July 7, 1959 R. W. PARCELL 2,893,582

INDUSTRIAL TRUCK

Filed Jan. 2, 1958 3 Sheets-Sheet 1

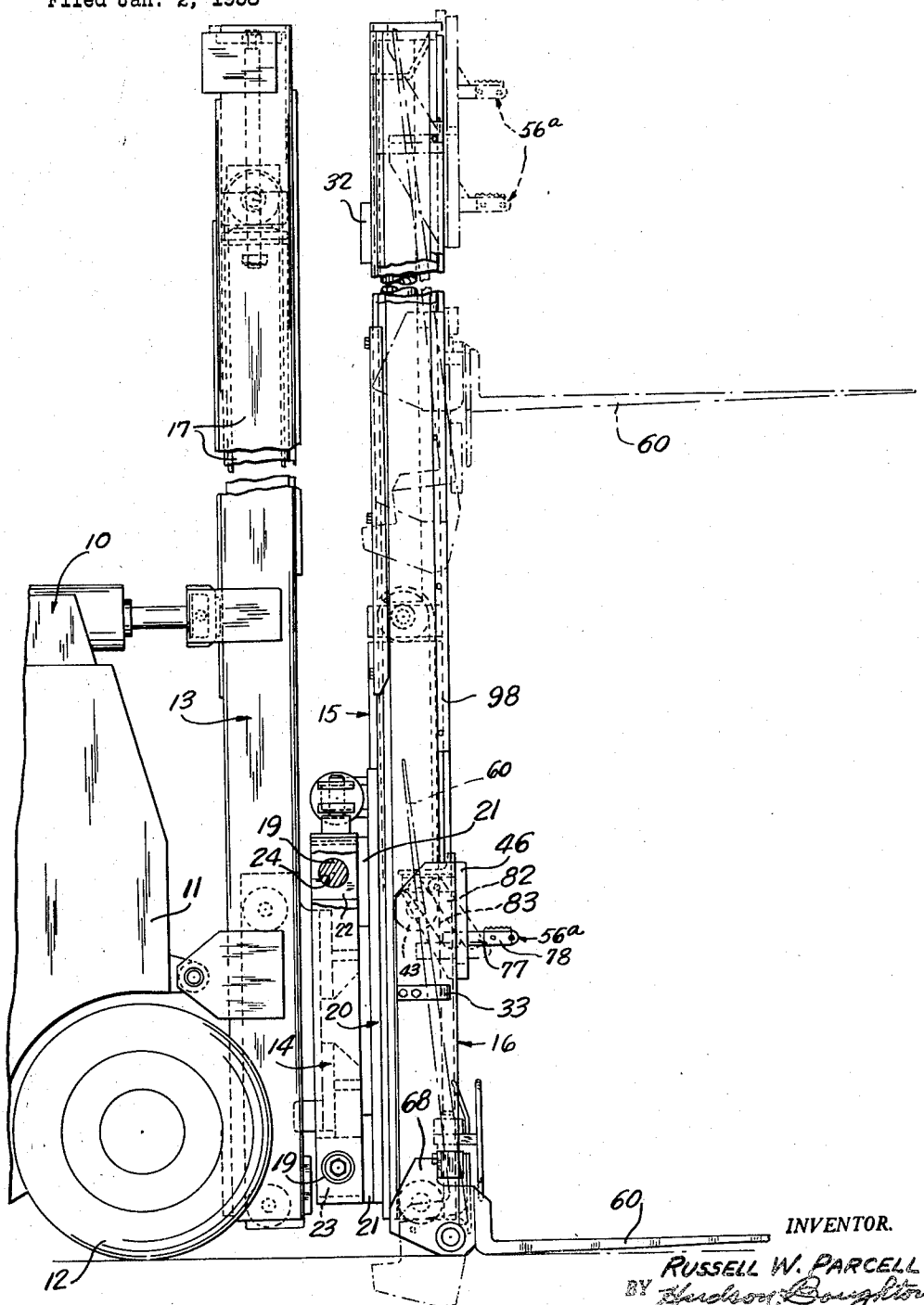


FIG. 1

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INDUSTRIAL TRUCK

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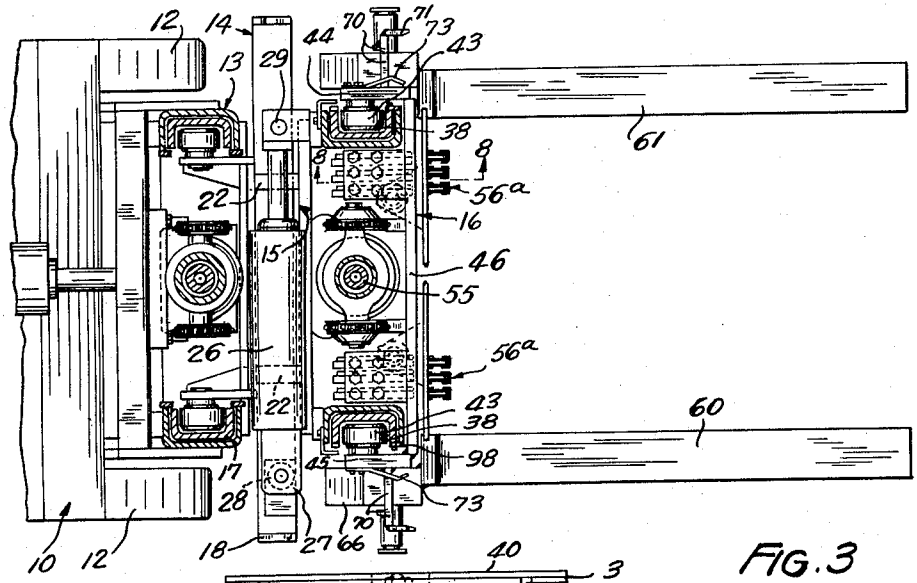


