

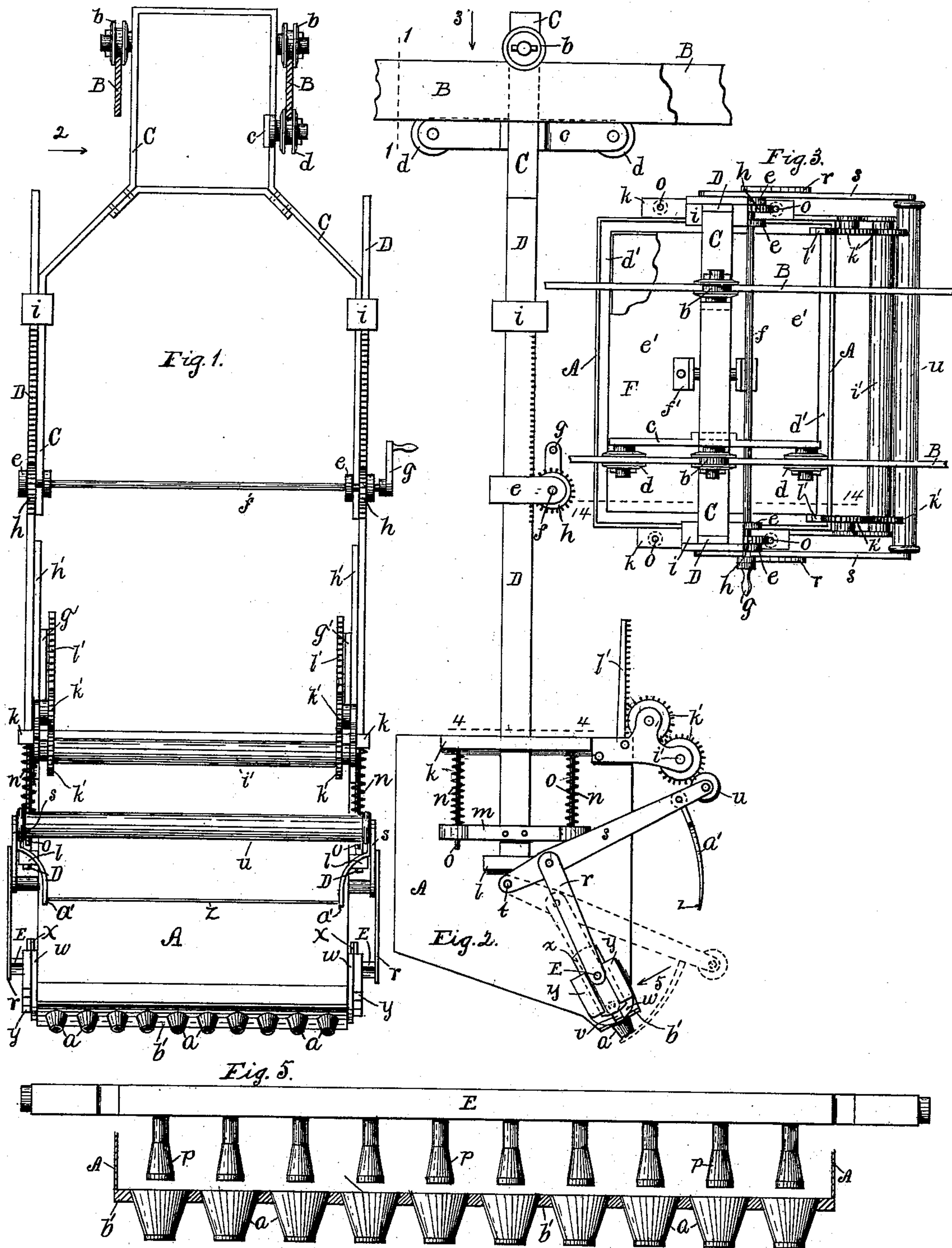
(No Model.)

2 Sheets—Sheet 1.

J. M. DEMERATH.
CANDY CASTING MACHINE.

No. 506,981.

Patented Oct. 17, 1893.



Attest:
m. L. Winston.
F. A. Whitmore.

Inventor:
J. M. Demerath,
By E. B. Whitmore,
Atty.

