Dec. 19, 1922.

1,439,228.

C. E. COCHRAN.

LOAD SECURING MEANS FOR INDUSTRIAL TRUCKS.

FILED AUG. 19, 1921.

3 SHEETS—SHEET 1.

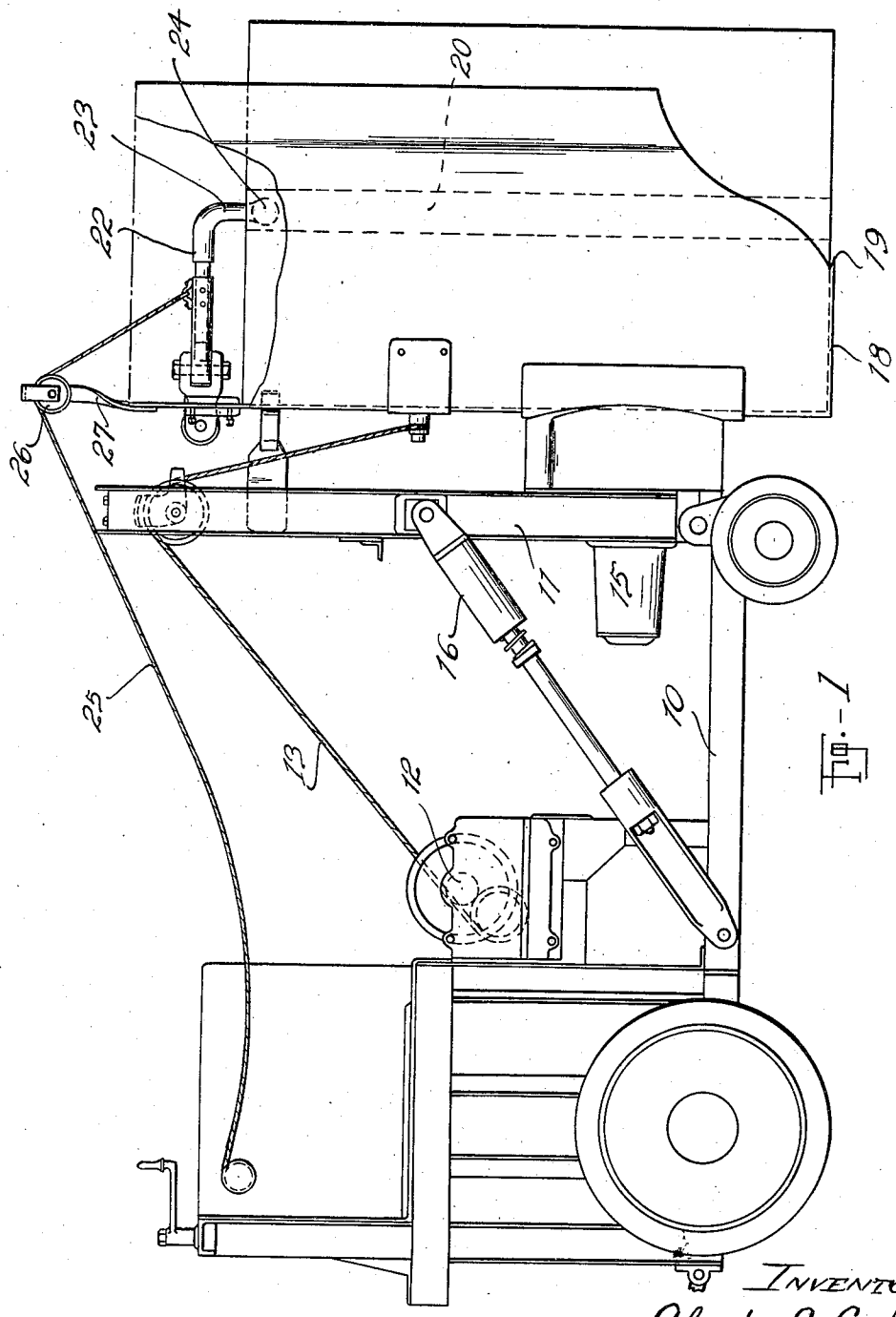


Fig. 1

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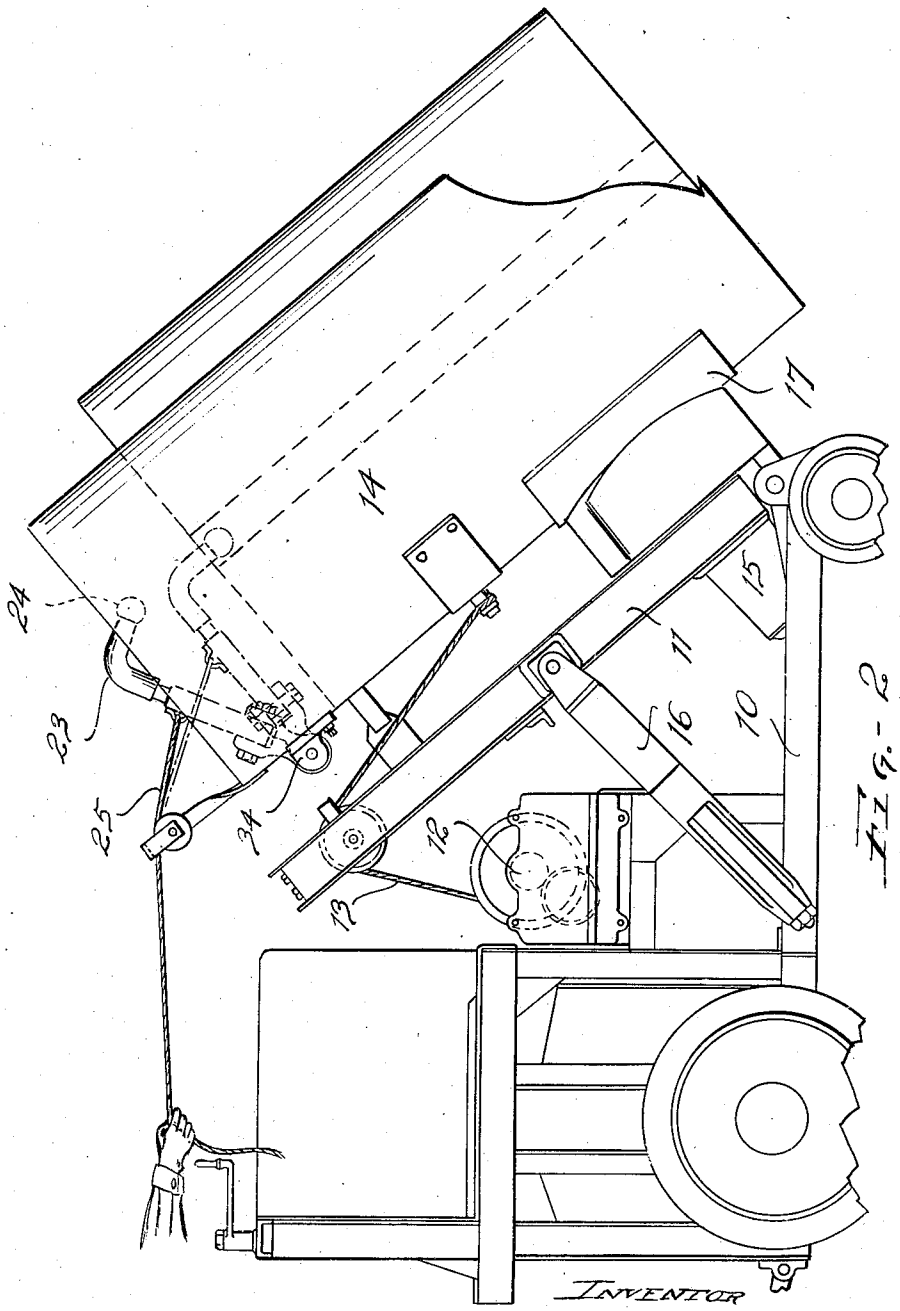


Fig. 2.