FIG. 3

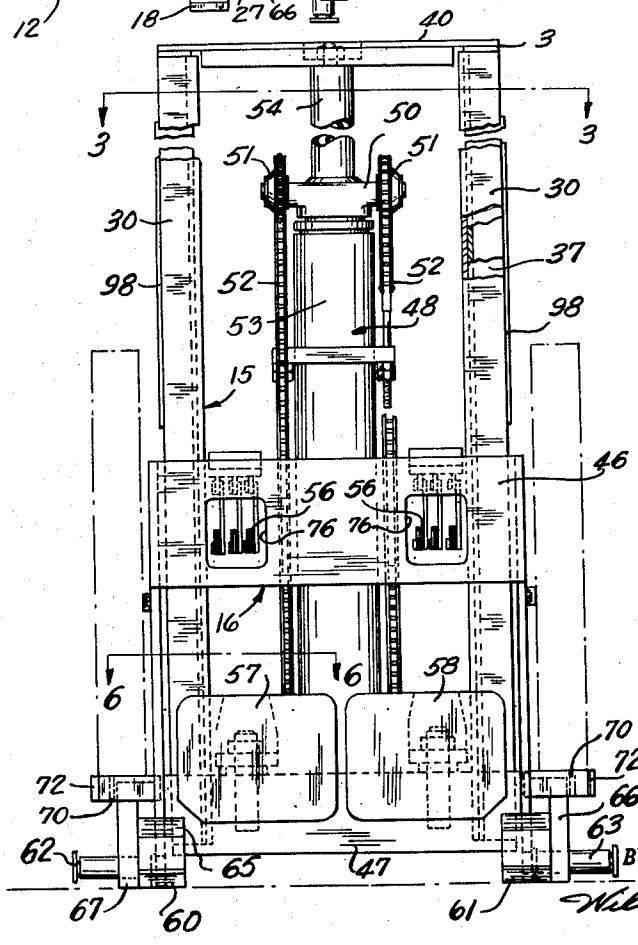


FIG. 2

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INDUSTRIAL TRUCK

Filed Jan. 2, 1958 3 Sheets-Sheet 3

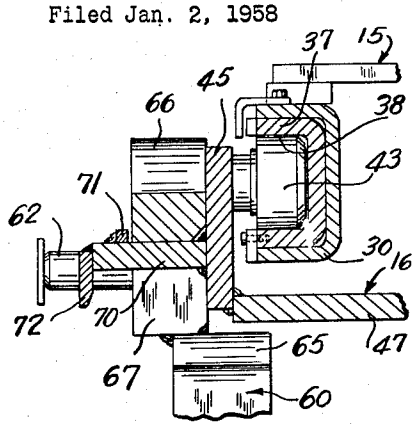


FIG. 5

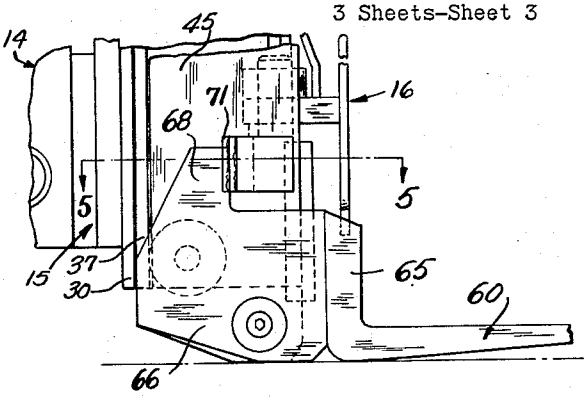


FIG. 4

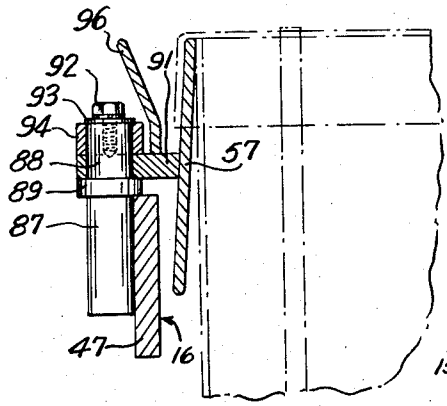


FIG. 7

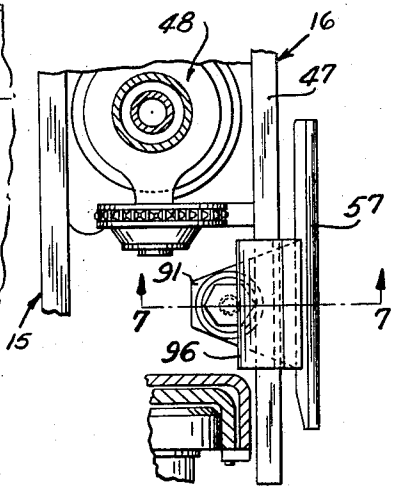


FIG. 6

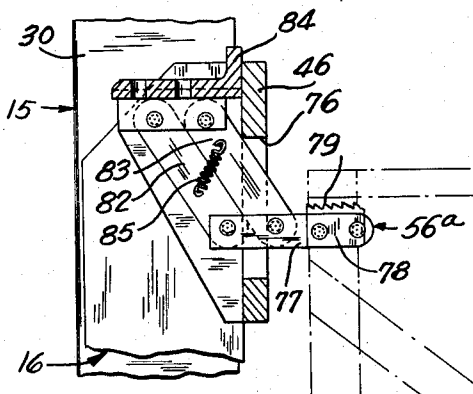


FIG. 8

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United States Patent Office 2,893,582 Patented July 7, 1959

2,893,582

INDUSTRIAL TRUCK

Russell W. Parcell, Solon, Ohio, assignor, by mesne assignments, to Otis Elevator Company, New York, N.Y., a corporation of New Jersey

Application January 2, 1958, Serial No. 706,700

9 Claims. (Cl. 214—651)

The present invention relates to a material-handling apparatus and, more particularly, to an industrial truck having an elevatable load carriage thereon and to an attachment for use therewith.

An important object of the present invention is the provision of a new and improved attachment for an industrial truck, preferably an attachment to adapt the truck to handle cartons or crates having a downwardly facing abutment adjacent the upper portion thereof, the attachment comprising a frame having means for detachably connecting the frame to the elevatable load carriage of an industrial truck for side-shifting movement with respect thereto, a load supporting member adapted to engage or receive the underside of an abutment on the load to support and lift the load, and a mast assembly for guiding the load supporting member in its vertical movement and including a ram operable to move the load supporting member vertically and hold the member in a selected position within its range of movement to accommodate handling various size crates and to make it possible to lift a crate when the attachment is positioned on an industrial truck without operating the elevatable carriage, the mast assembly preferably comprising telescoping primary and secondary masts for guiding the movement of the load supporting member.

