

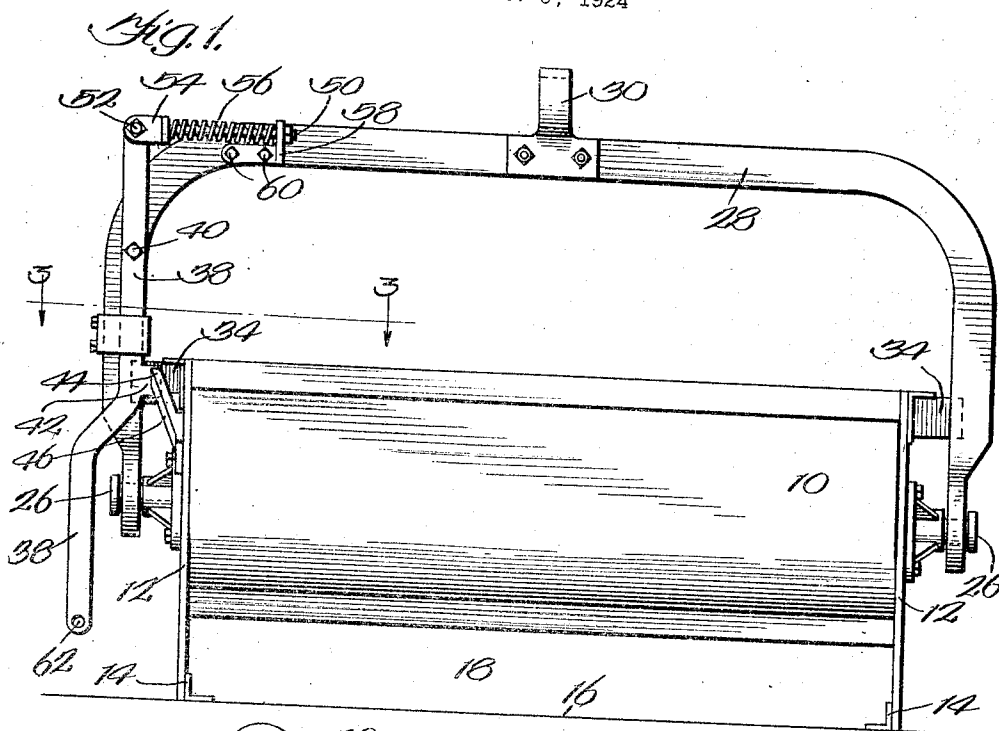
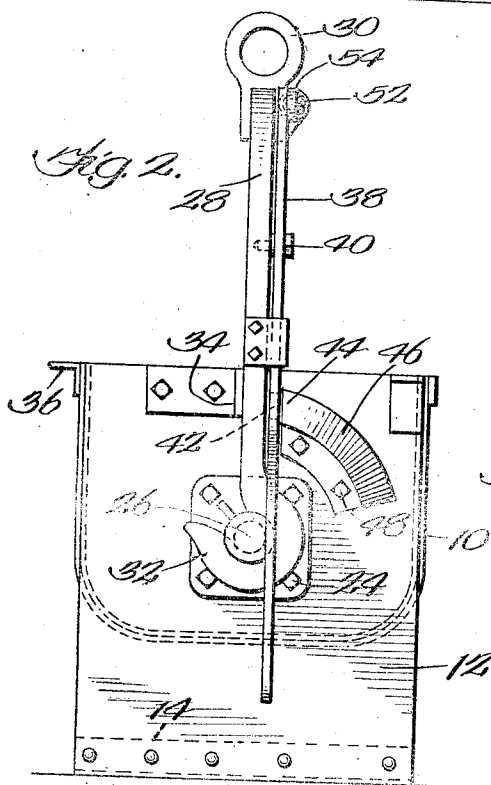
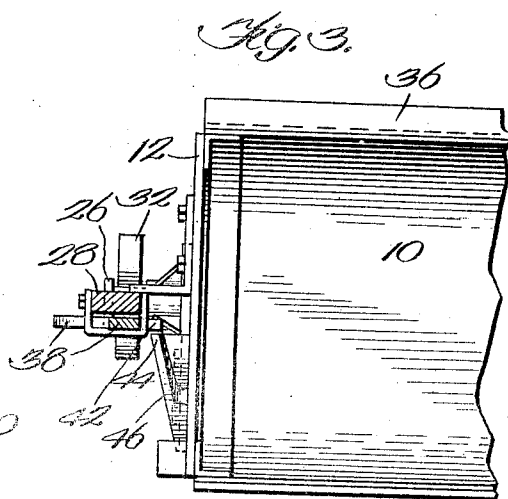
Feb. 16, 1926.

