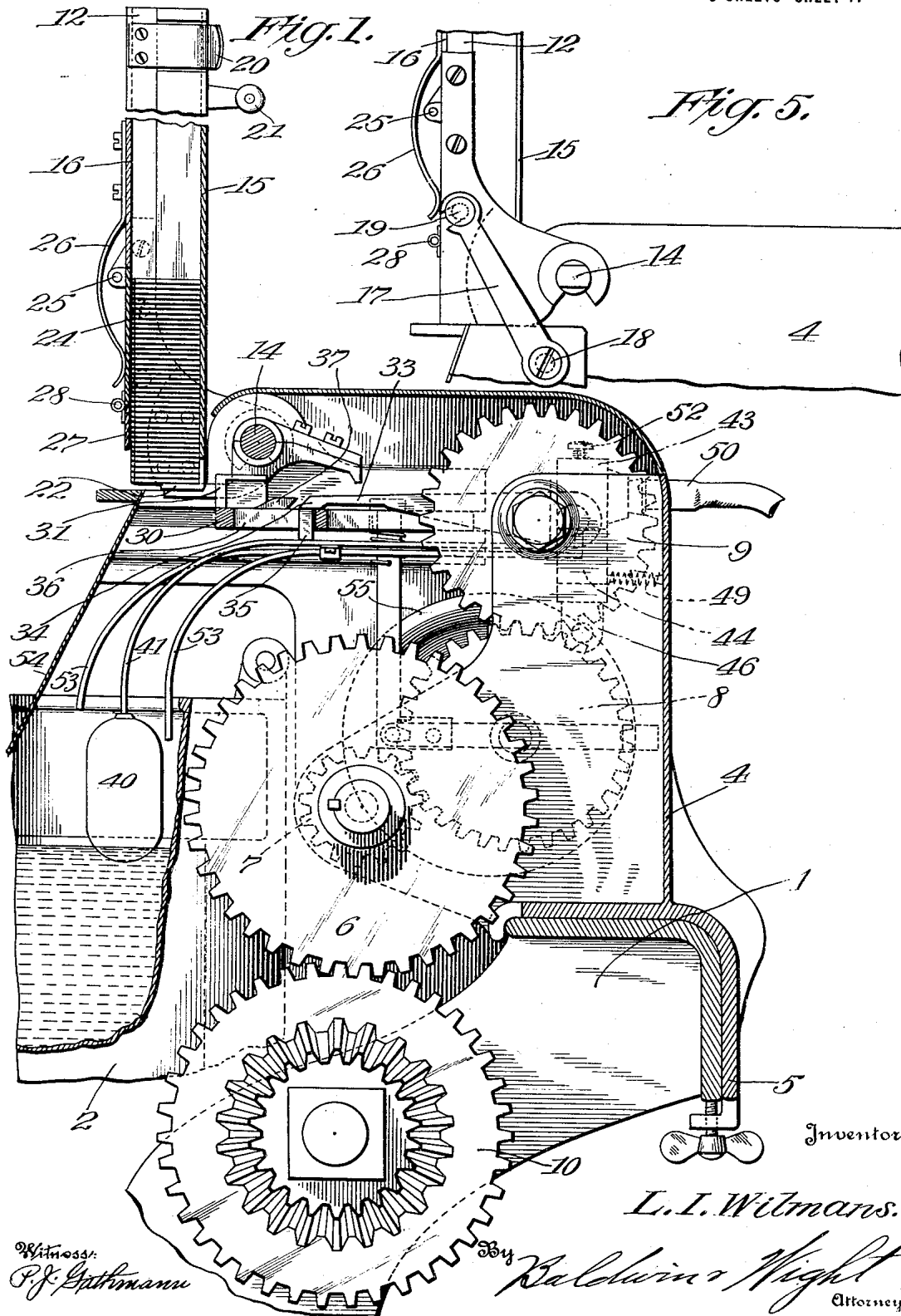


L. I. WILMANS.
 LINE TYPE CASTING MACHINE.
 APPLICATION FILED OCT. 6, 1917.

1,258,171.

Patented Mar. 5, 1918.
 5 SHEETS—SHEET 1.



