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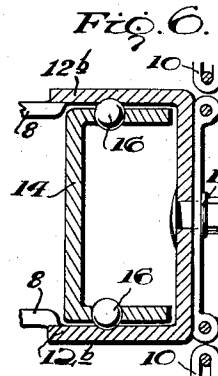
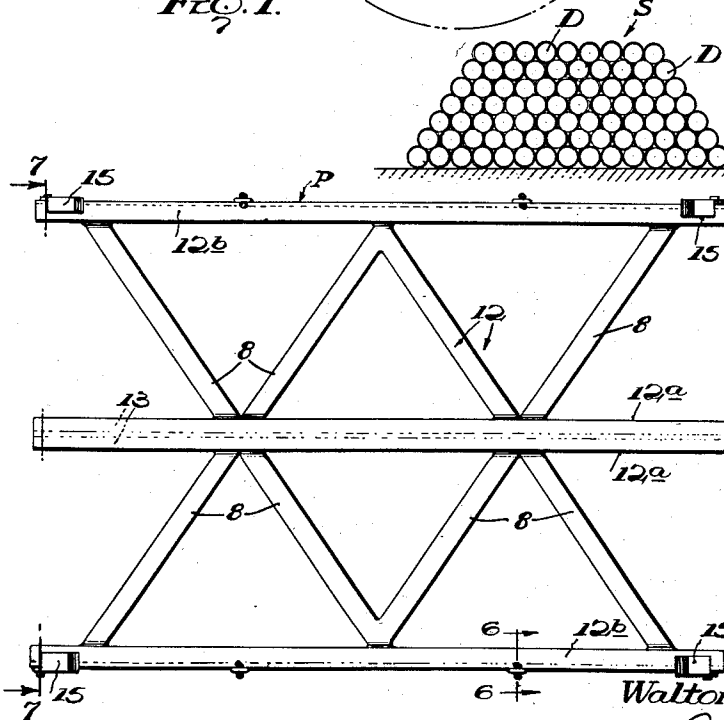
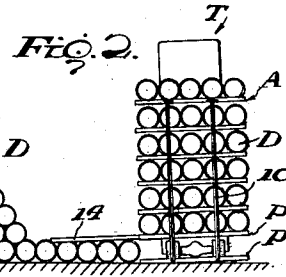
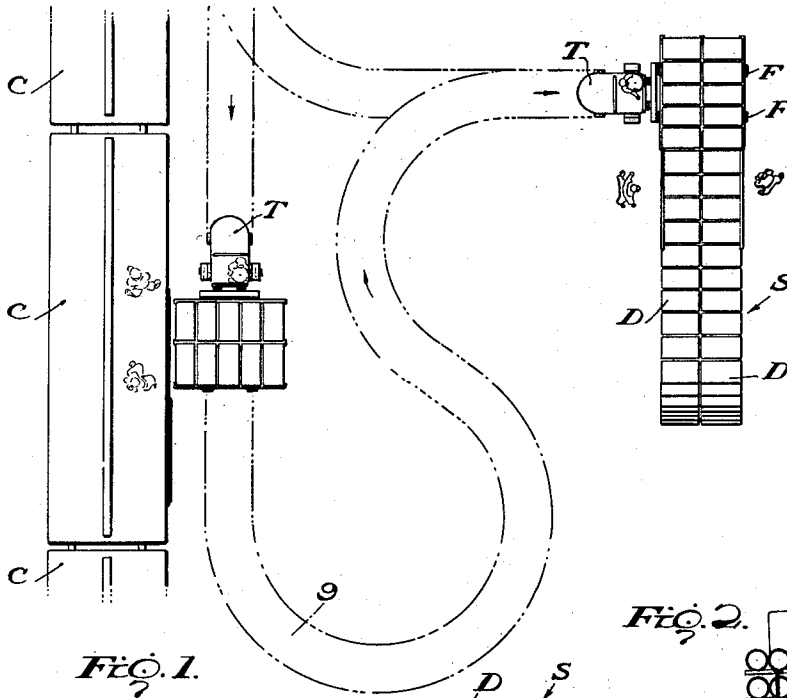
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DRUM HANDLING ATTACHMENT FOR FORK TYPE LIFT TRUCKS

