

May 31, 1927.

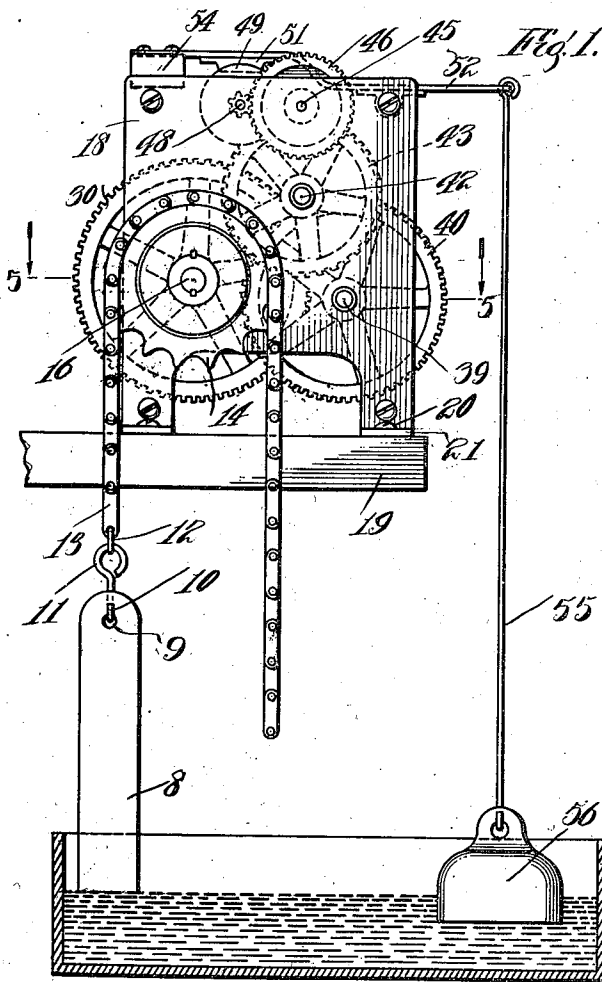
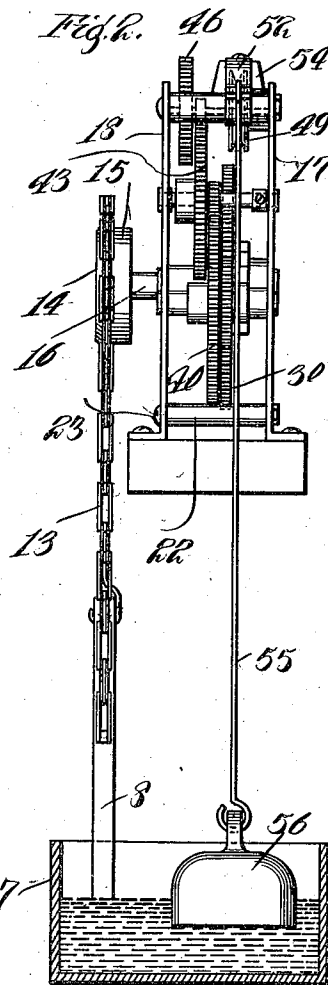
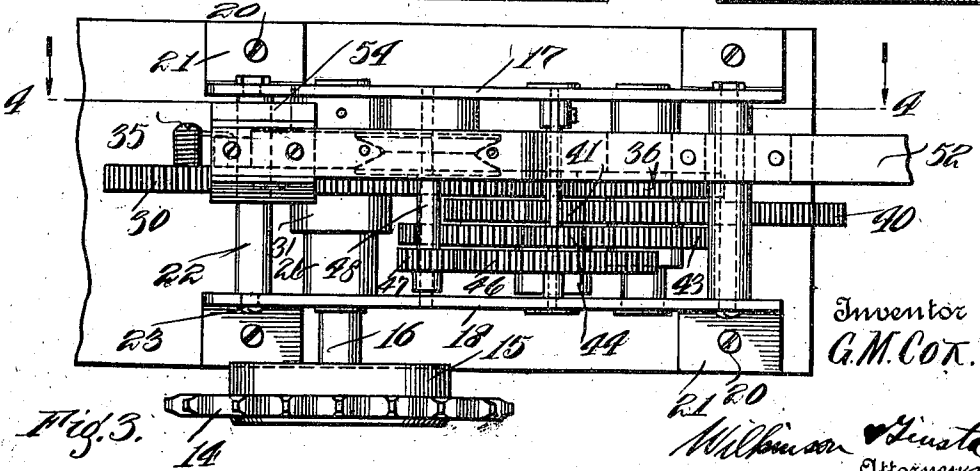
G. M. COX