Witness:
 P. F. Gathmann

L. I. Wilmaris.

By Baldwin Wright
 Attorney

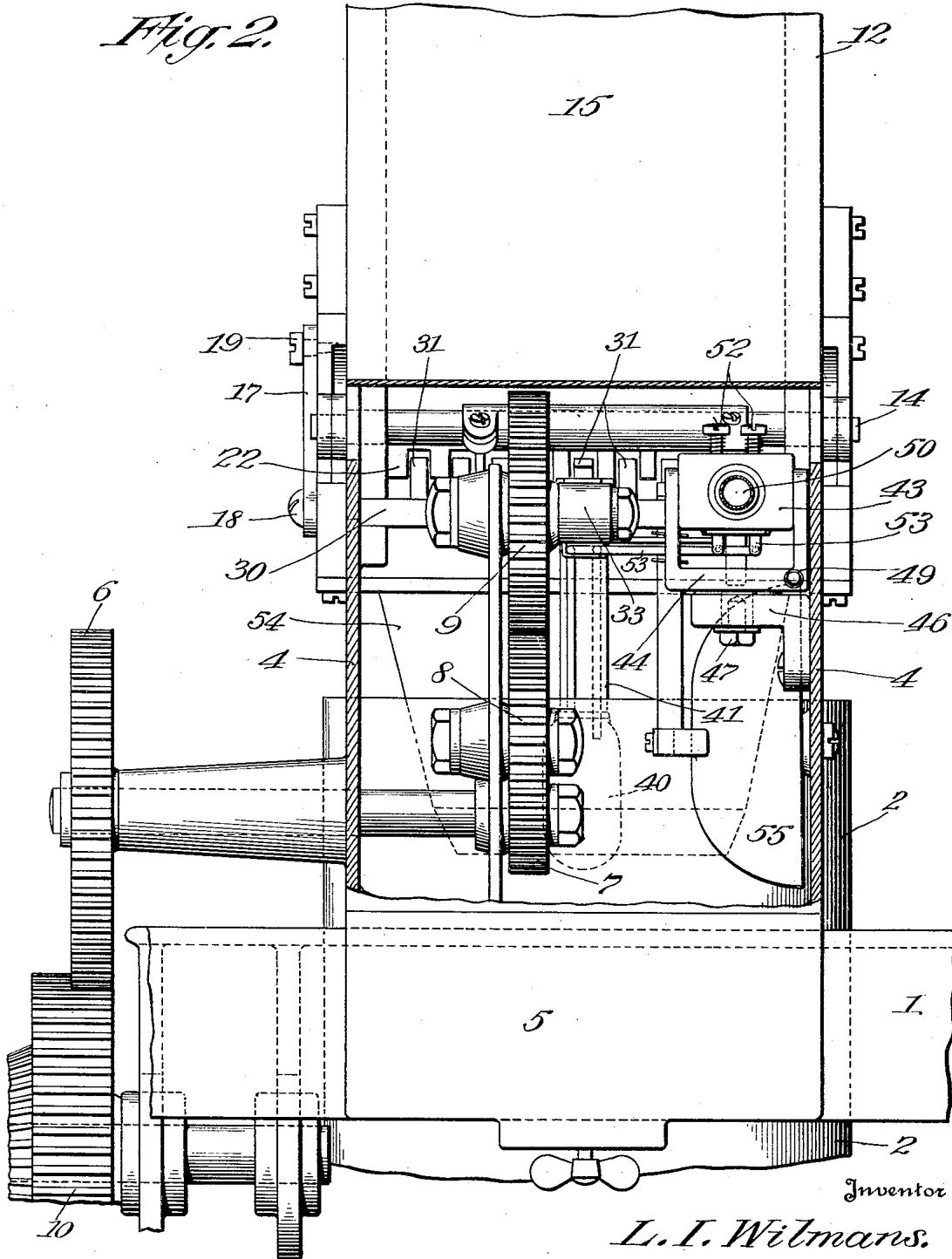
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Fig. 2.



