

**No. 687,780.**

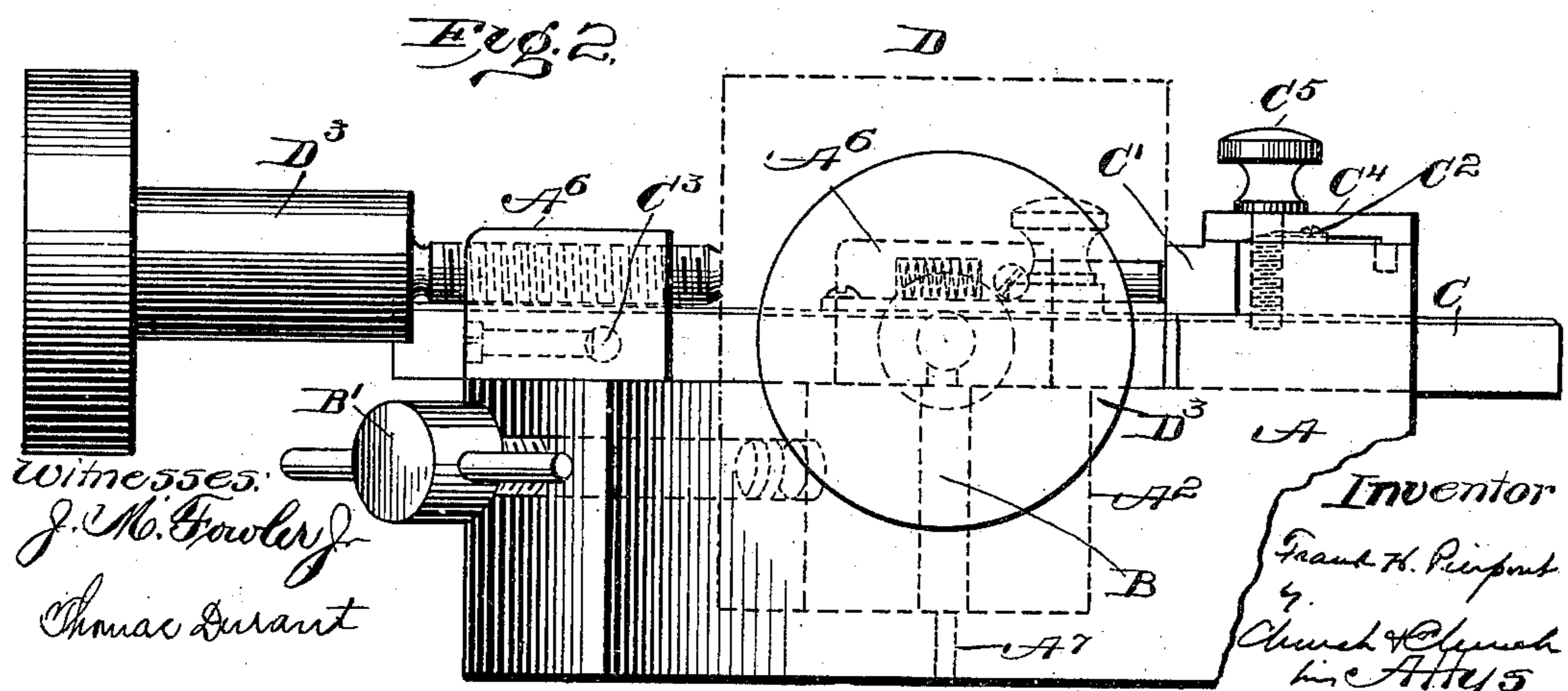
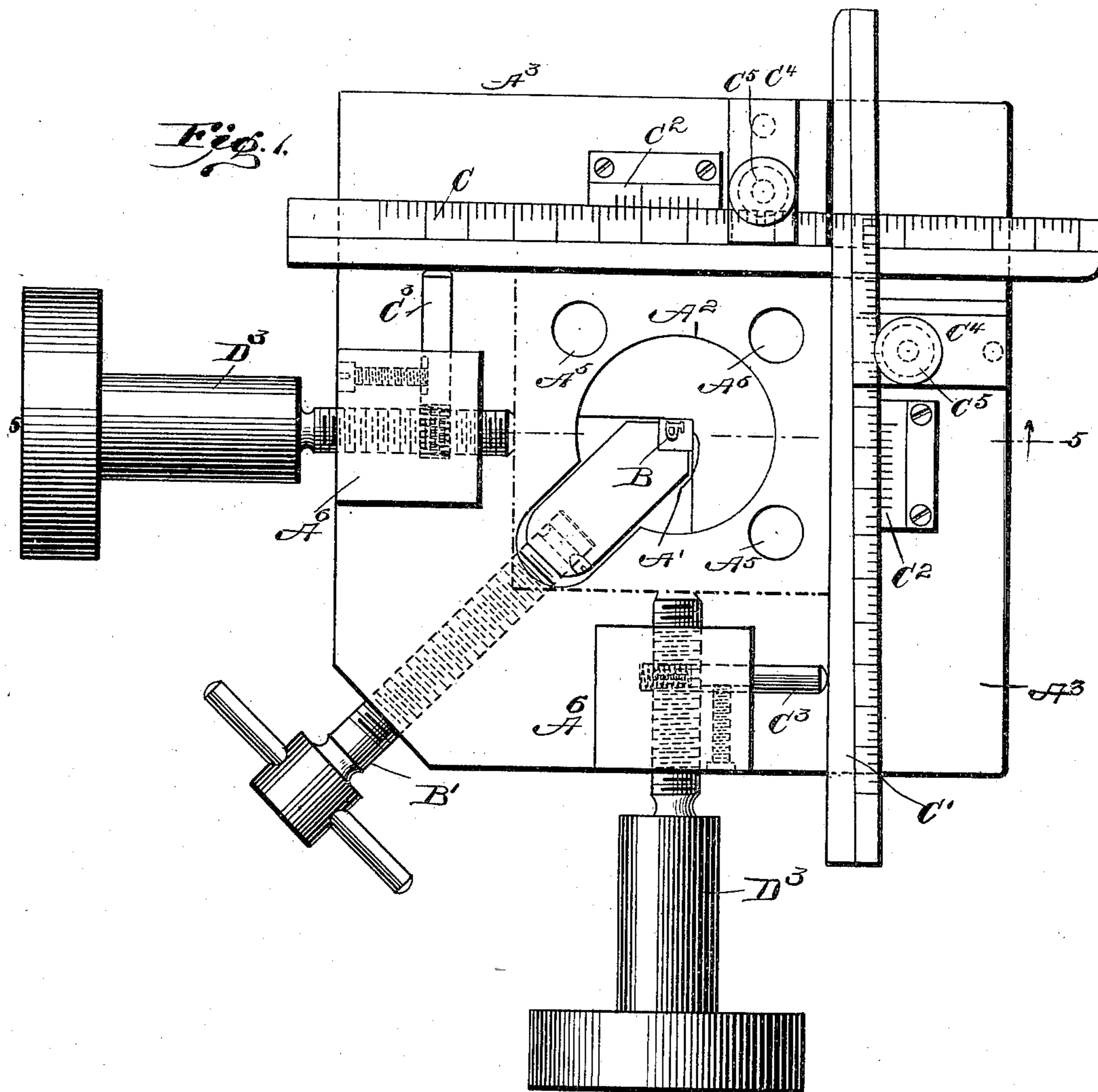
**Patented Dec. 3, 1901.**

