Sept. 12, 1967 C. B. BLAIR 3,341,040

LOADER ARM MOUNTING BRACKET

Filed Jan. 3, 1966

Fig. 1.

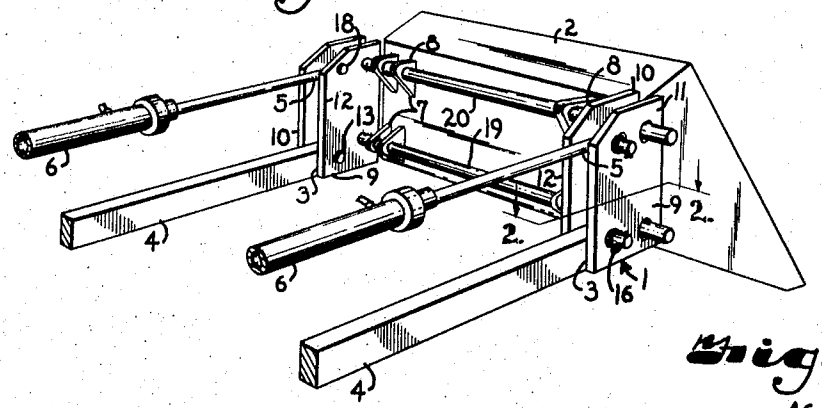


Fig. 6.

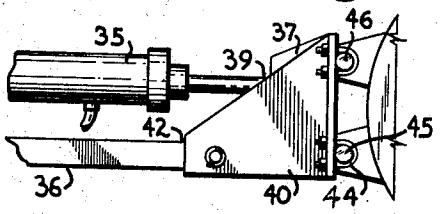


Fig. 2.

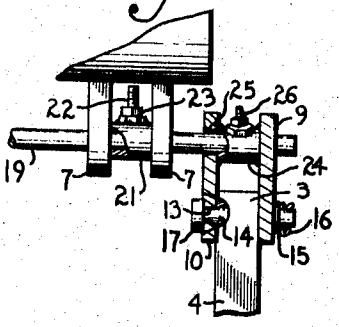


Fig. 3.

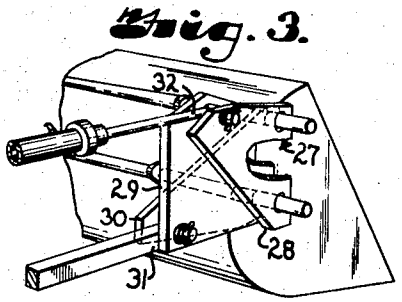


Fig. 5.

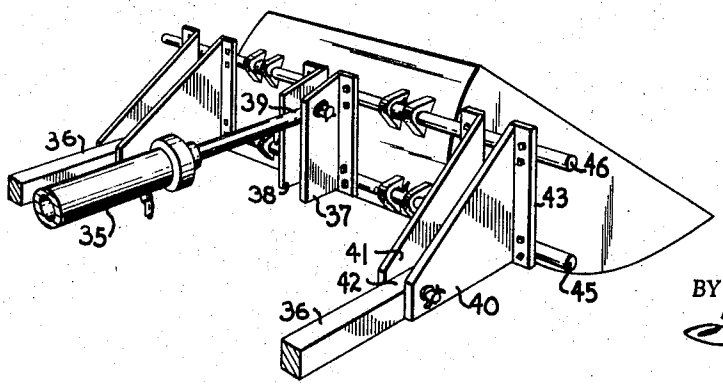
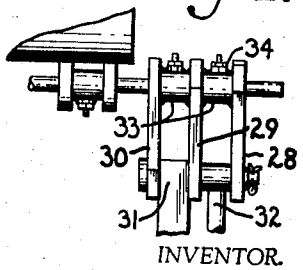


Fig. 4.



