

J. FEIX.

Ingot-Molds for Gold or Silver.

No. 144,605.

Patented Nov. 18, 1873.

Fig. 1.

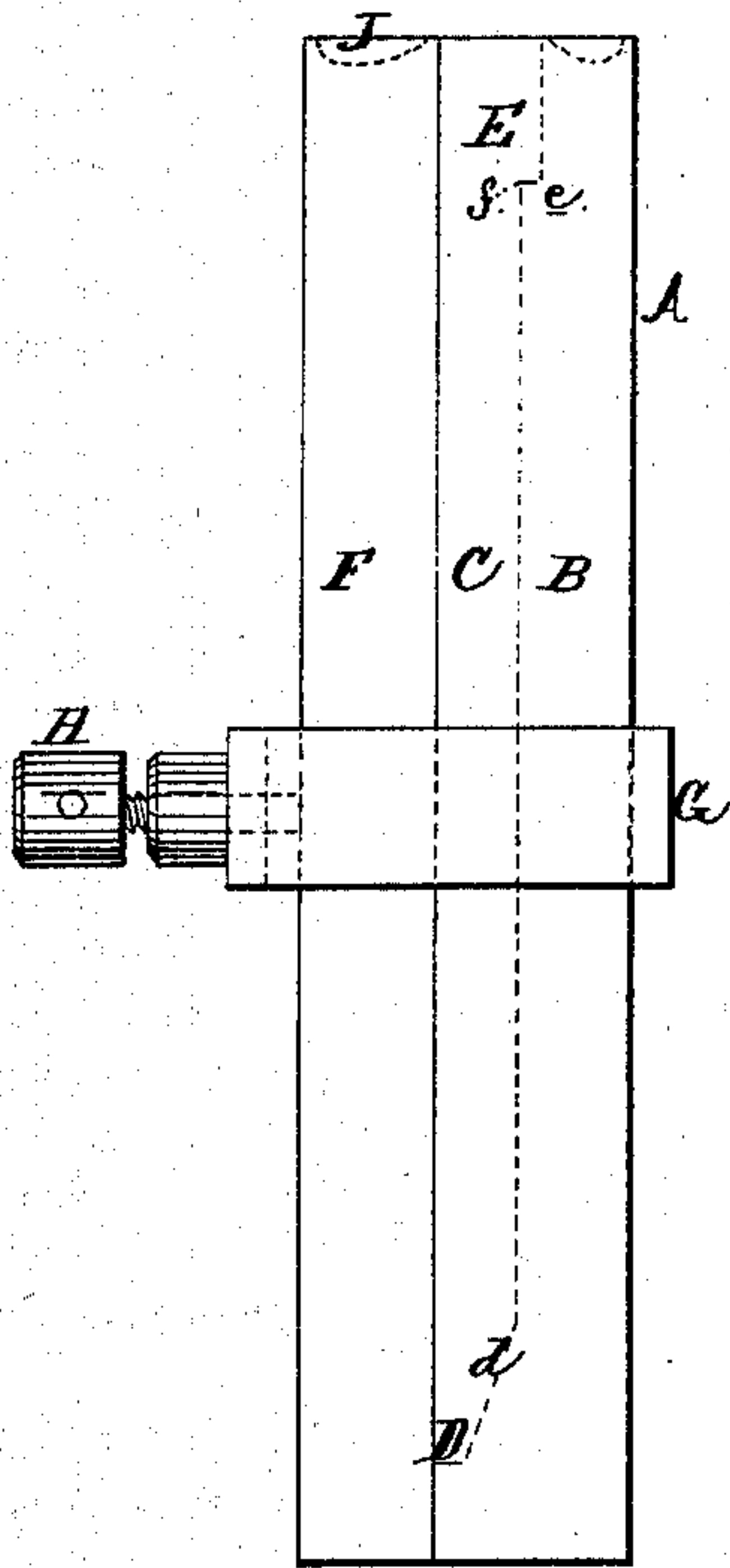


Fig. 2.

