Oct. 23, 1962 F. C. DANSEREAU 3,059,796

PALLETIZED MATERIAL HANDLING

Filed Nov. 12, 1959 2 Sheets-Sheet 1

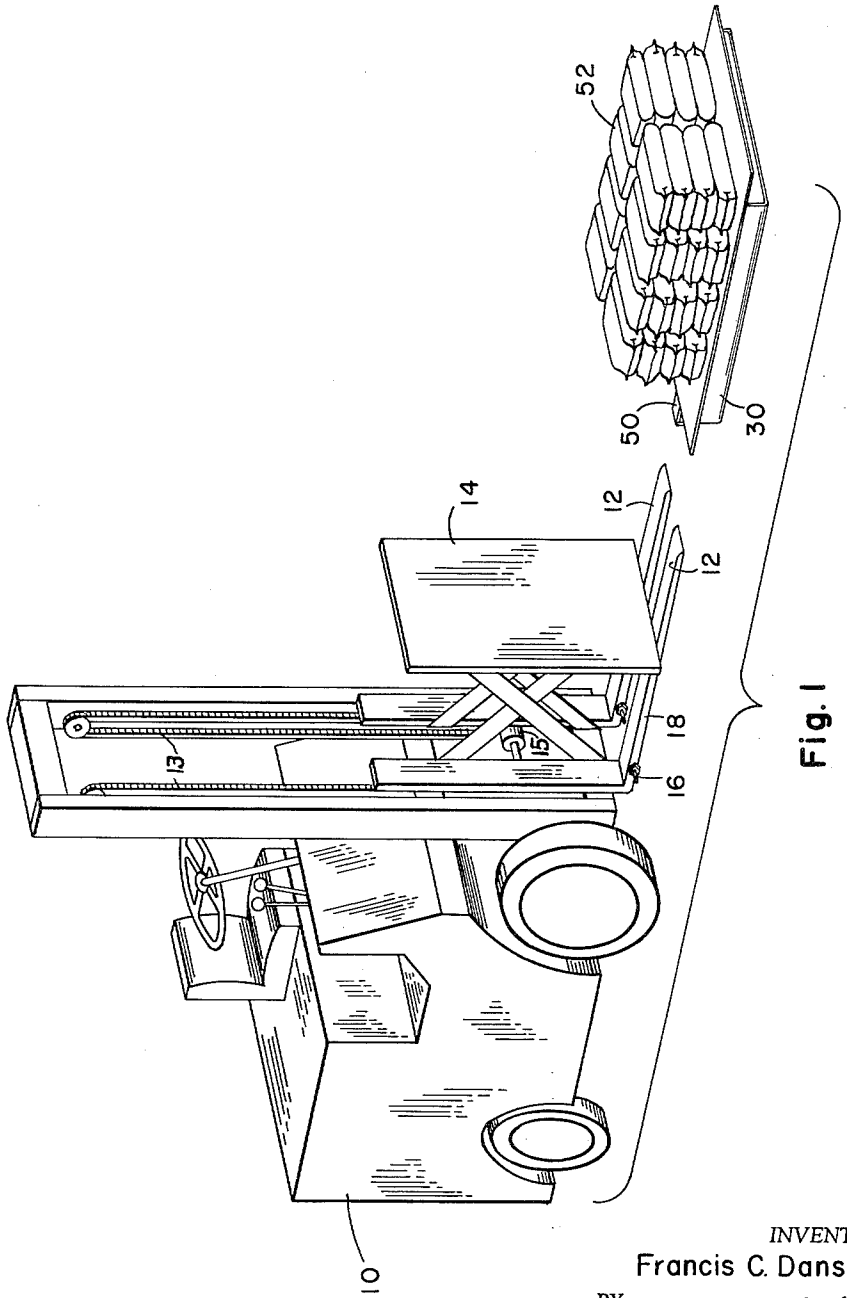


Fig. 1

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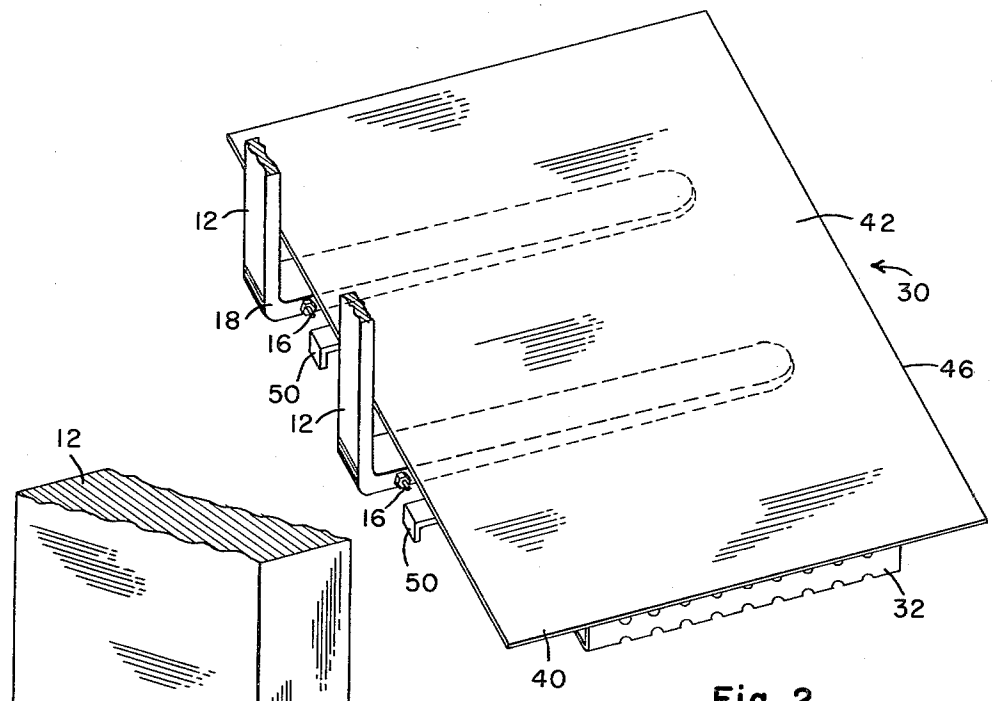


Fig. 2

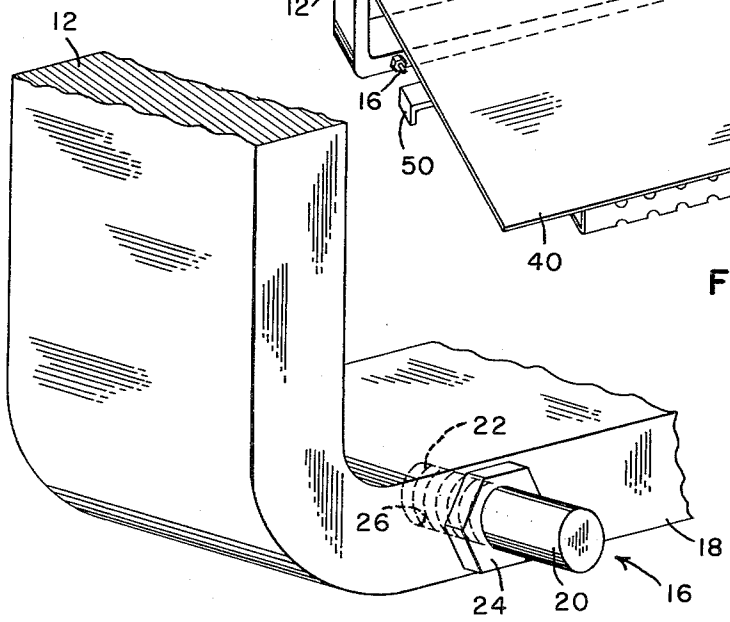


Fig. 5

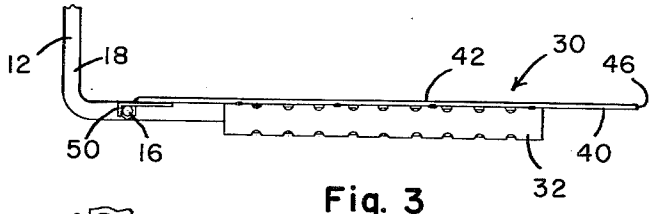


Fig. 3

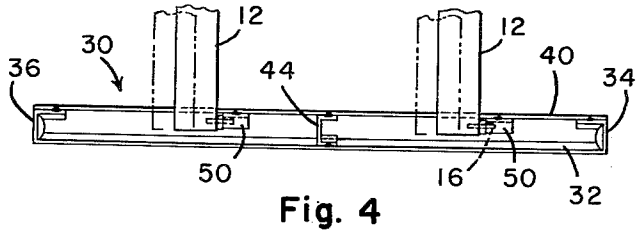


Fig. 4

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PALLETIZED MATERIAL HANDLING

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4 Claims. (Cl. 214—731)

The present invention is directed to an improvement in the handling of materials by means of pallets and is particularly directed to an improved and simplified means for unloading materials from a pallet.

