J. J. McCLELLAND.

SAND MOLDING MACHINE.

APPLICATION FILED JUNE 29, 1908.

903,605.

Patented Nov. 10, 1908.

2 SHEETS—SHEET 1.

Fig. 2

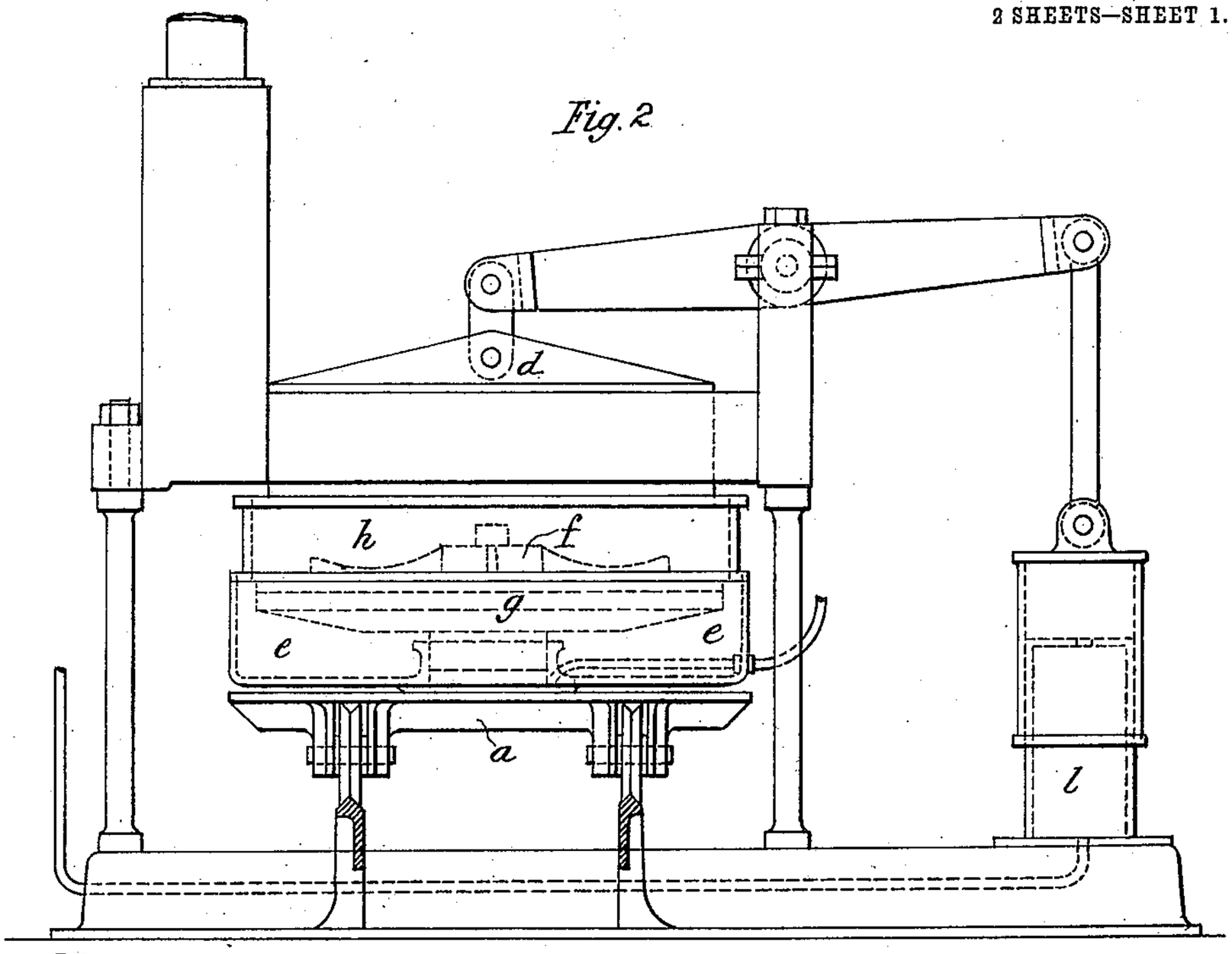
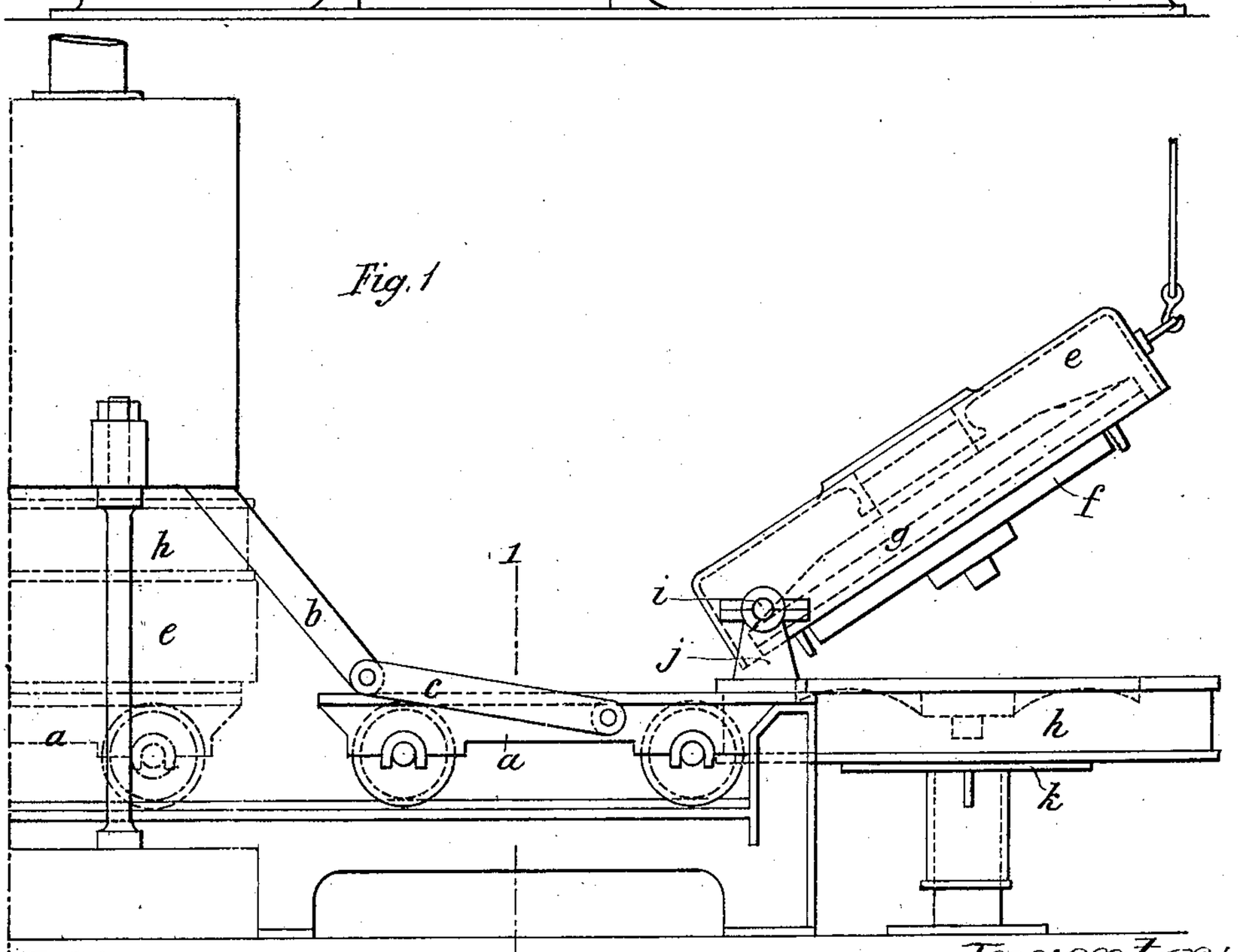