**F. H. PIERPONT.**  
**STAMPING OR PUNCHING MACHINE.**

(Application filed June 5, 1901.)

(No Model.)

**4 Sheets—Sheet 1.**



Witnesses:  
J. M. Fowler Jr.  
Thomas Durant

*Inventor*  
*Frank H. Pierpont*  
*9*  
*Church & Offensh*  
*his Att'y*

No. 687,780.

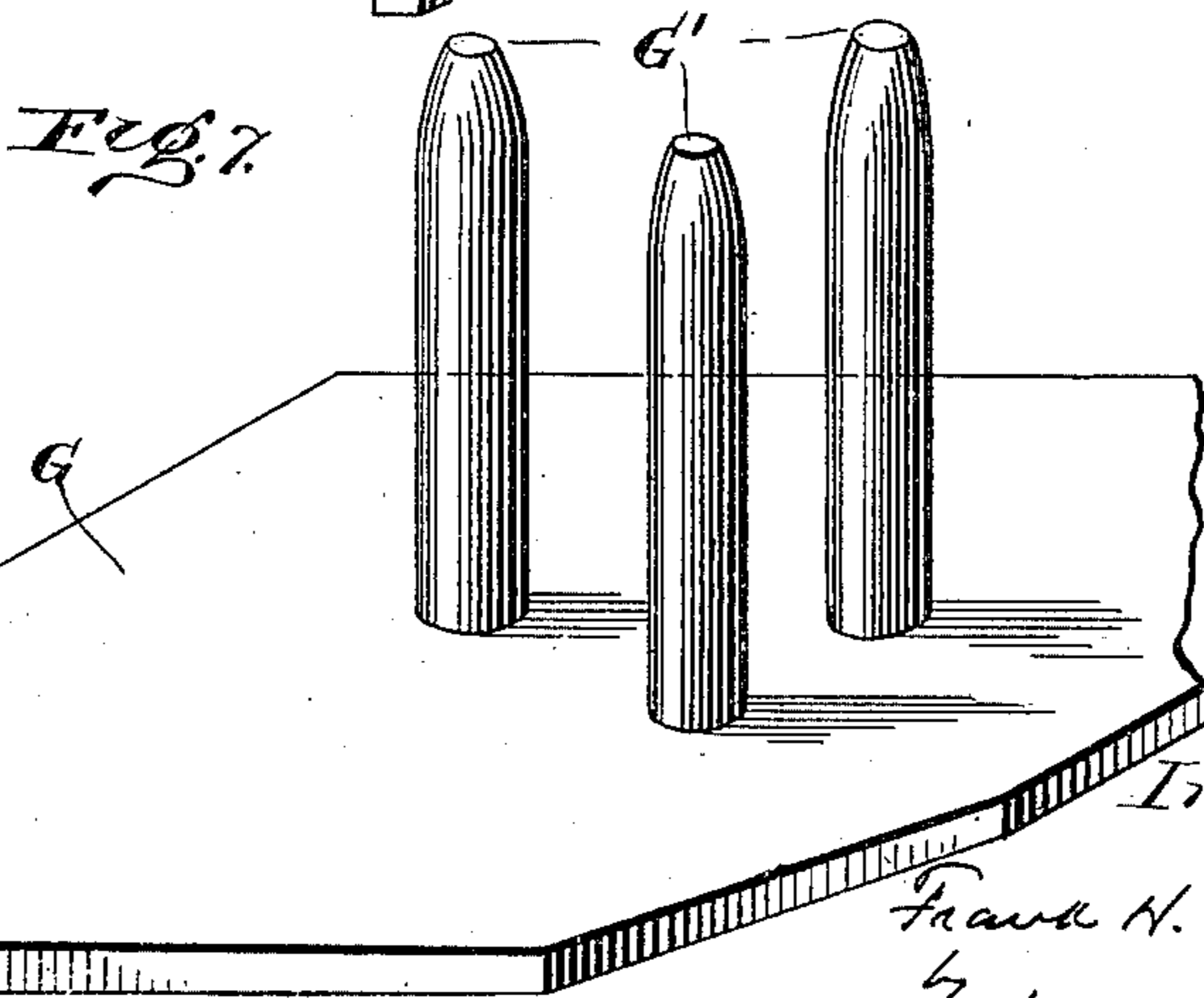
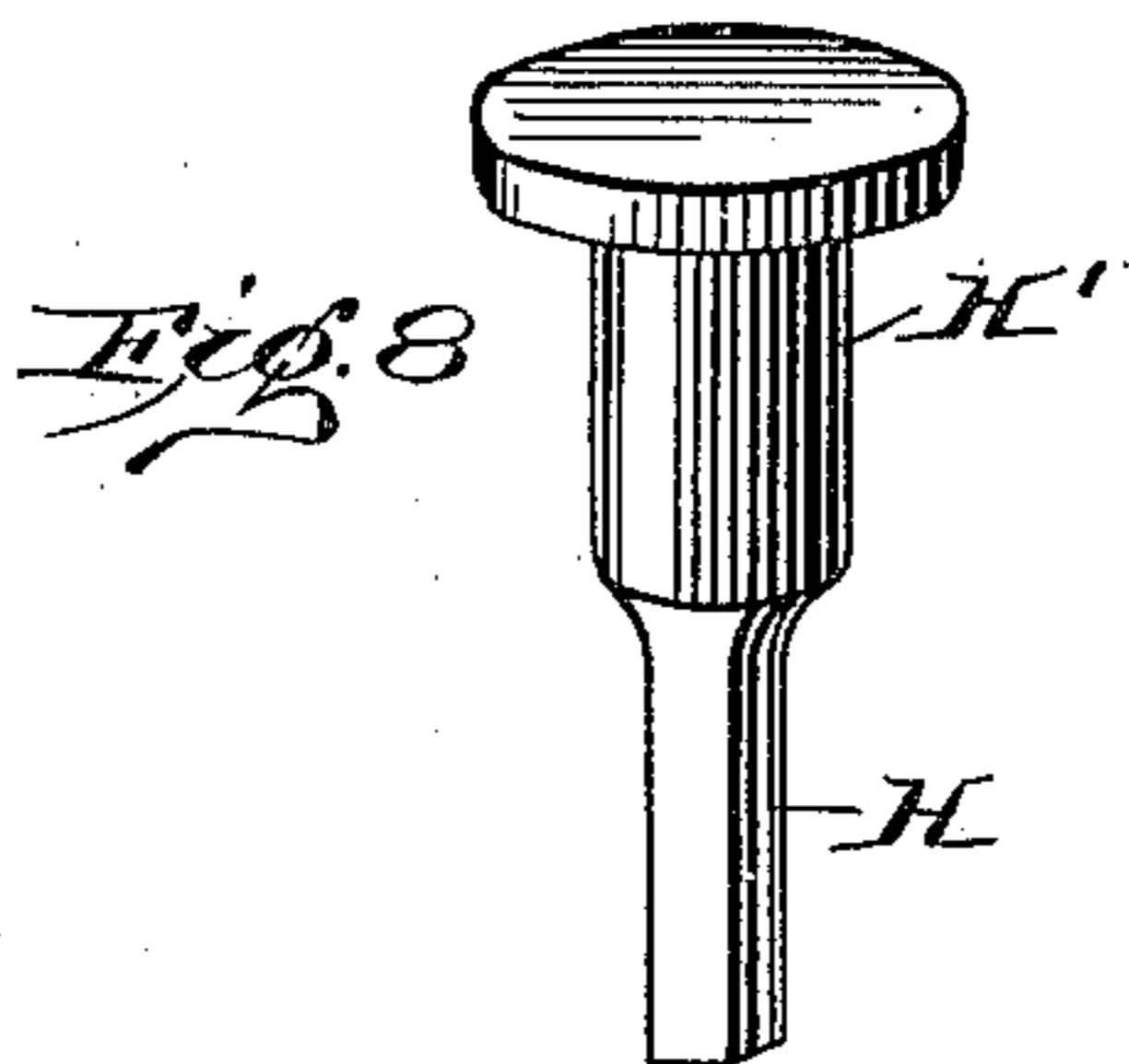