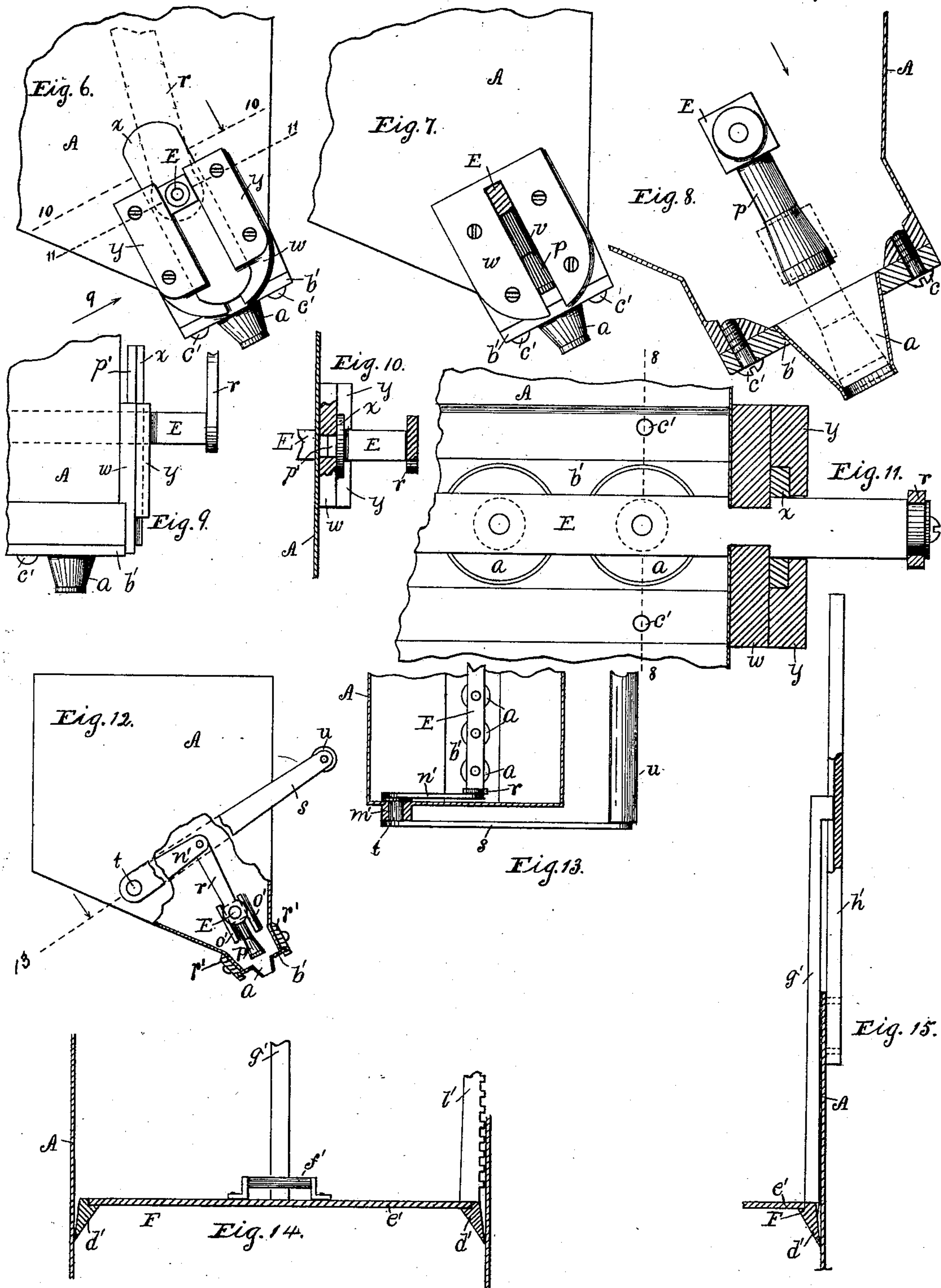
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UNITED STATES PATENT OFFICE.

JOSEPH M. DEMERATH, OF ROCHESTER, NEW YORK, ASSIGNOR TO AMELIA C. DEMERATH, OF MILWAUKEE, WISCONSIN.

CANDY-CASTING MACHINE.

SPECIFICATION forming part of Letters Patent No. 506,981, dated October 17, 1893.

Application filed June 23, 1893. Serial No. 478,626. (No model.)

To all whom it may concern:

Be it known that I, JOSEPH M. DEMERATH, of Rochester, in the county of Monroe and State of New York, have invented a new and useful Improvement in Candy-Casting Machines, which improvement is fully set forth in the following specification and shown in the accompanying drawings.

