

H. TSCHERNING.
MOLDING MACHINE.

APPLICATION FILED NOV. 8, 1911.

1,053,681.

Patented Feb. 18, 1913.

3 SHEETS—SHEET 1.

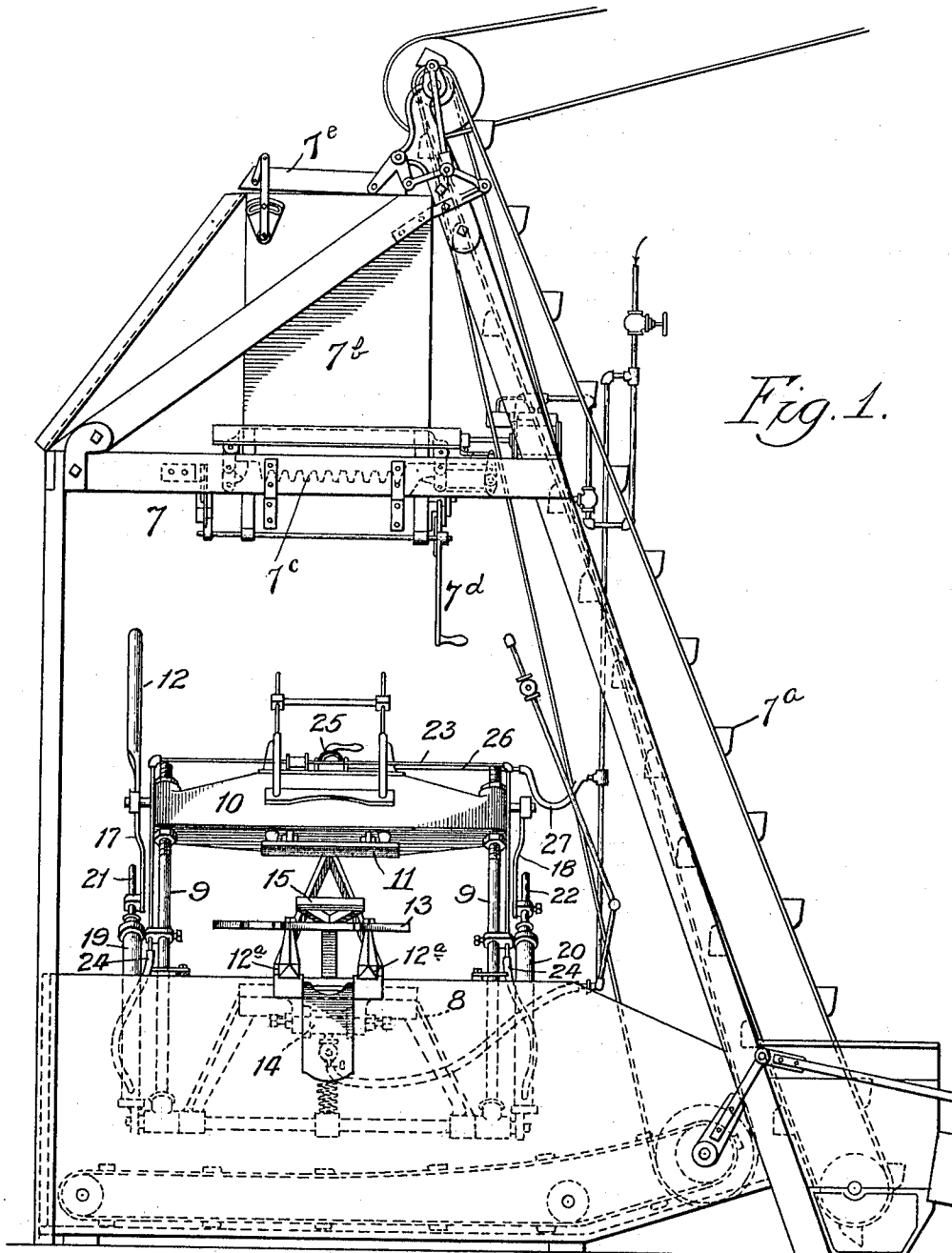


Fig. 1.

Witnesses:

*John Enders,
Ralph Schaefer*

Inventor:

