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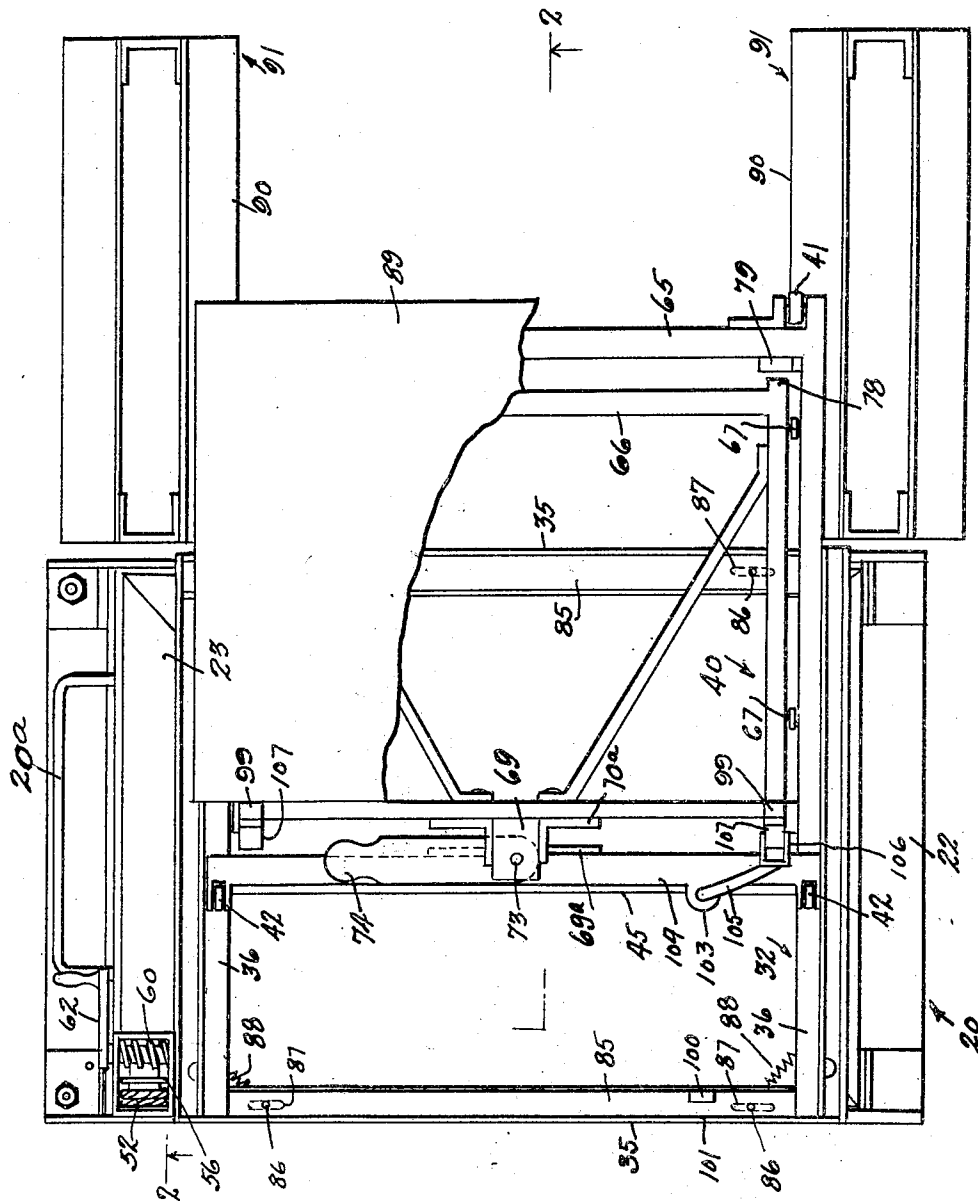
I. EISENBERG

1,824,201

LIFT TRUCK

Filed Jan. 27, 1930

5 Sheets-Sheet 1



INVENTOR
Isidor Eisenberg
BY
Maurice S. Slogin
ATTORNEY

Sept. 22, 1931.

