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LOG EJECTOR FOR MOBILE LOADERS

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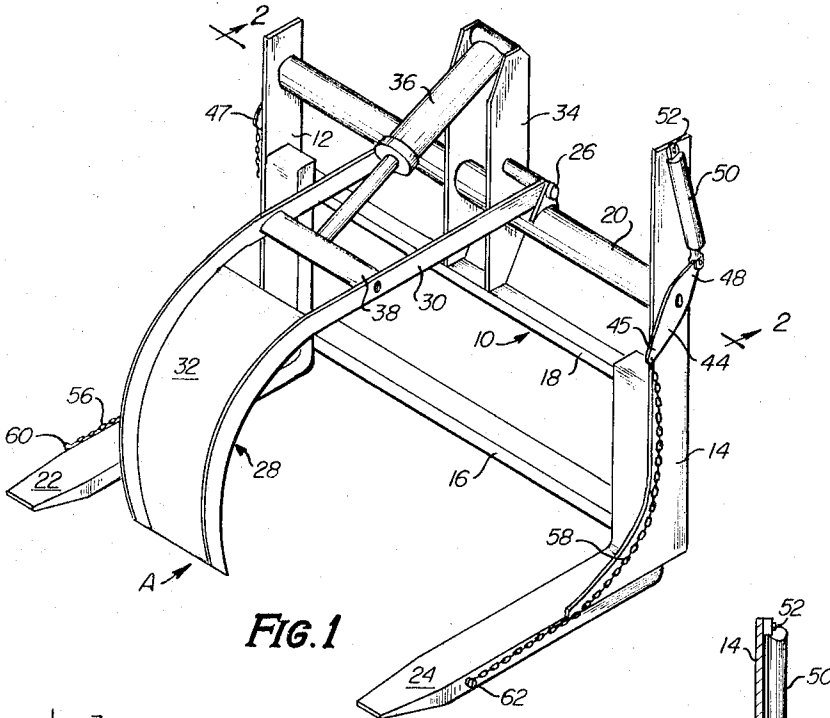


Fig. 1

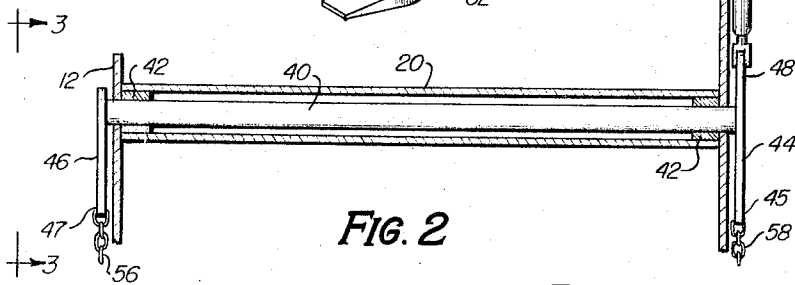


Fig. 2

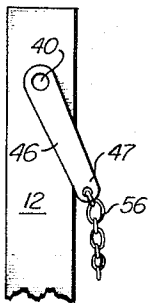


Fig. 3

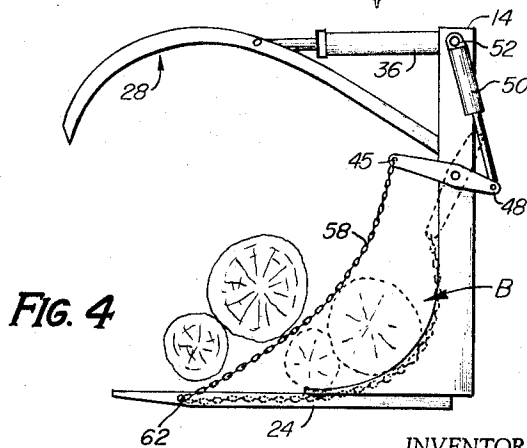


Fig. 4

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3 Claims. (Cl. 294-67)

This invention relates to a material handling carriage for mobile loaders, and particularly, to log ejecting apparatus for use thereon adapted for handling large logs, loose bundles of small logs, cord, or similar elongated articles.

