T. GLOVER.

Molding Machine.

No. 106,264. Patented Aug 9, 1870.

Fig. 1

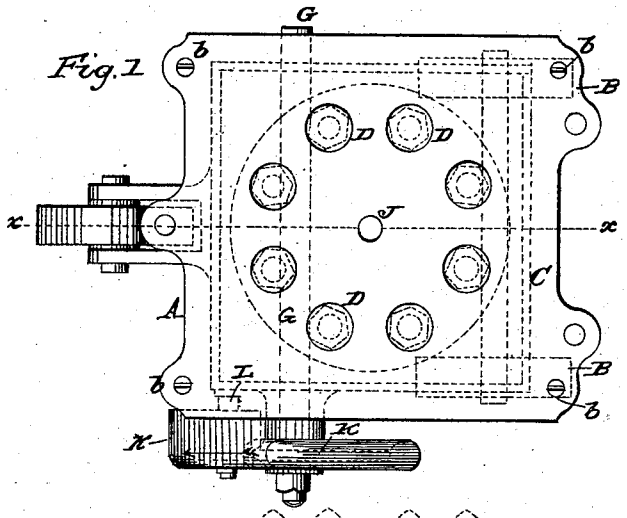


Fig. 2

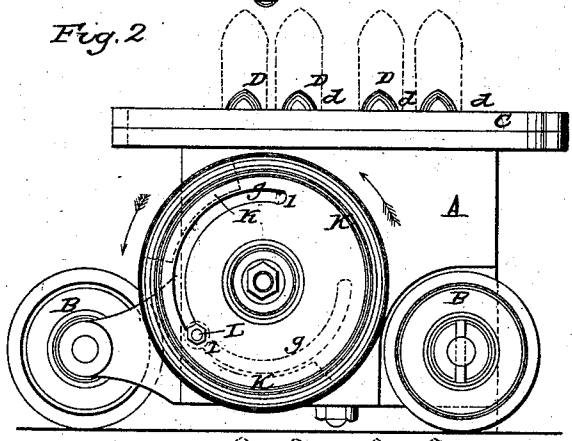
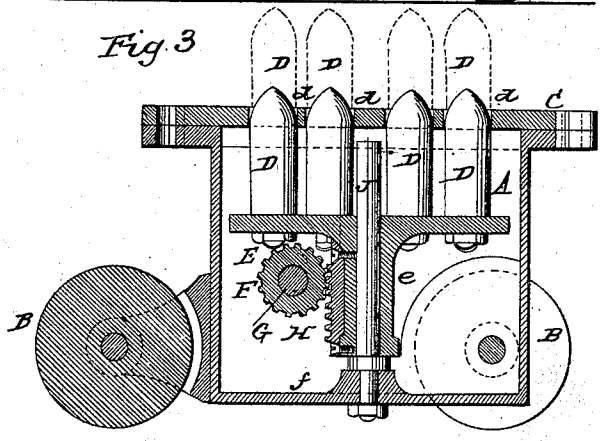


Fig. 3



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THOMAS GLOVER, OF PHILADELPHIA, PENNSYLVANIA, ASSIGNOR TO MORRIS, TASKER & CO., OF SAME PLACE.

Letters Patent No. 106,264, *dated August* 9, 1870.

IMPROVEMENT IN MOLDING-MACHINES.

The Schedule referred to in these Letters Patent and making part of the same.

I, THOMAS GLOVER, of the city of Philadelphia and State of Pennsylvania, have invented certain Improvements in Molding-Machines, of which the following is a specification.

The nature of my invention mainly consists in giving a reverse draft to the pattern for molding such articles as are desired to have equal diameters throughout the whole or a part of their length. This result is accomplished by the friction of the upper ends of the patterns through the molds, in the withdrawal of the same compensating for the said back-draft, as hereinafter described.

The invention further consists of a stop movement of the hand-wheel, on the pinion-shaft, by means of which the plate carrying the patterns is elevated and depressed, as hereinafter described, there being a concentric slot in the hand-wheel, whose ends, respectively, bear against a stationary pin in the oscillatory movement of the wheel.

The invention also consists in mounting the machine on traction-wheels, so as to be susceptible of easy movement from one part of the molding-floor to another.

To enable others to make and use the improved machine, I will now give a detailed description thereof.

In the accompanying drawing, which makes a part of this specification—

Figure 1 is a plan view of the machine.

Figure 2 is a side elevation of the same.

Figure 3 is a vertical section at the line *x x* of fig. 1.

Like letters in all the figures indicate the same parts.

A is a box or case, which is provided with the molding devices.

It is mounted on wheels B B B, whereby it is easily moved to any part of the molding-floor. I prefer three wheels, in accommodation to irregularities of the floor.

C is a stationary follow-board, confined, by means of screws *b*, to the top of the box A.

The said board has holes *d*, through which the patterns D pass as the plate E on which they are secured is elevated and depressed, by means of the pinion F on the horizontal shaft G, and the vertical rack H on the hub *e* of said plate.

The hub is guided by the central post J, whose lower end is secured in the bottom *f* of the case A.

There is a hand-wheel, K, on one end of the pinion-shaft G, for operating the same, to give a reciprocating movement to the pinion F, for elevating and depressing the pattern-plate E.

The said wheel K has a concentric slot, *g*, which plays over the stationary pin L, that projects from the side *h* of the box A, to regulate the movements of the wheel.

Operation.

The hand-wheel K is turned in the direction of the arrows until the patterns D are brought into their elevated position, as represented by dotted lines in figs. 2 and 3.

The end 1 of the slot *g* comes against the stationary pin L, and the counter-weight K being then at the lower side of the wheel, as represented by dotted lines, then the flask is placed on the follow-board and the sand rammed in the usual manner.

When the ramming is completed, a reverse movement is given to the hand-wheel K, until its concentric slot *g* comes into the position represented in figs. 2 and 3, the lower end of the slot *g* coming against the pin L, to hold the wheel securely. As the wheel comes into this position, the patterns D are withdrawn out of the sand into their lower position, represented by full lines.

In order to make the molds formed by the patterns D of equal diameter, except at their conical ends, I form them somewhat less in diameter at their lower than at their upper ends. Then, as they are withdrawn, the sand readily springs outward from them, so as to admit of the passage of their larger ends through the openings formed by the patterns. The sand springs back again when the patterns are withdrawn, but the friction of the enlarged part of the patterns on the surfaces of the molds gives sufficient wear to the same to make them of equal size from the base of the cone to their lower end. This effect is easily accomplished by making the back draft of the pattern only sufficient to give an easy spring to the sand, which possesses a certain degree of elasticity, even when tightly rammed.

The patterns D, represented in the drawing, represent such as are used in molding balls or mandrels for forming metal tubes, but it will readily be seen that patterns for other purposes may also be used with the machine.

What I claim as my invention, and desire to secure by Letters Patent, is—

1. The patterns D, constructed as described, with a back draft, substantially in the manner and for the purpose set forth.

2. The combination of the stationary pin L with the concentric slot *g* of the hand-wheel K, substantially as and for the purpose specified.

In testimony that the above is my invention, I have hereunto set my hand and affixed my seal this 25th day of June, 1870.

THOMAS GLOVER. [L. S.]

Witnesses:

THOMAS J. BEWLEY,

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