1,631,014

POT FEEDER FOR TYPE CASTING MACHINES

Filed Aug. 30. 1926

2 Sheets-Sheet 1



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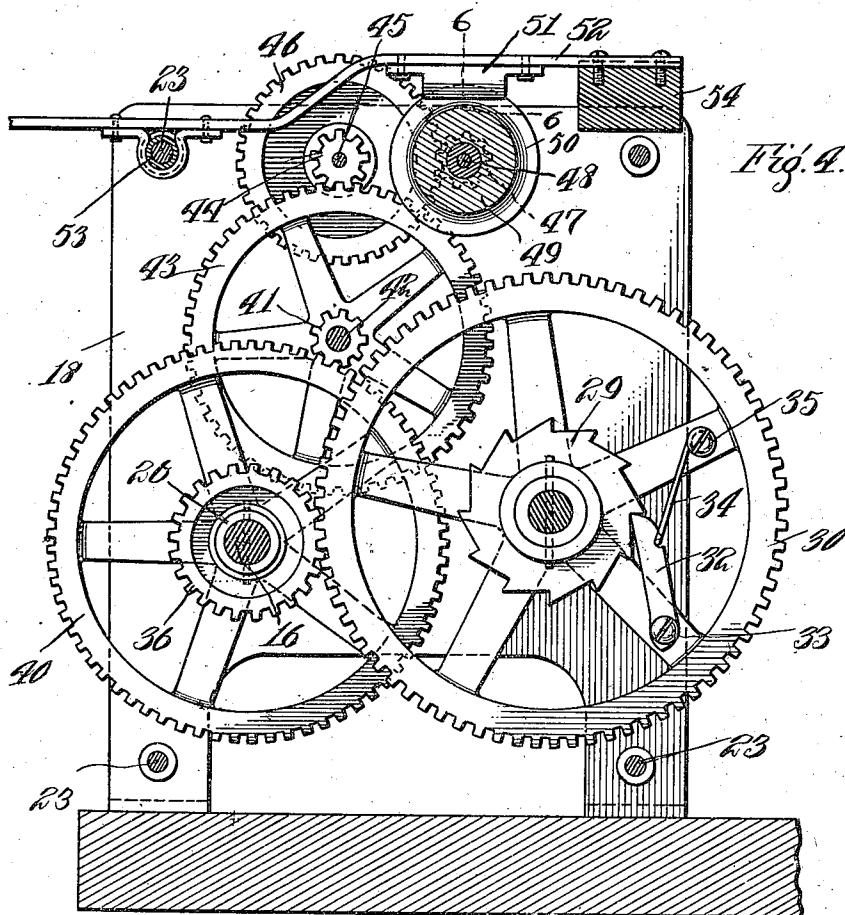
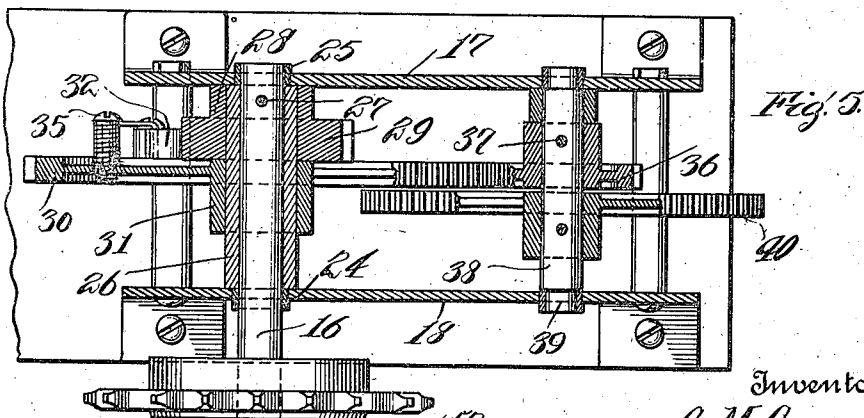
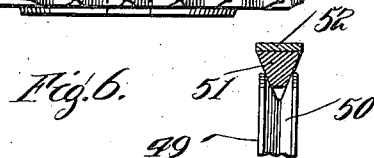
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POT FEEDER FOR TYPE CASTING MACHINES

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2 Sheets-Sheet 2



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UNITED STATES PATENT OFFICE.