Fig. 1



Witnesses:-
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F. George Barry.

Inventor:-
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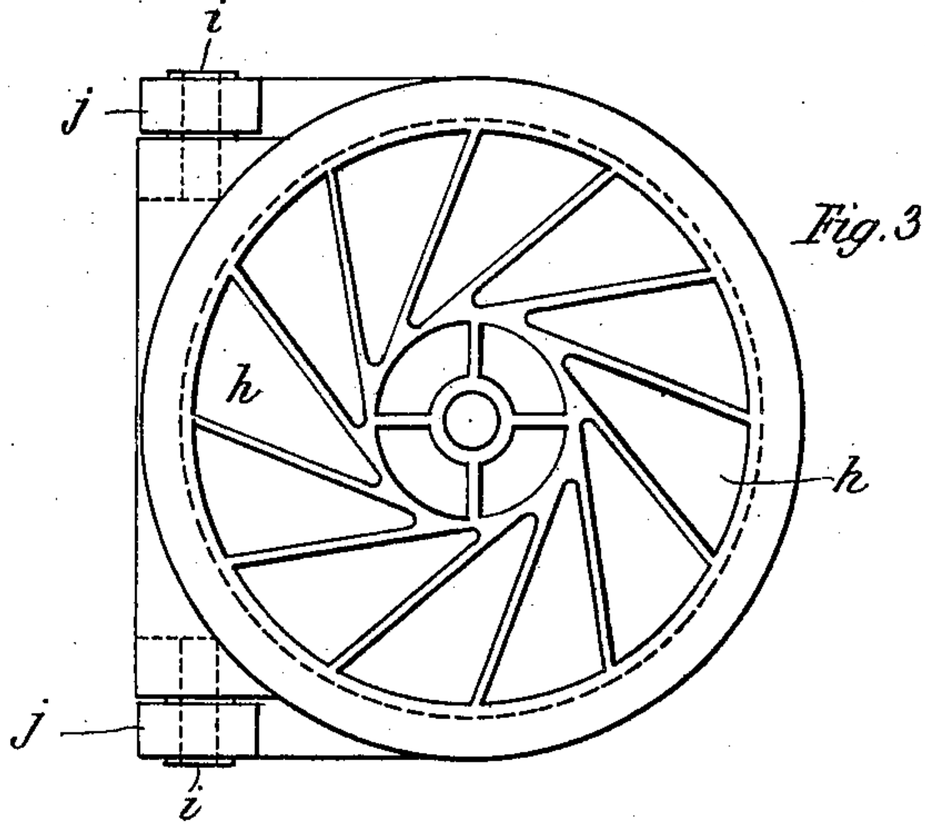