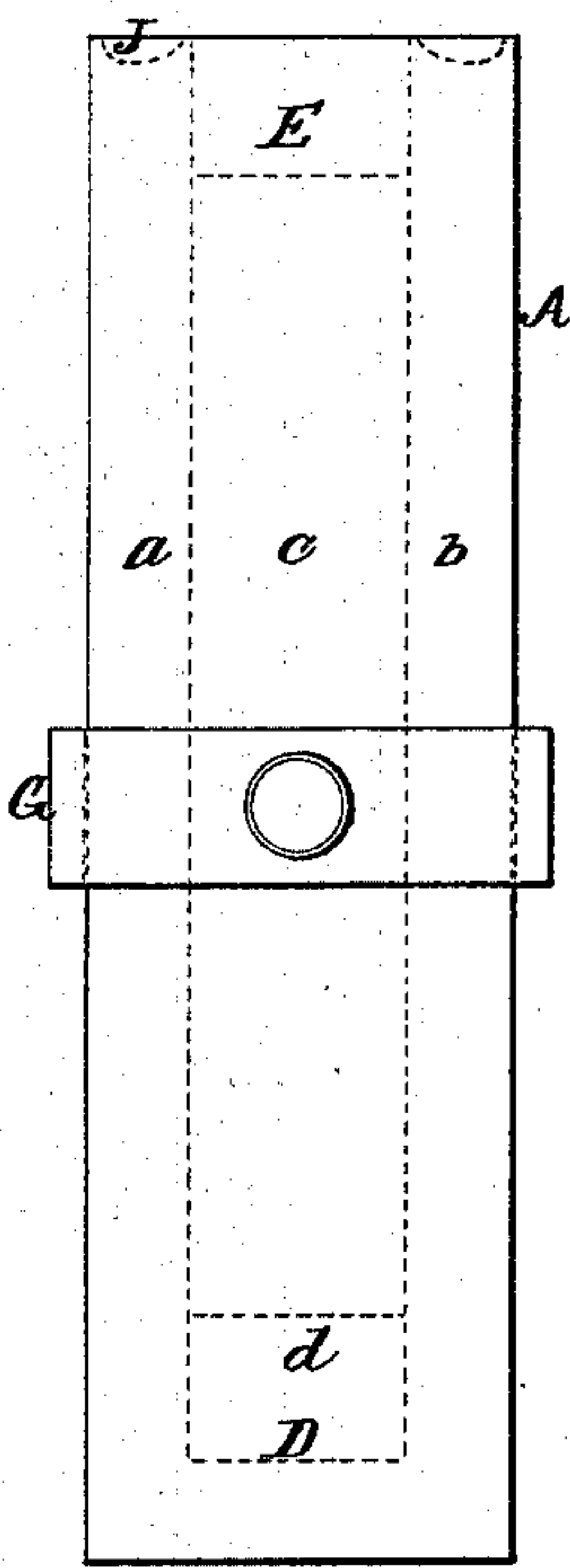


Fig. 3.

