

MACHINE MOLDING.

The development of machine molding, says the *Foundry*, has been gradual. The follow-board which covers, or shuts off, from the sand that portion of the pattern above the joint line, was probably the first change from the original method of molding in boxes. The match-plate, which is a plate fitted with pins and pinholes for the flask, with a portion of the pattern fitted thereon like a medalion, came next. This was a greater improvement, for it compelled

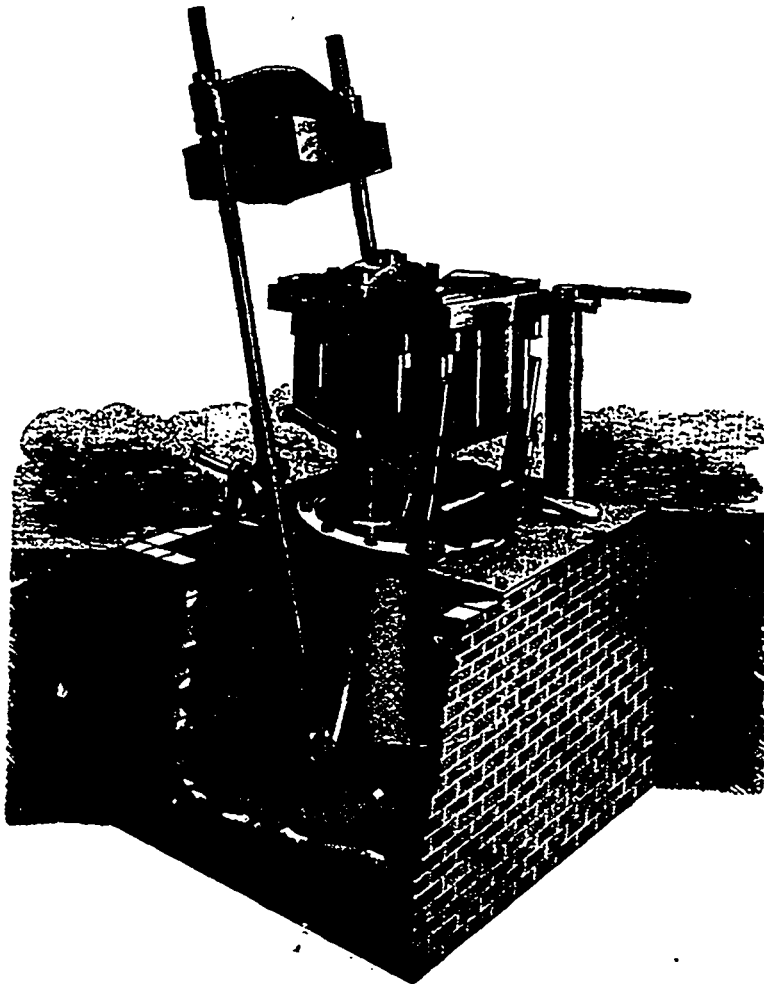
The one illustrated is manufactured and sold by The Tabor Mfg Co., 111 Liberty street, New York, for whom J. & H. Taylor, 751 Craig street, Montreal, are Canadian agents.

It is at once evident to any one witnessing the operation of the machine, that it is making shoes which are superior to those ordinarily made by hand, and as to the rate at which they are made, it is, perhaps, best to state the actual observed time as noted by the writer within which a mold was made and placed on the floor ready for pouring.

The machine is what is called a 16-inch, that being the size flask intended to be used on it. In this case the flask was 14" x 17½"; patterns being arranged for two shoes, which are cast in an inverted position with respect to each other; i. e., of two shoes cast in the same flask, one will be cast face upward, while the second will be the other side upward. The machine is attended by a man with some experience, and he is assisted by a boy, each having certain routine operations to perform, which are repeated exactly for each mold. The "drag," or lower part of the mold, is first made, and when a lot of these are completed and put on the floor, some slight changes are made in the arrangement of the machine, requiring but very few minutes to complete, and copes are then made, the arrangement of the patterns in reverse position, as noted above, making the drag and cope just alike, and doing away with the necessity for any change in the patterns.

