

(No Model.)

2 Sheets—Sheet 1.

A. RICE.

SAND MOLDING MACHINE.

No. 332,834.

Patented Dec. 22, 1885.

Fig. 1.

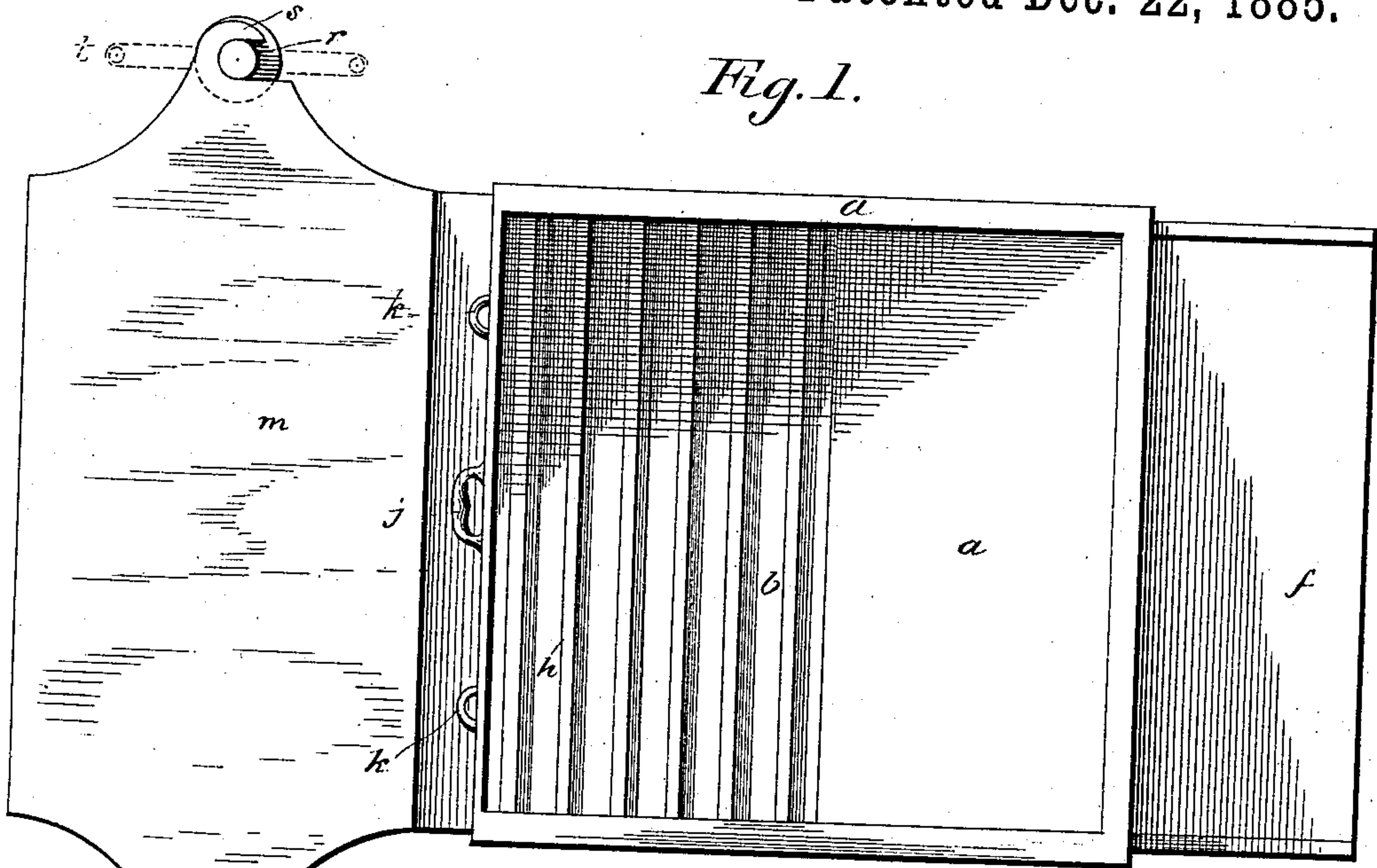
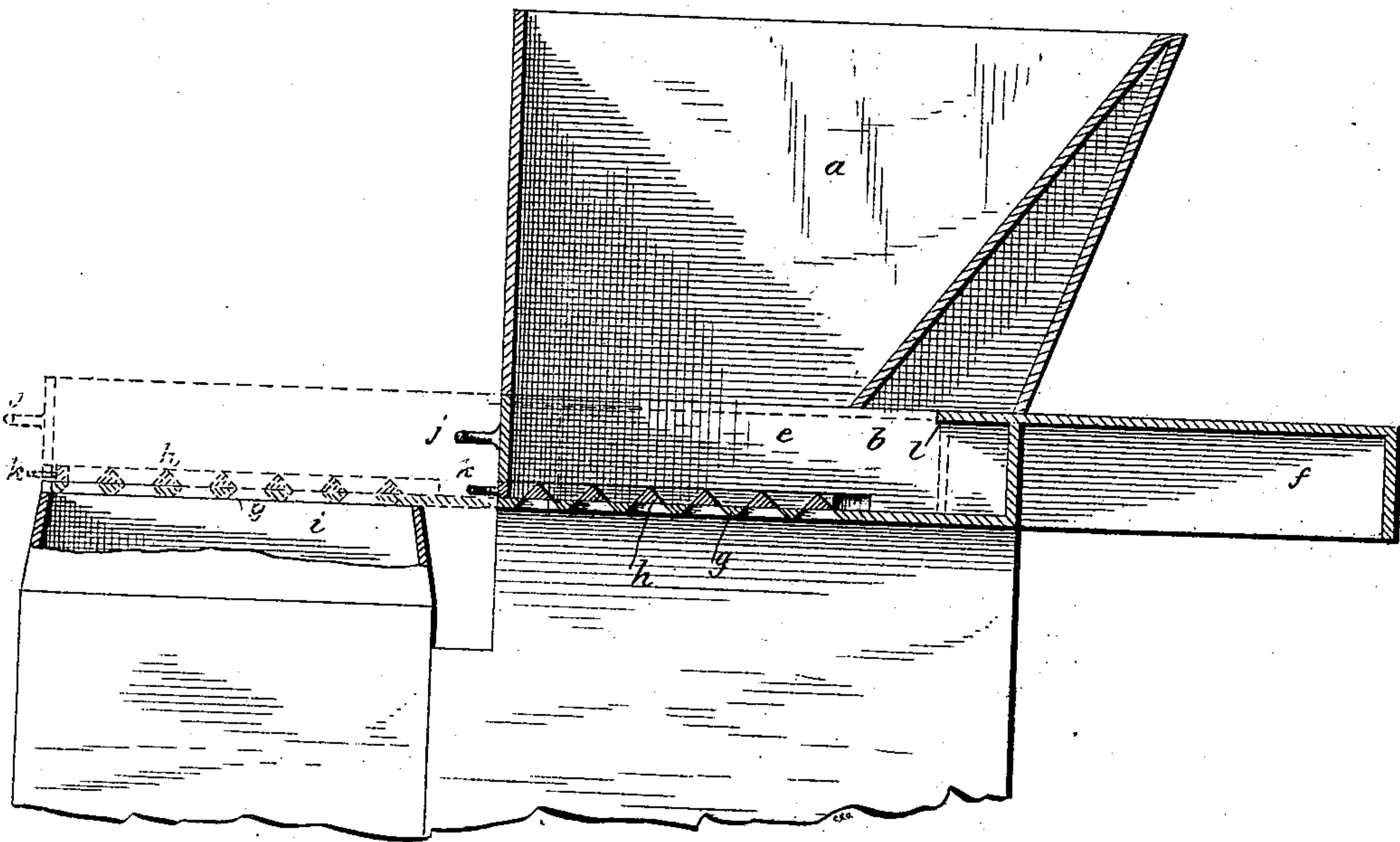


Fig. 2.



