

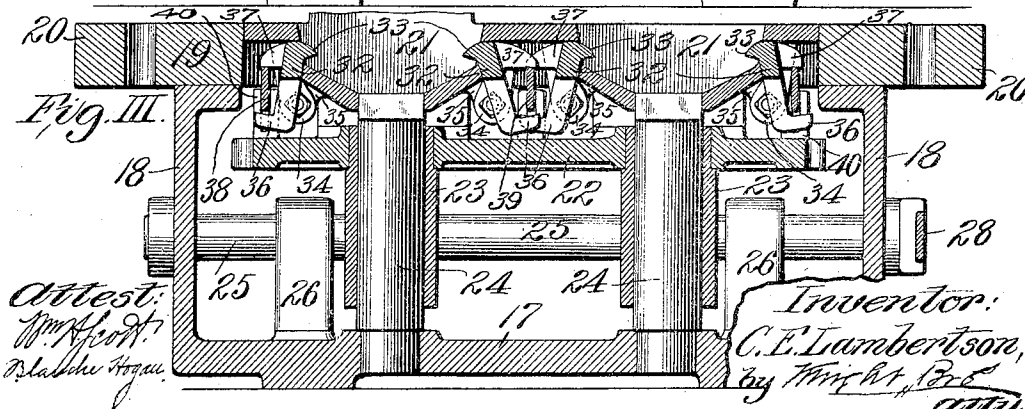
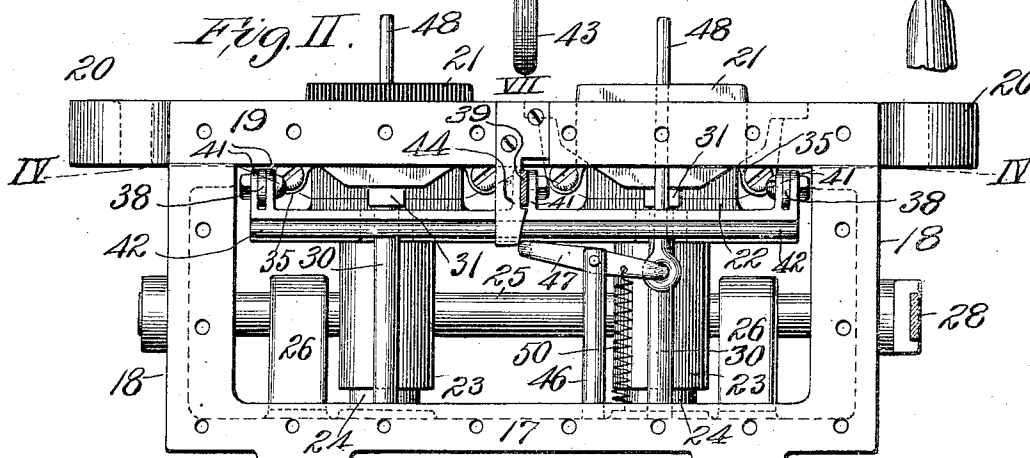
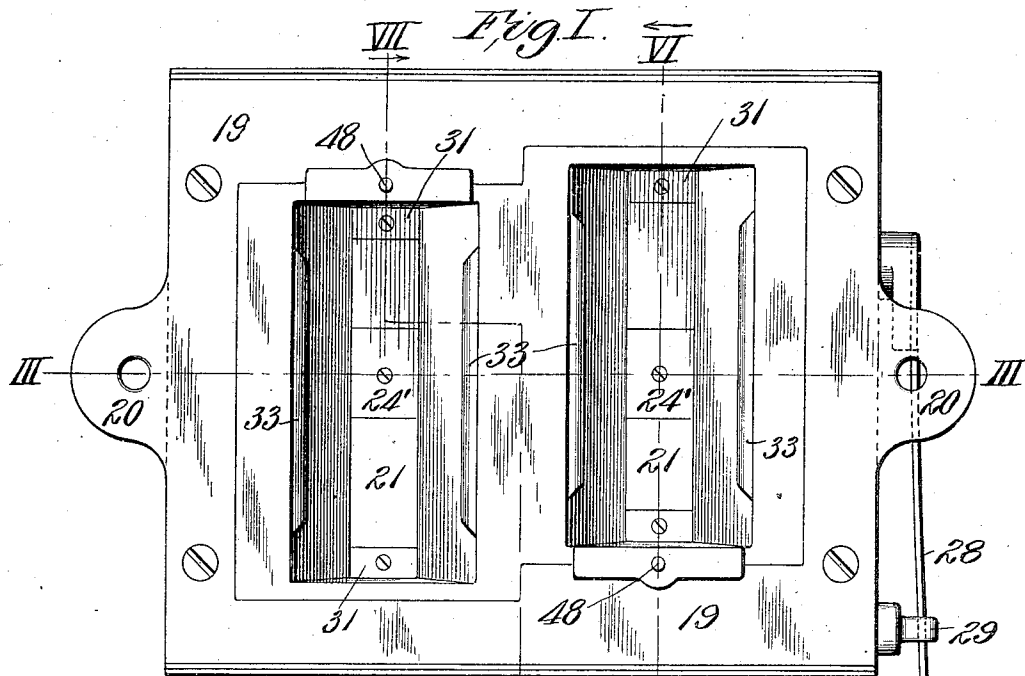
No. 877,783.

