

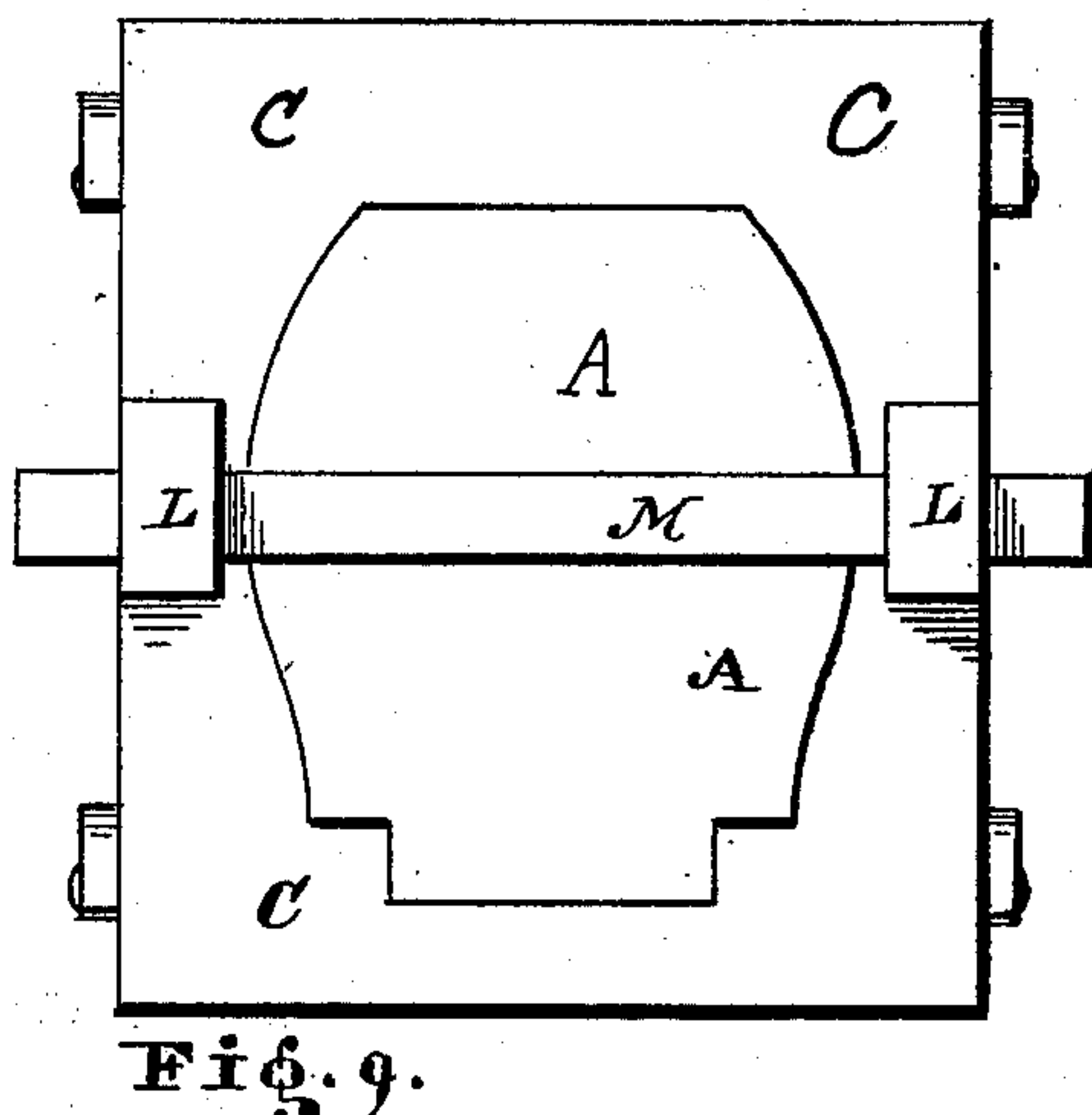
