

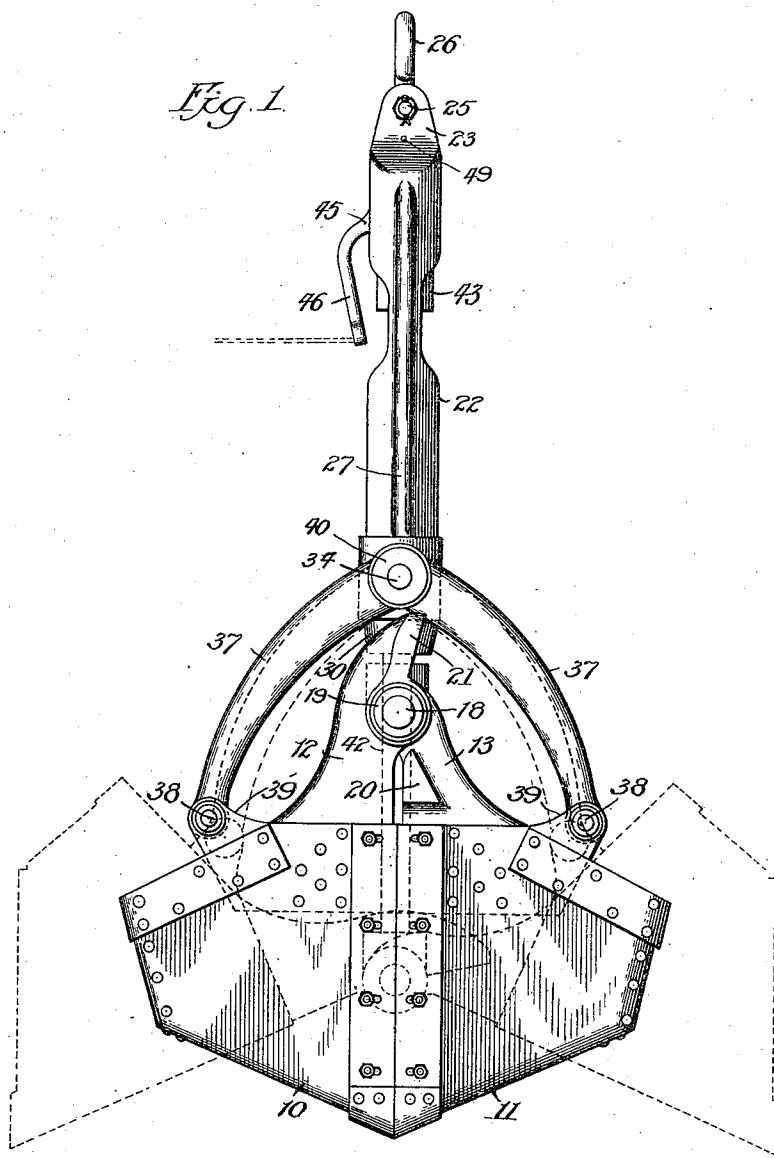
J. L. BUTLER.
BUCKET.

APPLICATION FILED JULY 30, 1909.

989,832.

Patented Apr. 18, 1911.

3 SHEETS—SHEET 1.



Witnesses:

