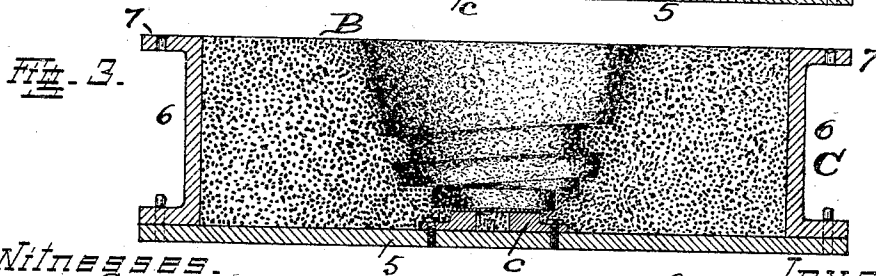
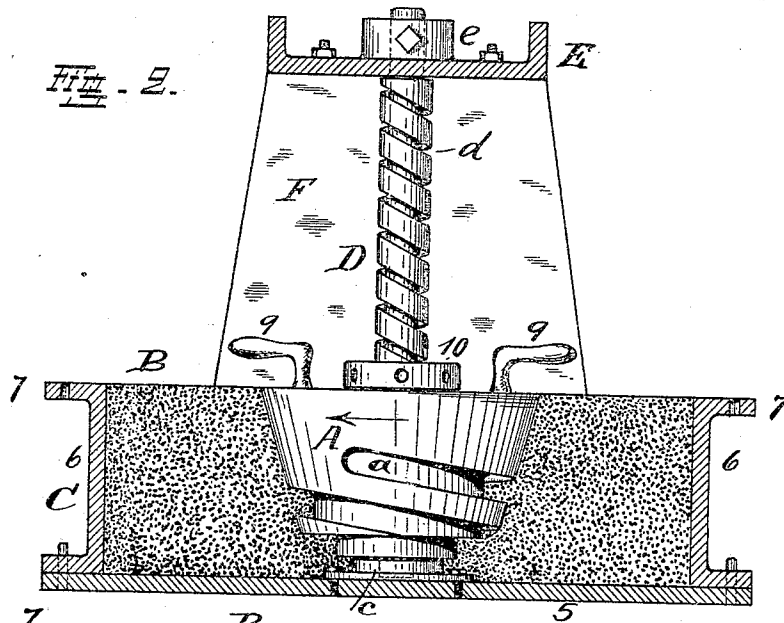
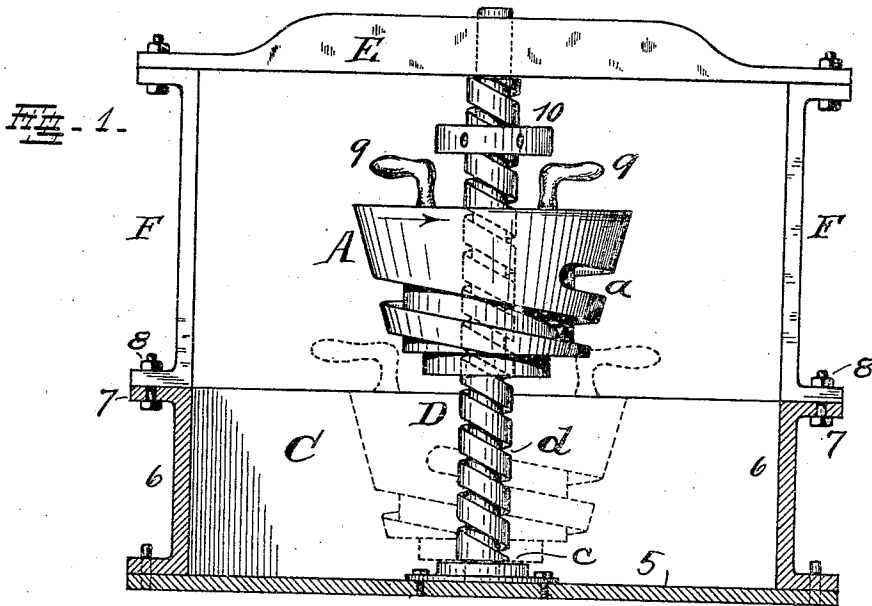


G. A. HATTERSLEY.
 DEVICE FOR FORMING MOLDS TO PRODUCE SCREW THREADED CASTINGS.
 APPLICATION FILED JAN. 11, 1909.

931,760.

Patented Aug. 24, 1909.



Witnesses.
 A. J. English
 T. LeBeau.

Inventor,
 George A. Hattersley
 by C. Spengel Atty.

UNITED STATES PATENT OFFICE.

GEORGE A. HATTERSLEY, OF NORWOOD, OHIO, ASSIGNOR TO THE VICTOR SAFE & LOCK COMPANY,
OF CINCINNATI, OHIO, A CORPORATION OF OHIO.

DEVICE FOR FORMING MOLDS TO PRODUCE SCREW-THREADED CASTINGS.

931,760.

Specification of Letters Patent.

Patented Aug. 24, 1909.

Application filed January 11, 1909. Serial No. 471,568.

To all whom it may concern:

Be it known that I, GEORGE A. HATTERSLEY, a citizen of the United States, and residing at Norwood, Hamilton county, State of Ohio, have invented a Device for Forming Molds to Produce Screw-Threaded Castings; and I do declare the following to be a clear, full, and exact description of the invention, attention being called to the accompanying drawing, with the reference characters marked thereon, which forms also a part of this specification.

