

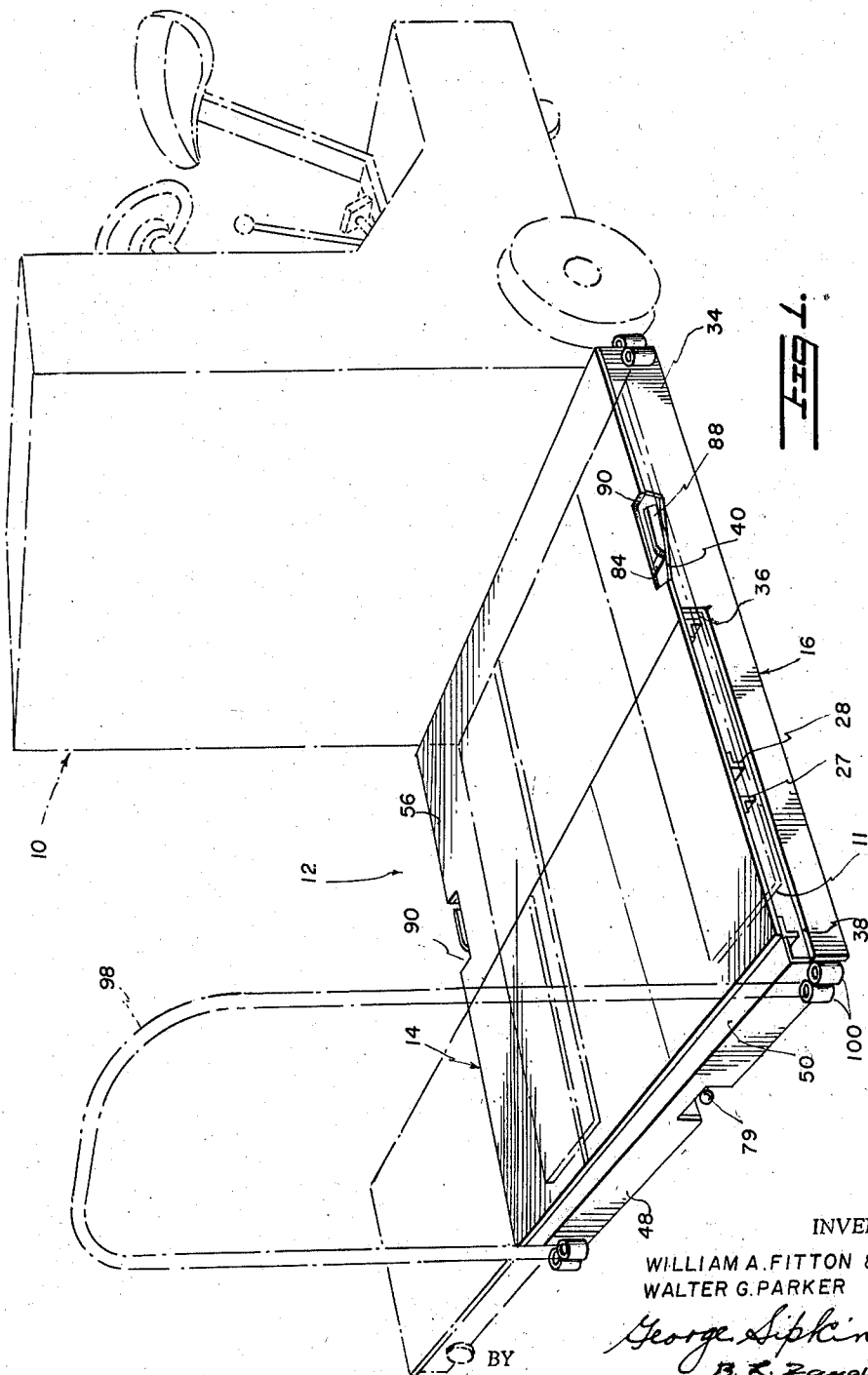
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W. A. FITTON ET AL
SAFETY PALLET-STORAGE AID

