

[54] **MULTI-STORIED GARAGE**  
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 [58] **Field of Search**.....214/16.14, 16.14 C-16.14 E

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### [57] ABSTRACT

A multi-storied garage characterized in that a single lift cage is capable of serving a plurality of motor vehicle storage chambers located at a plurality of floor levels, and that appropriate means are provided for holding in position the motor vehicles to be stored in the storage chambers, whereby the motor vehicles can with the utmost safety be let into, kept in, and got out of, the garage.

**6 Claims, 11 Drawing Figures**

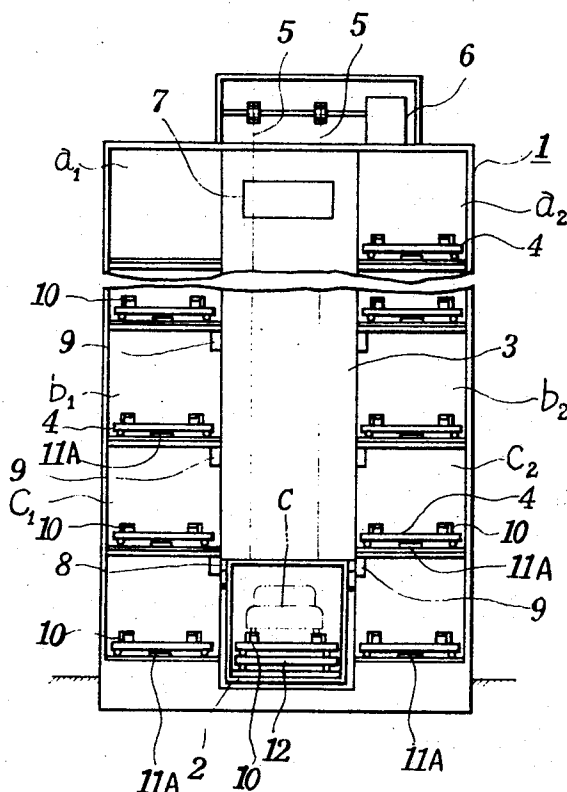
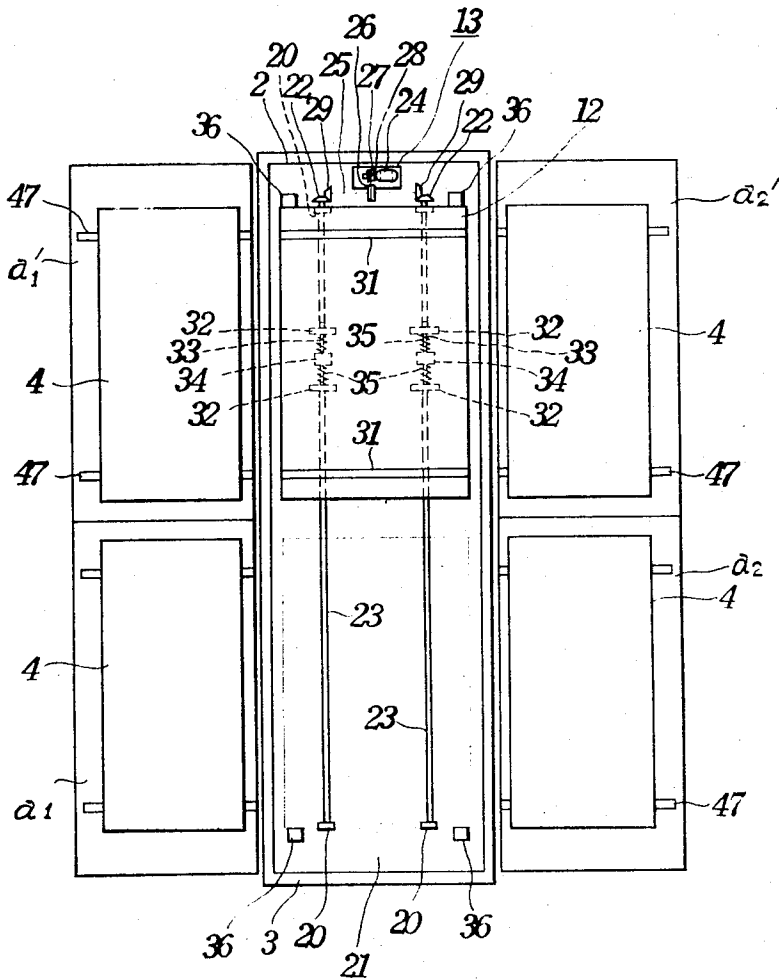