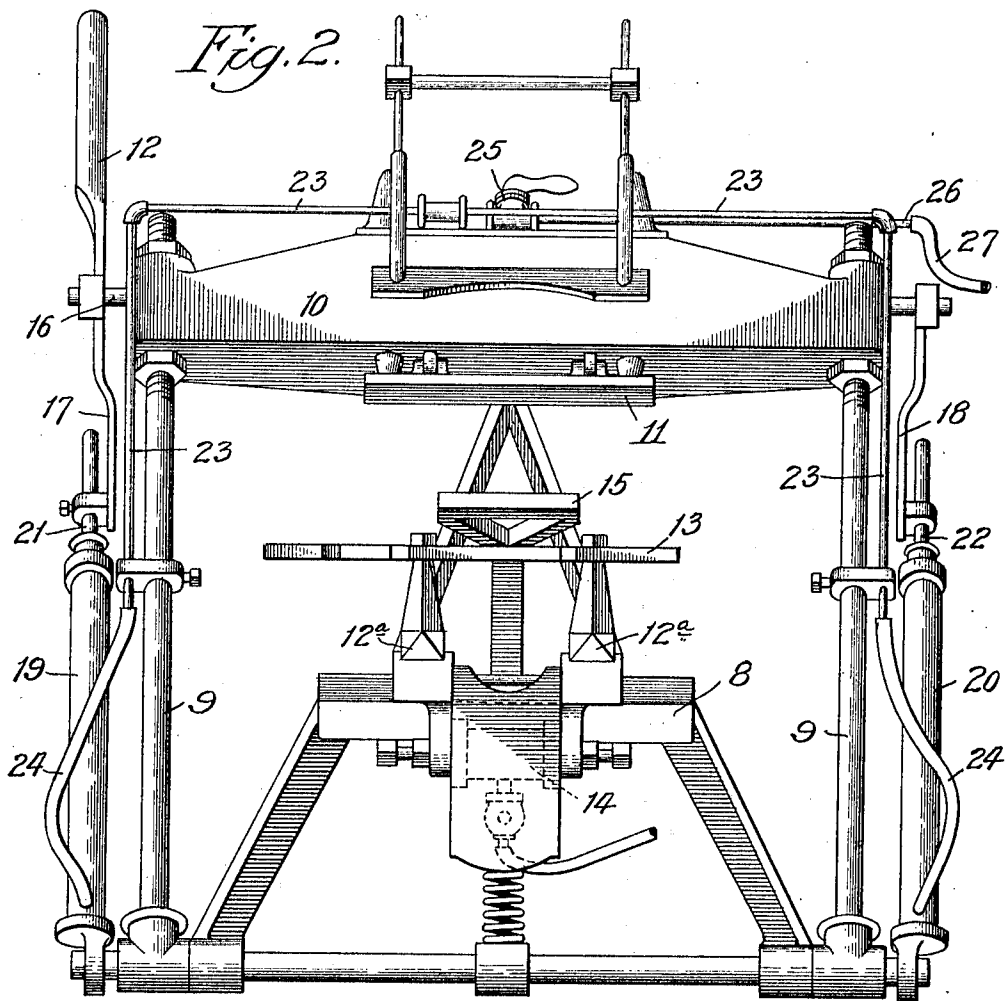
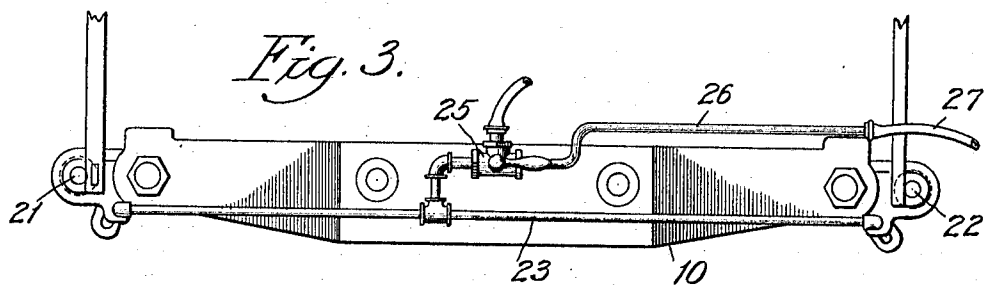
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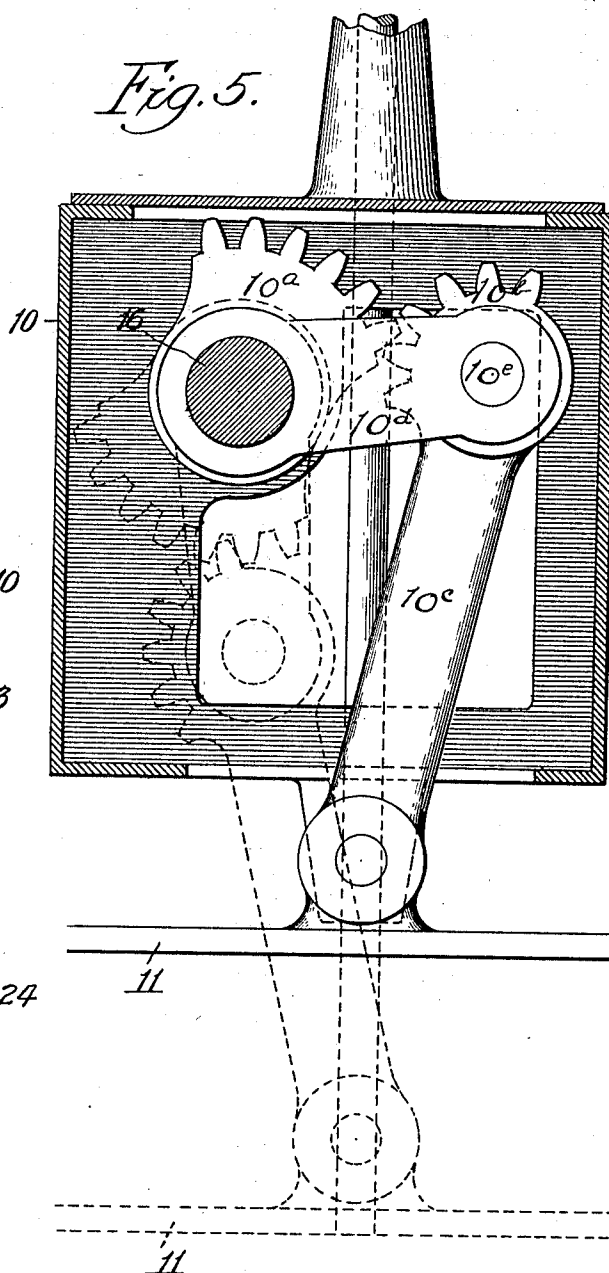
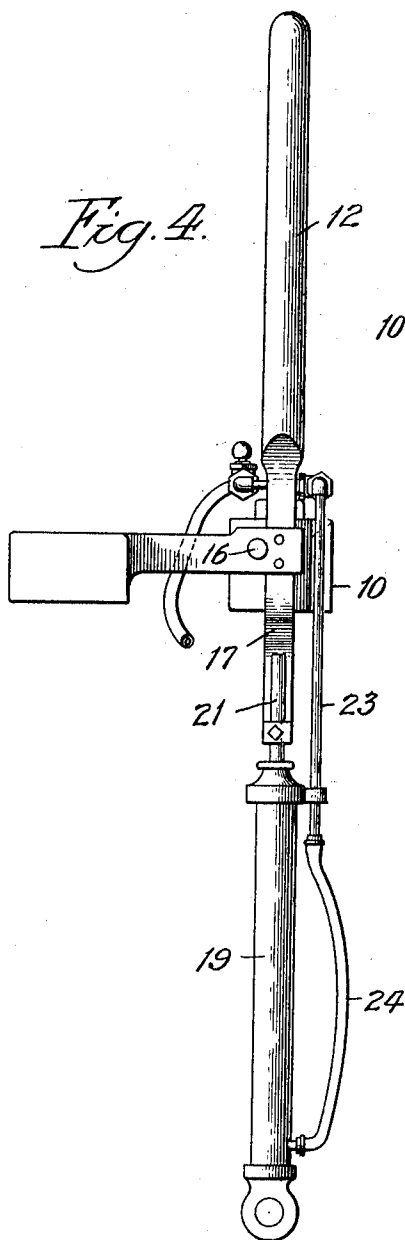
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3 SHEETS—SHEET 3.