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INVENTOR

WILLIAM A. FITTON &
WALTER G. PARKER

George Lipkin
B. R. Zarguill
ATTORNEY

March 25, 1958

W. A. FITTON ET AL
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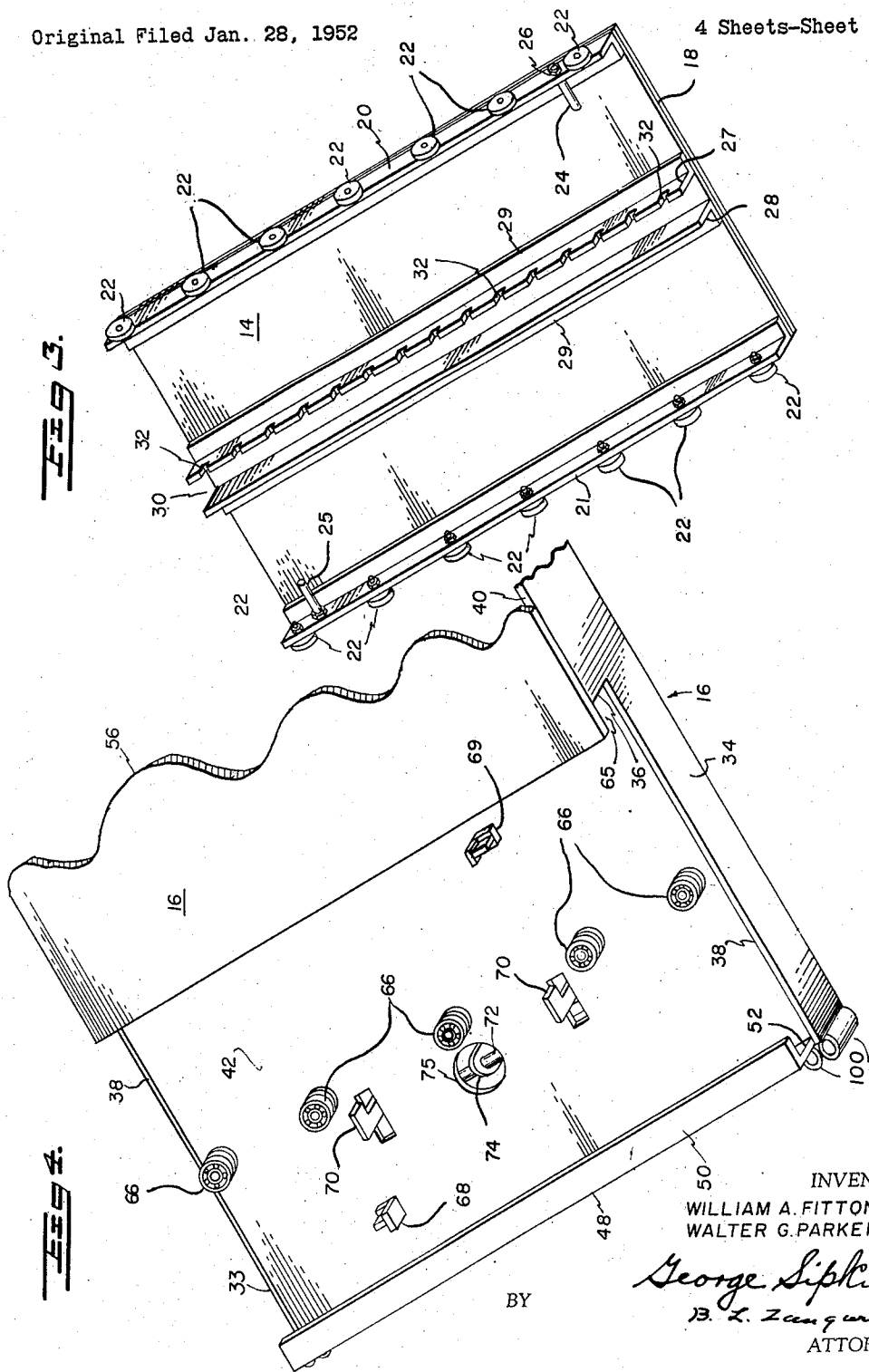
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Fig. 3.

Fig. 4.



INVENTOR
WILLIAM A. FITTON &
WALTER G. PARKER.

