

(No Model.)

S. J. ADAMS.
SAND MOLD AND RUNNER.

No. 520,101.

Patented May 22, 1894.

Fig 1.

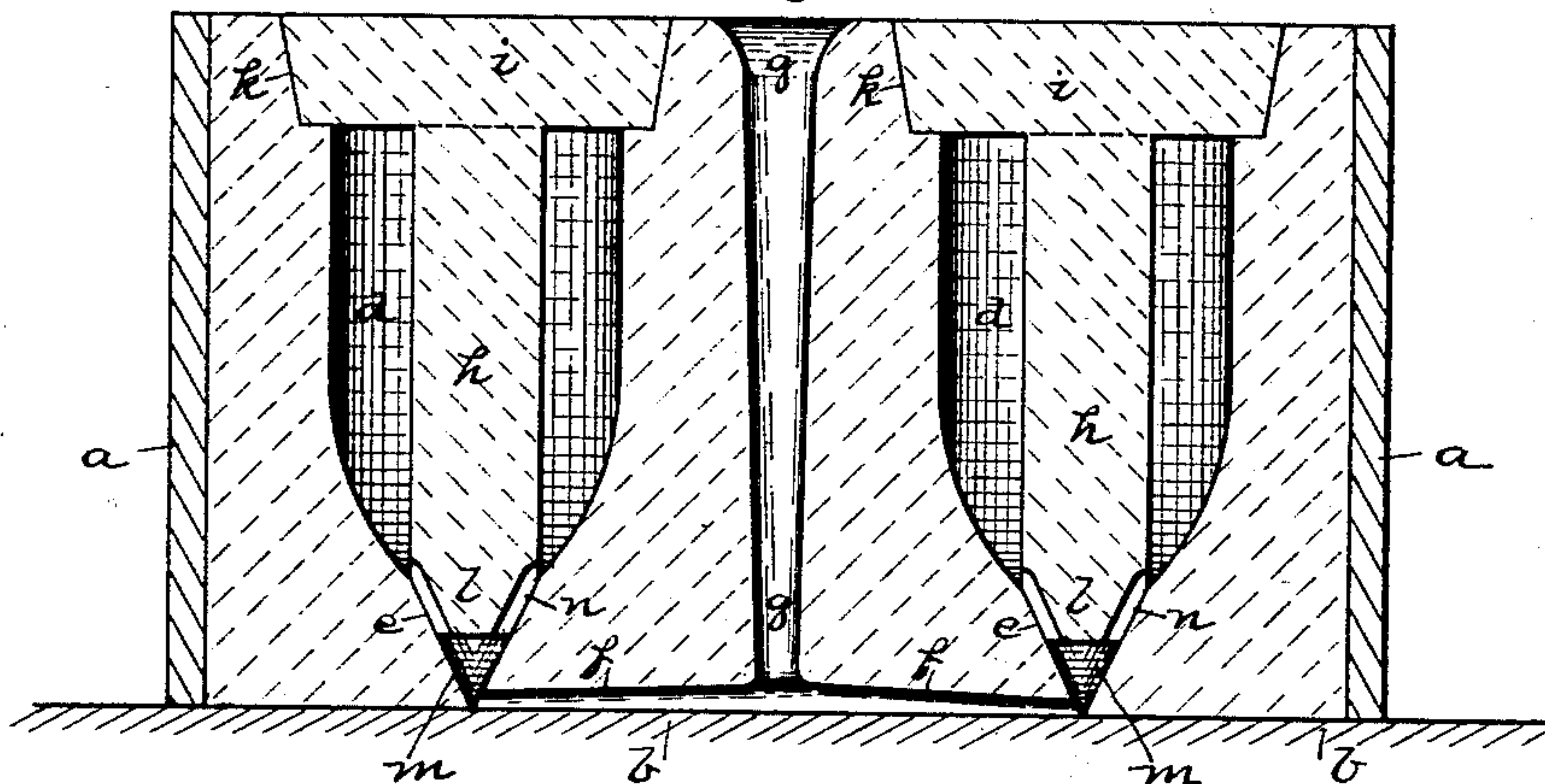
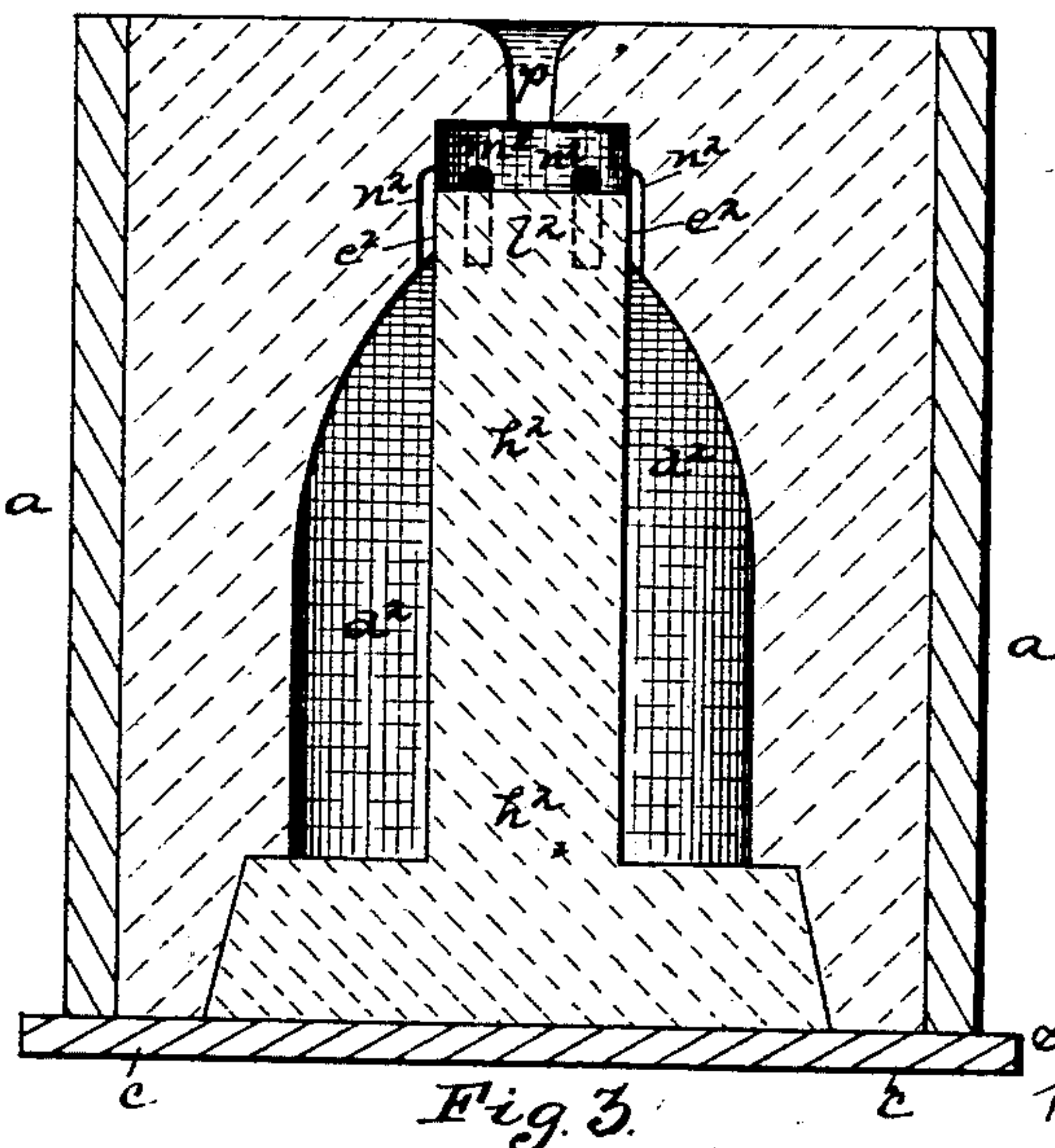
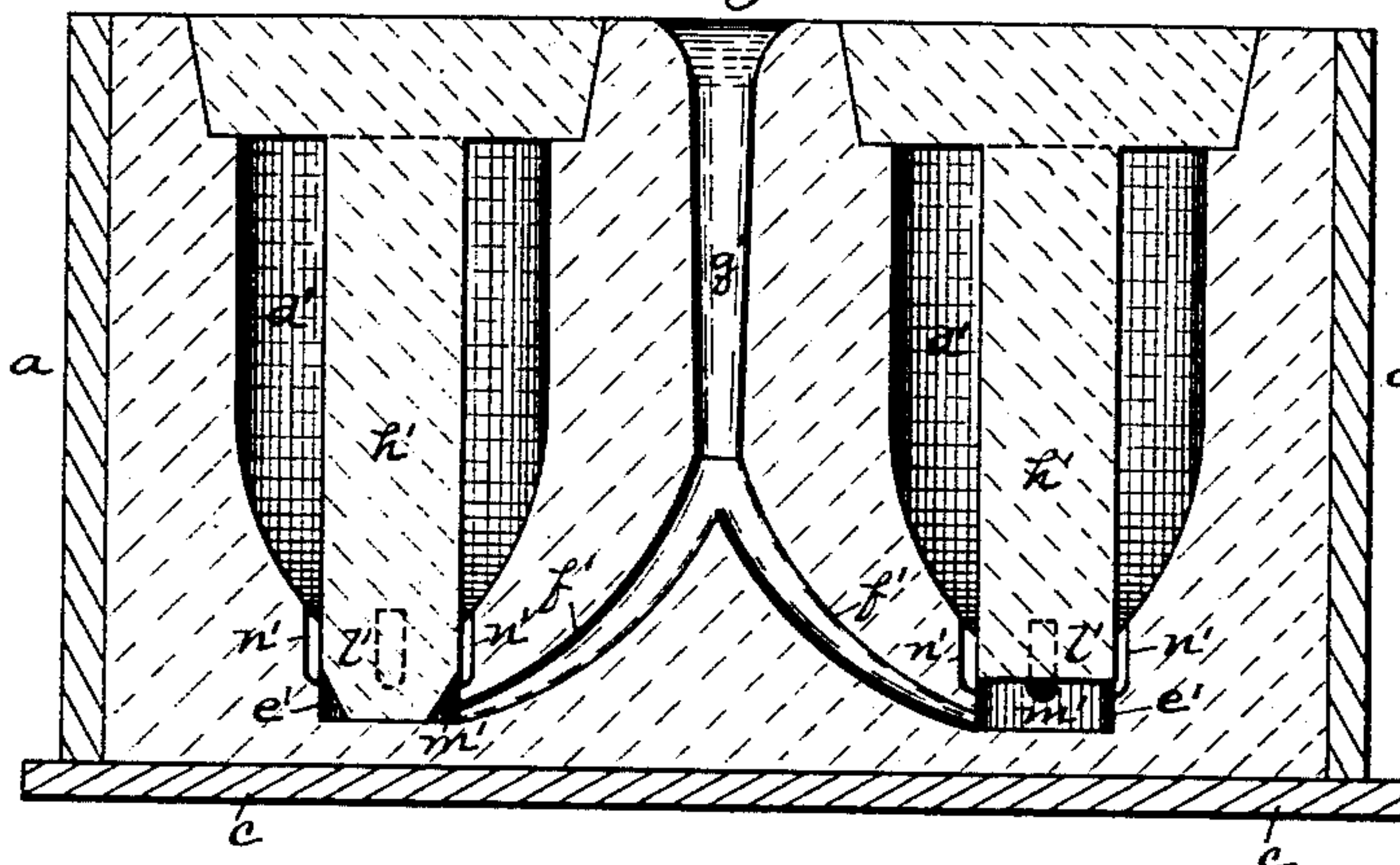