My invention is a machine for casting small blocks or cakes of a plastic material, the castings being made in molds separate from the machine. The plastic material is placed in a receptacle in the machine and fed or supplied to the molds in predetermined quantities.

The device shown and herein described is intended more particularly to be used in the manufacture of candy, for making small candy casts, the candy being in a semi-fluid or plastic state when acted upon by the machine.

The invention is hereinafter fully described and more particularly pointed out in the claims.

Referring to the drawings, Figure 1 is a front elevation of the machine the supporting tracks being vertically sectioned on the dotted line 1 1 in Fig. 2. Fig. 2 is a side elevation, seen as indicated by arrow 2 in Fig. 1, parts being shown in two positions by full and dotted lines. Fig. 3 is a plan seen as indicated by arrow 3 in Fig. 1. Fig. 4 is a horizontal section on the dotted line 4 4 in Fig. 2 better showing some of the parts at the side of the device. Fig. 5 is a view of the plunger-bar and delivery cones or tubes seen as indicated by arrow 5 in Fig. 2, parts being longitudinally sectioned. Fig. 6 better shows a slide at one side of the device; Fig. 7 a similar view to Fig. 6 with certain parts omitted. Fig. 8 is a transverse section of the lower part of the body taken on the dotted line 8 8 in Fig. 11, parts being shown in two positions by full and dotted lines. Fig. 9 is an elevation of some of the parts at the lower left-hand side of the device, seen as indicated by arrow 9 in Fig. 6. Fig. 10 is a section taken on the dotted line 10 10 in Fig. 6, a part of the slotted plate being broken away. Fig. 11 is an interior view, parts being sectioned on the dotted line 11 11 in Fig. 6. Fig. 12 is a side elevation showing a modification of the device, parts being broken away and vertically sectioned. Fig. 13 is an interior

view, the body being sectioned on the dotted line 13 in Fig. 12. Fig. 14 shows the follower sectioned on the dotted line 14 14 in Fig. 3. Fig. 15 is a vertical section of a part of the body and the follower taken on the dotted line 15 in Fig. 4 and viewed as indicated by the arrow pointed thereon, the grooved guide bar being in part longitudinally sectioned. Figs. 4, 5, 6, 7, 8, 9, 10, 11, 14 and 15 are drawn to various scales larger than that of the other figures.

Referring to the parts shown, A is the body of the machine, made hollow and preferably of sheet metal, for holding the mass of plastic candy to be operated upon.

B B are horizontal tracks along which the machine travels.

C is the hanger for the body and D D the vertical lifting racks.

At its lower front edge the body is provided with a row or series of delivery tubes or cones *a* out through which the candy is discharged in measured quantities into molds beneath. The hanger C is provided with two grooved rollers *b b*, one to rest upon each of the tracks B B, and further provided with a rigid cross bar *c*, carrying similar grooved rollers *d d*, to roll along the under edge of one of the tracks B. This is to prevent the body from swinging in a forward or backward direction when the device is being operated.

At its lower end the pendent hanger C is provided with two rigid clips *e e*, which hold a horizontal shaft *f*, provided with a crank *g*. This shaft carries two similar pinions *h h*, which engage the teeth of the respective racks D D. The clips *e* also serve as guides through which the racks slide in vertical directions when the crank is turned to regulate the elevation of the body A. Other guides, *i i*, are also provided for the racks, above the clips *e*, rigid with the hanger C. The hanger terminates at its lower end some distance above the body, and the racks extend downward from the hanger, at the sides of the body, and are connected with the latter by spring connections to the end that the body may have a slight vertical motion independent of the racks and the hanger. The racks are adapted to pass freely through rests *k l*, rigid with the body. A horizontal cross bar *m*, is made rigid with each rack which supports two vertical spiral springs *n n*, extending between it and the rest *k*. Core rods *o o*, are provided

for the springs, rigid in the rest *k* and adapted to pass freely through openings in bar *m*. By this means the body rests upon the four springs which permit a slight vertical motion of the body upon the racks.

