

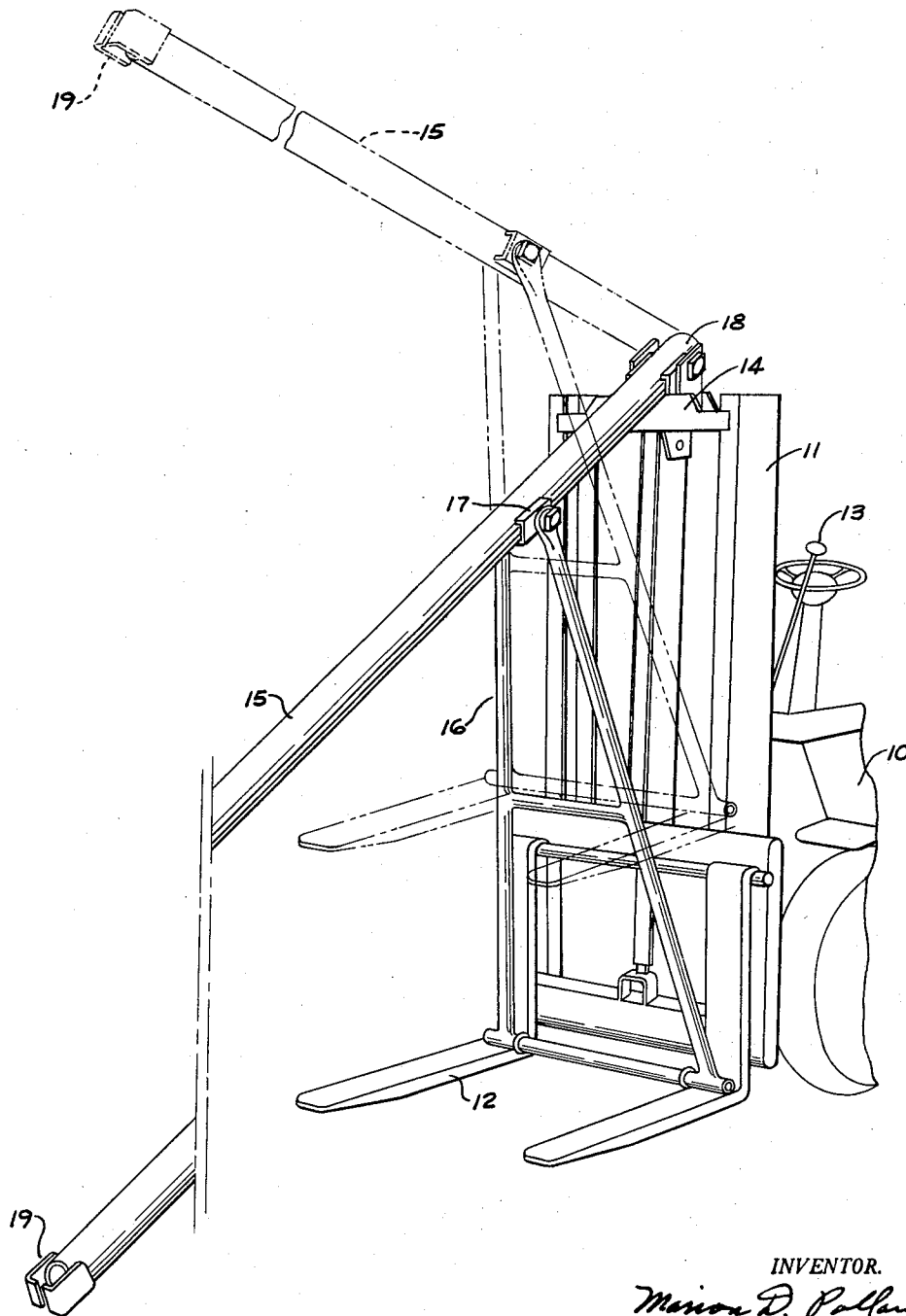
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TRUCK BOOM

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TRUCK BOOM

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The present invention relates to the art of attachable booms for lift trucks or the like and more in particular to a lift boom which may be easily attached to and used in combination with a lift truck.

In the past various types of booms have been designed for use in combination with lift trucks. Generally a lift truck has an upright and a pair of tines which slide up and down that upright to lift a load. Various attempts have been made to attach booms to the tines, or the upright or to a combination of these two in such manner that the boom can be used to lift heavy objects of a larger size than can be supported by the tines, or to pick up and deposit loads from locations where it is impossible to get the tines of the fork lift truck into. In some cases these prior booms were simple A-frames which rested on the tines and had a hook on the apex of the A-frame for attachment to the load. A cable was then attached between the apex of the A-frame and the upright to keep the A-frame in an upward and outstanding position relative to the tines, or to the roadway on which the fork lift truck was being used.