Fig 2.



Witnesses:
J. N. Cooke
F. J. May

Inventor
Stephen Jarvis Adams
By James D. May
Attorney

UNITED STATES PATENT OFFICE.

STEPHEN JARVIS ADAMS, OF PITTSBURG, PENNSYLVANIA.

SAND MOLD AND RUNNER.

SPECIFICATION forming part of Letters Patent No. 520,101, dated May 22, 1894.

Application filed June 18, 1891. Serial No. 396,676. (No model.)

To all whom it may concern:

Be it known that I, STEPHEN JARVIS ADAMS, a resident of Pittsburg, in the county of Allegheny and State of Pennsylvania, have invented a new and useful Improvement in Sand Molds and Runners; and I do hereby declare the following to be a full, clear, and exact description thereof.

My invention relates to sand molds for forming tubular articles. It is well known that unless these molds are properly and evenly compacted the metal flowing into the same is very liable to cut the mold in case it flows into the same in any large volume, this being especially the case where it drops into the mold, and the action taking place even though the metal rises therein. For forming large molds, such as large pipe balls and wagon boxes, it is extremely desirable to provide the means for feeding a large body of metal quickly into the mold cavity without cutting the walls thereof, and the object of my invention is to accomplish this result.

It consists, generally stated, in a sand mold having a mold cavity, a runner extending through the body of the mold beside the mold cavity and communicating with a core seat at the inner end of the mold cavity, and a core entering the mold cavity and fitting in but not filling said core seat, thus forming a pocket in said core seat, and a series of passages leading from said pocket into the mold cavity, such mold providing for the feeding of a large body of metal quickly into the mold cavity, and the feeding of the same from the inner end of the mold in a series of small streams, even though a large casting is being formed.