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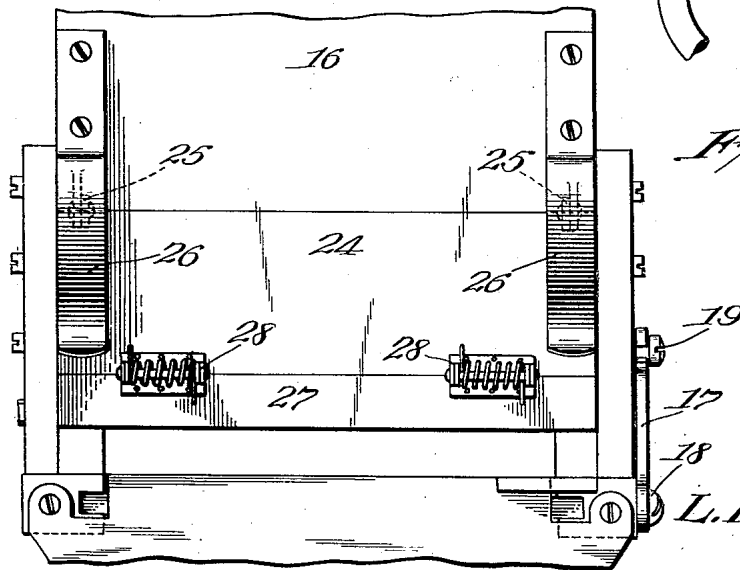
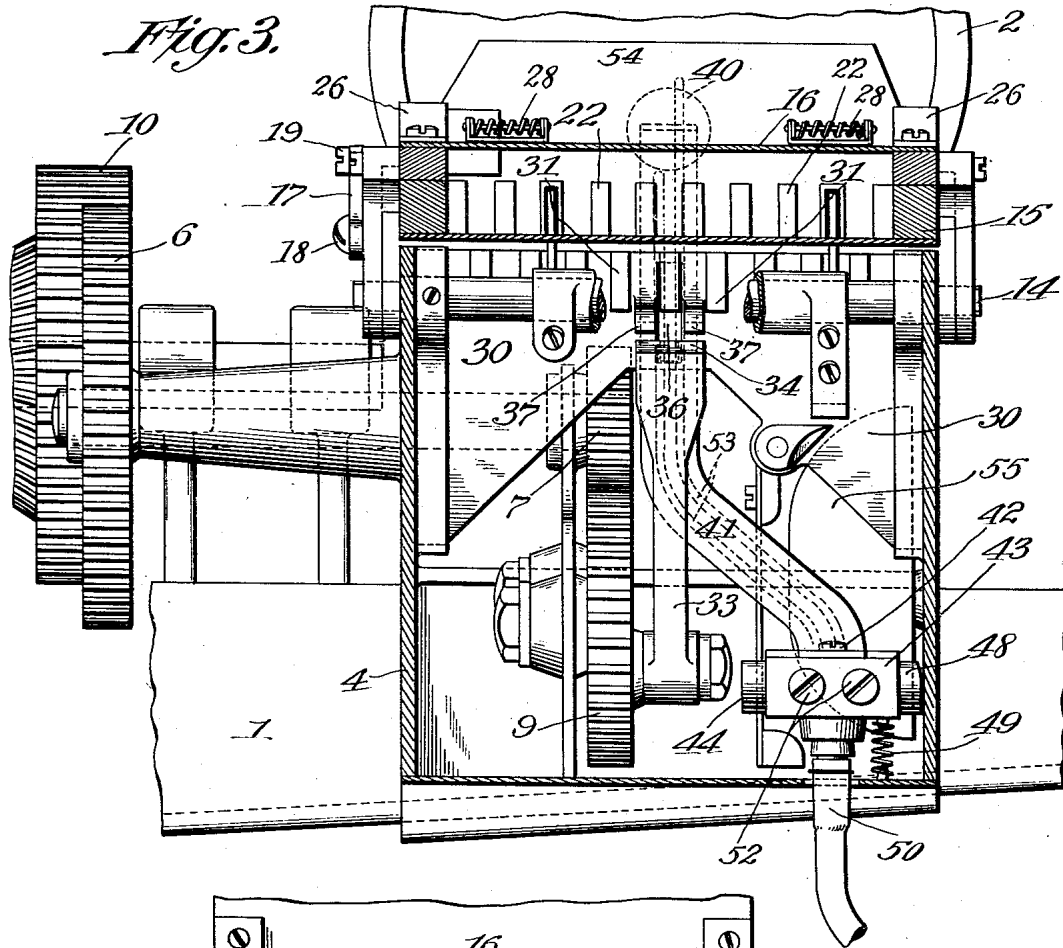
Attorney

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5 SHEETS—SHEET 3.