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Fig. 3.

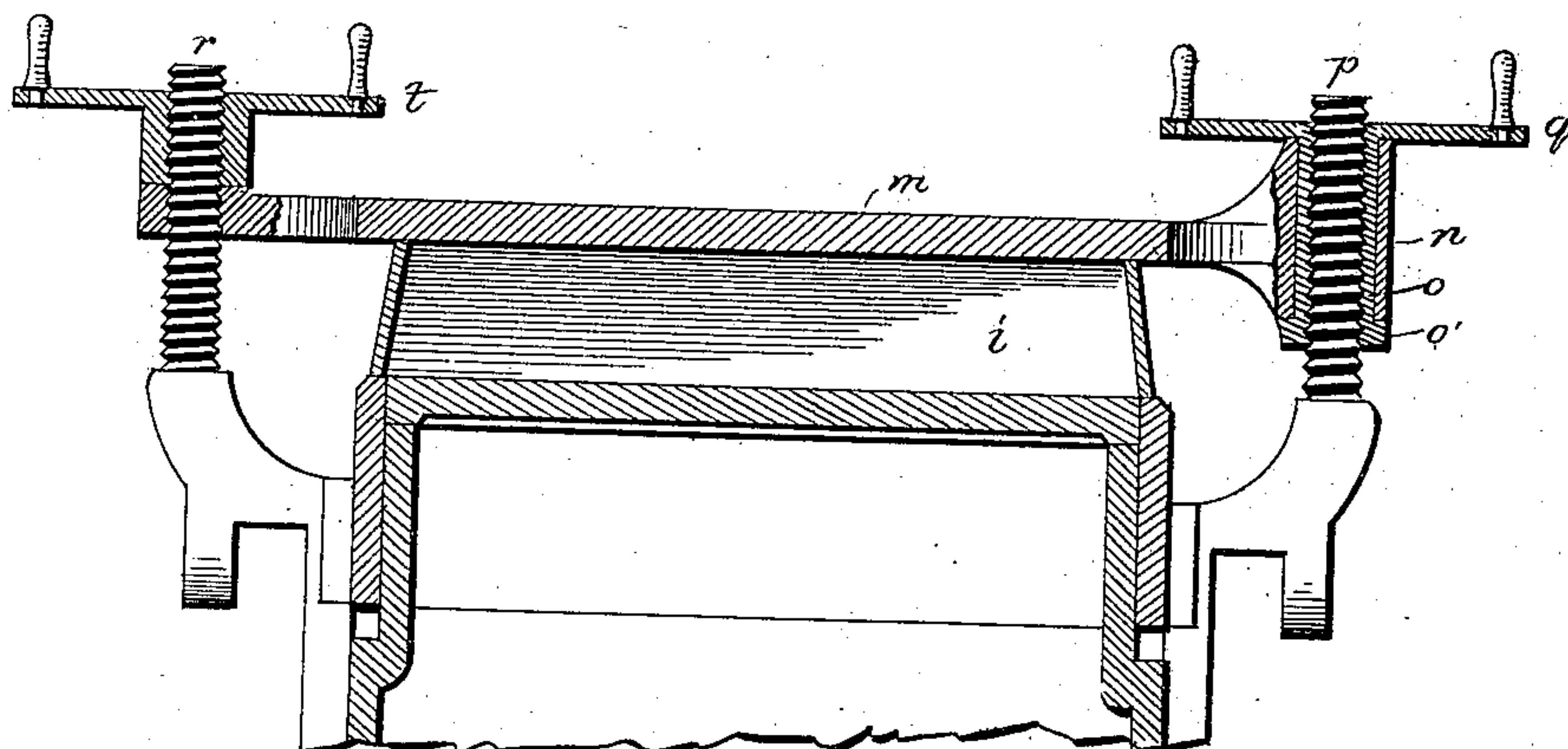


Fig. 4.

