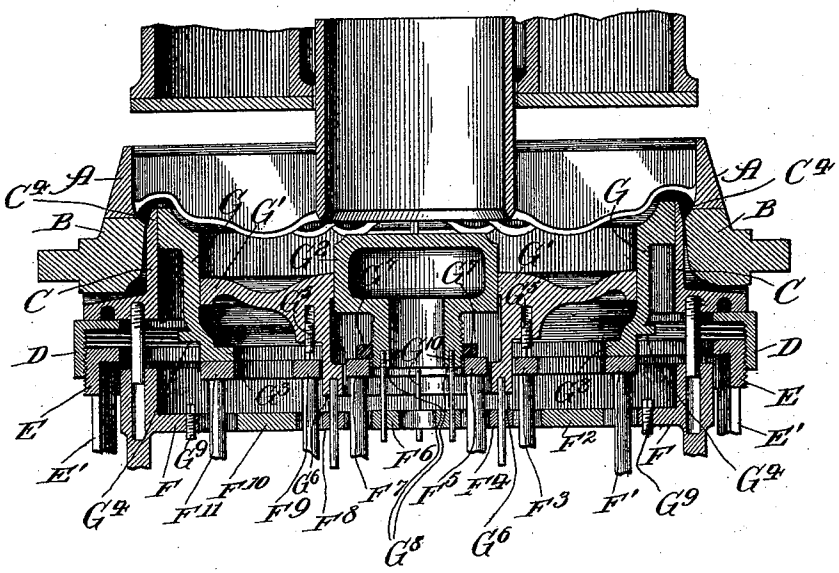
No. 632,247. Patented Sept. 5, 1899.

H. C. COOPER.

MOLDING MACHINE PATTERN.

(Application filed May 31, 1899.)

(No Model.)



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MOLDING-MACHINE PATTERN.

SPECIFICATION forming part of Letters Patent No. 632,247, dated September 5, 1899.

Original application filed December 19, 1898, Serial No. 699,720. Divided and this application filed May 31, 1899. Serial No. 718,867. (No model.)

To all whom it may concern:

Be it known that I, HARRY C. COOPER, a citizen of the United States, residing at Chicago, county of Cook, State of Illinois, have invented a certain new and useful Improvement in Molding-Machine Patterns; and I declare the following to be a full, clear, and exact description of the invention, such as will enable others skilled in the art to which it pertains to make and use the same, reference being had to the accompanying drawing, which forms a part of this specification.

My invention has for its object the production of a molder's pattern for forming a sand mold for use more particularly in connection with the machine shown and described in my concurrently-pending application filed December 19, 1898, Serial No. 699,720, of which this application is a division. In my said previous application I have shown and described a machine comprising stationary pressure mechanism located above the flask and mechanism for supporting the flask and patterns adapted to move upward toward the stationary pressure mechanism, and thus compress the sand between the stationary pressure mechanism and the patterns. This pattern-moving mechanism is so arranged that the upward movement of the various sections may be made intermittent.

The object of the present invention is to provide a pattern so arranged that the different sections of the pattern may be carried by any one or more of the pattern-supporting parts.

The invention will be hereinafter more fully described and claimed.

In the drawing the figure is a vertical section through the patterns and adjacent parts of the machine.

In carrying out the invention, A represents the cope portion of a flask, and B the part which directly supports the flask. In the present case I have shown apparatus for forming a car-wheel mold, and the flask-support B in this instance constitutes the chill for the mold, so that it is in reality a part of the flask.

C is a chill-support or flask-support proper carried by the ring D and the latter threaded to the ring E, which is carried from the standards E', extending down to the actuating mechanism. In this case I have not shown or described the mechanism for moving upward any of the parts, such as the flask or the different pattern-supporting parts. It will of course be understood that I do not limit myself to any particular mechanism, although that shown in my prior application will accomplish the purpose.

F F' F^2 F^3 F^4 F^5 F^6 F^7 F^8 F^9 F^{10} F^{11} represent the different pattern-supporting parts, each provided with any suitable mechanism for moving it upward either simultaneously with any other part or at different intervals with respect to each other.