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1,258,171.

5 SHEETS—SHEET 4.

Fig. 6. Fig. 7.

Fig. 7.

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5 SHEETS—SHEET 5.

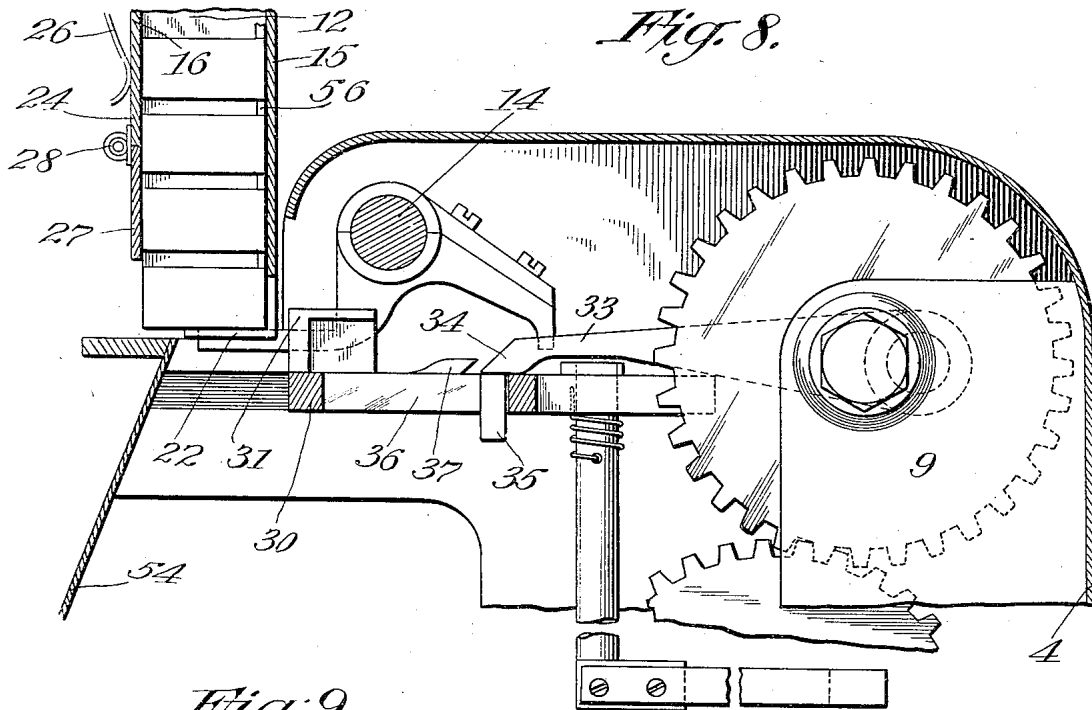


Fig. 9.

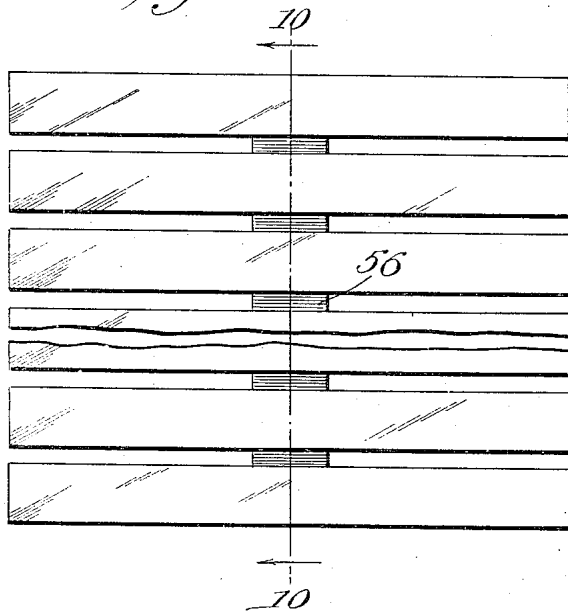
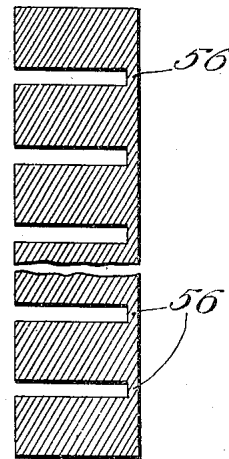


Fig. 10.



