

[72] Inventor **Jean-Francois Archer**
2, Hameau des Perdrix,, 78 La Celle Saint-Cloud, France
 [21] Appl. No. **809,217**
 [22] Filed **Mar. 21, 1969**
 [45] Patented **June 1, 1971**
 [32] Priority **Mar. 29, 1968, Apr. 10, 1968, Mar. 5, 1969**
 [33] **France**
 [31] **3485, 3492 and 6,906,008**

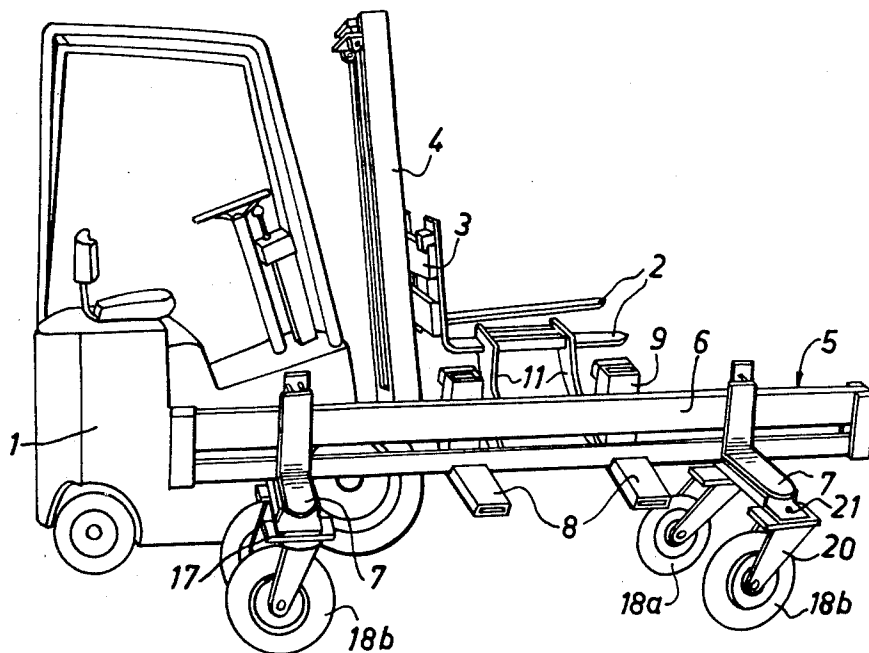
[56] **References Cited**
UNITED STATES PATENTS
 2,796,186 6/1957 Arnot 214/620
 2,944,689 7/1960 Arnot 214/620

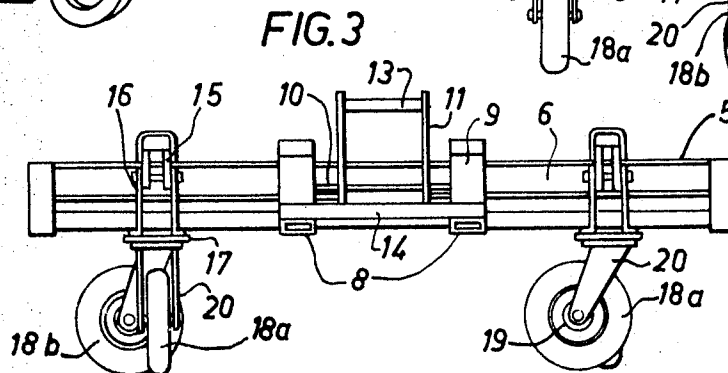
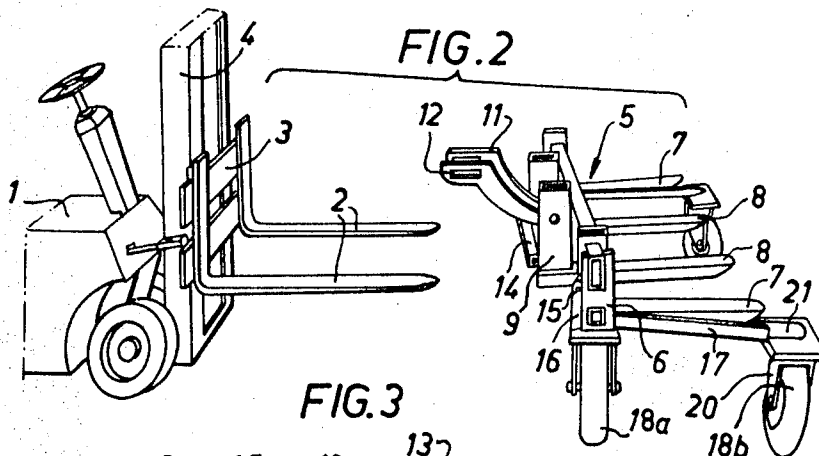
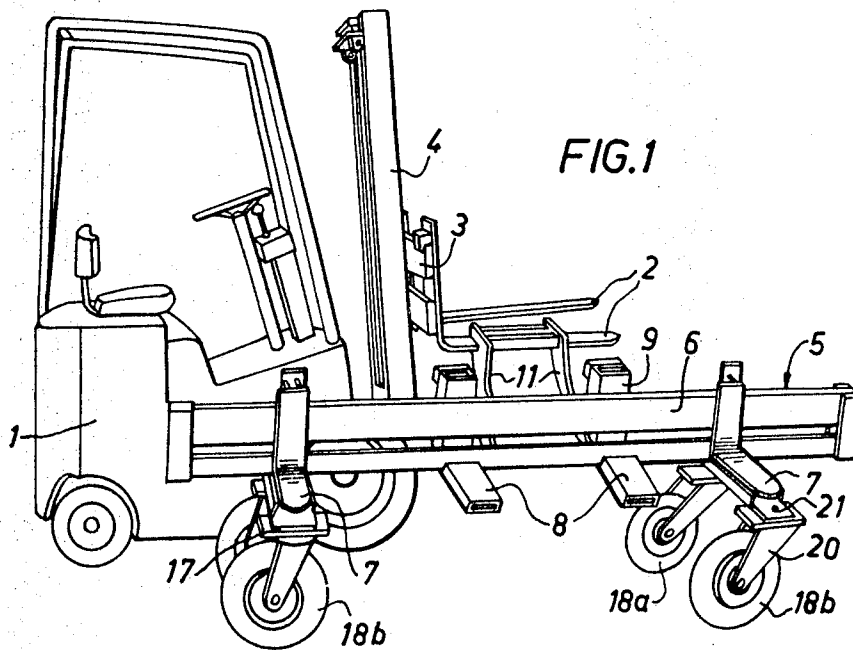
Primary Examiner—Gerald M. Forlenza
Assistant Examiner—Robert J. Spar
Attorney—Arnold Robinson

