Jan. 15, 1924. 1,480,748

H. L. DEMMLER

MOLDING APPARATUS

Filed Aug. 16, 1921 2 Sheets-Sheet 1

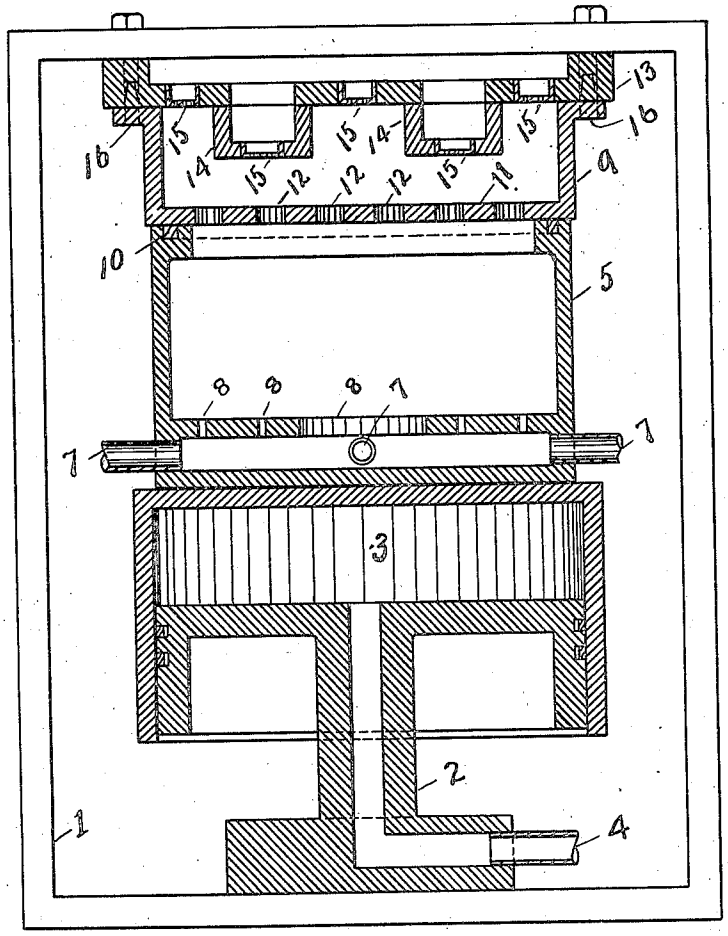


Fig. 1.

Fig. 2.

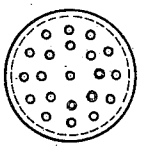


Fig. 3.



WITNESSES.
Roy Appleton
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INVENTOR.
Henry L. Demmler

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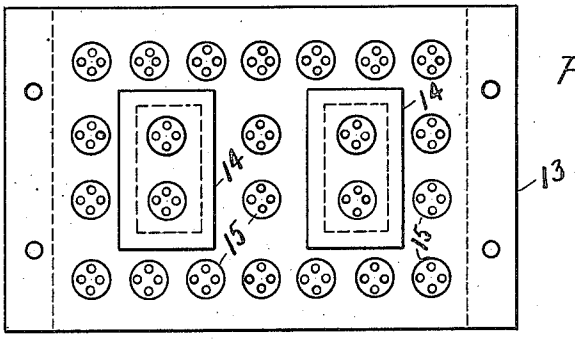


Fig. 4.

Fig. 7.

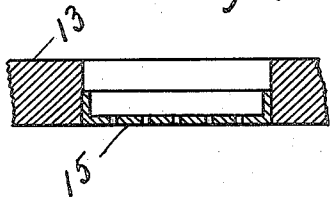


Fig. 5.