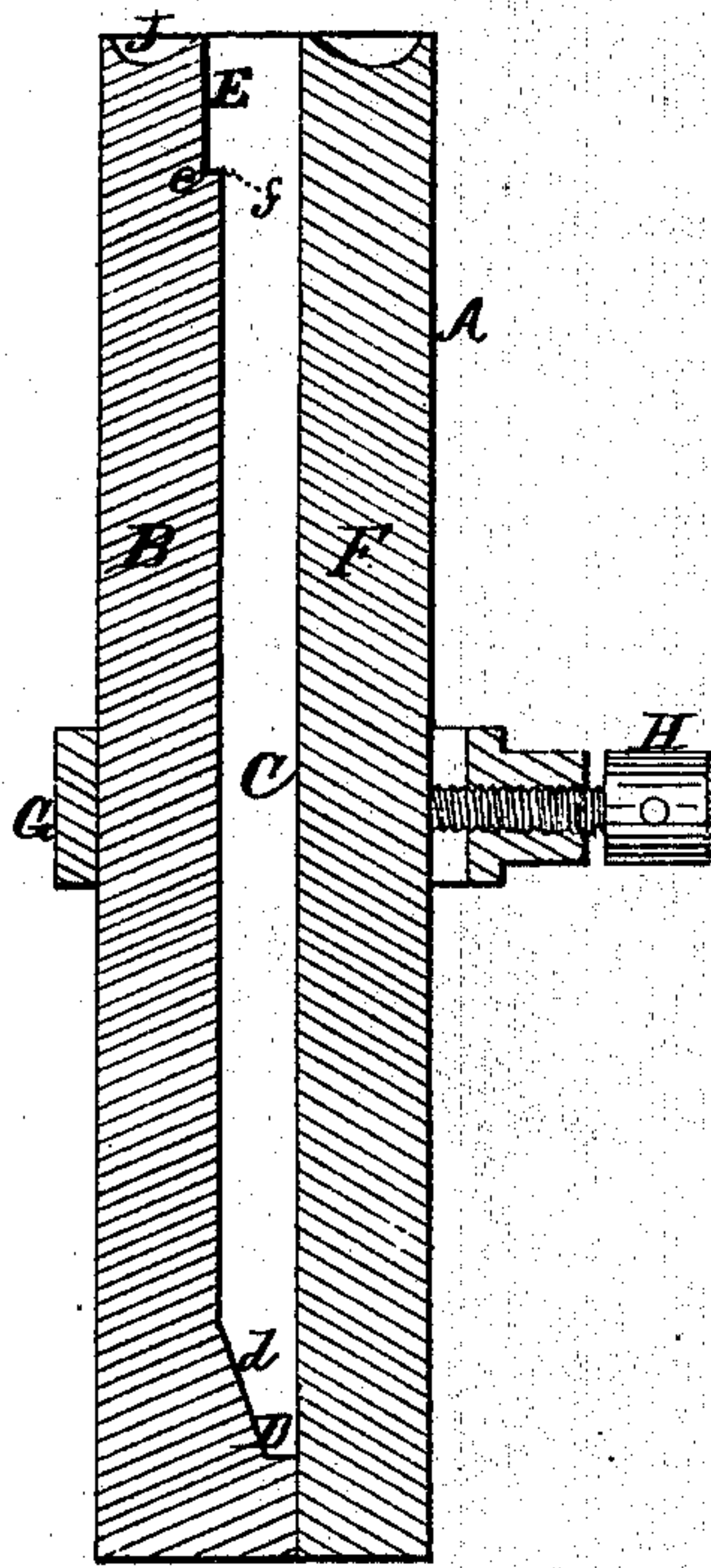


Fig. 4.