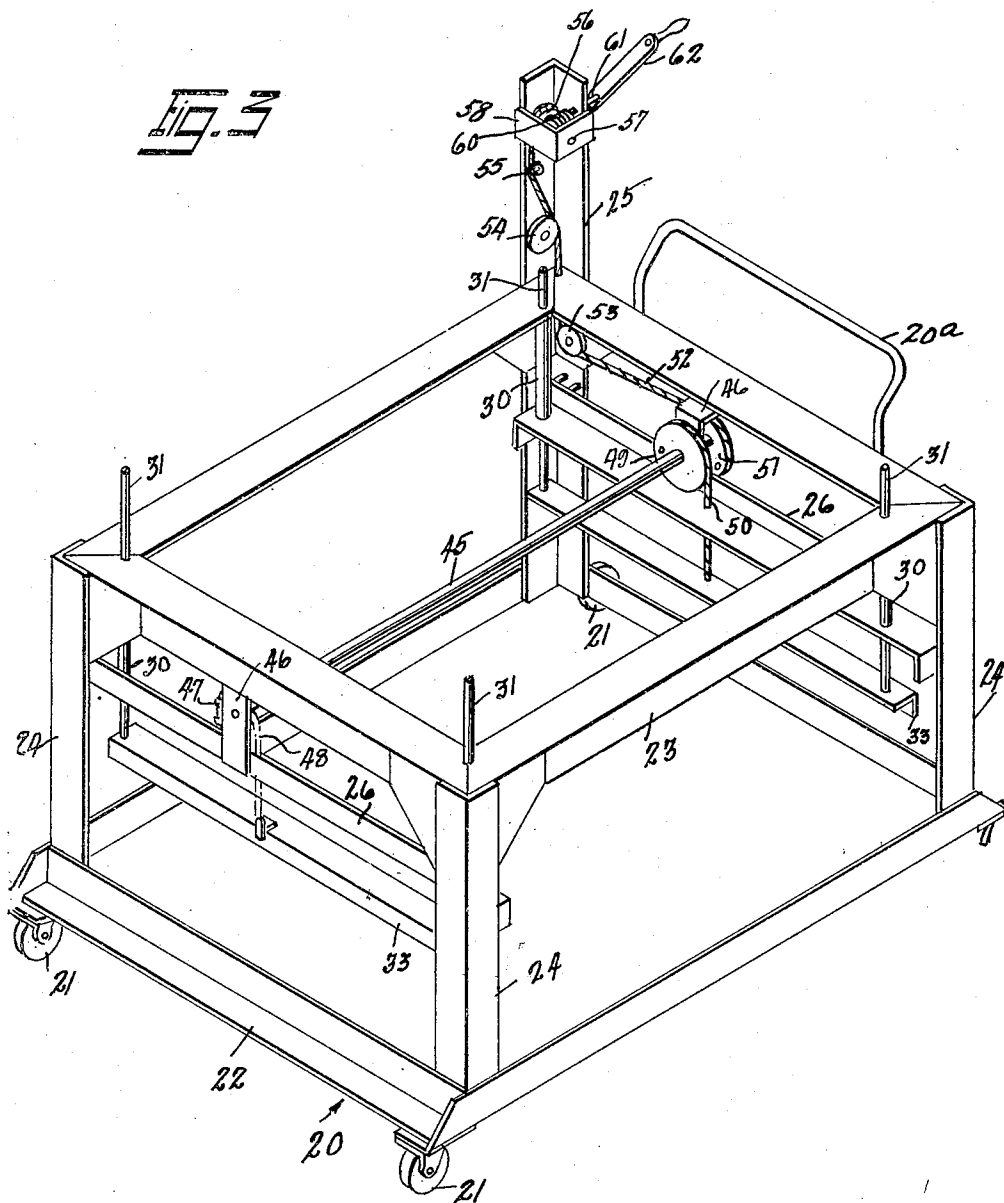
I. EISENBERG

1,824,201

LIFT TRUCK

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5 Sheets-Sheet 3



INVENTOR
I. Eisenberg
BY *Wm. A. Block*
ATTORNEY

Sept. 22, 1931.