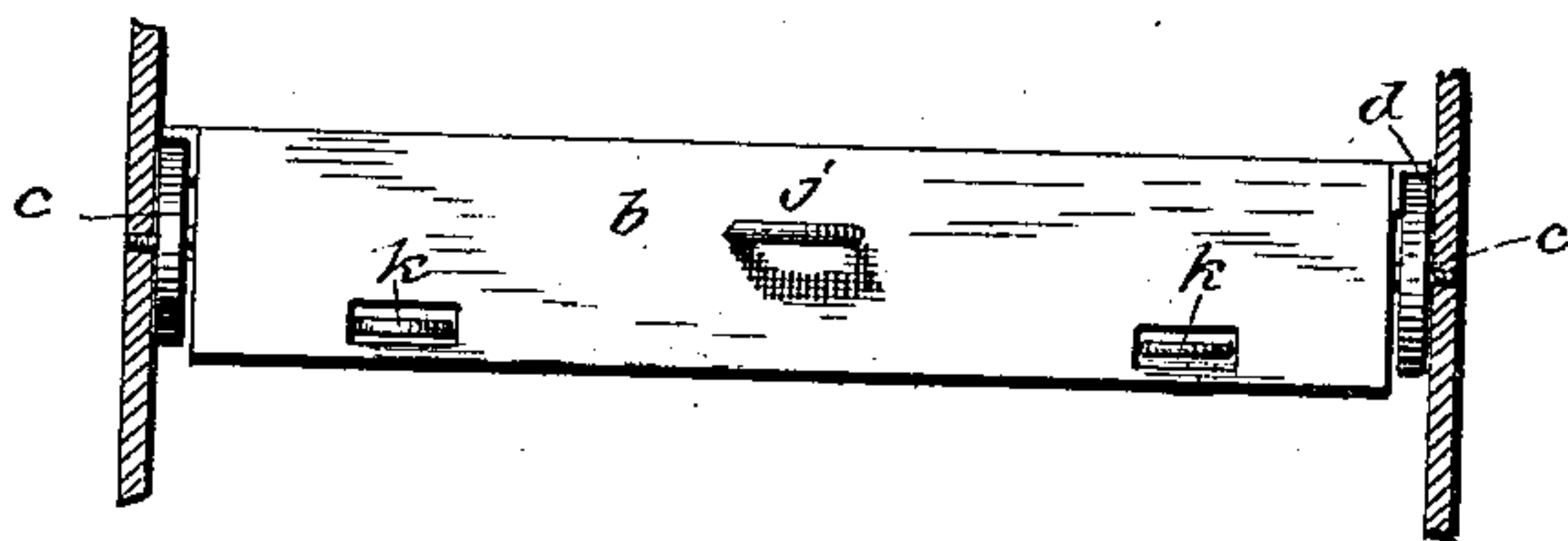
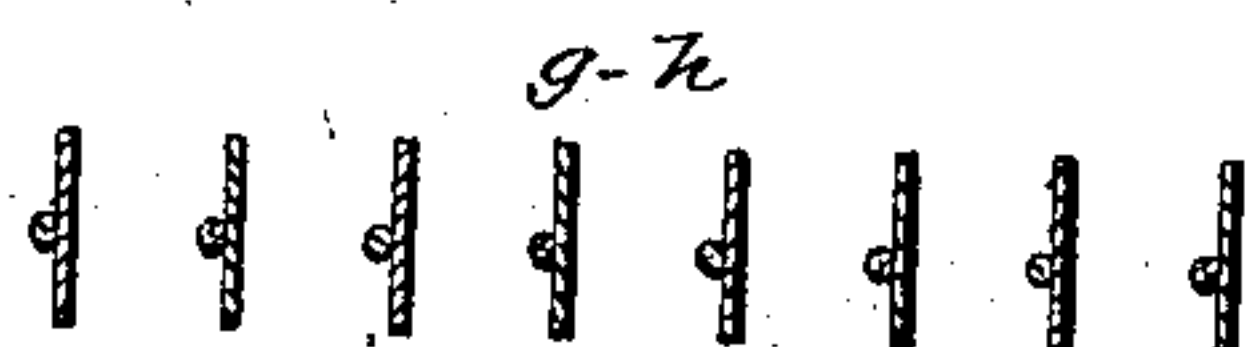


Fig. 5.