Materials packaged for handling and shipping in paper bags, for example, present a relatively difficult problem in handling due, first, to the weakness of the bags and, second, to the usual flexibility and thus the necessity of any substantial volume of bags being on a pallet for handling by fork lift trucks. Removal of a large plurality of bagged material from pallets has required excessive labor in manually removing bags, one at a time, from the pallet.

Fork lift trucks commonly include a pusher for pushing off material which is loaded on the truck forks. When pallets are employed, it will be apparent that that method of removal of materials would remove the pallet with the material.

It is an object of the present invention to provide a novel method of removing material from pallets.

It is a further object of the invention to provide a novel method of removing material from pallets which is adaptable to available equipment with a minimum of alteration.

It is a still further object of the invention to provide an improved fork truck and pallet combination for simplified unloading thereof.

These and other objects of the invention will become readily apparent from the following specification and the drawings in which:

FIG. 1 is a perspective view of a fork truck and a loaded pallet, said truck and pallet embodying the present invention.

FIG. 2 is a perspective view of the pallet of FIG. 1 and a portion of the truck forks.

FIG. 3 is a side view of the elements of FIG. 2.

FIG. 4 is an end view of the elements of FIG. 2 in locked position, further including the side-shifted position of the forks for insertion.

FIG. 5 is a perspective view, enlarged, of the locking elements of the forks of FIG. 2.

Referring now to FIG. 1, there is shown a fork lift truck **10**, with loading forks **12**, fork raising and lowering means **13**, and adapted with a pusher attachment **14**, such pusher attachments being known, available attachments for fork lift trucks for pushing off material which can be loaded directly onto truck forks. Truck **10** also has a standard side-shifting attachment **15** consisting essentially of a hydraulic cylinder and piston laterally mounted between the truck body and the forks whereby the loading forks **12** may be moved sideways relative to the truck body approximately four inches essentially as indicated by the shifting positions of the forks **12** relative to a stationary pallet, shown in FIG. 4, and more fully discussed below. The side-shifting attachment has been commonly used heretofore for placing loads tightly against building walls or other adjacent loads for most compact warehousing procedures, such attachments being shown as available, for example, in the 1958 Edition of Sweet's Catalog Service, Plant Engineering File, at Section 1*b*/ALL, page 14, and at Section 1*b*/CL, page 10, these two sections being originally publications respectively of Allis Chalmers and of Clark Equipment Company.

In accordance with the invention loading forks **12** each

have a raised projection or stud **16**, extending outwardly from the fork side face **18**. Studs **16**, as seen in FIG. 5, consist of a five-eighths inch diameter three inch long metal rod **20**, approximately a two inch portion **22** being threaded. A standard hexagonal nut **24** is threaded onto the metal rod to the inner end of the threaded portion, and the balance of the threaded portion **22** is screwed tightly into a threaded hole **26** extending into the side of the fork **12**. If desired the stud **16** may be additionally reinforced as by welding of the stud to the fork side face **18**.

A thin pallet **30**, in accordance with the invention, is formed of a #9 gauge corrugated steel sheet **32**, with corrugations extending from one side edge **34** to an opposite side edge **36**, with the side edges **34**, **36** bent upwardly and inwardly, and a #7 gauge flat steel sheet **40** affixed atop the corrugated sheet edges **34**, **36**, providing a load receiving upper deck. A central reinforcing rib **44**, in the form of a U shaped channel, is affixed between the corrugated sheet **32** and the flat sheet **40**, extending parallel to side edges **34** and **36** and midway therebetween. In the preferred form shown the flat sheet **40** has a width equal to the width between side edges **34** and **36** and, in the direction from front to back of pallet, the flat sheet **40** extends beyond both the front and back edges of the corrugated sheet **30**. The overall height of the pallet **30** is formed to a minimum reasonably permissible, preferably about two and one half inches.