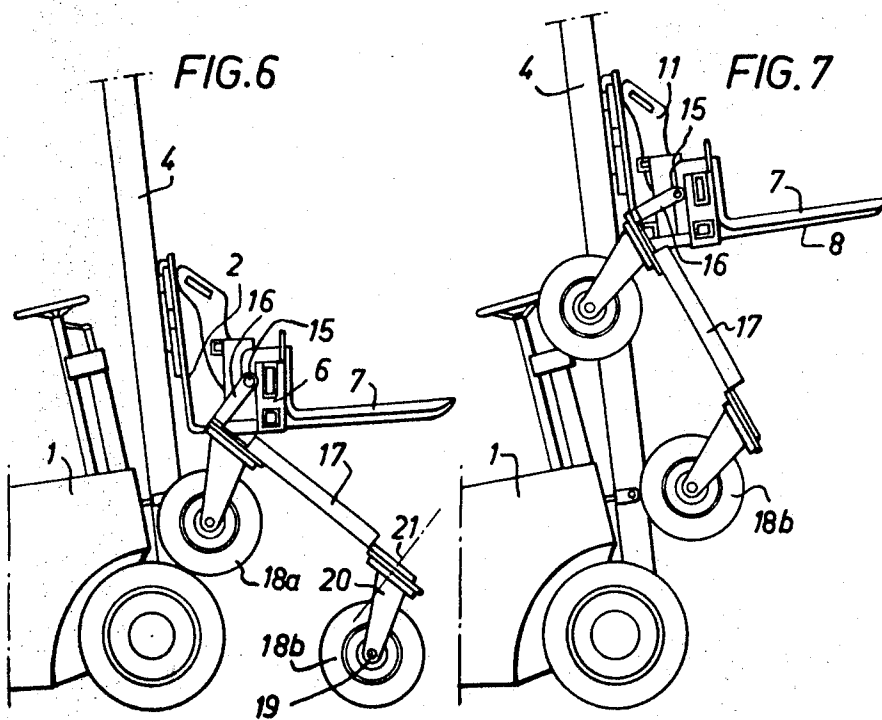
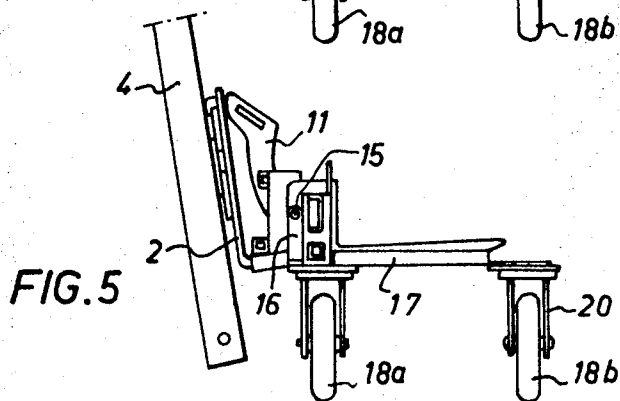
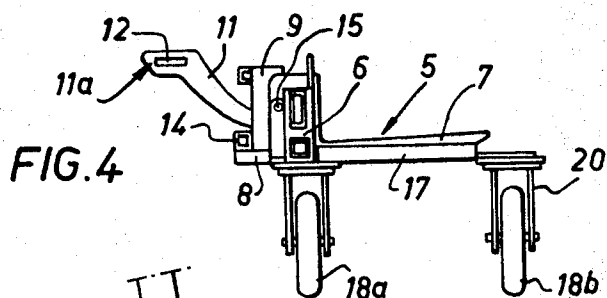
[54] **FORKLIFT TRUCKS**
19 Claims, 18 Drawing Figs.

[52] U.S. Cl..... **214/620,**
214/621
 [51] Int. Cl..... **B66f 9/12**
 [50] Field of Search..... **214/620,**
621

ABSTRACT: To enable a conventional forklift truck with front mounted forks to be used as a side lift truck the invention provides an auxiliary carriage arrangement comprising a longitudinal member, supporting arms attached to said longitudinal member, means for fixing said longitudinal member to the lifting panel of the forklift truck so that it is perpendicular to said panel, and at least two transverse arms each carrying at least one pivoting wheel and mounted themselves in pivotable relationship to the supporting member so that they can swing downwards into a position in which they are substantially parallel to the supporting arms, the pivoting wheels numbering at least three and being located in such fashion as to constitute a stable support for the truck.







