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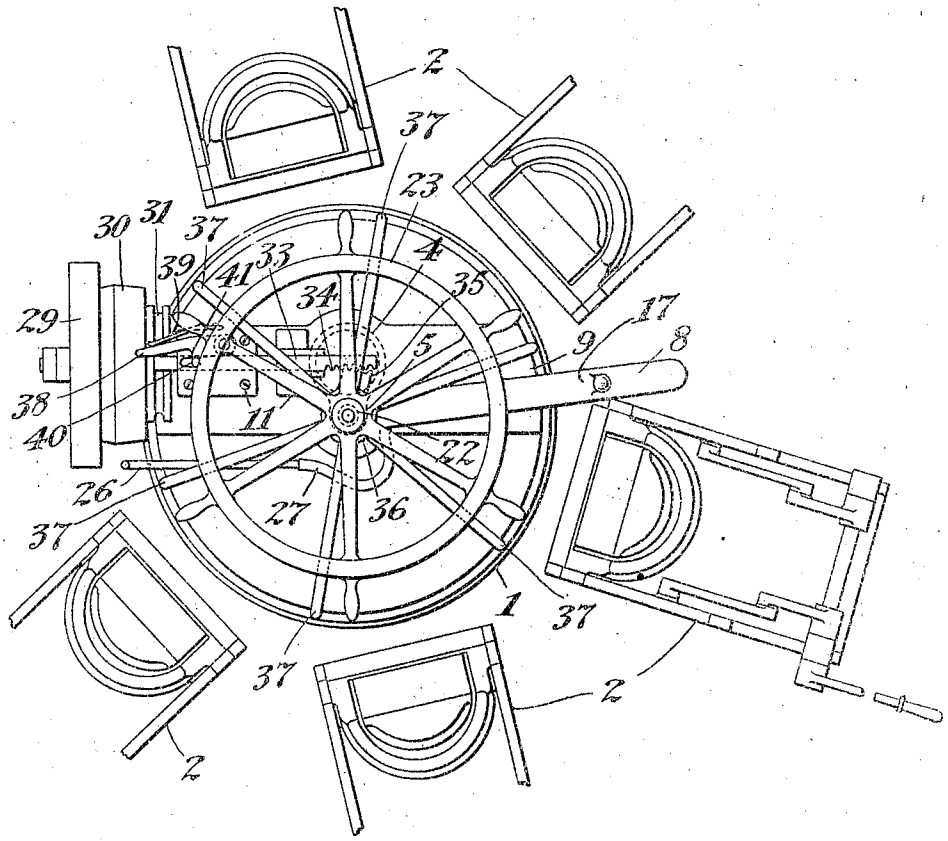
STEREOTYPE PLATE CASTING APPARATUS.

APPLICATION FILED APR. 2, 1908.

951,382. Patented Mar. 8, 1910.

2 SHEETS—SHEET 1.

Fig. 1



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2 SHEETS—SHEET 2.