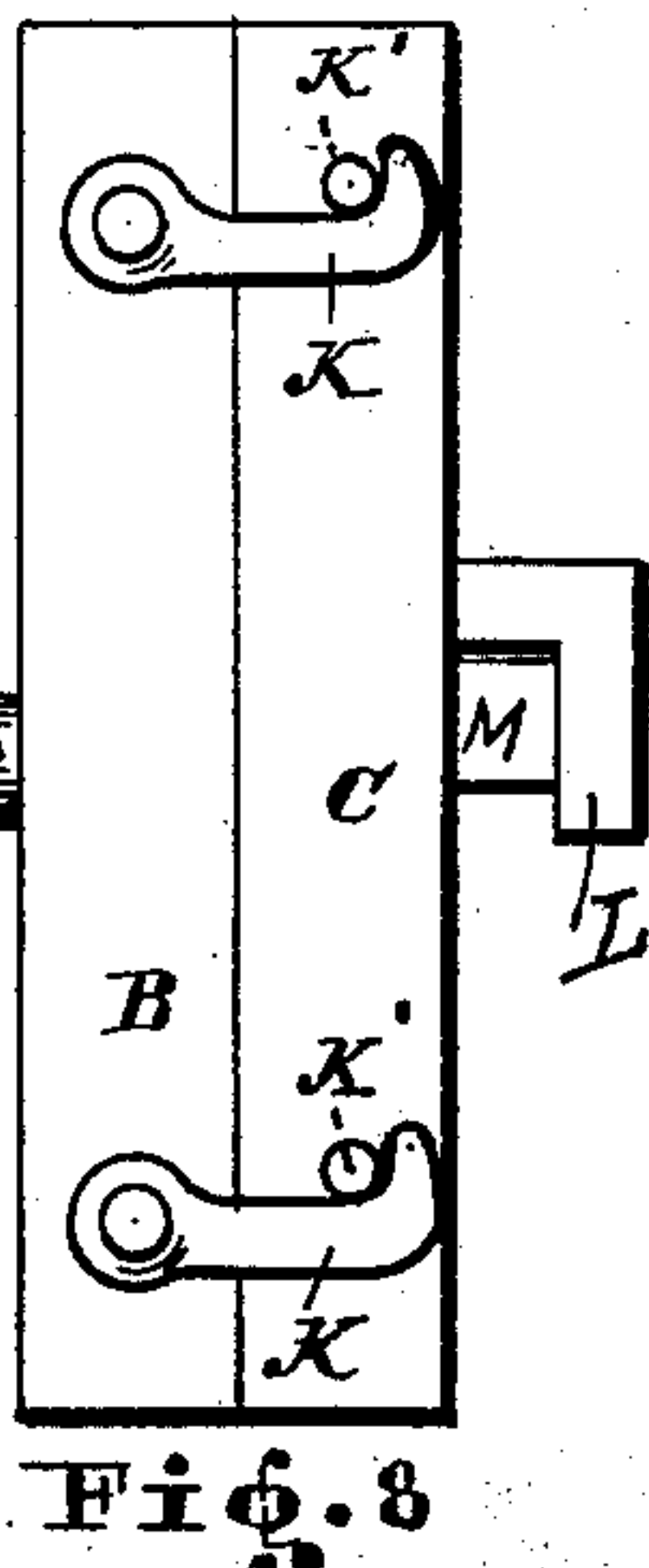
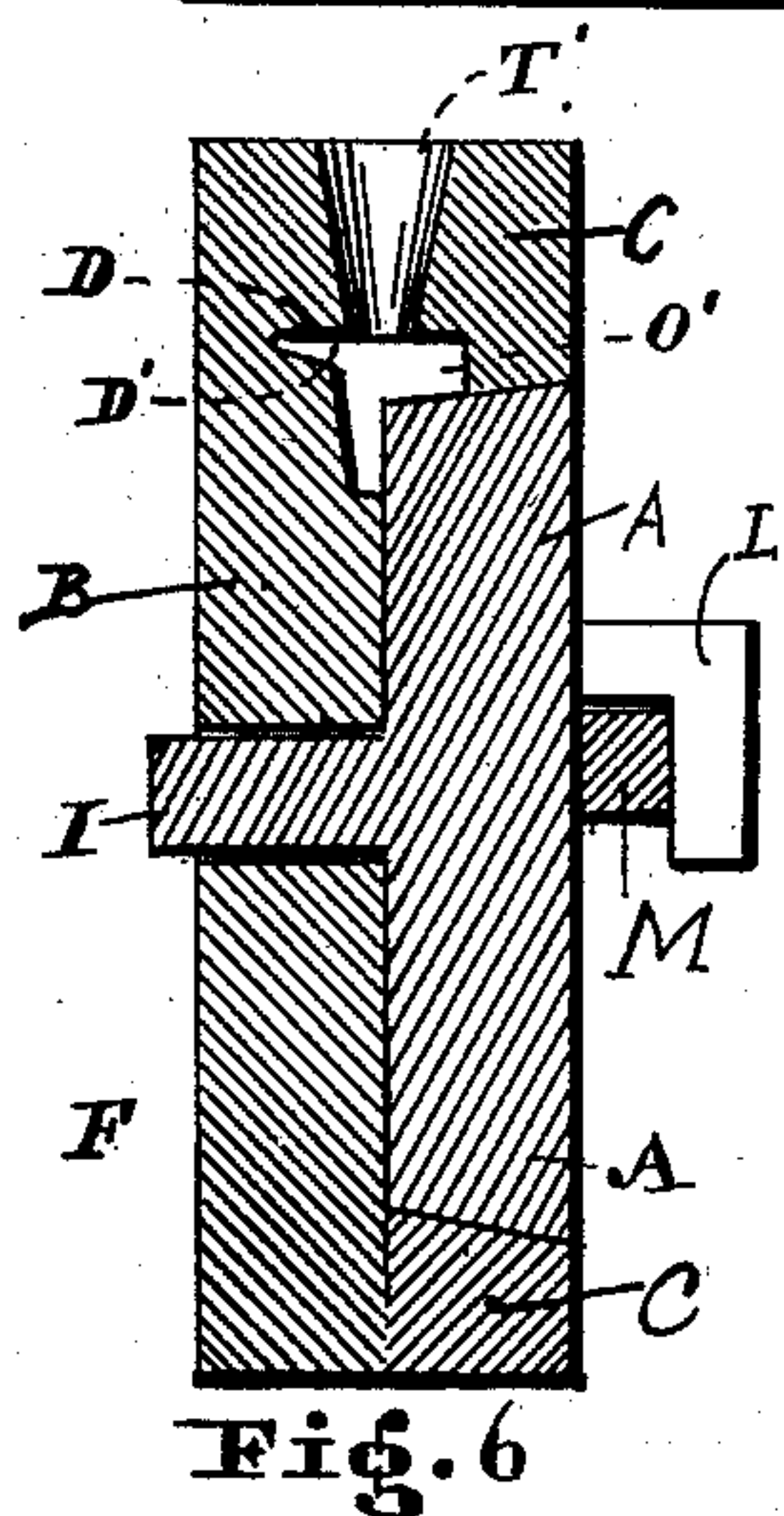