Fig. 3

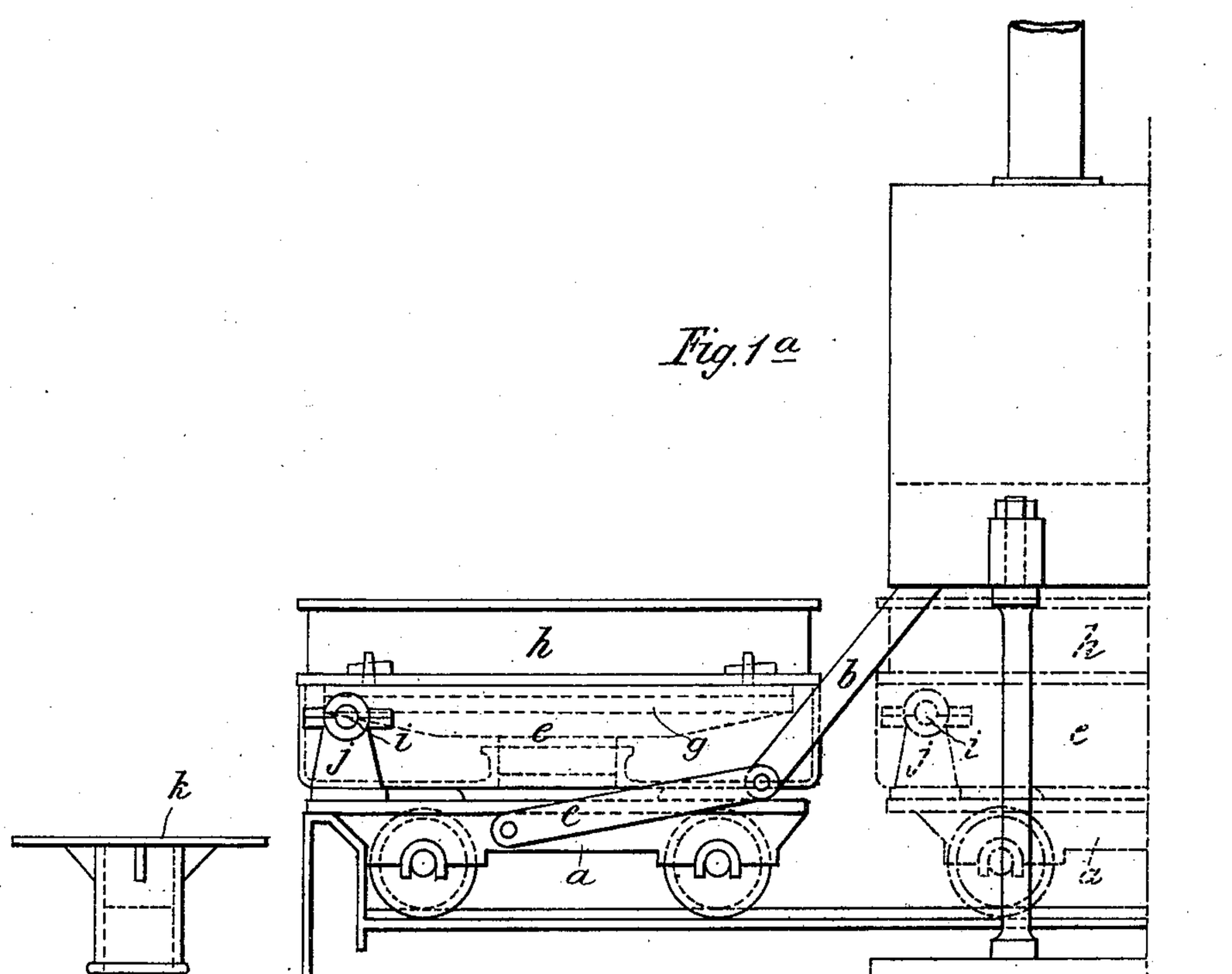

Fig. 1a

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UNITED STATES PATENT OFFICE.

