

# UNITED STATES PATENT OFFICE.

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## MOLDING PROCESS.

SPECIFICATION forming part of Letters Patent No. 703,172, dated June 24, 1902.

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*To all whom it may concern:*

Be it known that I, FREDERICK BALDT, Sr., a citizen of the United States, residing at Chester, in the county of Delaware, State of Pennsylvania, have invented a new and useful Molding Process, of which the following is a specification.

My invention consists of a molding process, as will be hereinafter fully described, and which is designed to overcome certain objections present in the process usually employed in foundries at the present time, whereby the amount of skilled labor is reduced.

In carrying out my process I perform the following steps, namely: First I produce a master-mold and then cast a fusible pattern by pouring into this mold fused material to produce the necessary pattern, it being understood that, as before stated, any suitable material can be employed, but which when hardened can be removed from the mold and handled. Then after this pattern hardens it is removed and embedded within suitable molding material, as molders' sand, by directing into the box or receptacle containing the pattern such sand with sufficient force to suitably pack the same. After the molding material is hardened I heat the pattern to a molten state, and by means of openings or channels the material composing the pattern is removed therefrom. After all the material composing the fusible pattern is removed from the mold the metal from which the article is to be cast is introduced and after hardening is removed as a complete and finished casting, because except for the header thereon or a portion thereof there are no projections on the casting such as, for instance, are formed usually at the parting-line of the mold. Thus it will be seen that any number of patterns can be cast in this master-mold, and, furthermore, that the material used in the pattern can be reused.

It is understood that it is necessary to have some opening through which the fusible pattern can be removed from the mold and through which the molten metal can be introduced; but in referring to a header I contemplate the header employed in casting articles of steel. These headers are of considerable size and designed not only to permit the molten metal to be poured into the mold, but to

form a reservoir or head in which the molten metal will stand during the cooling of the casting, so that as the metal within the mold cools and contracts the molten metal still contained in the header will supply sufficient molten steel thereto to produce a perfect casting, and my invention therefore contemplates the construction of a master-mold with or without the header to which I have last referred, as desired. Thus it will be seen that I provide a molding process by means of which I can cast any number of uniform patterns, with which a series of molds may be produced to cast any number of uniform articles without fins or inequalities, &c., and in which skilled labor in producing the original mold only is required. After this mold is finished any number of uniform articles can be cast without waste of material or the necessity of other labor than pouring the fusible material therein, removing the fusible patterns and embedding them in the molding material by injecting the same at a high rate of speed to make a series of molds, removing the pattern in a molten state, and finally pouring in the metal. In this master-mold any number of patterns may be cast, and it is obvious that they will be counterparts of each other in every detail, and in this way I obviate skill in the production of anything except the master-mold.

Having thus described my invention, what I claim as new, and desire to secure by Letters Patent, is—

The process for molding which consists in first, finishing a master-mold of the article to be cast; then forming from said mold, by casting, a plurality of fusible patterns; then placing said patterns in a suitable receptacle, then injecting molding material thereinto with sufficient force to pack the same, whereby the series of molds are produced; fusing said pattern and removing the same in a molten state from said molds; and finally introducing molten material into the spaces formerly occupied by the fusible patterns, whereby a plurality of finished articles are produced, which are counterparts.

FREDERICK BALDT, SR.

Witnesses:

P. L. W. HENNEBERRY,  
THEO. J. BELL, Jr.