Yet another object of the present invention is the provision of a new and improved material handling apparatus, particularly an industrial truck, having an elevatable carriage, a load carrier for the elevatable carriage, which carrier is adapted to handle either a carton having a strapped top thereon or a conventional crate and to elevate the carton or crate, as the case may be, relative to the carriage, the load carrier preferably being constructed in the form of an attachment which is quickly and easily connected to and detached from the elevatable load carriage.

A still further object of the present invention is the provision of a new and improved material-handling apparatus, particularly an industrial truck having an elevatable member, and uprights for supporting and guiding the elevatable member in its vertical movement which are so constructed and arranged that a relatively narrow spacing of the uprights is possible even though load-engaging members for handling the load are positioned between the uprights.

Yet another object of the present invention is the provision, in an industrial truck having an elevatable load carriage, of a new and improved load carrier for the carriage, which carrier is provided with conventional fork members for engaging and handling a load that are swingable to an inactive position to readily and quickly convert the load carrier to adapt the same to handle crates or cartons, the load carrier including means different from the forks adapted to engage horizontally extending abutment means on the carton or crate to be handled to lift and support the carton or crate.

A further object of the present invention is the provision of a new and improved industrial truck including

a load carrier having load engaging fork members which are supported for swinging movement to an out-of-the-way position to permit the load carrier to be used to handle a load which does not require the use of fork members.

