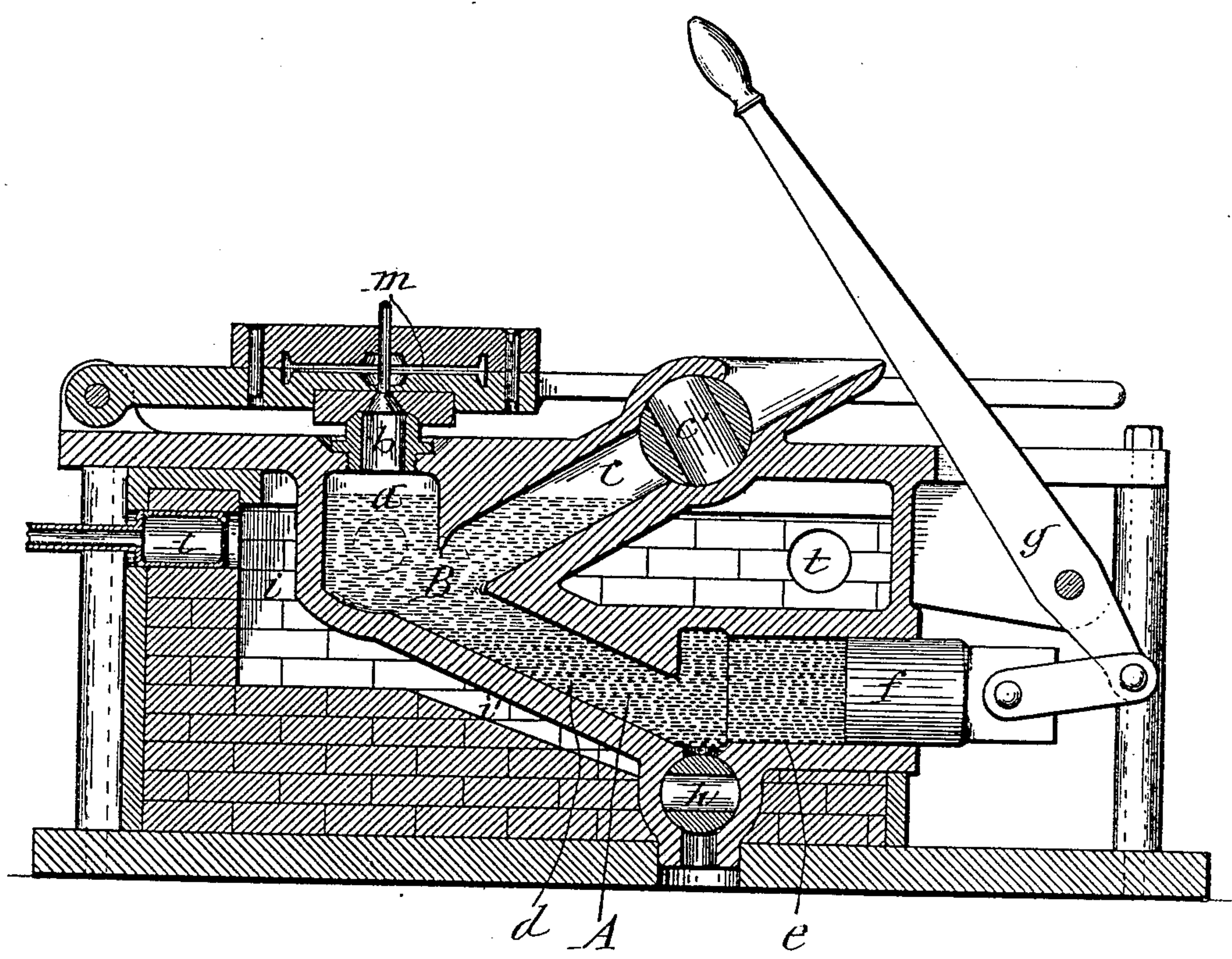


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G. STROH.
PROCESS OF MAKING METAL CASTINGS.
APPLICATION FILED JULY 28, 1903.

NO MODEL.