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POT FEEDER FOR TYPE-CASTING MACHINES.

Application filed August 30, 1926. Serial No. 132,574.

The present invention relates to improvements in pot feeders for type casting machines and has for an object to provide an automatic balanced device for the continuous feeding of the metal ingot to the pot for maintaining a substantially constant level of the lead or other molten metal therein.

Another object of the invention is to provide a device which is simple in construction and of a compact arrangement, one that is entirely reliable in operation and is not attended with any adjustments of any kind.

With the foregoing and other objects in view, the invention will be more fully described hereinafter, and will be more particularly pointed out in the claims appended hereto.

In the drawings, wherein like symbols refer to like or corresponding parts throughout the several views,

Figure 1 is a side view with parts shown in section of a device constructed according to the present invention;

Figure 2 is an end view, also with parts in section, of the same;

Figure 3 is a top plan view on an enlarged scale of the device;

Figure 4 is a vertical section taken on the line 4—4 in Figure 3;

Figure 5 is a horizontal section taken on the line 5—5 in Figure 1, but shown on an enlarged scale; and

Figure 6 is a fragmentary section taken on the line 6—6 in Figure 4.

Referring more particularly to the drawings, 7 designates the pot for holding molten metal in a type casting machine and 8 indicates the ingot of lead or other metal used to supply the pot 7.

According to the present invention the ingot is provided with the perforation 9 near one end to receive the hook 10 on the link having the eye 11 and securing it in the loop 12 suspended from the end of a chain 13. This chain is trained over a sprocket wheel 14 and has its other end extending down substantially parallel to the ingot.

The sprocket wheel 14, is made upon an enlarged weighted and balanced hub 15 keyed or otherwise affixed to a shaft 16 which is journaled in suitable bearings through a pair of spaced and parallel plates or walls 17 and 18. These walls are mounted upon a base 19 as by the screws or other fastenings 20 passing through the angularly turned feet 21 of said plates; and the plates are held apart by the spacing sleeves 22 through which pass the bolts 23 for holding the plates in the spaced position referred to.

As shown in Figure 5, the shaft 16 is mounted through a bushing 24 in the plate 18 and a bushing 25 in the plate 17, and this shaft receives the spacing sleeve 26, the ends of which abut against the inner faces of the plates 17 and 18. A pin 27 is made to pass through the shaft 16 adjacent the plate 17 and also through the sleeve 26 and through the hub 28 of a ratchet wheel 29 which is offset inwardly from the hub 28 and lies adjacent a large gear wheel 30, the hub 31 of which is fitted loosely about the sleeve 26 and abuts at one side against the ratchet wheel 29.

In Figure 4 the ratchet teeth of the ratchet wheel 29 are shown as engaged by the free end of the dog or pawl 32 pivoted as indicated at 33 on a spoke of the large gear wheel 30. The pawl is urged against the ratchet teeth by a spring arm 34 wound about a stud 35 on an adjacent spoke of the gear wheel 30.

The gear wheel 30 forms part of a train and is the largest gear wheel in the train and said gear wheel 30 meshes with a pinion 36 keyed as by the pin 37 to the spacing sleeve 38 and countershaft 39, upon which latter sleeve and counter-shaft is also keyed a large gear wheel 40 but reduced in diameter as compared with the initial gear wheel 30. This second gear wheel 40 meshes with a small pinion 41 shown in Figure 4, smaller than the pinion 36. This pinion 41 is keyed upon a shaft 42 to which is also keyed a third gear wheel 43 of progressively smaller diameter as compared with the primary and secondary gear

wheels 30 and 40. The third gear wheel 43 meshes with a pinion 44 upon a shaft 45 to which the fourth gear wheel of the train 46 is also keyed, this gear wheel 46 being further reduced in diameter as compared with the third gear wheel 43. Such gear wheel 46 meshes with a pinion 47 upon the brake drum shaft 48, these several shafts being all journaled in the plates 17 and 18.