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UNITED STATES PATENT OFFICE.

LLOYD I. WILMANS, OF IRVING, TEXAS.

LINE-TYPE-CASTING MACHINE.

1,258,171.

Specification of Letters Patent.

Patented Mar. 5, 1918.

Application filed October 6, 1917. Serial No. 195,025.

To all whom it may concern:

Be it known that I, LLOYD I. WILMANS, a citizen of the United States, residing at Irving, in the county of Dallas and State of Texas, have invented certain new and useful Improvements in Line-Type-Casting Machines, of which the following is a specification.

This invention relates to pot charging devices for line type casting machines, and particularly to pot charging devices of the kind shown in my U. S. Letters Patent No. 1,238,972, dated Sept. 4, 1917. In that patent I have shown and described a pot charging device comprising a slugs magazine adapted to hold used slugs and which is provided at its lower end with a feeding device to eject the slugs therefrom into the melting pot, when the level of molten metal in the pot falls sufficiently below a predetermined level to operate a thermostat within the melting pot. The feeding device comprises a carriage provided with a series of teeth adapted to engage the slugs in the lower end of the magazine and force them into the melting pot, the carriage being reciprocated, only when the metal in the melting pot is too low, by means of a dog mounted on a rod which is centrally pivoted to one of a series of gear wheels driven by the line type machine. The rod is also provided with a lug in engagement with the thermostat, whereby should the level of molten metal in the melting pot fall below a predetermined point the thermostat will be cooled, and the lug be moved to throw the dog on the reciprocating rod into positive engagement with the carriage whereby the carriage will in turn be reciprocated to eject metal from the magazine into the melting pot to restore the normal level therein, when the thermostat will again be operated to move the dog out of engagement with the carriage.

In the present invention I have used the same general ejecting mechanism, but instead of a thermostat I have provided a float of unique construction for moving the dog out of and into engagement with the carriage according to the variations in the liquid level in the melting pot. The float is preferably so constructed that it may move freely with the rocking of the pot, so that should the machine be thrown into operation while the metal in the pot is cold and frozen to the float no damage would result to the float. A novel arrangement of burners is provided to

prevent the metal in the pot from freezing to the float.

My invention has also for its object to provide an improved magazine for containing the slugs to be ejected into the melting pot.

In the accompanying drawings, in which I have shown my device clamped to a linotype machine of any well known construction:

Figure 1 is a side view partly in elevation and partly in section of my device.

Fig. 2 is a rear elevation, the rear casing being cut away.

Fig. 3 is a plan view partly in section.

Fig. 4 is a front elevation of a portion of the magazine.

Fig. 5 is a side view of the magazine as shown in Fig. 4.

Fig. 6 is a detail view of the float, parts being shown in section.

Fig. 7 is a section on line 7—7 of Fig. 6.

Fig. 8 is a view of the ejector mechanism showing how my device may be used to shear off blocks of metal from a pig and eject them from the magazine.

Fig. 9 is an elevation of the pig, and

Fig. 10 is a section on line 10—10 of Fig. 9.

In the drawings a portion of the frame of a linotype machine of well known construction is designated as 1, while 2 is the melting pot hinged to rock during the operation of the machine. The hinged construction of the melting pot is well known and is to permit of the melting pot being rocked a limited distance when a slug is being cast. My device, which is generally similar to the construction shown in my before noted patent, comprises a frame or casing 4 detachably secured to the frame 1 of the line type machine by a clamp 5. Carried by the casing 4 is a train of gears 6, 7, 8 and 9, the first gear 6 being driven by the spur wheel 10 which is rotated by the type casting mechanism. The gearing is properly timed with relation to the mechanism for rocking the pot 2, and the ratio of the gears is preferably such that the wheel 9 rotates only once to every two revolutions of the wheel 6.