Apparatus of this type, as has been used in the past, does not lend itself readily to those occasions wherein the load bearing end of the boom is to be lowered to a position level with the roadway or the bottom-most position of the tines or even below that level and in which the load bearing end of the boom may be raised to an elevated position above the highest elevation to which the tines can be raised.

The present invention contemplates a simple, inexpensive and sturdy boom which may be easily attached to the upright and the tines of a fork lift truck in such manner that the load bearing end of the boom may be raised or lowered a distance greater than the distance that the tines may be raised or lowered.

In accordance with the present invention there is provided a fork lift truck having an upright on the vehicle part thereof, and a load lifting device or tines or the like, slideable up and down this upright. Fork lift trucks of this type are commercially available on the market and are so designed that the load bearing tines may be lowered to the roadway or raised to an elevated position. In combination with this type of fork lift truck is a boom having one end thereof pivotally fastened to the upright and the other end thereof adapted to support a load. This boom is pivotally supported intermediate the ends thereof, by means which rest on the tines or similar load bearing portion of the fork lift truck. This means may be a post, T-frame, or as described herein, an A-frame.

The boom may be of various lengths and is generally of a convenient length, whereby the load lifting end thereof, is spaced at a distance outwardly and beyond the load lifting tines of the truck. As the load lifting tines of the truck are raised relative to the vehicle the A-frame raises the load lifting end of the boom to lift a load supported therefrom, a vice versa, as the tines are lowered the load lifting end of the boom is lowered.

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With this arrangement the load lifting end of the boom is actually raised or lowered a distance greater than the distance that the tines are raised or lowered.

Therefore, one of the objects of the present invention is to provide the combination of a fork lift truck and a boom wherein the load lifting end of the boom may be raised or lowered a distance greater than the distance that the tines of the fork lift truck may be raised or lowered.

A further object of the present invention is to provide a fork lift truck with an inexpensive and sturdy boom which may be easily attached and detached therefrom.

A still further object of the invention is to provide a fork lift truck with a boom associated with the tines of the truck in such manner that the load bearing end of the boom may be lowered to an elevation below the elevation of the tines and may be raised to an elevation higher than the elevation of the tines.

A still further object of the invention is to provide a boom for a fork lift truck so that loads may be lifted from and/or deposited in locations completely inaccessible by the tines of the truck.

Further objects and a fuller understanding of the invention and its scope will become apparent from the following description of a preferred embodiment of the invention when taken in conjunction with the attached claims and the included drawing consisting of a perspective view of a truck boom attached to a fork lift truck.

The preferred embodiment of the invention, as illustrated in the drawings, is being used in combination with one particular type of fork lift truck. This particular type of fork lift truck as illustrated has a vehicle 10 provided with an upright 11 and forks, tines or the like, 12 slidable on this upright 11 from a ground level elevation, as illustrated, to a raised elevation above the ground or road level. The vehicle 10 is provided with suitable power means such as commonly used in the field to raise and lower the forks or tines 12 relative to the vehicle 10 and thus along the upright 11. The raising and lowering of the forks or tines 12 may be controlled by any suitable means such for example, the control 13 illustrated in the drawing and incorporated as a part of the vehicle. It is understood the fork lift truck illustrated herein, may be used in the normal manner wherein the tines 12 are positioned underneath a load to be raised and moved by the truck.

In those instances where the tines cannot be positioned under a load to be raised and moved, the present invention is used in combination with the fork lift truck to raise and move the load. Basically and in accordance with the invention, the preferred embodiment of the apparatus comprises a boom 15 and an A-frame 16 which are connected to the upright 11 and the forks or tines 12 in the following manner. The A-frame rests on the tines 12 and has its apex or upper portion 17 pivotally connected to the boom 15 at a point between the ends thereof. One end 18 of the boom 15 is pivotally connected to the upright 11 and the other end of the boom, constituting the load lifting end 19, extends outwardly beyond the tines a distance dependent entirely on the length of the boom 15.

In the illustration the load lifting end 19 of the boom is below the roadway or at an elevation below the elevation of the tines 12. When the forks or tines 12 are raised upwardly along the upright 11, the load lifting end of the boom, is raised upwardly to an elevation as illustrated in phantom in the drawing. In this position the load lifting end 19 of the boom, is at an elevation higher than the elevation of the tines or forks 12. Thus the distance of movement of the load lifting end 19 is more than the distance of movement of the forks or tines 12 along the upright 11. Naturally, the speed of move-

ment of the load lifting end 19 between these two extreme positions or between the raised and lowered elevations is greater than the speed of movement of the tines or fork 12. The fork lifting end 19 may be positioned at any desired elevation by properly controlling the raising and lowering of the tines 12 by means of the provided control, such as control 13 on the vehicle 10.