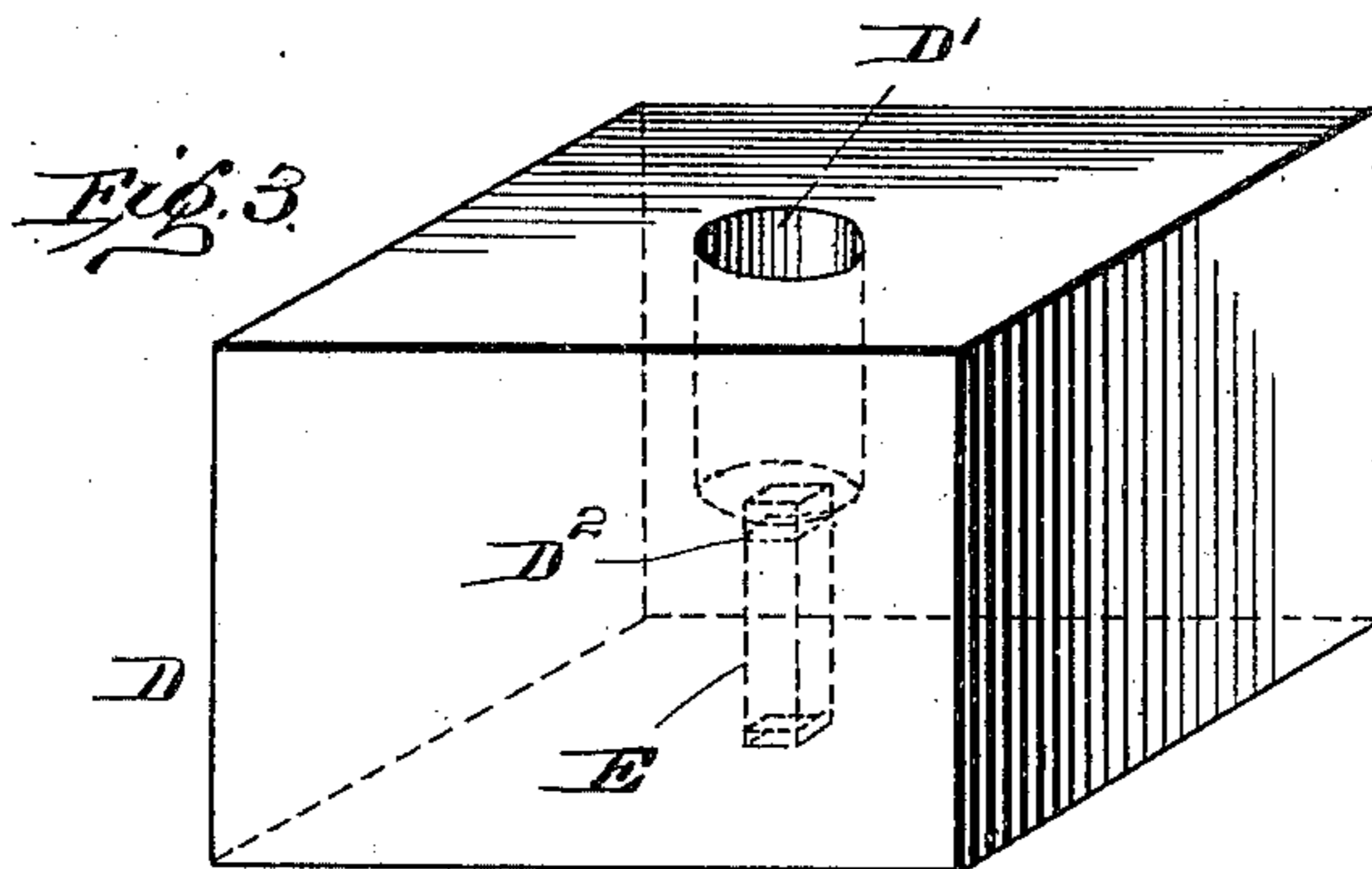
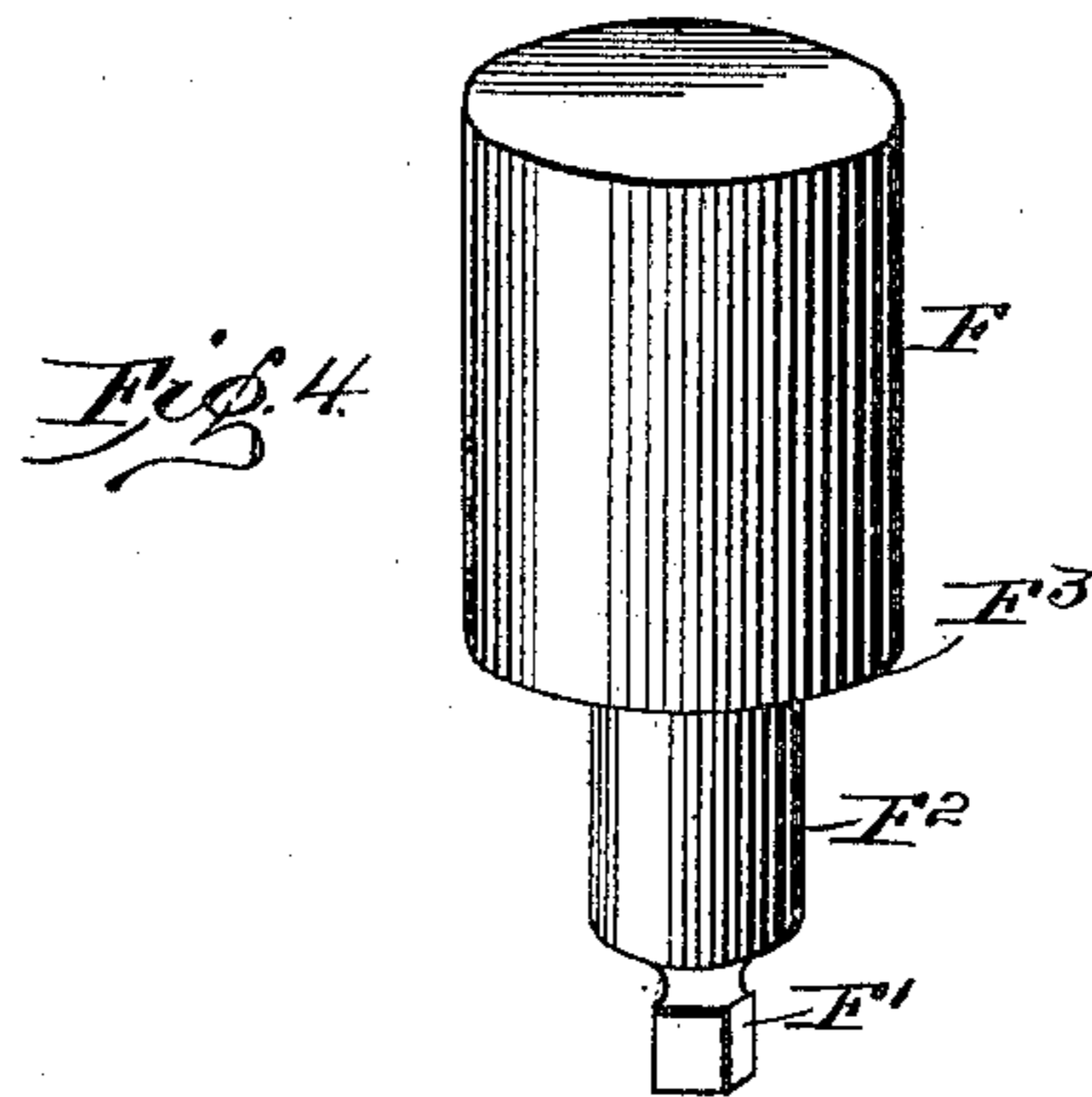
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(Application filed June 5, 1901.)

