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CASE CARRYING HAND TRUCK

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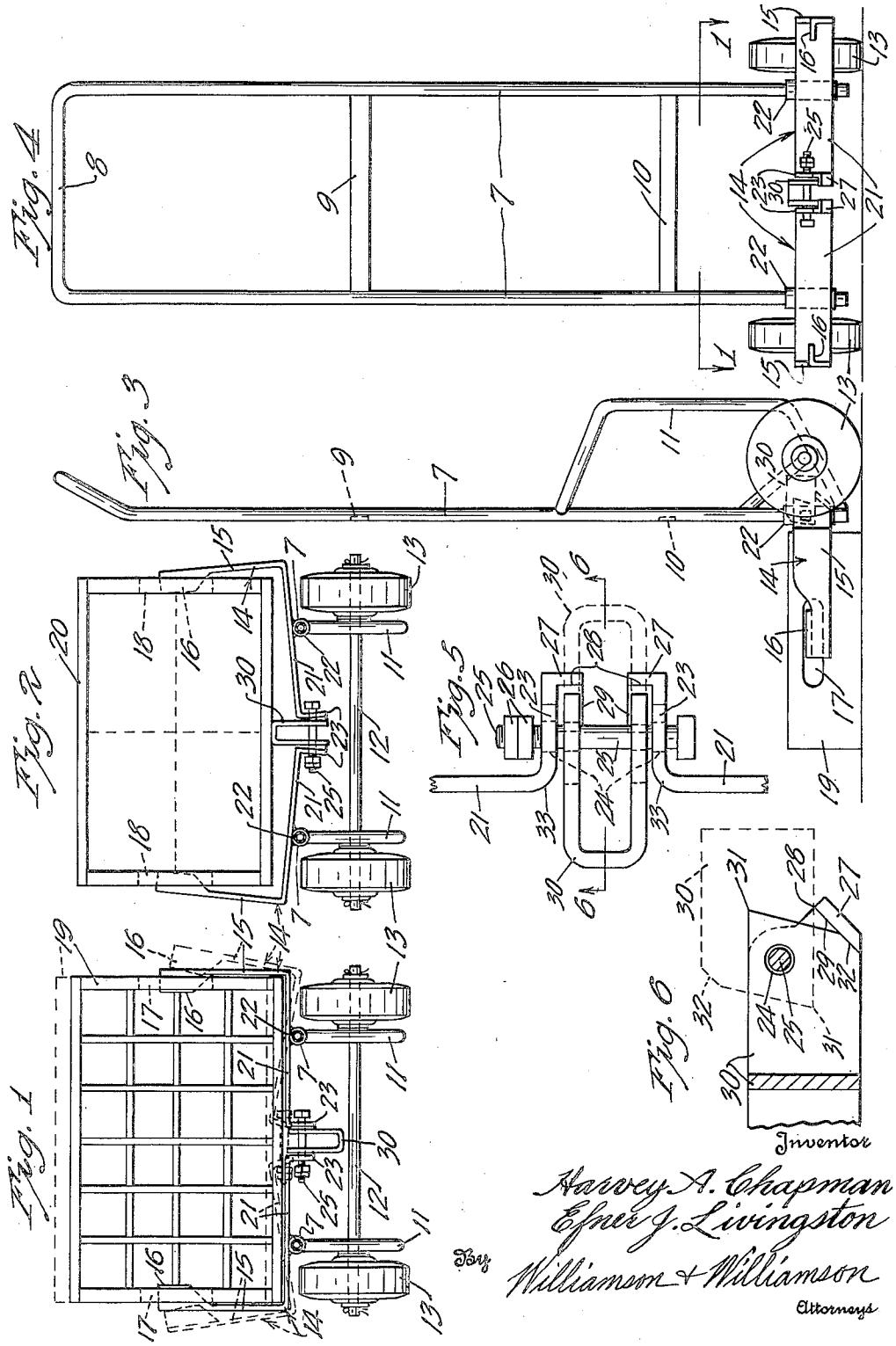


Fig. 4

Fig. 3

Fig. 2

Fig. 5

Fig. 1

Fig. 6

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CASE CARRYING HAND TRUCK

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This invention relates to hand trucks and more particularly to such trucks adapted for use in carrying cases such as are commonly used for bottled drinks.

