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J. SVOBODA

3,353,699

SUPPORT FOR LOADER LIFT ARM

Filed July 11, 1966

2 Sheets-Sheet 1

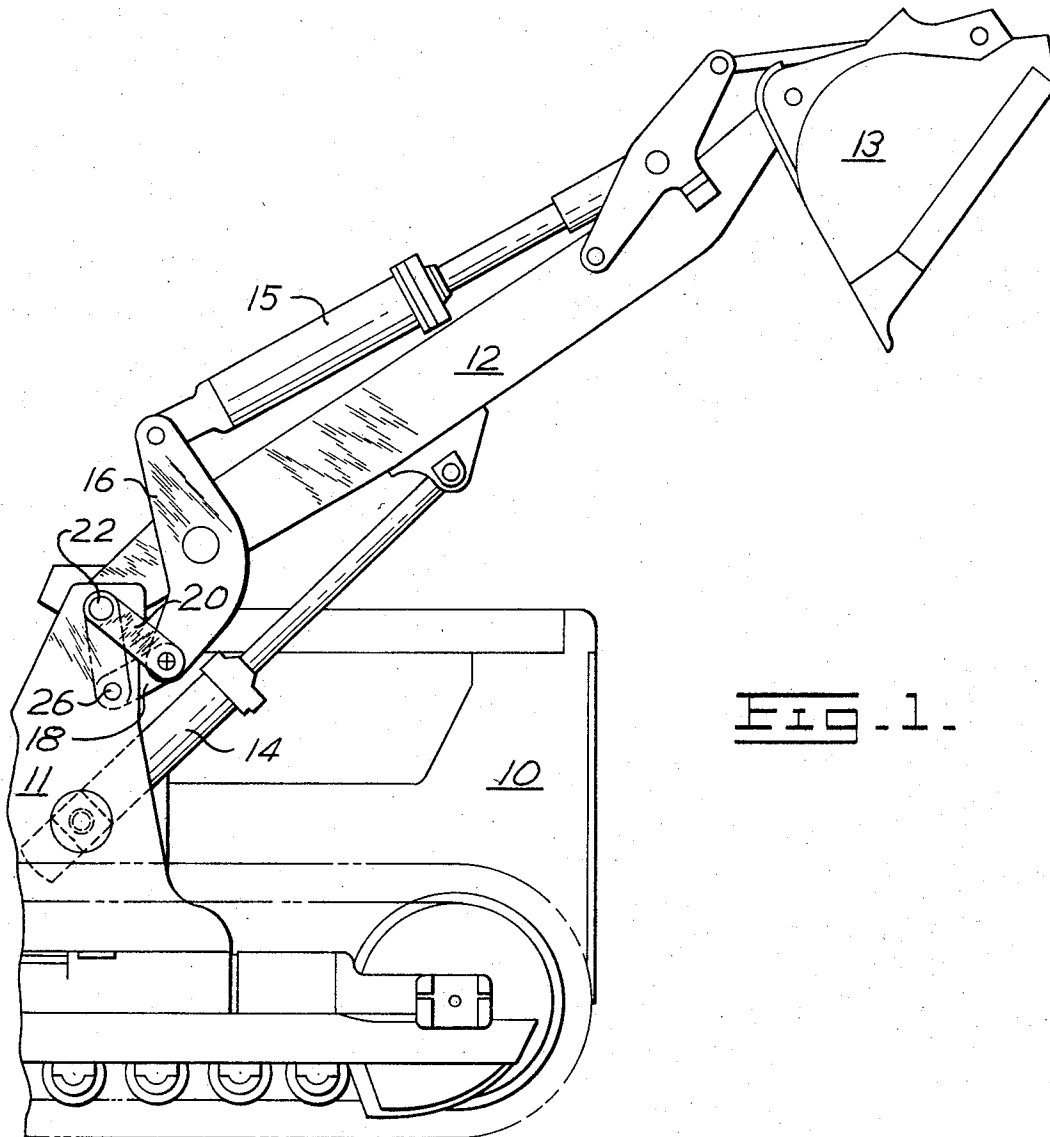


FIG. 1.