George Siptin
BY *B. L. Zangwill*
ATTORNEY

March 25, 1958

W. A. FITTON ET AL

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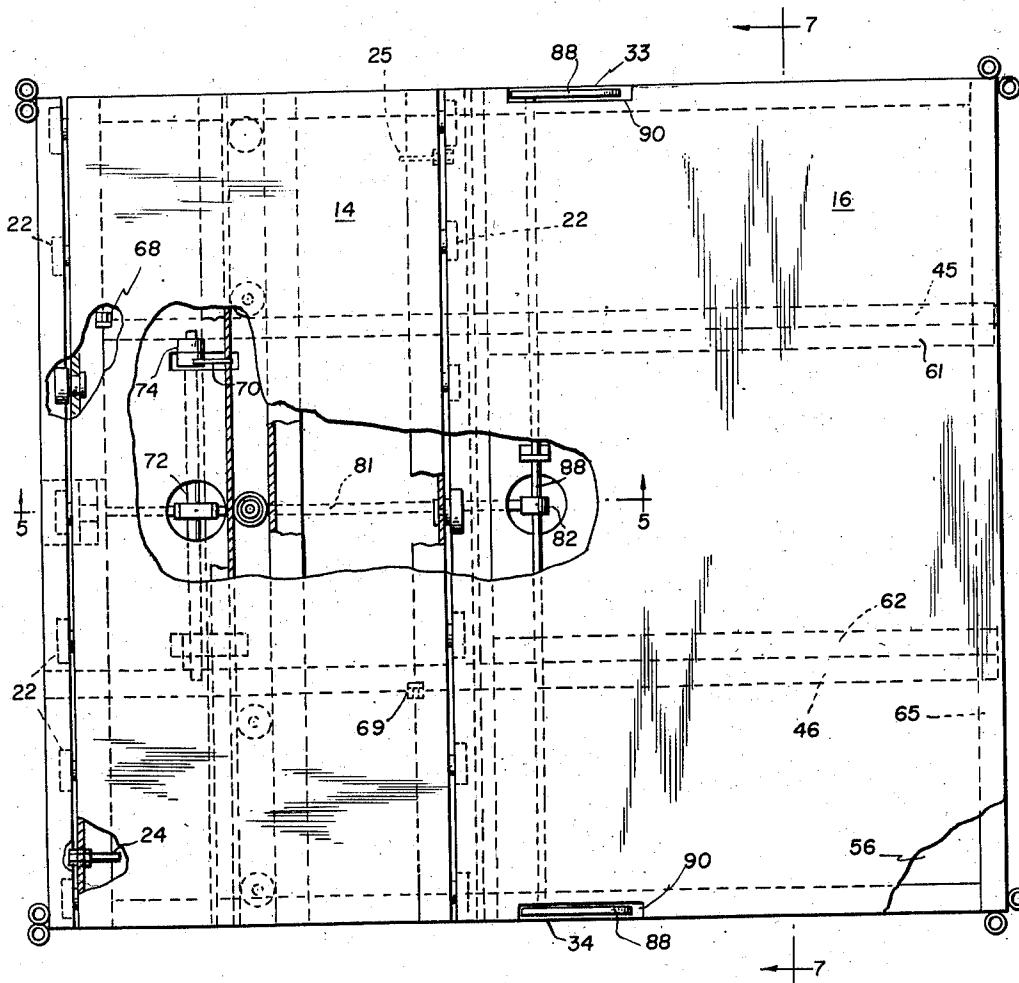


Fig 2.

INVENTOR

WILLIAM A. FITTON &
WALTER G. PARKER.