It is an object of the invention to provide a case-carrying truck including a wheeled chassis and a pair of case-gripping arms, one or both of said arms being movable toward and away from the other to grip the ends of the case when another portion of the movable arm unit is brought to bear against a side of the case, and wherein the case side-engaging means is adjustable in position so that the throw of the movable arm or arms can be varied to adapt the device for use with cases of different sizes. For instance, a bottled goods case for twenty-four individual bottles is ordinarily of a larger size than a case which is adapted to hold four paper cartons of six bottles each. The individual bottle case is larger by reason of customary wooden separators in between adjacent bottles.

Another object of the invention is to provide a simply constructed yet highly efficient and durable loose-linkage connecting the case gripping arms, wherein the freedom of movement permitted by the linkage allows the arm or arms to swing while limiting their swinging movement, and wherein the case side engaging means is conveniently carried by the loose linkage and swingable into and out of engagement with different parts of the case gripping arm elements from a position adapting the device for use with a larger case to a position wherein it is operative with a smaller case.

The above and other objects and advantages of the invention will more fully appear from the following description made in connection with the accompanying drawings, wherein like reference characters refer to the same parts throughout the views, and, in which:

Figure 1 is a sectional view of the device on line 1—1 of Figure 4, the gripping structure being shown in alternate positions in dotted and full lines;

Figure 2 is a view similar to Figure 1 with the device shown gripping a smaller sized case;

Figure 3 is a side elevational view;

Figure 4 is a front elevational view;

Figure 5 is an enlarged fragmentary plan view of the shiftable case engaging structure supported by the loose arm linkage or connection; and

Figure 6 is an enlarged sectional view taken approximately on the line 6—6 of Figure 5.

The truck includes a pair of elongated side

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frame members 7, an upper cross member 8, and intermediate cross members 9 and 10. The lower portions of the side frame members 7 are provided with skids 11 between which extend an axle 12 which carries a pair of wheels 13. As shown in Figure 3, when the truck frame is tilted rearwardly somewhat in a position to be pushed the wheels will support the device with the skids 11 above the ground surface.

Pivotally mounted on each of the side frame members 7 is a case gripping arm indicated in its entirety at 14. Each arm 14 has a forwardly extending portion 15, and said portions lie roughly parallel in laterally spaced relation on the truck chassis. The arms 15 have inwardly extending ears 16 which are adapted to fit into hand grip openings 17 and 18 in the cases 19 and 20 of Figures 1 and 2 respectively. The case-gripping arms 14 have portions 21 extending inwardly from their supporting pivots 22 at points inwardly or rearwardly from a line between the case and hand grip lugs 16. The inwardly directed rear ends 21 of the arms 14 are shown in detail in Figures 5 and 6. The arms have generally parallel rearwardly bent portions 23 with apertures 24 adapted to receive a bolt 25 having jam nuts 26 thereon, whereby they can be tightened adjacent the end of the bolt and permit the arms 14 to swing about their pivots 22 between predetermined limits, thereby permitting the outer ends 15 of said arms 14 to swing toward and away from each other.

The inner parallel end portions 23 of the arms 14 have slanted stop elements 27 formed thereon, as shown in Figures 5 and 6. The stop elements 27 have upper rearward stop edges 28 and forwardly facing diagonal stop surfaces 29.