(No Model.)

4 Sheets—Sheet 2.



witnesses:  
*John H. Fowler Jr.*  
*Thomas Grant.*

Inventor  
*Frank H. Pierpont*  
*Charles H. Chase*  
*Att'y.*

No. 687,780.

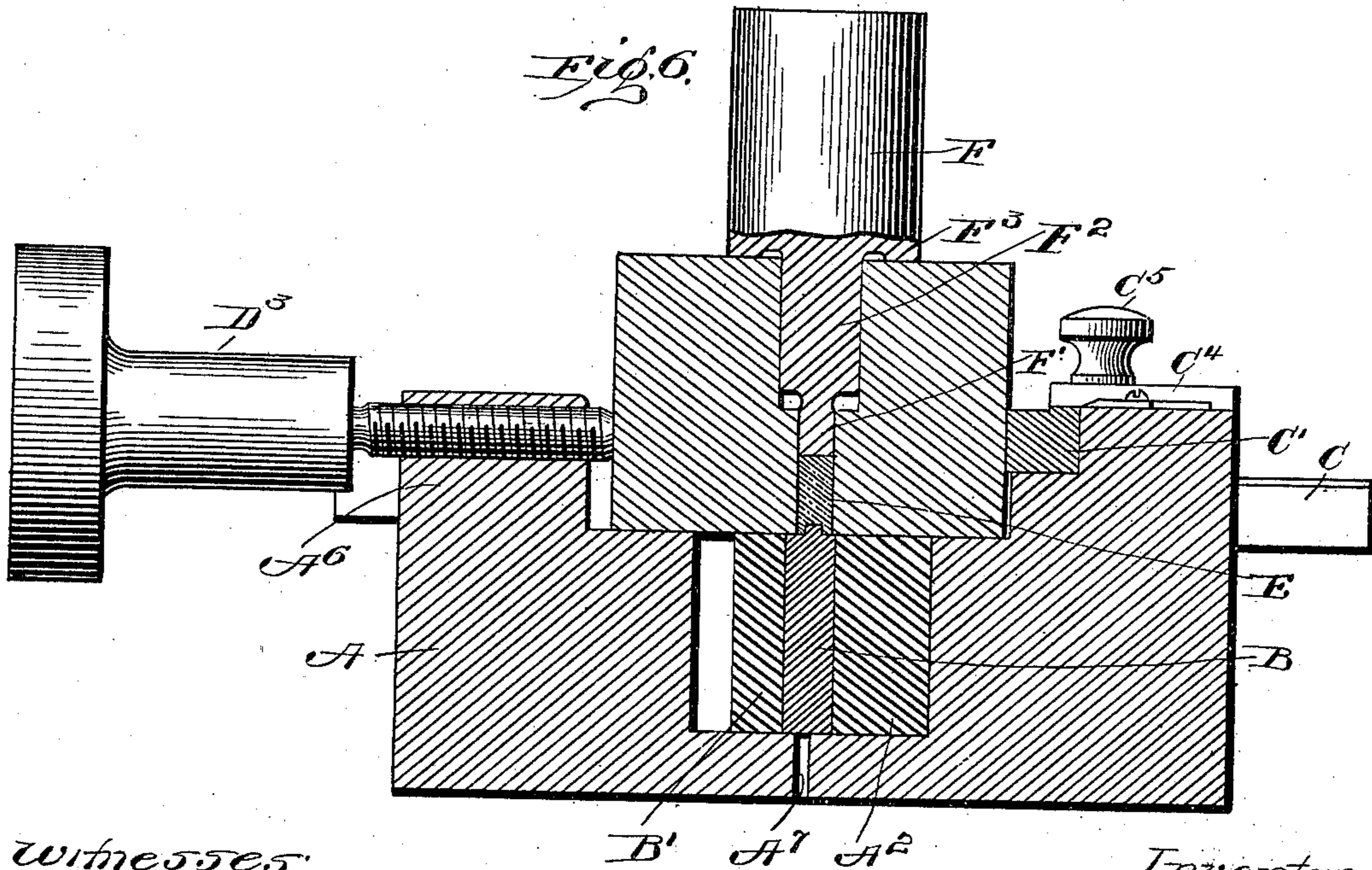
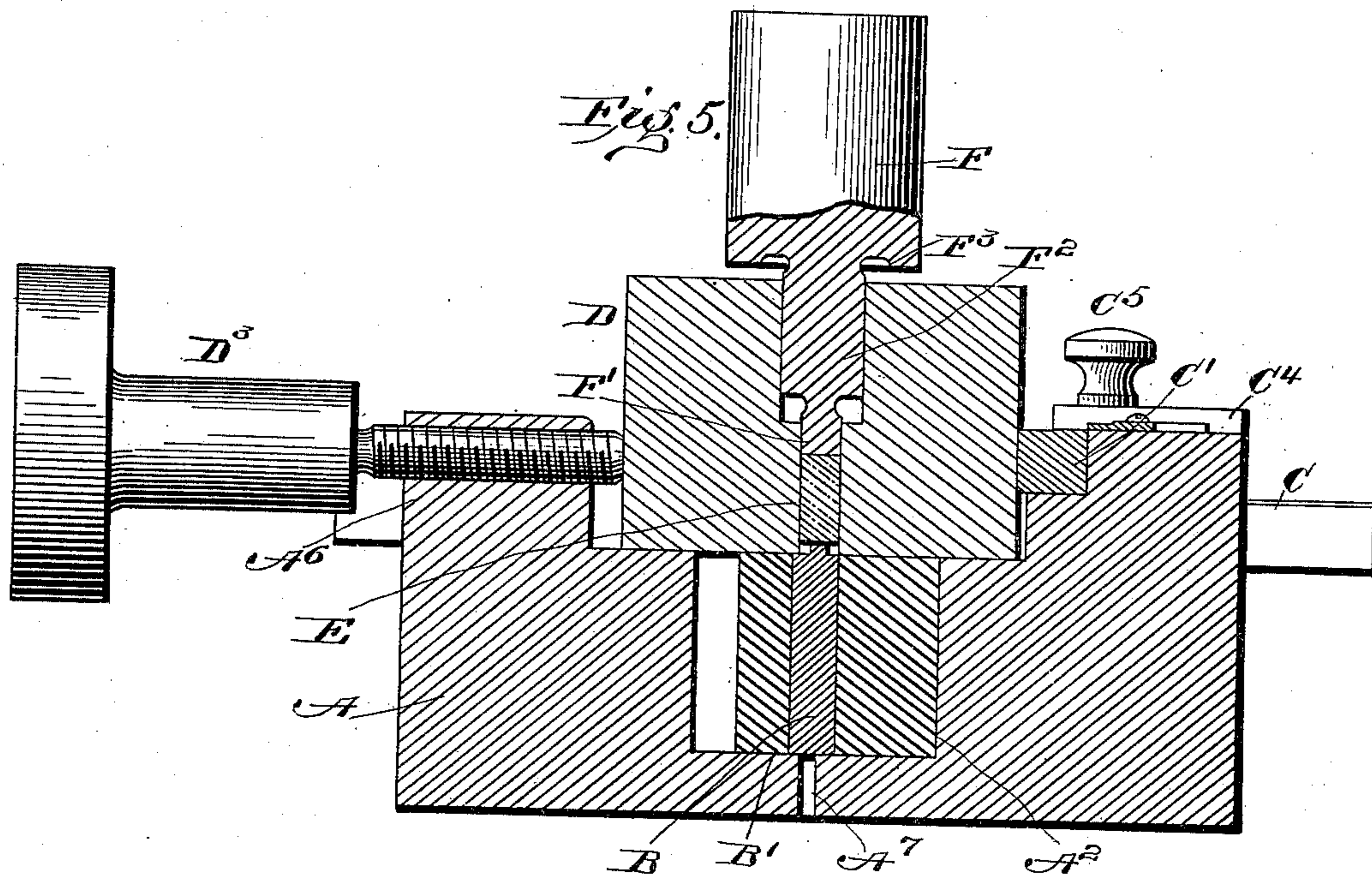
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(Application filed June 5, 1901.)