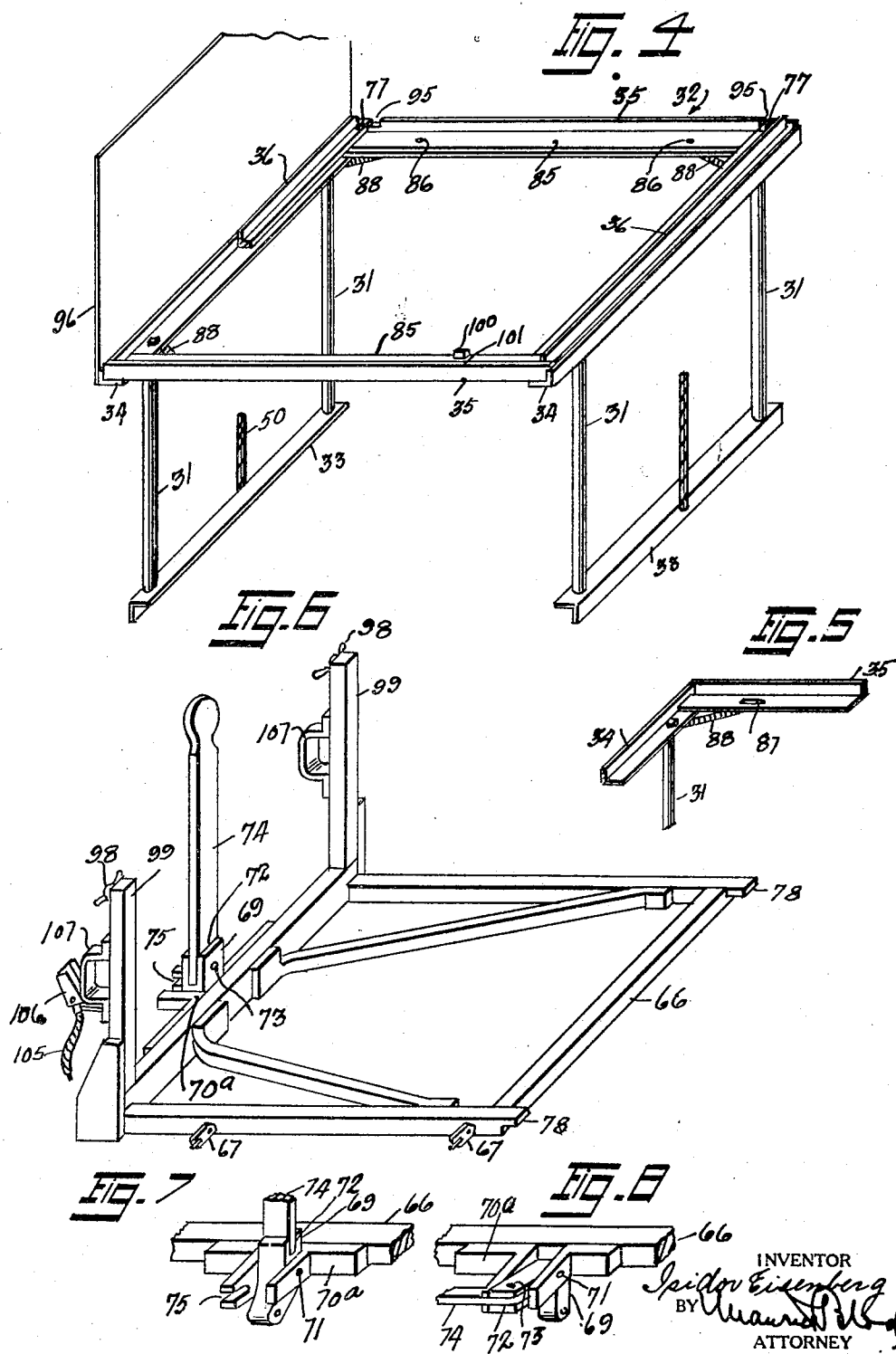
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LIFT TRUCK