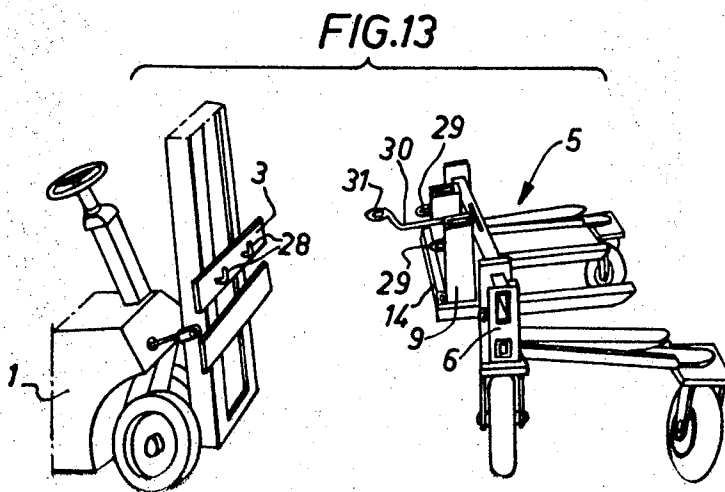
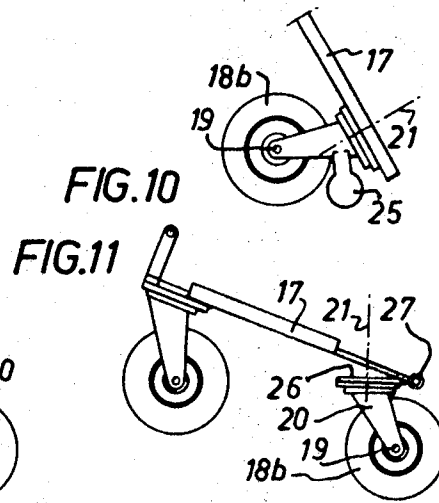
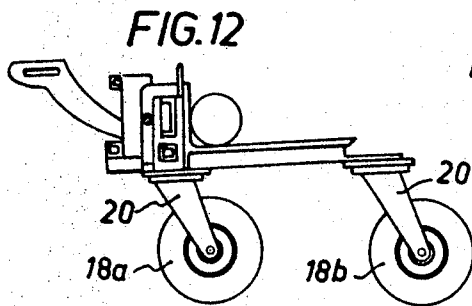
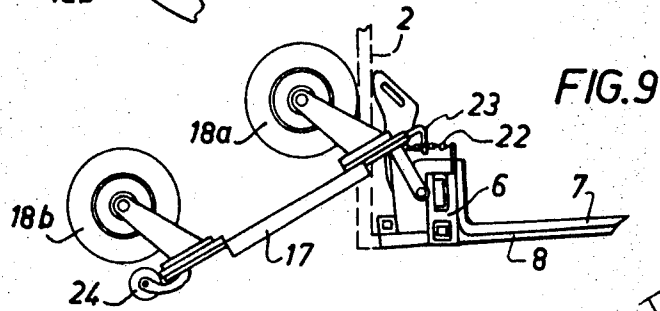
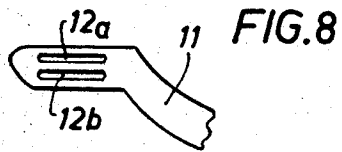