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United States Patent Office 3,341,040
Patented Sept. 12, 1967

3,341,040

LOADER ARM MOUNTING BRACKET

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Filed Jan. 3, 1966, Ser. No. 518,323
8 Claims. (Cl. 214—140)

ABSTRACT OF THE DISCLOSURE

A universal loader arm mounting bracket includes upper and lower horizontal rigid rods engaging implement mounting members and plates, the plates being slidable along the rods for adjusting to a width corresponding to a width between loader arms, different from the width between mounting members, the plates being pivotally connected to the loader arms.

This invention relates to remotely operated loader arms for tractors and, more particularly, to a universal type bracket for mouting an implement to the free ends of the loader arms under conditions wherein the implement has arm mounting members which are not designed to connect to the particular loader arms.

The principal objects of the present invention are: to procide a universal type mounting bracket whereby the free ends of loader lifting and tilting arms may be connected to a tool or implement having mounting members of different spacing and/or number than the free ends of the loader arms; to provide such a bracket which is sim- in construction and use and permits implements and loader arms to operate together although they are not designed for each other; and to provide such a mounting bracket which is quickly adapted to permit matching a great variety of different loader arms to implements.

Other objects and advantages of this invention will become apparent from the following description taken in connection with the accompanying drawings wherein are set forth by way of illustration and example certain embodiments of this invention.

FIG. 1 is a fragmentary perspective view showing a mounting bracket embodying this invention used to mount a bucket to loader arms of the type wherein the tilt arms are two in number and located directly above the lift arms but at a different horizontal spacing than the bucket mounting members.

FIG. 2 is a fragmentary cross-sectional view through a portion of the bracket taken on the line 2—2, FIG. 1, showing details of construction.

FIG. 3 is a fragmentary perspective view showing a modified form of bracket used between a bucket and loader wherein the loader tilt arms are spaced slightly outwardly of the lift arms.

FIG. 4 is a fragmentary plan view of the bracket of FIG. 3.

FIG. 5 is a perspective view illustrating another modified form of the bracket, shown used with a tilt arm which is centered between the lift arms.

FIG. 6 is a fragmentary side elevation of the bracket of FIG. 5.

Referring to the drawings in more detail:

The reference numeral 1, FIG. 1, generally indicates a universal type mounting bracket embodying this invention. The bracket 1 is illustrated in use for mounting a tool or implement, in this example, a dump bucket 2, to the free ends of a pair of boom or lift arms 4 and to the free ends 5 of a pair of hydraulically operated tilt arms 6. The lift arm free ends 3 are horizontally spaced apart a predetermined distance as dictated by the design of the remaining loader lift structure (not shown) and the tilt arm free ends 5 are horizontally spaced apart the same

distance and are respectively located directly thereabove in predetermined normal relative positions. The implement or bucket 2 has sets of lift arm mounting ears or members 7 secured thereto in positions horizontally spaced apart a second distance not equal to the distance between the lift arm free ends 3. The bucket 2 also has sets of tilt arm mounting ears or members secured thereto. The members 8 are normally vertically spaced from the mounting members 7 and are spaced apart a distance not equal to the distance between the tilt arm free ends 5.

The bracket 1, in this example, comprises a pair of aligned horizontally spaced apart vertical plate members 9 and 10 for each of the lift arm ends 3. The plate members 9 and 10 of each pair have forward vertically extending mounting portions generally designated 11 and rear vertically extending mounting portions generally designated 12. The plate members 9 and 10 of each pair are spaced apart to receive the respective lift arm end 3 therebetween at the rear mounting portions 12. Suitable aligned transverse bores 13 extend through the lower part of the rear mounting portions 12 and receive a headed mounting pin 14 therethrough and through the respective free end 3 for vertically pivotally mounting same between the respective pairs of plate members 9 and 10. The mounting pins 14, in this example, are secured in position by a washer 15 and cotter pin 16 on the end opposed from the pin head 17. The tilt arm free ends 5 are received between the respective pairs of plates 9 and 10 and pivotally secured thereto by pins 18 to the rear mounting portions 12 in the same manner as the lift arm ends 3, but spaced thereabove the normal vertical distance between the lift and tilt arm ends 3 and 5.

