T. F. HAMMER.

Molding-Machine.

No. 161,784. Patented April 6, 1875.

fig. 1.

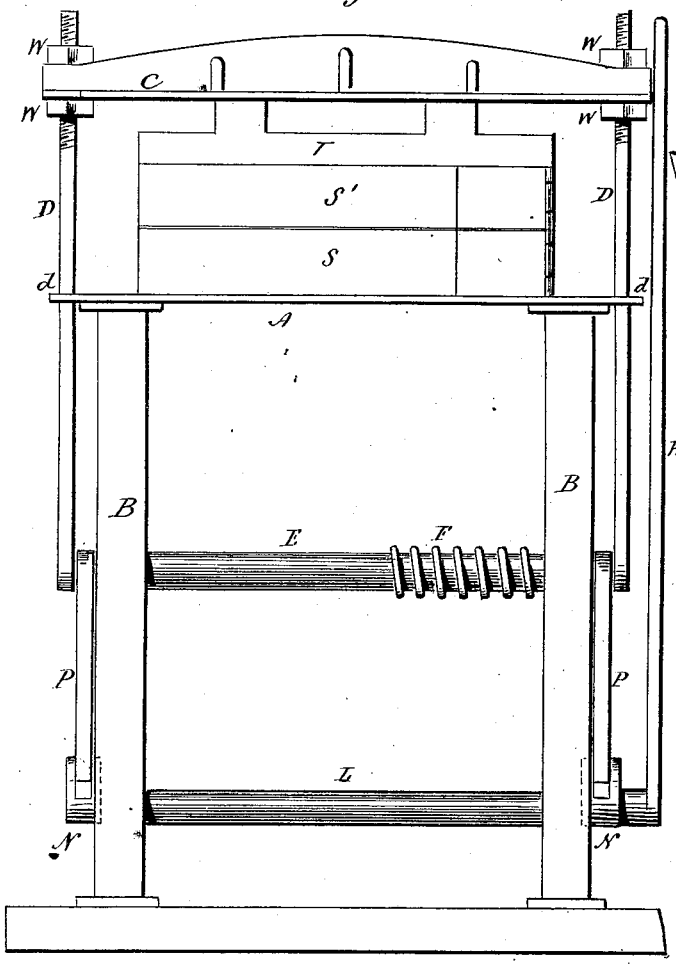


fig. 2.

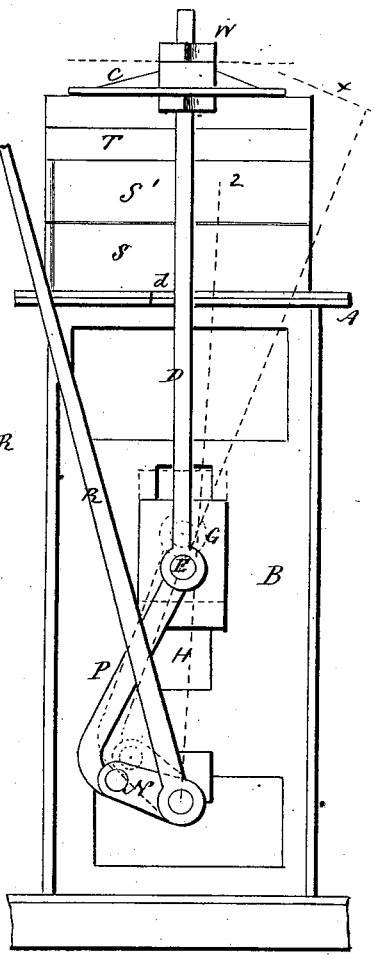
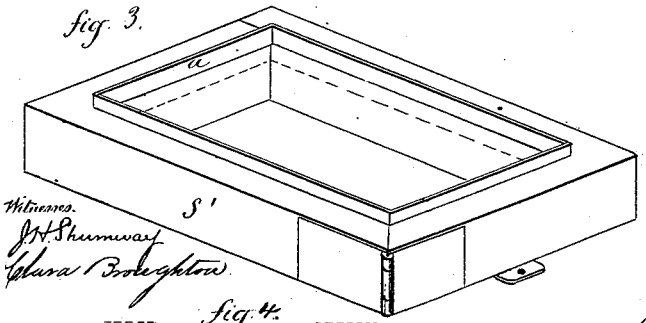


fig. 3.



Witnesses.
J. H. Shumway
Edward Bolleyhow

fig. 4.

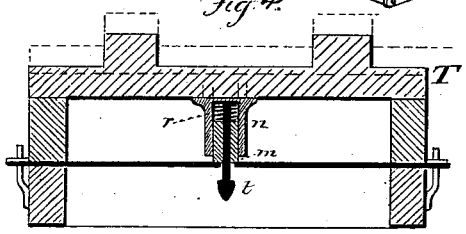
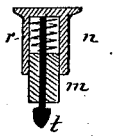


fig. 5.



