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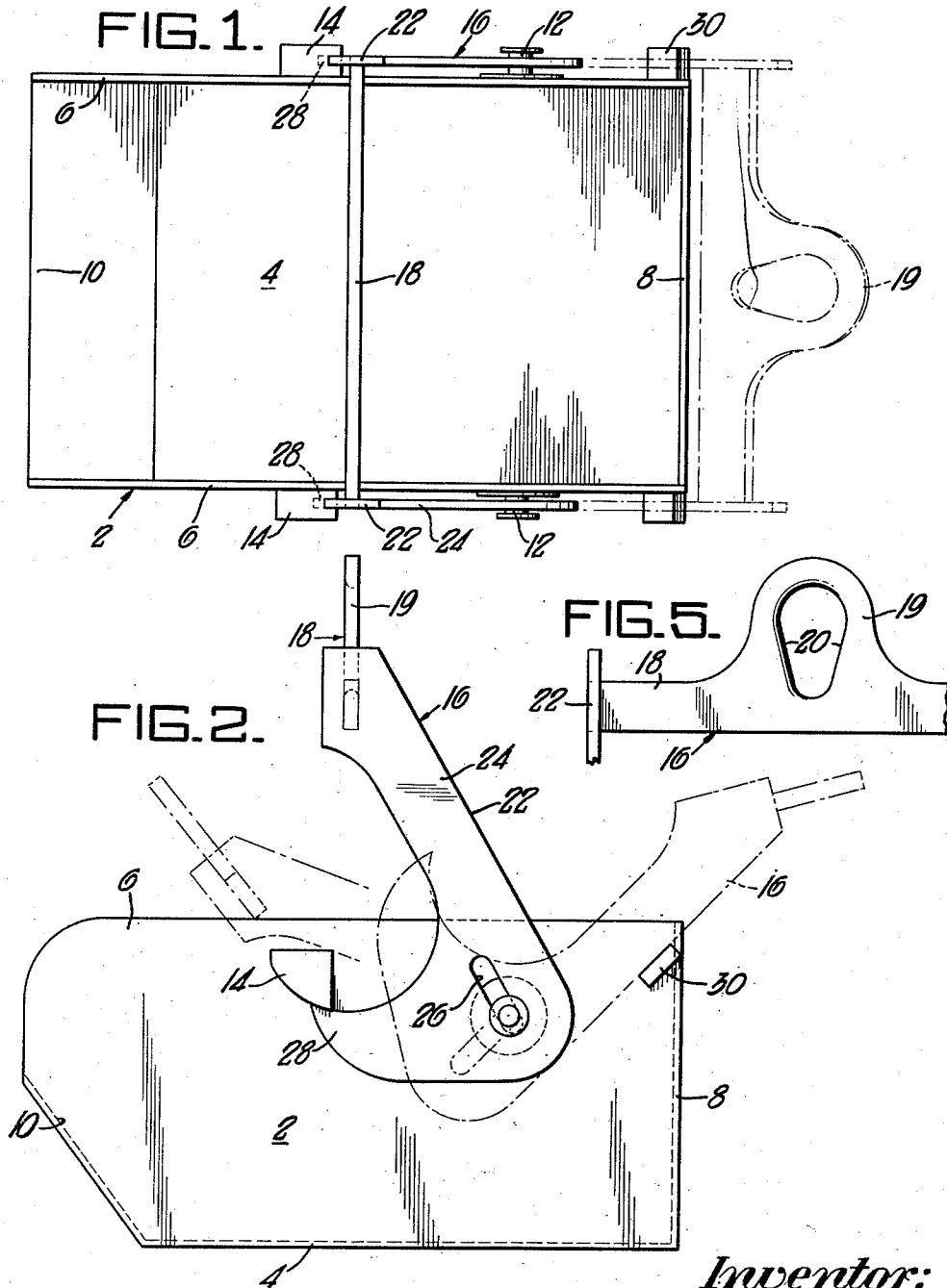
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2,798,758

