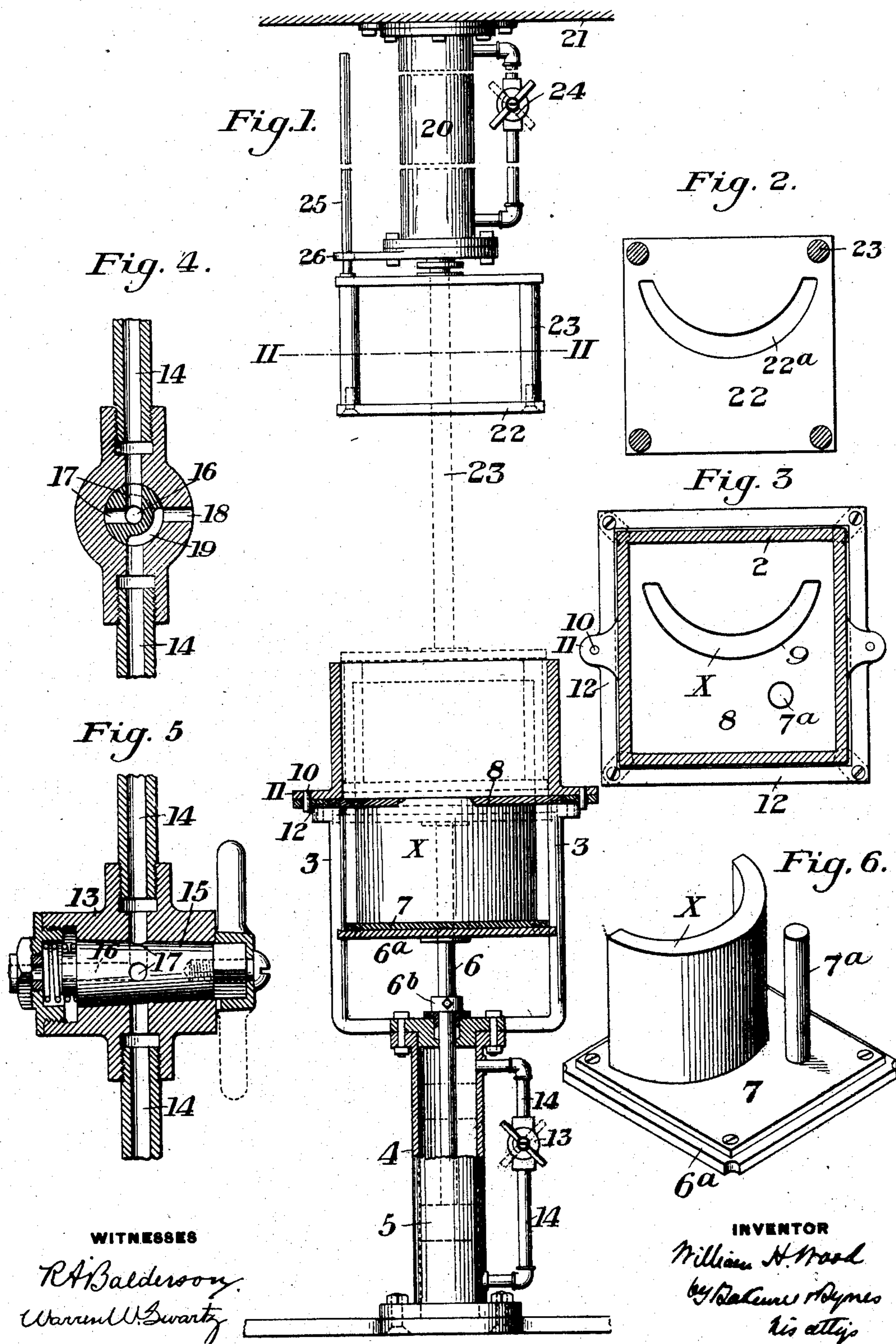


No. 865,071.

PATENTED SEPT. 3, 1907.

W. H. WOOD.
MOLDING MACHINE.
APPLICATION FILED MAY 3, 1906.



UNITED STATES PATENT OFFICE.

WILLIAM H. WOOD, OF ALLEGHENY, PENNSYLVANIA.

MOLDING-MACHINE.

No. 865,071.

Specification of Letters Patent.

Patented Sept. 3, 1907.

Application filed May 3, 1906. Serial No. 315,003.

To all whom it may concern:

Be it known that I, WILLIAM H. WOOD, of Allegheny, Allegheny county, Pennsylvania, have invented a new and useful Molding - Machine, of which the following is a full, clear, and exact description, reference being had to the accompanying drawings, forming part of this specification, in which—

Figure 1 is a view partly in side elevation and partly in vertical section of a molding machine embodying my invention; Fig. 2 is a section on the line II—II of Fig. 1; Fig. 3 is a sectional plan view of the flask and stripper plates; Figs. 4 and 5 are sectional views, taken in planes at right angles to each other, of one of the valves; and Fig. 6 is a perspective view showing the pattern plate with one form of pattern thereon.