PATENTED JAN. 28, 1908.

C. E. LAMBERTSON.
MOLDING MACHINE.

APPLICATION FILED MAR. 31, 1906.

4 SHEETS—SHEET 1.



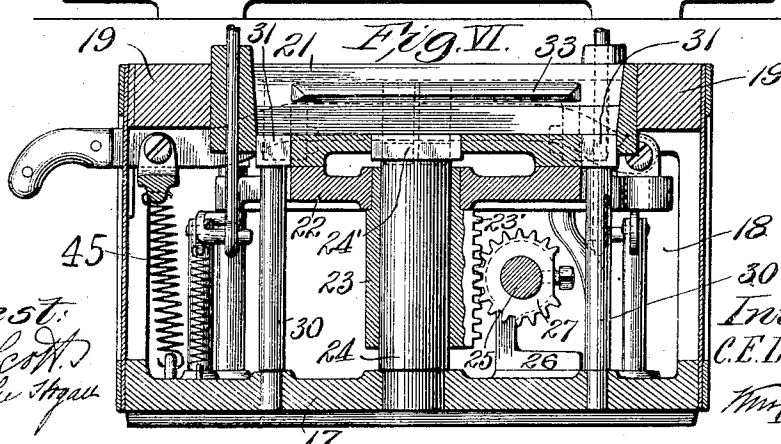
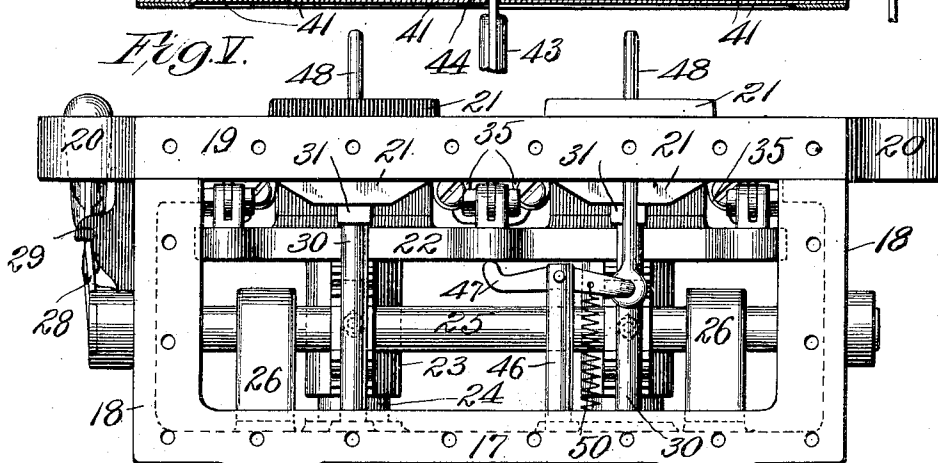
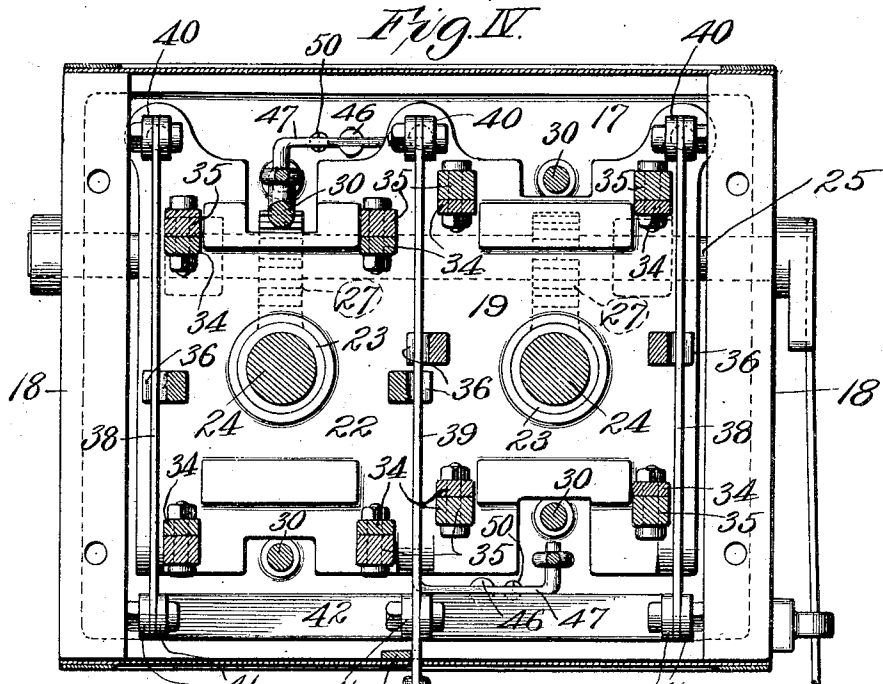
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4 SHEETS—SHEET 2.