Fig. 2

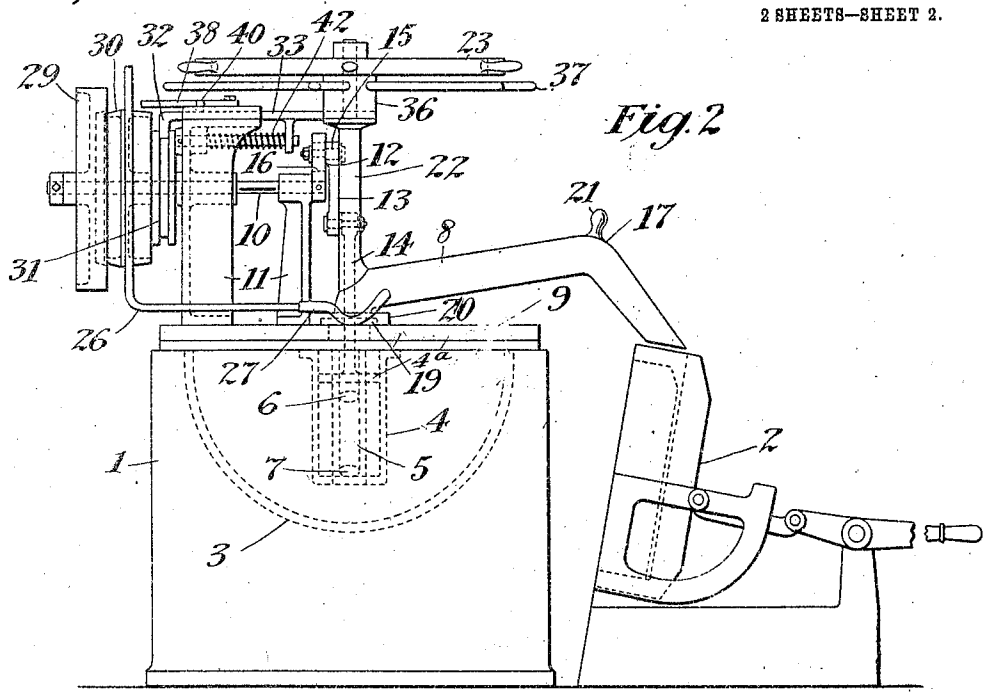


Fig. 3

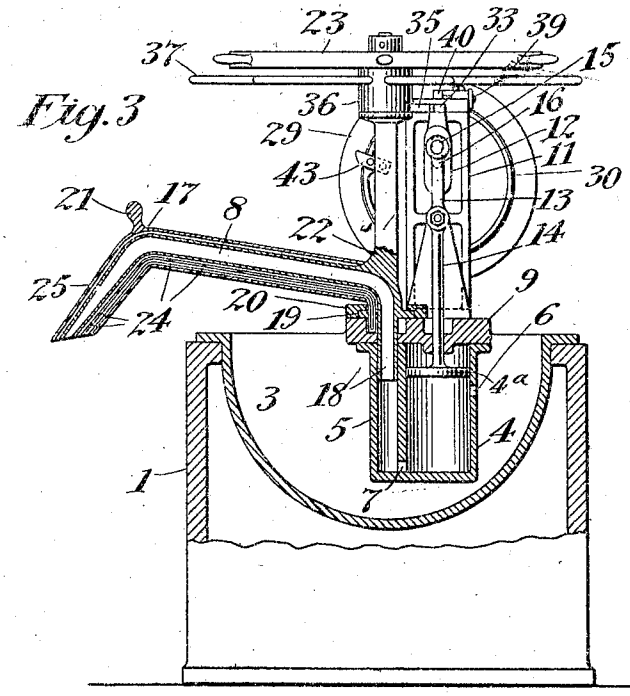


Fig. 4

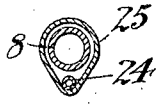
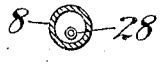


Fig. 5



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UNITED STATES PATENT OFFICE.

WALTER SCOTT, OF PLAINFIELD, NEW JERSEY; ISABELLA SCOTT AND DAVID JOHN SCOTT EXECUTORS OF SAID WALTER SCOTT, DECEASED.

STEREOTYPE-PLATE-CASTING APPARATUS.

951,382. Specification of Letters Patent. **Patented Mar. 8, 1910.**

Application filed April 2, 1903. Serial No. 150,760.

To all whom it may concern:

Be it known that I, WALTER SCOTT, a citizen of the United States of America, and a resident of Plainfield, in the county of Union and State of New Jersey, have invented certain new and useful Improvements in Stereotype-Plate-Casting Machines, of which the following is a specification.

My invention relates to stereotype plate casting machines, and the object of the invention is to construct and arrange a metal melting furnace with reference to one or more casting molds, whereby the casting of the plates will be greatly expedited, and whereby a considerable saving in labor will be effected. To this end I construct my metal melting furnace with means, as a pump, for positively forcing the molten metal from the said furnace into one or more casting molds. And, further, in arranging a plurality of casting molds around the furnace, and in providing said furnace with an adjustable spout for the molten metal movable into alinement with any one of the molds so as to deliver the metal to the same.

