

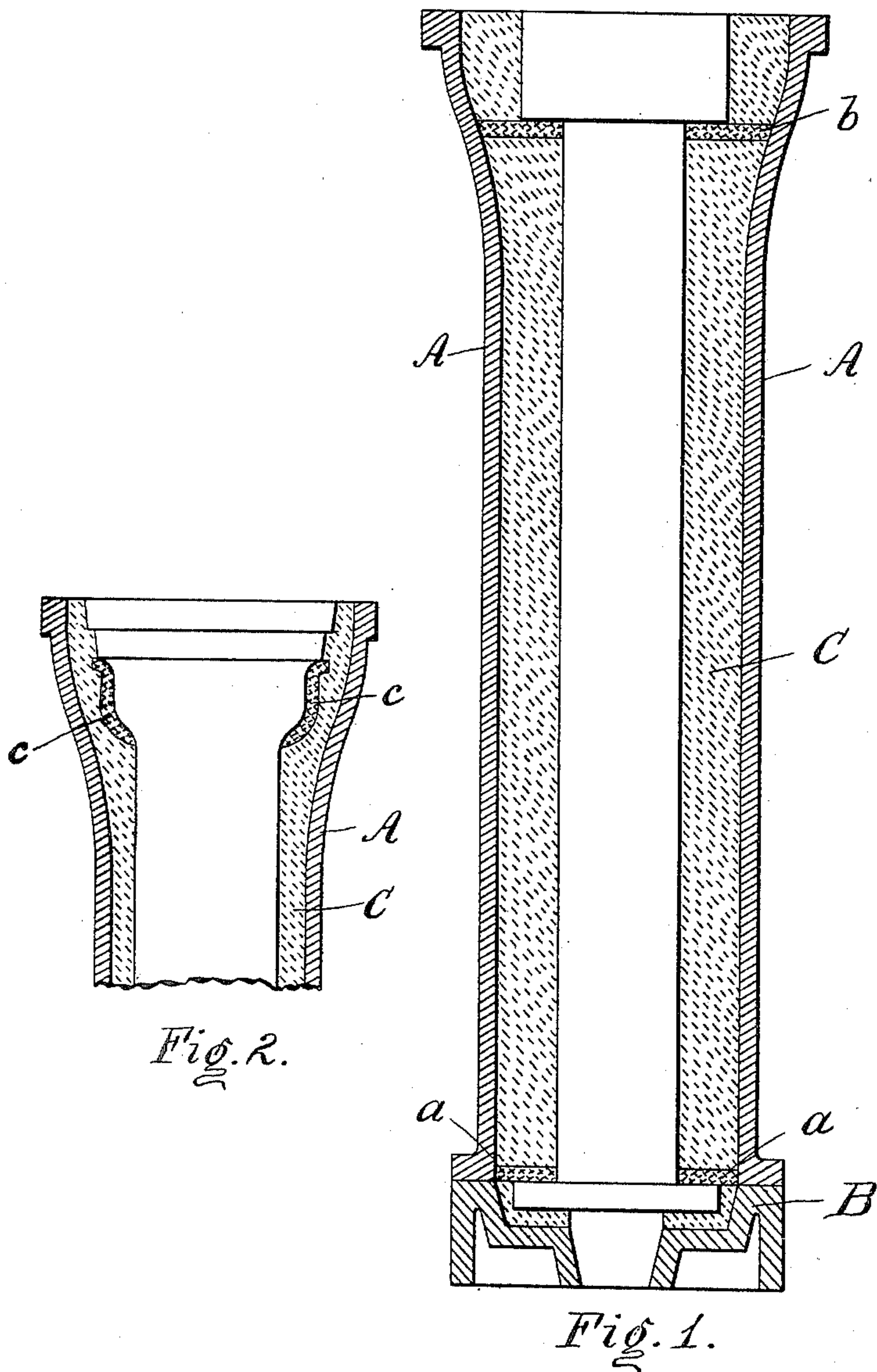
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G. P. BASSETT, JR.
MOLD FOR CASTING.

(Application filed Mar. 1, 1899.)

(No Model.)



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UNITED STATES PATENT OFFICE.

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MOLD FOR CASTING.

SPECIFICATION forming part of Letters Patent No. 642,035, dated January 23, 1900.

Application filed March 1, 1899. Serial No. 707,328. (No model.)

To all whom it may concern:

Be it known that I, GEORGE P. BASSETT, Jr., a citizen of the United States, residing at Cincinnati, in the county of Hamilton and State of Ohio, have invented certain new and useful Improvements in Molds for Castings, of which the following is a full, clear, and exact description, reference being had to the accompanying drawings, forming part of this specification.