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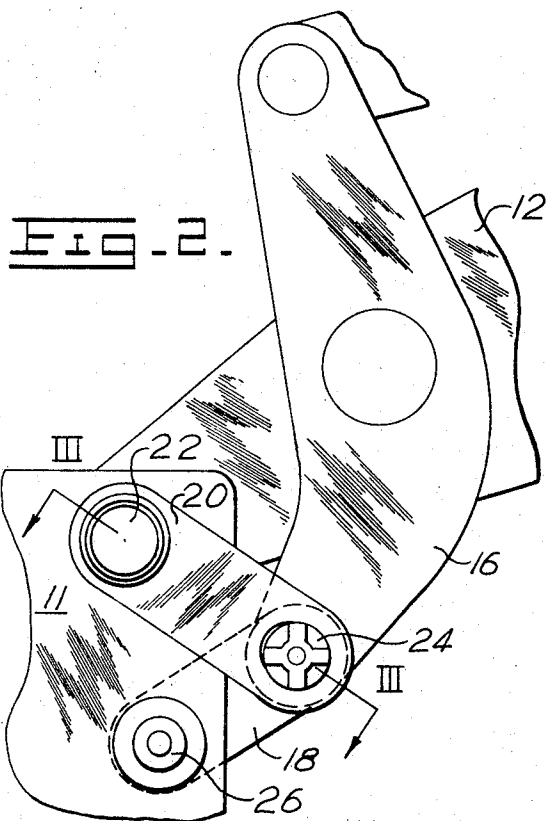
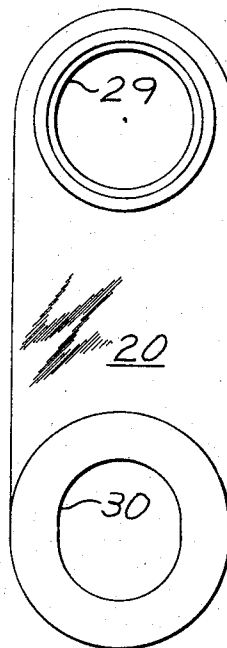


FIG. 4.

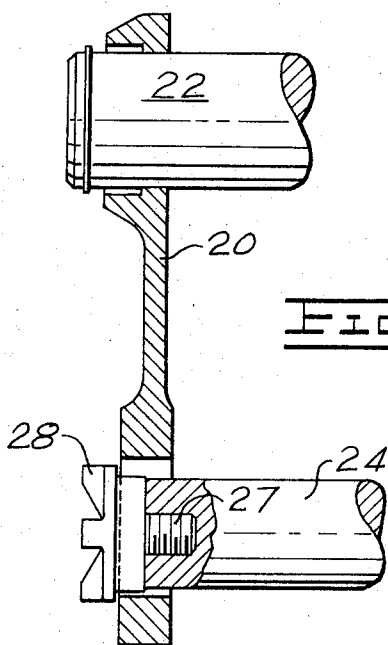


FIG. 3.

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1

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SUPPORT FOR LOADER LIFT ARM

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Filed July 11, 1966, Ser. No. 564,055
4 Claims. (Cl. 214-776)

This invention relates to tractor mounted loaders of the type in which a materials handling bucket is supported on lift arms pivoted to a tractor for movement of the bucket between a lowered or loading position and a raised or carry position and pertains more particularly to latch means for securing the lift arms in the raised position.

There are occasions when it becomes necessary to raise the lift arms of a loader to enable men to work on repairs or replacements at the forward end of the loader tractor. Since the men so working are endangered by the mass of the arms suspended above them, it has been customary to latch or lock the arms in their raised position so that they are not sustained only by hydraulic circuits, failure of which could permit them to fall. Various devices have been provided to hold loader lift arms in their raised position and one such device which has proven effective is disclosed in my assignee's co-pending application of Borer and Ream for Loader Lift Arm Latch, Ser. No. 561,533, filed June 29, 1966. The device of the present invention differs from that of the said co-pending application partially because of slight differences between different models and sizes of loaders and also because the loader disclosed herein is of large size and capacity in which the stresses to which the support is subjected are considerably greater than those met by the device disclosed in the co-pending application.