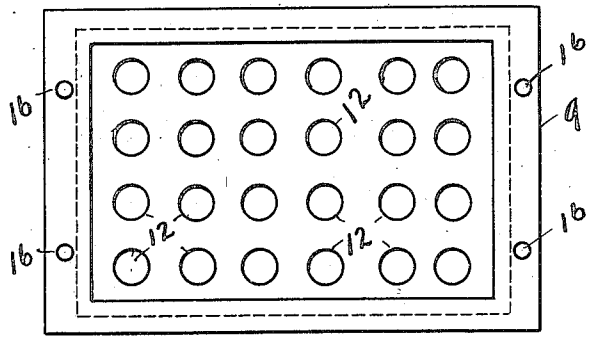
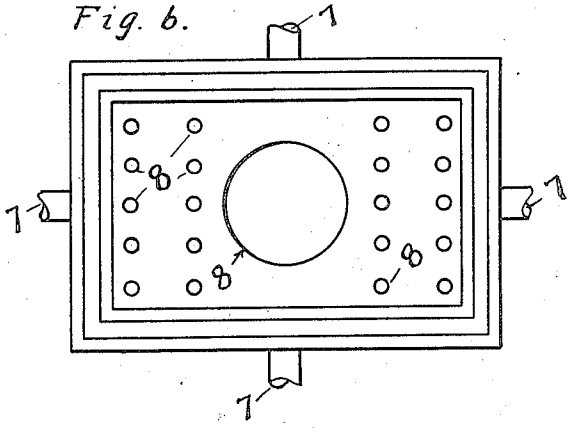


Fig. 6.



INVENTOR.

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E. J. Johnston

Patented Jan. 15, 1924. 1,480,748

UNITED STATES PATENT OFFICE.

HENRY L. DEMMLER, OF KEWANEE, ILLINOIS.

MOLDING APPARATUS.

Application filed August 16, 1921. Serial No. 492,810.

To all whom it may concern:

Be it known that I, HENRY L. DEMMLER, a citizen of the United States, residing at Kewanee, in the county of Henry and State of Illinois, have invented a certain new and useful Improvement in Molding Apparatus, of which the following is a full, clear, concise, and exact description, reference being had to the accompanying drawings, forming a part of this specification.

My invention relates to apparatus to be used in connection with molding machines of the so-called Hewlett type in which sand is forced by compressed air from a sand container into a flask or mold. I find that the compressed air used to force the sand into the mold and the atmospheric air in the empty mold, combine to retard the proper flow of sand into the mold and to prevent the proper formation of the sand therein. The principal object of the present invention is to provide for the proper escape of air from the mold or flask in which the sand mold is being formed so that the sand mold will be properly and firmly formed.

In the drawings,—

Figure 1 is a vertical sectional view of apparatus embodying my invention.

Figure 2 is a plan view of a perforated plug used in carrying out the invention.

Figure 3 is a sectional view of the plug

Figure 4 is a plan view of a pattern plate with patterns mounted thereon.

Figure 5 is a plan view of a flask or mold.

Figure 6 is a plan view of a sand container.

Figure 7 is a broken sectional view of the pattern plate.

The apparatus illustrated comprises a frame 1 supporting a pressure head 2 on which a cylindrical piston 3 is movable by the control of compressed air or other pressure fluid through the pipe 4. A sand container 5 is mounted on the piston 3. The sand container 5 is open at its top, while near its bottom it is formed with a horizontal baffle plate 6 provided with a plurality of apertures 8, a plurality of pipes 7 connected with a source of compressed air or other pressure fluid extending into the sand container between its bottom wall and the baffle 6. During the operation of the apparatus a flask 9 is clamped against the sand container 5, the latter being preferably provided with a gasket 10 to seal the joint between the sand container and flask. The flask 9 includes a peripheral wall and one end, preferably the bottom, of the flask is provided with a plate 11 which is preferably integral with the peripheral wall of the flask. The plate 11 is formed with a plurality of apertures 12. When the apparatus is in operation the end of the flask which is provided with the plate 11 (illustrated as the bottom) is sealed against the sand container 5, while the opposite end (illustrated as the top) of the flask is clamped against a closure plate 13. In the drawing the closure plate 13 is illustrated as removably secured to the frame 1 and the flask 9 is provided with dowel pins 16 entering holes in the closure plate 13 in order to center the two relatively to each other. It will be understood, of course, that the flask 9 may be secured between the sand container and closure plate in any suitable manner.

