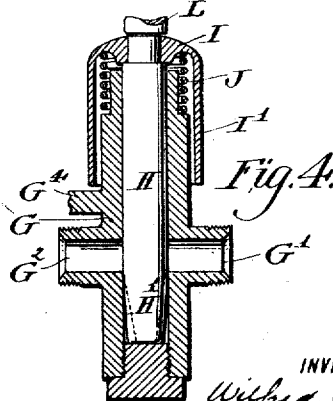
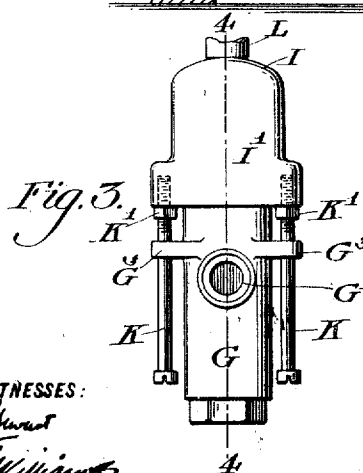
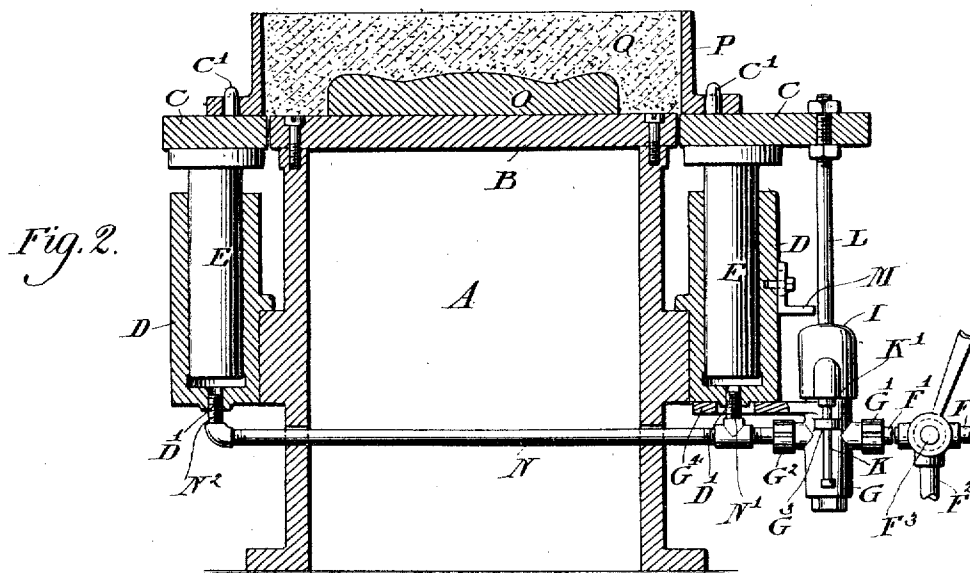


950,234.



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UNITED STATES PATENT OFFICE.

WILFRED LEWIS, OF PHILADELPHIA, PENNSYLVANIA, ASSIGNOR TO THE TABOR MANUFACTURING COMPANY, OF CAMDEN, NEW JERSEY, A CORPORATION OF NEW JERSEY.

MOLDING-MACHINE.

950,234.

Specification of Letters Patent.

Patented Feb. 22, 1910.

Application filed August 17, 1904. Serial No. 220,991.

To all whom it may concern:

Be it known that I, WILFRED LEWIS, a citizen of the United States of America, residing in the city and county of Philadelphia, in the State of Pennsylvania, have invented a certain new and useful Improvement in Molding-Machines, of which the following is a true and exact description, reference being had to the accompanying drawings, which form a part thereof.

My invention relates to molding machines and has for its object to provide such machines and means whereby the relatively movable pattern plates and flasks used in connection therewith shall be given automatically an initial parting movement of a very gradual kind merging into a subsequently more rapid movement, thus imparting an increased capacity to the machine without jeopardizing the accuracy of the mold in the flask.

My invention relates particularly to that class of molding machines in which movement is imparted to the movable part of a relatively movable flask and pattern plate through cylinders and pistons actuated through pressure fluid and connected alternately with a source of such fluid and to exhaust, and, broadly speaking, my invention consists in applying to the pressure conduit a choke valve regulated in its movements by the movement of the movable part and whereby the initial flow of pressure fluid to the actuating cylinders is made gradual and permitted to increase after the gradual movement has insured a proper parting of the sand from the pattern.

Other features of my invention will be best understood as described in connection with the drawings in which it is illustrated, and in which—

Figure 1, is a plan view of a molding machine provided with my improvements. Fig. 2, a sectional elevation on the line 2—2 of Fig. 1. Fig. 3, a front view of the choke valve mechanism, and Fig. 4, a sectional view on the line 4—4, of Fig. 3.

