of the draw-bar fits. A casing or box, *f*, is shrunk around the upper parts of the die-block *d*.

d' are lugs or stops at the side of the die-block, arranged to limit the motion of the moving die. The die-block *d* sits within a recess on the surface of a bed-block, *g*, and is there held by a removable key, *g'*. The block *g* is provided with a horizontal hole passing through the block and intersecting the verti-

cal hole *e*. When the draw-bar is set in position in the die, a key-bar, *h*, is put through this horizontal hole and through the space between the straps of the draw-bar. The function of this key is to confine the draw-bar and die-box and to prevent them from moving upward with the plunger or moving die. The moving die or plunger *j* is fixed to the end of a vertically-reciprocating steam-hammer stock or drop. It has a central tongue, *k*, which is adapted to enter through the ring *c* into the space between the straps *a a'* and lateral flanges *m*, whose under surfaces are, as shown in Fig. 4, shaped so as to be counterparts of the surface of the head of the finished draw-bar.

After the blanks *A* and *c* have been put together, as shown in Fig. 7, they are reheated and put, when at a welding heat, into the bed-die, the shank *A'* fitting into the hole *e* and the ring *c* resting upon the surface of the bed-die. The key *h* is then inserted into the hole in the block *g* through the space between the straps of the draw-bar. The tongue *k* of the moving die enters through the ring *c* into the space between the straps, and the flanges *m* of the moving die upset the projecting ends or stems *b'* of the straps *a a'*, making them flat with the ring, and the compression of the ring and straps between the bed-die and plunger welds the ring and straps together, and causes them to assume the finished shape shown in Fig. 6. The key *h* holds the draw-bar and enables the moving die to be retracted without sticking to the blank.

To remove the draw-bar from the die *d* after the withdrawal of the moving die, the key *g'* is removed and the casing *f*, with its contained die, is taken out of the bed-block *g*. For this purpose a side of the recess of the block *g* in which the die is set and a side of the hole *e* is left open, as shown in Fig. 1, so that the whole of the casing *f* may be drawn out laterally. When drawn out, the casing *f*, which carries the draw-bar, is partially supported by a chain hooked to a handle, *f'*. The casing is then inverted, and a few strokes of a hammer on the end of the draw-bar will dislodge it. This feature of the apparatus is important, because otherwise the draw-bar would be difficult to remove. By the use of these dies the parts of

the draw-bar are very firmly united at one operation. When my method of manufacture is employed the cost is small and the finished draw-bar is very durable and serviceable.

The preliminary uniting of the body-blank and head before the operation of welding is of great advantage, for the reasons indicated in the first part of this specification. It may be done in various other ways than here indicated without departing from the spirit of my invention, as stated in the following first claim.

In an application filed by me on February 1, 1887, Serial No. 226,167, I describe and claim a form of my invention analogous to the form above described, and in that application I also describe and claim, specifically, the dies shown on Sheet 1 of the drawings of the present case.

I therefore claim—

1. An improvement in the art of making draw-bars, which consists in forming a body-blank and head-blank, securing them together as a preliminary step, and then reheating and welding them, substantially as and for the purposes described.

2. An improvement in the manufacture of draw-bars, which consists in forming a body-blank, *A*, having projecting stems at its ends, and a head-blank, *c*, seating the head-blank on the end of the body-blank *A*, and finally uniting the head to the ends of the body-blank and to the stems by welding, substantially as and for the purposes described.

3. An improvement in the manufacture of draw-bars, which consists in forming a body-blank, *A*, having laterally shouldered or recessed ends, and a head-blank, *c*, adapted to sit on the shoulders or recesses below the level of the ends of the body-blank, and finally uniting the blanks together by welding them and upsetting the projecting ends of the body-blank upon the head-blank, substantially as and for the purposes described.

In testimony whereof I have hereunto set my hand this 25th day of May, A. D. 1887.

JAMES H. SIMPSON.

Witnesses:

W. B. CORWIN,
THOMAS W. BAKEWELL.