May 27, 1958 J. LAMB 2,836,308

APPARATUS FOR HANDLING SHIP'S ELEVATOR CAR

Filed July 22, 1954 3 Sheets-Sheet 1

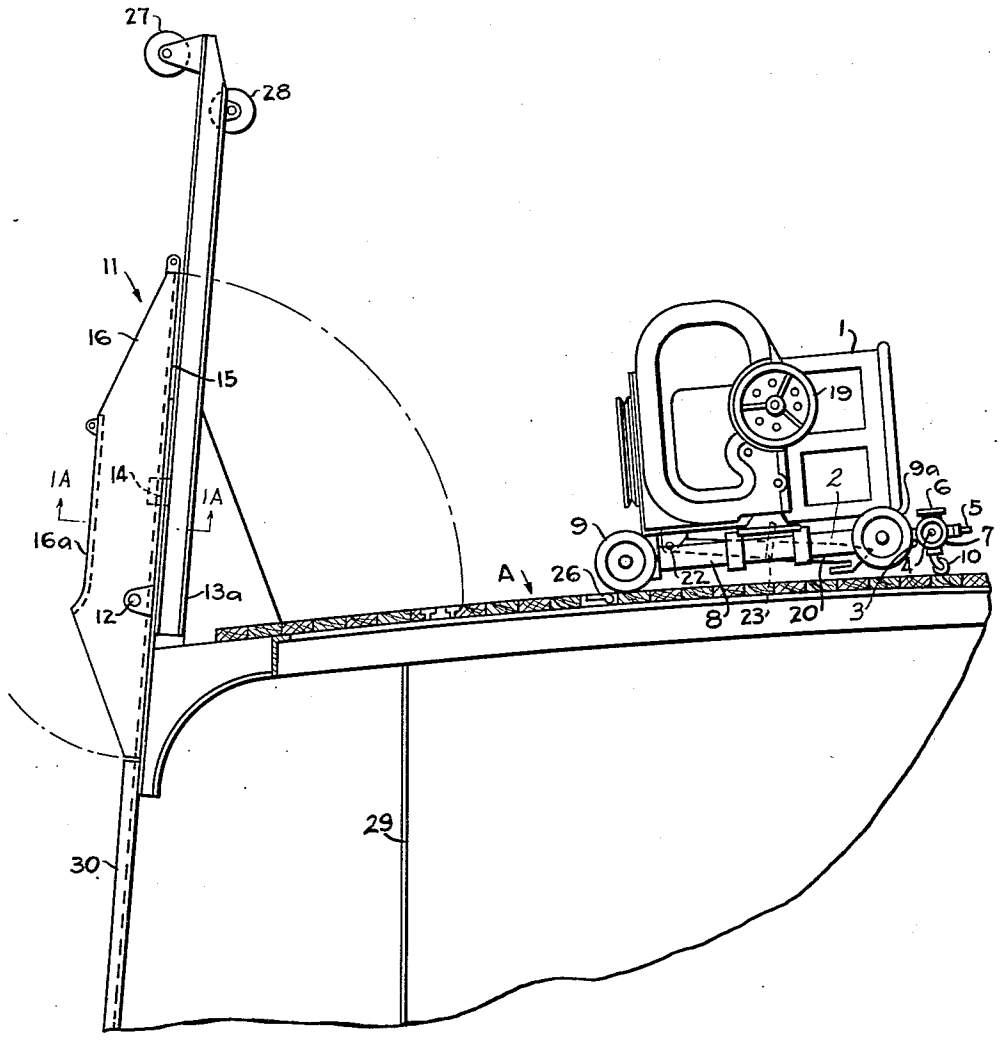


FIG. 1

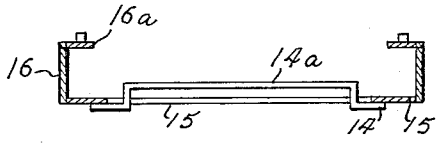


FIG. 1A

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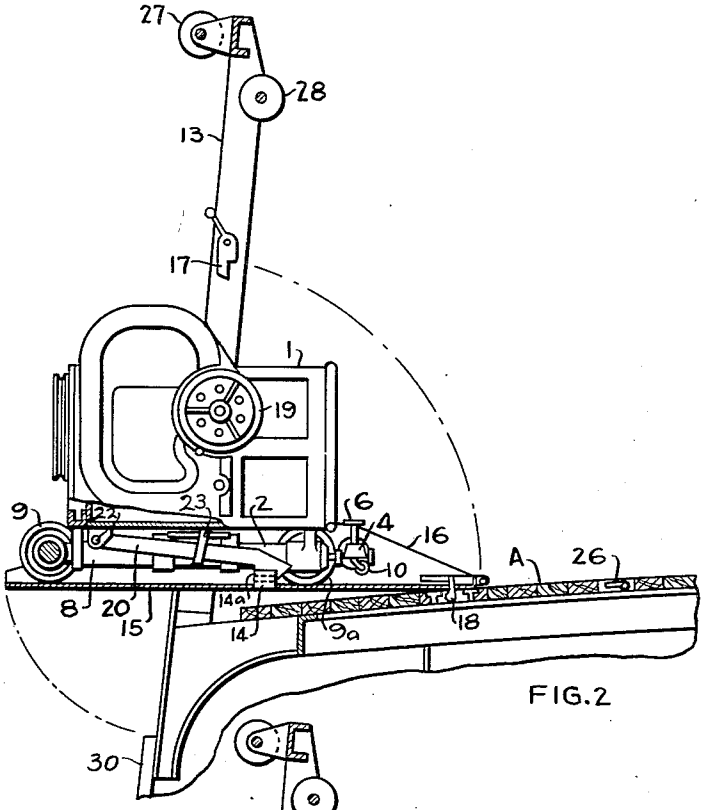