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4 SHEETS—SHEET 3.

Fig. VII.

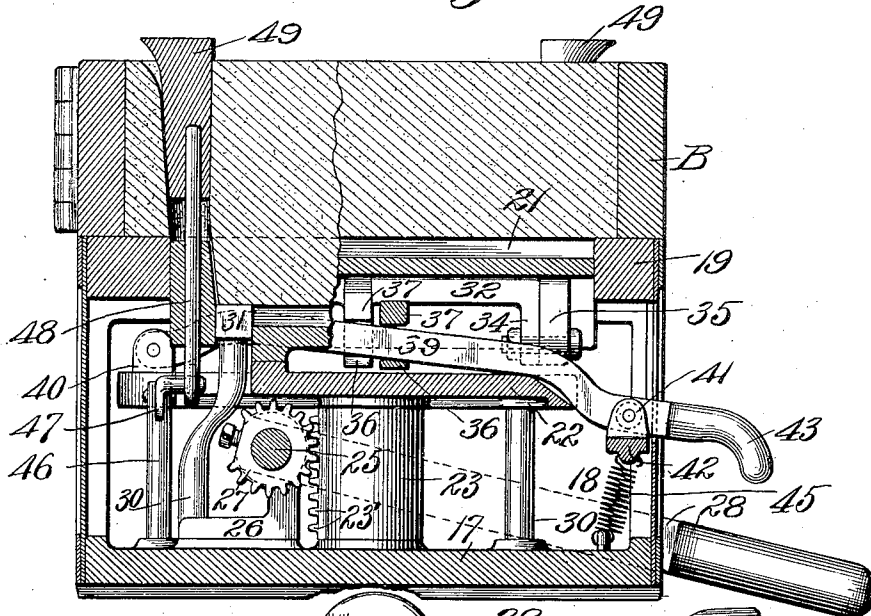
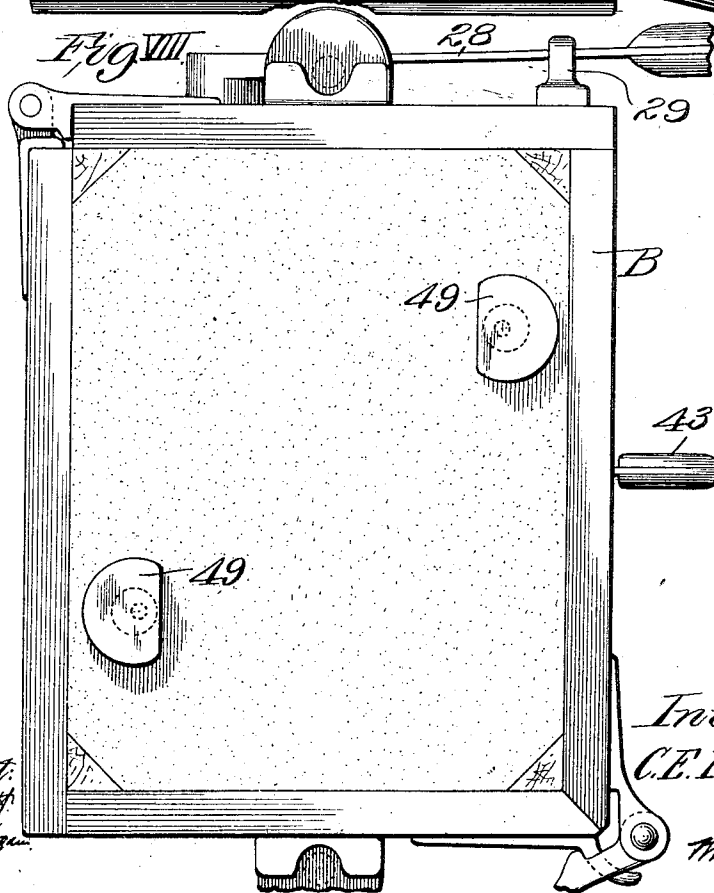


Fig. VIII.



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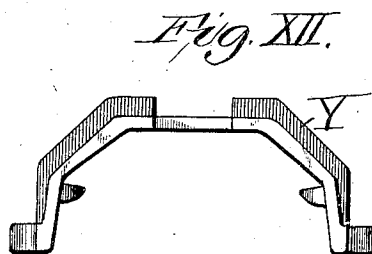