BY

George Sipkin
B. L. Zangwill

ATTORNEY

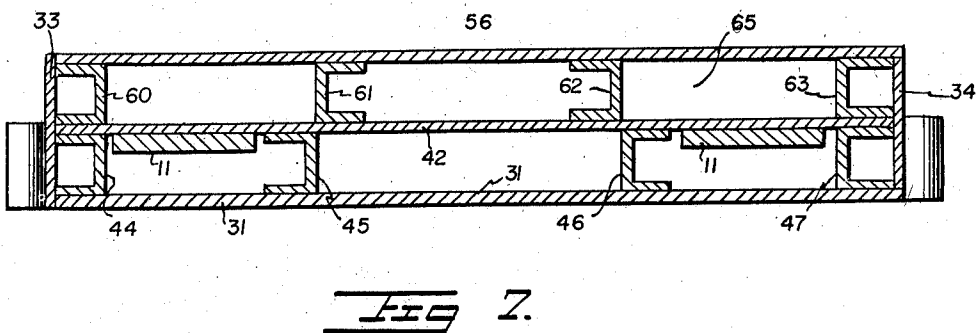
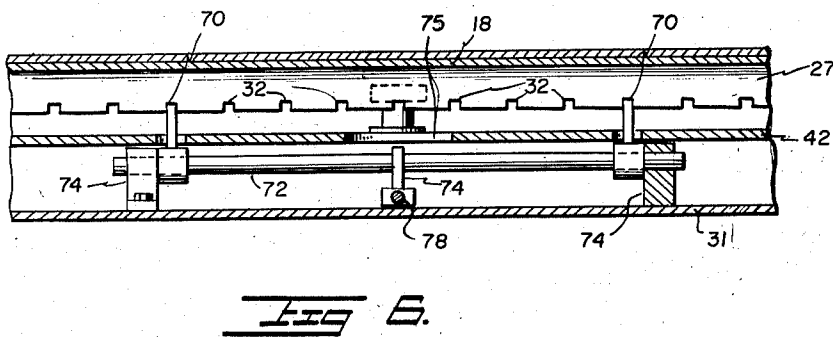
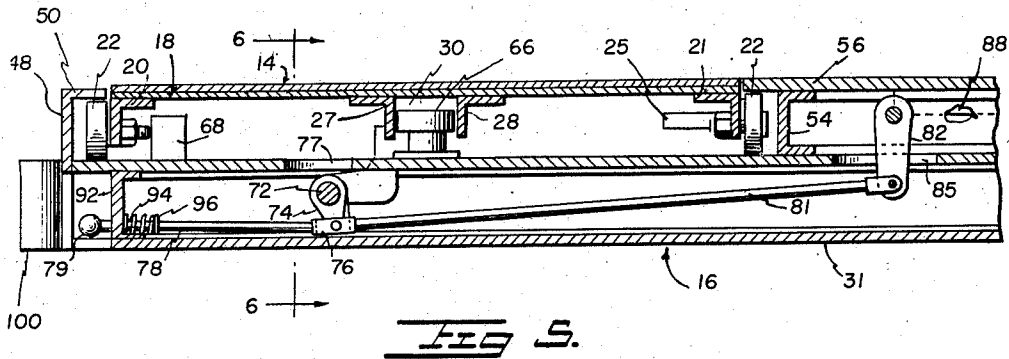
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INVENTOR

WILLIAM A. FITTON &
WALTER G. PARKER

BY

George Siphkin
B. L. Zangwill
ATTORNEY

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2,828,040

SAFETY PALLET-STORAGE AID

William A. Fitton, Portsmouth, and Walter G. Parker,
Norfolk, Va.

Continuation of application Serial No. 268,652, January
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11 Claims. (Cl. 214—730)

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

The invention described herein may be manufactured and used by or for the Government of the United States of America for governmental purposes without payment of any royalties thereon or therefor.

This invention relates to an improved platform or pallet for use with an industrial lift truck, and more particularly relates to a platform adapted to be releasably carried on the forks of an industrial lift truck, the platform having a section movable laterally which permits more efficient handling of the material to be transported by the truck.

Fork lift trucks are now generally used for inside transportation of materials; and they are particularly useful in such places as warehouses and distribution centers where the materials are stored in piles of considerable height. It is desirable, in such places, to keep the aisles between piles as narrow as possible in order to get a maximum of storage space. However, the aisles must allow for movement of the lift truck and permit it to be conveniently loaded and unloaded. With conventional rigid pallets, the aisles must be comparatively wide in order to provide maneuverability for and accessibility to the truck. In cases where the aisles are too narrow, it is necessary for a worker to lift material manually and transport it manually for a distance to or from the truck, depending on whether the truck is being loaded or unloaded; and in the event that the material is heavy a safety hazard is thus created.

It is an object of the invention to provide a lift-truck platform for handling heavy loads, the platform being pallet-like in construction and having a transversely movable section wholly supported by the platform without the use of external framework.

It is an object of the invention to provide a platform for a lift truck, the platform having a laterally movable section that makes it convenient to load and unload the truck in narrow aisles.

It is an object of this invention to provide a platform for a lift truck, having a section movable laterally for permitting the truck to be safely and efficiently loaded and unloaded at the top of a pile of goods.

It is a further object of the invention to provide a platform of a type described for use with a lift truck, the platform having a transversely movable section, and being simple and economical to build, and easy and safe to operate.

It is an additional object of the invention to provide a platform of a type described having a transversely movable section, which platform is so constructed that it can be used in place of a rigid pallet, if desired.