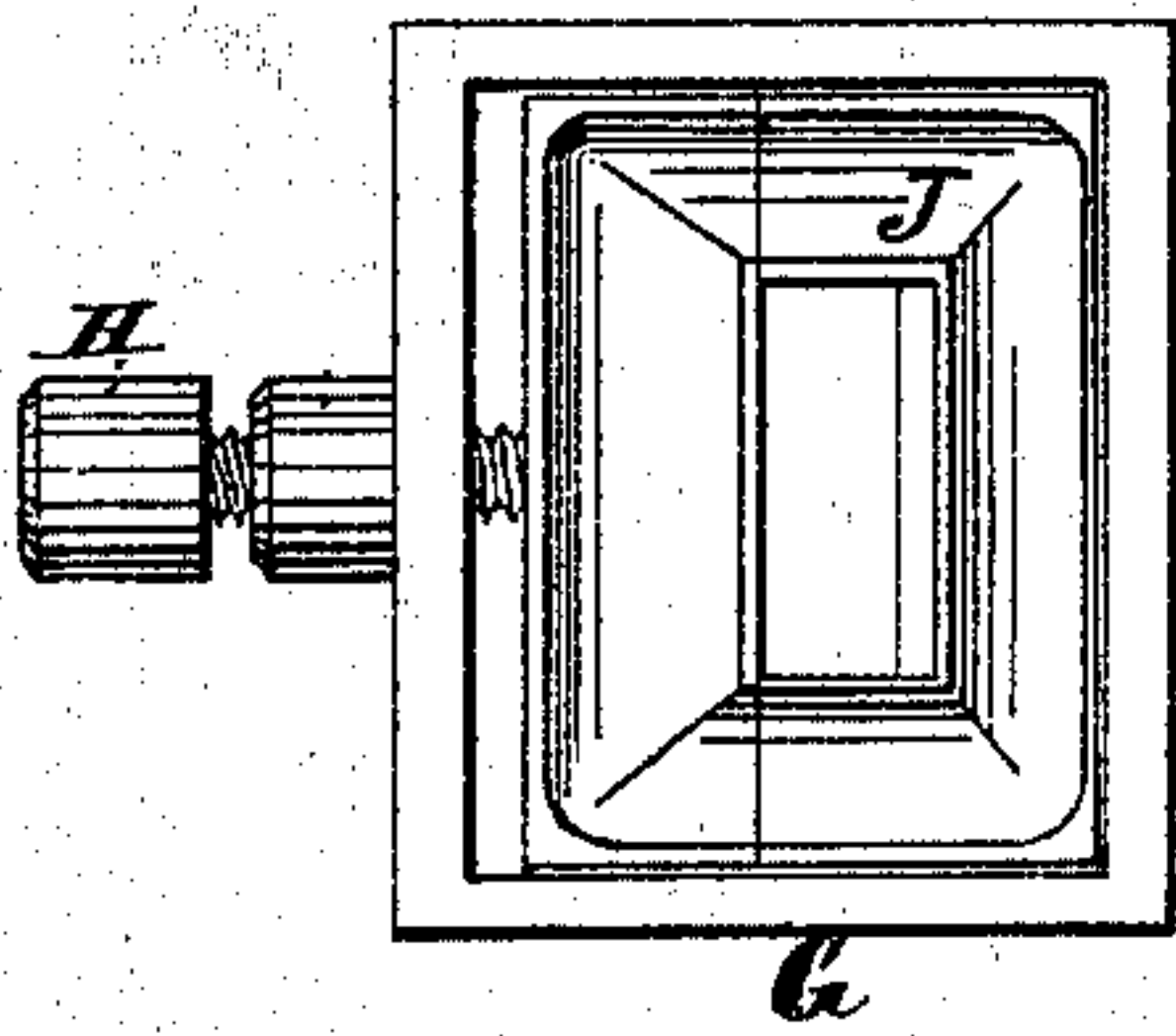


Fig. 5.

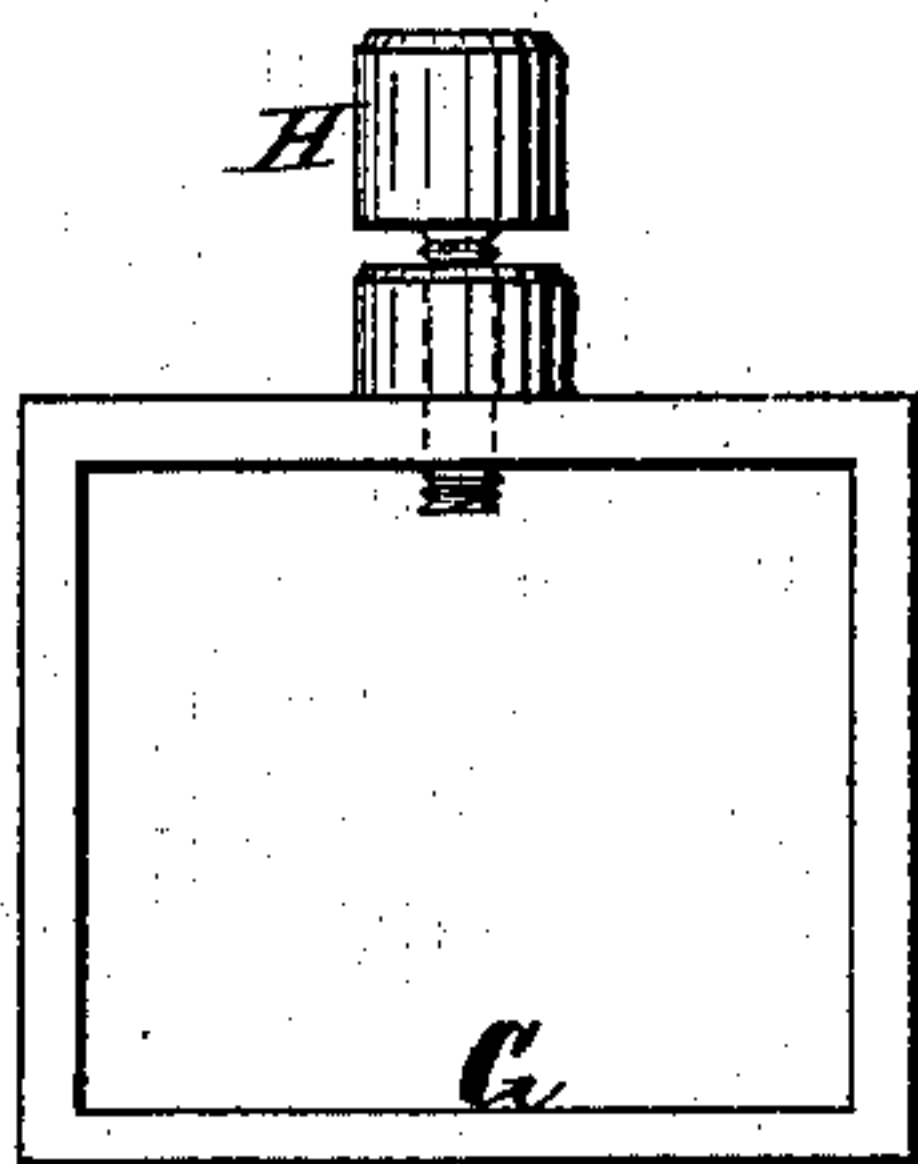
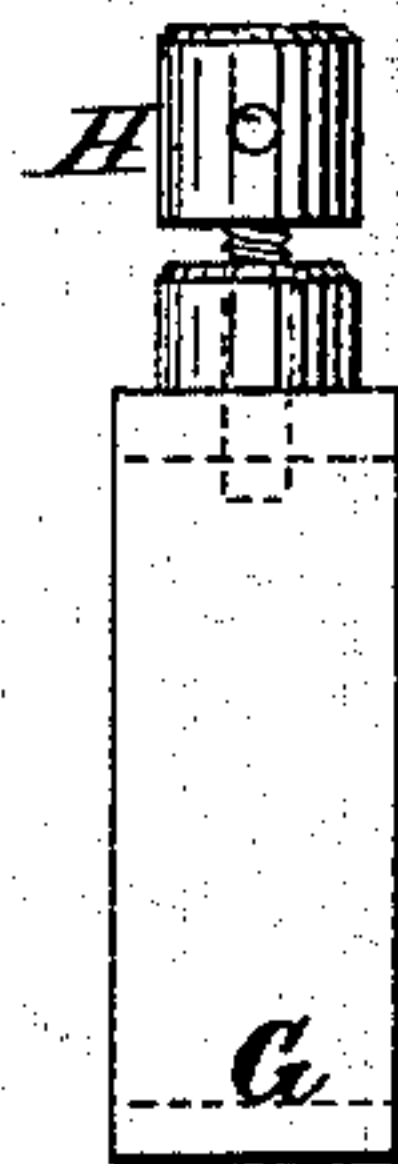