The closure plate 13 is provided with a plurality of outlet openings in each of which is inserted a plug 15 formed with a plurality of relatively small perforations adapted to prevent the escape of sand and to permit the escape of air. Preferably, the closure plate 13 also constitutes a pattern plate and has any desired pattern or patterns 14 secured to it. The patterns 14 are also provided with a plurality of openings in which are inserted perforated plugs 15 similar to those inserted in the openings in the closure plate. Preferably, the perforated plugs are made in the form of brass cups and when inserted in the closure plate and in the patterns the perforated surfaces of the plugs form part of the molding surface of the closure plate and patterns.

In operation the sand container is first filled with sand and the piston 3 is then raised pneumatically to clamp the flask between the sand container and the closure or pattern plate. Compressed air is then admitted to the sand container below its baffle plate and is distributed through the openings therein upwardly against the sand. The inflowing compressed air forces the sand upwardly from the container through the openings in the bottom of the flask and air escapes freely from the flask through the perforated plugs in the closure plate and in the patterns, thus forming the sand mold compactly, firmly and accurately. It will be understood that the location and size of the openings in the closure plate and patterns, and the size of the perforations

in the plugs, will vary in accordance with the form of the flask and patterns and with the sand being used. I prefer to use green sand in the formation of the mold.

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

1. The combination of a flask provided at one end with a plate having openings for the admission of sand and air, and a closure plate for the other end of the flask having openings adapted to permit the escape of air and prevent the escape of sand.

2. The combination of a flask provided at its bottom with a plate having openings for the admission of sand and air, and a closure plate for the top of the flask having openings adapted to permit the escape of air and prevent the escape of sand.

3. The combination of a flask provided at its bottom with an integral plate having openings for the admission of sand and air, and a removable closure plate for the top of the flask having openings adapted to permit the escape of air and prevent the escape of sand.

4. The combination of a flask provided at its bottom with a plate having openings for the admission of sand and air, a closure plate for the top of the flask having openings adapted to permit the escape of air and prevent the escape of sand, and a pattern mounted on the closure plate.

5. The combination of a flask provided at its bottom with a plate having openings for the admission of sand and air, a closure plate for the top of the flask, and a pattern mounted on the closure plate, the pattern having openings adapted to permit the escape of air and prevent the escape of sand.

6. The combination of a flask provided at its bottom with a plate having openings for the admission of sand and air, a closure plate for the top of the flask, and a pattern mounted on the closure plate, the closure plate and pattern having openings adapted to permit the escape of air and prevent the escape of sand.

7. The combination of a flask provided at its bottom with an integral plate having openings for the admission of sand and air, a removable closure plate for the top of the flask, and a pattern mounted on the closure plate, the closure plate and pattern having openings adapted to permit the escape of air and prevent the escape of sand.

8. A molding flask provided at one end with a plate having openings for the admission of sand and air.

9. A molding flask provided at its bottom with an integral plate having openings for the admission of sand and air.

10. The combination of a flask provided at its bottom with a plate having openings for the admission of sand and air, a closure plate for the top of the flask having apertures therein, and plugs secured in said apertures and formed with a plurality of relatively small perforations.

11. The combination with a flask provided at its bottom with a plate having openings for the admission of sand and air, a closure plate for the top of the flask, a pattern mounted on the closure plate, the closure plate and pattern having apertures therein, and plugs secured in said apertures and formed with a plurality of relatively small perforations.

12. The combination of a flask provided with an opening for the admission of sand and air, a closure plate for one end of the flask having apertures therein, and plugs secured in the apertures and formed with a plurality of relatively small perforations.

13. The combination of a flask provided with an opening for the admission of sand and air, a closure plate for one end of the flask, a pattern mounted on the closure plate having apertures therein, and plugs secured in the apertures and formed with a plurality of relatively small perforations.

14. The combination of a flask provided with an opening for the admission of sand and air, a closure plate for one end of the flask, a pattern mounted on the closure plate, the closure plate and pattern having apertures therein, and plugs secured in the apertures and formed with a plurality of relatively small perforations.

HENRY L. DEMMLER.

Witnesses:
ROY B. POPPLETON,
E. I. JOHNSTON.