(No Model.)

4 Sheets—Sheet 3.



Witnesses:  
J. M. Fowler Jr.  
Thomas Durant

Inventor:  
Frank H. Pierpont  
by  
Church & Church  
Attys.

No. 687,780.

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(Application filed June 5, 1901.)

(No Model.)

4 Sheets—Sheet 4.

Fig. 9.

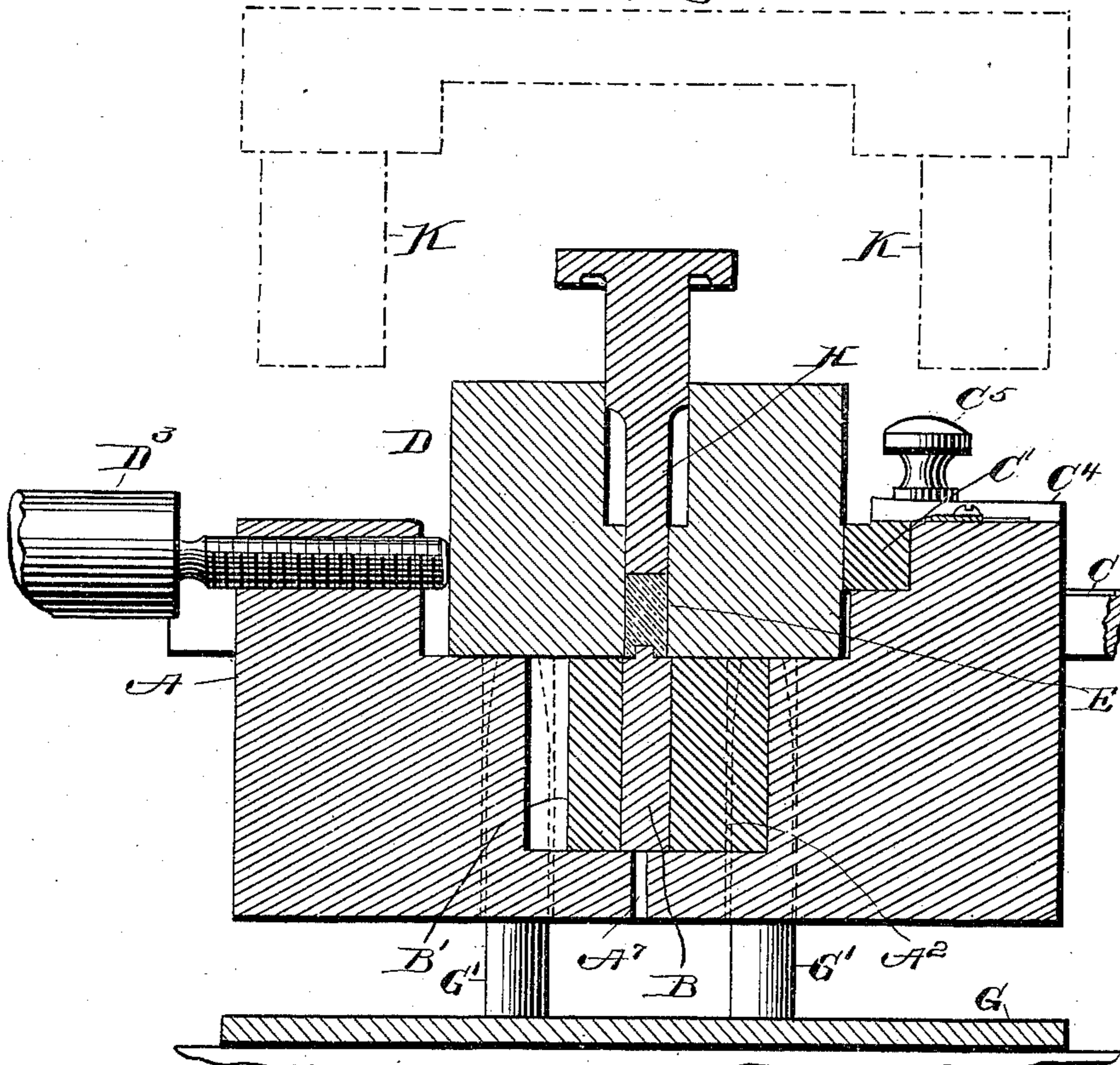
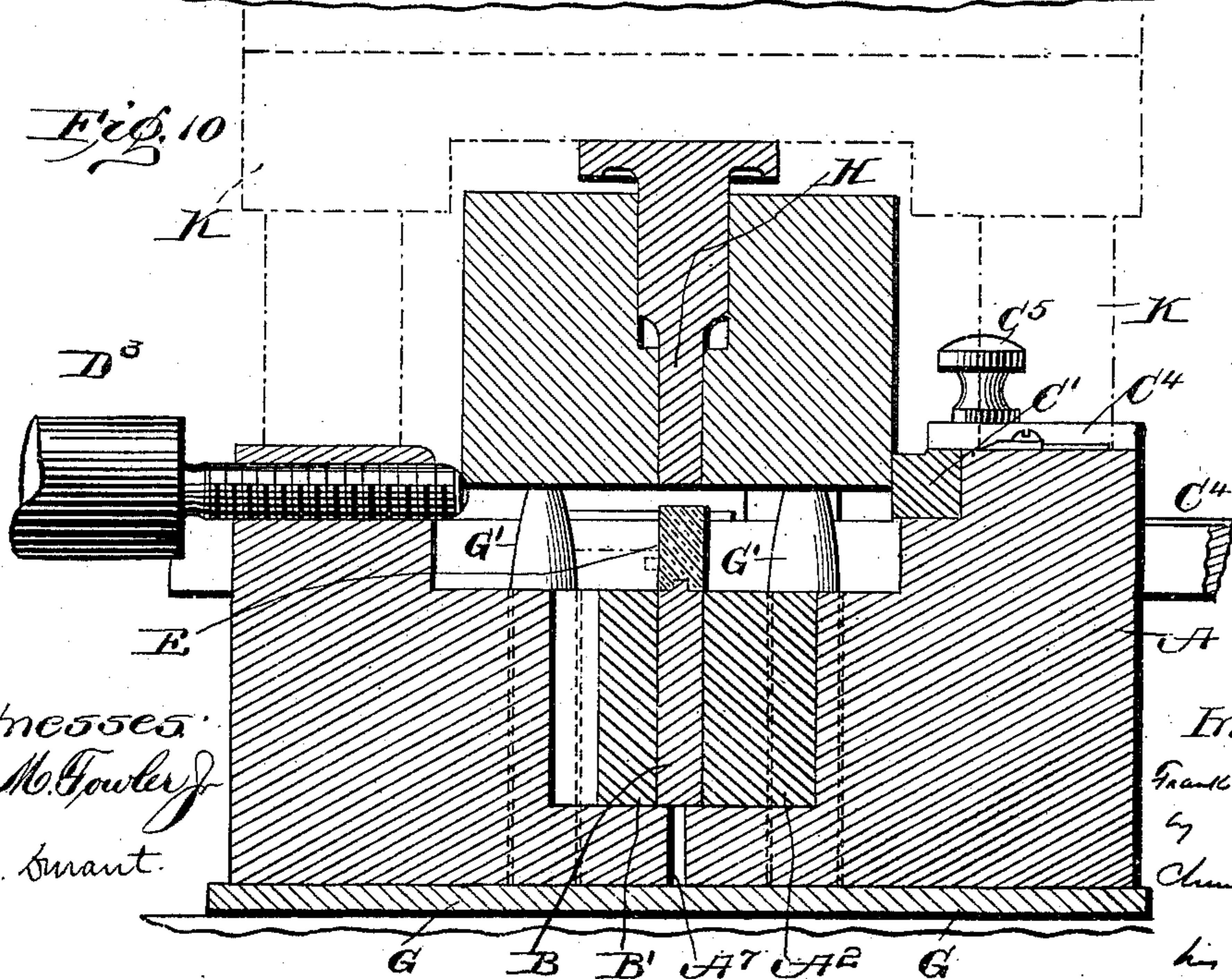