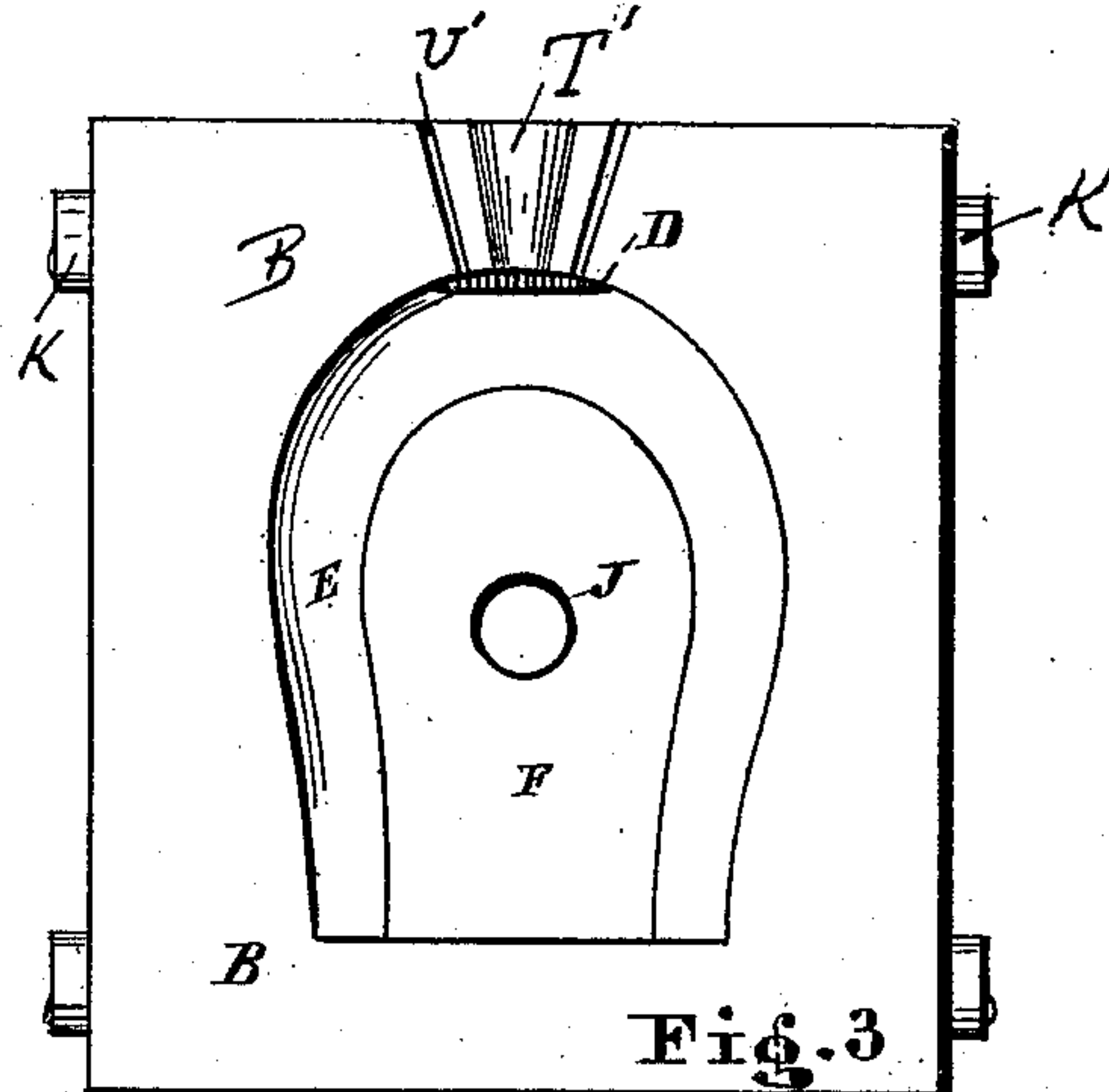