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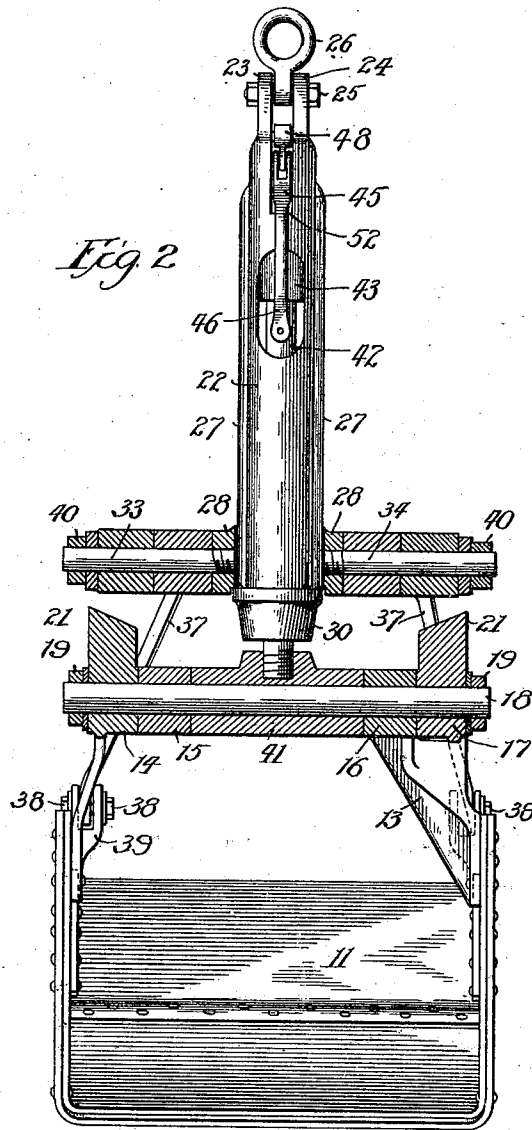
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3 SHEETS—SHEET 2.



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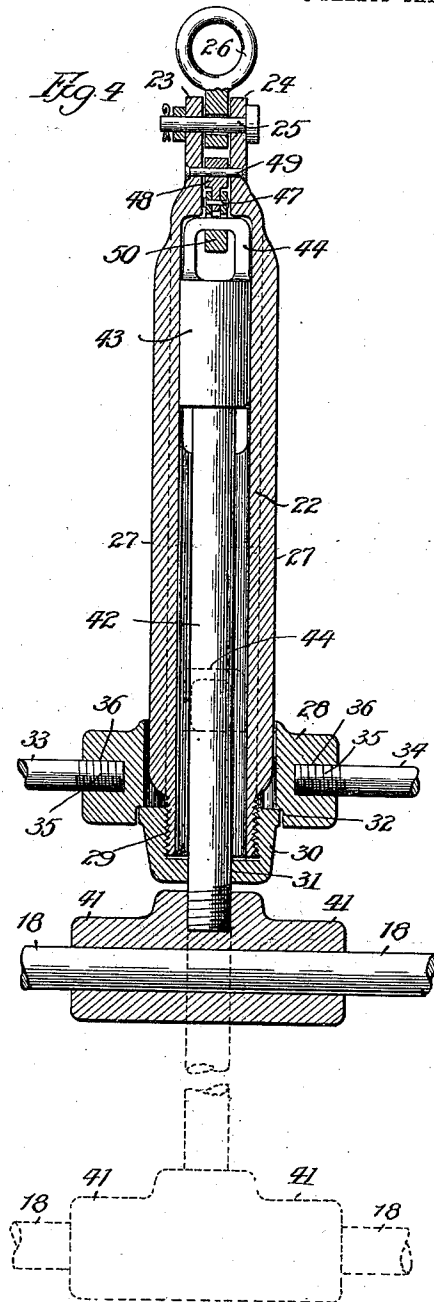
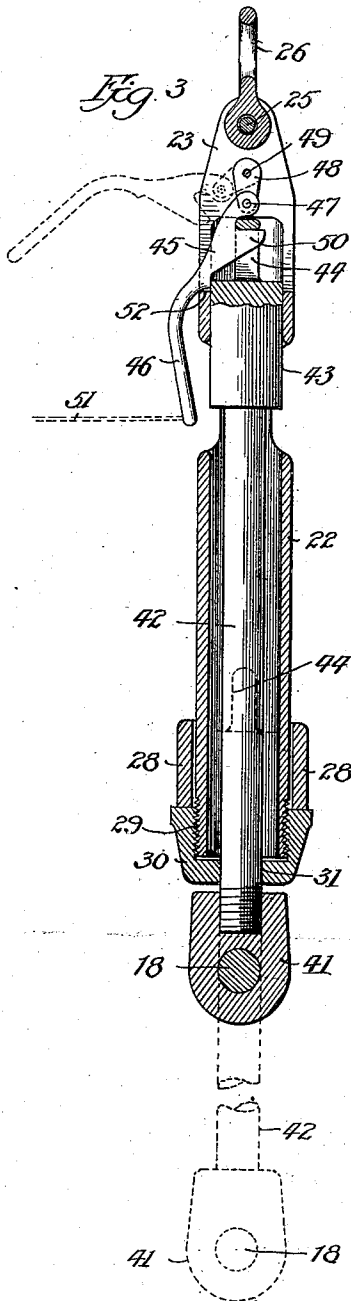
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3 SHEETS—SHEET 3.