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UNITED STATES PATENT OFFICE.

THORVALD F. HAMMER, OF BRANFORD, CONNECTICUT.

IMPROVEMENT IN MOLDING-MACHINES.

Specification forming part of Letters Patent No. **161,784**, dated April 6, 1875; application filed February 25, 1875.

To all whom it may concern:

Be it known that I, THORVALD F. HAMMER, of Branford, in the county of New Haven and State of Connecticut, have invented a new Molding-Machine; and I do hereby declare the following, when taken in connection with the accompanying drawings and the letters of reference marked thereon, to be a full, clear, and exact description of the same, and which said drawings constitute part of this specification, and represent in—

Figure 1 a front view; Fig. 2, a side view; Figs. 3, 4, 5, detached views.

This invention relates to an improvement in machines for forming molds preparatory to making metal castings, the object being to avoid the usual tamping, and thereby facilitate the preparation of the mold.

The invention consists in a stationary bed, combined with a movable platen above the bed, and mechanism for moving said platen toward and from the bed, and the said platen also hung so as to be turned laterally away from over the bed, as more fully hereinafter described.

The invention further consists in a thin hoop set within the flask at its upper edge, so as to project above the flask, to allow the banking of the sand, but so that when the platen is brought down upon the sand and hoop, the hoop will be pressed into the flask with the sand, as more fully hereinafter described.

The invention further consists in an extensible plug for forming the sprue, as hereinafter described.

A is the stationary bed of the machine mounted on uprights B B. C is the platen, mounted on rods D D, the said rods attached to a horizontal shaft, E, below. On the shaft E is a spring, F, (may be weight or other equivalent device,) the tendency of which is to turn the shaft forward and hold the rods D up against a shoulder, *d*, on the bed, this position bringing the platen transversely parallel to the bed, as seen in Fig. 2, the spring allowing the shaft to be turned so as to carry the platen transversely back from over the bed, as denoted in broken lines *x*, Fig. 2. The shaft E rests in a block, G, at each end, these blocks working freely up and down in a slot, H, in the uprights B. Below the shaft E is a rock-shaft, L, parallel to the shaft E, on which are two cranks, N, each of which connect by a rod, P, to the shaft E. The shaft L is turned by means of a lever, R, so that by forcing the lever R back to the position denoted in broken lines *z*, the shaft E, and with it the platen C, will be raised, as denoted in broken lines, or by drawing the lever forward the platen C will be drawn down accordingly.

This completes the construction of the machine. The bed A forms the molding-bench. On this (the platen having been turned back) the parts *s s'* of a match-flask are placed, the pattern arranged between the two in the usual manner, the lower part having been previously prepared to support the pattern. The upper part is then filled with sand a little more than full—that is, so that the sand will project above the flask to the extent of the compression desired; then onto this sand the board T is placed, and the platen C turned forward over the board, and by means of the lever R forced down onto the sand to compress it in the flask; or, if desired, the board may be left off, and the platen brought directly onto the sand, and then the board applied for the removal of the flask in the usual manner.

This completes the molding, and the usual labor of tamping is avoided, and an even compression of the sand attained.

The platen is made adjustable relatively to the bed by nuts W. In order to conveniently bank the sand in the flask, and at the same time be able to strike off the surplus, I place in the flask at the upper edge a thin hoop, *a*, as seen in Fig. 3, projecting above the surface of the flask to the extent required for banking the sand. The surplus may be struck off to this hoop in the usual manner; then when the platen is brought down the hoop will pass down into the flask with the sand, to remain there, or be removed for use in other flasks.

To form the opening for the sprue I make the plug extensible—that is, an external tube or sleeve, *n*, with an internal follower, *m*, and a spring, *r*, to force the follower *m* outward, the follower prevented from escaping entirely from the sleeve by a headed spindle, *t*, as seen in Fig. 5. This is set into the mold, and its height when extended is greater than the

depth of the flask, and the banking hence will project above the flask, as denoted in broken lines, Fig. 5; but when the platen is brought down it will force the sleeve onto the follower down flush with the flask, as seen in Fig. 4, and when the pressure is removed the sleeve will be forced from the sand, and afford a handle by which to draw the plug from the sand, and leave the hole for the sprue in the desired form.

I do not, broadly, claim an attachment to or auxiliary part of the flask, whereby the sand may be banked prior to compression, as such I am aware is not new.

I claim—

1. The combination of the stationary bed A, the platen C, hung by rods D to the shaft E, the spring F for turning said shaft, the rock-shaft L, connected to the shaft E, and the lever R, substantially as described.

2. In combination with the molding-flask, the hoop *a*, fitting the inside of the flask, and so as to be forced down into the flask with the sand, substantially as set forth.

3. A sprue-plug for molding purposes, made compressible, substantially as described.

THORVALD F. HAMMER.

Witnesses:

JOHN E. EARLE,

J. H. SHUMWAY.