FIG. 2

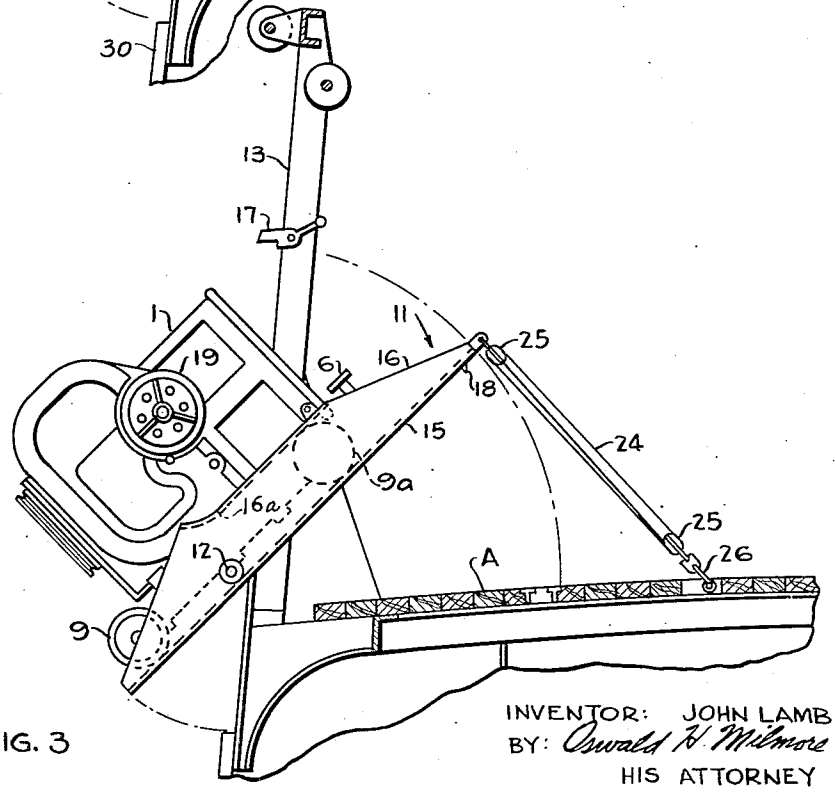


FIG. 3

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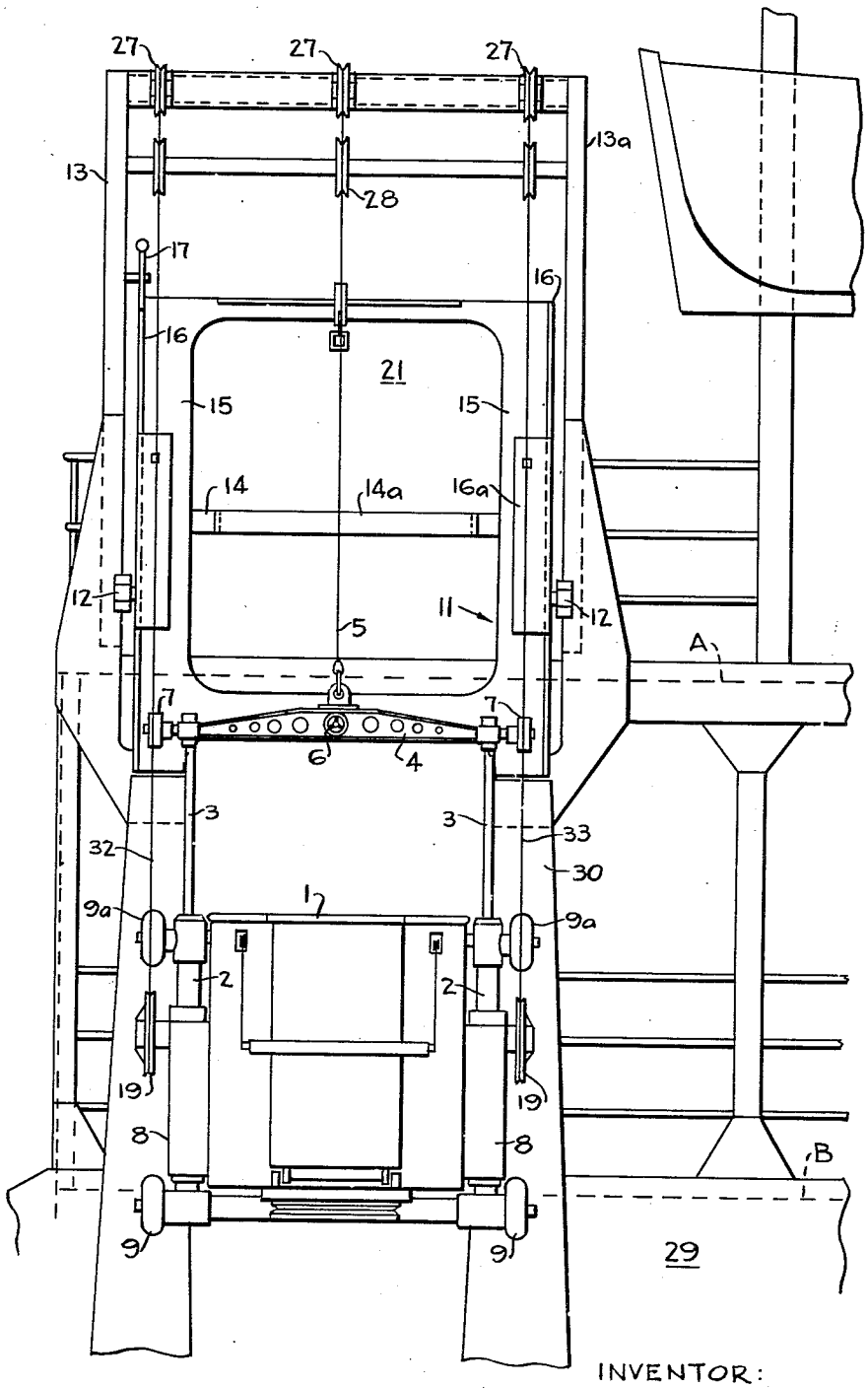


FIG. 4

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2,836,308

APPARATUS FOR HANDLING SHIP'S ELEVATOR CAR

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Application July 22, 1954, Serial No. 445,077

Claims priority, application Great Britain July 27, 1953

6 Claims. (Cl. 214—15)

This invention relates to an apparatus and a method for handling a ship's elevator car or overside hoist, hereinafter referred to as a "car," having on one side thereof at least three running wheels which, when the car is in operation, contact the ship's side at non-aligned points, i. e., at the apices of a polygon. A car of this type is described in my copending Patent Application Serial No. 445,079 filed concurrently herewith.

A method of launching such a car, according to the present invention, comprises the operations of swinging a platform about a horizontal axis located near the side of the ship from a raised position wherein the platform is substantially in line with the ship's side to a lower position in which one end thereof is close to or on the deck, running the car while in a position substantially on its side, with the side wheels down, onto the platform in an outboard direction in such a manner that the ship's-side-contacting-wheels of the car contact the platform and that the center of gravity of the car is outboard of the said axis, securing the car to the platform to prevent further outboard movement thereof, swinging the platform back into the raised position in which it is substantially in line with the ship's side, whereby the car is turned to its upright position, connecting suspension cables to the car, and releasing the securing device.

Locking means, such as latches, are preferably provided to lock the platform in each position referred to above.