FIG. 14

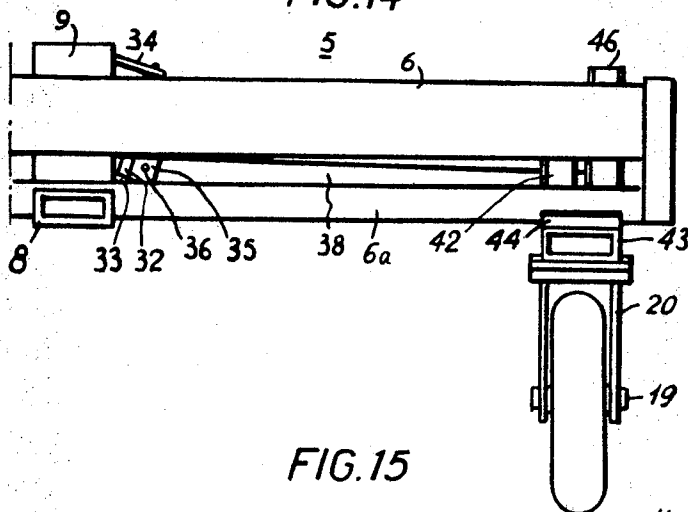


FIG. 15

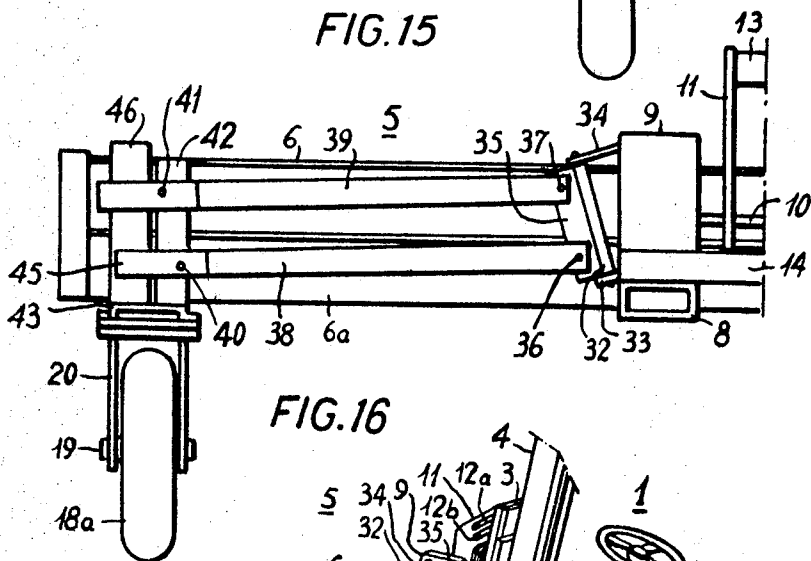
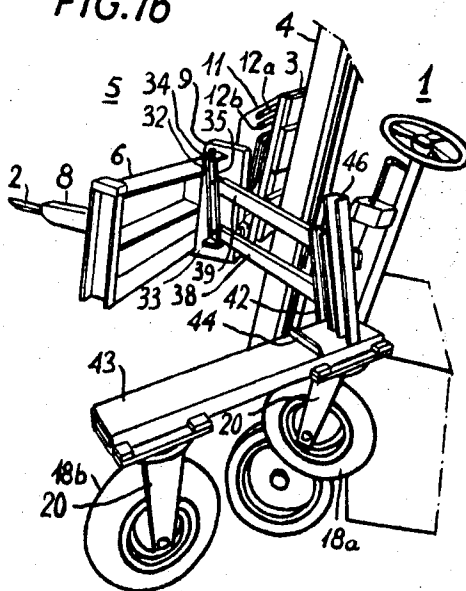
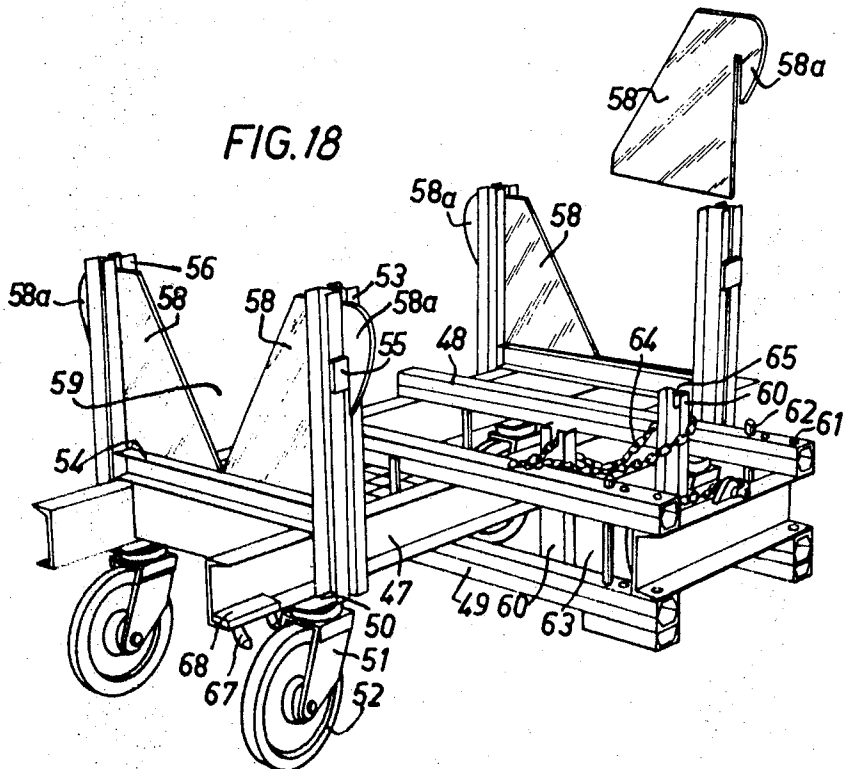
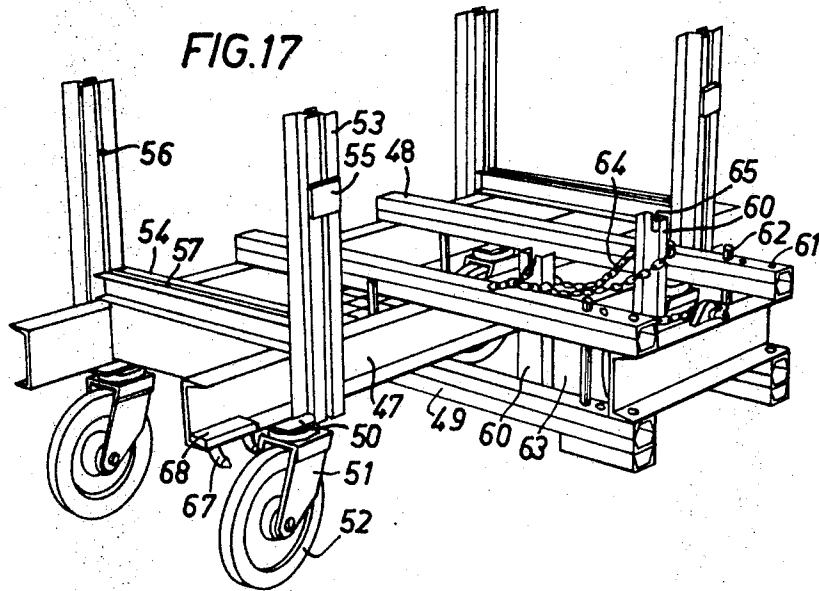


FIG. 16





FORKLIFT TRUCKS

In circumstances where it is necessary to store or to displace materials or objects of substantial length, it is frequently impossible to employ a conventional forklift truck with front-mounted forks, because this requires that the width of the gangway or corridor through which the truck is moving shall be at least equal to the length of said objects, also, in this kind of circumstance, generally speaking a side-lift truck is used, whose forks are disposed at one of the sides of the truck.

However, side-lift trucks have the drawback that they are relatively expensive and this is aggravated by the fact that side-lift trucks are only required in a very occasional way.

The object of the present invention is an auxiliary carriage arrangement which can be adapted to a conventional forklift truck with front-mounted forks, enabling it to be used as a side-lift truck.

The carriage or accessory in accordance with the invention, comprises a longitudinal member to which there are fixed transverse supporting arms, means for fixing said supporting member perpendicularly to the forklift system of the truck, and at least two transverse arms each of which carries at least one pivoting wheel and are mounted to pivot, relatively to the supporting member, downwards into a position in which they are substantially parallel to the supporting arms, the pivoting wheels numbering at least three and being disposed in such fashion as to constitute a stable support for the carriage or accessory.

In a special embodiment of the invention, each of the two transverse arms, each carrying at least one pivoting wheel, is assembled at the end of a mechanism which is designed to ensure that during the lifting of said accessory, on the one hand there is adequate limitation of the downward pivoting movement, and on the other hand the facility for pivoting towards the rear and upwards on the part of each of the arms, away from the longitudinal supporting member, thus making it possible to retract towards the rear and in the upward direction, the said pivoting wheels in order to enable transverse supporting legs which form a fork, to bear against the ground and, consequently, enable the loading and unloading of articles which, in particular, are located near the ground.

Where the load is relatively flexible, the result is that its ends touch the ground and this can interfere with and even prevent the displacement of the load. It is not possible to overcome this drawback by arranging each of the ends of the load on a carriage or accessory of conventional kind, with pivoting wheels. In other words, the load could then displace in relation to the pushed carriage, causing the latter to move in a direction other than that intended.

