

March 29, 1949.

E. E. BROSIUS

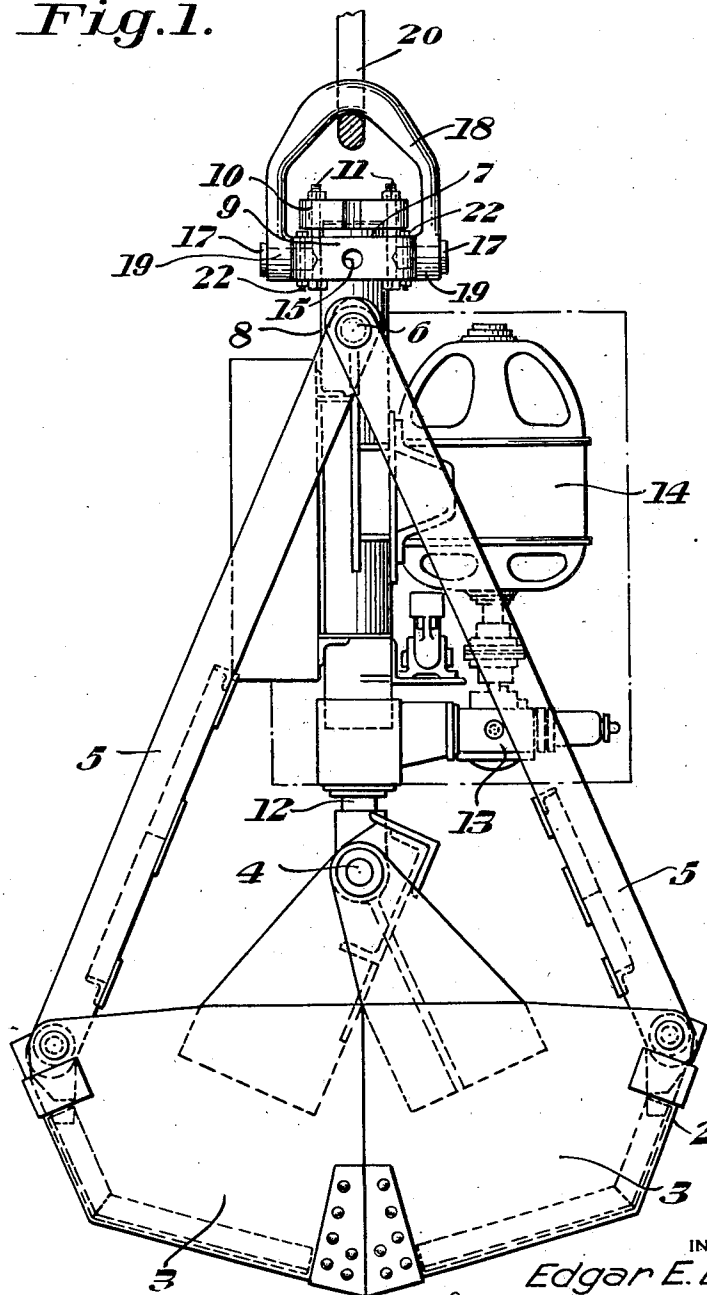
2,465,629

GRAB BUCKET MOUNT

Filed Sept. 14, 1944

2 Sheets-Sheet 1

Fig. 1.



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Fig. 2.

Fig. 3.