JOHN JAMES McCLELLAND, OF LONDON, ENGLAND, ASSIGNOR TO MASON'S FOREIGN PATENTS, LIMITED, OF LONDON, ENGLAND, A CORPORATION OF GREAT BRITAIN.

SAND-MOLDING MACHINE.

No. 903,605. Specification of Letters Patent. Patented Nov. 10, 1908.

Application filed June 29, 1908. Serial No. 441,008.

To all whom it may concern:

Be it known that I, JOHN JAMES McCLELLAND, a subject of the King of Great Britain, and resident of 73 Harrowgate road, South Hackney, London, England, foreman iron-molder, have invented new and useful Improvements in Sand-Molding Machines, of which the following is a specification.

The present invention has reference to improvements upon sand molding machines of the class described in the specification of a British patent granted to the present applicant No. 13288/04.

In machines of this class mold boxes are employed which are placed upon trolleys and presented to the action of a rammer by means of which the sand placed in the boxes is compressed around the patterns within the molds.

In the machine which forms the subject of the patent above referred to the ramming takes place downwards only.

The object of the present invention is to provide means whereby the ramming may take place both upwards and downwards which is a preferable method and one which gives improved results.

The simultaneous upward and downward ramming in machines of the kind which form the subject of the patent above referred to has not been attempted by reason of the employment of a ram on the trolleys for the purpose of raising the mold clear of the pattern. According to the present invention it is now proposed to employ on the trolleys and movable therewith, rams which are used for ramming the sand in an upward direction, the withdrawal of the pattern after ramming being effected by the invertion of the mold and the lowering away of the flask by means of a vertically moving table. This method of withdrawing patterns from sand molds is not in itself new but its employment in conjunction with stationary downwardly working rams and upwardly working rams on movable trolleys permits of the production of results in ramming sand molds which have not hitherto been obtained.

In the accompanying drawing Figure 1 shows in front elevation a sand molding machine embodying the present improvements, Fig. 1a is a rear elevation of the same, showing the sand boxes in position on the trolley. Fig. 2 is a section on line 1—1 of Fig. 1, Fig. 3 is an inside plan of the pattern carrying frame or box.

a a are a pair of trolleys provided with levers and links *b c* for moving them to and from the position, beneath the rammer *d*, indicated by the dotted lines in Fig. 1.

e are metal boxes which contain the patterns *f* and also rams *g* (see Fig. 2) for assisting in the compression of the sand.

h are boxes or flasks which are detachably secured to the boxes *e* by means of cotter pins or the like. On the boxes *e* are trunnions *i* resting in bracket bearings *j* on the trolleys *a*.

k k are rising and falling tables situated in line with the track of the trolleys *a*.

The molding machine is in other respects similar to machines of the same kind previously known.

In practice the boxes *e* and *h* are secured together, placed on the trolleys *a* and filled with sand. The trolleys are then alternately advanced to the dotted position of Fig. 1 where the sand is rammed both from above and below. From above by means of the already known rammer *d* operated by the piston *l* (see Fig. 2) and from below by means of the ram *g* in the box *e*. After each ramming operation the trolleys are moved outwards and by means of a crane or other suitable device the boxes *e* and *h* locked together are turned completely over on the trunnions *i* onto the tables *k* (see the right hand side of Fig. 1). The cotter pins are then knocked out and the tables *k* are lowered and with them the flasks *h* while the boxes *e* are retained by the crane and the bearings *j*. The lowering of the tables *k* with the flasks *h* thereon withdraws the patterns from the sand contained in the said flasks. The box *e* can then be turned back and covered up again with other flasks which are in turn filled and rammed while the flasks *h* are removed from the tables *k* and carried away.

The motive power for operating the rams, moving the trolleys etc. will preferably be derived from compressed air but other suitable motive force may be employed if desired.

Having now particularly described and ascertained the nature of my said invention and in what manner the same is to be performed, I declare that what I claim is:—

1. In a sand molding machine, mold

boxes, trolleys for supporting the mold boxes, means for running the trolleys with mold boxes thereon forward, a stationary rammer for ramming the molds from above, and means carried on the trolleys for ramming the mold boxes from below, substantially as described.

2. A sand molding machine comprising trolleys for supporting the mold boxes and for running them forward to be rammed from above, a stationary rammer and means carried on the trolleys for ramming the molds from below, rising and falling tables adjacent to the trolleys in their outward position, and means for inverting the mold boxes onto the tables in the manner and for the purpose described.

In testimony whereof I have signed my name to this specification in the presence of two subscribing witnesses.

JOHN JAMES McCLELLAND.

Witnesses:

A. S. Bishop,

P. Phillipps.