**FIG. 2**



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**Fig-4**

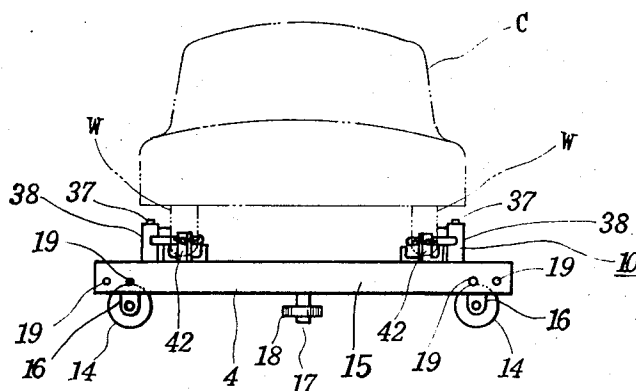
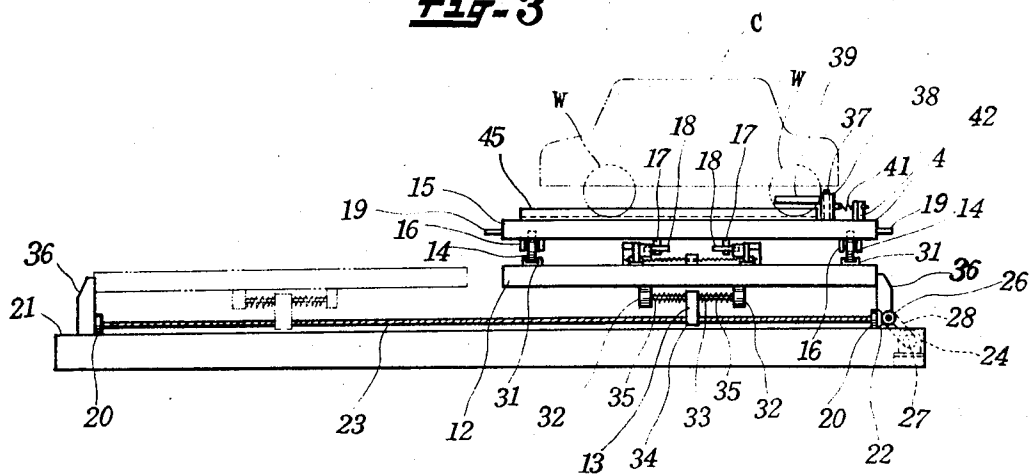


