Sept. 10, 1935. C. E. WHITMORE 2,014,059

METAL FEEDER FOR MELTING POTS

Filed Nov. 18, 1933

Fig. 1.

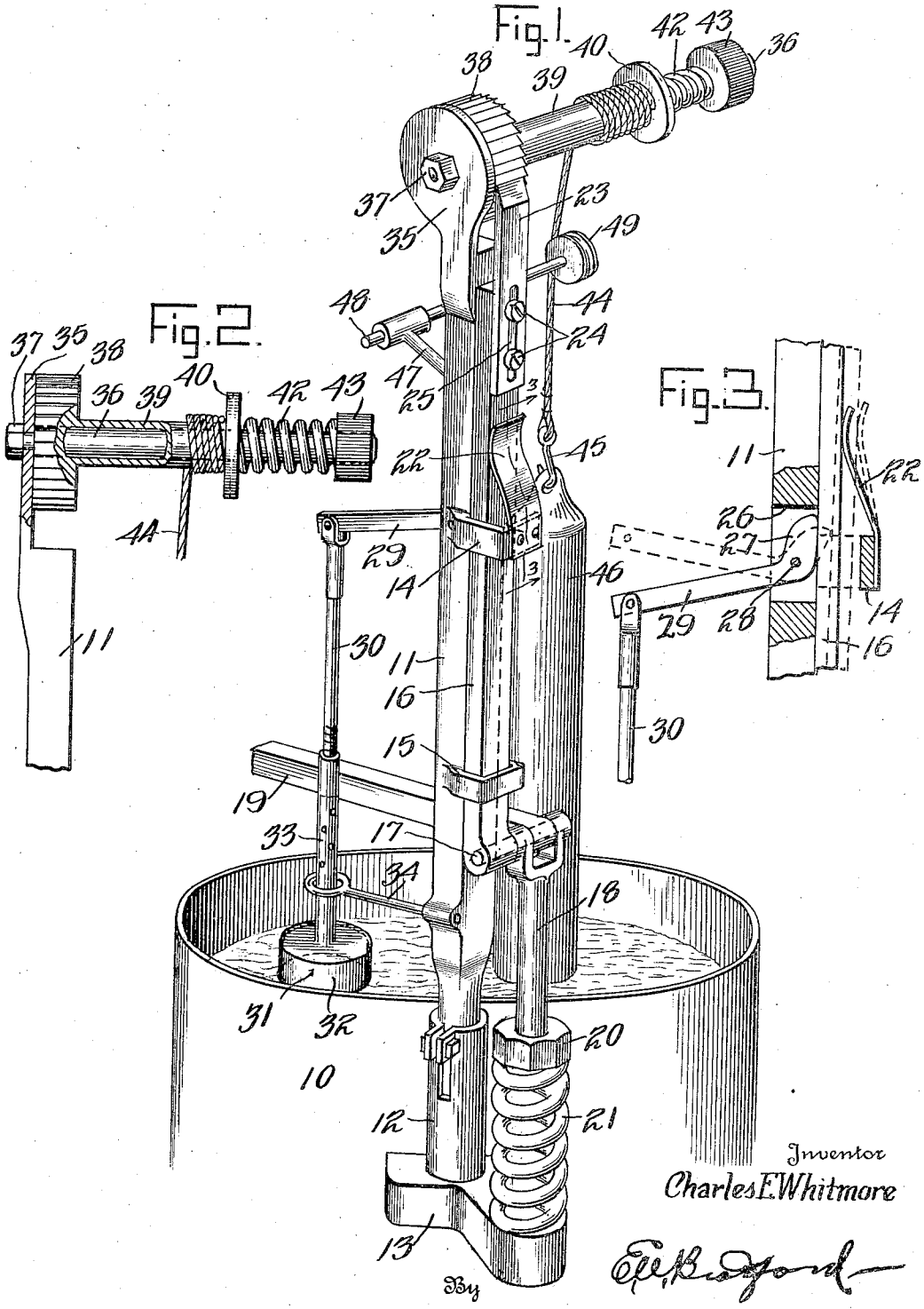


Fig. 2.

Fig. 3.

Inventor
Charles E. Whitmore

By

Attorney

Patented Sept. 10, 1935 2,014,059

UNITED STATES PATENT OFFICE

2,014,059

METAL FEEDER FOR MELTING POTS

Charles E. Whitmore, Vancouver, Wash., assignor to The Vancouver Evening Columbian, Vancouver, Wash., a corporation of Washington

Application November 18, 1933, Serial No. 698,691

5 Claims. (Cl. 22—80)

This invention relates to a device for feeding a pig of metal automatically to the melting pot of a type-forming machine.

An object of the invention is to provide suitable mechanism which is simple in structure yet capable of producing results heretofore obtained only by more complicated mechanisms and one which is controlled by the level of the molten metal and is operatively connected to the machine or to any other suitable actuating means, all of which will be hereinafter more fully described and claimed.

Referring to the accompanying drawing, which is made a part hereof and on which similar reference characters indicate similar parts,

Figure 1 is a perspective view of the device constituting the invention,

Figure 2, a detail view of the tensioning member, and

Figure 3, a section on line 3—3 of Figure 1.

In the drawing reference character 10 indicates a metal melting pot or container mounted in a suitable position relative to the machine. An upright post or support 11 is adjustably secured at its lower end in a sleeve 12 which is mounted on a base 13 near the edge of the metal pot 10. The post 11 is provided with spaced guides 14 and 15 along one face in which a lift rod 16 is slidably secured. The lower end of the lift rod 16 is secured by means of a pin 17 to a plunger 18 which is reciprocated by an arm 19. The arm is actuated by the machine or any suitable means, not shown. The plunger 18 is provided with a nut 20 mounted on top of a coil spring 21 seated on the base 13 which serves as a cushioning means for the lift rod 16 and the plunger 18. The plunger 18, the nut 20 and the coil spring 21 just described are parts of the conventional type forming machine and not of the metal feeder proper. The rod 16 is held against the post 11 by a spring 22 fixed to the guide 14. A dog 23 is adjustably mounted on the upper end of the rod by means of the screws 24 in the slot 25.