Witnesses:
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UNITED STATES PATENT OFFICE.

HENRY TSCHERNING, OF FREEPORT, ILLINOIS, ASSIGNOR TO ARCADE MANUFACTURING COMPANY, OF FREEPORT, ILLINOIS, A CORPORATION OF ILLINOIS.

MOLDING-MACHINE.

1,053,681.

Specification of Letters Patent.

Patented Feb. 18, 1913.

Application filed November 8, 1911. Serial No. 659,076.

To all whom it may concern:

Be it known that I, HENRY TSCHERNING, a citizen of the United States, residing at Freeport, in the county of Stephenson and State of Illinois, have invented a new and useful Improvement in Molding-Machines, of which the following is a specification.

My invention relates to certain new and useful improvements in a molding machine, and is fully described and explained in the specification and shown in the accompanying drawings in which:

Figure 1 is a front elevation of my improved molding machine; Fig. 2 is a similar elevation on a larger scale of the lower part thereof; Fig. 3 is a top plan of a portion of the head; Fig. 4 is a side elevation of the operating lever and its connections; and Fig. 5 is a section through the head.

Referring to the drawings, 7 indicates generally the sand filling mechanism preferably of the character shown and described in detail in my application filed July 24, 1911, Serial No. 640,185. This mechanism, which is not claimed herein, consists broadly of a conveyer 7^a for conveying the sand, a sand hopper 7^b, and oscillatable brake bars, shown in dotted lines and indicated by the character 7^c, which are adapted to be rocked by a suitable mechanism which can be thrown into operation by the lever 7^d. In addition to the parts just enumerated there is provided at the top of the hopper a constantly reciprocating sleeve 7^e for the purpose of screening the sand and removing any pieces of iron or the like which may be therein.