When running the car on the ship's deck and onto the platform, it preferably runs on two of the wheels which, in operation, engage the ship's side (advantageously on the two wheels that are lowermost in the upright position of the car) and also on a third, castered wheel, which is retractable to allow the securing device to engage the platform and also to avoid engagement of this castered wheel with the ship's side during the subsequent operation of the elevator car.

The present invention also includes a car having a securing device to engage the platform and, preferably, a retractable caster wheel for movement on deck.

The present invention further includes a ship having at a launching station thereof a pivotally mounted platform which may be swung to a raised position in which it is substantially in line with the side of the ship or a lowered position in which one end thereof is near to the ship's deck.

It will be appreciated that the deck referred to above may be any one of several decks on a ship. On a tanker vessel it is preferably the upper bridge deck. The deck at which the launching apparatus is situated will not, in most cases, be itself used by persons entering or leaving the car, and entry to the car will, therefore, usually be at another deck, e. g., the next lower deck.

The invention is illustrated in the attached drawings forming a part of this specification and showing a preferred apparatus, in which:

Figure 1 is a side elevation of the elevator car running on a ship's deck and the platform in the normal, raised position in which it is in line with the ship's side, parts of the ship being shown in cross-section;

Figure 1*a* is a sectional view taken on the line 1A—1A of Figure 1;

Figure 2 is an elevation similar to Figure 1 showing the platform swung down with one end thereof on the deck and having the car thereon, parts of the uprights, platform and car body being broken away;

Figure 3 is a side elevation similar to Figure 1 showing the platform swinging into the raised position, the upright 13*a* being omitted; and

Figure 4 is a fragmentary side elevation of the ship showing the platform in its normal raised position, and the car just below it in its operative, upright position.

Referring to the drawings in detail, Figure 4 shows a part of a ship that includes two decks A and B; the launching apparatus is situated on the former and the latter is used for entry to and exit from the elevator car.

Referring now to Figure 1, a car having a body **1** is shown on the ship's deck A which it contacts with a pair of lower, coaxial running wheels **9** and a caster wheel **10**. The two lower running wheels **9**, in contact with the deck, and two additional upper, coaxial running wheels **9***a*, shown out of contact with the deck, are the wheels which, during the subsequent operation of the car when in the launched position, engage and roll along the side of the ship. In the position shown in Figure 1, the car may be moved over the deck relatively easily by hand to and from its normal stowage position on the deck and a launching station at the side of the deck. One launching station only is shown in the drawings but two or more launching stations may be provided, there being preferably at least one launching station at each side of the deck.

Since the present invention is not restricted to the use of a car such as that described in the above-mentioned copending patent application, a complete description of the car is believed to be unnecessary. It may be stated that in the preferred embodiment, the wheels **9** and **9***a* are mounted on axles carried by a chassis **8** that is connected to the car body by suitable devices to be movable laterally in relation to the car body when in the launched, upright position thereof (vertically with respect to the car in the position shown in Figure 1) so that the car body may be held at a varying horizontal distance from the ship's side as the car moves up and down. This chassis also includes at each side a telescoping structure comprising a tubular part **2** (see Figure 4) and a slide **3** that extends outwards, the two slides being cross-connected by a beam **4** to which a suspension cable **5** is detachably connected. The purpose of making the slides **3** and beam **4** movable is to have as high a point of suspension above the center of gravity of the car as possible when in the operative, launched position, and also to provide a car of the minimum possible dimensions for stowing when out of service. The caster wheel **10** is mounted at the center of the beam **4** by a screw-threaded fitting having a handwheel **6** by which the position of the caster wheel can be adjusted vertically in relation to the parts in the position shown in Figure 1. It is evident that the invention is adapted to other cars, e. g., wherein the chassis is not laterally movable with respect to the car body or the cross beam is not telescopically mounted, and that any number of caster wheels may be employed. The beam **4** may have auxiliary wheels **7** to prevent rubbing of the beam along the hull of the ship. The telescoping parts **2** and **3** are contracted when the car is maneuvered about the deck and during the swinging of the platform, as shown in Figures 1–3; they are extended

only after the cable **5** is secured thereto, as shown in Figure 4.

The lift car is provided with securing means, here embodied as a pair of hooked arms **20** (Figures 1 and 2) that are advantageously pivotally attached to the car body at **22** and have motions limited by guide straps **23** and **23'**.