WITNESSES:

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GEORGE STROH, OF SYRACUSE, NEW YORK.

PROCESS OF MAKING METAL CASTINGS.

SPECIFICATION forming part of Letters Patent No. 755,722, dated March 29, 1904.

Application filed July 28, 1903. Serial No. 167,265. (No specimens.)

To all whom it may concern:

Be it known that I, GEORGE STROH, a citizen of the United States, and a resident of Syracuse, in the county of Onondaga, in the State of New York, have invented new and useful Improvements in Processes of Making Metal Castings, of which the following, taken in connection with the accompanying drawing, is a full, clear, and exact description.

10 The object of this invention is to produce perfect castings of aluminium or other metal which requires intense heat to melt it to a proper fluent state for casting it. It has been found difficult to obtain perfect castings from
15 such metals, especially from aluminium, owing to its inferiority of specific gravity and the peculiarity of its general character, which difficulty I overcome by my improved process of casting the said metal.

20 The drawing hereto annexed illustrates a vertical longitudinal section of one of the various constructions of casting apparatus suitable for practicing my present invention.

In the said drawing, *a* represents the melting-pot, which is provided with a suitable nozzle *b*, through which to force the molten metal into the mold or matrix *m*, supported directly over said nozzle.

30 *c* designates a chute through which to charge the apparatus with the metal to be melted. Said chute is provided with a suitable cut-off valve *c'* to close the chute during the process of forcing the molten metal into the mold *m*.

35 *d* represents a duct extending from the melting-pot *a*. *e* is a cylinder which communicates with the said duct. *f* is a piston disposed in the said cylinder and operated either by a lever *g*, as shown, or by any other suitable power.

40 A waste-cock *h* is connected to the duct *d* for emptying said duct and the melting-pot when desired for cleaning the same.

45 *i* represents a combustion-chamber surrounding the melting-pot *a* and formed with an extension *i'*, following along the bottom portion of the duct *d*.

l denotes one of the burners, which com-

5 2. The process of making castings of aluminium by melting said metal over a body of metal fusible at a lower temperature and of greater specific gravity, and while maintaining both of said metals in a molten state applying to the said fused heavier metal sufficient artificial pressure to force the overlying

municates with the combustion-chamber, and *t* denotes an outlet for the gases from the combustion-chamber. 50

In practicing my invention I proceed as follows: I first introduce through the chute *c* a quantity of lead or zinc or other metal of greater specific gravity than aluminium, the said heavier metal filling the cylinder *e* and the greater portion of the duct *d*, as represented at A. I then introduce through the chute *c* the aluminium B, which is supported upon the top of the heavier metal A. I then apply to the combustion-chamber *i* the requisite intense heat to melt the aluminium in the melting-pot *a*. At the same time the extension *i'* becomes charged with heat from the combustion-chamber. In passing down in said extension the heat therein is partially reduced in temperature. The duct *d*, absorbing this heat, causes the lead or heavy and readily-fusible metal A in said duct to be melted and rendered fluent. The waste-cock *h* is obviously closed in the meantime. After the aluminium and underlying heavy metal are rendered to the requisite condition of fluency, I close the valve *c'* in the chute *c* and set in motion the piston *f*, so as to propel the molten heavy metal A toward the melting-pot *a*, and thereby cause the said metal to force the aluminium B from the melting-pot out through the nozzle *b* and into the mold *m*, so as to effectually fill said mold and produce a perfect casting. 55 60 65 70 75 80

The object of interposing the heavy and easily-fusible metal A between the aluminium B and the piston *f* is to avoid the necessity of intensely heating the cylinder *e* and its piston *f*, which intense heat would be required if the aluminium were allowed to enter said cylinder. 85

What I claim as my invention is—

1. The process of making metal-castings consisting in introducing under the molten metal to be cast, a fluent or semifluent material of greater specific gravity and applying to the said introduced material artificial pressure sufficient to force the overlying molten metal into the mold or matrix. 90

aluminium into the mold or matrix as set forth.

GEORGE STROH.

Witnesses:

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