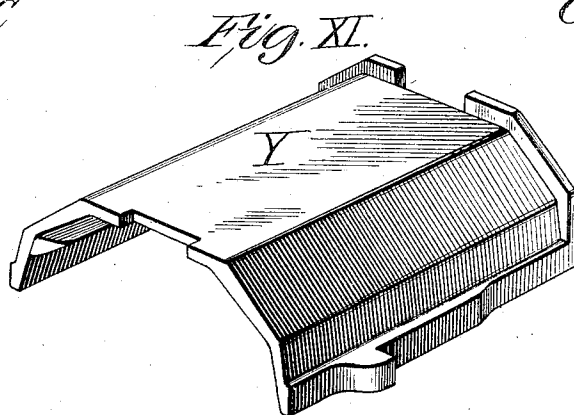
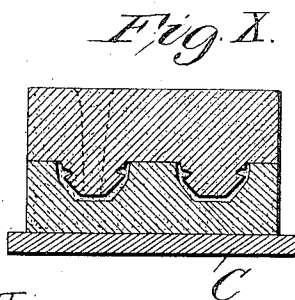
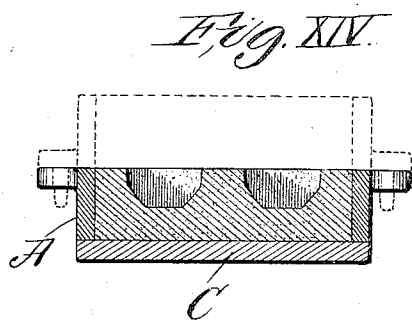
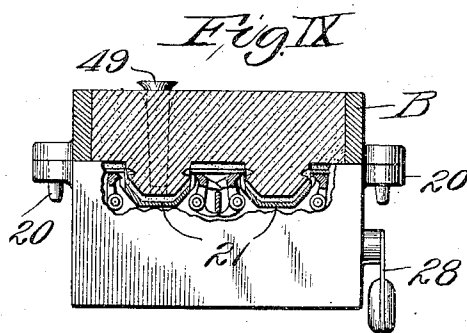
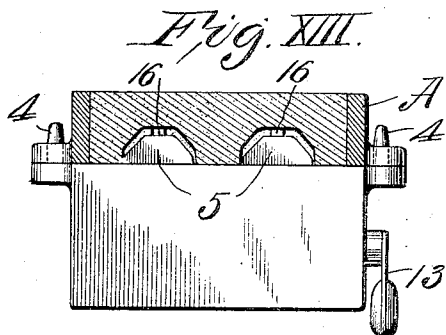
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4 SHEETS—SHEET 4.



