

Dec. 26, 1967

H. W. BORER ETAL

3,360,146

LOADER LIFT ARM LATCH

Filed June 29, 1966

2 Sheets-Sheet 1

FIG. 1.

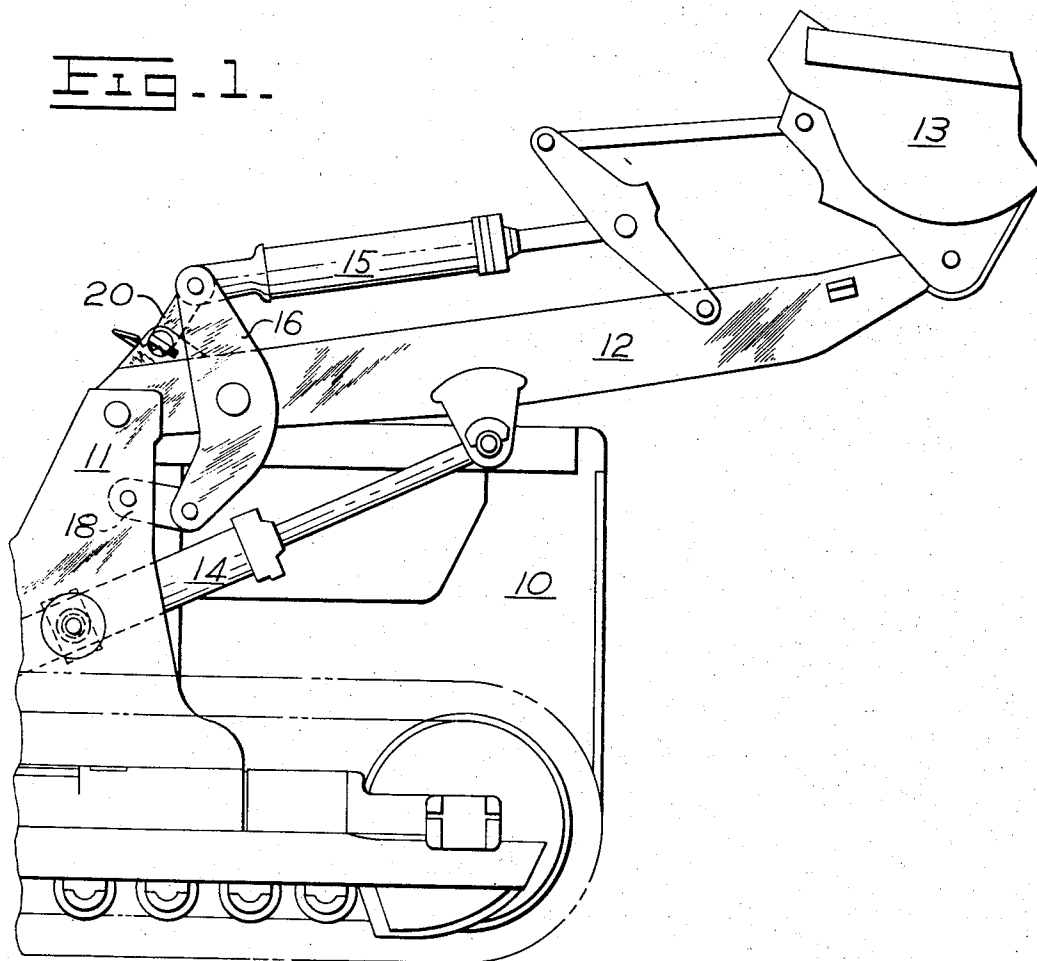
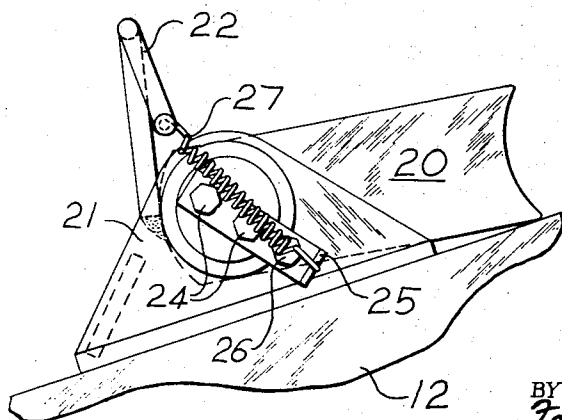


FIG. 3.



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FIG. 2.