The casing 4 in my device is so shaped that the upper portion overhangs the melting pot 2. On the overhanging portion is the slugs magazine 12 of similar construction to that shown in my before noted patent, and comprises two sections 15 and 16, journaled on a shaft 14 supported by the

frame or casing 4, the arrangement being such that the section 15 may be swung from a vertical to a horizontal plane while the section 16 remains vertical, or the two sections may be swung to a horizontal position together, the section 16 then being on the upper side. For holding section 16 in a vertical position I have provided on one side of the magazine a hook 17, pivoted to casing 4 at 18, which is adapted to removably engage a projection 19, on the section 16, see Fig. 5. Spring clips 20 on section 16 serve to secure section 15 in vertical position, while a handle 21 is provided for more readily moving the magazine. The lower end of section 15 is formed with a series of spaced-apart fingers 22 which extend a short distance down the side of the magazine and are then bent at right angles, forming a slotted bottom for the magazine. The section 16 is provided on its lower end with a gate 24 hinged at 25 and normally held shut by stiff springs 26. A second smaller gate 27 carried on a spring hinge 28 is secured to gate 24, the spring of the second gate being weaker than that of the first. By this construction several slugs, when stuck together may be ejected from the magazine, preventing the ejecting mechanism from being injured by the slugs becoming clogged in the magazine, the spring gates permitting of all the adhering slugs being ejected at once or permitting the magazine to yield until the operator may have time to separate the slugs.

The ejector which is also similar to that shown and described in my before noted patent, comprises a carriage 30, slidably mounted in casing 4, having a series of projections 31 thereon adapted to be reciprocated in the spaces between the fingers 22 of the slugs magazine 12. It will be observed that by the construction shown the magazine may be swung from a vertical position in the manner before described at any time even when the projections 31 are within the lower portion of the magazine inasmuch as said projections will then be located in the spaces between the fingers 22 so that when the magazine is turned or swung the fingers 22 are free to move in the spaces between the projections. Reciprocation of the carriage is effected by means of a rod 33 eccentrically pivoted at one end to the pinion 9. The opposite end of rod 33 is provided with a dog 34 and a lug 35, the lug being adapted to travel in a slot 36 in the carriage 30, and which is long enough to project through the slot. On either side of the slot 36 are projections 37 for engagement with the dog 34 on rod 33. By raising the rod 33 a sufficient distance, the dog 34 may be lifted out of engagement with projections 37 whereby lug 35 may slide back and forth in slot 36 upon reciprocation of rod 33 by rotation of

pinion 9, and the carriage will not be moved. When the rod is again lowered, the dog 34 engages projections 37 and the carriage is reciprocated. It will be seen that when the carriage 30 moves forward beneath the slugs magazine 12 the projections 31 thereon will force one or more slugs from the magazine into the melting pot.

For raising and lowering rod 33, in order that the carriage 30 may be reciprocated only to eject slugs from the magazine into the melting pot when the level of molten metal in the pot falls below a predetermined stage, I have provided a float 40 carried by an arm 41, the arm preferably comprising a flat strip of metal bent in the shape shown in Fig. 3. This shape is merely for a convenient and compact arrangement of parts. The arm 41 is secured at 42 to a block 43 carried by a support 44, the block being mounted on trunnions 45 between bifurcated arms of the support 44. The support 44 is pivotally secured to a horizontal bracket 46 projecting from the casing 4 by a bolt 47. The side of the support 44 adjacent the casing 4 is beveled at 48 (see Fig. 3) to permit of the support being rotated a limited distance in one direction, but the shoulder of the beveled portion engages the casing 4 to prevent its being rotated from normal position in the opposite direction. A compression spring 49 serves to hold the support 44 in normal position. The arm 41 of the float is so positioned that when it is raised by the float 40, the lug 35 on rod 33 will ride thereon as the rod reciprocates. If the arm 41 is lifted sufficiently high by the float 40 the lug 35 will be lifted to throw dog 34 out of engagement with the projections 37 and the carriage will not be reciprocated. If the float falls, the arm 41 permits the rod 33 to drop by gravity, and the dog 34 will engage the projections 37 on the carriage to reciprocate it. By providing a limited sidewise movement for the float, the float may follow the movement of the melting pot, but it may not be moved sufficiently out of alignment with lug 35 to render the device inoperative.

The block 43 is preferably made hollow and is provided with a gas inlet 50, and gas outlets 51 controlled by valves 52. The outlets 51 lead to pipes 53 carried by float arm 41, and terminate in proximity to float 40. Gas emitted through pipes 53 is ignited and with the flame constantly blowing against the float 40, the metal in the melting pot is prevented from freezing to the float. An apron 54 is provided to prevent slugs from falling onto the float or the metal splashing thereupon.