Filed Oct. 31, 1957

2 Sheets-Sheet 1



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2 Sheets-Sheet 2

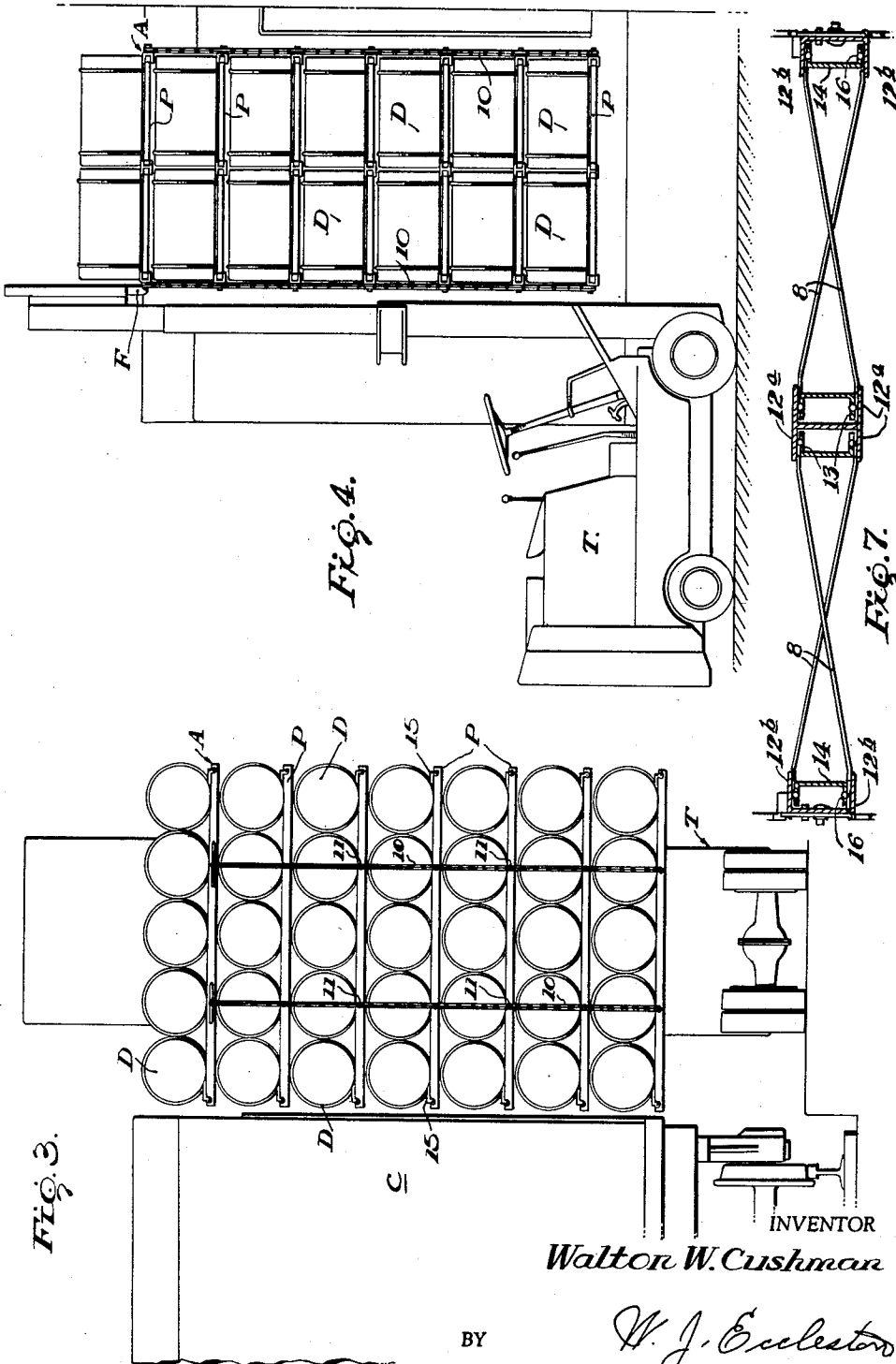


FIG. 3.

FIG. 4.

FIG. 7.