Lower and upper normally vertically spaced apart rigid parallel bars or rods 19 and 20 are adapted for engagement respectively with the bucket mounting members 7 and 8 by slidably extending transversely therethrough. The rods 19 and 20 are prevented from further movement axially through the mounting members 7 and 8 after an initial insertion and adjustment by sleeves 21. The sleeves 21 are trapped between the pairs of ears forming the respective sets of mounting members and receive the respective rods therethrough. The sleeves 21 have set screws 22 threadedly engage therewith for bearing against the rod after the desired relative position is obtained. A lock nut 23 may be used to prevent the set screw from accidentally loosening during use of the implement.

Sleeves 24 similar to the sleeves 21 are secured by welding between the respective plates 9 and 10 in vertically displaced positions at the forward mounting portion 11. The vertical displacement of the sleeves 24 equals the vertical distance between respective mounting members 7 and 8 on the bucket. Thus, the sleeves 24 act as spacers for maintaining the respective pairs of plates 9 and 10 in the desired parallel spaced apart relation. Suitable bores 25 extend transversely through the plate members 9 and 10 at the forward mounting portions 11 and align with the interiors of the respective sleeves 24 whereby the rods 19 and 20 may respectively slide transversely through the pairs of plates 9 and 10 and sleeves 24 while supported in vertical spaced apart parallel relation by the bucket mounting members 7 and 8. The sleeves 24 are provided with set screws 26 in the same manner as the sleeves 21 whereby the plates 9 and 10 of each pair may be locked to the respective rods in positions whereby the distance between the pairs of plates coincides with the distance between the lift arm free ends 3 and tilt arm free ends 5.

Thus, the lift arms 4 and tilt arms 6, through the bracket 1, may be used to mount and manipulate the bucket 2 in the same manner as if the spacing between the arm free ends permitted the direct connection to the

bucket mounting members **7** and **8**. By providing the pairs of plates **9** and **10** joined by the sleeves **24** together with the rods **19** and **20** ready for assembly with the respective pairs of plates, the bracket user may easily drill the transverse bores **13** in the field and laterally adjust the pairs of plates **9** and **10** on the rods **19** and **20** in the field whereupon the bucket, or other implement, may be conveniently mounted to a great variety of loaders of the type wherein the tilt arms are located directly above or below the lift arms but vary in vertical and/or horizontal spacing with the respective arms.

Certain types of loader arms have the tilt arm spaced slightly inwardly or outwardly of the lift arm as well as vertically. Referring to FIGS. 3 and 4, a modified form of universal bracket embodying this invention is illustrated and designated **27**. The bracket **27** differs from the bracket **1** described above in that three parallel spaced apart plates **28**, **29** and **30** are provided on each side of the implement and the lift arm free ends **31** are pivotally mounted between two of the three plates while the tilt arm free ends **32** are mounted between the other two of the three plates. The center plate **29**, therefore, becomes a common mounting member for the respective associated lift and tilt arm ends. It is to be understood that the external shapes of the respective plates may vary to eliminate excess material or provide extra clearance as long as the resulting shapes provide the needed strength. The plates **28**, **29** and **30**, in this example, are maintained in proper relationship to each other with aligned sleeves **33** corresponding to the sleeves **24** and welded between the plates although only a single set screw **34** is needed per set of sleeves **33**.

Other types of loader arms use only a single tilt cylinder arm **35** located between a pair of horizontally spaced apart lift arms **36**, as shown in FIGS. 5 and 6. To accommodate this loader arm relationship, a modified form of universal bracket embodying this invention is provided wherein a pair of central plates **37** and **38** receive and pivotally engage the tilt arm free end **39** and respective pairs of plates **40** and **41** engage the lift arm free ends **42** in the manner noted above. An additional modification of this invention is illustrated in FIGS. 5 and 6 wherein the respective plates each have outwardly directed flanges **43** adapted to receive U-bolts **44** for adjustably engaging the parallel rods **45** and **46**. This arrangement eliminates the need for structure corresponding to the sleeves and set screws and permits more universal adaptation in that the distance between the individual plates are easily adjusted. Further, the vertical distance between U-bolts on a flange **43** may be changed by drilling new sets of U-bolt receiving holes in the flanges.