In accordance with a supplementary feature of the present invention, the accessory (auxiliary carriage) is associated with a terminal carriage designed to carry one end of a flexible load without interfering with the latter's displacement, and comprising vertical members, preferably of detachable design, which define V-shaped openings in which the apex of the V is down-pointing, designed to accommodate the load.

When one end of the load is placed in the openings in a terminal carriage, it jams in position there, with the effect that it is secured to the carriage. In these circumstances, a pushed terminal carriage will displace in a positive manner in the desired direction.

Other features of the accessory in accordance with the invention will become apparent from the description hereinafter given of various embodiments of the accessory (auxiliary carriage) in accordance with the invention, which have been described by way of nonlimitative example hereinafter in relation to the attached drawings, in which:

FIG. 1 is a perspective view of a first embodiment of the accessory, fitted to a forklift truck;

FIG. 2 is a perspective view of the accessory of FIG. 1, disengaged from the forklift truck;

FIG. 3 is an elevational view of the accessory;

FIG. 4 is an end view of the accessory;

FIG. 5 is a view similar to that of FIG. 4, the accessory being fixed to the forklift mechanism of a forklift truck, perpendicularly thereto and resting upon the ground;

FIGS. 6 and 7 are views similar to that of FIG. 5, after the accessory has been raised;

FIG. 8 is an elevational view of a detail of another embodiment;

FIG. 9 illustrates the accessory in position ready to pick up a load at ground level;

FIG. 10 is an elevational view of a detail of another embodiment;

FIG. 11 is an elevational view of a detail of another embodiment;

FIG. 12 is an elevational view of another embodiment;

FIG. 13 is a perspective view of another embodiment suitable for direct attachment to the forklift mechanism of a forklift truck;

FIG. 14 is a fragmentary elevational view of another embodiment;

FIG. 15 is a fragmentary elevational view of said same embodiment, seen from the rear in relation to the view of FIG. 14;

FIG. 16 is a perspective view of said embodiment, fitted to the forklift mechanism of a forklift truck;

FIG. 17 is a perspective view of a terminal carriage, those elements which are designed to carry the load, not having been shown;

FIG. 18 is a view similar to that of FIG. 17, the elements designed to take the load not having been shown.

As illustrated in FIGS. 1 to 7, the accessory in accordance with the invention is designed to be fitted to a forklift truck 1 of the conventional kind, comprising a front-mounting fork 2; the latter, in the conventional way, is fixed in an adjustable fashion to a mounting 3 which can be displaced vertically on a frame 4 by a mechanism which has not been illustrated; said frame is substantially vertical but may however be tilted slightly towards the rear in relation to the truck 1.

The accessory in accordance with the invention, marked generally by the reference 5, comprises a rail 6 upon which there are slidably mounted two terminal fork arms 7 and two intermediate fork arms 8. The arms 8 are hollow and are spaced from one another by a distance equal to that separating the arms of the fork 2 so that the latter can be slid into the arms 8.

Opposite the arms 8, the rail 6 carries two uprights 9 which are connected with one another by a bar 10 acting as a pivot for two external arms 11; the latter arms are each equipped with an elongated hole 12 and are attached to one another by a crosspiece 13. The dimensions of the openings 12 correspond to those of the arms of the fork 2 so that one of same can be passed through said openings as FIG. 1 shows. A crosspiece 14 which externally connects the two arms 8, limits the pivoting of the arms 11 to a position in which the longitudinal axis of each of the openings 12 is substantially horizontal.

On each of the sliding arms 7, there are pivotally mounted, at 15, two links 16 fixed to a wheel carrying or means mounting 17 for two pivotable wheels 18a and 18b. Each of the latter, in the conventional way, is pivotally secured at 19 to a yoke 20 which is itself mounted to pivot about the mounting 17, about a substantially vertical axis 21 which is offset to give the axis 19 a certain degree of trail.

The accessory which has just been described, is employed in the following way.

At rest, the mountings 17 are applied against the adjustable arms 7 so that the accessory rests on its two wheels 18a and its two wheels 18b. The two arms 11 are swung upwards and rest against the crosspiece 14, their openings 12 having their longitudinal axis substantially in the horizontal attitude.

The fork 2 of the truck 1 is raised to the level of the openings 12 and the truck displaced in order to enter one of the arms of the fork 2 into the openings 12 (FIG. 1); the rail 6 of the accessory or auxiliary carriage 5, is then parallel to the arms of the fork 2. By slightly tilting the frame 4 towards the rear, the arm of the fork 2 is wedged into said openings.

It is then possible, using the truck 1, to displace the accessory 5 and to line it up for example in front of a rack containing elongated items requiring transportation.

When the accessory 5 is in front of the rack, the frame 4 is returned to its initial position in order to release the fork 2, the truck 1 is disengaged from the accessory 5 and pivoted so that its fork 2 is perpendicular to the rail 6 (FIG. 2), the fork 2 is lowered in order to bring it to the level of the two hollow arms 8 and the truck 1 is then driven forward in order to enter the arms of its fork 2 into the arms 8 (FIG. 5). During this movement the panel 3 hits the arms 11 and causes them to pivot forward.

The fork 2 is then lifted, carrying with it the accessory 5 (FIG. 6). Each of the mountings 17 pivots about the axis 15 so that it adopts a virtually vertical position and is retracted beneath the accessory 5 (FIG. 7).

In these circumstances, by driving the truck 1 forward the arms 7 and 8 can be engaged beneath the object or objects to be transported, and these objects thus picked up.

All that is necessary then is to back out the truck 1, which carries with it the items in question, and to lower the fork 2. The wheels 18b come into contact with the ground and return beneath the accessory 5 the supports 17 which come up against the arms 8 again; the arms 11 pivot under the effect of their own weight and regain their initial position. The fork 2 is disengaged from the arms 8 and the fork 2 then raised again in order to engage one of its arms in the openings 12 in the arms 11. Finally, by means of the truck 1, the accessory 5, with the articles resting on its forks 7 and 8, is transported to the desired location.

