

UNITED STATES PATENT OFFICE.

FREDERICK BALDT, SR., OF CHESTER, PENNSYLVANIA.

MOLDING PROCESS.

SPECIFICATION forming part of Letters Patent No. 703,169, 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 Improvement in Molding Processes, of which the following is a specification.

My invention consists of a molding process, as will be hereinafter fully described, and is designed to overcome certain objections present in the process usually practiced in foundries at the present time, in which a permanent pattern, usually of wood, is first constructed and by which a mold is made. This generally necessitates the dressing of the mold, as well as in most cases the dressing of the casting, to remove, for example, the fins made at the parting-line of the mold. It is also obvious that in foundries where an order for a large number of the same articles are to be filled, considerable time is necessary to produce the number required, or it is necessary to produce a large number of these permanent patterns, which would also necessitate a large number of flasks, &c., and time in making the molds and ramming the same. To overcome these and other objections found in the existing process of casting, I propose, first, to provide a master-mold of the article to be cast and then to produce from this mold patterns composed of material that is fusible—for instance, at a comparatively low temperature—for example, rosin or other materials of like nature. In this way a large number of patterns can be quickly produced from this master-mold, which is the only one that requires the skill of a pattern-maker in producing.

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, such as molders' sand, and which is packed around it in the usual manner and is not handled thereafter nor disturbed. Then I heat the pattern to a molten

state and by means of an opening or channel made through the surrounding mold removing the material composing the pattern 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, is 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 molding material 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.

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

10 The process for molding uniform articles without fins, &c., which consists in first finishing a master-mold of the article to be cast; then forming from said mold by casting a number of fusible patterns; then embedding said patterns in suitable molding material,

whereby a series of molds are produced; fusing said patterns and removing the same in a molten state from said molds; and finally introducing molten metal into the spaces formerly occupied by the fusible patterns, whereby a number of finished articles are cast without fins, &c., and which are counterparts.

FREDERICK BALDT, SR.

Witnesses:

WM. CANER WIEDERSHEIM,
C. D. MCVAY.