The invention resides in certain constructions, combinations and arrangements of parts and further objects and advantages will be apparent to those skilled in the art to which it relates from the following description of the preferred embodiment described with reference to the accompanying drawings forming a part of this specification, and in which:

Fig. 1 is a fragmentary side elevational view of an industrial truck embodying the present invention;

Fig. 2 is a front elevational view of the truck shown in Fig. 1;

Fig. 3 is a horizontal sectional view taken approximately along line **3—3** of Fig. 2;

Fig. 4 is an enlarged fragmentary elevational view of a portion of Fig. 1 showing the support for the pivoted fork member of the load carrier;

Fig. 5 is a fragmentary sectional view taken approximately along line **5—5** of Fig. 4 and showing the detail of the support for the pivoted fork member of the load carrier;

Fig. 6 is a fragmentary sectional view taken approximately along line **6—6** of Fig. 2;

Fig. 7 is a detail sectional view taken approximately along line **7—7** of Fig. 6; and

Fig. 8 is a fragmentary sectional view taken approximately along line **8—8** of Fig. 3 showing the construction of one of the crate-handling members.

The present invention provides in a material-handling apparatus, such as an industrial truck, a load carrier which is preferably detachably connected to an elevatable carriage of the material-handling apparatus and which has a load-handling member supported on the frame thereof for vertical movement with respect thereto, the load-handling member, according to one feature of the invention, having fork members thereon disposable in a first position where they are adapted to handle a load in a conventional manner and in a second position where they permit the load-handling member to be used to lift cartons and the like, the load-handling member being provided with a load-engaging member adapted to engage a horizontal abutment on the upper portion of the load, and preferably with load-engaging members for engaging and handling either a crate where the horizontal abutment is formed by a wooden member on the crate or a carton where the horizontal abutment is formed by the top of the carton. Preferably the load-handling member is supported and guided on the load carrier for vertical movement by masts, preferably telescoping masts comprising upright channel-like members having channels which open outwardly away from the other mast permitting the uprights to be spaced a minimum distance apart and to be utilized to support the load.

Referring to the drawing, the invention is shown as embodied in a lift truck **10** including a chassis **11** mounted on wheels **12** and having mounted on the front end thereof a mast assembly **13** for supporting and elevating a carriage **14**. The elevatable carriage **14** has mounted thereon a load carrier **15** including an elevatable load-handling member **16**.

The mast assembly **13** for supporting and elevating the carriage **14** is of conventional construction and preferably includes a ram operable through suitable mechanism to raise and lower the carriage **14** and telescoping guides **17** for guiding the movement of the carriage. The ram and the means interconnecting the ram and the carriage, including the telescoping guides, are of conventional construction and, in themselves, do not constitute a part

of the present invention and, therefore, are not shown or described in detail. While the construction of the mast assembly **13** is well known to those skilled in the art, reference is made to Patent No. 2,599,524 for a complete showing and disclosure of a mast assembly suitable for use with the present invention.

The carriage **14** comprises a frame **18** which extends transversely of the truck chassis and includes upper and lower horizontal bars **19** respectively adjacent the upper and lower portions thereof to which a framework **20** of the load carrier **15** is removably connected. The framework **20** includes upper and lower transverse plates **21** and is connected to the carriage **14** by means comprising pairs of upper and lower bearing blocks **22, 23** fixed respectively to the upper and lower plates **21**. The bearing blocks **22, 23** each have an aperture **24** therein for receiving the adjacent bar **19** and the bars **19** are removably supported in the frame **18** of the carriage **14** so as to permit the ready separation of the bearing blocks **22, 23** and the bars and the removal of the load carrier **15**. The construction of the bars **19** and their support so as to permit the bars to be removed is conventional and does not, per se, form a part of the present invention.

The framework **20** and the load carrier **15** are preferably side shiftable relative to the load carriage **14** by operation of a double acting fluid pressure motor **26** having a cylinder element and cooperating piston element, one of which is pivotally connected to a pin **27** extending upwardly from a boss **28** fixed to the top of the frame **18** and the other of which is pivotally connected to a bracket **29** fixed to the upper plate **21** of framework **20** and extending rearwardly therefrom. When pressure fluid is supplied to one side of the motor **26**, the motor operates to shift the framework **20** and the load carrier **15** in one direction and when supplied to the opposite side operates to side shift the framework **20** and load carrier **15** in the opposite direction. When the framework **20** is side shifted, the upper bearing blocks **22** and the lower bearing blocks **23** slide on their respective bars **19**.

While a specific construction has been shown for detachably connecting the framework **20** to the load carriage and for permitting side shifting movement therebetween, it is to be understood that other suitable and conventional constructions may be utilized.

In accordance with the present invention the framework **20** has a mast assembly mounted thereon for supporting and guiding the load-handling member **16** for vertical movement. The mast assembly on the carrier **15** comprises a pair of spaced, vertically extending uprights or primary guides **30** fixed to the frame of the carrier and having the form of channel members with channels therein that open into the outer sides of the guides so as to face in opposite directions and away from each other. The guides are connected at their lower ends by the upper and lower plates **21** and at their upper ends by a transverse member **32**. The plates **21** are connected to the rearward sides of the primary guides **30** and extend across the back of the guides.

