

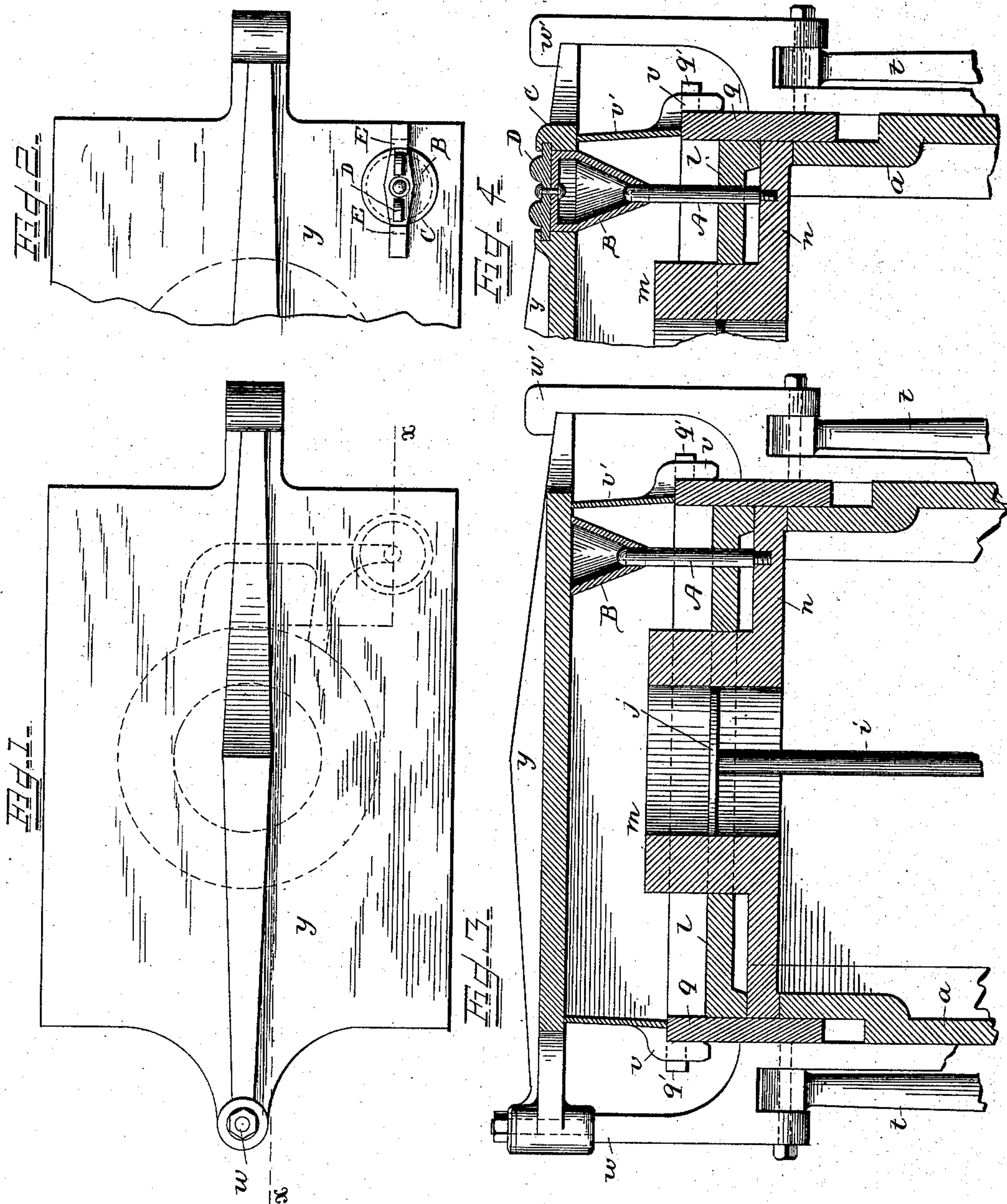
(No Model.)

A. RICE.

MOLDING MACHINE FOR MAKING MOLDS IN SAND.

No. 322,203.

Patented July 14, 1885.



WITNESSES:

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MOLDING-MACHINE FOR MAKING MOLDS IN SAND.

SPECIFICATION forming part of Letters Patent No. 322,203, dated July 14, 1885.

Application filed May 20, 1885. (No model.)

To all whom it may concern:

Be it known that I, ARTHUR RICE, a citizen of the United States, residing at New Albany, in the county of Floyd and State of Indiana, have invented a certain new and useful Improvement in Molding-Machines for Making Molds in Sand, of which the following is a full, clear, and exact description.

This invention has for its object the provision, in machines for making molds for metal casting, of a simple and efficient device for forming the "sprue" or "gate," as the hole for introducing the molten metal into the mold is indifferently called in the foundry.