Fig. 6.



Witnesses;

Amphlett Kichler  
Am. & Norm. am

Inventor;

John Feix



# UNITED STATES PATENT OFFICE.

JOHN FEIX, OF SAN FRANCISCO, CALIFORNIA.

## IMPROVEMENT IN INGOT-MOLDS FOR GOLD OR SILVER.

Specification forming part of Letters Patent No. **144,605**, dated November 18, 1873; application filed June 16, 1873.

*To all whom it may concern:*

Be it known that I, JOHN FEIX, of the city and county of San Francisco, California, have invented certain Improvements in Molds for Casting Gold and Silver Ingots for Manufacturing Coin, of which the following is a specification:

The object of this invention is to construct a mold or matrix specially designed for use in casting bars of gold or silver—termed in the art “ingots”—the construction of the mold or matrix being such that a liquid metal placed therein will be free to contract and expand in the mold proper during its conversion into a solid condition, thus securing a uniform size and density of ingot, the result being that when the latter is subjected to the action of drawing or pressing rollers, and brought to the required thickness from which to produce planchets, it will be found that each of said planchets will be of an accurate and specific density, and thus no planchet will be rejected or thrown out to be remelted, as it will be found, on weighing, to possess the legal standard weight. To this end, among other things, my invention consists in providing the interior of a mold, above its shaping-chamber, with a recess or cavity, extending from the top edge of the mold downwardly to a point where it is designed that the rear end or butt of the ingot shall terminate, the base of the recess or cavity being preferably at a right angle with the interior wall of the shaping-chamber with which it is formed, so that the molten metal introduced into the mold to its top for the purpose of forming ingots of gold or silver, the metal, on being converted into a solid state, will be free to expand and contract equally throughout the shaping-chamber, the major portion and terminus of such expansion and contraction occurring in the enlarged top portion of the mold formed by the recess or cavity, so that when the ingot is removed from the mold and the enlarged end severed, the formation of the shoulder serving as a guide, each ingot will be found to possess an accurate uniform size and density. The invention further consists in forming upon the top surface of the mold a groove or channel, so as to receive and collect any of the molten metal that may be spilled or scattered during the opera-

tion of pouring the metal, and, when a series of molds are used, the grooves or channels preventing the metal of one mold uniting with the other on the top surface.