SELF-DUMPING BUCKET-AND-BAIL CONTAINER

Filed May 29, 1953

2 Sheets-Sheet 1



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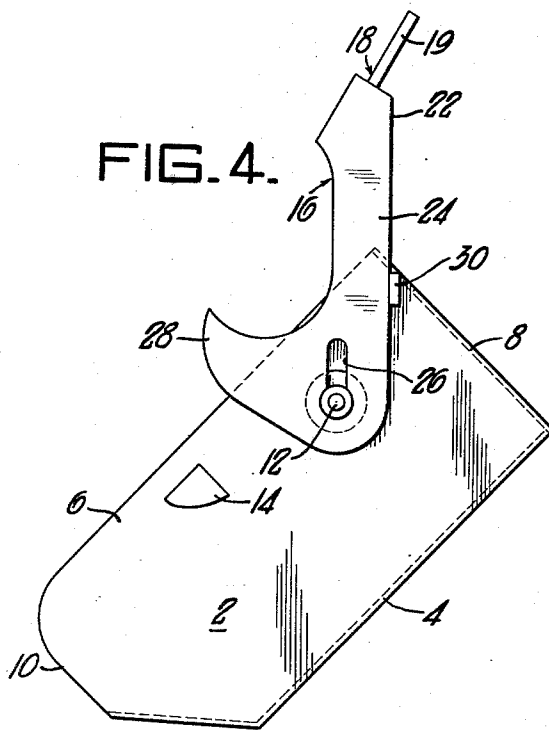
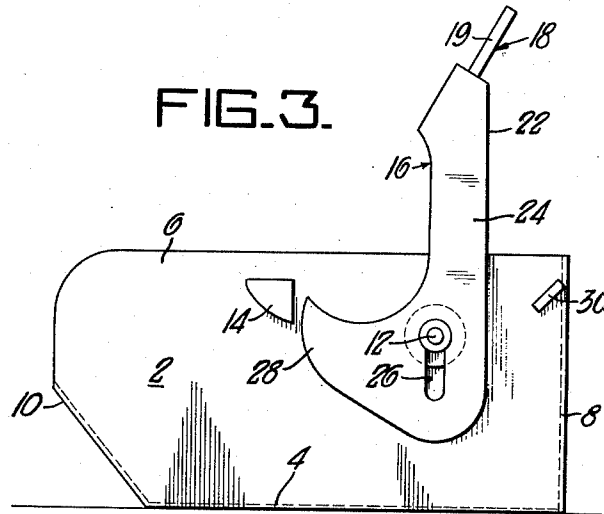
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SELF-DUMPING BUCKET-AND-BAIL CONTAINER

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1 Claim. (Cl. 294—73)

The present invention relates generally to apparatus for handling material and more particularly to a self-dumping bucket-and-bail type container.

Bucket type containers adapted to be carried by overhead cranes have long been an important tool of industry for transferring material from one point to another. One example of this is the widespread use in the metal industry of bucket type containers for collecting and handling scrap metal. As a result of the various steps of processing in the production of metal, such as various forms of steel, scrap metal accumulates at various points throughout the mill. Various types of scrap boxes are placed at a number of locations throughout the mill in which scrap metal is deposited and subsequently carried away for disposition by remelting or other means.

Scrap boxes in use prior to my invention were of various design, the most common being an open top rectangular shaped box having hooks or holes in two opposite sides for engagement with the lift cable of an overhead crane. When the box was filled, the lift cables were attached to the box and it was carried to a railway gondola car by the overhead crane for subsequent removal from the mill. This procedure required a workman to attach the lift cables to the box and then to unhook one cable when the box had reached its destination so that it could be dumped by the crane. After the box had been dumped, it was necessary for the workman to reattach the cables and then remove them after the empty box had been returned to its customary location. This procedure caused loss of production time in many instances since the boxes were usually located adjacent a production line and it was necessary to shut down the line each time the box was handled. Manual hooking and unhooking of the box also created a safety hazard for the workman involved.

I propose to eliminate these disadvantages by providing a bucket having a bail attached thereto which may be simply manipulated by a crane hook to carry and dump the bucket, thus increasing considerably the speed with which the bucket may be handled and eliminating the necessity for a workman to manually prepare the bucket each time it is handled thereby reducing the safety hazard ordinarily present in the operation.

It is, accordingly, an object of my invention to provide an improved bucket and bail type container which may be carried and dumped and otherwise handled solely by a crane's manipulation of a crane lift hook.

This and other objects will become more apparent after referring to the following specification and attached drawings, in which:

Figure 1 is a top plan view;

Figure 2 is a side elevational view;

Figure 3 is a view similar to Figure 2 showing the bail of the container of the present invention disengaged preparatory to dumping;

Figure 4 is a view similar to Figure 3 showing the bucket in dumping position; and

Figure 5 is an enlarged detail view of the lift portion of the bail.

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Referring more particularly to the drawings, reference numeral 2 designates the bucket of my invention. Bucket 2 is substantially rectangular in shape and has a bottom 4, two opposed sides 6, a closed end 8 and a partially open sloping end 10. A trunnion 12 is attached to and projects outwardly from each of the sides 6 at a point offset from the center of gravity of the bucket. A catch lug 14 is provided on the exterior of each of the sides 6 spaced from the trunnion 12.