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UNITED STATES PATENT OFFICE.

JAMES L. BUTLER, OF ALLIANCE, OHIO.

BUCKET.

989,832.

Specification of Letters Patent.

Patented Apr. 18, 1911.

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To all whom it may concern:

Be it known that I, JAMES L. BUTLER, a citizen of the United States, residing at Alliance, in the county of Stark and State of Ohio, have invented certain new and useful Improvements in Buckets, of which the following is a specification.

A simplified and compact mechanism for grab buckets which will at the same time be economical to manufacture and efficient and effective in operation is one of the salient objects of the present invention. The structural features and advantages of a desirable embodiment of said invention are set forth in the following description, which should be considered in connection with the accompanying drawings forming a part of this specification and wherein—

Figure 1 is a side elevation of such a bucket showing the same in closed position in full lines and in open relation in dotted lines; Fig. 2 is a partial central transverse section and partial elevation of the appliance; Fig. 3 is a longitudinal vertical section through the upper portion of the operating mechanism; and Fig. 4 is a longitudinal section of the same parts at right angles to the section of Fig. 3.

The bucket proper consists in reality of two open-mouth sharp-edged companion buckets or shovels 10 and 11, the two mouths of which are shown in register and the buckets in closed relation in full lines in Fig. 1. Each bucket has fastened or secured by means of rivets or otherwise to the inner faces of its side walls near the mouth of the bucket a pair of brackets 12 and 13, the four brackets having bosses 14, 15, 16 and 17 (Fig. 2) at their upper ends apertured in alinement for the reception and accommodation of a hinge pin or rod 18 which forms a hinge connection between the two buckets in substantially the planes of their mouths. To retain or maintain such hinge rod or pin in proper position its opposite ends are supplied with retaining collars 19 fixed thereto in any approved or desirable manner. To limit the opening or load-discharging movement of such companion and cooperating buckets, the outer face of each bracket or arm 13 is equipped with an integral stop-lug 20, co-acting with which is a stop finger 21 of the bracket 12 of the other bucket, such parts contacting, as is indicated in Fig. 1, when the buckets reach their limit of opening movement.

Above the bucket the appliance includes a hollow tubular bucket support 22 having at its upper end a pair of apertured spaced ears 23 and 24, in the registering apertures or holes of which a pin or bolt 25 is fitted to secure to such support an eye or loop 26 adapted for attachment to any suitable form of hoisting and lowering means, not illustrated. Along its sides this tubular support is provided with a pair of longitudinal guiding ribs 27 which coöperate with and prevent the rotation of a supporting collar 28 slidable lengthwise on such tubular support and apertured vertically for the reception of the same and the ribs 27. The lower end of the bucket support 22 is externally screw-threaded at 29 for securing thereto a combined stop and guide 30 apertured at 31 concentric to the axis of support 22 and operating as a stop or abutment to limit the descent of the member 28 on the support, the bottom of such member being recessed at 32 for the accommodation of the upper portion of such member. Extended outwardly and in opposite directions from this member 28 is a pair of alined shafts or rods 33 and 34, the inner threaded ends 35 of which are fitted in correspondingly threaded recesses 36 of member 28. Each of such rods has mounted thereon the upper apertured boss ends of a pair of links 37, 37, the lower ends of which are pivoted at 38 to upstanding ears 39 integral with brackets 12 and 13. For the retention of the ends of these links on the pins or rods 33 and 34 the outer ends of the latter are supplied with collars 40 fixed thereto in any approved manner.