The primary guides **30** each have a cooperating secondary guide **37** operable in a telescoping manner with respect thereto. The secondary guides **37** are channel members and have channels **38** which open to the outer sides of the secondary guides **37** so as to face in opposite directions away from each other and outwardly of the center line of the truck and the secondary guides are joined by an upper tie member **40** connected between the upper edges of the secondary guides.

The load-handling member **16** is provided with pairs of vertically spaced wheels **43** which operates in the channels **38** to guide the vertical movement of the load carrier relative to the secondary guides. The wheels **43** are respectively supported by spaced, vertical plates **44, 45** which constitute side plates forming a part of the frame of the load-handling member **16**. The plates are disposed outwardly of, but adjacent the secondary guides **37** and extend forwardly from the secondary guides and are joined by upper and lower transverse plates **46, 47**, respectively, which also constitute a part of the frame of the load-handling member **16**.

The load-handling member **16** is movable vertically, in the illustrated embodiment, by the operation of a dual lift cylinder assembly **48**. The dual lift cylinder assembly **48** is a conventional cylinder assembly of the type completely shown and described in U.S. Patent 2,598,566 to Lehmann and, therefore, is not herein shown or described in detail. Suffice it to say that the cylinder assembly **48** includes a crosshead **50** which is moved vertically when fluid pressure is supplied to the cylinder assembly to effect the raising of the load-handling member **16**. The crosshead **50** has a pair of spaced sprockets **51** supported thereon and over which are trained chains **52**, or other suitable flexible connecting members, each having one of its ends connected to the lower transverse member **47** of the load-handling member and its other end connected to an outer element **53** of the cylinder assembly. The initial movement of the crosshead **50** takes place upwardly with respect to the element **53** and with respect to a tubular member **54** forming a part of the cylinder assembly **48** and extending coaxially therewith upwardly to the tie member **40** joining the upper ends of the secondary guides **37**. This portion of movement of the crosshead, through the chains **52**, effects movement of the load-handling member **16** to a position adjacent the upper ends of the guides, as shown in dot-dash lines in Fig. 1. It will be noted that the rate of movement of the load-engaging member **16** is twice that of the crosshead **50** and that the movement of the load-engaging member **16** from its lowermost position with respect to the secondary guide **37** to its uppermost position with respect thereto occurs without movement of the secondary guides relative to the primary guides **30**. After the load-engaging member **16** is disposed adjacent the upper ends of the telescoping guides **37**, the supplying of fluid pressure to the cylinder assembly **48** will effect vertical movement of both the elements **53, 54** and the crosshead **50** to raise the load-engaging member **16** and the secondary guides **37** as a unit with respect to the primary guides **30** and with respect to rod **55** disposed within the cylinder assembly **48** and fixed to the lower part of the load carrier frame. The construction and operation of the cylinder assembly **48** to effect the described movement is described in detail in the aforesaid patent and reference is made thereto for those who are unfamiliar with the type of conventional cylinder assembly described. It will be understood that other suitable cylinder assemblies can be utilized to elevate the load-handling member **16**. Preferably, however, the cylinder assembly is such to permit the initial elevational movement of the load-engaging member to occur without raising the secondary guide **37** relative to the primary guides **30** to facilitate the use of the truck in areas with limited overhead.

The load-handling member **16** is, according to the preferred embodiment of the present invention, provided with a plurality of crate-handling fingers **56** which are supported adjacent the upper portion of the load-handling member **16**, a pair of carton lifting blades **57, 58** supported adjacent the lower end of the load-handling member **16**, and a pair of fork members **60, 61** also supported adjacent the lower end of the load-handling member **16**. The crate-handling fingers **56**, the carton-handling members **57, 58**, and the fork members **60, 61** adapt the load-handling member **16** to handle loads in three different ways.

The fork members **60, 61** disposed adjacent the lower portion of the load-handling member **16** are respectively supported on pivot pins **62, 63**. The pivot pins **62, 63** respectively extend horizontally outwardly from the side plates **44, 45** and are connected at their inner ends to the respective one of the side plates so as to support the fork members **60, 61** adjacent opposite sides of the load-