A, indicates the frame or housing of the molding machine, to the top of which is secured the pattern plate B, around which extends the flask frame, indicated at C, and as shown provided with projecting pins C', which secure the flask P, in proper position on the frame.

D, D, are cylinders secured to the frame

A, and, as shown, made up of two cylinders on opposite sides of the frame, though of course any number of properly located cylinders could be used. D', D', indicate the openings in the bottoms of these cylinders for the entrance and exit of pressure fluid.

E, E, are plungers working in the cylinders D, and secured to the flask frame C.

F, indicates the conduit leading from a source of fluid under pressure, not shown, and communicating through a valve F², with a continuation F', of the pressure pipe. F², indicating an exhaust passage which can be by action of the valve placed in connection with the pipe extension F'.

G, is a cylinder connected with the pipe, extension F', through a lateral opening G', and with a further extension N, of the pressure pipe through a lateral opening G². The cylinder G, is also formed as shown with perforated guide lugs G³, G³, and with the laterally extending lug G⁴, by which it is secured to the bottom of the cylinder D.

H, is a plunger working in the cylinder G, and having a tapered end H'. To the upper end of the plunger is secured the head I, with depending sand guard I', a spring J, acting against a shoulder formed on the cylinder G, and against the head I, tending to brace the head and plunger H, upward and increase the area of the passage through the cylinder G. As shown, the sand guard I', has guide bolts K, K, secured to its lower edge and extending through the guide lugs G³, K', K', indicating binding nuts.

L, is a depending rod secured to an extension of the frame C, and resting on top of the head I as shown.

M, is a stop lug extending over the head I, N, as already described, is an extension of the pressure pipe which communicates through branches N', and N², with the openings D', D', in the bottoms of the cylinders D.

O, indicates a pattern on the plate B; P, as already stated, is the flask, and Q, represents the sand mold in the flask.

The parts being in the position shown in Fig. 2, the sand is packed in the flask and around the pattern and when the mold is completed the operator turns the valve F³, to admit the pressure fluid to the pipe extension F', the fluid passing through this pipe and the opening G', into the cylinder G, and

out of said cylinder through the opening G², and pipe N, to the cylinder D, but on the opening of the valve the choke valve piston H, H', is in its lowermost position leaving but a small free passage through the cylinder G, so that the fluid is admitted very gradually to the cylinders D, D, and the initial movement of the pistons, flask, flask frame and mold is therefore very gradual. As soon, however, as these parts begin to move the rod L¹, moving up with the frame C, permits the spring J, and the fluid pressure in the bottom of the cylinder G to move the piston H, H', upward giving increased clearance through the cylinder G, so that after the initial movement of the parts the rate of movement progressively and rapidly increases, giving the machines the increased capacity due to the rapid movement, while insuring the most gradual parting of the mold from the pattern. By arranging the check valve in the pressure conduit proper as shown I am able to properly regulate the flow of working fluid into and out of a plurality of cylinders by means of a single valve. Located as shown, the check valve is readily accessible for repairs or adjustment whenever necessary or desirable.

It will of course be understood that the machine illustrated and described is simply instanced as an example of the application of my invention, and that my claims are in no wise limited to the specific details of illustrated construction except where such details of construction are referred to and made elements of the respective claims.

Having now described my invention, what I claim as new and desire to secure by Letters Patent is—

1. In a molding machine having a relatively movable flask and pattern plate, and one or more cylinders and pistons for effecting such relative movement, a conduit for fluid under pressure leading to the actuating cylinders, in combination with a valve for connecting the cylinders with said conduit or to exhaust, a cylinder G, situated in the pressure conduit, and connected thereto through lateral openings G', G², a plunger H, having a tapered end H', working in said cylinder, and means moving with the movable part acting to regulate the position of the plunger in the cylinder G, so as to insure a gradual flow of pressure fluid to the actuating cylinders at the opening of the valve and permit an increased flow after the relative movement of the parts begins.

2. In a molding machine having a fixed pattern plate and a flask movable to and from the same, the combination of one or more cylinders and pistons arranged to move the flask, a conduit for fluid under pressure leading to said cylinders, a valve arranged to connect the cylinders with said conduit or to exhaust, a cylinder G, situated in the conduit and connecting therewith through lateral openings G', G², a piston H, having a tapered end H', working in said cylinder, resilient means acting to raise the plunger and a foot I¹, moving with the flask and acting to regulate the position of the plunger in cylinder G, for the purpose specified.

WILFRED LEWIS.

Witnesses:

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