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UNITED STATES PATENT OFFICE.

ARTHUR RICE, OF NEW ALBANY, INDIANA, ASSIGNOR TO THE PEERLESS MANUFACTURING COMPANY, OF LOUISVILLE, KENTUCKY.

SAND-MOLDING MACHINE.

SPECIFICATION forming part of Letters Patent No. 332,834, dated December 22, 1885.

Application filed August 14, 1885. Serial No. 174,387. (No model.)

To all whom it may concern:

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

The object of this invention is to provide a binder and sand-drawer for sand-molding machines.

The invention consists in a sand-drawer adapted to be withdrawn from the sand-hopper over the flask when it is in position upon the molding-machine, and provided with a slatted bottom, whereby the sand carried from the hopper may be dropped into the flask bodily and evenly throughout the area of the flask, so as to fill the flask flush and even and solidly throughout.

The invention also consists in a binder pivoted to the molding-machine at one end upon an adjustable pivot, and adapted to be swung back and forth over the flask, and secured in position over the same during the operation of molding, all as I will now proceed to more particularly set forth and claim.

In the accompanying drawings, illustrating my invention, in the several figures of which like parts are similarly designated, Figure 1 is a top plan view of sufficient of a molding-machine to show my invention. Fig. 2 is a vertical section of the same, omitting, however, the binder and its appurtenances. Fig. 3 is a vertical cross-section showing the details of the binder. Fig. 4 is a front view of the drawer detached. Fig. 5 is a longitudinal section of a modified form of drawer-bottom, showing it closed and open.

The sand-hopper *a* and its supporting-frame may be of any approved construction, the hopper being provided at its bottom with a recess to receive the sand-drawer *b*, and the sides of the hopper having rollers or wheels *c* secured thereto, which rollers or wheels receive the flanges *d* on the upper edge of the drawer, to support said drawer as it is moved back and forth beneath the hopper. This drawer is provided with two compartments, *e* and *f*, and the compartment *e* is made with a slatted

bottom, while the compartment *f* is made solid.

In the example shown in Figs. 1 and 2 the slatted bottom of the sand-drawer is composed of a series of fixed bars, *g*, with intervening spaces, and above these bars is arranged a series of movable bars, *h*, wide enough to cover the spaces between the bars *g*, and adapted to be aligned with said bars to open the bottom of the drawer, and to be aligned with the spaces between said bars to close the bottom. When the compartment *e* is under the hopper to receive a charge of sand, its bottom is closed, and when it has received such a charge the drawer is drawn forward over the flask by means of the drawer-pull *j*, and when said compartment wholly covers the flask the bars *h* are drawn by their handles *k* so as to uncover the spaces between the bars *g*, and the sand falls through said spaces into the flask, and is deposited solidly, evenly, and uniformly throughout the whole area of the flask, so that there is no necessity for leveling the sand in the flask after it has received its charge. In all sand-molding machines to me known it has been impossible to fill the flask in this manner, and it has always been necessary to resort to hand-leveling after the drawer has been replaced under the hopper. The compartment *f* has its upper surface, *l*, projecting over into the compartment *e*, so as to obtain a surface to cut off sand as the drawer is moved out from the flask under the hopper.

The molding apparatus may be such as shown in the United States Letters Patent No. 322,202, dated July 14, 1885; but I do not limit the application of the invention to that one class of sand-molding machines. The shape of the bars of the series *g h* may be that shown, or flat, or one-half round, as desired, the shape being immaterial so long as the movable series of bars may easily operate over the other.