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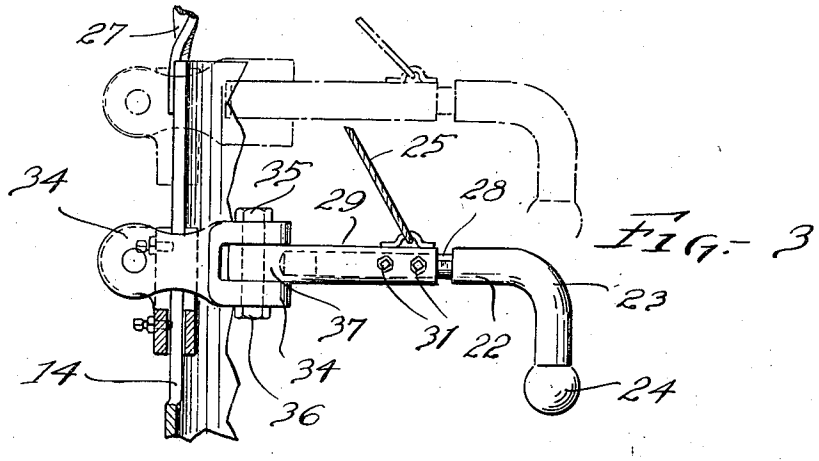


FIG. 3

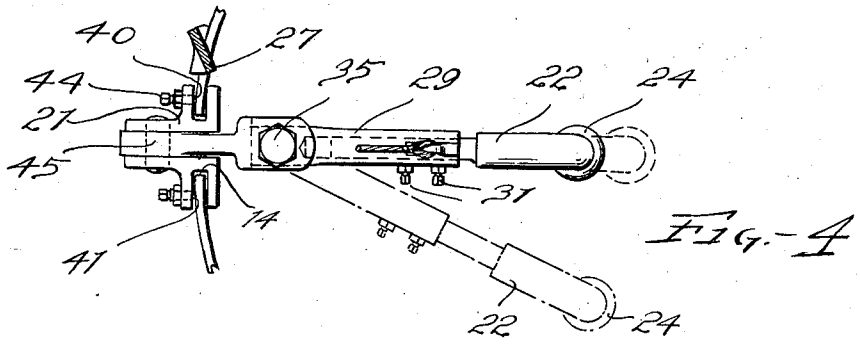


FIG. 4

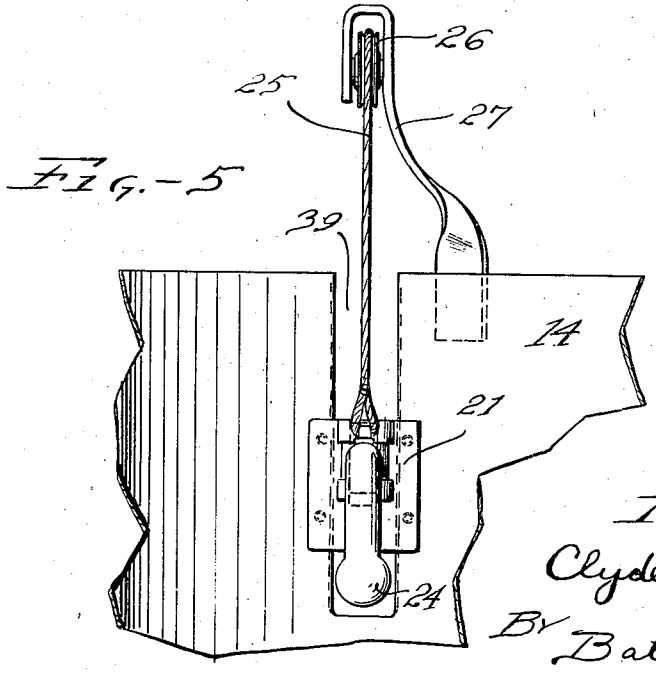


FIG. 5

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Patented Dec. 19, 1922. 1,439,228

UNITED STATES PATENT OFFICE.

CLYDE E. COCHRAN, OF CLEVELAND, OHIO, ASSIGNOR TO THE ELWELL-PARKER ELECTRIC COMPANY, OF CLEVELAND, OHIO, A CORPORATION OF OHIO.

LOAD-SECURING MEANS FOR INDUSTRIAL TRUCKS.

Application filed August 19, 1921. Serial No. 493,702.

To all whom it may concern:

Be it known that I, CLYDE E. COCHRAN, a citizen of the United States, residing at Cleveland, in the county of Cuyahoga and State of Ohio, have invented a certain new and useful Improvement in Load-Securing Means for Industrial Trucks, of which the following is a full, clear, and exact description, reference being had to the accompanying drawings.