The central portion of the hinge pin 18 has mounted thereon a sleeve 41 between the bosses 15 and 16 of the bucket brackets, and threaded into the top of such sleeve is a plunger 42, the diameter of the greater portion of which is substantially equal to that of the guiding aperture 31, while the cylindrical top end of such plunger 43 is of greater diameter and has a sliding fit in the interior of the support 22. At its extreme upper end this plunger is supplied with an integral eye 44, coöperating with which I provide a latch 45 having a downwardly-extended elongated tail 46 located outside of the hollow support 22, the hook portion of such latch being disposed between the ears 23 and 24 and adapted to engage the eye 44. Such latch 45 is pivotally connected at 47 to a link 48 freely rotatable on a cross-pin 49

supported in the two ears 23 and 24. As is clearly shown the bottom face 50 of this latch is beveled or inclined and the tail or depending portion 46 of the latch has secured thereto an operating cord 51, adapted when conditions require it to detach the latch from the eye or loop 44 to permit discharge of the load. It should also be observed that when the plunger 42, 43 is unlatched the inward swinging of the latch is limited and restricted by its striking against the bottom 52 of the slot between the ears 23 and 24 so as to maintain the beveled portion 50 of the latch in such position that it will be engaged and the latch thrown back by the loop 44 when the support and the latch which it carries are permitted to descend relatively to the plunger.

The operation of this improved mechanism is practically as follows: Assuming that the buckets are in the closed relation shown in Fig. 1 and hold their load, the latter may be readily dropped or discharged by the operator pulling the cord 51, which action releases the latch 45 from the eye or loop 50, thereby freeing the plunger 42, 43 and permitting the same and the hinge connection between the buckets to descend due to their own weight and that of the load, the buckets being supported by the links 37, as will be readily understood, and the opening movement of such buckets being limited by the cooperating stops 20 and 21. In other words, each of the buckets is supported at a point some distance back from its mouth, and the hinge connection between the two buckets, which is in substantially the plane of such mouths, is permitted to descend, allowing the buckets to open to the dotted line position indicated in the figure. When it is desired to have these companion buckets pick or grab up a load of sand or other material, the buckets in their open relation are permitted to rest upon the body of sand or the like. The hoisting and lowering mechanism is then lowered to permit the holder or support 22 carrying the latch 45 to descend, said holder being guided during its descent by the plunger 43 and the member 28. When the holder or support has been lowered sufficiently the latch 45 operatively and automatically engages the loop 44 of the plunger 42, 43, thereby locking the plunger to the support 22. The automatic action of this latch is brought about by gravity acting thereon, the center of gravity of such latch normally being at one side of its support at its top end. As the carrier or support 22 and the latch are lowered the beveled under surface engages the top of the loop 44 and is temporarily pushed back by the latter, the latch swinging forwardly again as soon as it is free to engage the eye or open portion of such loop. The hanging of such latch on the link 48 permits a free and easy

action of the former, whereby its release can be secured with readiness and facility. After the parts have thus become latched or locked together the hoisting device is operated to lift the same, which brings about the elevation of the hinge connection of the buckets, causing the swinging of the latter on the lower ends of the links 37 to their closed position, such buckets grabbing or picking up a load during this closing operation. As will be readily understood, the buckets are maintained and held in this closed relation until the latch is again actuated or withdrawn to cause the discharge or dumping of the load. It should, therefore, be apparent to those skilled in the art that this embodiment of the invention presents a compact and effective means for securing the desired operation of the bucket, and it should furthermore be noted that although one embodiment of the invention has been set forth in detail in this application, the essential characteristics and features of the invention are not limited to this particular exemplification of the same, because the structural features of the device herein described and illustrated may be changed within comparatively wide limits without departure from the heart of the invention, and without the sacrifice of any of its benefits and advantages.