Fig. 10.



Witnesses:  
J. M. Fowler  
Thos. Smart.

Inventor:  
Frank H. Pierpont  
by  
Charles Church  
his Attys.

# UNITED STATES PATENT OFFICE.

FRANK HINMAN PIERPONT, OF HORLEY, ENGLAND, ASSIGNOR TO LANSTON MONOTYPE MACHINE COMPANY, OF WASHINGTON, DISTRICT OF COLUMBIA, A CORPORATION OF VIRGINIA.

## STAMPING OR PUNCHING MACHINE.

SPECIFICATION forming part of Letters Patent No. 687,780, dated December 3, 1901.

Application filed June 5, 1901. Serial No. 63,283. (No model.)

*To all whom it may concern:*

Be it known that I, FRANK HINMAN PIERPONT, a citizen of the United States, residing at Horley, in the county of Surrey, England, have invented certain new and useful Improvements in or Relating to Stamping or Punching Machinery; and I do hereby declare the following to be a full, clear, and exact description of the same, reference being had to the accompanying drawings, forming a part of this specification, and to the letters of reference marked thereon.

This invention relates to a stamping equipment or subpress for shaping metals or other materials by means of a power-press or equivalent pressure mechanism, and is more especially designed for forming the characters on or in matrices such as are employed for the casting or impressing of type for printing.

The object of the invention is to produce justified matrices—that is, matrices whose character impressions occupy a predetermined position on or in the surface of the matrix-block with relation to one or more datum-lines—from unjustified dies or punches.

To this end the invention consists in a subpress composed of a base-block to which the die is secured, a matrix-block or blank-holder located above the die and movable laterally thereof, means for locating the blank-holder with reference to the die, and a plunger guided upon the blank-holder and operating upon the blank contained therein to force it upon the die. It also includes novel means for ejecting or removing the completed matrix and for holding the die in position, all as hereinafter more fully described, and pointed out in the claims.

In the accompanying drawings, Figure 1 is a plan of a base-block with the die in position and with the operative position of the blank-holder indicated in linked lines. Fig. 2 is an end view of Fig. 1. Fig. 3 is a perspective view of the blank-holder. Fig. 4 is a similar view of the plunger or stamping-block. Fig. 5 is a section on the line 5-5 of Fig. 1 with the blank-holder and plunger in position ready for stamping. Fig. 6 is a similar section to Fig. 5, showing the position of the parts after the stamping opera-

tion. Figs. 7 and 8 are perspective views of special tools for removing the stamped matrix from the blank-holder. Figs. 9 and 10 are central vertical sections illustrating the method of using these tools.

Like letters indicate like parts in all the figures.