A modification of this slatted bottom is shown in Fig. 5, in which a single series of slats is used, said slats having longitudinal pivots, whereby they may be partly rotated to open and close the bottom, the said slats overlapping one another when closed, and operat-

ing substantially the same as a series of window-blind slats.

When the sand-drawer is projected over the flask, the solid or closed compartment closes the sand-hopper and prevents the escape of sand; and, furthermore, said compartment or a closed portion, *l'*, of compartment *e* covers the space between the hopper and the molding-machine, and prevents any waste of sand at that point.

I have shown only manual means for operating the sand-drawer; but obviously it may be operated mechanically—as, for example, by a return screw and lever connections.

The binder *m* has an eye, *n*, at one end, which is fitted upon a sleeve, *o*, to freely rotate thereon. This sleeve is screw-threaded internally and fitted to a screw-threaded post, *p*, rising from the molding-machine, and said sleeve is provided with a turn-button or hand-wheel, *q*. The sleeve *o* has at its bottom a collar, *o'*, upon which the eye *n* of the binder rests, and this collar, in connection with the sleeve-rotating turn-button *q*, serves to raise and lower the binder at this end. The other side of the molding-machine is provided with a screw-threaded post, *r*, and the other end of the binder is provided with a hook, *s*, adapted to engage said post *r*, and said post is provided with a nut or screw-threaded turn-button, *t*. When the flask *i* is in position upon the molding-machine, the binder is rotated upon its sleeve and brought round in position to cover said flask, and when in this position the hook *s* engages the post *r*, and then the turn-buttons *q* and *t* are turned down upon their screw-threaded posts until the binder is brought to a level upon the top of the flask, when said flask is thereby held in position for the operation of molding.

Any variation in the height of the binder made necessary by the height of the flask used may be obtained by rotating the sleeve up or down upon its post, and after the sleeve has been set at the proper height upon its post no further adjustment will be necessary at that end so long as flasks of the same height are used, so that in manipulating the binder with flasks of uniform height, in order to remove the binder it will be necessary only to give the turn-buttons *q* and *t* a quarter-turn, for in-

stance, to enable the binder to be swung clear of the flask.

In Fig. 1 I have shown the turn-button *t* in dotted lines in order to more clearly and fully illustrate the hook at that end of the binder. In Fig. 3, however, the turn-button is shown in full section.

What I claim is—

1. The combination, with the sand-hopper and supporting-frame, of a sand-drawer arranged beneath said hopper, and means to reciprocate it thereunder, a fixed slatted bottom in said drawer, and a movable slatted bottom superposed upon said fixed bottom, and means to reciprocate it to cover and uncover the fixed bottom, substantially as described.

2. In a sand-molding machine, a flask-receiver, and a sand-hopper and supporting-frame, combined with a sand-drawer having a slatted bottom, which, when closed, receives a charge of sand from the hopper, means to project such charged drawer over the flask, and means to then open said slatted bottom, to thereby discharge the sand into the flask throughout its full length and width evenly and uniformly, substantially as described.

3. In a molding-machine, a binder provided at one end with an eye, an internally-screw-threaded sleeve arranged in said eye, and an attached operating-handle, and a hook at the other end of said binder, combined with screw-threaded posts rising from the molding-machine and engaged by the binder to permit the binder to be swung upon the same, substantially as described.

4. In a sand-molding machine, a binder provided with an eye, and an internally-screw-threaded sleeve inserted in said eye, combined with a screw-threaded post, upon which said sleeve is secured, and means for raising and lowering the sleeve, whereby the binder is swiveled to the molding-machine, and its vertical adjustment obtained co-ordinately with the height of the flasks, substantially as described.

In testimony whereof I have hereunto set my hand this 11th day of August, A. D. 1885.

ARTHUR RICE.

Witnesses:

CHAS. VAN DUSEN,
GEORGE REGAN.