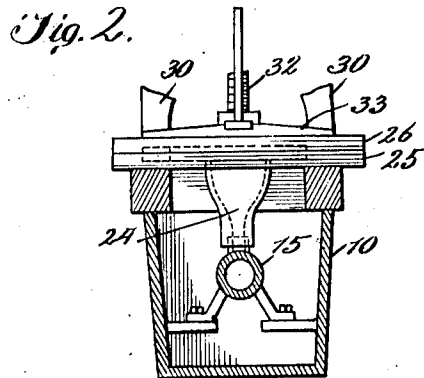
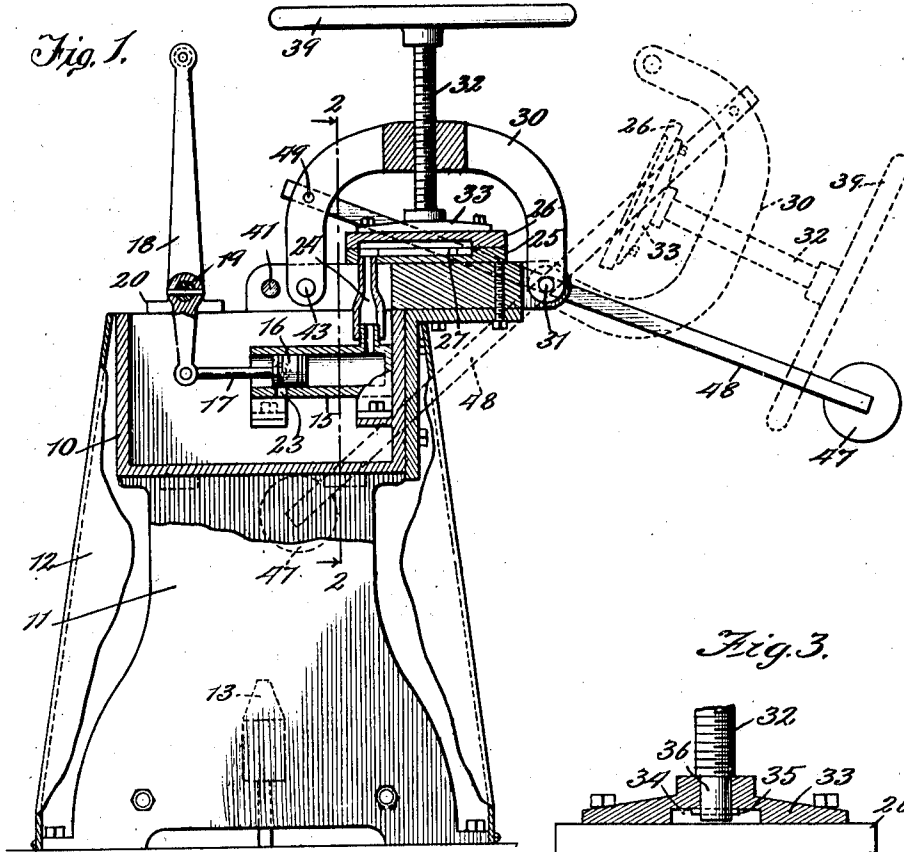


F. ENGEL.
CASTING MACHINE.
APPLICATION FILED MAR. 15, 1909.

1,041,051.

Patented Oct. 15, 1912.

3 SHEETS-SHEET 1.



Witnesses:
Wm. D. Perry
G. W. D. Perry Jr.

Inventor:
Frank Engel
By Edwin B. H. Tower
Attorney

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3 SHEETS—SHEET 2.

Fig. 4.