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UNITED STATES PATENT OFFICE.

CHARLES E. LAMBERTSON, OF ST. LOUIS, MISSOURI, ASSIGNOR TO ST. LOUIS MALLEABLE CASTING COMPANY, OF ST. LOUIS, MISSOURI, A CORPORATION.

MOLDING-MACHINE.

No. 877,783.

Specification of Letters Patent.

Patented Jan. 28, 1908.

Application filed March 31, 1906. Serial No. 309,110.

To all whom it may concern:

Be it known that I, CHARLES E. LAMBERTSON, a citizen of the United States, residing in the city of St. Louis and State of Missouri, have invented certain new and useful Improvements in Molding-Machines, of which the following is a full, clear, and exact description, reference being had to the accompanying drawings, forming part of this specification.

My invention relates to a machine for preparing molds in flasks previous to casting operations, the machine including means whereby the cope molds are produced previous to the assemblage of the drag and cope molds.

Figure I is a top or plan view of the machine. Fig. II is a side elevation of the machine with the side plates removed. Fig. III is a vertical longitudinal section taken on line III—III, Fig. I. Fig. IV is a horizontal section taken on line IV—IV, Fig. II. Fig. V is a side elevation similar to Fig. II, but looking at the opposite side of the machine. Fig. VI is a vertical cross section taken on line VI—VI, Fig. I. Fig. VII is a vertical cross section taken on irregular line VII—VII, Fig. I. Fig. VIII is a top or plan view of the machine with the mold flask seated thereon. Fig. IX is a diagrammatical view of the cope section of the mold and the portion of the machine on which it rests when produced. Fig. X is a cross section of the drag and cope mold sections assembled. Fig. XI is a perspective view of a casting of a character that may be produced in my machine. Fig. XII is an end view of the casting. Fig. XIII is a diagrammatical view in elevation and partly in section of the drag member of the mold and a part on which it rests when produced. Fig. XIV is a vertical section of the drag section of the mold in inverted position.

17 designates the bed of the machine which is provided with vertical end walls 18 that support a table 19 having ears 20 perforated to receive the dowels of the cope flask member B, seen in Figs. VII and VIII.

21 are patterns adapted to operate through the table 19 to enter into and receive the sand placed and packed in the flask member B. The patterns 21 are supported by a platform 22 and depending from said platform are tubular legs 23 loosely fitted to columns 24 surmounting the bed 17. The tubular legs 23

are provided with racks 23', see Figs. V to VII inclusive.

25 is a rock shaft journaled in the bed end walls 18 and also in posts 26 surmounting the bed 17. The rock shaft 25 has fixed to it pinions or toothed segments 27 which are arranged in mesh with the racks 23', thereby providing for the impartation of vertical movement to the legs 23, platform 22 and patterns 21 when the rock shaft 25 is rotated.