My invention has relation to power-operated molding machines, and is designed to provide a machine of this character which is simple in its construction and mode of operation, and which is especially adapted for use in making deep molds such as have not heretofore been possible to make by power-operated machines.

With these objects in view, my invention consists in the novel construction, arrangement and combination of parts all substantially as hereinafter described and pointed out in the appended claims.

In the drawings, the numeral 2 designates the flask, which is supported upon posts 3 which rise from a lower power cylinder 4. The piston 5 of this cylinder operates a piston rod 6, which carries a pattern plate 7, upon which the pattern to be molded is supported. One form of pattern is shown in the drawings, and is marked X. 8 designates a stripper plate, which forms the bottom of the flask 2, and which is provided with an opening 9 corresponding in contour to that of the pattern to be molded. The flask 2 is removably held in position by means of the pins 10 carried by lugs or flanges 11 at the base of the flask, and which set into openings in a supporting ring 12, which is secured to the posts 3 around the stripper plate 8. The stripper plate 8 and also the pattern plate 7 are also made readily removable, being secured by screws or other suitable means, so that they can be readily taken off and replaced by a different plate according to the particular pattern which is to be molded.

The cylinder 4 is operated by means of air, steam, or water, preferably air, which is admitted through the valve 13 and pipes 14 leading therefrom to the respective end portions of the cylinder. A suitable form of valve is shown in detail in Figs. 4 and 5, in which is a turning plug rotatably mounted in the casing 13 and having the admission port 16, the ports 17 which connect with the pipes 14, the exhaust port 18 and the connecting port 19. With the valve in the position shown in Figs. 4 and 5, power is admitted to the pipe

14 leading to the upper end of the cylinder, while the lower pipe 14 is connected by the port 19 with the exhaust port 18. In the reverse position of the valve, power is admitted to the lower end of the cylinder through the lower port 17 and pipe 14, and the upper end of the cylinder is connected with the exhaust through the port 19.

20 designates an upper power cylinder, which is supported by an overhead beam 21, or by any suitable framing. The piston of this cylinder operates the piston rod 21 which carries a presser-plate 22, which is removably secured to the depending post 23. The plate 22 is of a size to permit it to enter the flask 2, and is formed with an opening 22^a, corresponding in contour to that of the pattern. The cylinder 29 is controlled by a valve 24, which is similar in all respects to the lower valve 13, Figs. 4 and 5 showing in fact the details of both these valves. 25 is a guide-rod for the presser-plate working through an opening in the guide-lug 26, secured to the lower head of the cylinder 20, the purpose of this rod being to hold the presser-plate in proper relation to the flask.

The head 6^a which carries the pattern plate 7 is preferably guided at its corner portions by the posts 3 above described. The pattern plate 7 also carries a portion 7^a, which forms the pouring gate in the mold. The piston rod 6 is provided with an adjustable stop collar 6^b, by means of which the extent of downward movement of the pattern plate and pattern may be adjusted and controlled.

The operation is as follows:—The flask being placed in position, the cylinder 4 is operated to arrange the pattern X therein. Sand is placed in the flask about the pattern to partially fill the flask, and the upper cylinder is then actuated to cause the plate 22 to descend into the flask and compress the sand therein. The plate 22 is then raised, more sand is placed in the flask, and the operation repeated, until the mold has been formed. The lower cylinder 4 is then operated to withdraw the pattern.

It will be readily seen that by means of this machine I can form a mold of any desired depth, inasmuch as successive charges of sand can be placed in the flask and successively compressed, instead of requiring the entire body to be compressed and packed at one operation, and when the mold has been formed the pattern can be withdrawn without the introduction of a vibrator, or heating the pattern.

The various parts of the machine are of simple and strong construction, and are so arranged that the necessary parts may be readily removed and replaced to adapt the machine to mold different patterns.

A further advantage of my invention consists in the fact that with the valve arrangement as shown and de-

scribed, the pistons of the respective cylinders 4 and 20 are cushioned in their movements, being prevented from moving downwardly with too great rapidity by reason of the time required in exhausting.

- 5 Various modifications may be made within the scope of the claims without departing from my invention, since

What I claim is:—

- 10 1. In a molding machine, a lower power cylinder, a flask supported thereby, a pattern plate carried by the piston of said cylinder, a stripper plate forming the bottom of the flask and having an opening corresponding in contour to that of the pattern to be molded, an upper power

cylinder, and a presser plate carried by the piston of said cylinder and arranged to enter the flask; substantially 15 as described.

2. A molding machine having a flask support, a double-acting power cylinder above the support, a double-acting power cylinder below the support, a presser plate actuated 20 by the upper power cylinder and arranged to enter the flask from the top, and a head carried by the piston of the lower cylinder, arranged to carry a pattern through the bottom of the mold; substantially as described.

In testimony whereof, I have hereunto set my hand.

WILLIAM H. WOOD.

Witnesses:

JOHN MILLER,
H. M. CORWIN.