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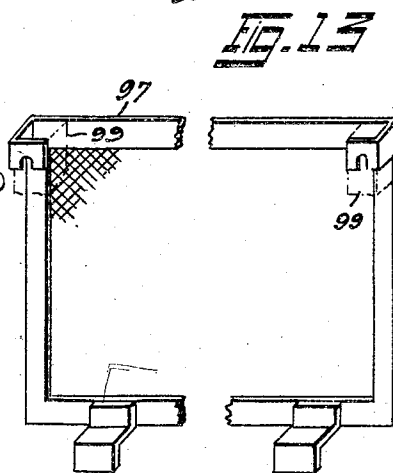
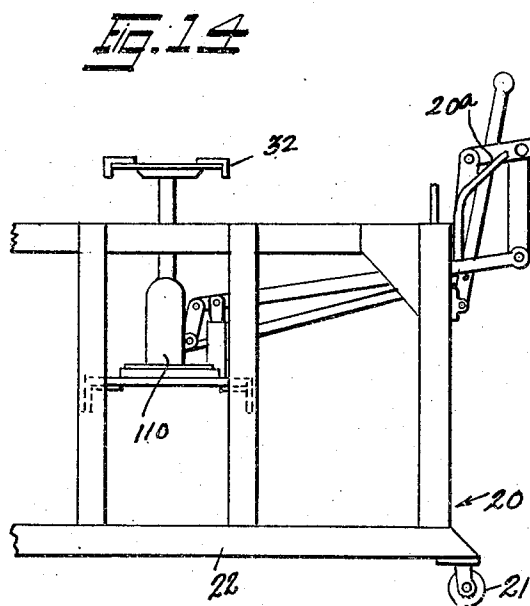
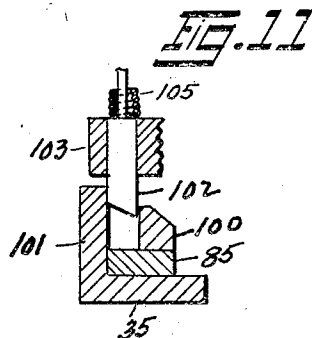
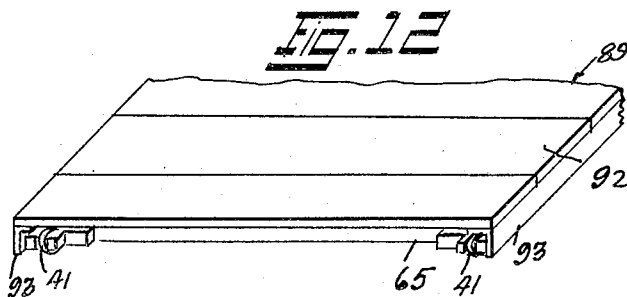
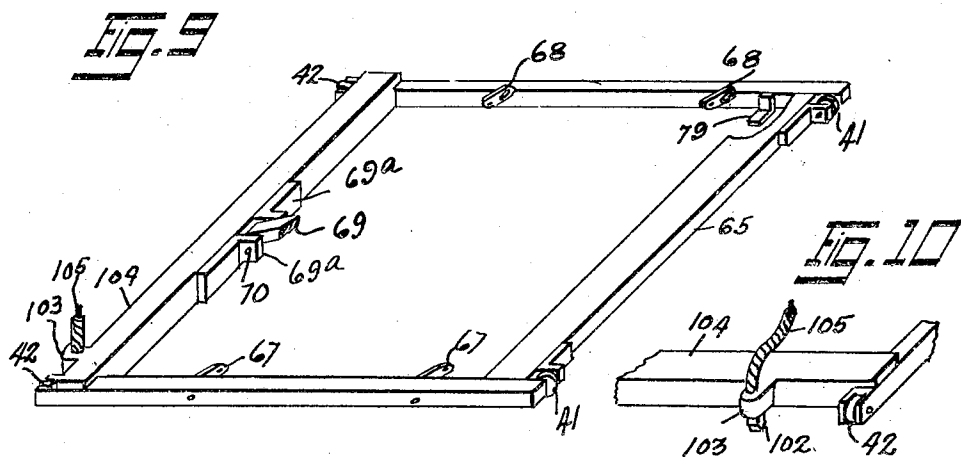
I. EISENBERG

1,824,201

LIFT TRUCK

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5 Sheets-Sheet 5



INVENTOR
I. Eisenberg
BY *Maurice H. [Signature]*
ATTORNEY

UNITED STATES PATENT OFFICE

ISIDOR EISENBERG, OF BROOKLYN, NEW YORK

LIFT-TRUCK

Application filed January 27, 1930. Serial No. 423,675.

This invention relates to portable lift trucks, and has for one of its objects the provision of a device of this character adapted for removing loaded platforms from shelves, tables, machines and the like, and transporting same wherever desired.

Another object of the invention is to provide a lift truck, mounted upon a portable carrier, and adapted to be slid therefrom underneath a loaded platform and lift same from a shelf, machine, or the like and transport the said platform to any desired location.

A further object of the invention is to provide a truck of this character slidably mounted upon a movable carrier and adapted to be raised thereon to heights within predetermined limits to be aligned with and slid under a loaded platform to remove same from its support and transport it to another location.

Another object is to produce a device of the character described in which the maximum simplicity of construction and operation is secured.

Other objects and advantages will appear as the nature of the improvements is better understood, the invention consisting substantially in the novel arrangement and co-relation of parts herein fully described, and illustrated in the accompanying drawings, wherein similar reference characters are used to describe corresponding parts throughout the several views, and then finally pointed out and specifically defined and indicated in the appended claims.