This invention relates to a molding device constructed in a particular manner for the purpose of forming molds whereby a screw-thread is imparted to the object which is cast in the mold so formed.

In the following specification and particularly pointed out in the claims at the end thereof, will be found a full description of my invention, together with its operation, parts and construction, which latter is also illustrated in the accompanying drawing, in which:—

Figure 1, shows in elevation with the lower part of it in section, the device used in connection with my invention. Fig. 2, shows this apparatus in vertical section, the plane of view being taken at right angles to the plane of view of the preceding figure. Fig. 3, shows a section of the mold as it appears in Fig. 2 and after it is completed by the use of my apparatus.

The shape of the article to be cast is one which contains an annular surface as is found for instance on a cylinder, or on a cone, or a cone-frustum and which annular surface is to have a screw-thread.

A is that part of the pattern which serves to form that particular part of the casting which contains the surface which is to have the screw-thread. It is accordingly threaded, the thread being either a projecting one, or a recessed one as shown at *a*.

B is that particular part of the mold which is formed by means of this particular part of the pattern, and C is the flask which contains this part of the mold and receives the material, usually sand required for it.

Molds consist usually of two parts, one constituting the drag mold and the other the cope-mold, and the mold part here shown may be assumed to constitute the drag-mold.

The flask C for this mold consists of the bottom 5, and sides 6, both constructed in the

usual manner and held to each other by suitable means. In the usual procedure when a mold is to be made, the particular pattern is placed within its flask, after which this latter is filled with sand and rammed. Thereafter the pattern is lifted out of the sand leaving the mold ready to receive the casting. This part of the procedure is also followed here, pattern A is placed within flask C as shown in Fig. 2, and in dotted lines in Fig. 1, after which the flask is filled with sand which is closely rammed so as to completely fill thread *a* contained in the side of the pattern. Obviously in this case the pattern cannot be lifted out of the sand in the usual manner, by reason of the interfering presence of the thread. I therefore remove it by a compound rotary and lifting motion which follows thread *a*, the procedure in fact being equivalent to unscrewing the pattern from the mold, after it has served for forming this latter.

Since the molded sand-thread is insufficient to sustain the pattern and to resist the reaction proceeding from its movement, I provide a certain device upon which the pattern is supported and upon which it moves independent of the mold, the movement upon this support being the same as if the pattern would move upon the mold-thread so that, while it moves out of the mold, no pressure is exerted upon the molded thread thereof and the resistance necessary to counteract the re-action generated by this movement of the pattern is taken up by this device. This device which forms the subject of my invention consists of a post D screw-threaded on its outside at *d* and to which thread pattern A is fitted, the post occupying an axial perforation in said pattern which perforation is interiorly threaded complementary to the thread on the post. This thread corresponds in pitch to thread *a* of the pattern, so that the movement whereby this latter rises on the thread of the post proceeds with a ratio which is proportionately equal to its movement over the thread of the mold.

Post D is rigidly held in upright position within the flask, resting with its lower end on bottom 5 of this latter, and in a bearing *e* provided thereon. Above it is held by a frame which comprises a crosspiece E, containing a bearing *e* to receive the upper end of the post, and uprights F which support this member E at proper height. This

height is governed by the height of the pattern and must be such as to accommodate a post of a height which permits the pattern to be run up on it until entirely clear of the mold. Fig. 1, illustrates this condition most clearly. This frame rests upon the upper edge of the drag-flask, which may have a flange 7 for the purpose, and it is detachably held thereon by means like bolts for instance as shown at 8. After the pattern has been moved out of the mold and into a position as shown in Fig. 1, the frame, together with the pattern and post are removed, leaving the drag-mold complete and entirely clear as shown in Fig. 3. A complementary cope-mold may now be placed upon this drag-mold, thereby completing the mold ready for casting.

When making ready to form another mold, the parts are replaced again as shown in Fig. 1, after which the pattern is run down on post D into the flask as shown in dotted lines in same figure.

Thread of any profile may be molded, with a square bottom, as shown, or round, or undercut, that is broader at the bottom than at the top. The pattern leaves the mold readily in either case.

Devices, removably or permanently attached, like handles 9 may be provided on pattern A, to aid in its manipulation.

Locking means to hold the pattern firmly on the post while the mold is rammed may also be added. These may be in form of a lock-nut 10 also mounted on post D, and above the pattern. When the pattern is to be raised, this nut is run up ahead of it as shown in Fig. 1.

It may be mounted by means of the same

thread, or a finer thread may be cut for it over thread *d* without interfering with this latter.

Having described my invention, I claim as new:

1. An apparatus to form a mold for casting an article with a screw-thread, the same consisting of a flask, a pattern which contains the thread to be imparted and a post removably supported in the flask and provided with an external thread to which the pattern is fitted with a corresponding thread, the pitch of said thread being such that the pattern, when moved over it, follows the thread formed by it in the mold.

2. A device to form a mold for casting an article with a screw-thread, it consisting of a vertically disposed, externally threaded post, a flask the bottom of which is provided with a bearing to receive the lower end of the post, a frame containing a cross-piece removably supported above the flask which has the bearing for the upper end of the post, a pattern having an internally threaded, axial perforation fitted to the post and supported thereon and an external thread which forms the thread to be imparted to the casting, both the internal and the external threads on the pattern being of equal pitch and means whereby the pattern, while supported on this post may be moved thereon to occupy either a position within the flask or above it and clear thereof.

In testimony whereof, I hereunto affix my signature in the presence of two witnesses.

GEORGE A. HATTERSLEY.

Witnesses:

C. SPENGLER,
T. LE BEAU.