engaging member **16**. The mounting and support for each of the fork members **60**, **61** are the same and, therefore, only the support and mounting for the fork member **60** will be described but the reference numerals for the parts of the support and mounting for the fork member **60** will be applied to the corresponding parts for supporting and mounting the fork member **61**. Referring to Figs. 4 and 5, the fork member **60** includes a horizontally extending portion for engaging the load and a vertically extending portion **65** extending upwardly from the innermost end of the horizontal portion. A plate **66** is welded to the portion **65** of the fork member **60** and extends rearwardly therefrom parallel to the side plate **45** of the frame of the load-engaging member **16** and is provided with an aperture and a tubular boss **67** for receiving the pin **62** to support the fork member **60** on the pin. The plate **66** is connected to the portion **65** adjacent its outside edge, as the fork member **60** is viewed in Fig. 5, and the length of the pin **62** is such as to permit the fork member **60** to be shifted therealong from a position where the plate **66** is disposed immediately adjacent the side plate **45** with the inner part of the portion **65** disposed in overlapping spaced relationship with, and in front of, the lower transverse frame member **47** of the load-handling member to an outer position on the pin **62** where the fork member is disposed, in its entirety, outwardly of the adjacent side plate **45** of the frame of the load-engaging member, as shown in dot-dash lines in Figs. 2 and 5. When the fork member **60** is disposed in its outermost position on the pin **62**, the fork member may be swung to a generally vertical position shown in dot-dash lines in Figs. 1 and 2 for reasons which will be set forth hereinafter.

When the fork member **60** is horizontal and in its innermost position, a portion **68** of the plate **66** abuts a stop member **70** fixed to and extending outwardly from the side plate **44**. The portion **68** of the plate member **66**, when the fork member **60** is horizontal, extends upwardly from the rearward end of the plate **66** to engage the stop member **70** and the stop member **70** is provided with an ear **71** to prevent the plate member **66** and, in turn, the fork member **60** from shifting outwardly on the pin **62**.

The fork member **60** may be swung to a vertical position in which the fork member engages the forwardly facing side of the stop member **70** by first rotating the fork member to clear the portion **68** of the plate member from the ear **71** and then shifting the fork member **60** axially on the pin **62** to its outermost position shown in Figs. 2 and 5 where it can be rotated to a vertical position in engagement with the forwardly facing face of the stop member **70** and where the fork member is, for all practical purposes, rearward of the forward side of the load-handling member **16**.

When the fork member **60** is in its inactive vertical position against the forwardly facing side of the stop member **70**, the fork member is prevented from moving outwardly on the pin **62** by an end member **72** secured to the outer end of the stop member **70** and extending forwardly therefrom. The fork member **60** is prevented from falling forward when in its inactive vertical position by a spring member **73** secured to the outer side of side plate **45** and engageable with the fork member when in a vertical position to prevent its movement forwardly away from the stop member **70**. Any other suitable conventional means may be utilized to secure the fork member **60** in its vertical position.

When the fork members are pivoted to their out-of-the-way positions, the load-handling member **16** is adapted to handle a crate or a carton. If a crate is to be handled, the crate-handling fingers **56** are utilized. In the preferred embodiment, the crate-handling fingers **56** are disposed on opposite sides of the cylinder assembly **48** and rearwardly of the upper transverse member **46** of the frame of the load-handling member. There are, in the illustrated embodiment, three crate-engaging fingers on each side of the cylinder assembly **48** and the fingers on each side of the cylinder assembly are adapted to extend outwardly and forwardly of the upper transverse member **46** through an opening **76** on the transverse member **46**.

The crate-handling fingers **56** are of the same construction and function in the same manner as the crate-handling fingers disclosed in U.S. Patent No. 2,826,323 of Frank Schenkelberger and will be only briefly described herein and reference is made to the aforesaid patent application for a complete description of the structure and operation of the fingers. One of the fingers and the support therefor are shown in detail in Fig. 8. The finger shown in Fig. 8 shall be designated hereinafter by the reference character **56*a*** and as the finger and support therefor is described, it is to be understood that the other crate-handling fingers **56** are constructed and supported in a similar manner.

The finger **56*a*** comprises a horizontal finger member **77** that extends outwardly through the adjacent opening **76** in the transverse member **46** of the frame of the load-handling member and has a gripping element **78** secured to the outer end thereof. The gripping element **78** has serrations or teeth **79** along its upper edge and is adapted to engage the underside of a horizontal abutment on a crate. The horizontal abutment may be provided by a transverse horizontal frame member of the crate. The finger **56*a*** is supported for retractive movement to a position inwardly of the forward edge of the transverse member **46** by a pair of parallel links **82**, **83** which suspend the finger **56*a*** from a block **84** secured to the rearward side of the transverse member **46**. When the finger member **77** is in its projected or outermost position shown in Fig. 8, the adjacent sides of the links are in engagement with each other and the links are biased to this position by a spring **85** connected by the links. If the industrial truck shown in the drawing is being manipulated to handle a load, i.e., a crate to be picked up by the crate-engaging finger **56** or another type of load, and the outer end of the finger **56*a*** strikes an abutment or a portion of the load, the finger **77** will retract inwardly of the transverse member **46** and not interfere with the proper positioning of the load-handling member **16** with respect to the load.