Timing the machine, it was found that in making the drag the time required to make a complete cycle of movements, i. e., the time from the placing of one drag on the floor to the placing of another beside it, was 34 seconds; the distance walked with the drag being, in this case, about 20 feet. In the case of the cope, 35 seconds were required, thus making the time for a complete mold 1 minute 18 seconds, which is at the rate of something over 46 complete flasks or 92 shoes per hour. No special effort was manifest during this time, yet no one familiar with manufacturing operations would expect this rate to be maintained for a day; nor even for an hour, under ordinary circumstances; yet after seeing this time made it is evident that 25 molds per hour are easily practicable with the machine.

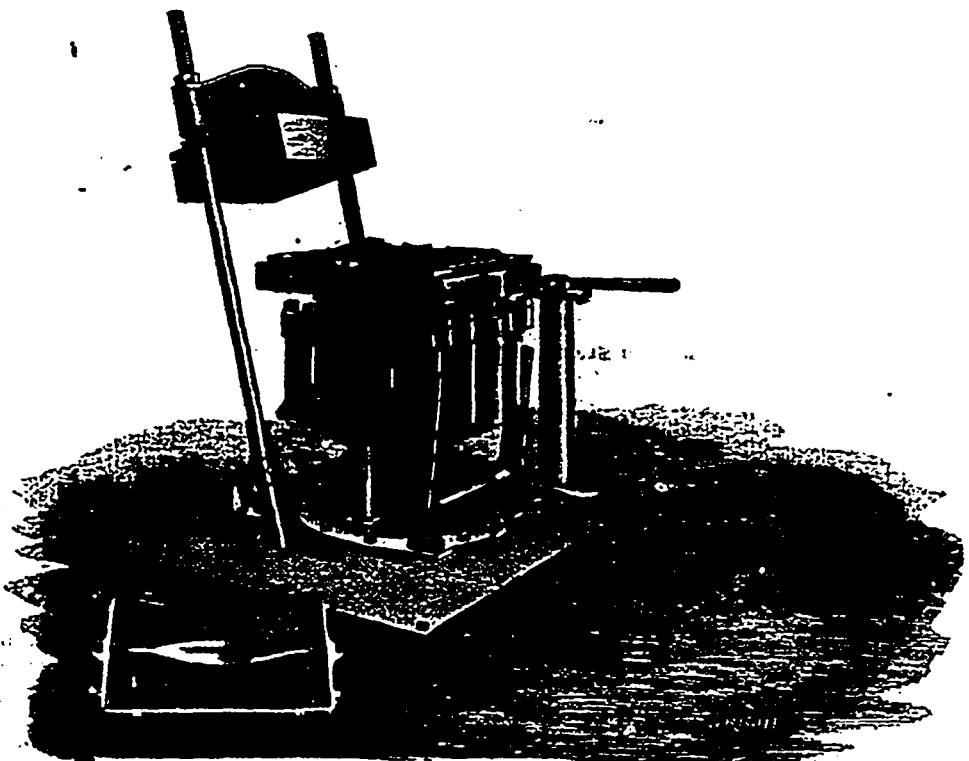
The operation of the machine is very simple. The half flask is put on the stripping plate, with the sand-box to hold the sand which is to be compressed, and both are filled with sand. The ramming head is then swung forward over the flask against stops



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the flasks to be interchangeable. Silhouette, or stripping-plates, followed with decided advantage. The stripping-plate, often called drop-plate, is a plate cut out to receive the outline of the pattern at the joint line; enough is added to the pattern to protect through the plate to the pattern base. Like the match-plate, it is fitted with pins and holes to receive the flask; it is also a molding table, or board, on which the flasks are rammed. Originally, this plate was turned with the flask, and the pattern drawn through the plate by hand. Modifications of the stripping-plate are numerous, nearly all embodying a frame or table with lever attachment for drawing the pattern without turning the flask. A good illustration of this type is the machine for molding pulleys.

The evolution of the power machine from the hand machine was natural, and there are a number of excellent power machines on the market, operated, respectively, by belts and cams, hydraulic, pneumatic, and steam pressure.



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