The improved platform of the invention comprises a base section adapted to be held by the forks of the lift truck, and a laterally movable section above the level of the forks. The base portion also comprises a shelf portion having a top on a level with that of the movable section, and serving as a fixed shelf for a load. The movable section is movable transversely of the shelf portion at any elevation of the fork lift, and can be used for loading or unloading thereof, so that the section can be designated as a "loader." In the preferred embodiment, rollers and

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guide tracks are provided on the movable section and base section for easy movement of the movable section, and also for confining support of the movable section. For safety and proper operation, latch or lock means are provided for holding the movable section laterally extended for loading or unloading, or for securing the movable section in mated or aligned position with the shelf portion for transfer of load to or from the shelf portion. By locking the movable section properly after loading, the platform becomes, in effect, a rigid pallet that permits the lift truck to be moved forward or backward in a narrow aisle. Preferably the platform is made of steel for added life and strength.

The invention as to organization and mode of operation together with further objects and advantages thereof may best be understood by reference to the following detailed description taken in connection with the accompanying drawings in which like reference numerals designate like parts throughout the figures thereof. In the drawings which are on various scales:

Fig. 1 is a view, in a general perspective outline, of a fork lift truck having the improved platform of applicants' invention mounted on the forks thereof, broken lines being used to show the relative position of the movable section when extended;

Fig. 2 is a plan view of the improved platform on the forks of the truck, with parts broken away and in section for more clearly showing the construction of the platform;

Fig. 3 is a perspective view of the movable section of the platform, looking at its bottom side;

Fig. 4 is a perspective view of a back portion of the platform with the movable section removed;

Fig. 5 is a cross-sectional view taken substantially on the lines V—V of Fig. 2;

Fig. 6 is a cross-sectional view taken substantially on the line VI—VI of Fig. 5; and

Fig. 7 is a cross-sectional view taken substantially on the lines VII—VII of Fig. 2.

Referring now to the drawings which illustrate a preferred embodiment of the invention, there is shown in Fig. 1 an industrial truck 10 having a pair of laterally spaced load supporting forks 11 and mechanism (not shown) for raising and lowering the forks 11.

The forks 11 are adapted to be placed into and removed from suitable spaces in a platform 12 which is of the nature of a pallet usually used for such purposes. The platform 12 comprises a movable section or loader, referred to in its entirety by the numeral 14, and a base section referred to in its entirety by the numeral 16; the loader being carried by the base section 16 at the upper back part of the base section and being movable transversely, or laterally, between limiting positions, with respect thereto (one such position being generally indicated by the broken lines therefor in Fig. 1) and to intermediate positions therebetween.

The movable loader 14 of the platform 12 comprises a double floor plate 18, Fig. 5, to the under side of which a back angle iron or bar 20 and a front angle iron or bar 21 are secured with their vertical sides flush with the lateral edges of the floor 18 and co-extensive therewith. Each of the bars 20 and 21 rotatably carries a plurality of spaced rollers 22, the rollers being outward of the associated bar. The rollers are adapted to ride or roll in suitable lateral tracks in the base section 16 of the platform 12, as later described.

Each of the angle bars 20 and 21 securely receives a stop bolt. As better shown in Fig. 3, these stop bolts 24 and 25 are on diagonally opposite corners of the movable loader 14 of the platform 12 and extend inwardly of the loader for a short length. The stops 24 and 25 pass through fitting holes in the back and front angle bars 20 and 21, respectively, and can be secured to the angle bars

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after the loader 14 is associated with the base section 16. To this end, a pair of nuts 26 can be advantageously used in an obvious manner, one nut on each side of an angle bar.

Also secured to the underside of the floor 18 extending laterally centrally thereof, is a back angle bar 27 and a front angle bar 28, the bars being spaced and parallel, and having their foot portions 29 directed away from the lateral centerline of the floor 18. The spaced vertical sides of the angle bars 27 and 28 form rails for confining rollers on the base section, as described subsequently. Accordingly the bars 27 and 28 are hereinafter referred to as rails, and with the space therebetween forming a track 30. The back rail or bar 27 has its lower free edge provided with a plurality of rectangular latching notches 32 spaced along the full length of the rail.