In the drawings illustrating my invention, Figure 1 is a side elevation of a mold or matrix for casting ingots of gold or silver embodying my invention. Fig. 2 is a front elevation of the same. Fig. 3 is a vertical section of the same on the line *xx* of Fig. 2. Fig. 4 is a top view of the mold. Figs. 5 and 6 are a side and an end view of one form of clamp for confining the sections of the mold together.

Like letters of reference indicate corresponding parts.

In the drawings, the letter A designates a mold or matrix, made of any preferred metal or material that will be found most practical, for the purpose of casting or forming bars or ingots of gold or silver preparatory to subjecting them to the action of drawing or pressing rollers to reduce them to the required thickness from which to form planchets. In the portion or section B of the mold or matrix is formed a chamber, C, which I term a shaping-chamber, the side and bottom walls *a b c* of which are plane surfaces at right angles with each other, their lower ends meeting so as to terminate in a bevel or inclined surface, *d*, and a base or terminus, D, the object of such being to impart a slight bevel edge or end to an ingot molded therein, said beveled end or edge serving as a medium for starting the ingot when interposed between the usual drawing or pressing rollers or other shaping devices. Upon one of the walls *a b c*—preferably upon the wall *c*, at its top—is created a recess or cavity, E, extending vertically from the top edge downwardly to about the point *e*, where it terminates in a shoulder or offset, *f*, preferably formed so as to be at right angles with the wall *c*, the object of such shoulder being, among other things hereinafter described, to designate the commencement of the “shaping-chamber” and serve as an index, by indicating where to cut the ingot, so as to have each of an exact uniform length. F is the cover or face plate of the mold, its interior being a plane surface throughout—in the present instance, of a length equal to the greatest length of the portion or section B—and is adapted to



the face of said section by any suitable clamping device, preferably by means of an encircling rod or band, G, having a compressing-screw, H, or its equivalent, the end of which impinges against a section of the mold, so as to confine the parts together and produce a close-fitting joint or union. By arranging in one of the side walls the recess or cavity E, the mouth of the mold is increased in size; but the most important office of such is to increase the size of the opening over that of the ingot-shaping chamber, so that, when the mold is filled with the molten metal to its top edge, a much greater top surface of metal is secured than is in the ingot-shaping chamber, the result being that the major portion of all contraction and expansion occurs within the enlarged chamber of the mold created by the cavity E before mentioned.

When the ingot is withdrawn from the mold and the enlarged end, corresponding in shape with the form of the chamber E, is removed therefrom at the point indicated by the index or guide *f*, it will be found that each ingot formed will be of the same length and shape, and of an equal and uniform density, and so accurate will be the same that the usual calculation by weighing will be avoided, and strain on the delicate balance-scales prevented, as each planchet will correspond in exact weight with the weight used in weighing; and, further, when the ingot is brought to the required thickness from which to fashion the planchets, each of said planchets will be of the same density, due to the equal contraction and expansion of the ingot during its production. Upon the top edge of the mold or matrix, around its mouth, is formed a groove or channel, J, preferably of a curved shape, the deepest portion

being near the outer edge or rim of the mold, said groove or channel receiving and collecting any metal that may be spilled, or any surplus metal escaping from the mouth of the mold.

It is evident that when a series of molds are formed or connected together, the groove or channel J need not extend entirely around all of them, but extend along the sides of the mouth of each and connect with the grooves or channels of the end molds; and, further, I would say that the sections of the mold may be hinged or pivoted together, and the cavity be formed upon the cover or face-plate F, instead of on the wall of the section B, without departing from my invention.

Having described my invention, what I claim is—

1. In combination with a mold for producing ingots of gold or silver, a recess or cavity formed in the mold above the ingot-shaping chamber, to compensate for contraction and expansion of the ingot and secure a uniform density, substantially as described, for the purpose specified.

2. In combination with a mold for casting ingots of gold or silver, a channel or groove, J, arranged in respect to the mouth of the mold substantially as and for the purpose specified.

3. The section B, having the walls *a b c*, incline *d*, and base D, in combination with the enlarged chamber H, section F, and a suitable clamping device, substantially as and for the purpose specified.

JOHN FEIX.

Witnesses:

BERNHARDT KÜHTWIN,  
SAML. HERMANN.