28 is a lever fixed to the rock shaft 25 for the purpose of providing for its rotation, the said lever being adapted to engage a detent 29, see Figs. I and IV, whereby said rock shaft may be held from movement when the lever had been lifted to elevate the patterns into position for production of the cope part of the mold.

30 designates stool posts that surmount the bed 17 and which are provided at their upper ends with stools 31 loosely seated in the patterns and adapted to support the sand in the cope flask member when said patterns are lowered to move them from the sand. Additional sand supporting members are furnished by providing heads 24' upon the upper ends of the columns 24 which have the same utility as the stools 31.

For the purpose of producing recesses in the mold to provide for the production of projections at the inner face or faces of the castings to be produced when molten metal is poured into the completed mold, I provide mechanism which will now be described.

32 designates recessing bars that are preferably rockingly supported by the patterns 21 and extend longitudinally of said patterns preferably at each side of each pattern. The bars 32 are provided at their upper ends, which are adapted to enter into the interior of the patterns 21, with ribs 33, see Figs. I and III. These ribs are designed to become embedded in the sand that is rammed into the patterns 21 from the flask member B and they are adapted to be moved out of the patterns by oscillation of the recessing bars in order that the imprint made in the sand of the mold may be undisturbed when the patterns are retracted from the flask member. Each of the recessing bars is provided with ears 34 that are pivoted to ears 35 carried by the patterns 21, thereby providing the desired rocking support for the bars. Each recessing bar has at its lower side a lower lat-

erally projecting trip finger 36, see Figs. III, IV and VII, and an upper laterally extending finger 37 which are adapted to receive the engagement of levers to be presently described and through the medium of which the recessing bars are oscillated. The trip fingers of the recessing bars located at the inner facing sides of the bar of patterns 21 are arranged so that they face each other and over-reach as seen most clearly in Fig. III, thereby providing for the actuation of said inner trip bars by a central lever common to both of them.

38 designates outer or side levers by which the outermost recessing bars 32 are oscillated due to said levers being located between the upper and lower trip fingers of said bars.

39 is a central lever by which the inner facing recessing bars are oscillated due to said lever being positioned between the upper and lower trip fingers of said bars. The rear ends of the levers 38 and 39 are pivotally mounted in lugs 40 carried by the platform 19, see Figs. IV and VII, and the forward ends of the side levers are pivotally fitted to lugs 41 carried by a cross bar 42 located at the forward side of the machine. The central lever 39 is also pivoted to a lug 41 forming a part of the cross bar 42 and it projects beyond said cross bar and is provided with a handle 43 by which it may be raised and lowered. Provision is thereby made for the raising and lowering of said cross bar and the levers connected thereto whereby said levers are caused to operate in engagement with the trip fingers 36 and 37 to oscillate the trip bars 32 for the purpose previously described.

44, see Figs. II and IV, is a detent projecting downwardly from the table 19 at its front side and which is adapted to be engaged by the central lever 39 for the purpose of holding said lever in elevated position while the patterns 21 are uplifted and the recessing bars are rocked inwardly to position their recessing ribs 33 in the sand that is packed into the patterns 21. For the purpose of providing for the positive downward movement of the levers 38 and 39 and the retraction of the recessing ribs after the central lever 39 is released from the detent 44, I connect to said central lever a retracting spring 45, see Fig. VI & VII. This spring, which is joined at its lower end to the bed 17, serves to exert a downward pull upon the central lever to move said lever from the elevated position seen in Fig. VI to the lowered position seen in Fig. VII.

46 designates posts surmounting the bed 17. 47 are double armed levers pivotally mounted intermediate of their ends in the upper ends of the posts 46 and each having one of its arms located beneath the movable platform 22 so that the levers will be actu-

ated to raise their other arms each time that said platform is lowered.