To enable others skilled in the art to make and use my invention, I will describe the same more fully, referring to the accompanying drawings, in which—

Figures 1, 2 and 3 are vertical sections of molds embodying my invention.

Like letters of reference indicate like parts in each of the views.

The molds shown are the ordinary constructions of sand molds formed in flasks *a*, which in Fig. 1 are shown as resting on a sand bed or shallow drag *b*, and in Figs. 2 and 3 as resting on a bottom board *c*. In Fig. 1 below the mold cavity *d* is the core

seat *e*, which is shown as tapering in form, and which extends down to the base of the mold, its lower end communicating with the runner *f* formed in the body of the mold and closed by the sand bed or drag *b*, with which runner the pouring gate *g* communicates. The core *h* fits within the mold cavity, its upper end having a print *i* seated in the outer core seat *k*, while at the lower end is the print *l*, which is seated in the core seat *e*, the print fitting only in the upper part of said core seat, and leaving below the same a space or cavity *m*. Formed along the print *l* of the core is a series of longitudinal feeding grooves or passages *n*, which form communication from the pocket or cavity *m* into the mold cavity *d*, there being preferably three or more of these grooves or runners, according to the size of the casting to be formed, the object being to divide the stream as it flows from the pocket into the mold cavity, so that even though a large body of metal is fed into the same, it will be fed in small streams which will not be liable to cut the sand of the mold, or form irregularities in the castings. As so constructed, the metal will flow down through the pouring gate *g* in the body of the mold, and along the runner *f*, and into the pocket or cavity *m* at the inner end of the core seat *e*, and then will rise in several small streams through the passages or runners *n* into the mold cavity, the stream being thus divided so that all liability of the cutting of the mold thereof will be prevented.

In Fig. 2 my invention is illustrated as applied to another form of mold, having the mold cavity *d'* and the core seat *e'* at the base thereof, the walls of which are made substantially parallel. The core *h'* fits within the mold, and its inner side *l'* fits into the upper end of the core seat *e'*, and the lower end of the core print *l'* is formed tapering, and made if desired to bear in its center on the base of the core seat, so forming an annular pocket or cavity *m'* around the same, to receive the metal from the runner *f'* leading from the pouring gate *g'*. To the left of Fig. 2 this annular pocket is shown, and to the right of Fig. 2 the core does not extend down to the base of the core seat. The series of passages *n'* leading from the pocket *m'* to the mold cavity *d'* are formed in the walls of

the mold, instead of in the print of the core, the print of the core being cylindrical above its tapering lower end. In such mold the metal will flow in substantially the manner
 5 above described, passing through the pouring gate g' to the runner f' , thence to the annular pocket n' , and thence to the series of grooves or passages in the body of the mold around the core in the mold cavity d' . Sub-
 10 stantially the same construction is illustrated in Fig. 3, except that the position of the mold is reversed. The inner core seat e^2 has substantially vertical walls, and communicating therewith is the runner or pouring gate p .
 15 The passages n^2 from the pocket or cavity m^2 to the mold cavity d^2 are formed in the walls of the mold around the cylindrical core print l^2 of the core h^2 . The metal will flow in such case through the pouring gate p into the
 20 pocket or cavity m^2 , and pass thence through the series of runners n^2 into the mold cavity d^2 .

In any of the above forms of molds illustrating my invention, it will be evident that
 25 the operation is substantially the same, the metal passing from a pocket formed at the inner end of the inner core print, either through grooves in the core or grooves in the

mold around the core, and through these series of grooves in a series of separate or divided streams into the mold cavity, so that
 30 each stream will not be of sufficient volume to cut the walls of the mold, and even though the mold be large, a large volume of metal can be quickly fed thereto without any cut-
 35 ting action upon the walls of the mold, the principal difficulty in the forming of these large molds being overcome.

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

A sand mold having a mold cavity, a runner extending through the body of the mold beside the mold cavity and communicating with a core seat at the inner end of the mold cavity, a core entering the mold cavity and
 45 fitting in but not filling said core seat, thus forming a pocket in said core seat, and a series of passages leading from said pocket into the mold cavity, substantially as and for-
 50 the purposes set forth.

In testimony whereof I, the said STEPHEN JARVIS ADAMS, have hereunto set my hand.

STEPHEN JARVIS ADAMS.

Witnesses:

J. N. COOKE,

ROBT. D. TOTTEN.