It is noted that in this movement of raising and lowering the boom, the boom 15 pivots on the apex 17 and relative to the A-frame 16 as well as pivoting at the one end 18 relative to the upright 11. Although the one end 18 of the boom 15 may be secured at any position along the upright 11, it is preferably secured as illustrated to the header 14 or uppermost portion of the upright 11.

A modification of the invention will become apparent when the boom and A-frame are used with a fork lift truck wherein the upright 11 is comprised of two parts. In such a fork lift truck, and in many which are in commercial use, the header 14 is raised and lowered simultaneously with the raising and lowering of the forks or tines 12, but at a speed and in a distance less than the speed or distance of movement of the tines. When the boom and A-frame as disclosed herein are attached to the header and rest on the tines of such a truck a slightly different movement of the boom and A-frame is obtained in combination with the truck. In this modification the boom 15 will be somewhat bodily raised simultaneously with its being pivoted relative to the apex of the A-frame and also relative to the header 14. In such instances, the distance of raising and lowering the load lifting end of the boom will be dependent at least partly on the distance of raising and lowering the header as well as the distance of raising and lowering the tines or forks.

It is noted that in either modification the boom and A-frame work in combination with the tines 12 and the upright 11 of the fork lift truck. In both modifications the boom 15 is pivotally moved relative to the A-frame and also relative to the upright 11 or header 14 by the raising and lowering of the tines 12. Furthermore, in both modifications the load lifting end 19, of the boom 15 may be lowered to an elevation below the roadway or below the lowermost elevation of the tines and raised to an elevation higher than the highest elevation of the tines, so that a load may be lifted for example out of a hole and placed on a shelf higher than the tines will reach. Thus, the objects of the invention are obtained by using the boom in combination with the fork lift truck.

It is also understood that further modifications of the invention arrangements and details of parts thereof may be resorted to without departing from the spirit and scope of the invention as hereinafter claimed.

What is claimed is:

1. In combination with a fork lift truck of the type comprising a vehicle, an upright movably mounted on said vehicle and adapted to be raised and lowered, projecting tines movably mounted on said vehicle in association with said upright and adapted to be raised and lowered, an A-frame resting on said tines and having an apex, and a boom having a connecting end connected to said upright and a load bearing end, said boom being pivoted between the ends thereof to said apex whereby raising of the upright and tines raises the boom and simultaneously pivots the boom relative to said frame to

raise the load bearing end and lowering of the upright and tines lowers the boom and simultaneously pivots the boom relative to said frame to lower the load bearing end.

2. The structure of claim 1 including means to raise said upright at a slower rate of speed than said tines to cause pivotal movement of said boom relative to said A-frame and said upright.

3. In combination with a fork lift truck of the type comprising a vehicle, first means movably mounted on said vehicle and adapted to be raised and lowered, second means movably mounted on said vehicle in association with said first means and adapted to be raised and lowered, supporting means resting on said second means and having a top end, and a boom having a connecting end connected to said first means and a load bearing end, said boom being pivoted between the ends thereof to said support means whereby raising of the first and second means raises the boom and simultaneously pivots the boom relative to said support means to raise the load bearing end and lowering of the first and second means lowers the boom and simultaneously pivots the boom relative to said support means to lower the load bearing end.

4. The structure of claim 3 including means to raise said first means at a slower rate of speed than said second means to cause pivotal movement of said boom relative to said support means and said first means.

5. In combination with a fork lift truck of the type comprising a vehicle, an upright on said vehicle, a header movably mounted on said upright, projecting tines movably mounted on said vehicle in association with said upright and adapted to be raised and lowered, an A-frame resting on said tines and having an apex, and a boom pivoted between the ends thereof to said apex and connected at one end thereof to said header and defining a load bearing end at the other end thereof, and means to move said header and said tines simultaneously in the same direction and at different speeds to pivot said boom relative to said frame to move said load bearing end at a still different speed.

6. In combination with a fork lift truck of the type comprising a vehicle, an upright on said vehicle, a header movably mounted on said upright, projecting tines movably mounted on said vehicle in association with said upright and adapted to be raised and lowered, first means resting on said tines and having a top end, and a boom pivoted between the ends thereof to said top end and connected at one end thereof to said header and defining a load bearing end at the other end thereof, and means to move said header and said tines simultaneously in the same direction and at different speeds to pivot said boom relative to said frame to move said load bearing end at a still different speed.

References Cited in the file of this patent

UNITED STATES PATENTS

2,433,584	Turner	Dec. 30, 1947
2,605,002	Graves	July 29, 1952
2,785,817	Pappathatos et al.	Mar. 19, 1957

FOREIGN PATENTS

711,961	Great Britain	July 14, 1954
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