A launching platform **11** is provided at each launching station. In Figures 1 and 4 this platform is shown in line with the side or hull of the ship. The hull itself does not appear on the drawings but is below the ship's superstructure **29**, which is set back inboard from the hull line. Wide channels **30** forming tracks for the wheels of the car extend between decks A and B in the plane of the ship's side, and downwards in spaced relation to the superstructure **29**. The platform **11** turns about the axis of a pivot **12** which is fixed horizontally to the ship's structure, e. g., to a frame that includes uprights **13** and **13***a*. The pivot **12** is above the bottom of the platform to permit the center of gravity of the car to be outboard with respect to the pivot. A retaining bar **14** is fixed transversely on the platform **11** as shown more clearly in Figures 2 and 4 and includes an intermediate cranked portion **14***a* that is offset outwardly with respect to the ends of the bar, as shown in Figure 1A, for more facile engagement by the hooked ends of the arms **20**, as described below. The platform **11** has flooring in the form of two longitudinal track elements, embodied as plates **15** which are situated at the sides of the platform, for supporting the wheels **9** and **9***a* of the car **1** and upstanding guide walls **16** at the outer margins to prevent lateral displacement of the car. The platform has a central open or cut-away part **21** between the track plates **15** (Figure 4). The intermediate parts of the guide walls **16** have guards in the form of plates **16***a* (Figures 1, 3 and 4) that extend inwardly over and in spaced relation to the track plates **15** and are located for engagement by the wheel treads and thereby prevent movement of the car from the platform in an outboard direction (upward as viewed in Figure 2), the spacing being sufficient to prevent passage of the car wheels through the interval between the track plates **15** and guards **16***a*. The guards **16***a* are curved away from the track plates **15** at the lower ends to facilitate entry of the wheels when raising the car while running on the channels **30** for securing the car after use.

As can be seen in Figure 2, the frame **13**, **13***a* is provided with a latch or locking means **17** whereby the platform **11** may be locked in the raised position shown in Figure 1 and a second latch or locking means **18** is mounted on the platform whereby it may be locked to the deck A in the lowered position shown in Figure 2; in this position it has been swung down from the position shown in Figure 1 until one end thereof is on the deck.

The operation of the apparatus for launching the lift car is as follows: The car is initially stowed on the deck A on its side, with the slides **3** retracted within the tubular parts **2**, to bring the beam **4** close to the wheels **9***a*, as shown in Figure 1. The platform, which is normally in the raised position of Figure 1, is released by operating the latch **17** and swung to the lowered position of Figure 2 and is there locked by the locking means **18**. The lift car is then pushed onto the lowered platform with the wheels **9** running on the track plates **15** beneath the guide walls **16** and under the guards **16***a*.

When the caster wheel **10** has come against the inboard edge of the platform **11**, the upper wheels **9***a* are already over the track plates **15**; the caster is then retracted by means of the hand wheel **6** so that the upper pair of wheels **9***a* contact the tracks **15**. The wheels **9***a* are now able to pass under the guards **16***a*. The car is then pushed fully to the position shown in Figure 2. In this position, two hooked arms **20**, which are attached to the car **1** and constitute the securing device, project downwards into the cut-away part **21** of the platform **11** (see Fig. 4) and, during the final outboard movement of the car, engage the cranked portion of the retaining bar **14**. In this position, the wheels **9***a* are under the guards **16***a* and the center of gravity of the car is outboard of the axis of the pivots **12**.

The latch **18** is now released and the weight of the car tends to swing the platform **11** from the lowered position of Figure 2 back into the raised position shown in Figure 1; Figure 3 shows an intermediate position of the platform during this movement. The swinging movement of the car and platform may be checked by hand, although it is preferable to provide a check line and pulleys such as line **24** and pulleys **25** fastened to a clevis **26**, as shown in Figure 3.

When the platform **11** has swung fully into position in line with the side of the ship, the latch **17** automatically comes into operation to hold the platform in this position and the weight of the car is then carried on the retaining bar **14** and arms **20**. In this position, suspension cables which pass over the pulleys **27** and **28** are attached by securing the center cable **5** to the beam **4** and passing the side cables **32** and **33** over the pulleys **19** that are mounted at the sides of the car, as described in the said copending application Serial No. 445,079. The car is then raised slightly by means of its suspension cables and the hooked arms **20** disengaged from the retaining bar **14** by hand, spring or counterweight action. When tension is applied to the suspension cable **5** the beam and slides **3** move upwards with respect to the chassis, to the position shown in Figure 4. The car is then ready for operative movement up and down the side of the ship on tracks **30** and the hull.