When a crate is being handled, the outwardly extending fingers **56** are positioned, by operation of the cylinder assembly **48**, under the horizontal abutment to be engaged and then the cylinder assembly is operated to raise the load-handling member **16** to engage the teeth **79** with the underside of the horizontal abutment to lift the crate to be handled as shown in Fig. 8. As the crate is lifted the fingers will swing inwardly until the crate rests against the transverse member **46**.

It is again noted that each of the fingers **56** is supported in the same manner as the fingers **56*a***, and the fingers on each side of the cylinder assembly **48** are supported by one block **84** fastened to the transverse frame member **46**.

The load-handling member **16** is also adapted to handle a carton provided with a strapped top, as shown in dot-dash lines in Fig. 7. The tops of strapped cartons have depending sides which extend downwardly along the sides of the carton itself and the blades **57** are adapted to be inserted between the downwardly extending side of the top and the side of the carton. As is apparent from the drawings, the blades **57**, **58** are vertical, plate-like members which are supported in side-by-side relationship for individual swinging movement about a respective vertical axis to permit the blades to align themselves with the load. Preferably, the blades and their lower ends tilt inwardly at their lower ends toward the frame of the load-handling member. As is best shown in Fig. 7, the blade **57** is supported for swinging, self-aligning movement by a vertical pin **87** fixed to the lower transverse frame member **47** and having a portion **88** extending above the member **47** and a shoulder portion **89**

which engages the upper edge of the member **47**. The blade **57** is fixed to a horizontal plate **91** supported on the portion **88** of the pin **87** for swinging movement in a horizontal plane. The plate **91** is clamped against the shoulder portion **89** by a bolt **92** which threads into the upper end of the pin **87** and applies a clamping pressure to the plate **91** through a washer **93** and a sleeve **94** disposed intermediate the washer **93** and the plate **91**. A guide element **96** is fastened to the plate **91** rearwardly of the blade **57** and is adapted to back and guide the depending portion of the carton top as the blade is being inserted between the carton top and the carton and also prevents bellying of the carton top when the carton is lifted. When the carton blade has been inserted between the top of the carton and the side as shown in Fig. 7, raising of the load carriage will cause the bottom of the carton to swing inwardly because of the aforementioned tilt of the blade members.

The blade **58** is constructed and supported in the same manner as the member **57** so that it will align itself with the carton being handled.

It will be noted that the blades **57**, **58** form apron members for supporting the lower portion of the crate when the fingers **56** are being utilized to transport a crate, and also function as a backing plate for loads supported on the fork members **60**, **61**. Furthermore, when the blades **57**, **58** are being utilized to lift a carton, the telescoping guides **30**, **37** function as an apron for supporting the lower portion of the load. When the lower portion of the load is disposed below the top of the primary guides **30**, the load or carton bears against the primary guides and when disposed above the primary guides **30** the load bears against the secondary guides **37**. It will be noted that by arranging the guides **30**, **37** so that the channels therein face outwardly instead of inwardly, as in conventional construction, the guides may be placed close together to permit the blades **57**, **58** to provide an apron type support for a relatively narrow load.

By reference to Figs. 1–3, it can be seen that the secondary guides **37** are each provided with a gib **98** secured to the outer edge thereof which extends along the forward side of the cooperating primary guide **30**. The gibs **98** overlap the adjacent outer edge of the cooperating primary guide and the forward edge of the gib is flush with the forward side of the primary guide. As the secondary guide is raised the gibs **98** elevate therewith and provide a rest surface for a load when it is raised above the primary guide to a point where the lower portion could swing inwardly against the secondary guide and then catch on the top of the primary guide as the load is lowered. The lengths of the gibs are preferably sufficient to prevent their lower ends from clearing the top of the primary guides upon elevation of the secondary guides. While the truck has been illustrated as having a single pair of carton handling blades **57**, **58**, it will be understood that a second set of blades similar to the blades **57**, **58** could be mounted above the fingers **77**, since the fingers will retract to permit the handling of a carton by a pair of blades so disposed. These additional blades can be supported on the transverse plate **46** in the same manner as the blades **57**, **58** are supported on the member **47**.

A load carrier constructed and supported in accordance with the present invention permits a wide range of different size cartons and crates to be picked up and moved without elevating the load carriage **14** provided the abutment on the crate or carton to be engaged is not above the maximum vertical position of the load-engaging member to be utilized with the load carriage **14** in its lowermost position and also permits the trucks to be used to handle extremely large crates by elevating the load carriage **14** to enable the proper load-engaging members to engage the load to be handled. In addition, the load carrier **15** provides an auxiliary lift which increases the maximum height to which many loads may be lifted by a given truck.

