A. P. GUSTAFSON.

MOLDING PATTERN.

APPLICATION FILED AUG. 5, 1918.

1,287,296. Patented Dec. 10, 1918.

Fig. 1.

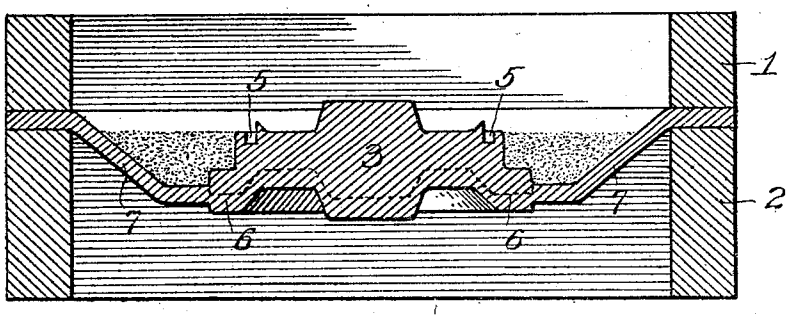


Fig. 2.

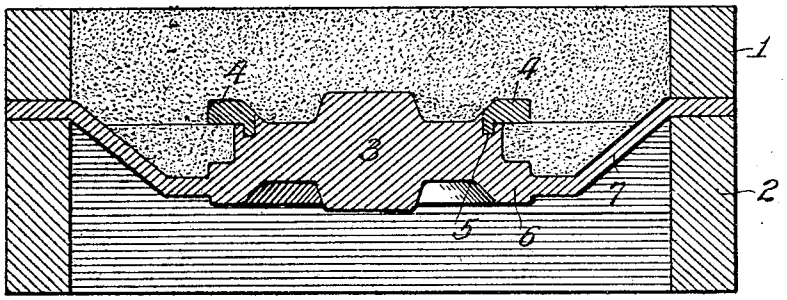


Fig. 3.

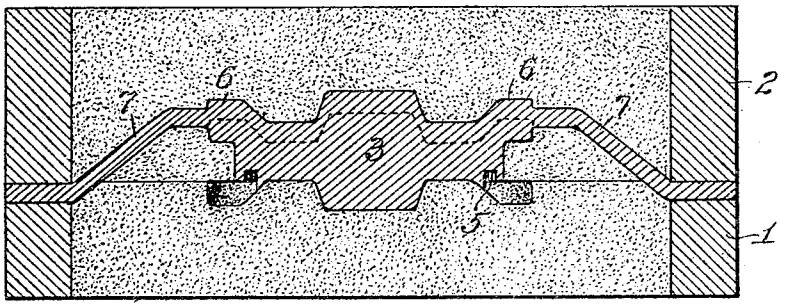
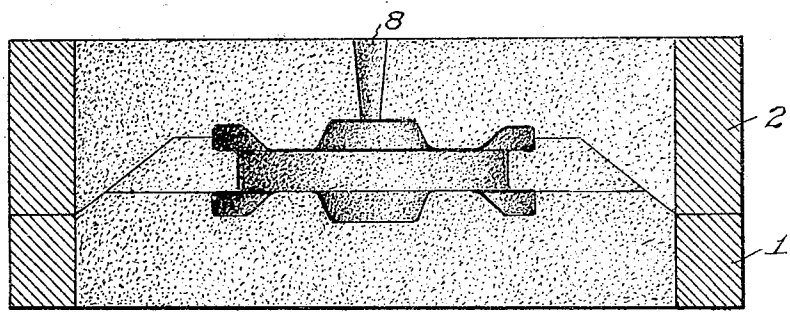


Fig. 4.



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UNITED STATES PATENT OFFICE.

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MOLDING-PATTERN.

1,287,296. Specification of Letters Patent. **Patented Dec. 10, 1918.**

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To all whom it may concern:

Be it known that I, AXEL P. GUSTAFSON, a citizen of the United States of America, and a resident of Waukegan, in the county of Lake, State of Illinois, have invented certain new and useful Improvements in Molding-Patterns, of which the following is a specification.

This invention relates to sand molds for metal casting and in which under-cut castings are produced in a two-part flask, and the present improvement has for its object:—

To provide a simple and efficient structural formation and arrangement of parts in an undercut sectional pattern, whereby the packing of the molding sand upon and around the same and the proper removal of the pattern parts, is effectively attained in a rapid and perfect manner, all as will hereinafter more fully appear.