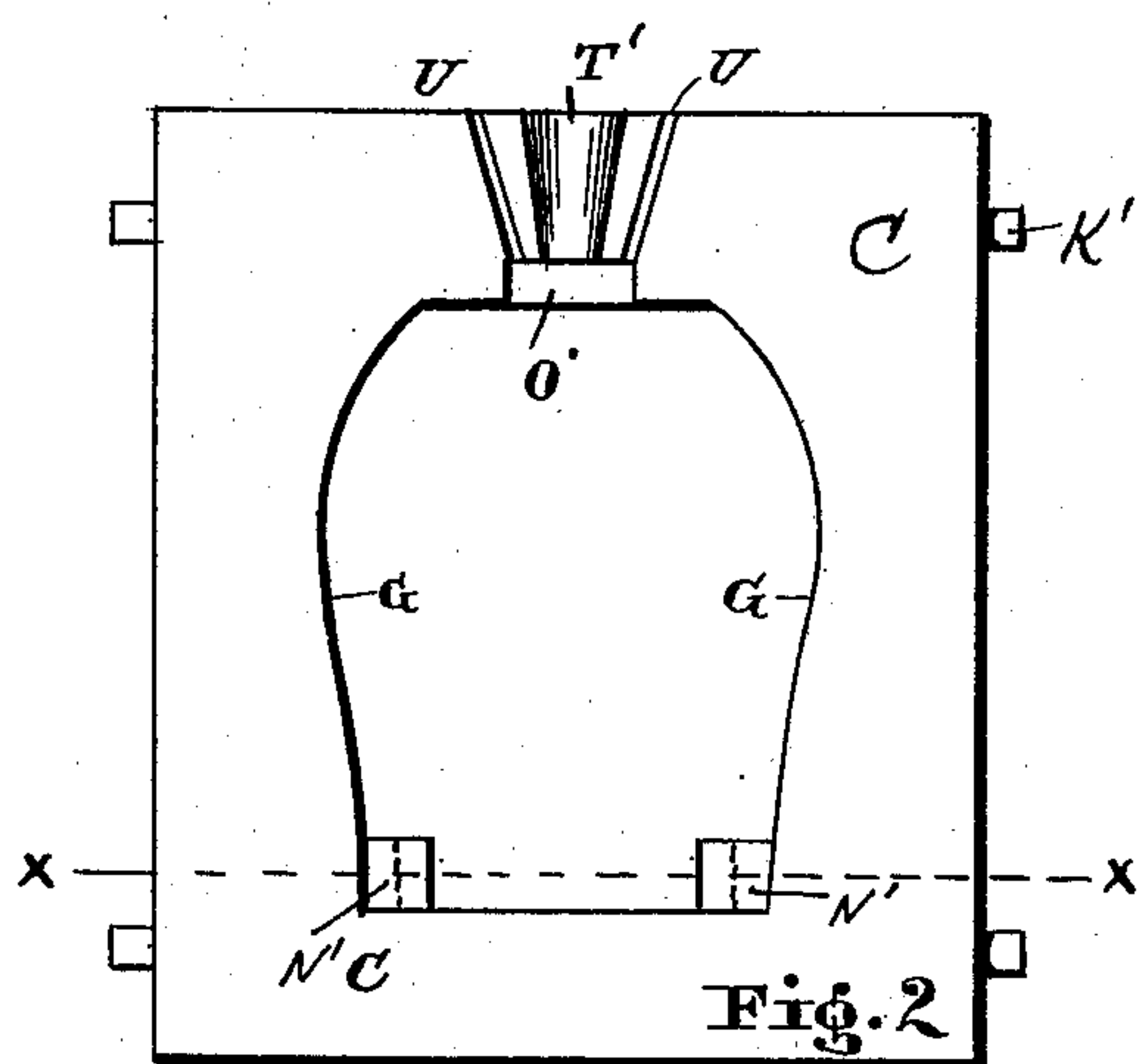
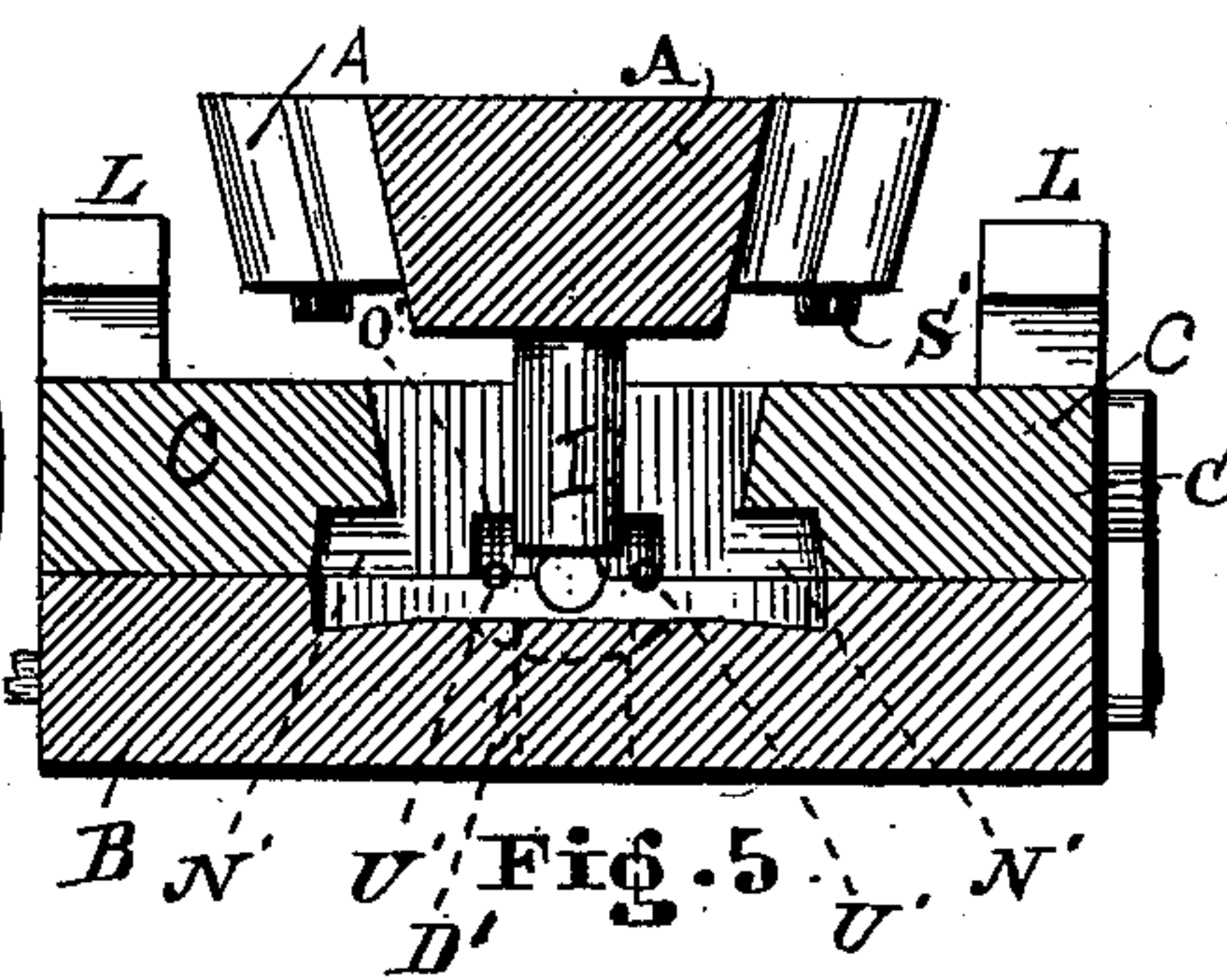