The disclosure made the basis of exemplifying the present inventive concept suggests a practical embodiment thereof, but the invention is not to be restricted to the exact details of this disclosure, and the latter, therefore, is to be understood from an illustrative, rather than a restrictive standpoint.

The inventive idea involved is capable of receiving a variety of mechanical expressions, one of which, for the purpose of illustration, is shown in the accompanying drawings, in which

Figure 1 is a top plan view of my improved lifting truck underneath a platform, the said platform being partly broken away.

Figure 2 is a sectional view taken on line 2-2 Figure 1.

Figure 3 is a perspective view of the movable carrier and the lift truck raising means.

Figure 4 is a perspective view of the lift truck track carrier.

Figure 5 is a detail perspective view of a portion thereof.

Figure 6 is a perspective view of the inner frame lift truck unit.

Figures 7 and 8 are fragmental detail views of the locking means therefor.

Figure 9 is a perspective view of the outer lift truck frame unit.

Figures 10 and 11 are detail views of the safety stop for the truck.

Figure 12 is a fragmental perspective view showing the relation of the truck to the platform when the truck is fully underneath the said platform.

Figure 13 is a perspective view of a protective cage wall adapted to be used on the truck, and

Figure 14 is a modified form of the truck elevating means.

Referring now to the drawings in detail 20 indicates a lower carrier or truck provided with wheels or castors 21 upon which it may be moved from place to place. The said carrier comprises a lower frame portion 22, and upper frame portion 23 connected by three angle iron supports 24 and a fourth longer support 25. A pair of cross members 26 are suitably secured to the members 24 and 25 intermediate the top and bottom frames 23 and 22 and spaced from the top frame member by means of sleeves 30. These sleeves 30 act as guiding means for rods 31 which pass through them, the said rods 31 acting as corner supports for a lift truck track carrier 32. The track carrier comprises lower longitudinally extending angle iron members 33, upper parallel angle iron member 34 connected together by the rods 31, and cross members 35 connecting the ends of the upper members 34. Track rail members 36 are suitably secured to the members 34.

Normally the track carrier rests upon the upper surface of the frame 23 and supports thereon a lift truck 40 provided with

front and rear wheels 41 and 42 engaging the track rails 36 and upon which wheel the truck is adapted to be slid onto another surface even with the height of the said rails.

- 5 For enabling the truck to be moved onto surfaces higher than the aforementioned normal position, means for elevating the track rail carrier 32 is provided. The said means comprises a shaft 45 journaled in brackets 10 46 secured to the upper frame 23 of the movable carrier 20, the shaft 45 being provided at one end thereof with a sprocket wheel 47 to which one end of a sprocket chain 48 is secured, the opposite end of which is secured 15 to one of the lower track carrier members 33. The elevating means further comprises a pulley 49 near the opposite end of the shaft 45, to which pulley is secured one end of a rope 50 secured at its lower end to the other 20 of the members 33. A second pulley 51 is secured to the shaft 45 at this end and has one end of a rope 52 secured thereto which passes over idlers 53, 54 and 55 and is secured at its opposite end to a drum 56 on a shaft 57 journaled in one wall of the member 25 and in a bracket 58 secured to the said member 25. The shaft 57 has also secured thereto a worm wheel 59 in engagement with a worm 60 on a shaft 61 to which 30 is secured a handle 62 by which the elevating means is operated. Instead of the sprocket wheel 47 and chain 48 I may use a pulley and rope arrangement if I so desire.

- The truck 40 comprises a lower or outer 35 member 65 and inner or upper member 66 connected together by means of a toggle arrangement, comprising two pairs of links 67 and 68 movably joining the said members 65 and 66 together at their sides and a link 69 40 pivotally mounted at 70 to brackets 69a on the lower member 65 and likewise secured at 71 to brackets 70a on the upper member 66. The link 69 is slotted at the top thereof as at 72 and has pivotally secured thereto at 45 73 a lever 74 by which means the inner member 66 is raised and lowered in relation to the lower or outer member 65. A slot 75 provides means for locking the said lower and upper members in raised position. (see 50 Fig. 8). Rollers 77 on the track rail carrier 32 (see Figs. 2 and 4) together with the rollers 41 and 42 insure continuous roller contact for the lift truck 40. The upper member 66 is provided with lugs 78 which 55 rest upon brackets 79 secured to the side rails of the lower member 65 when the upper or inner member is in lowered position.