The front edge **46** of the flat sheet, which is the edge at which the truck forks **12** are inserted, includes two downwardly extending narrow flanges **50**, disposed suitably to engage both studs **16** when forks **12** are properly placed as described below.

In accordance with the invention, truck **10**, having the pusher **14**, the side-shifting attachment, and the studs **16** on the forks **12**, is driven to insert the forks **12** into the thin pallet **30** which is loaded with bagged material **52**, with the studs **16** disposed inwardly of the pallet from the flanges **50**, FIG. 2. Without raising the forks, the side-shifting attachment of the truck **10** is operated to shift the forks sideways in a direction toward the flanges **50**, whereby the studs **16** become disposed directly inwardly of and behind the flanges **50**, see FIG. 4. The forks are then raised, lifting the pallet from the floor. The pallet **30** is transported to a given storage surface in a warehouse whereat it is desired that the bagged material be stored, which might be directly on the floor, or on another pallet on which the bagged material is desired to be placed. The pallet **30** is lowered to be closely spaced above the new desired storage surface. With the studs **16** still lockingly disposed behind the flanges **50**, FIG. 3, the pusher **14** is started moving forward to push against the load of bagged material, and the truck **10** is started moving backward at substantially equal speeds as was commonly done heretofore in unloading material which could be loaded directly onto the truck forks. By the engagement of the studs **16** behind the flanges **50**, the pallet is fixed relative to the truck during the unloading, whereby the bagged material **52** is removed from the pallet **30** without the pallet being pushed from the forks.

On completion of the unloading, the pallet is taken to the place where desired and lowered by the forks, as, for example, onto the floor. The truck side-shifting attachment is then operated in reverse to the direction for engagement, whereby the studs **16** are removed from a position directly inwardly of and behind the flanges **50**, as indicated in FIG. 4. The truck is backed away from the pallet and is ready for the moving and unloading of further pallets of bagged material.

Accordingly, a highly simplified means for unloading pallets is provided by relatively easily made modifications of equipment, and by employing presently available spe-

cial adaptations on fork lift trucks in a different, novel combination providing a new, advantageous function.

Having completed a detailed disclosure of the preferred embodiment of my invention so that those skilled in the art may practice the same, I contemplate that variations may be made without departing from the essence of the invention or the scope of the appended claims.

I claim:

1. A fork lift truck having forwardly extending forks, a load removing pusher attachment, and a side-shifting attachment for moving the said forks sideways relative to the truck body, the further improvement comprising a raised projection on each said fork, said projection extending outwardly from the same respective side of each said fork, disposed out of the path of operation of said pusher attachment, and disposed for lockingly engaging a pallet by movement of said forks sideways relative to said truck body and said pallet.

2. A fork lift truck as defined in claim 1, said raised projections each comprising a threaded rod partially disposed in a threaded hole extending into the side of each said fork.

3. An improved fork lift truck and pallet for use therewith, said truck having a load removing pusher attachment, a side-shifting attachment for moving the truck forks sideways relative to the truck body, and a plurality

of forwardly extending spaced apart truck forks having a raised projection on each said fork, said projections extending outwardly from the same respective side of each said fork, disposed out of the path of operation of said pusher attachment, and said pallet having means for lockingly engaging said raised projections when said forks are moved sideways relative to said truck body and said pallet.

4. The combination of claim 3 wherein said locking means of said pallet comprises a plurality of downwardly extending flanges affixed to an upper deck of said pallet, said flanges being relatively spaced apart similar to the spacing of said truck forks.

References Cited in the file of this patent

UNITED STATES PATENTS

2,256,453	Bomar	Sept. 16, 1941
2,256,454	Bomar	Sept. 16, 1941
2,371,661	Wilms	Mar. 20, 1945
2,388,458	Alfonte	Nov. 6, 1945
2,517,938	Stevenson	Aug. 8, 1950
2,610,751	Beven	Sept. 16, 1952
2,656,062	Thomas	Oct. 20, 1953
2,707,573	Balwics	May 3, 1955
2,748,966	Gohrke	June 5, 1956
2,800,236	Schenkelberger	July 23, 1957