In order to facilitate the operation of wedging one of the arms of the fork 2 in the openings in the arms 11, each of the latter may comprise two openings 12a and 12b (FIG. 8) at a certain vertical interval from one another. By engaging the arm of the fork 2 in the opening 12a in one of the arms and in the opening 12b in the other arm, an excellent wedging effect is produced and, consequently, the accessory 5 is reliably connected for the drive function.

The external face of each of the arms 11 will preferably be sloped or rounded, as indicated at 11a (FIG. 4), in order that it shall be properly deflected by the panel 2 and that no jamming of the arm can take place.

It will be seen from the drawings that the arms 7 and 8 are normally located at a certain distance above the ground. In order to enable the accessory 5 to carry loads which are located very close to the ground, in the manner shown in FIG. 9 it is possible to provide means which enable the mountings to swing towards the rear, their wheels 18a and 18b then pointing upwards. These means can be constituted, advantageously, by a chain 22 one end of which is fixed to the rail and can be engaged by a hook 23 fixed to the end of the mounting 17 and facing downwards.

Before picking up the load, the accessory 5 is raised, the mountings 17 are swung towards the rear and the chains 22 are hooked onto the hooks 23 enabling the forks 7 and 8 to engage beneath the load. The driver may return the mountings 17 to their normal positions without getting down from the truck. All that he has to do is to first of all lower the fork 2 so that the wheels 18b hit the ground; the mountings 17 then pivot a little further so that the chains 22 have become slack and disengage from the hooks 23. Then, he raises the fork 2 again so that the mountings 17 adopt the position shown in FIG. 7, and then lowers it until the wheels 18a are resting on the ground.

The picking up of a load located at a small distance above the ground may be something which is difficult to carry out in certain circumstances. In other words, it may happen that the forks 7 and 8 have to be placed at a height such that the wheels 18b rest on the ground. If these wheels are badly aligned, i.e. are located crosswise for example, then the truck 1 cannot back. In order to avoid this drawback, there may be provided at the end of each of the mountings 17 a roller or small wheel 24 whose axis is parallel to the rail 6 and which is located in such a fashion as to come into contact with the

ground substantially at the same time as the wheel 18b, enabling the accessory 5 to be backed (FIG. 9).

Equally, means can be provided to keep the mountings 17 pivoted towards the rear. These means may be similar to those illustrated in FIG. 9, the chain 22 being fixed for example to the mounting 17 using e.g. a plate which is secured to the mounting and equipped with a slot which is engaged between two links of the chain.

When the accessory 5 is lowered (see FIG. 6), the wheel 18b moves towards the rack. However, because of the weight of the wheel 18b, the axis 19 thereof is located in front of the axis 21 of the yoke 20. The yoke 20 therefore tends to pivot through 180° so that the axis 19 trails the axis 21. However, during this movement there is an instant where the wheel 18b is transversely located and parallel to the rail 6. It may jam in this position, with some risk of damage to the accessory.

In order to overcome this drawback, as FIG. 10 shows the yoke 20 can be fitted with a counterweight 25 which keeps the yoke in a position in which the axis 19 trails the axis 21.

The yoke 20 can equally well be arranged to pivot in an auxiliary mounting 26 which is itself pivotally secured to the mounting 17 and swings about a horizontal axis 27 provided at the end of said mounting 17 (FIG. 11).

When the wheel 18b reaches the ground, the axis 21 is vertical or at least within a few degrees, so that there is no risk of any jamming during the movement of pivoting of the yoke 20 around said axis.

To prevent round items from sliding and rolling off the accessory 5, when negotiating a corner, the yoke 20 of the external pivotable wheel 18b can be arranged higher than the one for the internal wheel 18a (FIG. 12).

It will be seen from FIG. 2 that the width of the corridor or gangway in which the load to be picked up is located, must be at least equal to the length of the truck 1 plus the length of the fork 2 and the width of the accessory 5.

In order to make it possible to pick up a load located in a narrower corridor or gangway, arrangements may be made to fix the accessory 5 directly to the panel 3 of the truck 1.

To this end, there are fitted to the panel 3 two hooks 28 having the same spacing as the uprights 9, which can engage in eyes or rings 29 carried by said uprights. The crosspiece has a thickness such that it hits the panel 3 when the hooks 28 have engaged the eyes or rings 29. In addition, an arm or extension 30 terminated in an eye 31 is fixed to the center of the rail 6 transversely thereto.

In order to displace the accessory, one of the hooks 28 is engaged in the eye 31. The bar 30 comes up against the panel 3 and keeps the accessory 5 parallel to the truck 1 by preventing it from pivoting towards the rear. In order to raise the accessory 5, it is merely necessary to engage the hooks 28 in the two rings 29. The crosspiece 14 comes up against the panel 3 and maintains the accessory 5 in its correct position.

The accessory illustrated in FIGS. 14 to 16 is likewise designed for use with a forklift truck 1 of conventional kind, with a front-mounting fork 2 which, in the usual way, is secured in an adjustable manner to a panel 3 which can be vertically displaced upon a frame 4 by a conventional mechanism (not shown); said frame 4 is substantially vertical but may nevertheless be tilted slightly towards the rear in relation to the truck 1.

This accessory or auxiliary carriage, is again designated in toto by the reference 5, and comprises a rail 6 to which there are fixed two intermediate fork arms 8. These arms 8 are hollow and are spaced from one another by a distance equivalent to that separating the arms of the fork 2, so that the latter arms can be inserted into the arms 8.

Opposite the arms 8, the rail 6 carries two uprights 9 which are connected to one another by a bar 10 acting as a pivot for two external arms 11. The arms 11 contain for example two openings 12a and 12b spaced at a vertical interval from one another. By engaging one of the arms of the fork 2 of the forklift truck 1, in the opening 12a in one of the arms 11, and in the opening 12b in the other, a good wedging effect is

produced and, consequently, the accessory 5 is solidly connected for driving purposes. The arms 11 are connected with one another by a crosspiece 13. A crosspiece 14 which externally connects the two arms 8, limits the pivoting of the arms 11 to a position in which the longitudinal axis of each of the openings 12a, 12b is substantially horizontal.