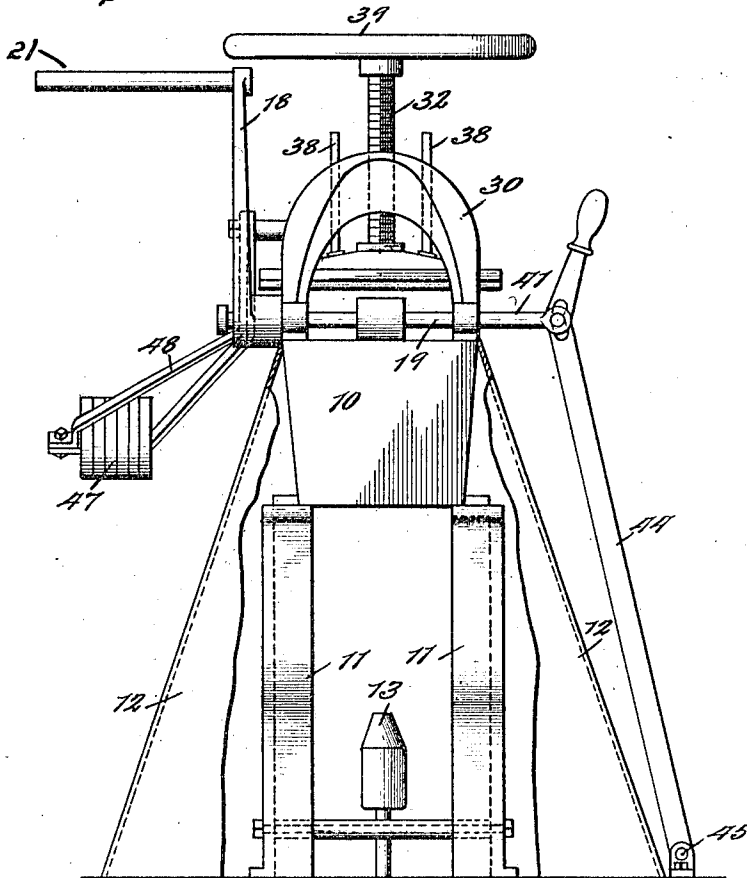
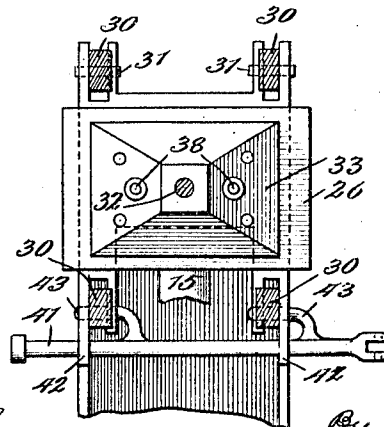


Fig. 5.



Witnesses:

W. D. Perry
J. D. Marus Jr.

Inventor:

Frank Engel

E. W. B. H. Tower Jr.
Attorney.

F. ENGEL.
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3 SHEETS—SHEET 3.

Fig. 6.

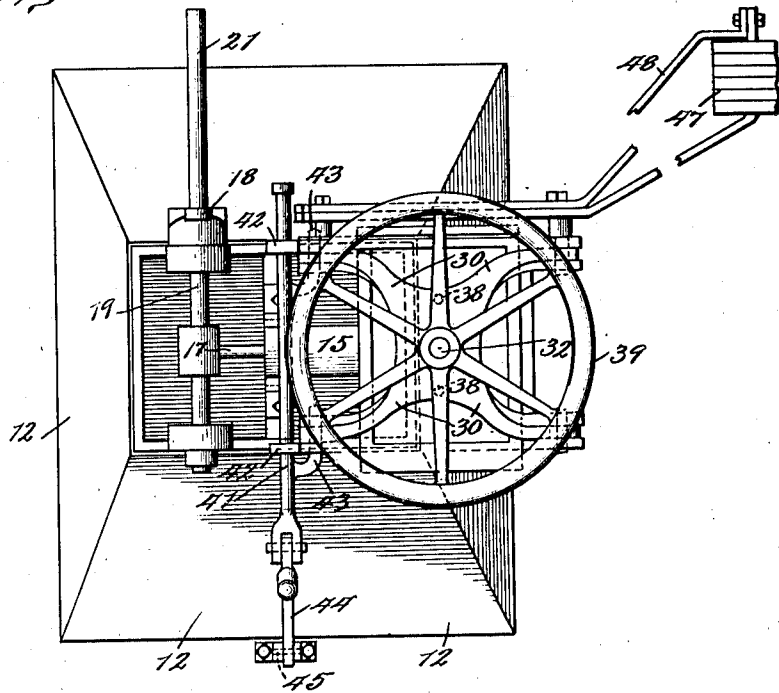


Fig. 7.

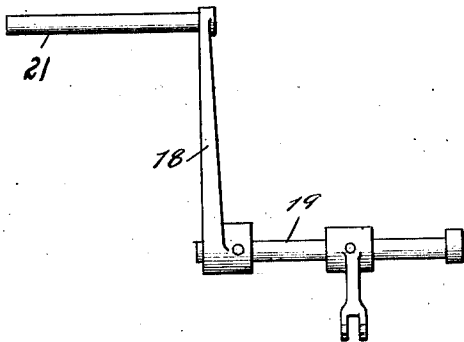
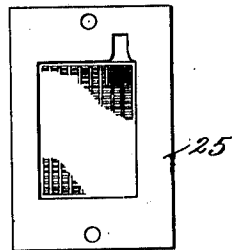


Fig. 8.