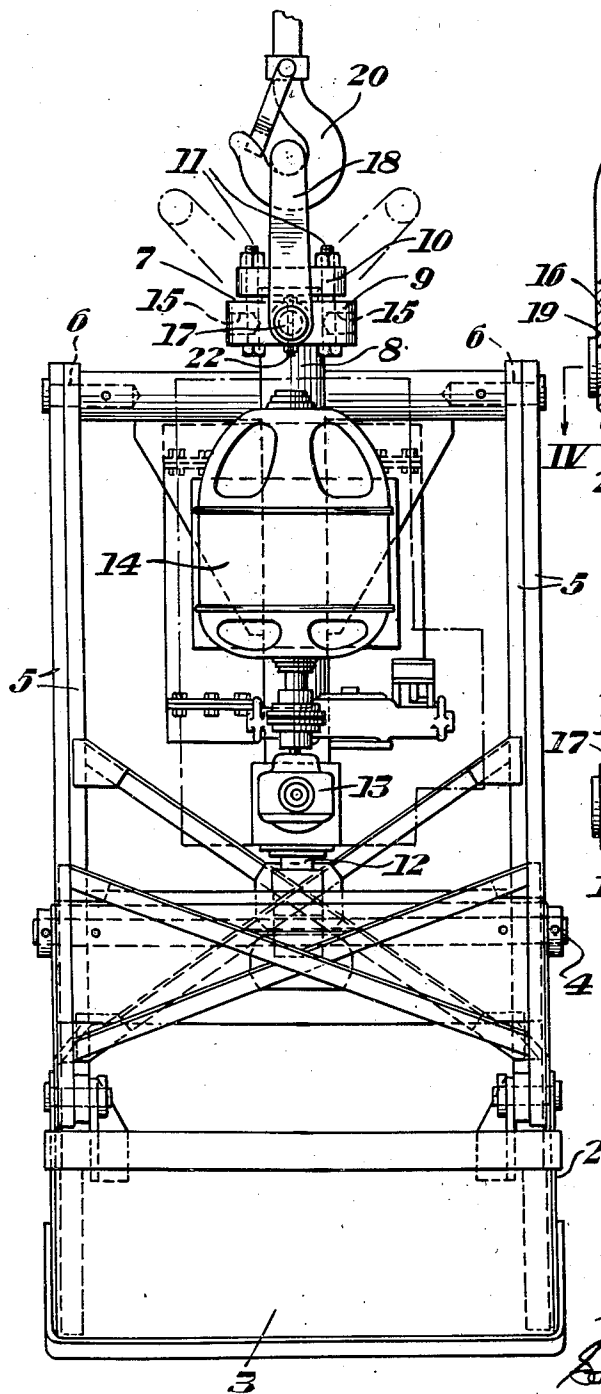
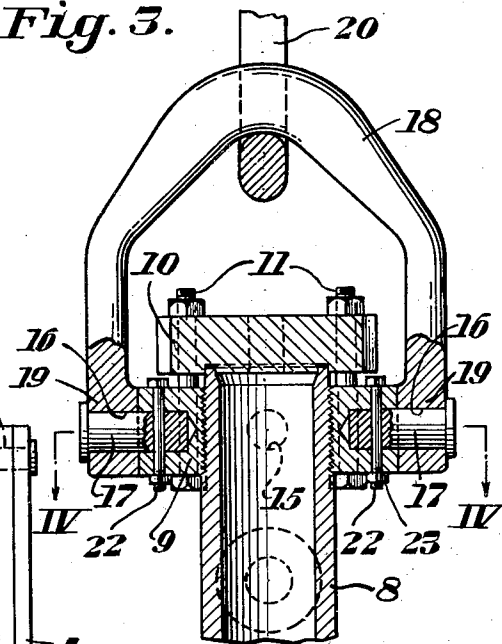
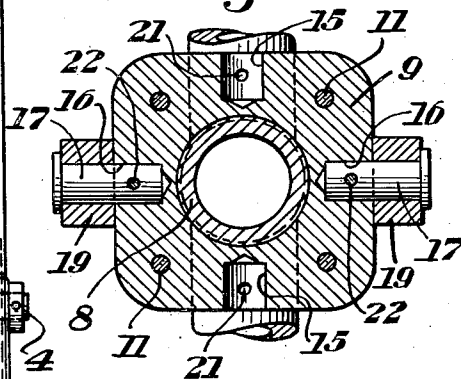


Fig. 4.