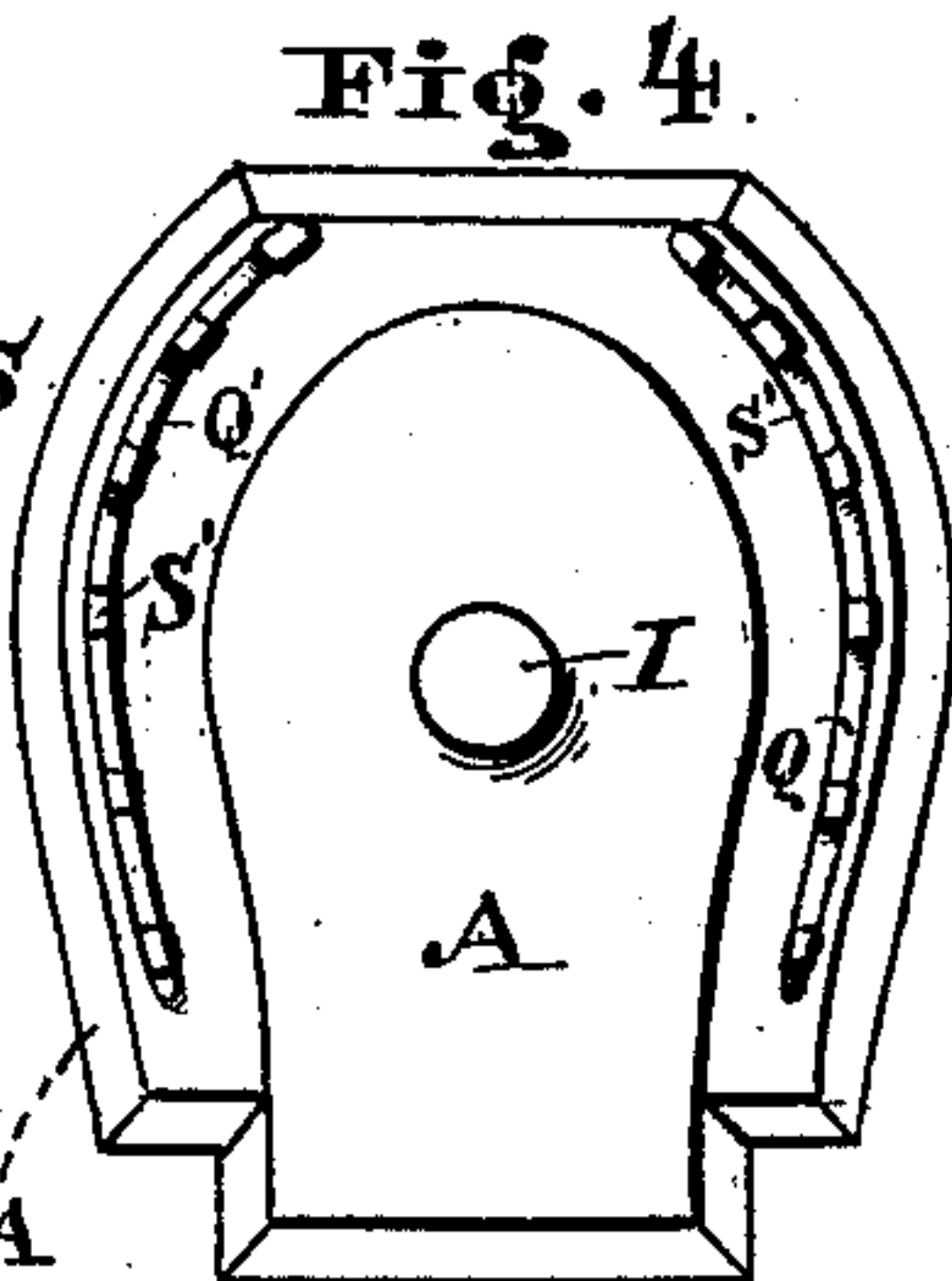