In the accompanying drawing:—

Figure 1, is a central sectional elevation of a two-part mold flask with the present sectional metal pattern in place, and illustrating the first step of the molding operation.

Figs. 2, 3 and 4, are similar views illustrating the second, third, and fourth steps in said molding operation.

Like reference numerals indicate like parts in the several views.

Referring to the drawing, 1 designates the drag portion and 2 the cope portion of a two part mold flask of any usual construction, usually of the open top and bottom form shown in the drawing and provided with the usual registering means and other accessories.

3 designates an undercut pattern, which in the present illustration is that of a peripherally grooved wheel or pulley, and which in the present improvement has a two-part sectional formation comprising a main body portion and an annular overhanging ring portion 4 constituting one of the side flanges of the pattern and detachably engaging the main body portion aforesaid by an annular tongue and groove formation 5, as shown.

7 designates a plate or web of a uniform thickness and fixedly connected in an integral or like manner to the other side flange 6 of the pattern, and extending below the bottom surface of such pattern a distance equal to the thickness of the web or plate and having a counterpart formation to that of said undersurface of the pattern, as illustrated in Figs. 1 and 3. Said plate or web 7 is preferably of a dished form as shown, and is of a size corresponding to that of the mold flask, with its flat marginal portion adapted to fit between the drag and cope portions 1 and 2 of said flask as shown.

The operation of the present improvement is as follows:—

The combined plate and pattern, with the dished portion or cavity of said plate uppermost, is supported on the cope portion 2 of the molding flask, and the molding sand is packed into the open top cavity of the plate 7, and around the pattern approximately even with the under surface of removable ring portion 4 of the pattern, as shown in Fig. 1, after which parting sand is applied to the mass of sand packed in said cavity of the plate 7.

The drag portion 1 of the molding flask is then placed in position above the plate 7 and molding sand is packed therein as shown in Fig. 2, after which the drag 1 so filled is removed vertically to expose the pattern at the parting between the fillings of the drag and of the aforesaid cavity of the plate 7, and the removable pattern section 4 removed and placed aside and the filled drag portion 1 replaced.

The mold flask is then reversed on the molding table and the cope portion 2 is then packed with the usual filling of molding sand, and the usual pouring gate or orifice 8 formed in said filling, as illustrated in Fig. 4.

The filled cope portion 2 is then lifted vertically and the combined plate and pattern removed and placed aside, after which the cope is placed in direct association with the drag 1, as illustrated in Fig. 4, ready for the subsequent metal pouring operation.

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

1. A pattern for molding undercut articles in a two-part molding flask, the same comprising a plate member co-extensive with the mold flask and of a uniform thickness, and a sectional pattern having a removable portion constituting an overhanging portion of the pattern, the other portion of the pattern having fixed attachment to

said plate member with said plate member depending below the pattern a distance equal to the thickness of said plate, substantially as set forth.

2. A pattern for molding undercut articles in a two-part molding flask, the same comprising a plate member co-extensive with the mold flask and having a central dished portion, said plate member having a uniform thickness, and a sectional pattern having a removable portion constituting an overhanging portion of the pattern, the other portion of the pattern having fixed attachment to said plate member with said plate member depending below the pattern a distance equal to the thickness of said plate, substantially as set forth.

3. A pattern for molding undercut articles in a two-part molding flask, the same comprising a plate member co-extensive with the mold flask and of a uniform thickness, and a peripherally grooved pattern having a removable annular portion constituting an overhanging flange of the pattern, the other flange of said pattern having fixed attachment to said plate member with said plate member depending below the pattern a distance equal to the thickness of said plate, substantially as set forth.

4. A pattern for molding undercut articles in a two-part molding flask, the same comprising a plate member co-extensive with the mold flask and having a central dished portion, said plate member having a uniform thickness, and a peripherally grooved pattern having a removable annular portion constituting an overhanging flange of the pattern, the other flange of said pattern having fixed attachment to said plate member with said plate member depending below the pattern a distance equal to the thickness of said plate, substantially as set forth.

Signed at Waukegan, Illinois, this 1st day of August, 1918.

AXEL P. GUSTAFSON.

Copies of this patent may be obtained for five cents each, by addressing the "Commissioner of Patents, Washington, D. C."