The general object of this invention is to provide improved log ejecting apparatus for material handling carriages. Other objects of the invention are: to provide log ejecting apparatus for a mobile loader carriage having means for unloading elongated articles therefrom without requiring tipping of the lift fork members of the carriage; and in general to provide apparatus of this type which is highly versatile and dependable in operation, simple and inexpensive to construct, and rugged and long wearing in service. With this invention it is possible to elevate the boom of a loader to its maximum height without providing clearance at the top for tilting the lift fork members to cause the articles to roll therefrom by gravity.

These and other objects and advantages of the invention will become more fully apparent from a consideration of the following detailed description taken in conjunction with the accompanying drawing wherein an embodiment of the invention is shown by way of illustration and not by way of limitation.

In the drawing:

FIG. 1 is a perspective view of a material handling carriage equipped with the present invention;

FIG. 2 is a fragmentary view, partially in section, taken on the line 2-2 of FIG. 1;

FIG. 3 is an enlarged fragmentary view taken on the line 3-3 of FIG. 2; and

FIG. 4 is a side view of the carriage illustrating the present invention in two positions, the dotted lines indicating the log ejector in a position of repose below and to the rear of the fork members and the solid lines indicating the log ejector in a position above and forward of its position of repose whereby to sweep a load from the fork members.

Generally stated, there is provided according to the principles of the invention, a material handling carriage of the type including a frame and a pair of forwardly extending lift fork members carried by the frame. Preferably the carriage is also equipped with a hold down clamp that is pivotally mounted on the frame above the lift fork members and coacts therewith to clampingly engage articles therebetween. In order to eject the articles from the lift fork members (after the hold down clamp is raised) without requiring that the carriage be tilted about its connection with the boom, I provide a log ejecting apparatus characterized by a pair of chain members that extend from adjacent the forward end of the forks rearwardly and upwardly to pivotal levers mounted on the frame above the forks. A hydraulic cylinder actuates the levers, which are connected together by a transversely extending rock shaft carried by the frame, to take up the slack in the chain members and sweep the entire load from the forward end of the forks. When the load is being carried, the levers are pivoted to position the chain members beneath and to the rear of the forks.

Turning now to the drawing, reference character A indicates a material handling carriage of the conventional type having an upstanding rear frame 10 made up of vertical side members 12, 14 which are connected by transversely extending cross members 16, 18 and 20. The top cross member 20 is preferably hollow while the bot-

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tom member 16 and the intermediate member 18 may be of solid sections.

Carried by intermediate member 18 and bottom member 16 are a pair of forwardly extending lift fork members 22, 24. Bracket structure 26 on member 20 provides pivotal support for a forwardly and downwardly extending hold down clamp 28 which may include a straight rear section 30 and a forwardly and downwardly curved forward section 32. Upstanding bracket 34 carried by members 18 and 20 intermediate their ends provides support for the pivotal mounting of a power cylinder 36 which is connected to a cross member 38 between sections 30 and 32 of hold down clamp 28 to provide means for raising and lowering clamp 28 into and out of a load engaging relationship with the lift fork members 22, 24.

To accomplish the power ejection of articles from the cradle (indicated by the reference character B) formed by the aforementioned lift fork members 22, 24 and the structural elements of frame 10, I provide a rock shaft 40 which extends through cross member 20 and is pivotally mounted by bearing members 42 at each end of cross member 20. At one end of rock shaft 40 slightly outwardly of side member 14 a lever member 44 is secured thereto intermediate its ends. At the opposite end of rock shaft 40 slightly outwardly of side member 12 a crank member 46 is secured thereto. Both lever member 44 and crank member 46 extend normal to rock shaft 40 in a plane parallel to each other so that upon the rotation of rock shaft 40 the forward end 45 of lever member 44 and the end 47 of crank member 46 will move in the same arc upwardly and forwardly of frame 10. The rear end 48 of lever member 44 is pivotally connected to a hydraulic power cylinder 50 which is supported at its upper end by a bracket 52 mounted on side member 14.