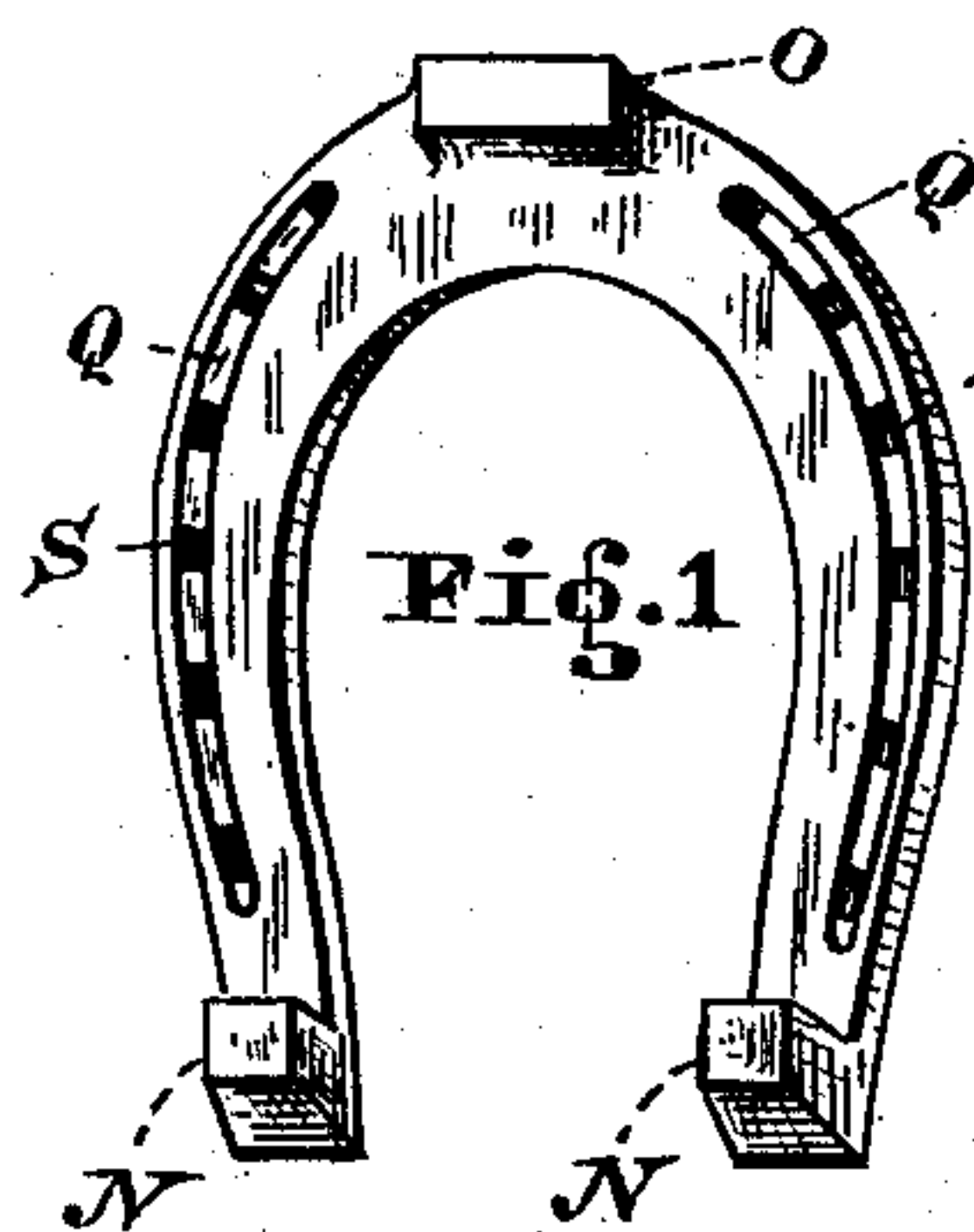
(No Model.)