The base section 16 of the platform 12 comprises a horizontal bottom plate 31 and sides 33 and 34, the bottom and sides extending for substantially the longitudinal length of the platform. Each of the sides 33 and 34 is in the form of an elongated bar or plate having a step cut into it at a rising edge 36 which divides the upper edge of the associated side into a back edge portion 38 and a front edge portion 40. A horizontal intermediate base plate 42 extends transversely to and between the sides 33 and 34, and extends longitudinally from the front to the rear of the platform. The base plate 42 is at the level of the back edge portion 38 and substantially parallel to the bottom plate 31.

The base section 16 is strengthened by spaced longitudinal channels 44, 45, 46 and 47 secured to the base plate 42 and the bottom plate 31 and extending from front to back of the platform 12. The lower space between the bottom plate 31 and the base plate 42 is open at the front end so as to conveniently receive the forks 11 of the truck 16. Preferably the transverse separation of the adjacent channels 44 and 45 and of channels 46 and 47 is adequate to allow ready entry and removal of the forks 11 but sufficiently close to limit disturbing side play.

The back end of the base section 16 of the platform 12 comprises an inverted L-shaped end plate or angle 48 having a horizontal leg or lip 50 which overhangs and is spaced from the base plate 42 to form a guide track 52.

The central part of the base section 16 at the rising edges 36 comprises a transverse channel 54 parallel to the end 48. A horizontal top plate 56 rests on the channel 54 and edge portions 40 of the sides 33 and 34 of the base section 16. Spaced longitudinal channels 60, 61, 62 and 63 between the base plate 42 and top plate 56 extend from a front channel 65 at the front of the base section to the transverse central channel 54 and further reinforce the base section 16.

It is to be understood that the various parts of the base section thus far described are preferably of steel and are rigidly secured together, preferably by welding. Also, while reference is made to a bottom plate and base plate, these terms and similar terms are used broadly and each plate or channel may be of one piece of metal or of several pieces of metal.

The top plate 56 extends from the front end of the base section 16 to the central part of the base section, protruding slightly rearward of the channel 54 so as to provide, in conjunction with the underlying part of the base plate 42, a transverse track 65. The tracks 65 and 52 are parallel and are spaced to receive and confiningly guide the rollers 22 of the movable section or loader 14 of the platform 12.

As more clearly shown in Fig. 4, spaced rollers 66 are mounted on the base plate 42 of the base section 16 for rotation about a vertical axis. These rollers are arranged transversely of the base section for riding in the guide track 30 of the movable section 14. The rollers 22 roll in the tracks 52 and 65; and the platform 12 is designed so that the tops 18 of the movable section 14 and the top

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56 of the base section 16 are at substantially the same level.

Stops 68 and 69 extend upwardly from the back part of base plate 42 of the base section 16 and cooperate with the stops 24 and 25, respectively, of the movable section 14 for limiting the extreme positions to which the section 14 can travel transversely.

In order to latch the movable section or loader 14 in either of its extreme transverse positions or in a number of positions therebetween, a latching means is provided for latching the loader and base sections 14 and 16 together. To this end, the base section 16 includes a pair of spaced L-shaped lock bars 70 extending through transversely spaced holes in the back part of the base plate 42. The lock bars 70 are moved by a linkage that comprises a shaft 72 that extends transversely in the lower space of the base section that is between the bottom 31 and base plate 42 and is journaled in pedestals 74 attached to the bottom 31 in any suitable manner.

The lower ends of the lock bars 70 are fixed to the shaft 72 and rotate with it. For rotating the shaft 72 in either direction, it has fixed thereto, substantially midway between the lock bars 70, a short lever 74 that extends downwardly. The lever 74 underlies an enlarged access hole 75 in the base plate 42. The lower end of the lever 74 is pivoted to a clevis means 76. The clevis means 76 is in turn attached to an operating rod 78 extending longitudinally backward therefrom for manual (hand) operation of the lock bars 70. To this end, the back end of the rod 78 terminates in a handle 79 that is forward of the back angle 48, but can be grasped for hand operation through a hole 80 in the angle. For manual (foot) operation of the lock bars 70, a link 81 extends longitudinally forward from the clevis means 76 to the end of a lever arm 82 in the lower space of the base section 16. The upper end of the lever arm 82 is fixed to a transverse shaft 84 in the upper space of the base section. The base plate 42 has an enlarged hole 85 that permits free movement of the lever arm 82 and also permits access to it.