The shaft 48 has affixed thereto a drum 49 having a peripheral groove 50, preferably of the cross-sectional form shown in Figure 6. Such cross-sectional form takes the shape of a V or wedge, with inwardly convergent walls. A brake shoe 51 of leather or other appropriate frictional and compressible material and also having wedge shaped convergent side walls is arranged above the brake drum 49 and is adapted to be received within the peripheral groove 50. The brake shoe is of a truncated wedge or prism wall shape to admit the shoe forcibly downward between the convergent walls of the brake drum groove. This brake shoe 51 is fixed upon the lower side of a brake lever 52 which is journaled to swing about a fulcrum 53. This fulcrum may conveniently be one of the bolts 23 adapted to hold the plates together. To the end of the lever 52 near the brake shoe is attached a weight 54 and to the other end is secured a link or other connection 55 for the attachment of the float 56 shown in Figures 1 and 2. This float rests in the molten metal in the pot 7.

The operation of the device is as follows:

As the molten metal in the pot 7 recedes, the float 56 will be lowered and this float outweighing the weight 54, will lift or ease up on the brake shoe 51 thereby permitting the slug 8 to descend by virtue of its own weight. In order to descend the slug 8 must drive the train of gears including the brake drum. The movement of the descending slug 8 is communicated to the gear train through the ratchet wheel 29 and the pawl 32. An upward movement of the slug 8 can be accomplished at any time by drawing down upon the free opposite end of the chain 13. This is of advantage in placing a new long slug in the device. The gear train will balance the slug 8 and the weight 54 will balance the float 56, so that a balanced device is provided. The slightest descent of the float 56 will withdraw the brake shoe 51 sufficiently from its wedging in the groove of the brake drum to permit of a corresponding descent in the slug 8, but as soon as the level in the pot 7 again regains normal, the rise of the float 56 will permit the weight 54 to carry the brake shoe 51 down again tightly into the wedge shaped groove 50 of the brake drum, thus arresting any further descent of the slug 8.

By virtue of the reduction gear train ar-

range ment the brake drum will be driven at a fast rate or through many revolutions compared to a small descending movement of the slug 8 and braking action will thus be heightened and thus the movement of the slug will be more nicely controlled. The float acts directly on the brake shoe without any intermediate mechanical mechanism. There is no mechanical force or other means employed in operating the device and it is controlled and feeds solely by the rise and fall of the metal in the container. The device may be prepared in construction somewhat to the works of a clock, although it is an improvement thereon in that it feeds without winding or other assistance.

It will be obvious that many changes in the construction, combination and arrangement of parts could be made, which could be used without departing from the spirit of my invention, and I do not mean to limit the invention to such details, except as particularly pointed out in the claims.

Having thus described my invention, what I claim and desire to secure by Letters Patent of the United States is:

1. A pot feeder for type casting machines comprising a movable ingot holder, a gear train coupled to be driven by said holder, a rapidly moving brake drum driven by said gear train and having a peripheral groove therein with wedge shaped cross-sectional area, a brake lever fulcrumed adjoining said drum, a wedge shaped brake shoe carried by said lever and adapted to enter the groove of said drum, means for urging said shoe against the drum, and a float for balancing said last-named means and for moving the brake shoe away from the drum.

2. A pot feeder for type casting machines comprising a movable ingot holder, a gear train coupled to be driven from said movable holder, a rapidly moving brake drum driven by said gear train and having a peripheral groove therein of substantially V-shaped cross-section, a brake lever fulcrumed adjoining said drum, a float connected to one end of said lever, a weight connected to the other end of said lever, and a brake shoe on the lever at the weight end for entering said groove of the drum, said brake shoe being of truncated wedge form and composed of frictional compressible material.

3. A pot feeder for type casting machines comprising a pair of plates, means for securing said plates in spaced substantially parallel relation, a shaft journaled through said plates, a balanced and weighted sprocket carried on one end of said shaft beyond the plates, a chain engaging said sprocket, means at one end of said chain to receive and suspend an ingot, a ratchet wheel affixed to said shaft, a gear wheel loosely mounted to revolve about the shaft, a pawl carried by said gear wheel and yieldably pressed

against said ratchet wheel for driving the gear wheel when the ratchet wheel is rotated in one direction only, a reduction gear train carried between said plates and coupled to be driven from said gear wheel, a grooved brake drum also carried by the said plates and driven rapidly from said gear train, a brake lever pivoted above said drum and having a brake shoe adapted to move against the drum, a weight on the lever for urging the brake shoe against the drum, and a float coupled to the other end of said brake lever and outweighing the weight. 10

GEORGE M. COX.