Passing horizontally through the body near its lower front edge is a plunger-bar *E*, Fig. 5, provided with a series of rigid plungers *p*, adapted to pass downward into the delivery cones *a*. The ends of this bar project through the sides of the body and are connected by means of pitmen *r r*, Fig. 2, to levers *s s*, pivoted at the sides of the body, at *t*. The levers are equal and are connected in front of the body by a horizontal hand roller *u*, by means of which to operate the plunger-bar. When at its upper position the plunger-bar with its series of plungers is slightly above the delivery cones, as appears in Fig. 5, which admits the semi-fluid candy to flow into and fill the cones. A downward motion of the bar causes the plungers to force measured quantities of the candy out through the cones into the molds beneath. The lower expanded ends of the plungers substantially fit the reduced lower ends or necks of the cones and serve to cut off the flow of candy through them when the bar is down. This will be understood by observing the dotted positions of the bar and plungers shown in Fig. 8. When down the lower ends of the plungers are substantially even with the lower ends of the cones. The plunger-bar is preferably reduced in width where it passes through the walls of the body *A*, clearly shown in Fig. 11. Slots, *v*, are formed in said walls to admit of the upward or downward motions of the plunger-bar, and out through which the latter may be carried when it is wished to remove said bar from the body. Plates *w*, slotted to correspond with the slots *v* in the walls of the body, are secured to the latter to give breadth of bearing for the plunger-bar. The plunger-bar is also made to pass through sliding plates *x* formed with longitudinal tongues *p' p'*, Figs. 9 and 10, to enter the slots in the plates *w w*, said plates serving to cover and substantially close the slots *v*. These plates snugly fit the bar and are pressed on the latter, holding to their places by friction. Parallel slides *y*, made rigid with the plates *w*, serve to form bearings within which the plates *x* slide.

I usually provide an external cut-off for the candy flowing outward through the cones. This consists of a simple horizontal wire or strip of metal *z*, Figs. 1 and 2, made to pass sidewise across the ends of the cones when the plungers are brought down. This cut-off is held by spring-arms *a' a'*, rigid with the levers *s*, as shown; and when the hand roller *u* is forced down the wire is carried across the mouths of the cones to cut off strings of candy that tend to hang to them. The spring-arms are set to cause the cut-off to slightly press the ends of the cones as it passes over them.

The delivery cones, which are made of sheet

metal, are secured in a row in a bar or plate *b'*, at the bottom of the body *A*. The cones are arranged at the lower front edge of the body and incline forward and downward, as shown in Figs. 6 and 7. This plate covers or closes an opening in the bottom of the body, and it is made removable from the body, and may be secured to the latter by any convenient means as simple screws *c'*.

In working up different kinds of candy and in making casts of different sizes it becomes necessary to use different kinds of cones and plungers. On account of this I provide various cone-bars or plates *b'* differently provided with cones, and various plunger-bars provided with plungers of different sizes and numbers, to put into the machine as each case may require. The cone-bars and plunger-bars are made in co-acting pairs. When one plunger-bar is substituted for another the sliding plates *x* are removed from the bar taken out of the device and slipped on to the bar put in place, the pitmen *r* being disconnected from the bar that is removed and connected with the one put in place.

The body *A* is preferably made rectangular with an inclined floor, as shown, and I provide an internal follower *F*, Figs. 3 and 14, to rest upon the mass of candy in the body to urge it downward. This follower, which is of cast iron, consists of a horizontal rectangular frame *d'*, formed with knife edges at its lower side to scrape the inner surfaces of the walls of the body as the follower descends. The opening in the frame is covered or closed by an iron plate *e'*, provided with a handle *f'*. In supplying the body with candy the latter is poured in through the frame *d'*, the plate being first removed. The follower is provided with a rigid vertical post *g'* at each of two opposite sides, Figs. 4, 14 and 15, turned outward at its upper end to enter a grooved vertical guide bar *h'* made rigid with the body *A*. These guide bars are secured to the body adjacent to or just within the lifting racks *D* as shown. By means of this construction the follower is enabled to move truly upward or downward within the body. To control the action of the follower I provide a horizontal hand roller *i'*, Figs. 1 and 3, in front of the body and connected with the follower by means of gears *k' k'*, at either end, and vertical racks *l' l'*, Figs. 2, 3 and 14, rigid with the follower. In using the machine the operative grasps the hand roller *u* with the right hand, for instance, to operate the plunger bar, and the roller *i'* with the left hand. By turning the latter roller slightly at intervals the follower is forced downward against the candy and caused to scrape the latter from the walls of the body to which it tends to adhere. Thus the whole mass of candy is pushed downward and caused to flow outward through the delivery cones.