Witnesses:
Wm. P. Perry
Geo. D. Edwards Jr.

Inventor:
Frank Engel
By E. H. B. Tower Jr.
Attorney

UNITED STATES PATENT OFFICE.

FRANK ENGEL, OF BUFFALO, NEW YORK, ASSIGNOR, BY MESNE ASSIGNMENTS, TO
THE UNITED STATES LIGHT & HEATING COMPANY, OF NEW YORK, N. Y., A CORPO-
RATION OF MAINE.

CASTING-MACHINE.

1,041,051.

Specification of Letters Patent.

Patented Oct. 15, 1912.

Application filed March 15, 1909. Serial No. 483,509.

To all whom it may concern:

Be it known that I, FRANK ENGEL, a citizen of the United States, residing at Buffalo, in the county of Erie and State of New York, have invented a certain new and useful Improvement in Casting-Machines, of which the following is a specification.

My invention relates to casting machines, and the general object of the invention is to provide a simple and effective machine whereby molten metal may be forced into the mold under pressure.

As contributory to the general object of the invention my objects, are, first, to provide means for forcing the molten metal into the mold from an adjacent receptacle. Second, to provide a mold which may be readily opened and closed. Third, to provide a construction in which one part of the mold may be swung back out of the way where it will remain in open position. Fourth, to provide efficient and quick operating means for pressing the parts of the mold tightly together, and fifth, to provide certain details of construction hereinafter set forth.

I accomplish my objects by the mechanism illustrated in the accompanying drawings, in which:

Figure 1 is a longitudinal sectional elevation of the machine. Fig. 2 is a fragmentary transverse sectional elevation on the line 2—2 Fig. 1. Fig. 3 is a detail chiefly in vertical section illustrating a suitable method of connecting the pressing screw to the top of the mold. Fig. 4 is an end elevation of the machine. Fig. 5 is a plan section taken on the plane just above the top of the mold. Fig. 6 is a top plan view of the complete machine. Fig. 7 is a view of the forcing lever and Fig. 8 is an outline of the top surface of the lower mold plate.

Similar reference characters denote similar parts throughout the several views.

The metal to be used in making the casting is contained within a vessel 10 mounted upon any suitable kind of legs or supporting framework 11. By preference said receptacle and its supports are inclosed within a

housing 12 which may consist of sheet iron or other suitable material. The preferred means employed for heating the metal in the receptacle 10 is the burner 13, located beneath it and inclosed within the housing 12.

Mounted within receptacles 10 is a cylinder 15 having a plunger 16 slidable therein and connected by means of a rod 17 or other suitable mechanism to a lever 18 fulcrumed on a shaft 19 rotatably mounted in stationary bearings 20. Rod 17 is by preference pivotally connected to plunger 16 and to the lower end of the offset continuation of lever 18. In the preferred design said lever is provided with a handle 21 by which it may be swung for moving the plunger 16 back and forth within the cylinder. Said cylinder has a port 23 so arranged that when the plunger is near the rear end of the cylinder said port will be uncovered and the molten metal will flow through the port into the cylinder in front of the plunger, and when the plunger is moved forward it will close the port and force the metal in front of it up through the passage 24 into the mold.

The mold is located above the level of the cylinder and consists, in the form of machine here selected for illustration, of two parts 25 and 26 arranged horizontally and containing the mold cavity 27. The lower part 25 is stationary, being mounted in any suitable manner upon the framework of the machine and the upper part 26 rests upon it and is adapted to be thrown back in order that the casting may be removed and the mold cavity cleaned. According to the present design the top 26 is hinged to the stationary member 25 through the agency of a movable frame or spider 30 which is pivoted to the stationary machine frame at the point 31 and carries a screw 32 screwing into the body of said spider and supporting said part 26. Although the movable framework or member swings about a horizontal axis, I do not, of course, limit myself to this construction. A suitable connection between said screw and the top 26 of the mold is best shown in Fig. 3, the plate 33 being bolted or otherwise secured to part 26 and

having a recess 34 adapted to receive a pin 35 passing through the lower end of the screw. This lower end 36 is of reduced design thereby forming a shoulder adapted to contact the top of said plate. As a result of this construction the screw is free to rotate in the plate but when the screw is raised the plate and the top 26 of the mold will be raised with it. The screw is provided with a hand wheel 39 or other suitable means for rotating it.