8 is the base of the molding machine proper upon which are pivotally supported arms 9, at the upper end of which is a head 10 adapted to be swung back and forth and carrying a presser plate 11 which can be operated by a hand-lever 12 which operates upon the presser plate 11 through the mechanism shown in Fig. 5, which mechanism is fully described and claimed in detail in my application filed November 8, 1911, Serial No. 659,077. The mechanism for operating the presser-plate consists of a shaft 16, bearing a gear 10^a in mesh with the gear 10^b on an arm 10^c, connected to the presser-plate 11. The shaft 16 is connected by a link 10^d, with pivots 10^e on the arm 10^c, and in the line of the axis of the gear 10^b, so that when the shaft 16 is rotated by the

operating lever the parts will move from the position shown in solid lines in Fig. 5 to the position shown in dotted lines. Beneath the presser plate 11 and upon the base of the machine are bars 12^a adapted to receive a flask upon them, a flask-guide 13, rapper mechanism 14 and a cope-support 15, all being provided to serve the purpose described and explained in the last-mentioned application.

The mechanism for operating the presser plate differs from that of the aforesaid application in the fact that the shaft, to which the operating handle 12 is secured, (which shaft is designated by 16 in the drawings) is extended out at both ends of the head and carries downwardly-projecting radial arms 17, 18. Pivoted to the base of the machine are air-cylinders 19 and 20, in which are the reciprocable piston-rods 21, 22 pivotally connected to the radial arms 17 and 18 to operate the shaft 16 of the head.

23 is an air-pipe secured to and movable with the head and connected by flexible pipes 24 with the lower ends of the cylinders 19 and 20. A valve 25 controls the access of compressed air to the pipe 23, a compressed air supply-pipe 26 running to said valve and being connected with a suitable source of compressed air by a flexible pipe 27.

The operation of the present device is substantially as follows: The head is first swung back so as to clear the table or support for the flask. The sand-dropping mechanism is then operated and the sand showers into the flask, filling one side thereof. The flask is then turned over, the sand-dropping mechanism again operated and the second half of the flask is thus filled. The flask is then placed in position, follower boards are added and the operating handle is grasped and drawn forward. This swings the head forward to a position immediately over the flask whereupon a continued movement of the operating handle depresses the presser plate, thus squeezing the contents of the flask. Where working upon heavy patterns, and in fact anywhere, where a uniform and heavy pressure is desired, the valve 25 is opened and air-pressure is let in to the lower ends of the cylinders whereupon the additional power resulting from the movement of the pistons therein is imparted to the shaft 16, so as to give

a very powerful action upon the presser plate. At the close of this operation the valve is turned off so as to cut off the compressed air from the cylinders and open the
 5 cylinders to the atmosphere and the operating handle is raised. This elevates the presser plate and the continued action thereof swings back the head. The cope is then drawn, the rapper being operated mean-
 10 while, and stood on the cope-support. The rapper is again operated and the pattern drawn from the drag, upon which the cope is placed, and the cope-support swung back to its normal position, whereupon the flask
 15 may be replaced and the operation repeated.

I am aware that the combination between sand-dropping mechanism and a squeezing machine is old. The present machine is, however, particularly adapted for the use in
 20 connection with the sand-dropping mechanism by reason of the fact that the head swings back so that it can be entirely removed from the path of the sand in reaching the flask upon its bed. Furthermore,
 25 the presence of the air-pressure device for assisting in the pressure is of great importance in that it facilitates the operation and also makes the work of the operator much less arduous. The whole combination is a
 30 very simple and cheap one for producing the combined operations and has manifest practical advantages.

I am aware that considerable variation is possible in the details of the construction as
 35 shown and described, and I do not intend to

limit myself specifically thereto except as pointed out in the following claims in which it is my intention to claim all the novelty inherent in the construction as broadly as is permitted by the state of the art. 40

I claim as new and desire to secure by Letters Patent—

1. In a device of the class described, a flask-support, a head, a presser-plate movably supported upon the head, manual 45 means for raising and lowering the presser-plate and pneumatic means for assisting in the movement of the presser-plate.

2. In combination, a flask-support, a head, a rotatable shaft, a presser-plate, con- 50 nections between the shaft and presser-plate, pneumatic cylinders, pistons therein, and connections between the pistons and shaft for operating the presser-plate.

3. In combination, a flask-support, a 55 head, a shaft in the head, a countershaft, links connecting the shaft and countershaft, gearing between the shaft and countershaft, a presser-plate, connections between the countershaft and presser-plate, pneumatic 60 cylinders, pistons therein, and connections between the pistons and shaft for operating the same.

In testimony whereof I have hereunto set my hand this 3 day of November, 1911.

HENRY TSCHERNING.

In the presence of two subscribing witnesses:

REEVE BURTON,
 E. H. MORGAN.