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UNITED STATES PATENT OFFICE

2,465,629

GRAB BUCKET MOUNT

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Application September 14, 1944, Serial No. 553,992

3 Claims. (Cl. 37—184)

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This invention relates to grab bucket mounts. It has to do particularly with the mounting of grab buckets so that the orientation of the bucket with relation to the support from which it is suspended may be controllably altered.

Grab buckets are ordinarily suspended, as from an overhead crane or the like, by means of a steel cable reeved through a pulley block carrying a hook which hooks into a bail which carries the bucket. When control by the operator of the orientation of the bucket during its operation is important, as is the case in many uses to which grab buckets are put, the hook carried by the pulley block is fixedly oriented in the block. The orientation of the pulley block in turn is fixed by the cable which is reeved through it and which is wound upon a fixedly oriented overhead drum. Thus the orientation of the bucket is fixed.

There are occasions when it is desirable to controllably change the orientation of the bucket relative to the overhead crane or other support. This may be desirable, for example, when the bucket is required to work in a comparatively narrow space extending transversely of the plane in which the bucket normally operates. I provide for changing the orientation of the bucket relative to the hook or the like from which it is suspended, it being possible by comparatively simple manipulations to dispose the bucket in any of a plurality of differently oriented positions. Ordinarily it is most practicable in operation to have the bucket disposed either generally in a plane coinciding with the plane of the hook or generally in a plane perpendicular to the plane of the hook, and purely for purposes of explanation and illustration I shall describe the invention as embodied in a mount providing for orienting of the bucket to operate in either of two planes at right angles to each other, one of such planes coinciding with the plane of the hook and the other being disposed perpendicular to the plane of the hook.

I provide a grab bucket mount comprising a bucket support, a bail for carrying the support and means for connecting the bail to the support selectively in a plurality of predetermined positions thereabout. In the preferred form of structure shown in the drawings the bail is connectable to the support in each of two positions at right angles to each other. Desirably the bucket support has a plurality of pairs of opposed trunnion receiving means disposed thereabout and trunnions are provided which are adapted to be received by said means of a selected pair, the

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bail having bearings adapted to receive the trunnions whereby to carry the support.

I further provide a grab bucket mount comprising a bucket support, a bail for carrying the support and a plurality of bail connecting devices disposed about the support enabling the bail to be connected to the support in selected positions thereabout. As indicated above, the bucket support is adapted to be suspended upon a hook or the like, and I desirably provide means (a bail in the form shown) connectable with the support and engageable by the hook or the like through which the support is adapted to be suspended, the support having portions with which said means is adapted to be connected arranged to receive said means selectively in a plurality of positions about the support.

I still further provide a grab bucket mount comprising a bucket support adapted to support a bucket generally in a predetermined vertical plane relative to the support, a hook or the like suspended in fixed orientation and means engageable by the hook or the like and selectively connectable with the support to suspend the support from the hook or the like with said plane either substantially coinciding with or generally perpendicular to the plane of the hook or the like.

Other details, objects and advantages of the invention will become apparent as the following description of a present preferred embodiment thereof proceeds.

In the accompanying drawings I have shown a present preferred embodiment of the invention, in which:

Figure 1 is a side elevational view of a grab bucket suspended from overhead;

Figure 2 is a side elevational view of the bucket shown in Figure 1 as seen from the right-hand side of Figure 1;

Figure 3 is an enlarged fragmentary detail view partly in elevation and partly in central vertical cross section showing the bucket mount, and

Figure 4 is a horizontal cross sectional view taken on the line IV—IV of Figure 3.

Referring now more particularly to the drawings, there is shown a grab bucket designated generally by reference numeral 2 and comprising a pair of scoops 3 pivoted together and to an operating member at 4 and carried by links 5 which are pivoted at 6 to a bucket support designated generally by reference numeral 7 and which comprises a vertically arranged cylinder 8 carrying at its upper end a head 9. In the form

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shown the head 9 is threaded onto the upper end of the cylinder. The upper end of the cylinder is closed by a cap 10 retained by bolts 11 passing through the head 9.