Guide rods 38 are secured to the spider 30 parallel to the screw 32 and pass through apertures provided for them in the top 26 as best shown in Figs. 4 and 5. These prevent the upper mold part from rotating when the screw is rotated. When the spider is held fast in the position shown in full lines in the drawings any desired pressure to hold the mold closed and thus prevent leakage and the formation of fins upon the castings may be obtained by rotating the hand wheel 39 in a direction to lower the screw 32 and the mold part 26, carried thereby.

The spider is adapted to be locked in lowered position by means of a rod 41 which is transversely slidable in the stationary members 42 and provided with locking pins 43 adapted to pass through suitable apertures formed in the free legs of the spider and registering with corresponding apertures formed in the members 42. The locking rod is adapted to be shifted from one position to another to lock and release the spider by means of a lever 44 pivoted to a stationary pin 45. The construction is such that when said lever is shifted to one position the locking pins 43 will enter the registering apertures in the spider and stationary framework thus holding the spider locked in lowered position. When said lever is swung in the opposite direction the locking pins 43 will be withdrawn and the spider may be thrown back for opening the mold.

To facilitate the swinging of the spider and supported parts from one position to another about the horizontal hinge pins 31 it is desirable to provide a counterweight 47 carried by an arm 48 secured to said spider. In the preferred construction the arm is secured to the spider at two points, to wit, at the pivotal point of the spider by an extension of one of the hinge pins 31 and to the opposite end of the spider by means of a pin 49. By properly proportioning the counterweight and supporting arm the spider and its supporting parts may be so balanced that but slight exertion will be necessary to throw the spider back when the locking bar 41 is withdrawn, after which the spider and connected parts will come to equilibrium with the spider back far enough to afford free access to the mold.

It is understood, of course, that the above embodiment of my invention was selected for the purpose of illustration only. Therefore, I do not desire to limit myself to the embodiment shown and described or to the details thereof, but desire to include any suitable means for accomplishing the desired results and falling within the scope of the appended claims.

Having thus described my invention, what I claim as new, and desire to secure by Letters Patent, is:

1. In a casting machine, a horizontal stationary mold plate, a movable mold plate adapted to rest thereon, a press associated with said movable plate, a hinge connection between said plates and a counterbalance for holding the movable plate and press up out of the way when thrown back upon the hinge.

2. In a casting machine, a horizontal stationary mold plate, a movable mold plate adapted to rest thereon, the movable plate being hinged to the stationary plate, a lock for holding the plates one upon the other, and a press for increasing the pressure between the plates after they have been locked, said press carrying said movable mold plate.

3. In a casting machine, a mold formed of separable parts, a stationary frame supporting one of said mold parts, a movable frame hinged to said stationary frame, means for holding said movable frame stationary with respect to the stationary frame, and a screw mounted in said movable frame and carrying one of the parts of the mold for the purpose described.

4. In a casting machine, a mold formed of separable parts, a stationary frame supporting one of said mold parts, a movable frame hinged to said stationary frame, means for holding said movable frame stationary with respect to the stationary frame, a screw mounted in said movable frame and connections between said screw and one of the mold parts whereby the screw may be rotated independently of said mold part to press the same upon and raise it from the companion mold part.

5. The combination with a separable two piece mold, of a supporting structure consisting of two hinged parts, one of said parts carrying an adjustable rod attached to one piece of the mold, the other piece being secured to the other of said hinged parts.

6. A separable casting mold having one part stationary and the other part swivelly carried by a screw-threaded rod adjustable supported by a counterweighted hinged arm, whereby said hinged arm and associated parts may be balanced in open position.

7. A casting machine comprising a stationary half-mold and a relatively movable

half-mold, a frame for adjustably supporting said movable half-mold, said frame being pivoted at one end and provided with an opening at the other end, and a longitudinally reciprocating locking bar having
5 parts engaging said opening for locking said frame, whereby said movable half-mold

may be forced against said stationary half-mold.

FRANK ENGEL.

Witnesses:

CLARENCE L. HAMMER,
HERTHA A. GLAWATZ.