My invention relates to molds for the casting of pipes, more particularly for such pipes as are provided with flanges or bell-mouths.

In the casting of pipes it is essential that in forming the mold the sand shall be very tightly rammed for the exterior of the pipe, and as a result when the metal is run into the mold the contraction of the metal exerts a very powerful pressure on the flanges or bell-mouths of the pipe. The mold must be rammed to prevent this contraction from breaking down the mold, so that the resulting contraction tends to very seriously weaken the pipe at the flanges. It is usually the case that from ten per cent. to fifteen per cent. of flanged iron pipes cast in the ordinary way are destroyed by the necks of the pipes breaking off at the flanges. To reduce this percentage of loss to a minimum, it is necessary to use for the manufacture of the cast-iron pipe much better, and therefore necessarily more expensive, grades of pig-iron with a smaller percentage of scrap than would be required were there some method devised for releasing the pressure on the flanges as the pipe contracts with cooling.

It is therefore the purpose of my invention to remedy this defect in the ordinary arrangements for the casting of such pipes by the certain novel construction of mold to be hereinafter particularly pointed out and claimed.

In the drawings, Figure 1 is a central vertical section of the exterior mold for a flanged pipe with the core-bar removed, showing my improvements. Fig. 2 is a similar section of the upper end of a mold for bell-mouthed pipes.

A is the exterior flask of the mold of the usual construction, and B the usual core-plate for centering the usual core-bar.

In forming the mold I provide an annular cake *a*, which is placed at the bottom of the mold to form the inner end of one of the flanges. The sand is then rammed on top of this cake between the exterior flask and the pipe-pattern in the usual way to form the mold C for the exterior of the pipe. At the upper end of the mold I place a cake *b*, similar to the cake or ring *a*, to form the inner end of the other flange of the pipe. The balance of the mold, with its core-bar, is formed in the usual way.

In forming the annular rings or cakes *a* and *b* I take a sufficient quantity of leaves, hay, straw, sawdust, or the like combustible material and mix same with just enough wet clay or other suitable cementing material to form a cake or ring which will hold the combustible material together when dried. When the metal is run into the mold, these cakes at the inner edges of each flange burn away, allowing the metal to contract without bringing any strain to bear on the flanges as the metal cools.

Instead of forming cakes or rings before ramming the sand it is equally advantageous to form the rings or layers of combustible material at the same time that the balance of the mold is formed—that is, the suitable combustible material is merely laid in place without forming it into a ring beforehand and the moist sand is rammed around it, thus forming the ring in the mold itself.

I am aware, of course, that collapsible core-bars have been long in use in which a rope of hay or like material is employed, which can burn away to permit the core-bar to be extracted after the pipe is cast, and also that the same expedient has been long in use for the casting of bells; but it will be evident that my invention bears no relation to these old and familiar expedients. I provide for a contraction of the external mold during the process of casting, the mold finally to retain the same shape as before, except that the distance between the flange portions is less than at the start. That the expedient set forth herein is not an obvious one is evident from the fact that for years flanged pipes have been cast without the provision for contraction herein provided for, and this has uniformly

- resulted in at least a ten-per-cent. loss. With my invention, as above described, this percentage of loss is entirely avoided, and in addition thereto there is a large percentage of
- 5 saving in the proportions and grades of pig-iron and scrap that can be employed in casting pipes with my improvement over the proportions necessary when the pipe is cast in the ordinary mold.
- 10 The same plan as pursued with flanged pipes can also be employed for the casting of bell-mouthed pipes. In the manufacture of such pipes I use a similar cake of combustible material *c*, placing same in the formation of the mold around the enlargement or
- 15 expansion of the mouth of the pipe, so that the contraction of the length of the pipe may be compensated for in the mold just as it is with reference to flanged pipes.
- 20 Having thus described my invention, what

I claim, and desire to secure by Letters Patent, is—

1. In a mold for casting flanged pipes and the like, and having the mold-wall of sand in the usual way, a layer of combustible material of suitable thickness, embedded in the surface of the exterior mold underneath the flange-cavity to allow the mold to shorten with the contraction of the pipe in cooling. 25
2. In a mold for casting flanged pipe and the like, and having the mold-wall of sand in the usual way, a pair of annular layers of combustible material embedded in the surface of the exterior mold underneath the end flange-cavities respectively, as and for the purpose specified. 30 35

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