Further provided are a pair of load ejecting chain members 56, 58 which are mounted at their forward ends to pins 60, 62 carried adjacent the forward ends of lift fork members 22, 24, respectively. The rear ends of chain members 56, 58 are supported by the end 47 of crank member 46 and the forward end 45 of lever member 44, respectively. Chain members 56, 58 are generally identical and are of such length that when the power cylinder 50 is retracted, they are normally suspended between their ends below and to the rear of the cradle B formed by the lift fork members and the frame. When the power cylinder 50 is extended, lever member 44 rotates with rock shaft 40 to swing its forward end 45 and by virtue of its rigid connection with rock shaft 40, the end 47 of crank member 46 into the plane of cradle B thus bringing the chain members 56, 58 into engagement with the load to sweep the load from the lift fork members.

Power cylinder 50 is in a hydraulic circuit and under the control of any suitable operator controlled valve mechanism (not shown) which in known manner permits the introduction of pressure fluid to one of the ends of the cylinder while exhausting from the other end. Thus through the action of cylinder 50 the chain members 56, 58 may be moved from a position of repose below and to the rear of cradle B to a load ejecting position within the plane of cradle B and returned to their original position of repose.

I desire it to be understood that this invention is not to be limited to any particular form or arrangement of parts except insofar as such limitations are included in the claims.

I claim:

1. In a material handling carriage for mobile loaders including a frame and a pair of forwardly extending lift fork members carried by said frame, said lift fork mem-

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bers and said frame defining a cradle in which articles may be positioned, the combination of:

a pair of chain mounting means rotatably carried by said frame, one above the rearward end of each of said lift fork members,

a load ejecting chain member carried between the forward end of each lift fork member and said chain mounting means,

each of said chain members having a length such that it is normally suspended between its ends below and to the rear of the cradle defined by said fork members and said frame, and

power means operable to rotate said chain mounting means forwardly and upwardly whereby to swing said chain members above and forwardly of the cradle defined by said fork members and said frame to sweep an entire load from said fork members.

2. In a material handling carriage for mobile loaders including a frame and a pair of forwardly extending lift fork members carried by said frame, said lift fork members and said frame defining a cradle in which articles may be positioned, the combination of:

a pair of lever means pivotally mounted on said frame, one above the rearward end of each of said lift fork members,

a load ejecting chain member carried between the forward end of each lift fork member and said lever means,

each of said chain members having a length such that it is normally suspended between its ends below and to the rear of the cradle defined by said fork members and said frame, and

power means engageable with said lever means operable to pivot the same forwardly and upwardly and swing said chain members from the aforementioned suspended position to a position above and forwardly of the cradle defined by said fork members and said

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frame whereby to sweep an entire load from said fork members.

3. In a material handling carriage for mobile loaders including a frame and a pair of forwardly extending lift fork members carried by said frame, said lift fork members and said frame defining a cradle in which articles may be positioned, the combination of:

a rock shaft extending transversely of said frame above the rearward end of said lift fork members and mounted for pivotal movement about its axis,

a lever pivotally mounted intermediate its ends on each end of said rock shaft,

a load ejecting chain member carried between the forward end of each of said levers and the forward end of each lift fork member,

each of said chain members having a length such that it is normally suspended between its ends below and to the rear of the cradle defined by said lift fork members and said frame, and

power means connected between said frame and the rearward end of one of said levers operable to rotate said levers forwardly and upwardly to swing said chain members from their normally suspended position to a position above and forwardly of the cradle defined by said fork members and said frame whereby to sweep an entire load from said fork member.

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