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## DRUM HANDLING ATTACHMENT FOR FORK TYPE LIFT TRUCKS

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4 Claims. (Cl. 214—620)

(Granted under Title 35, U.S. Code (1952), sec. 266)

The invention described herein, if patented, may be manufactured and used by or for the Government for governmental purposes, without the payment to me of any royalty thereon.

The present invention relates to a drum handling attachment for fork type lift trucks. It has to do with means for receiving, supporting, transporting, and discharging a plurality of articles of generally like size and shape with ease and facility.

An object of the invention is to provide an article handling attachment for fork type lift trucks having capacity for a large number of like articles, which is capable of being easily and rapidly loaded, transported with its load, and then unloaded at a remote point with speed and facility.

Another object is to provide an attachment as aforesaid by the use of which a freight car, loaded to capacity with empty metal drums, can be unloaded in a minimum of time, and with a minimum of effort and labor.

A further object of the invention is to provide an empty drum handling attachment having a plurality of superimposed drum-supporting surfaces which may be elevated successively to align with a freight car floor to receive the drums as unloaded until all surfaces have received and are supporting their capacity of drums.

Another object of the invention is to provide an article-supporting attachment which may be elevated and thus extended for loading purposes and lowered and thus contracted for loading purposes; it being another object to provide a new and improved article handling attachment which is of rugged construction, yet of relatively light weight and one which may be collapsed or contracted to conserve space when not in use.

The foregoing and other objects and advantages of the present invention will appear from the following description and appended claims when considered in conjunction with the accompanying drawings wherein like reference characters designate corresponding parts in the several views.

In said drawings:

Fig. 1 is a diagrammatic or schematic view, in top plan, illustrating one use of the invention, namely, in connection with the unloading of empty drums from a freight car and the piling or stacking of the same at a point remote from the car;

Fig. 2 is an elevational view illustrating the operation of forming a pile or stack of empty drums as discharged from the handling attachment of the present invention;

Fig. 3 is a side elevational view of a loaded drum handling attachment positioned beside a freight car from which the drums have been removed;

Fig. 4 is a right side elevational view of a fork type lift truck, shown supporting the loaded attachment of Fig. 3;

Fig. 5 is a top plan view of one of the platforms or drum-supporting surfaces of the handling attachment;

Fig. 6 is an enlarged fragmentary vertical sectional view taken substantially along the line 6—6 of Fig. 5,

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looking in the direction of the arrows, and showing one of the telescoped movable guides carried by the platforms of the attachment; and

Fig. 7 is a transverse vertical sectional view of the platform shown in Fig. 5, taken substantially along the line 7—7 of Fig. 5, looking in the directions of the arrows.

Referring now to the drawings, and particularly to Figs. 1 and 2 thereof, there is shown, more or less schematically, one manner of using the drum handling attachment of the present invention. As shown, several box cars C of a freight train are located on a siding at the left of Fig. 1. These cars are loaded with empty steel drums or barrels, while other barrels, which have been unloaded from other freight cars, are shown in a typical stack S of barrels or drums at the right of Fig. 1. The stack S of individual barrels or drums D is of the usual pyramid formation at its ends, see Fig. 2.

The attachment, shown as a whole at A, which constitutes the present invention, comprises, as shown, a plurality or series of flexibly interconnected drum-supporting platforms, shelves, or surfaces P, seven such being shown, which have, individually, a capacity of ten (10) drums or barrels and a total or collective capacity of seventy (70) drums. The number of platforms, as well as the size thereof, may be varied in accordance with the job to be done by the attachment.

As seen in Figs. 3 and 6, the various platforms are connected together by suitable flexible means, such as the chains 10 shown. Flexible cables may, however, be substituted. One pair of chains is disposed at each side of the superimposed platforms P and are connected to them by bolt and nut assemblies 11, or in any other suitable manner, see Fig. 6.

Each platform is preferably formed from steel bars, channels, or angles into a skeleton-like frame 12 which includes diagonal members 8 connected to an inside pair of back-to-back guide channels 12a, 12a, and to outside guide channels 12b, 12b, Figs. 5, 6 and 7, a pair of inside slidable tracks 13 and one outside track 14 adjacent each side edge of the platform, Figs. 5 and 6. These tracks are projectable and retractible and the inner tracks 13, 13 slide in said inside pair of back-to-back steel guide channels 12a, 12a, whereas the outside tracks 14 (one such being shown in Fig. 6) are slidable in longitudinal steel outside guide channels 12b. The tracks are formed, preferably, from extruded aluminum or magnesium because of its light weight and non-corrosion characteristics. The slidable nesting or telescoping tracks are preferably mounted on anti-friction balls or rollers 16 with grease packed bearings (not shown).