G G' G^2 represent the different sections of the pattern. As mentioned above, I have for purposes of illustration shown and described a car-wheel pattern; but it is obvious that my invention is applicable to any form or shape of pattern and to a pattern divided into any desired number of sections.

At this point I desire to call attention to the fact that in my present claims I have referred to the pattern as a "unitary" structure. By this term I mean that the pattern or pattern part is a unit and movable as such, or, in other words, while in order to form a completed mold several pattern-sections may be employed and the pattern as a whole thus be made up of more than one piece, yet the claims relate to a section which moves as a unit and is therefore a single piece or section whether in its composition it is made of a single integral piece or several pieces united to form a unitary structure.

In the operation of the machine in which my patterns are used it frequently happens that a section of the pattern has to be carried upward for a distance on one of the pattern-supporting parts and then picked up by another of the pattern-supporting parts and carried on upward. It also frequently happens that for a portion of the upward movement one of the pattern-supporting parts will be carrying more than one section of the pattern and that it is desired to have that particular pattern-supporting part remain stationary for a period in order to allow one of the pattern parts which it carries to remain stationary. In that event the other pattern-section on that particular supporting part, which said pattern part it is desired to have

continue to advance, is provided with another bearing-surface in line with another pattern-supporting part, which continues to move upward, while the first-named pattern-supporting part stands still, so that the pattern-section which it is desired to advance will be picked up by the continuously-moving supporting part and carried on upward. The various bearing-surfaces on the various sections of pattern may be arranged in innumerable ways, and I have therefore illustrated only a few of them.

Referring now to the section G, it will be observed that it is provided at G^3 with a bearing-surface in vertical alinement with the section F′ of the pattern-supporting mechanism, while at G^4 it is provided with a bearing-surface in line with the pattern-supporting section F. In this instance the two lugs or bearing-surfaces on the pattern-sections are shown integral therewith or fixed thereto. They might, however, be made adjustable—as, for instance, by means of a set-screw G^5, (shown in connection with the section G′ of the pattern and in vertical alinement with the pattern-supporting part F^3.) The same section of pattern has a bearing-section G^6 in vertical alinement with the pattern-supporting part F^4. At G^7, I have shown a bearing portion in the shape of a screw-ring adjustable on the section G^2 and in alinement with the pattern-supporting parts F^5 F^7. This section is also provided at G^8 with another bearing-surface in line with the pattern-supporting part F^6. Instead of making the bearing-surfaces on the pattern-sections adjustable the bearing-surfaces of the pattern-supporting parts might be made adjustable—as, for instance, by means of the screws G^9 in the pattern-supporting part F.

All these various changes and combinations, as well as many others, might be made without departing from the spirit of the invention, which consists, essentially, in providing a pattern part with two or more bearing-surfaces out of vertical alinement with each other and also out of horizontal alinement with each other, so that the pattern-section will be picked up by that supporting part which will give it the desired movement, and in providing between a pattern-supporting part and a section of the pattern an adjustable surface or bearing portion, so that no matter whether the adjustable surface is on the pattern-supporting part or on the pattern the pattern will be picked up at the desired time or carried at the desired height from the pattern-supporting part.

In addition to the above features of the invention it will be observed that I have provided guide-rods G^{10}, engaged to the pattern part and extending through orifices in the pattern-supporting parts, so that the pattern-section will be properly held in alinement during its movement.

What I claim is—

1. The combination with two or more movable pattern-supports of a molding-pattern of unitary structure provided with two or more supporting or bearing surfaces or members said members being out of vertical and out of horizontal alinement with each other, substantially as described.

2. In a molding-machine the combination with two or more pattern-supporting parts movable with respect to each other, of a pattern or pattern part of unitary structure provided with a bearing member for each of said pattern-supporting parts, the bearing member between at least one of the supporting parts and the pattern being adjustable, substantially as described.

In testimony whereof I sign this specification in the presence of two witnesses.

HARRY C. COOPER.

Witnesses:

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