It can now be seen that the objects heretofore enumerated and others have been accomplished and that the present invention provides, in a material-handling apparatus, a new and improved load-handling member and support therefor and a new and improved attachment for use with the elevatable carriage of a material-handling apparatus such as an industrial truck. A material-handling apparatus embodying the present invention may be readily utilized to lift a load by means of conventional fork members, to lift a carton by means of generally vertical blade members, or to lift a crate by means of crate-engaging fingers. Furthermore, the material-handling apparatus embodying the present invention is extremely flexible and may be utilized to lift the load to extreme heights and, preferably, is constructed so that it may be used in spaces having low overheads.

While the preferred embodiment of the present invention has been described in considerable detail, it is to be understood that it is hereby my intention to cover hereby all constructions and modifications and arrangements which fall within the ability of those skilled in the art and within the spirit and scope of the appended claims.

Having thus described my invention, I claim:

1. In a material-handling apparatus, an elevatable load-handling member comprising a generally vertical frame, a plurality of crate-handling fingers, means supporting said fingers on said frame in operative positions, carton-handling blade means comprising a generally vertical plate-like member, means connecting said blade means to said frame and supporting said blade means for limited movement with respect to said frame about a generally vertical axis, a pair of fork members, means connecting said fork members to frame and supporting said fork members for movement between generally horizontal positions extending forwardly from said frame adjacent the lower portion thereof to a generally vertical inactive position.

2. In a material-handling apparatus, an elevatable load-handling member comprising a generally vertical frame, a plurality of crate-handling fingers, means supporting said fingers in an operative position on said frame, carton-handling blade means comprising a generally vertical plate-like member, means connecting said blade means to said frame and supporting said blade means for limited movement with respect to said frame about a generally vertical axis, a pair of fork members, means connecting said fork members to said frame adjacent the lower end thereof and supporting said fork members for movement between generally horizontal positions extending forwardly from said frame adjacent to the lower end thereof to a generally vertical, inactive position, a framework including spaced uprights supporting said frame for generally vertical movement, fluid pressure means on said framework for raising and lowering said frame, and a mast assembly supporting said framework for elevational movement and including second fluid pressure actuated means for effecting the raising and lowering of said framework.

3. In a material-handling apparatus having an elevatable load-handling member, said member comprising a generally vertical frame, a plurality of crate-handling fingers, means supporting said fingers on said frame adjacent the upper portion thereof, carton-handling blade means disposed adjacent to said fingers comprising a generally vertical plate-like member, and means connecting said blade means to said frame and supporting said blade means for limited movement with respect to said frame about a generally vertical axis.

4. In a material-handling apparatus, a framework including a pair of spaced upright channel members each having the channel therein opening into the side of the channel member remote from the other channel member whereby said channels face outwardly of said uprights

in opposite directions, a generally vertical frame extending transversely of said spaced upright channel members, wheel means connected to said frame and received in said channels to guide said frame in movement along said upright channel members, fluid-pressure actuated means on said framework for moving said frame relative to said upright channel members, and load-engaging and supporting means carried by said frame for handling cartons and comprising a blade member disposed in spaced relationship to said frame and lying in an approximately vertical plane but tilted to displace the bottom thereof toward said frame with respect to the top thereof, a supporting member connected to said blade member on the side thereof adjacent said frame, and pivot means connecting said supporting member to said frame for rocking movement about a generally vertical axis.

5. An elevatable material-handling load carriage comprising a generally vertical frame, a plurality of horizontally aligned carton handling blade members on one side of said frame, said blade members each lying in an approximately vertical plane, a respective support member connected to each of said blade members on the side thereof adjacent said frame, and pivot means connecting each of said support members to said frame for individual rocking movement about a generally vertical axis.

6. An elevatable material-handling load carriage as defined in claim 5 wherein each of said blade members is tilted slightly with respect to the vertical to displace the bottom thereof toward said frame with respect to the top thereof.

7. An elevatable material-handling load carriage comprising a generally vertical frame, a carton handling blade member on one side of said frame, said blade member being disposed in an approximately vertical plane but tilted slightly to displace the bottom thereof toward said frame with respect to the top thereof, a support member connected to said blade member adjacent the central portion thereof and disposed on the side thereof adjacent said frame, and pivot means connecting said support member to said frame for rocking movement about a generally vertical axis.

8. An elevatable material-handling load carriage comprising a generally vertical frame, a carton handling blade member on one side of said frame, said blade member lying in an approximately vertical plane, a support member connected to said blade member on the side thereof adjacent said frame, and pivot means connecting said support member to said frame for rocking movement about a generally vertical axis.

9. An elevatable material-handling load carriage as defined in claim 8 wherein said blade member is tilted slightly with respect to the vertical to displace the bottom thereof toward said frame with respect to the top thereof.

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