The invention is concerned with the mount for the bucket and not with the structure of the bucket itself or the operating mechanism therefor. Consequently the bucket structure and the bucket operating mechanism will not be described in detail, although it may be pointed out that the bucket operates by raising and lowering of the pivot 4 which is carried by an operating member in the form of a rod 12 connected with a piston operating in the cylinder 8. The piston is operated by hydraulic fluid supplied by a pump 13 driven by an electric motor 14.

The head 9 is provided with a plurality of bail connecting devices disposed thereabout. In the form of structure shown in the drawings the bail connecting devices are in the form of bores entering the head at right angles to its vertical axis, the bores being in pairs, those of each pair being opposed and coaxial and their axis passing through the vertical axis of the head. The axes of the two pairs of bores intersect each other at right angles. The bores of one pair are designated 15 and those of the other pair are designated 16. The bores 15 and 16 are adapted to receive trunnions whose outer portions are received by bearings on a bail through which the bucket is supported. There is a pair of trunnions designated by reference numeral 17 which are shown in place in the bores 16. The trunnions may be removed from the bores 16 and inserted into the bores 15. The bail is shown at 18. At the ends of its arms it has bearings 19 receiving the outer portions of the trunnions 17. A hook 20 passes through the bail and through it suspends the bucket support 7 and the bucket 2 carried thereby. The orientation of the hook 20 is fixed and the bail 18 always disposes itself substantially in a plane at right angles to the plane of the hook. The orientation of the bucket relative to the hook is determined by the position in which the bail is attached to the head 9. This position depends on whether the trunnions 17 are disposed within the bores 16 or within the bores 15 in the head. When the trunnions are disposed within the bores 16 the orientation of the bucket is such that its plane of operation is at right angles to the plane of the hook 20. When the trunnions are disposed within the bores 15 the orientation of the bucket is shifted through an angle of 90° relative to the hook so that it then operates in a plane coinciding with the plane of the hook.

I provide in the head 9 four small vertical bores 21, one intersecting each of the trunnion receiving bores 15 and 16. The bores 21 are adapted to receive pins or bolts 22 which also pass through the trunnions 17, the latter being appropriately bored for the purpose. Thus by

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means of the pins or bolts 22 the trunnions are maintained in place in the desired bores 15 or 16 as the case may be. The pins or bolts 22 are held in operative position by nuts 23 threaded thereon as clearly shown in Figure 3.

When it is desired to change the orientation of the bucket relative to the hook 20, this is accomplished by removing from the head 9 the pins or bolts 22, then removing the trunnions 17 from the bores 15 or 16, then inserting the trunnions in the set of bores other than that from which they were removed and then inserting the bolts 22. When the bucket is picked up by the hook 20 its orientation will automatically shift as the bail 18 always assumes a position with its plane substantially at right angles to the plane of the hook 20.

While I have shown and described a present preferred embodiment of the invention, it is to be distinctly understood that the invention is not limited thereto but may be otherwise variously embodied within the scope of the following claims.

I claim:

1. A grab bucket mount comprising a bucket support having a plurality of pairs of opposed trunnion receiving means disposed thereabout, trunnions adapted to be received by said means of a selected pair and a bail having bearings adapted to receive the trunnions and adapted to carry the support.

2. A grab bucket mount comprising a bucket support having a plurality of sets of socket means therein disposed thereabout, trunnion means adapted selectively to enter said sets of socket means, means for fastening the trunnion means in place in a selected set of socket means and means for carrying the support adapted to be mounted on the trunnion means.

3. A grab bucket mount comprising a bucket support having therein and disposed thereabout a plurality of sets of opposed generally horizontal sockets, trunnions adapted to enter the opposed sockets of said sets selectively, pins adapted to enter the trunnions to hold them in place in the sockets of each set and a bail adapted to be mounted on the trunnions in any selected position thereof.

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