There is rotationally mounted upon each upright 9, through the medium of two lugs 33 and 34 secured to each upright, a sloping pivot 32. The top lug 34 is longer than the bottom one 33 and is offset in relation thereto towards the rail 6 so that the pivot 32 is inclined both outside in the longitudinal direction of the rail and towards the front, towards said rail. The pivot 32 is secured to a bar 35 to which there are articulately connected at 36 and 37, with one of their ends in each case, two levers 38 and 39 respectively. At their other ends, the levers 38 and 39 are articulated, at 40 and 41, to an upright 42. The levers 38 and 39 are parallel to one another and the axes of the joints 36 and 37 are parallel to those of the joints 40 and 41, thus constituting a deformable parallelogram linkage. At its bottom end, each upright 42 is secured to a transverse mounting or wheel carrying means 43 for two pivotable wheels 18a and 18b. Each of these wheels, in the conventional way, is pivotally mounted at 19 in a yoke 20 which itself is pivotally fixed to the mounting 43 in order to be able to swing about a vertical axis which is offset in relation to the axis 19 to give a degree of trail.

The accessory just described is used in the following way.

In the static condition, the mountings 43 are applied against the underside of an auxiliary rail 6a which is parallel to the rail 6 and in contact with a bottom ridge upon which there is a sloping stop 44 fixed to the top face of each mounting 43, this in order to lock each of said mountings in position. The two arms 11 are swung towards the rear and rest against the crosspiece 14.

The fork 2 of the forklift truck 1 is raised to the level of an opening 12b in an arm 11, and the truck 1 is displaced by tilting its frame 4 towards the rear so as to obliquely enter one of the arms of said fork 2 into the opening 12b in one arm 11 and in the opening 12a of the other arm 11. The rail 6 is thus substantially parallel to the direction of forward movement of the forklift truck and, by causing the frame 4 to tilt slightly backwards, the arm of the fork 2 is made to wedge into the openings 12b and 12a in the arms 11.

It is thus possible with the aid of the truck 1, to displace the accessory 5 and to offer it up for example in front of a rack containing long articles which require transportation.

When the accessory 5 is in front of the rack, the frame 4 is moved back into the vertical position in order to liberate the arm from the fork 2, and the truck 1 is then disengaged from the accessory 5. Following this, the truck 1 is maneuvered so that its fork 2 is perpendicular to the rail 6 and, after lowering the fork, it is slid into the two arms 8. During this movement, the panel 3 hits the arms 11 and causes them to swing towards the front.

The fork 2 is then lifted which in turn lifts the accessory 5. During this lifting movement, the mountings 43 and the levers 38 and 39 pivot, on the one hand in the downward direction, this movement being limited by contact between an extension 45 on the lever 38 with the top face of the corresponding mounting 43. The mountings 43 and the levers 38 and 39 on the other hand pivot towards the rear and upwards, about the oblique pivot 33, this movement being helped by the tilting back of the frame 4. At the end of this movement, the mountings 43 and the levers 38 and 39 are locked in position by some suitable means and the wheels 18a and 18b are retracted behind the plane defined by the transverse arms 8 when the frame 4 is substantially in the vertical attitude.

It is thus possible, by driving the forklift truck 1 forward, to engage the arms 8 beneath the article or articles to be transported, and to load these onto the arms 8 even if said objects are at a level very close to the ground, all this because the wheels 18a and 18b are folded away.

All that remains is to back away the forklift truck to move the article out, to lower the fork and to release the mountings 43 and the levers 38 and 39. The mountings 43, by pivoting back again, come up against the rail 6a again and the continuation of the lowering of the fork 2 means that as the wheels 18a and 18b hit the ground there is a relative ascending movement on the part of the mountings 43 in relation to the rail 6a until said mountings hit said rail.

At this moment, the stop 44 which is in engagement with the bottom ridge on the rail 6a, because of the application of the load, locks the mountings 43 against said rail 6a, the latter carrying at the rear the upright 42 and a second upright 46 adapted to act as an additional stop parallel to the former upright 46 and adjacent thereto.

The fork 2 is then disengaged from the arms 8 by backing the forklift truck 1 out, and is then raised to engage it in the openings 12b and 12a in the arms 11 as hereinbefore described, the arms 11 being tilted backwards during the disengagement of the fork 2. It is then possible, by means of the truck 1, to move the accessory 5 to the desired location, together with the load of articles it is carrying, and finally to unload these articles for example by introducing the arms of the fork into the arms 8.

Self-evidently, the accessory of FIGS. 14 to 16 may comprise the features described in relation to the earlier FIGS. and in particular:

arms 11 each containing a single opening;

eyes or rings fixed to the rail 6, or uprights 9, designed to be engaged in hooks fixed to the panel 3 of the forklift truck 1;

an arm perpendicular to the rail 6 and terminating in an eye.

FIGS. 17 and 18 illustrate a terminal carriage or accessory, comprising a frame made up of two rails 47 connected to one another by top crosspieces 48 and bottom crosspieces 49, said crosspieces terminating at one of the rails but overhanging the other.

At each of the ends of each crosspiece, a plate 50 is fitted. This plate serves on the one hand as a bearing for the vertical pivot of the yoke 51 for a pivotable wheel 52, and on the other hand as the mounting for an upright 53. The two upright 53, situated at one and the same end of the rails 47, are connected together by a crosspiece 54.

Each of the uprights 53 is constituted by two profiled sections which are connected with one another by a plate 55 on the external face, and which are spaced slightly apart so that between them a vertical gap 56 disposed perpendicularly to the rails 47, is formed. The crosspieces 54 are designed in a similar way and also define a horizontal gap 57 which is located in the same vertical plane as the neighboring gaps 56.

In each of the gaps 56 there can be introduced the external vertical edge of a fillet 58 the internal edge of which slopes. The fillet is provided at the top, on its external face, with a portion 58a of hooked form which embraces the corresponding plate 55, thus limiting the downward displacement of the fillet. When the fillet is in position its bottom edge is located in one of the gaps 57. Because their internal edges slope, the fillets 58 define between them V-shaped openings 59 the apex of the V being directed downwards and being located in the neighborhood of the crosspieces 54.