This invention relates to industrial trucks wherein the truck is provided with mechanism for raising, transporting, and depositing articles such as rolls of paper.

The general object of the invention is to provide means in a truck such as the type described which will prevent the load from being displaced while it is being loaded, unloaded or transported.

A specific object of the invention is to provide means co-operating with holding means carried on one end of the truck to maintain a load in position on the holding means.

A further object of the invention is to provide load securing means on the load holding means which is adapted to enter the core cavity of a paper roll for the purpose of holding said roll on a conveying truck. Additional objects of the invention will be apparent from the following description taken in connection with the accompanying drawings.

In my application for Letters Patent on an industrial truck, filed July 9, 1920, Serial No. 394933, I have illustrated and described a load handling means which is particularly adapted to the loading and unloading of large paper rolls. Figs. 1 and 2 in the present application are illustrations in a conventional way of such a truck. Fig. 1 shows my device associated with an industrial truck designed especially for the purpose of handling paper rolls, the roll or handling means being illustrated in a vertical position; Fig. 2 shows the position of the load and load supporting means in transportable position; Fig. 3 is a side elevation of a load securing means supported by the load handling means, while Fig. 4 is a top plan view of the same. Fig. 5 is a front elevation of the load securing means.

The truck may be comprised substantially of a frame 10 and boom 11 pivotally secured to the end thereof and boom actuating means 12 consisting of a winding mechanism and a flexible member 13. The end of the flexible member or cable is secured to a load supporting apron 14 a sufficient distance from a pivot mounting 15 on the boom to effect a turning movement of the apron. When the winding mechanism draws on the cable the boom apron and load will be tilted to an inclined position as illustrated in Fig. 2. While the boom is in the tilted position the apron and load may be swung to a horizontal position about the pivot 15 upon a slackening of the cable by the winding mechanism. Suitable telescopic members 16 serve to limit the inward and outward swing of the boom.

The load supporting apron 14, as described in the application hereinbefore mentioned, may be comprised of a semi-circular metallic sheet rigidly secured to the pivot member 17, which is associated with the pivot bearing 15. A bottom projecting portion 18 may be arranged to lie in a horizontal position on the ground or floor, as the case may be, when the load carrying apron is in a substantially vertical position. This projecting member may have an outer tapered edge 19 to facilitate the forcing thereof under the load by a backward movement of the truck.

Any convenient means may be used to secure a load positioned on the member 18 to the apron 14 as for example, a strap extending around the roll and the apron. It is quite desirable, however, that means be provided in combination with such a truck whereby a load may be secured on the load carrying apron while in a vertical position as shown in Fig. 1 and which will not necessitate the operator leaving his position on the truck.

To this end, I have provided a novel device having an adjustable arm 22 pivotally mounted on the upper portion of the apron which may be swung into and out of engagement with the load as illustrated by the full line and dot-and dash-line positions in Fig. 2. This arm may have a downwardly extending portion 23 terminating in a ball-point 24 which is adapted to be lowered into the core cavity of the paper roll prior to the raising of the roll in which position it may rest as the boom and apron are tilted inwardly over the truck. The roll will thus be retained in position on the apron by the

member 22 and the bottom portion 18. This member may be raised and lowered from the operator's position by any convenient means such as a cord 25 secured to the movable elements of the device and a sheave 26, the latter being supported a considerable distance above the apron by an upwardly extending supporting member 27, whereby the cord may clear the top of the boom. It is essential that the load securing means be adaptable for holding any length or diameter of roll on the truck. To obtain this result, I have provided an adjustable pivot support in association with the upper portion of the apron and an extensible connection between the support and arm and telescopically connected to a tubular member 29. Suitable lock-screws 31 serve to maintain these members in rigid relation after the desired extensible adjustment of the arm is obtained.

In order to obtain a transverse or angular adjustment of the arm 22, I provide a bifurcated bearing member 34 having a pivotal relation to the support 21 and upon which the inner end of the member 29 may be movably secured by any suitable means such as a lock-bolt 35, a nut 36. The tubular member may terminate in a solid portion 37 having an opening formed therein through which the bolt 35 may pass.