Each guide channel 12b, 12b carries adjacent its opposite ends, a hand-removable or releasable chock 15, see Fig. 5. These prevent shifting or displacement of the loaded drums from their supporting platforms.

In actual practice, two of the fork lift trucks T, of ample height and capacity, are employed, one being loaded from the center box car C at the left of Fig. 1, while the other and similar lift truck is discharging its load to form the stack S at the right in Fig. 1 and as in Fig. 2.

Since the various platforms P are flexibly connected together, they can be collapsed upon the ground. When, however, the attachment is to be used to unload one of the freight cars C, the forks F of the truck T are brought into engagement with the top platform P in the manner illustrated in Fig. 4 and is propelled into position alongside the car C, see Figs. 1, 3, and 4. The top platform is now elevated to the approximate level of the car door sill and two rows of five (5) drums each are rolled onto the said platform, and the chocks 15 are set to hold the drums in place. The forks F are again elevated to lift the second platform P to the approximate level of the

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car door sill, whereupon this platform is filled with ten (10) drums in two parallel rows of five (5) each. The chocks or stops 15 are set and the procedure is repeated until all platforms, including the bottom or lowermost suspended platform, have been filled in like manner. The forks F are now tilted back and the truck and its burden propelled over path 9 to a position at one end of stack S in Fig. 1. In this position, the chocks 15 of the bottom platform, which is lowered to rest on the ground, are released and removed by hand and the two bottom rows of drums are rolled off the platform onto the ground, as seen in Fig. 2.

The tracks 13 and 14 of the second platform are now extended to overlie the bottom rows of drums, the chocks 15 released and removed by hand, and the second two rows of drums rolled off the second platform to stack and nest with the previously removed rows. The tracks 13 and 14 are retracted and the forks may be lowered, if need be, to bring the next platform to the proper level, with its tracks in position to overlie the second rows of drums. This operation is, of course, repeated until all of the platforms P have been unloaded, whereupon the superimposed platforms P, in collapsed or stacked condition, are temporarily lashed together with a chain (not shown) and held thus while the truck is brought into position alongside another box car C. Thus, the return trip may be made with the forks of the truck in almost fully lowered position.

The tracks are slidable out from either end of the platforms and are of sufficient length to permit proper unloading of the upper rows of drums with relation to the previously unloaded drums. The chocks 15 on the guides for the outer tracks 14 may be of various types, fixed, or easily releasable; or it may be possible to eliminate them by providing raised portions on the guide members of the frame; or by slightly elevating the opposite ends with relation to the remainder of said guides.

Obviously, the invention is not limited to the embodiments herein shown and described, but may assume other forms.

I claim:

1. An article handling attachment for fork type lift trucks for receiving, supporting, transporting, and dis-

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charging a plurality of articles of generally like size and shape, such as a row or rows of steel drums, comprising a tier of flexibly connected skelton-like metal platforms, flexible means at opposite sides of said platforms for interconnecting them, each of said skelton-like metal platforms comprising a frame having an outside guide channel at each longitudinal side thereof, a pair of inside back-to-back guide channels intermediate the outside guide channels and substantially parallel thereto, a track slidably and telescopically mounted in each of said outside guide channels, and a pair of similar tracks slidably and telescopically mounted in said inside back-to-back guide channels, said several tracks providing movable supports for one or two rows of steel drums while loading and/or unloading a platform and being adapted to be projected from and retracted into said several guide channels.

2. An article handling attachment according to claim 1, wherein the slidably and telescopically mounted tracks are independently slidable relatively to one another and to said guide channels.

3. An article handling attachment according to claim 1, wherein each of said platforms is provided with releasable and removable means for preventing the accidental displacement of said steel drums during transit.

4. An article handling attachment according to claim 1, wherein a pair of movable and/or removable chocks is mounted upon the upper-outer end portions of the outside guide channels to maintain the row or rows of steel drums in position upon said outside and inside guide channels while being transported by a fork type lift truck.

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