The cross shaft 84 is suitably journaled in the base section 16 of the platform 12, passing through holes in the channels 60, 61, 62 and 63 and extending to the sides 33 and 34 of the base section. Fixed to each end of the cross shaft 84 is an end of a foot pedal 88 which extends longitudinally forward on a level slightly below the top plate 56 of the base section 16. As shown in Fig. 1, parts of the sides 33 and 34 of the base section and adjacent parts of the top plate 56 are cut away to provide holes 90 for operating access to the foot pedals 88.

In the preferred embodiment, the lock bars 70 are normally biased into latching position. To this end, the base section 16 is provided with a short channel section 92 slightly forward of the hole 80 in the back angle 48. The section 92 is a fixed part of the base section and has a hole through which the hand-operated rod 78 passes loosely. However, the section 92 serves as an anchor or fixed abutting support for an end of a compression spring 94 which is around the rod 78, the other end of the spring abutting a collar 96 fixed to the rod 78.

The platform 12 may be provided with guard rails 98 removably attached thereto by suitable means, such as insertion into guide sockets 100, or the like, fixedly secured to the base section 16 by welding or similar means, as shown in broken lines in Fig. 1.

The operation of the improved platform or pallet is fairly obvious. The movable section 14 can be assumed to be in normal position at and in line with the back end of the base section 16, with the rollers 22 of the movable section in the tracks 52 and 64 and resting on the base plate 42, while the rollers 66 of the base section are in the track 30 of the movable section limits side play of the movable section on the base plate. The compression spring 94 tends to force the lock bars 70 into notches

32 thereby latching the movable section and base section together.

If it is desired to move the movable section laterally in either direction, the handle 79 is pulled outwardly for hand operation or either of the foot pedals 88 is depressed. Such action causes the shaft 72 to rotate the lock bars 70 out of the notches 32, and the movable section can then be moved to any desired transverse position within the limits established by the cooperating stop means 24 and 25 on the movable section and 68 and 69 on the base section. Upon release of the handle 79 or the pedals 88 as the case may be, the compressed spring 94 forces the shaft 72 to rotate in a direction forcing the lock bars 70 into a pair of aligned notches 32 in an obvious manner; it being understood that slight adjustment of the position of the movable section 14 may be necessary for operable alignment of the lock bars and notches. The various rollers 22 and 66 have only very limited play, perpendicular to their axes, in the cooperating tracks so that the movable section 14 is adequately and wholly supported by the base section 16 in any adjusted position thereof within the limits set by the stops 24, 25, 68 and 69.

During movement of the lift truck, it is preferable to have the sections 14 and 16 of the platform 12 aligned in normal position, as indicated by the solid lines of Fig. 1 and Fig. 2 while the movable section 14 or the top plate 56, or both, is loaded with stores. When the lift truck is brought alongside the pile where the stores are to be stored, the movable section 14 can be moved transversely and latched in an unloading position along the top of the pile. The movable section is then returned to its normal position and latched there. Any stores on the top plate 56 can be transferred to the unloaded movable section which can again be moved to the unloading position and latched at the top of the pile. The top plate 56, accordingly, acts as a sort of shelf or step for holding goods during transportation, and also forms a convenient place for workers to stand on. Goods or stores can be loaded from a pile of stores onto the lift truck in an obvious manner by reverse of the operations described.

By latching the movable section 14 and base section 16 in normal position, the platform 12 can be used as a conventional rigid pallet.

This application is a continuation of my prior co-pending application for Safety Pallet-Storage Aid, Serial No. 268,652, filed January 28, 1952, now abandoned.

Obviously many modifications and variations of the present invention are possible in the light of the above teachings. It is therefore to be understood that within the scope of the appended claims the invention may be practiced otherwise than as specifically described.

What is claimed is:

1. A platform for use with an industrial lift truck having longitudinal forks, said platform being removably attachable to said forks and comprising a first section having a base plate and a shelf portion above said base plate, a second transversely movable section mounted on said base plate for limited movement transversely of said forks, said movable section having a top substantially on a level with said shelf portion, latch means for locking said movable section in any of a plurality of transverse positions relative to said first section, and means comprising cooperating parts on said movable section and said first section to wholly support said movable section on said first section in any transverse operational position of said movable section.