From the foregoing the operation of the device will be readily apparent. During the operation of the line-type casting machine the train of gears 6, 7, 8 and 9 is rotated by

the spur wheel 10, and the rod 33 eccentrically secured to pinion 9 is reciprocated. When the level of the metal in the pot falls below a predetermined stage, the float 40 and arm 41 falling with the metal allow the lug 35 on the reciprocating rod 33 to drop, throwing the rod 33 into operative engagement with ejector carriage 30, whereby the carriage is reciprocated and the slugs are ejected into the melting pot until the level therein has again become sufficiently high to cause the float arm 41 to exert an upward pressure on lug 35 to lift rod 33 out of engagement with the carriage, when the carriage will cease to be reciprocated.

In the drawings I have shown an alarm device adapted to ring the gong 55 when the slugs in the magazine become exhausted. This mechanism is fully described in my patent and need not be described herein.

As it may often occur that the operator desires to feed fresh metal to the pot instead of slugs, I have designed a pig especially adaptable for use with my machine. I have shown the pig in the slugs magazine in Fig. 8, while in Figs. 9 and 10 I have shown a pig in elevation and section, respectively. It comprises a slab of metal of the desired width, length and thickness to fit within the magazine 12, formed of a plurality of sections of appropriate size, connected by small thin neck portions 56. The metal, being comparatively soft, is easily sheared along portion 56 by the ejecting mechanism.

I claim as my invention:

1. In a casting machine, in combination with a melting pot, means for supplying metal thereto including a magazine adapted to hold the metal, power driven mechanism for ejecting metal from said magazine, and a float having a support disconnected from the pot and freely movable therein for controlling the ejection of metal from said magazine.

2. In a pot charging device, in combination with a melting pot, a magazine, an ejector in juxtaposition to the lower end of said magazine and adapted to cooperate therewith to eject material therefrom, means for reciprocating said ejecting mechanism including a reciprocating rod adapted to engage said ejecting mechanism, a driven gear to which said rod is eccentrically connected, and a float operated by the molten metal in said pot for controlling engagement between said reciprocating rod and said ejecting mechanism.

3. In a pot charging device, in combination with a melting pot, a casing, a magazine carried by said casing, a power driven ejector for ejecting metal from the magazine into said pot, a float supported by said cas-

ing and suspended in said melting pot, said float being capable of moving laterally and vertically and adapted to control said ejector as the level of metal in the pot is varied.

4. In a casting machine, in combination with a melting pot, a magazine for holding metal to be supplied to said pot, said magazine having a plurality of spring-pressed gates held under different tensions on the side thereof adjacent said pot, mechanism adapted to cooperate with said magazine to eject metal therefrom, said spring-pressed gates being adapted to respond to pressure through engagement between the metal and the ejecting mechanism.

5. In a casting machine, in combination with a melting pot, a magazine for holding metal to be supplied to said pot, said magazine having a spring-pressed gate on the side thereof adjacent said pot, a second spring-pressed gate secured to and movable with the first mentioned gate, mechanism adapted to cooperate with said magazine to eject metal therefrom, said gates being adapted to respond to pressure from engagement between the metal and the ejecting mechanism.

6. In a casting machine, in combination with a melting pot and float-controlled means for supplying metal thereto, means for preventing the contents of the melting pot from adhering to said float.

7. The combination with the frame or casing of the machine of a magazine for holding slugs of metal mounted to swing from a vertical position and which is provided with a series of spaced-apart fingers extending across its lower end to form the bottom thereof, and an ejector provided with a series of teeth or projections which enter the spaces between the fingers and which are adapted to engage the slugs in the magazine and eject them therefrom.

8. In combination with a pot charging device comprising a magazine for metal and an ejector for ejecting metal therefrom, of a pig comprising a plurality of metal slug sections adapted to be sheared apart by said ejector.

9. In a casting machine, in combination with a melting pot and float controlled means for supplying metal thereto, burners for directing a flame against the float preventing metal in the melting pot from freezing to the float.

In testimony whereof, I have hereunto subscribed my name.

LLOYD I. WILMANS.

Witnesses:

J. D. MARTIN,
W. M. WEBB.