In addition to the foregoing, my invention consists in the features of construction and arrangement of parts as will be more fully hereinafter described.

I shall describe a metal melting furnace arranged with reference to one or more molds, embodying my invention, and afterward point out the novel features in the claims.

In the drawings I have embodied my invention in a suitable form, which, though it contains valuable features of construction in itself, is not essential to carrying out the broad principle of my invention, and I therefore do not wish to be understood as limiting myself to the exact form shown.

In the said drawings: Figure 1 is a plan view of a metal melting furnace, and a plurality of casting molds arranged around the same, embodying my invention. Fig. 2 is a side view of the metal melting furnace and one of the casting molds. Fig. 3 is a vertical sectional view of the metal melting furnace, pump and spout. Figs. 4 and 5 are detail views showing the heating means for the spout.

Similar characters of reference indicate corresponding parts in the different views.

1 indicates a metal melting furnace, and 2 a casting mold of any suitable construction but preferably similar to the one shown in an application filed by me on the 3rd day of July 1901, Ser. No. 66,975.

So far as certain features of my invention are concerned, only one casting mold need be employed. I find it highly advantageous, however, to arrange a number of such casting molds around the metal melting furnace as shown in Fig. 1, and to construct the furnace with means for delivering metal to any or all of such molds. Accordingly the furnace 1 is provided with the usual bowl 3 in which is located a pump 4, of any suitable construction, delivering molten metal from the said bowl into an adjoining and intermediate compartment 5 through unobstructed inlet opening 6 and unobstructed inlet opening 7. From the compartment 5 leads the spout 8. The pump 4 is stationarily located and conveniently supported on the horizontal plate 9 extending over the top of the furnace, and its piston 4^a is operated from the shaft 10, in the framework 11 carried by the plate 9 of the furnace, by means of the crank 12, link 13 and piston rod 14. The pump will preferably deliver an amount of molten metal with each stroke equal to the capacity of the mold which it supplies. In order to variably predetermine the amount of metal, the stroke of the piston can be increased or decreased by adjusting the wristpin 15 in the slot 16.

The spout 8 is conveniently located centrally of the furnace, and, when several molds are used, will be mounted to turn, and will swing in an arc of a circle into alinement with any of the molds, successively or otherwise. The molds 2 will of course be located in an arc of a circle around the furnace concentric with the turning point or pivot of the spout and with the arc of the circle described by the same. In the present form, this spout consists of a pipe open at both ends and inclined in opposite directions from a common point as 17, so that the metal will run in both directions and not stand in the pipe. That portion 18 of the spout which is central of the furnace forms a hollow pivot and is bent vertically downward so as to project into the intermediate compartment 5 which of course also is located central of the furnace, and is made to turn by means of the

collar 19 resting on the plate 9 over which fits a cap 20 suitably attached to the said plate. To move the spout into alinement with the different molds, I provide the said spout with suitable means as the knob 21. I prefer, however, to manipulate the said spout by means of the upright spindle 22 carrying the handwheel 23.

In order to heat the spout and prevent the metal from cooling while being conveyed therethrough, I provide suitable heating means as the gas burners 24 placed in the inclosure 25 surrounding the spout, communicating with the gas pipe 26 by means of the flexible connection 27 so as not to interfere with the turning of the said spout. In Fig. 5 I have shown an electric wire 28 in place of the gas burners 24.

In the present application, the spout is claimed broadly and specifically in combination with a pump or other means for positively forcing the metal through the same, while in an application filed May 14, 1903, Ser. No. 157,094, the same construction of spout is utilized and claimed in connection with a gravity feed.