On the bolt 25 is a U-shaped case-engaging device 30 whose arms are apertured to receive the bolt 25. The case-engaging device 30 is adapted to swing about said longitudinal axis 25. The case-engaging device or element 30 is shown in Figure 6 to have its ends located relative to the pivot bolt 25 so that the corners 31 of the device 30 will swing past the stop or abutments 27. The opposite corners 32 of said case-engaging device are diagonally cut off, as shown in Figure 6, and these diagonal faces are adapted to engage the forwardly facing diagonal stop surfaces 29 or the abutment elements 27 when the case-engaging device 30 is in the forward full line position of Figures 5 and 6 and the position shown in Figure 2. However, when the case-engaging device 30 is swung about the bolt 25 upwardly and rearwardly to the dotted line positions of Fig-

ures 5 and 6 the device **30** will rest upon the stop portions 28 of the abutments **27**.

When the truck is used to engage and carry a case of larger size, such as shown in Figure 1, the centrally and rearwardly disposed stop device **30** is swung to the position of Figure 1 and the dotted positions of Figures 5 and 6. The truck is moved up into engagement with the case, the rounded corners **33** on the inner rearward portions of the case-gripping arms **14** abutting the near side of the case, as shown in Figure 1. Pressure of the rounded corners **33** against the side of the case will cause the adjacent inner end portions of the arms **14** to swing more into alignment and in turn cause the outer end portions **15** of said arms **14** to swing together. The lugs **16** on the outer arm portions **15** will enter the openings **17** in the ends of the case **19** shown in Figure 1, and the case is gripping and ready for transportation.

When a smaller sized case is to be carried, the centrally and rearwardly disposed case engaging device **30** is swung forwardly to the position of Figure 2, and the full line positions of Figures 5 and 6. Thus when the truck is moved up into proximity with a case such as the case **20** of Figure 2, the device **30** will engage the side of the case and cause the outer ends of the arms **14** to swing in toward each other a greater distance, this position of the case-engaging device **30** being more advanced than its other position and also more advanced than the location of the rounded corners **33** on the inwardly extending arm portions **21**. Consequently, the forwardly extending arm portions **15** can engage a case of less size than when the device is used in the position shown in Figure 1.

The loose connection between the inner ends of the rear arm portions **21, 23** permits the arms to swing freely within the desired limits from an open case receiving position to a closed case gripping position, and when the arms are swung inwardly to the gripping position, the entire arm assembly or unit will be relatively rigidly held by reason of the clamping action of the arms against the case. However, the free or loose connection permits the arms to be readily disengaged from the case when the latter is placed on the ground and the truck is pulled slightly rearwardly.

With a truck of this type it is readily apparent that it is possible to handle cases of different sizes, such sizes not only being a large and a small size but any size in between the maximum and minimum limits. The adjustable case-engaging element **30** can be swung into and out of its operative position quickly and easily so that cases of different sizes can be handled at will without having to make any exact or time-consuming adjustments to the gripping mechanism.

It will, of course, be understood that various changes may be made in the form, details, arrangement and proportions of the various parts without departing from the scope of our invention.

What we claim is:

1. In a case-carrying truck, a chassis, a pair of arms pivotally supported on said chassis for swinging movement toward and away from each other, the outer ends of said arms being disposed in lateral spaced relation on said chassis, said arms having other ends directed inwardly toward each other, a loose connection between said inwardly directed ends, and a case-engaging device mounted on said connection and swingable forwardly and rearwardly on said chassis and relative to said inwardly directed ends.

2. The structure in claim 1, and the inner ends of said arms being spaced, said case-engaging device being disposed between said spaced inner ends and swingable to two positions forwardly and rearwardly of said loose connection between the inner ends of said arms, and the inner ends of said arms having portions thereof lying in the path of movement of said case-engaging device to hold said case-engaging device in its forward and rearward positions.

3. In a case-carrying truck, a chassis, a gripping arm unit including spaced, generally parallel outer arm portions and inner arm portions, the outer end of at least one of said arms being movable toward and away from the outer end of the other arm, and a case-engaging device connected to said movable arm and selectively shiftable to retracted and advanced case-engaging positions whereby the effective movement of said arms can be varied relative to the size of a case to be handled, said case-engaging device being pivotally connected to said movable arm portion and swingable about an axis in substantially parallel spaced relation to a line between the outer ends of said arms.

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