F. I. FREEMAN.

FLASK FOR CASTING HORSESHOES.

No. 389,559.

Patented Sept. 18, 1888.

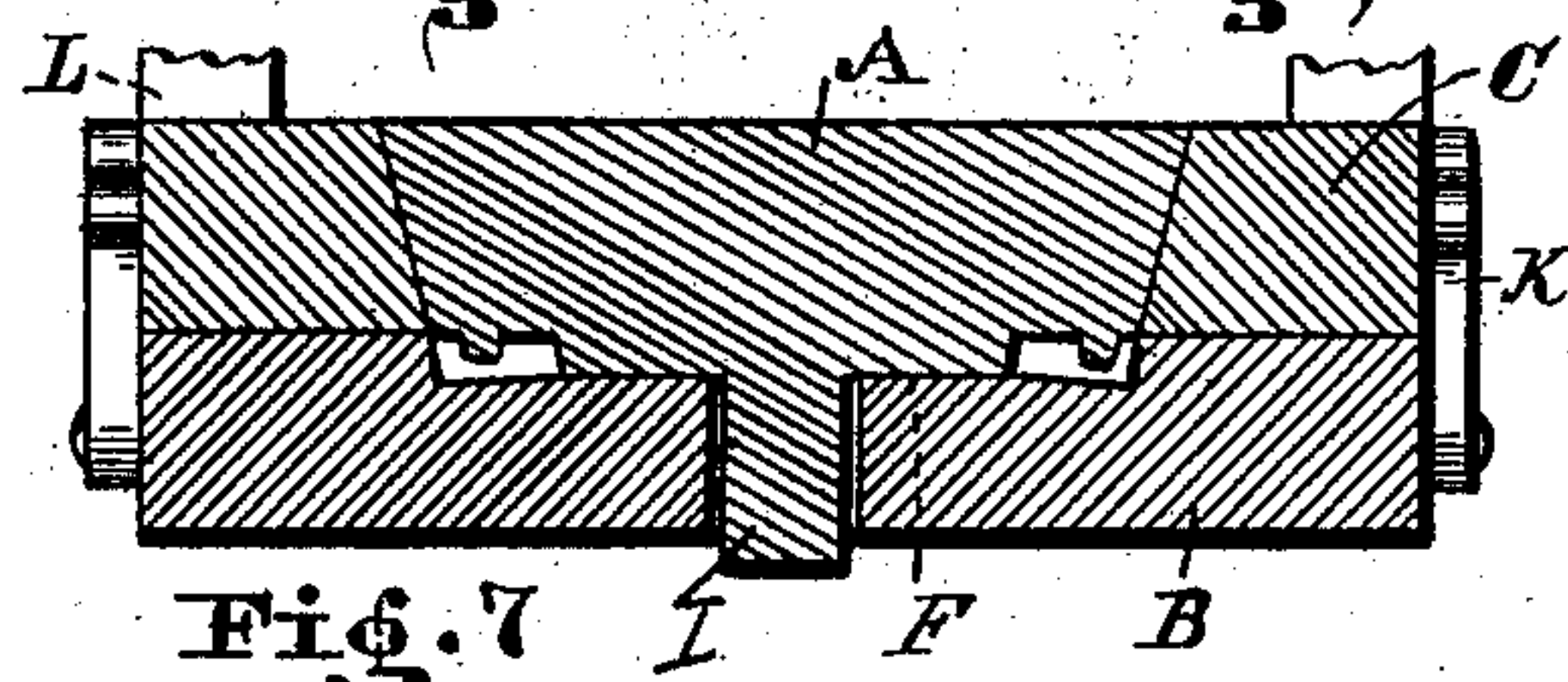


WITNESSES

M. J. Wilson
E. S. Haller

INVENTOR

F. I. Freeman
H. H. Bennett
Attys.



UNITED STATES PATENT OFFICE.

FRANCIS I. FREEMAN, OF WARREN, OHIO.

FLASK FOR CASTING HORSESHOES.

SPECIFICATION forming part of Letters Patent No. 389,559, dated September 18, 1888.

Application filed May 31, 1888. Serial No. 275,531. (No model.)

To all whom it may concern:

Be it known that I, FRANCIS I. FREEMAN, a resident of Warren, in the county of Trumbull and State of Ohio, a citizen of the United States, have invented certain new and Improved Flasks for Casting Horse and Mule Shoes; and I do hereby declare the following to be a full, clear, and complete description thereof.

My invention relates to metallic flasks or molds for casting steel shoes for horses and mules; and the improvement consists in the peculiar construction and manner in which the several parts comprising said molds are arranged in relation to each other.