The post 11 is provided with an opening 26 in which a cam 27 is pivoted on a shaft 28. The cam is provided with an arm 29 having a float rod 30 pivoted to its outer end. The lower end of the rod 30 is threaded and connected to a float 31. The float 31 is formed of a hollow base 32 and perforated stem 33. The perforations in the hollow float serve to relieve the pressure which is produced when the heat is turned on and expands the air inside the float. A ringed guide 34 is secured around the stem of the float 31 and is connected to the post 11.

The upper end of the post 11 is provided with a ratchet wheel support 35 through which a shaft 36 is secured by a nut 37. A sleeve 39 having a ratchet wheel 38 on one end and a disk 40 on the other is mounted on the shaft 36. The ratchet support 35 also acts as a buffer and tension is maintained between the ratchet wheel 38 and the support 35 by means of the spring 42 pressing against the disk 40 and regulated by a tensioning nut 43.

A flexible cable 44 is secured at one end of the sleeve 39 and is wound around the sleeve. A hook 45 is fixed to the other end of the cable on which a pig of metal 46 may be attached and be suspended over the metal pot 10. An arm 47 is secured to the guide 14 for mounting a shaft 48 on which a guide wheel 49 for the cable is mounted.

The operation of the device is as follows:

The cable is wound around the sleeve 39 and a pig of metal is suspended on the hook above the melting pot 10. The tensioning nut 43 is turned forcing the spring 42 against the disk 40 in order to develop sufficient friction between the ratchet wheel 38 and the ratchet wheel support 35 to hold the pig of metal in suspended position. The arm 19 is reciprocated causing the lift rod 16 to move up and down and continues to move in this manner as long as the arm is reciprocated. When the float is in the position shown in dotted lines in Figure 3, the dog 23 does not engage the ratchet wheel and the pig of metal therefore remains stationary. Upon lowering of the molten metal in the pot 10, the float lowers, moving the arm 29 downward and the cam takes the full line position as in Figure 3. The spring 22 forces the lift rod 16 against the post 11 and the dog 23 in engagement with the ratchet wheel 38 causing it to rotate in a manner to slowly lower the pig of metal. As soon as the normal level is reached the float rises, the cam forces the dog 23 from the ratchet wheel and it ceases to rotate.

It is clearly seen that operation of the device is very simple and the control is automatically obtained through the medium of the float and its associated mechanism; it is positive in action, easily adjusted and does not require attention other than to renew the pig of metal from time to time during operation; and the principle upon which the device operates is such that it may be manufactured and marketed at a comparatively low cost.

It will be obvious to those skilled in the art that various changes may be made in my device without departing from the spirit of the invention and therefore I do not limit myself to what is shown in the drawing and described in the speci-

fication, but only as indicated by the appended claims.

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

1. A device for automatically feeding a pig of metal to a melting pot comprising a post mounted adjacent the melting pot, a shaft secured to said post extending over the melting pot, a ratchet wheel on said shaft, means for tensioning said wheel, a lift rod adapted to be reciprocated positioned along said post normally in engagement with said wheel, means for reciprocating said lift rod, a cam mounted in said post for moving said lift rod out of engagement with said ratchet wheel and a float connected to and for actuating said cam, substantially as set forth.

2. A device for automatically feeding a pig of metal to a melting pot comprising a support having an upright portion and a shaft extending over the melting pot, a flexible member wound around said shaft adapted to support a pig of metal, a ratchet wheel mounted on said shaft, a lift rod slidable on the upright portion of said support and adapted to be reciprocated normally in engagement with said ratchet wheel, a cam on said support for disengaging said lift rod from said ratchet wheel, and buoyant means for actuating said cam controlled by the level of the liquid in the melting pot, substantially as set forth.

3. A device for automatically feeding a pig of metal to a melting pot comprising a support having a shaft extending over the melting pot, a flexible member wound around said shaft adapted to support a pig of metal, a ratchet wheel mounted on said shaft, a lift rod slidable on and movable laterally of said support and having a portion thereof normally in engagement with said ratchet wheel, a cam on said support for disengaging said lift rod from said ratchet wheel, and buoyant means for actuating said cam controlled by the level of the liquid in the melting pot.

4. A device for automatically feeding a pig of metal to a melting pot comprising a vertical support having a shaft secured to the upper end extending over said melting pot, a sleeve on said shaft having a ratchet wheel on one end, said support frictionally engaging said ratchet wheel, a spring pressing said ratchet wheel against said support, a flexible cable wound around said sleeve for supporting the pig of metal, a reciprocable lift rod engaging said ratchet wheel to lower said pig of metal and means for disengaging said lift rod from said ratchet wheel.

5. A device for automatically feeding a pig of metal to a melting pot comprising a vertical support having a shaft secured to the upper end extending over said melting pot, a sleeve on said shaft having a ratchet wheel on one end, spring-pressed means for frictionally retarding the rotation of said sleeve, a flexible cable wound around said sleeve for supporting the pig of metal, a reciprocable lift rod engaging said ratchet wheel to lower said pig of metal, a float controlled by the level of the molten liquid in the melting pot and a cam connected to said float and adapted to engage said lift rod and control the engagement thereof with the ratchet wheel.

CHARLES E. WHITMORE.