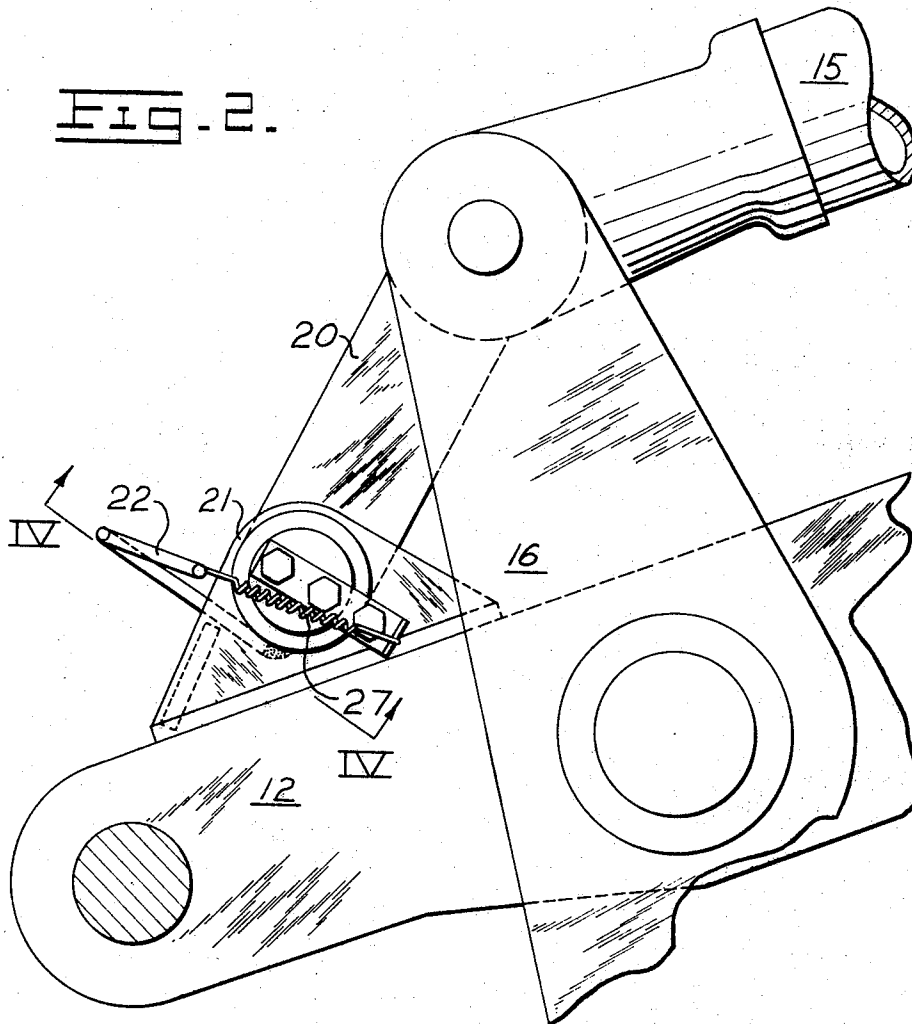
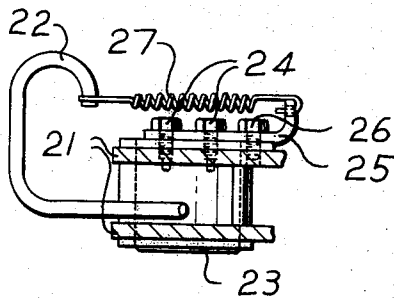


FIG. 4.



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LOADER LIFT ARM LATCH

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3 Claims. (Cl. 214-776)

ABSTRACT OF THE DISCLOSURE

Latch means which acts between the lift arm and tilt mechanism of a bucket loader for use as a safety device to prevent lowering of the lift arms under circumstances where such lowering is dangerous to persons or property.

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.

An object of the present invention is to provide an improved latch mechanism for lift arms of a loader which is readily and manually adjustable from the tractor operator's station. 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;

FIG. 2 is an enlarged fragmentary detail showing the latch means of the present invention;

FIG. 3 is a fragmentary detail illustrating the latch means of FIG. 2 in a different position;

FIG. 4 is a sectional view taken on the line IV-IV of FIG. 2.

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 carry position shown to a dump position and also to a load position. The lower ends of the lever 16 are connected as by links 18 with the loader frame 11. Thus, upon raising

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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, such as the carry position shown, 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 latch mechanism of the present invention prevents counterclockwise rotation of lever 16 and thus prevents lowering of lift arms 12. The invention comprises a strut 20, best shown in FIGS. 2 and 3, which is pivoted between brackets 21 on the lift arms to move between the latching position illustrated in FIG. 2 and a stored position illustrated in FIG. 3. This strut has a curved or recessed outer end which receives the pivotable connection between the jack 15 and lever 16 and prevents movement of the lever in a counterclockwise direction. A handle 22 (see also FIG. 4) is secured as by welding to the strut and the strut is rotatable about a pin 23 which extends between the brackets 21 and is secured in place by two cap screws 24 which extend through a spring anchor 25 and a third cap screw 26 which extends into one of the brackets 21. A spring 27 extends between a part of the handle 22 and the spring anchor 25 in a manner to assume an over-center position shown in FIG. 2 for holding the strut 20 in its latching position and in an opposite over-center position shown in FIG. 3 for holding the strut 20 in its stored position.

The latching mechanism is disposed just forwardly of the tractor's station and can be manually adjusted by the operator with ease. To latch the lift arms in their raised position, they are raised by actuation of jacks 14 to a point slightly above that shown, the strut 20 is then swung from its stored to its latching position, and the lift arms are then gently lowered until movement of the lever 16 is interrupted by the strut.

We claim:

1. In a tractor mounted loader which comprises lift arms supporting a loader bucket, and bucket tilt linkage which includes a lever operatively connected to the bucket and pivoted to a lift arm and movable relative to the lift arm upon raising and lowering thereof to maintain the bucket in a desired position relative to the ground, latch means comprising a strut pivoted to swing to and away from a position blocking relative movement between the lever and lift arm to prevent lowering of the lift arm.

2. The invention of claim 1 in which the strut is disposed adjacent the inner end of the lift arm and within reach of the operator of the tractor.

3. The invention of claim 2 in which the strut is pivoted to swing between a stored position and a latching position, a handle for swinging the strut and spring means biasing the strut toward either position.

References Cited

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HUGO O. SCHULZ, Primary Examiner.