48 are vertical rods reciprocally positioned in the patterns 21 and having their lower ends connected to the arms of the levers 47 that are not positioned beneath the platform 22. These rods are adapted to extend into the flask B and they receive sprue patterns 49, see Figs. VI to VIII inclusive, which are adapted to produce the gates in the sand packed in said flask and through which the metal is poured into the mold. The sprue patterns 49 are adapted to be elevated to free them from the sand during each cope molding operation and at the time that the platform 22 is lowered to withdraw the patterns 21 from the mold cavities produced thereby. The sprue patterns being loosely fitted to the rods 48 they may, when elevated and loosened from the sand, be readily withdrawn from the sand without disturbing any particles thereof. To provide for the positive downward movement of the rods 48, I connect to the arms of the levers 47 that carry said rods, springs 50 having their lower ends connected to the bed 17.

In Figs. XI and XII, I have shown a casting Y such as may be produced by preparing a mold by the use of my machine, although I do not limit myself to the production of this particular form of casting which is one for journal boxes.

In the practical use of my machine the cope part of the mold is produced by placing the flask member B on the table 19 and carrying out the following operation: The patterns 21 are first elevated into said flask member by rotating the rock shaft 25 the recessing bars 32 are then rocked by actuating the lever 39 by which said bars are controlled in the manner described to throw the recessing ribs 33 into the patterns 21. The sprue patterns 49 are then applied to the rods 48 extending into said patterns 21. After this operation has been carried out the sand is introduced into the flask member B and rammed therein around the patterns 21 and the sprue patterns 49. The recessing bars 32 are next rocked outwardly to withdraw the recessing ribs 33 from the sand in which they have been embedded, this action being accomplished by releasing the lever 39 from the detent 44 by which it was previously held and lowering said lever into the position seen in Fig. VII. After this has been done the platform 22 is lowered by releasing and dropping the lever 28, thereby withdrawing the patterns 21 from the sand into the positions seen in Figs. VII and IX. When the patterns 21 are lowered the sand packed within the flask member B is sustained by the stools 31 and the heads 24' of the column 24. As the platform 22 is lowered it presses against the arms of the levers 47 situated beneath it and the vertical rods 48 are elevated

to lift the sprue patterns 49 in the sand in order that they may be readily withdrawn therefrom. The cope of the mold may then be lifted from the table 19 and placed upon the drag, such as that seen in Fig. X, ready for the casting operation in which the molten metal is poured into the gates previously produced by the sprue patterns. The drag illustrated is merely shown to demonstrate the manner of assembling the cope and drag previous to molding operation.

I claim:

1. In a molding machine, having a flask supporting table and a pattern associated therewith, a rockable recessing bar adapted to enter said pattern and provided with upper and lower trip fingers, a lever pivoted to the table and operatable between said trip fingers whereby said bar may be inserted into and withdrawn from the pattern and means whereby it may be retained in either of said positions.

2. In a molding machine, having a flask supporting table, and patterns associated therewith, a pair of rockable recessing bars arranged to enter said patterns and having upper and lower trip fingers over-reaching each other, and a lever pivoted to the table and adapted to operate said over-reaching fingers.

3. In a molding machine, the combination of a flask supporting table, a movable platform, a pattern carried by said movable platform, a vertical rod slidably fitted in

said pattern, a sprue pattern fitted to said rod, and means for actuating said rod, substantially as set forth.

4. In a molding machine, the combination of a flask supporting table, a movable platform, a pattern carried by said platform, a vertical rod slidably fitted in said pattern, a sprue pattern fitted to said rod, and means for actuating said rod arranged in engagement with said platform, substantially as set forth.

5. In a molding machine, the combination of a flask supporting table, a movable platform, a pattern carried by said platform, a vertical rod fitted in said pattern, a sprue pattern carried by said rod, and a lever connected to said rod and extending in engagement with said platform whereby said rod is elevated during the downward movement of said platform, substantially as set forth.

6. In a molding machine, the combination of a flask supporting table, a movable platform, a pattern carried by said platform, a vertical rod fitted in said pattern, a sprue pattern carried by said rod, and a spring controlled lever connected to said rod and extending in engagement with said platform whereby said rod is elevated during the downward movement of said platform, substantially as set forth.

CHARLES E. LAMBERTSON.

In presence of—

CHAS. G. ETTA,
EDW. P. KYLE.