H. W. BENTON

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SELF RIGHTING BUCKET

Filed Oct. 6, 1924



Inventor:
Homer W. Benton
By Cheever & Cox
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UNITED STATES PATENT OFFICE.

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OF HARVEY, ILLINOIS, A CORPORATION OF ILLINOIS.

SELF-RIGHTING BUCKET.

Application filed October 6, 1924. Serial No. 741,843.

To all whom it may concern:

Be it known that I, HOMER W. BENTON, a citizen of the United States, residing at Harvey, in the county of Cook and State of Illinois, have invented a certain new and useful Improvement in Self-Righting Buckets, of which the following is a specification.

This invention relates to buckets for use in the metal melting art, specifically in iron foundries. The object of the invention is to provide a bucket for such use, which can be placed on the floor adjacent to the furnace or cupola for the reception of any sort of material, but more particularly pig iron and scrap to be dumped into the furnace for melting, which can thereupon be carried by a traveling crane to the point where the material is to be used which can be there readily tilted to pour out the contents of the bucket; which will, after tilting, automatically right itself—this with and without the combination of the special latch mechanism for holding the bucket in upright position during the transportation of the bucket from the cupola or other source of molten metal to the pouring point and vice versa.

The invention consists in mechanism attaining the foregoing and other objects; which can be easily and comparatively cheaply made; which is satisfactory in use and is not readily liable to get out of order. More particularly, the invention consists in numerous features and details of construction which will be hereafter more fully set forth in the specification and claims.

Referring to the drawings in which like numerals designate the same parts throughout the several views:

Figure 1 is a side elevation and Figure 2 an end view of mechanism illustrating this invention in its preferred form.

Figure 3 is a fragmentary plan view taken on the line 3—3 of Figure 1.

The metal retaining receptacle of the device of this invention is a generally U-shaped trough made up of the extended U-shaped member 10, closed at its ends by vertical upright end plates 12, extending downward below the trough U so as to afford room for angular feet 14 resting on the ground or floor 16. The trough is spaced sufficiently above the ground so as to provide an ample clearance space 18 enterable by a lift truck not shown, adapted in the manner well

known in the art to lift the bucket off the ground and carry it around in the absence of traveling crane, preferably used as hereafter described.

Rigidly secured to each end of the bucket on the adjacent end plate 12 by any suitable means, such as bolts 24, is a trunnion 26 so placed with reference to the vertical height of the entire mechanism thus far described that when the bucket is empty and free to turn on said trunnions, the center gravity of the device is such that the bucket will assume the upright position shown in Figures 1 and 2 and that when the bucket is loaded with metal, the center of gravity will be sufficiently high above the axis of the two trunnions that the bucket will, if free to turn on said trunnions, rotate to dump the contents of the bucket at such point as the operator may have previously placed the device prior to permitting such automatic dumping operation.

In order to permit of a traveling crane's handling the bucket thus far described or handling one after another a series of such buckets, the crane, not shown, is provided with a U-shaped bail 28, suspensible at its center from the crane by a ring 30 or the like, the depending arms of the bail being provided with hooks 32 adapted to detachably engage and support the trunnions 26. Each end 12 of the bucket is provided with a suitable stop 34 so placed on each end wall that the bucket cannot rotate in a clockwise direction beyond the vertical position of Figures 1 and 2, thereby forcing the bucket to rotate, if at all, in a counter-clockwise direction as viewed in Figure 2 to pour the contents of the bucket over the left hand edge 36 of the bucket as seen in Figure 2. One end of the bail 28, specifically the left hand end, as shown in Figure 1, is provided with a vertically positioned latch lever 38, pivoted to the bail at a convenient point, as 40, so that a latch dog 42 formed on the lever readily assumes the locking position shown in the drawing intermediate between the adjacent stop 34 and the end 44 of an inclined cam track 46, detachably secured to the end 12 of the bucket by any suitable means, such as bolts 48. This cam track is curved about the center of the adjacent trunnion 26 so that as the bail 28 and the bucket rock one with reference to the other about the axes of the trunnions 26,