A is the base-block or die-holder, in which is centrally located the die B, whose upper or exposed end bears the designs of the character or figure to be impressed. The preferred means for adjusting and securing the die in correct position consist of a semicylindrical block A<sup>2</sup>, of hardened steel, inserted in a circular recess in the upper face of the base-block and provided with an angular seat A', against which one corner of the die bears and by which the position or set of the character is preserved. The lower end or foot of the die rests upon the floor of the recess, and the die is held firmly to its seat A' by a clamping device, such as screw B', whose inner end bears a clamping-block notched to engage the die and hold it firmly in upright position in its angular seat.

Above the die B and resting upon the base-block is the matrix-holder D, in which the matrix-blank is received, presented to the die, and compressed thereon. In its preferred form the matrix-holder consists of a cubical block of hardened steel provided with a central perforation, of which the upper portion D' serves as a guide for the plunger, while the lower portion D<sup>2</sup>, serving as a stamping or compression chamber, corresponds in cross-section with the completed matrix.

To properly locate the impression in or on the face of the matrix—that is, to justify the matrix—the matrix-holder must be so set or adjusted that its compression-chamber D<sup>2</sup> will stand in proper relation to the character on the die, and in order that this may be accomplished expeditiously and with great accuracy the base-block A is provided with two gages located or operating in transverse planes and engaging adjacent sides of the matrix-holder for controlling its position in two directions. For this purpose there are mounted upon the base-block two wedges C C', the inner or operating face of one being

perpendicular to the other to correspond with the two adjacent faces of the matrix-block. The outer or tapered faces of the wedges engage bearings  $A^3$  on the base-block, and each wedge is provided with graduations which coöperate with a fixed pointer or micrometer-scale  $C^2$ . In order that one wedge may pass the other, they are located in different vertical planes, and each wedge is held to its seat by a spring-pin  $C^3$  and fixed in adjusted position by a clamp  $C^4$  and screw  $C^5$ . Any well-known means—as, for example, a micrometer-screw adjustment—may be employed for shifting the wedges, if desired.

Pressure is transmitted to the blank within the matrix-holder through a compression block or plunger  $F$ , the latter provided with a head  $F'$ , corresponding in cross-section to the compression-chamber  $D^2$  and working therein, a guiding-section  $F^2$  fitting the upper chamber  $D'$  and an enlarged section or head forming a shoulder  $F^3$ , the latter coöperating with the upper face of the matrix-holder  $D$  to limit the downward motion of the plunger  $F$ , and thereby gage the length of the matrix.

The mode of operation is as follows: The exact position of the character on the face of the die is first ascertained and a chart prepared, whereon is indicated the required positions of the two wedges to effect justification, (the graduations permitting this to be done to the .0001 of an inch.) By the aid of this chart the two wedges are set, the matrix-holder  $D$  is placed in position above the die  $B$ , after which clamping means, such as screws  $D^3$ , working in threaded bearings  $A^6$ , are applied to seat and hold the matrix-holder against the wedges, thereby accurately positioning the compression-chamber  $D^2$  with relation to the character on die  $B$ . A matrix-blank  $E$  of proper dimensions having been inserted in the compression-chamber  $D^2$  and the plunger  $F$  placed in position the subpress is subjected to the action of the power-press or its equivalent, whereby the plunger is driven forcibly into the compression-chamber, causing the material contained therein to assume the form of said chamber and of the die closing one end thereof.

To facilitate the removal of the completed matrix and avoid liability of injury to the impression, in so doing the base-block  $A$  is provided with a plurality of holes  $A^5$  below and in line with the matrix-holder  $D$  for the passage of pins  $G'$ , attached to a plate  $G$ . (See Figs. 7, 9, and 10.) Between the movable platen of the power-press and the base-block  $A$  is interposed a block or blocks  $K$ , and the plunger  $F$  is replaced by a similar plunger  $H$  with a longer head. With the parts thus arranged the subpress containing the finished matrix  $E$  is subjected to the action of the power-press, and the clamps  $D^3$  having previously been slackened, so as to release the

matrix-holder, the latter is upheld upon pins  $G'$  while the base-block is depressed to withdraw die  $B$ , and at the same time the matrix is forced from the matrix-holder by the plunger  $H$ , as seen in Fig. 10. A small hole  $A^7$  is formed in the base-block beneath the die  $B$ , through which a pin may be inserted to assist in the removal of the die.

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

1. In a subpress the combination with a die-holder, its die and a compression-plunger, of a matrix-holder and gages for locating the latter relatively to the die, substantially as described.

2. In a subpress, the combination with a base-block or die-holder, its die and a compression-plunger, of a matrix-holder in which the compression-plunger is guided provided with a compression-chamber, and gages including graduated wedges engaging the matrix-holder to accurately locate its compression-chamber with relation to the character on the die, substantially as described.

3. In a subpress such as described, the combination with the centrally-recessed die-holder, of the semicylindrical block fitted to said recess and provided with an angular seat, a die, and a clamp engaging the die to hold it accurately in said angular seat, substantially as described.

4. The improved subpress for producing justified matrices, the same comprising the die-holder with its central recess and wedge-bearings; the die and its supporting-block with angular seat; the clamp engaging the die to hold it to its seat; the matrix-holder with compression-chamber; the graduated wedges for positioning the matrix-holder; and the compression-plunger guided upon the matrix-holder and provided with a shoulder for gaging its movement within the compression-chamber; substantially as described.

5. In a device for producing justified matrices the combination of the following elements, to wit: a die-holder; a die fixed to the die-holder; an integral matrix-holder containing a compression-chamber; gages for locating said matrix-holder with relation to the die; and a compression-plunger traversing the compression-chamber in the matrix-holder, to compress the matrix-block upon the die; substantially as described.

6. In a subpress such as described, the combination with the matrix-holder, the die, and the die-holder, of the plate provided with pins passing through openings in the die-holder and engaging the matrix-holder, substantially as and for the purpose described.

FRANK HINMAN PIERPONT.

Witnesses:

W. J. ROGERS,  
R. R. WILSON.