It is to be understood that the respective holes required for mounting an implement to loader arms may be drilled at the factory, at the implement dealer or in the field. In any case, the flexibility permitted allows great convenience and savings to operators and dealers by permitting the mating of implements and loader arms which were not designed for each other.

Although certain forms of this invention have been illustrated and described, it is not to be limited thereto except insofar as such limitations are included in the following claims.

What I claim and desire to secure by Letters Patent is:

1. A universal bracket for pivotally mounting an implement to the free ends of a pair of lift arms and to the free end of at least one tilt arm, said lift arm free ends being horizontally spaced apart a first distance, said tilt arm free end being at least vertically displaced from said lift arm free ends, said implement having lift arm mounting members secured thereto in positions horizontally spaced apart a second distance, said implement having at least one tilt arm mounting member secured thereto in a position at least vertically displaced from said lift arm mounting members, said bracket comprising:

(a) lower and upper horizontal normally vertically spaced apart rigid rods adapted for engagement respectively with said implement lift arm and tilt arm mounting members, said lift arm rod having a length at least equal to said first distance,

(b) a pair of securing members engaging said rods and movable therealong to produce a distance between said securing members equal to said first distance, said securing members being respectively adapted for pivotal engagement with said respective lift arm free ends, and

(c) means for pivotally engaging said tilt arm free end to one of said rods whereby said implement is mounted on said arm ends for operation.

2. The bracket as set forth in claim **1** wherein:

said securing members each comprise a pair of horizontally spaced apart vertical plates extending transversely of said rods and having forward mounting portions and rear mounting portions,

said forward mounting portions being engaged with both of said rods, and

said lift arm free ends are respectively receivable between and pivotally securable to said pairs of plates at said rear mounting portions.

3. The bracket as set forth in claim **2** wherein said tilt arm free ends are two in number and positioned directly vertically with respect to said lift arm ends and:

said means for pivotally engaging said tilt arm free ends comprise said pairs of plates at said rear mounting portions.

4. The bracket as set forth in claim **2** wherein:

rigid sleeves are positioned between and secured transversely to said respective pairs of plates, said sleeves and plates respectively being adapted for slidably receiving said rods therethrough.

5. The bracket as set forth in claim **2** wherein:

said plate forward mounting portions comprise a flange extending transversely of said plates, and

U-bolts extending through said flange and around said respective rods.

6. The bracket as set forth in claim **2** wherein said tilt arm ends are one in number and positioned between said lift arm ends, and

said means for pivotally engaging said tilt arm end comprises a third pair of vertical spaced apart plates engaging said rods between said first named pairs of plates.

7. The bracket as set forth in claim **4** wherein:

set screws are threadedly engaged with said sleeves for locking said pairs of plates in adjusted position on said rods.

8. A universal bracket for pivotally mounting an implement to the free ends of a pair of lift arms and to the free ends of a pair of tilt arms, said lift arm free ends being horizontally spaced apart a first distance, said tilt arm free ends being positioned horizontally, laterally and vertically with respect to said lift arm free ends, said implement having lift arm mounting members secured thereto in positions horizontally spaced apart a second distance, said implement having tilt arm mounting members secured thereto in positions at least vertically displaced from said lift arm mounting members, said bracket comprising:

(a) lower and upper horizontal normally vertically spaced apart rigid rods adapted for engagement respectively with said implement lift arm and tilt arm mounting members,

(b) a pair of securing members engaging said rods and movable therealong to produce a distance between said securing members equal to said first distance, said securing members each comprising three horizontally spaced apart vertical plates having for-

ward mounting portions and rear mounting portions, said forward mounting portions being engaged with said rods, said lift arm free ends being respectively receivable between and pivotally securable to two of said three plates of each securing member at said rear mounting portions and

(c) said tilt arm free ends being respectively receivable between and pivotally securable to the third plate and one of said two plates of each securing member at said rear mounting portions, whereby

said implement is mounted on said arm ends for operation.

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