Suitable operating mechanism will of course be used to operate the shaft 10 of the pump. To make the device most efficient, it is desirable that the pump should be driven so as to make one stroke or revolution of the crank while filling the mold, or, when several are used, each of the molds. To this end I mount a power wheel 29 loosely on the shaft 10, and adjacent thereto a clutch of suitable construction. This clutch will preferably be a one-revolution clutch 30 so that after the said clutch is moved into engagement with the power wheel it will automatically release itself after one revolution. In its present form, the clutch is provided with a groove 31 with which engages the bent end 32 of the horizontal rod 33 sliding in the framework 11. This rod is provided with a rack 34 engaging with the segment 35 carried by the sleeve 36 mounted loosely on the spindle 22, said sleeve having operating levers 37. On the framework is located a latch 38 against which presses the spring 39. The rod 33 carries a pin 40 which, when the clutch is moved against the power wheel, will pass the projection 41 of the latch, which latter will then be moved down behind the pin by the spring 39, so that the rod 33 cannot return. A compressible spring 42 is located on the framework and is compressed by the rod 33 when the clutch is moved into engagement with the power wheel. The clutch carries a toe 43 which comes into engagement with the latch 38, after one revolution, pushing it out of the way of the pin 40, thereby allowing the rod to be released and returned by the spring 42, thus releasing the clutch from the power wheel.

When it is desired to fill a mold, the spout is turned to the proper point and the pump started up by manipulating the segment 35. The action of the pump positively forces the metal out of the bowl of the furnace, conveying it through the spout and introducing it into the upper end of the mold. When the required amount of metal has been forced out, an amount which is predetermined, the pump automatically ceases its operation. If it is desired to fill another mold, the spout is moved into alinement with such mold and the operation just described repeated.

Having thus described my invention, what I claim is:

1. In a metal melting furnace, a bowl, a pump cylinder contained therein and having an unobstructed inlet opening from the bowl and an unobstructed outlet opening, a spout, connecting with the said outlet opening, composed of two portions inclined downward from the horizontal in opposite directions from a common high point, a piston working in said cylinder and adapted on its working stroke to close the inlet opening and force a charge of metal past the high point of the spout, and adapted on its return stroke to allow the metal remaining in the spout to drain back into the cylinder and to uncover the inlet opening.

2. In a metal melting furnace, a bowl, a pump cylinder contained therein and having an unobstructed inlet opening from the bowl and an unobstructed outlet opening, a spout mounted to turn, connecting with the inlet opening, composed of two portions said spout inclined downward in opposite directions from a common high point, a piston working in said cylinder and adapted on its working stroke to close the inlet opening and force a charge of metal past the high point of the spout, and adapted on its return stroke to allow the metal remaining in the spout to drain back into the cylinder and to uncover the inlet opening.

3. The combination with a metal melting furnace, of a spout leading therefrom, a pump delivering molten metal through said spout, operating mechanism for said pump, a clutch controlling said operating mechanism, a movable rod, a rack, a projection and a pin on said rod, a groove in the friction clutch for the reception of the projection of the rod, a latch for engaging said pin, a segment engaging with the rack for moving the rod and clutch toward the operating mechanism and whereby the latch engages the pin, a toe on the clutch for opening the latch and releasing the rod, and a spring on the rod for returning the latter and for moving the clutch out of engagement with the operating mechanism.

4. The combination with a metal melting furnace, of a spout, mounted to turn, lead-

ing therefrom, a pump delivering molten metal through said spout, operating mechanism for the pump, a clutch controlling said operating mechanism, a movable rod, a rack, a projection and a pin on said rod, a groove in the friction clutch for the reception of the projection of the rod, a latch for engaging said pin, a segment engaging with the rack for moving the rod and clutch toward the operating mechanism and whereby the latch locks the pin, a toe on the clutch for opening the latch and releasing the rod, and a spring for returning the rod and for moving the clutch out of engagement with the operating mechanism.

5. The combination with a metal melting furnace, of a spout mounted to turn, a pump delivering molten metal through said spout, operating mechanism for said pump, a spindle carried by said spout, a handle or handles on same for adjusting the position on the spout, a loose collar on said spindle, and a handle or handles on said collar, and means whereby the operating mechanism for the pump can be controlled from said collar.

Signed at New York this 23rd day of March 1903.

WALTER SCOTT.

Witnesses:
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WILLIAM R. DORMAN.