The load securing mechanism may be longitudinally adjustable with relation to the apron 14 for the handling of different lengths of rolls. Hence the apron may have a longitudinal slot 39 extending downwardly from the upper end thereof in which the device may be slidably mounted. Suitable slideways 40 and 41 are arranged to cooperate with the slot edges of the apron and may be of sufficient width to obtain considerable bearing contact between the surfaces of the apron 14 and the pivot support 21. Any convenient means may serve to retain the device in position on the apron as for example, set screws 44, which may be carried by the pivot support and when tightened are adapted to clamp the slot edges of the apron to the inner surface of the slide ways formed in the pivot support. A suitable pivot pin 45 carried by the pivot support may serve as a pivot bearing for the bearing members 34.

From the foregoing description of my device, it is readily understood that the invention may be embodied in a variety of devices, however, the embodiment herein illustrated, while being simple in character, nevertheless, serves in a considerable degree to promote the efficient handling of the load by the truck, as the operator may approach the load and secure it on the loading device without leaving his position on the truck. Likewise, as the load is being shifted from the inclined to a horizontal position the device may still remain in engagement with the load, after which it may be released by the operator.

Having thus described my invention, what I claim is:—

1. The combination in a truck, of a load lifting member pivoted to swing thereon and in one position to approximate the vertical, said load lifting member comprising a body engaging portion and an end engaging portion, and a second load engaging member co-operating with the first to hold a load on said truck, the last named member being connected to the first named member by a universal joint.

2. The combination of a truck, a load lifting member pivoted to swing thereon and in one position to approximate the vertical, said load lifting member comprising a body engaging portion and an end engaging portion, and a pivoted second end engaging portion movable in two planes and co-operating with the first, one of said end engaging portions being immovable with relation to the body supporting member, and the other connected thereto through a universal joint.

3. The combination of a truck, a boom pivotally connected therewith, means movable with said boom for engaging the side and the bottom of a load including a load carrying member and pivoted means carried by the load carrying member and movable in two planes and adapted to be secured to the load to retain the load in place.

4. The combination in a truck adapted to carry a roll of paper, of a member adapted to swing from a substantially vertical to an inclined position, means for engaging the bottom of a roll of paper and secured to said tilting member, and pivoted means having lengthwise adjustment attached to the member and adapted to enter the aperture in the upper end of the paper roll to secure the roll in place, said last named means being connected to the first means by a universal joint.

5. The combination of a truck, a member pivotally mounted thereon and adapted to engage a portion of one side and one end of an article to be conveyed, said member being tiltable from a substantially vertical position to an inclined position, and adjustable means for engaging the other end of the load being conveyed and comprising an extensible member pivotally mounted adjacent the upper end of the load, said member being mounted for adjustment lengthwise and laterally of said article.

6. In an industrial truck, the combination of means to partially surround the body to be transported, means fixed on said first means to project beneath said body, and additional means disposed opposite said lower means and adjustable lengthwise to engage bodies of different sizes for holding the body in transporting position, said last

named means being connected to the first named means by a universal joint.

7. The combination of an industrial truck and a tiltable apron, a projection on said apron adapted to be positioned beneath the body to be transported and an adjustable fastening means at the other end of said apron, said adjustable fastening means comprising an arm adjustable lengthwise of said apron, an adjustable elbow carried by said arm, a projection carried by said elbow and adapted to be inserted in the orifice in a paper roll, and means for manipulating said elbow from an operator's platform on said truck.

8. The combination of a truck, a load lifting member pivoted to swing thereon and in one position to approximate the vertical, said load lifting member comprising a load engaging scoop having a rigid projecting portion adapted to be inserted under the load and a second load engaging member co-operating with the first, said latter member being pivotally supported by an adjustable slide secured to the scoop.

9. The combination of a truck, a load lifting member pivoted to swing thereon from a vertical to an inclined position and from an inclined to a horizontal position, said load lifting member comprising a body engaging portion and an end engaging portion adapted to engage the load upon a movement of the truck, and a second load engaging member co-operating with the first, said latter member being adjustable longitudinally and transversely of the load.

10. The combination of a truck, a boom pivotally connected therewith, means movable with said boom for engaging the side, and the bottom of a load, and means carried by the first mentioned means and operable from the driver's position on the truck for securing the load thereto.

In testimony whereof, I hereunto affix my signature.

CLYDE E. COCHRAN.