2. A platform of a type described adapted for use with a lift truck having a pair of longitudinally elongated forks, said platform comprising a base section having vertically-spaced horizontal bottom, top and intermediate plates dividing the base section into an upper portion and a lower portion thereby providing a pair of superposed horizontal spaces, said top plate having a load receiving

top, the lower space being adapted to receive said forks, said top plate overlying said intermediate plate to provide a transverse track intermediate the ends of said platform, a transverse lip spaced above said intermediate plate at an end thereof and cooperating therewith to provide a second track, and a transversely movable section having a plurality of roller means riding in said tracks for shifting a load transversely of said forks.

3. A platform of a type described adapted for use with a lift truck having a pair of longitudinally elongated forks, said platform comprising a base section having vertically-spaced horizontal bottom, top and intermediate plates dividing the base section into an upper portion and a lower portion providing a pair of superposed horizontal spaces, said top plate having a load-receiving top, the lower space being adapted to receive said forks, said top plate overlying said intermediate plate to provide a transverse track intermediate the ends of said platform, a transverse lip spaced above said intermediate plate at an end thereof and cooperating therewith to provide a second track, and a transversely movable section having a plurality of roller means riding in said tracks, said movable section and platform having transverse track and roller means cooperating for limiting longitudinal play of said movable section.

4. A platform of a type described adapted for use with a lift truck having a pair of longitudinally elongated forks, said platform comprising a base section having vertically-spaced horizontal bottom, top and intermediate plates dividing the base section into an upper portion and a lower portion providing a pair of superposed horizontal spaces, the lower space being adapted to receive said forks and said top plate providing a load-receiving shelf, a load-receiving movable section on said intermediate plate adapted for transverse movement, and cooperating means on said movable section and said base section limiting play of said movable section.

5. A platform as defined in claim 4 but further characterized by the top of said movable section and said shelf being substantially on the same level, and manually operable means for holding said movable section in adjustable positions with respect to said base section.

6. A platform as defined in claim 5 but further characterized by said manually operable means comprising a pair of foot operated pedals, one on each side of said shelf.

7. A platform as defined in claim 4 but further characterized by manually operable means comprising a lock bar for locating said movable section in any of a plurality of positions, and a pull rod connected with said lock for operating the latter to achieve movement of said movable member.

8. A platform as defined in claim 4 but further characterized by manually operable means comprising a pivoted lock bar for locking said movable member in any of a plurality of positions, a pull rod for operating said lock bar, a foot pedal adjacent said shelf, and linkage means connecting said pedal with said lock bar, whereby said lock bar may be selectively operated by said pull rod or by said foot pedal.

9. A platform adapted for combination with an industrial lift truck having forks for supporting a load, a platform attachable to said forks and having a first section, a second transversely movable section for shifting a load transversely of said forks, latch means for locking said movable section in any of a plurality of transverse positions, and means comprising cooperating parts on said movable section and said first section supporting said movable section wholly by said first section in any of said transverse positions and during movement therebetween.

10. A platform adapted for combination with an industrial lift truck having forks for supporting a load, a platform attachable to said forks and having a first section including a base plate, a second transversely mov-

able section movable on said base plate for shifting a load transversely of said forks, latch means for locking said movable section in any of a plurality of transverse positions, and means comprising cooperating parts on said movable section and said first section supporting said movable section wholly by said first section in any of said transverse positions and during movement therebetween.

11. A platform for combination with an industrial lift truck having forks for supporting a load, said platform comprising a base portion attachable to said forks and having a transversely movable section for shifting said load transversely of said forks, parallel side plates extending from the sides of said movable section, roller means carried by said side plates and adapted to roll on said base portion, a pair of spaced intermediate plates parallel to said side plates and located therebetween to form a track for rollers on said base portion, a plu-

rality of latch notches provided in one of said intermediate plates along the length thereof, and means adapted to cooperate with said notches to hold said transversely movable section in selected transverse positions.

References Cited in the file of this patent

UNITED STATES PATENTS

1,824,201	Eisenberg	Sept. 22, 1931
1,903,431	Abbe	Apr. 11, 1933
1,910,398	Ludington	May 23, 1933
2,091,068	Gill	Aug. 24, 1937
2,575,552	Glenn	Nov. 20, 1951
2,619,917	McKee	Dec. 2, 1952
2,620,930	Mullgardt	Dec. 9, 1952
2,667,980	Dawson	Feb. 2, 1954
2,709,017	Uliniski	May 24, 1955
2,720,993	Lull	Oct. 18, 1955