I claim:

1. In a device of the character described, the combination of a pair of pivotally connected bucket members, a bucket support, a bucket actuating device slidably mounted upon the support and associated with the pivotal connection of the bucket members for raising and lowering said pivotal connection, and means carried near the upper end of said support for engaging the upper end of said bucket actuating device and locking the same to the support, substantially as described.
2. In a device of the character described, the combination of a pair of pivotally connected bucket members, a bucket support, a bucket actuating device connected at one end to the pivotal connection of the buckets and arranged to slide upon said support, and a latch member carried by the bucket support in the path of the upward movement of the bucket actuating device and arranged to engage the latter and lock it to the support when said actuating device approaches the upper end of said support, substantially as described.
3. In a device of the character described, the combination of a pair of pivotally connected bucket members, a tubular bucket support, a bucket actuating device connected with each of said bucket members and mounted to slide within said support, means for locking said support and actuating device together whereby the actuating device

will be raised with said support to close the buckets, the sliding connection between the support and actuating device permitting the actuating device to drop longitudinally of the support upon the release of said locking means whereby to permit the buckets to open, substantially as described.

4. In a device of the character described, the combination of a pair of oppositely disposed buckets, a hinge connection between said buckets near the planes of the mouths of such buckets, a bucket support adapted for attachment to a hoisting and lowering means, supporting links pivotally connected to said buckets and slidably connected to said bucket support, a member connected to each of said buckets and mounted to slide longitudinally of said support, and means to detachably interlock said member and said support whereby the buckets may be closed by the raising of said support by said hoisting means when said support is connected to said member, and the buckets may be caused to open when such connection between the support and member is broken, substantially as described.

5. In a device of the character described, the combination of a pair of oppositely-disposed companion open-mouth buckets, a hinge connection between said buckets, a bucket support adapted for attachment to a hoisting and lowering means, means connecting said buckets to said bucket support, means associated with said hinge connection and slidable upon said support, and a detachable connection between said latter means and said support whereby the buckets may be closed by the elevation of said bucket support when said detachable connection is maintained intact and the buckets permitted to open when said detachable connection is broken, substantially as described.

6. In a device of the character described, the combination of a pair of oppositely-disposed companion open-mouth buckets, a hinge connection between said buckets, a bucket support, means connecting said buckets to said support, means associated with said hinge connection and slidable relatively to said support, a pin on said support, a link free to turn on said pin, and a latch pivoted to said link and coöperating with said latter means to maintain a detachable connection therewith, whereby the buckets may be closed by the elevation of said support when said latch connection is intact,

said buckets being permitted to open when said latch connection is broken, substantially as described.

7. In a device of the character described, the combination of a pair of oppositely-disposed companion open-mouth buckets, a hinge connection between said buckets, a hollow bucket support adapted for attachment to a hoisting and lowering means, means connecting said buckets to said support, means on said hinge connection and slidable in said support, and a detachable connection between said latter means and said support whereby the buckets may be closed by elevating said support when said connection is intact and the buckets permitted to open by breaking said connection, substantially as described.

8. In a device of the character described, the combination of a pair of oppositely-disposed companion open-mouth buckets, a hinge connection between said buckets near the planes of their open mouths, a hollow bucket support, links connecting said buckets to said support, means associated with said hinge connection and slidable within said support, and a latch adapted to maintain a detachable connection between said latter means and said support whereby said buckets may be closed by raising said support when said latch connection is intact and the buckets permitted to open when said latch connection is broken, substantially as described.

9. In a device of the character described, the combination of a pair of oppositely disposed open-mouthed buckets, a hinge connection between said buckets, a bucket actuating device connected with said hinge connection, a bucket support for slidable engagement with said bucket actuating device, a collar adapted to slide upon said support, links connecting said collar with said buckets, and means for detachably connecting the actuating device with said support whereby the buckets will be raised from their hinge connection upon raising of the support, and will swing open and be supported from said collar upon release of said detachable connection, substantially as described.

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Witnesses:

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