this latch dog 42 will travel over this cam track under the urge of a suitable spring mechanism, preferably but not necessarily applied to the upper end of lever 38. In the particular case here illustrated, this spring mechanism includes a rod 50 pivotally attached at 52 to the upper end of the lever 38 through the agency of a suitable yoke 54 against which the compression spring 56, enclosing the rod 50, abuts at one end, the other end of the spring taking bearing against the stationary stock 58 suitably secured on the bail 28 by any suitable means, as for instance, bolts 60. Rod 50 slides freely through this stock 58.

The lower end of lever 38 is provided with means, specifically as shown, a hole 62, to which a pole chain or the like may be attached for ready operation by a workman at some distance from the bucket, though obviously operation may be effected by directly clasp ing the lower end of lever 38 just above this perforation, 62.

The result of the construction described is that under ordinary conditions the compression spring 56 moves lever 38 to hold latch 42 in the position shown in the Figures 1 and 2 between stop 34 and end 44 of cam track 46 thus securely holding the bucket in upright position and avoiding accidental tilting of the bucket and consequent dumping of material contained therein. When the operator desires to discharge the contents of the bucket, he by the means described rocks lever 38 in a clockwise direction against the action of spring 56 until latch dog 42 is withdrawn from behind end 44 of cam track 46 whereupon the weight of the loaded bucket automatically tilts the bucket in a counter-clockwise direction. Immediately on the bucket's starting to tilt, the operator releases his control of lever 38 with the result that the spring 56 causes latch dog 42 to travel over the inclined surface of cam track 46.

The momentum caused by the movement of the loaded bucket in a counter-clockwise direction started by the center of gravity of the loaded buckets being above the centers of trunnions 26 carries the bucket over to an inclined position wherein all the contents of the bucket will flow out over lip 36. When, however, the entire contents has thus passed out of the bucket, the weight of the

bucket itself having a center of gravity below the axis of trunnions 26 asserts itself to right the bucket to normal position. In this movement, latch 42 travels along the surface of cam track 46 until it reaches the position of Figures 1 and 2 whereupon the spring mechanism throws the latch into locked position as described. It will be noted that there is no solid part above or below latch 42 with the result that the crane can by lowering the chains or the like attached to hooks 32 sufficiently permit the weight of the bail and attached parts to drop the hooks 32 off from the trunnions 26 with the result that the crane can then carry the bail mechanism to another, second bucket and by proper conventional crane manipulation apply the hooks 32 to the trunnions 26 of this new bucket and handle it just as the first bucket was handled, as described.

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

1. In mechanism of the class described, a bucket carrying an end trunnion, a bail above the bucket extending down and pivoting on the trunnion, a stop on the bucket engaging one side of the bail, a curved cam track on the bucket on the opposite side of the bail, a latch lever pivoted to the bail, having a dog traveling over the cam track and enterable between the stop and cam track and a compression spring operatively connected between the lever and bail urging the lever to said locked position for said dog.

2. In mechanism of the class described, a bucket carrying an end trunnion, a bail above the bucket extending down and pivoting on the trunnion, a stop on the bucket engaging one side of the bail, a curved cam track on the bucket on the opposite side of the bail, a latch lever pivoted to the bail above the bucket having a dog traveling over the cam track and enterable between the stop and cam track, and a horizontally disposed compression spring operatively connected between the upper end of the lever and bail urging the lever to said locked position for said dog.

In witness whereof, I have hereunto subscribed my name.

HOMER W. BENTON.