The bucket 2 is provided with a bail 16 which is made up of a horizontal cross member 18 formed with an enlarged center portion 19 having a hole 20 therethrough, and a pair of substantially L-shaped rigid legs 22 depending from each end of the cross member 18. Each leg 22 is comprised of a relatively long shank portion 24 having a slot 26 therein and a relatively short hook end 28 adapted to engage the stop lug 14. The bail is attached to the bucket by the trunnions 12 slidably fitting in the slots 26. The slots 26 are dimensioned so as to permit relative slidable movement between the legs and the trunnions within the confines of the slots. The slots are arranged so that they extend in a plane offset from the vertical when the hook ends 28 engage the catch lugs 14, as best shown in Figure 2. This arrangement causes the hook ends 28 to move angularly away from the stop lugs when the bail is lowered relative to the trunnions. A projection 30 may be provided on the exterior of each of the side walls 6 adjacent the end 8 adapted to engage the legs 22 to prevent the bail from falling over the end 8 of the bucket when it is lowered to reclining position. The cross member 18 limits the movement of the bail in the opposite direction. The bail is shown in the two reclining positions by broken lines in Figure 2.

In operation, the bucket may be located in any desired location with the bail reclined toward either end of the bucket. When it is desired to remove the bucket, the hook of an overhead crane (not shown) is lowered and engaged in the hole 20 of the bail. After the bail is engaged by the hook, the crane lifts the bail vertically so that the hook ends 28 engage the catch lug 14 after which continued raising of the crane hook lifts the bucket. The engagement of the hook ends 28 with the catch lug 14 maintain the bucket in a horizontal position while it is being lifted and carried by the crane. When the bucket reaches its destination and it is desired to dump the contents thereof, the bucket is first lowered to a resting position after which the crane continues to lower the bail along the trunnions 12 to release the hook ends 28 from engagement with the catch lug 14. When the hook ends have been released, the bail is moved in the direction toward the closed end 8 of the bucket until the hook ends 28 rise clear of the catch lugs 14. When the ends 28 have cleared the lugs, as shown in Figure 3, the bail is lifted vertically to raise one end of the bucket and dump its contents, as shown in Figure 4. As will be seen in Figure 4, the projections 30 engage the legs 22 of the bail to limit the tilting of the bucket as the bail is lifted. If desired, the projections 30 may be eliminated to allow the bucket to tilt freely as the bail is raised. The positions of the projections 30 may also be varied according to the amount of tilt desired when the bucket is dumped. After the bucket has been emptied, it may be returned to its customary location in tilted position or, if preferable, it may be righted after dumping by lowering it to resting position again, reengaging the lugs 14 with the hook ends 28 and then again raising the bucket by lifting the bail vertically.

While one embodiment of my invention has been shown and described, it will be apparent that other adaptations and modifications may be made without departing from the scope of the following claim.

I claim:

Self-dumping material handling apparatus comprising a bucket having two parallel side walls and a bail for lifting said bucket, a trunnion on the exterior of each of said side walls, said trunnions being disposed in a common horizontal plane offset from a central transverse plane through said bucket, an abutment on the exterior of each of said side walls, said abutments being disposed in a common horizontal plane spaced above said trunnions and on the opposite side of said central transverse plane from said trunnions, said bail including spaced L-shaped hanger bars depending one on each side of said bucket, each of said hanger bars having a shank and a hook end extending from the bottom of the shank, the hook end of each shank extending toward the abutment on the side wall of the bucket adjacent to its respective shank, the top side of each of said hook ends being adapted to engage the underside of one of said abutments, each of said shanks

having a slot in the bottom portion thereof for slidably receiving one of said trunnions, said slots being so dimensioned that said hook ends engage the undersides of said abutments and the bottoms of said slots engage said trunnions when said bars are raised vertically relative to said bucket, said slots being arranged in a plane offset from the vertical when said hook ends engage said abutments whereby the bars are moved laterally to clear said abutments when the bars are lowered relative to the bucket.

References Cited in the file of this patent

UNITED STATES PATENTS

850,587	Kortvellyessy	Apr. 16, 1907
902,223	Focht	Oct. 27, 1908
1,131,748	Stuebner	Mar. 16, 1915
1,449,661	Forsythe	Mar. 27, 1923
2,215,844	Van Syckle	Sept. 24, 1940