The same apparatus is used to stow the car after use, the operations being reversed.

I claim as my invention:

1. In a ship's overside elevator system on a ship having a deck and a side providing a generally vertical wheel-engaging surface below said deck facing outboard, said system including an elevator car having running wheels at one side thereof for engagement with said wheel-engaging surface when the car is in operative, upright position, the improvement of apparatus for launching said car from a position on its side with said running wheels in supporting engagement with said deck, comprising: an open ended platform including track elements relatively aligned for supporting said running wheels, said platform being pivotally secured to the ship at said side above and adjacent said deck, said platform thereby pivoting from a lowered position on deck to a raised, generally vertical position in substantial alignment with said wheel-engaging surface, a vertical frame having uprights fixedly attached to the side of the ship and having a horizontal crossbar which surrounds said platform when the car is in operative upright position, cables depending from the crossbar of said frame and attached to the car for controlling the position thereof, means for releasably securing the car to the platform and supporting the car thereon and means to permit the car to run off from said platform onto said vertical wheel engaging surface when the platform is in said raised position.

2. In combination with the apparatus according to claim 1, a guide element projecting outward from said platform and positioned for engagement with a part of said car to prevent lateral displacement thereof on the platform.

3. In combination with the apparatus according to claim 2, guard elements mounted on said platform in spaced relation above said track elements at an interval to pass a part of the elevator car such as the said running wheels thereof with a small clearance, said guard elements being thereby operative to engage said part of the car and to prevent outboard movement of the car when the platform is in the said raised position.

4. In combination with the apparatus according to

claim 1, spaced, mutually facing angle elements projecting outward from said track elements for engaging the said running wheels of said car to prevent lateral displacement thereof on the platform, and a guard flange on each said angle elements positioned in spaced relation above said track elements at an interval to pass said running wheels with a small clearance, said guard flanges being thereby operative to engage the outboard portions of said wheels to prevent outward movement of the car when the platform is in the said raised position.

5. In a ship's overside elevator system on a ship having a deck and a side the combination comprising a generally vertical wheel-engaging surface below said deck facing outboard, an open ended launching platform including track elements pivotally secured to the ship at said side above and adjacent said deck for pivoted movement between a lowered position on deck and a raised, generally vertical position in substantial alignment with said wheel-engaging surface, and a suspension cable positioned outboard with respect to the ship's side, a car body; means on the car detachably receiving said suspension cable; a caster wheel on the car adjacent said cable-receiving means, said caster wheel being retractably mounted to one side of the car; a plurality of running wheels spaced remotely from said cable-receiving means and at least one additional running wheel intermediate said pair of running wheels and said caster wheel, all said running wheels being mounted on the said side of the car for running engagement with said wheel-engaging surface during operation of the car and for engagement with said track elements of the platform during a launching operation, whereby said caster wheel can be retracted to place only said running wheels in engagement with said wheel-engaging surface and can be extended to raise said intermediate running wheel clear of the ship's deck when the car is on its side on said deck; a vertical frame having uprights fixedly attached to the side of the ship and having a horizontal crossbar which surrounds said platform when the car is in operative upright position, a centrally located suspension cable depending from the crossbar of said frame and attached to the car for controlling the vertical position thereof, and cables for controlling the horizontal position of the car attached to the ends of said crossbar and to the sides of said car;

and means on said car for releasably engaging said platform and supporting the car thereon.

6. A ship side elevator system on a ship having a side and a deck, said side providing a generally vertical wheel-engaging surface below said deck facing outboard, comprising: an open ended platform including track elements at the sides thereof and pivotally secured to the ship at said side above and adjacent said deck, said platform thereby pivoting from a lowered position on deck to a generally vertical position substantially in alignment with said wheel-engaging surface; a suspension cable secured to said ship and depending along the ship side; an elevator car including a car body and having means for releasably receiving said suspension cable; a plurality of at least three running wheels mounted at one side of said car for running engagement with said wheel-engaging surface, said track elements on the platform being aligned to receive at least some of said running wheels; a fixed vertical frame having a horizontal crossbar surrounding said platform when the same is in vertical upended position, cables depending from the ends of said crossbar to the sides of said car for controlling the horizontal position of the car; and means for releasably securing said car to said platform and supporting the car thereon while the car and platform are tilted in unison.

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