For convenience, the device will be hereinafter referred to as the "sprue-stick" and the hole made by it the "sprue," the channel or channels leading from the sprue to the body of the mold being, technically, the "gate" or "gates."

The invention has special reference to a sprue-stick for the sand-molding machine forming the subject-matter of my application for Letters Patent, Serial No. 133,133, filed May 26, 1884. However, I do not confine its usefulness to that machine, since, obviously, it may be employed in other machines; but for convenience of illustration and description I will set forth the invention in connection with said machine.

The invention consists in a many-partsprue-stick, one member of which is a part of the pattern, co-operating therewith and with a movable templet in molding the sand in the flask, and the remainder a movable member acted upon by the binder to bury it in the sand, as I will now proceed to particularly set forth and claim.

In the accompanying drawings, in the several figures of which like parts are similarly designated, Figure 1 is a top plan view of sufficient of my sand-molding machine referred to to illustrate the invention. Fig. 3 is a vertical section of the same, taken in the plane of line *xx*, Fig. 1. Figs. 2 and 4 are respectively similar views of portions of the same machine with a different form of sprue-stick.

a is the frame; *n*, the pattern bed-plate stationary on the said frame; *q*, the movable false part; *t t*, the pitmen for raising and lowering said false part; *l*, the movable templet; *v*, the

half-flask; *q'*, the ears for receiving lugs *v* from the half-flask to connect said flask laterally with the false part; *y*, the binder pivoted to the vertical post *w* of the false part; and *w'*, the hook rising from said false part with which the binder engages to lock the half-flask in position for molding. *i j* is the inner member of the templet, and *m* the conventional pattern, all shown, and for convenience lettered as in my application referred to.

To the pattern bed-plate is secured as part thereof the member A of the sprue-stick, which in shape is as the necessities of the case may demand. It is composed, by preference, of metal, and extends up through a suitable orifice in the templet. B is the other member of said stick, separate from but co-operating with the former. This member B is recessed to receive within it the member A, and by preference is of funnel shape, in order to make a flaring mouth to the sprue. The pattern may have means for forming the usual gates or runners, as indicated in Fig. 1. In using this sprue-stick the half-flask is put in place on the machine and filled with sand, the member A projecting into it. The member B is then pressed into the sand so as to slip down upon the member A, and until its upper surface is on a level with that of the half-flask. The binder is then swung around in position and engaged with the hook *w'*, and the molding proceeded with as usual. The mold being finished and the machine at the end of its upstroke, the binder is swung back, the member B removed, and then the flask may be taken off the machine, the member A being at this time below the upper surface of the templet, and hence offering no obstacle to such removal. In the movement of the machine the member A of the stick telescopes in the member B, thus keeping the parts in alignment and insuring a perfect sprue.

In Figs. 2 and 4 the member A is as in Figs. 1 and 3; but the member B is made as an inverted hollow truncated cone, with a cylindrical or angular base, which projects into a corresponding opening, C, in the binder, and is provided with a turn-button, D, which engages lugs E E on the binder to lock said member thereto. In using this form of device the binder is swung around and locked as soon as the

flask is filled, and then the member B is put in place through the opening C in the binder and locked thereto by the turn-button D. In removing the flask the member B is first detached before swinging back the binder. In either case the binder receives the member B and affords a base of resistance for it in the formation of the mold, and the member A, being a fixture and practically a part of the pattern, cannot well be disarranged.

I prefer to screw-tap the member A in the pattern bed-plate, so that it may be readily renewed or replaced, and so that my invention may be conveniently and economically applied to machines already built.

The stick may be made in more than two parts if necessary.

I am aware that it is not new on the one hand to suspend from the binder of a molding-machine a hollow stem containing a spring to the end of which a solid point is secured which co-operates with a stem rising from a moving pattern to make a sprue or gate, and on the other hand it is not new to dispense with the stem on the pattern altogether and just elongate the point of the other part to take its place. Now, my invention differs from such sprue-sticks in that it employs no spring, and hence dispenses with the point

and projects through and co-operates with a templet interposed between the pattern and flask, whereby the perfect clearance of the stick in forming a perfectly true and straight gate or sprue is insured.

What I claim is—

1. The sprue-stick having a recessed or hollow member co-operating with the movable binder of a molding-machine, and a fixed member secured to a fixed pattern and telescoping in said hollow member as the latter is moved toward it, combined with the said pattern, the templet through which the fixed member projects, and the binder, substantially as and for the purpose described.

2. A binder having an opening and adjacent lugs, combined with a movable member of a sprue-stick having a turn-button to co-operate with said opening and lugs, and a fixed member, templet, pattern, and operating mechanism therefor, substantially as described.

In testimony whereof I have hereunto set my hand this 12th day of May, A. D. 1885.

ARTHUR RICE.

Witnesses:

GEO. S. STEEL,
CHAS. VAN DUSEN.