- Overlying the cross members 35 of the rail carrier 32 and underlying the ends of the 30 rails 36 are a pair of bars or strips 85 each provided with a pair of pins 86 extending downwardly through slots 87 (see Figs. 1, 4 and 5) and connected to one end of springs 88 which at their opposite ends are secured 65 to the members 34. This arrangement pro-

vides means for laterally alining the lift truck in relation to a platform 89 which in the present instance is shown as supported upon shelves 90 of racks 91. The said platform comprises a top 92 made of either wood 70 or metal and having depending flanges 93 between which the lift truck is adapted to be advanced or pushed when it is desired to lift the said platform. It is to be understood the said platform may have thereon merchandise or work of various kinds that is to be transported to some other location. Cut-outs 95 on the forward member 35 permit the rollers 41 to ride on and off the rail member 36. 80

The longitudinal sides of the rail carrier may be provided with walls 96 only one of which is shown in Figure 4, and a partition or wall 97 (Figure 13) may be suspended 85 from bolts 98 on posts 99 secured to the inner truck member 66. These walls 96 and the rear partition 97 together with a front partition which may be secured to the side-walls 96 after the loaded platform is on the lift truck, provide a cage out of which none 90 of the material on the platform may fall out.

In order to prevent the lift truck to prematurely or accidentally leave the rail carrier, I provide a safety stop which consists of 95 a block 100 secured to rear rail carrier plate 85 spaced from the upstanding flange 101 of the rear cross member 35 to permit of the insertion of a tongue or projection 102 passing through an opening in a lug 103 on the rear bar 104 of the outer truck member 65. This tongue 102 is connected by means of a 100 flexible shaft 105 which is secured at its upper end to a spring pressed member 106 hingedly mounted on an ear or handle 107 secured to one of the posts 99. 105

To raise a loaded platform from its support on to the truck the movable carrier with the truck thereon is alined as near as possible with the platform; the handles 107 are 110 grasped one in each hand, the stop or tongue 102 is withdrawn from between the projection 100 and wall 101 and the truck is pushed in the direction of the loaded platform. If the truck does not properly aline with the platform, the rails on the plates 85 are pushed 115 either to the right or left against the tension of the springs until proper alinement between the truck and platform is obtained after which the truck is pushed under the platform, and when fully underneath same, the handle 74 is pulled downwardly, which action will 120 raise the inner truck member 66 and lift the platform with the merchandise or other material thereon from its support. The lever 74 is then rotated about its pivot 73 and brought into locking engagement with the slot 75 as shown in Figure 8, and the lift truck is then pulled backwardly until the tongue 102, again snaps into its Figure 11 po- 125 130

sition, after which the carrier 20 may be moved to any desired location, a handle 20a being provided for this purpose.

In Figure 14 I have shown a modified form of my invention in which instead of the rope lift, I employ a hydraulic jack 110 which may be operated to raise the rail carrier 32.

From the foregoing it will be seen that I have provided a lifting truck and portable carrier therefor that can be moved very close to a machine, table, rack or other support upon which there rests a loaded platform, and push a truck underneath the said platform and raise same without undue effort and transport the said loaded platform to any desired location, thereby saving a great deal of time in the handling or transportation of articles from one department to another.

Having described my invention what I claim as new and desire to secure by Letters Patent is:

1. In a device of the nature described, an elevator, a carrier thereon, rails on the carrier, a truck slidably mounted on the rails, means for releasably locking the said truck to the carrier, said means comprising a handle on the truck, a spring pressed member pivotally mounted on the handle, a flexible connection secured at one end thereof to the spring pressed member and a tongue at the opposite end of the flexible connection passing through the truck and adapted to lockingly engage the carrier when the spring pressed member is pressed against the handle.

2. In a device of the nature described, an elevator, a truck slidably mounted thereon, means for releasably locking the truck to the elevator, the said means comprising a spring pressed member pivotally mounted on the truck, a flexible connection secured at one end thereof to the pivotal member, and a tongue at the opposite end of the flexible connection passing through the truck and adapted to lockingly engage the elevator when the pivotal member is operated against the tension of the spring.

3. In a device of the nature described, an elevator, a truck slidably mounted thereon, means for releasably locking the truck to the elevator, the said means comprising a spring pressed member pivotally mounted on the truck, a flexible connection secured at one end thereof to the pivotal member, a pair of spaced apart upstanding members on the elevator, and a tongue at the opposite end of the flexible connection passing through the truck and adapted to enter the space between the said upstanding members when the pivotal member is operated against the tension of the spring.

In testimony whereof I hereunto affix my signature.

ISIDOR EISENBERG.