If a particularly long and flexible load is to be transported, each of its ends is located in one of the openings 59 of such a carriage or accessory, where they jam in position. The load is thus automatically secured to the terminal accessories so that when displaced by means of the auxiliary carriage or accessory hereinbefore referred to, the terminal accessories displace at the same time without any sliding taking place between load and accessory.

It may be desirable, in certain applications, to displace the load using one of the terminal accessories. To this end, a device is provided which enables the terminal accessory to be secured to the fork of a forklift truck.

The overhanging ends of the crosspieces 41 and 49 are linked by uprights 60. In addition, each of the crosspieces 48

and 49 contains, in the neighborhood of the uprights 60, one or more holes 61 in which a pin 62 can be inserted. This pin and the adjacent upright 60 determine a passage 63 into which there can be inserted one of the arms 2 of the fork 5 of the forklift truck 1, enabling the latter to drive the terminal accessory. By changing the positions of the pins 62 from one hole to another, the width of the opening 63 can be adapted to that of the arms 2.

By changing the positions of the pins 62 from one hole to another, the width of the opening 63 can be adapted to that of arms 2.

In order to provide secure attachment of the terminal accessory to the forklift truck 1, a link chain 64 can be provided, one end of which is anchored to the terminal accessory whilst the other end is secured to the truck after having wound it around one of the arms 2. The fixing can be produced for example by threading the chain through a slot 65 in one of the uprights 60.

Finally, each of the ends of the rails 47 contains two holes 66. In the two holes 66 provided at one of the ends of the rail, there are inserted two hooks 67 which are fixed to one and the same plate 68.

When a load has been transported to the desired location, the two terminal accessories can be secured to one another by slipping one of the hooks 67 into a hole 66 in a first accessory, and the other hook 67 into a hole 66 in the second accessory. If the rail 6 of the basic accessory or auxiliary carriage, contains holes arranged in the same way as the holes 66, then likewise the system of terminal accessories can be linked to the main accessory and the three accessories thus simultaneously driven back to the point of departure to pick up a new load.

It goes without saying that the invention is in no way limited to the embodiments described and illustrated but, in fact, covers all the possible variant embodiments.

I claim:

1. An accessory for use with a truck having a forklift and a lifting panel associated therewith, comprising at least one rail member and a plurality of supporting arms attached to said rail member, means for mounting the said rail member on said panel, a plurality of wheel carrying means associated with said rail member, a plurality of wheels being carried by said means in pivotable relation thereto, means for mounting said wheel carrying means in pivotal relation to said rail member to permit movement of said wheel carrying means from a first position in which said wheels are adapted to support said accessory on the ground to a second position in which said wheel carrying means are at an angle to said rail member.

2. The accessory specified in claim 1 wherein at least two of said supporting arms are hollow and adapted to receive the forklift of said truck.

3. The accessory specified in claim 1 further comprising a plurality of external arms pivotably mounted on said accessory, said external arms each having at least one opening therein for receiving said forklift to render said accessory moveable along and in contact with the ground.

4. The accessory specified in claim 3 wherein each of said external arms has two openings therein.

5. The accessory specified in claim 1 wherein said wheel carrying means are pivotally mounted on at least two of said arms.

6. The accessory specified in claim 1 wherein there are two

wheel carrying means each of which carry two wheels.

7. The accessory specified in claim 1 wherein said means for mounting said wheel carrying means comprises at least one link fixedly mounted to said wheel carrying means and pivotally mounted on one of said arms to permit said wheel carrying means to pivot downwardly and out of the way of said arms.

8. The accessory specified in claim 1 wherein said means for mounting said wheel carrying means comprises a pivot, a pair of lugs rotatably mounted at each end of said pivot, a pair of levers one end of said levers being mounted on said pivot in articulated manner and the second end of said levers being mounted on an upright post also in articulated manner, said upright post being fixedly mounted on one of said arms, said arm having one of said wheel carrying means mounted thereon, said lug, levers and upright post together comprising a parallelogram linkage, said pivot being mounted at an angle to said rail to ensure pivoting of said wheel carrying means upwardly and to the rear of the said accessory, and means for locking the wheel carrying means in the pivoted position.

9. The accessory specified in claim 8 further comprising a sloping stop mounted on the said wheel carrying means in position to engage said rail member and lock said wheel carrying means in a supporting position with the wheels on the ground.

10. The accessory specified in claim 8 wherein one of said lugs is longer than the other said lug and offset therefrom with the longer lug in position closer to said rail.

11. The accessory specified in claim 9 further comprising a second upright post adapted to act as an additional stop.

12. The accessory specified in claim 1 further comprising a plurality of rings mounted on said rail member and adapted to engage hooks secured to said lifting panel on the forklift truck.

13. The accessory specified in claim 1 further comprising an extension which terminates in an eye which is adapted to engage a hook fixed on the panel of said forklift truck.

14. The accessory specified in claim 1 wherein said wheel carrying means includes a yoke for mounting each wheel, the yoke farthest from said rail member being shorter than the other yokes.

15. The accessory specified in claim 1 further comprising means for maintaining said wheel carrying means in a pivoted position with said wheels facing upwards.

16. The accessory specified in claim 15, wherein said means for maintaining said wheel carrying means in a pivoted position comprises a chain which is secured to said rail member and a hook which is secured to said wheel carrying means for engagement with said chain.

17. The accessory specified in claim 1, wherein said wheel carrying means is provided at one end thereof with a roller so that when the accessory is lowered the roller comes into contact with the ground at substantially the same time as the wheel closest to it.

18. The accessory specified in claim 14 wherein said yoke for mounting each wheel is pivotally mounted on an auxiliary mounting which itself is pivotally secured to the said rail member.

19. The accessory specified in claim 18, wherein said yoke farthest from said rail member has a counterweight mounted thereon to aid in the return pivoting of said wheel carrying means to bring said wheels in contact with the ground.