The molds in which the candy is cast form no part of this invention. They may be of any desirable form or kind but are frequently

made by impressions formed in shallow trays of pulverized starch or in plates of india rubber. These trays or plates are usually arranged along near the edges of a table or counter, under the tracks B B which are built to extend along over said table or counter. The molds are formed in the starch or india rubber in rows to correspond to the row of delivery cones, there being as many molds in each row as there are cones. And in arranging the trays or plates upon the table they are placed so that the rows of molds are transverse to the line of trays or plates on the table.

In operating the machine the row of cones is brought over a row of molds by moving the device upon the tracks the plunger bar in the mean time being at its lowest position to close the mouths of the cones. Then an upward motion of the operating roller *u* to allow the candy to flow into the molds followed by a downward motion of the roller to its normal position, causes as many casts of candy to be made simultaneously as there are cones in the cone-bar. Advancing the machine to the next row of molds—a few inches—a repetition of the movements of the hand roller produces another set of casts. These operations continued along or around the table or counter cause all of the molds to be filled. Normally the lower ends of the delivery cones are about an inch above the molds; but on account of the springs *n* supporting the body, the operative is enabled to bring the cones down close to the molds to deliver the candy therein so the latter will be caused to more exactly enter the molds. When left to themselves the springs immediately raise the body safely above the molds while the machine is being advanced to the next row.

In practice the trays or plates of molds are piled upon the table one upon another three or four deep in readiness to be filled, the upper ones being filled first and then removed to allow of the filling of the next ones below. It is on this account that the lifting racks D D with the co-acting parts are provided. The body is raised by means of the crank *g*, in position to fill the upper layer of trays. When these are filled and removed the body is lowered to fill the next layer of trays; and so on downward to the last.

In the modification shown in Figs. 12 and 13 the pins *t* of the side levers *s* pass through bearings *m'* into the interior of the body, and the pitmen *r r* and arms *n' n'* for driving them, are in the mass of candy. In this construction of the device the plunger-bar does not pierce at its ends the side walls of the body, the latter being imperforate at those parts, but it slides in internal guides *o' o'*, rigid with the walls of the body. In this construction also the external parts *y, x* and *w* are dispensed with. When the machine is thus constructed the follower can be used only a part of the way down. In this con-

struction of the machine I sometimes form the cone-bar *b'* to slide endwise in rests *r'* rigid with the body. The method of applying the cone-bar to the machine is, however, not material to my invention.

What I claim as my invention is—

1. A machine for casting plastic substances, having a hollow rectangular body or receptacle provided with delivery tubes, in combination with a bar within the receptacle having plungers to co-act with the delivery tubes, two equal pivoted levers one at either end of the receptacle for operating the plunger bar, joined at their free ends by a horizontal hand roller, and connections for said levers and the plunger bar, spring arms rigid with the levers, and a wire held by said spring arms adapted to cross the outer ends of the delivery tubes as the levers are operated, substantially as shown and described.

2. A machine for casting plastic substances having a hollow rectangular receptacle with an inclined floor provided with delivery tubes at its lower edge, an internal bar having plungers to co-act with the delivery tubes, and means to operate said bar, in combination with an internal follower or scraper for the vertical walls of the receptacle, consisting of a rectangular frame with a large opening at the middle, a removable cover for said opening, and means to control the follower, substantially as shown and described.

3. In a machine for casting plastic substances an overhead track in combination with a hanger provided with rollers to engage the track, a body for holding the plastic substance, below the hanger, toothed racks connecting the body with the hanger, and an operating shaft with pinions to engage the racks, substantially as shown and described.

4. In a machine for casting plastic substances an overhead track in combination with a hanger pending from the track, a body beneath the hanger, toothed racks connecting the body with the hanger, and springs supported by the racks for holding the body, substantially as and for the purpose specified.

5. A machine for casting plastic substances, having a body to hold the substance, provided with a series of delivery tubes, and means to control the flow of candy through said tubes, in combination with a follower within the body provided with toothed racks, and a hand roller held by the body to operate said follower, and toothed wheels connecting the roller and said racks, substantially as and for the purpose specified.

In witness whereof I have hereunto set my hand, this 11th day of June, 1893, in the presence of two subscribing witnesses.

JOSEPH M. DEMERATH.

Witnesses:

ENOS B. WHITMORE,
M. L. WINSTON.