The object of this improvement is to so construct the molds or flasks as to render them readily separable before the cast-steel shoe begins to contract while cooling off, thus in no way or place retarding the contraction of the said shoe, any obstruction during the process of contraction necessarily causing breakage in the article cast and rendering it unserviceable.

That this invention may be fully understood, reference will be had to the annexed specification and the accompanying drawings.

Figure 1 represents a horseshoe cast in and formed by the flask above referred to. Figs. 2 and 3 illustrate the face views of each half of the mold. Fig. 4 is an inner face view of the center core for said mold. Fig. 5 is a horizontal section of both the sides of said mold and the center core ready to be inserted therein in line *x x*, Fig. 2. Fig. 6 is a central vertical section of the mold complete. Fig. 7 is a central horizontal section of the same. Fig. 8 is a side view of said mold when united and ready to receive the molten material, (steel or iron.) Fig. 9 is a front face view of the same.

Like letters of reference denote like parts in the drawings and specification.

The horseshoe, Fig. 1, represents the finished article when taken from the mold above referred to, which mold is formed in sections or parts, preferably of cast-iron. The inner side and the lower side of said shoe are formed by the central core, A, Fig. 4, and the outer side of the shoe is formed within the plate B, Figs. 3 and 5, whereas the projecting heels and toe on the lower side of the shoe are formed by the plate C, Fig. 2. The plate B contains the body part of the shoe, and also the clip D, as

seen in Figs. 3 and 6 and in dotted lines in Fig. 5. The depression E constitutes the form of the horseshoe, and diminishes in depth toward the central part, F, of the plate B. Into the opening G of the plate C is fitted the core A, which core is provided with a pin, I, projecting out laterally therefrom. The pin, when inserted into the central hole, J, of the plate B, will retain the plate C, as well as the core A, in proper relation with the plate B.

The plate C is secured to the plate B by means of the hooks K K. (Shown in Figs. 8 and 9.) The hooks are pivoted to the plate B, and engage over pins K', projecting out from the plate C. (Seen in Fig. 8.) The center core, A, is held within the plate C by means of the lugs L and the bar M. Other equivalent means may be employed to secure the different parts together within the scope of my invention. Only such devices, however, can be used for this purpose which allow of a ready separation of the different parts of said mold, so as not to restrain the contraction of the cast shoe within the same, which is done by removing the core A, preventing the shoe from cracking by shrinkage or cooling.

The shoe-body mainly is formed by the plate B and the center core, A, whereas the heels N and the toe O are developed in the cavities N' N' and O', which are formed by the plate C and said core A. The clip of the shoe is cast in the cavity D' of the plate B. (Seen in Figs. 3 and 6 and in dotted lines in Fig. 5.)

In Fig. 5 the plates B and C are shown ready to be secured to each other, having the core A ready to be inserted into the tapering opening G of the plate C, after which the core is secured thereto by means of the bar M. The grooves Q Q and nail-cavities S S are produced by the rims Q' Q' and projection S' S' on the inner face of the core A, Figs. 4 and 5.

Tapering semicircular grooves T' U' are made on the inner side of said plates, extending from the cavities O' and D' to the edge of the plate. These grooves, when the plates are brought in contact with each other, form the gate T' and air-holes U' U', respectively. The gate T' is for the purpose of conveying the molten steel or iron into the mold when in an upright position, as shown in Fig. 6, while the hole U' U' enables the air to escape as the steel is filling up said mold. As soon

as the molten metal in the mold changes from a liquid into a solid state it is of vital importance that the cast shoe should have unrestricted room to contract while cooling off.
5 One blow from a hammer will drive the bar M from out the lugs L, and another blow against the projecting end of the pin I will separate the core A from the cast shoe, allowing it to contract in every direction before being taken from out the mold. After the core is removed from the mold the shoe is still retained therein at either side of the toe O and at the faces of the heels N N by means of the plate C, as seen in Figs. 5 and 6. To remove
15 the shoe from the mold, the plates B and C must be separated, which is done by unlocking the hooks K K. The shoes are preferably made of steel, which not only gives durability to the article, but also makes a superior class
20 of castings.

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

1. A flask for casting steel shoes for horses and mules, consisting of the plates B C and
25 the central core, A, the plate B countersunk to shape the outside, top, and clip of a shoe, the

plate C perforated to receive the tapering core A and recessed to form heels and toe of a shoe, and the central core, A, provided with curved rims having projections therein to produce the grooves and nail-cavities on the bottom of the shoe, and a recess to shape the inside of the shoe, substantially as and for the purpose set forth. 30

2. In a flask for casting horse or mule shoes, the combination of the plate C, core A, and plate B, the plate C provided with lugs L at the back side thereof, to receive the bar M and retain by said bar the core A within said plate C, the pin I of said core projecting
40 through an opening in the plate B, and pivoted hooks secured to the side of said plate for engagement over pins projecting out from the plate C, all substantially as described, for purpose set forth. 45

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

FRANCIS I. FREEMAN.

Witnesses:

W. H. BURRIDGE,

B. F. EIBLER.