An object of the present invention is to provide an improved support means for lift arms of a loader which is easily applied and does not impose high stresses on the components. Further and more specific objects and advantages of the invention are made apparent in the following specification where the invention is described in detail by reference to the accompanying drawings.

In the drawings:

FIG. 1 is a view in side elevation of a loader showing the forward portion only of the tractor upon which it is mounted and showing the support of the present invention;

FIG. 2 is an enlarged fragmentary detail of the support;

FIG. 3 is a fragmentary detail of the support taken on line III-III of FIG. 2; and

FIG. 4 is a view in elevation of the principal component of the support.

In FIG. 1 of the drawing, a tractor shown at 10 is illustrated as provided with loader frames, one of which is shown at 11. The loader frames are disposed on opposite sides of the tractor and each pivotably supports a lift arm 12, at the outer end of which is pivoted a bucket 13. The lift arms and bucket are raised and lowered by a lift jack 14 in a conventional manner and tilt linkage, including a tilt jack 15, is provided for varying the attitude of the bucket about its pivotal connection with the lift arms. This mechanism is conventional and well known so that it need not be described in further detail except that an understanding of the present invention depends upon the operation of a lever 16 which forms a part of the tilt linkage. This lever acts as an anchor for the jack 15 so that extension and retraction of the jack is operable to vary the position of the bucket 13 from the dump position shown to a carry position and also to a load position. The lower ends of the lever 16 are connected

2

as by links 18 with the loader frame 11. Thus, upon raising and lowering of the lift arms 12, the position of the lever 16 is varied with respect to the lift arms and the bucket is held in one position, which is generally the carry position, as it is raised from the ground to the upper position without the necessity of actuating the tilt jack 15. This mechanism, generally referred to as automatic bucket position control, causes lever 16 to rotate in a counterclockwise direction as lift arms 12 are lowered.

The support of the present invention prevents counterclockwise rotation of lever 16 and thus prevents lowering of lift arms 12. The support comprises, as shown in the drawing, a link 20 pivotally connected to the pin 22 which is also the pivotable connection for the lift arms 12. The length of this pin has been increased slightly to accommodate the link. At its opposite end the link 20 may be connected to the pivot pin 24 between the link 18 and lever 16 where it serves as a support because it prevents the lever 16 from rotating in a counterclockwise direction which is necessary to permit the lift arms 12 to be lowered. When the link 20 is not in use in this manner, its opposite end will be connected to the pivot pin 26 which provides the pivotable connection between the link 18 and the support 11. This, of course, is simply a stored position in which the link 20 performs no function.

To hold the link in either position, a stud 27, best shown in FIG. 3, as provided with a winged head 28 is threadable into a threaded socket provided in the pin 24 as well as in the pin 26. The pin 22 is, as best shown in FIG. 3, sufficiently long to permit outward movement of the link 20 to free it from either of the pins 24 or 26 to enable it to be swung toward the other. As shown in FIG. 4, the link 20 has a circular opening 29 which embraces the pin 22 and at its lower end it has an elongated opening 30 which enables it to embrace the pin 24 without the necessity of precisely locating the lift arm 12 and lever 16.

One advantage of the support of the present invention is that the forces resulting from the tendency of the lift arms to move downwardly are transmitted to it as tensile stresses rather than as column stresses, thus enabling it to withstand the greater forces encountered in large machines.

I claim:

1. In a tractor mounted loader which comprises lift arms supporting a loader bucket, a first pivot between a lift arm and the tractor, bucket tilt linkage which includes a lever pivoted to the lift arm and movable relative to the lift arm upon raising and lowering thereof, a link, a second pivot between said link and said lever, a third pivot between said link and the tractor, and a lift arm support link connectable between the first and second pivots.

2. The combination of claim 1 in which the support link is alternately connectable between the first and third pivots for storage when it is not in use.

3. The combination of claim 2 in which the second and third pivots are provided with tapped holes, and a threaded stud fitting either hole for holding the support link in place at either pivot.

4. The combination of claim 2 in which the support link has an opening adjacent each end for embracing the pivots and in which at least one of said openings is elongate in the directing of the length of the link to facilitate fitting it over the pivots.

No references cited.

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