**FIG. 3**



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**FIG-5**

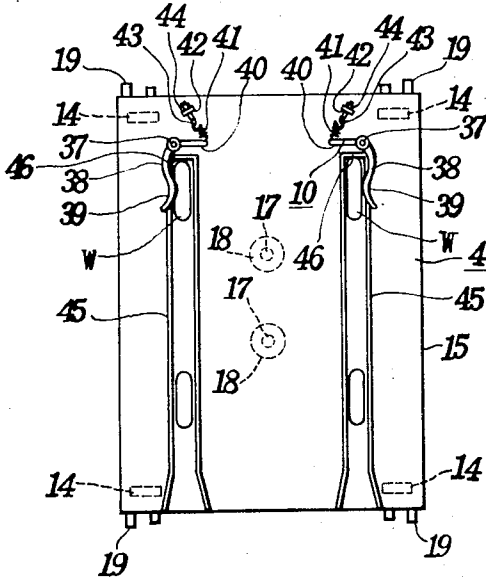


**FIG-6**

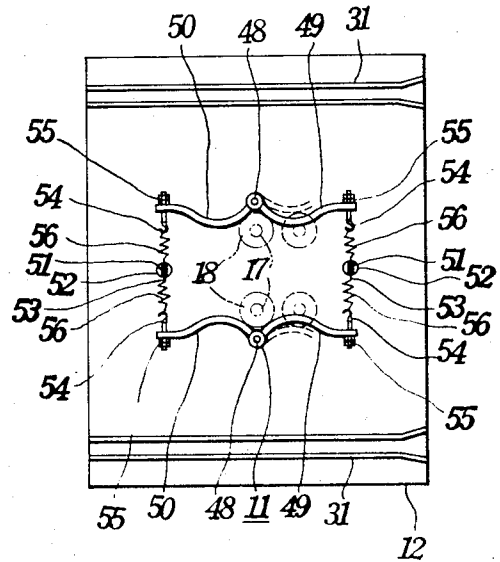
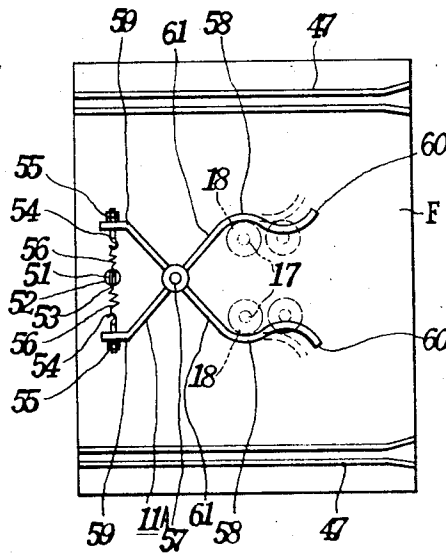
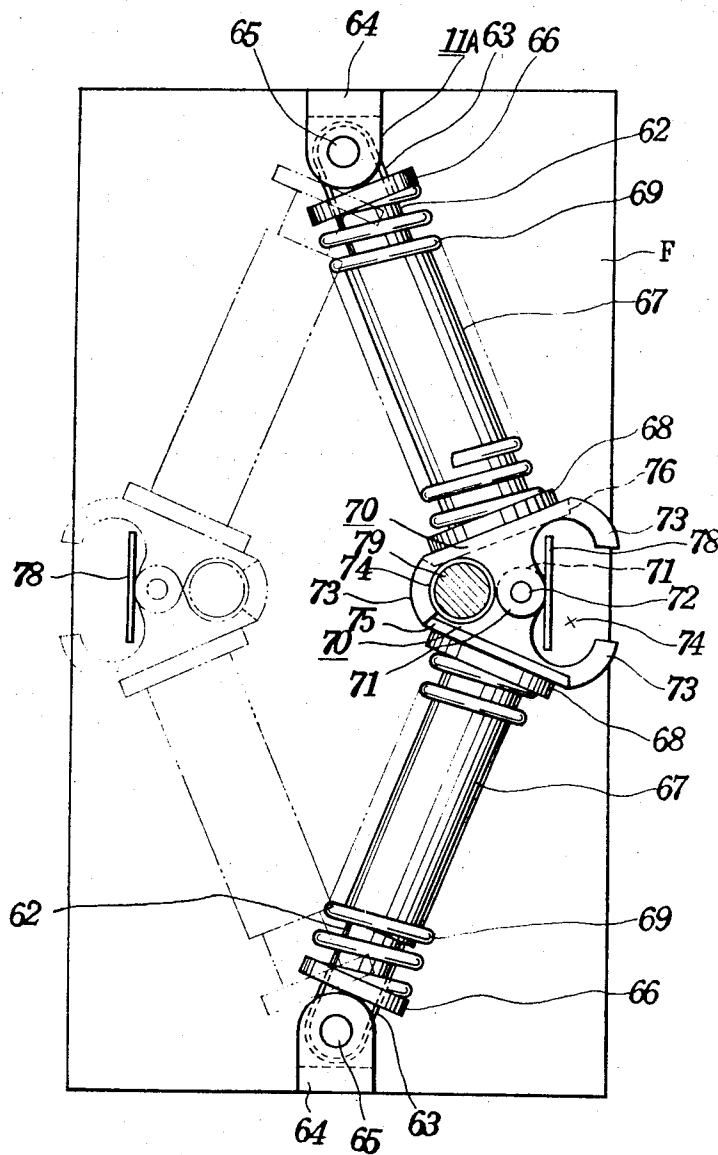


**FIG-7**



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**FIG. 8**



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## MULTI-STORIED GARAGE

The present application corresponds to Japanese patent application No. 44/71091 filed on Sept. 8, 1969, from which the benefit of priority under the Paris Convention is claimed.

The present invention relates to a multi-storied garage.

Known multi-storied garages, such as those of the invention disclosed in the Japanese official patent gazette No. 36/3918, have been loaded with motor-vehicles by a lift cage which ascends and descends in a lift passage. This lift cage has been constructed to accommodate a single motor-vehicle, and has probably raised no problem when a plurality of storage chambers are provided only vertically, but when a plurality of chambers must also be provided on same floor levels, many lift cages are necessary in proportion to the number of chambers. Accordingly many entrances proportionate to the number of the lift cages must be provided, so that the greater part of the space on the floor where entrances are provided (usually the first floor) is occupied with the entrances, and there is no space to have chambers. After all, the conventional mechanical garages have had the common problem of the waste of land.

The garage of the invention disclosed in the Japanese official patent bulletin No. 36/3918 has arms operated by a hydraulic device to hold the bumpers of the vehicle in order to station it on the cart. By this method it is able to support the vehicles surely, but on the other hand, means to fix them on the cart is extremely complicated and expensive.

Accordingly, it is an object of the present invention to provide a new and improved multi-storied garage in which conveyance of a vehicle mounted on a cart from a reception floor to each parking chamber can be fully automatically effected, said garage having a lift cage of a considerably larger size wherein a cart is longitudinally movably arranged so that much more chambers can be installed, thereby avoiding the disadvantages of the conventional systems.

These and other objects, features and advantages of the present invention may be best understood by way of the following description of the exemplary apparatus employing the principles of the invention as illustrated in the accompanying drawings, in which:

FIG. 1 is a schematic vertical sectional view showing a multi-storied garage according to the present invention;

FIG. 2 is a top plan view of the multi-storied garage shown in FIG. 1;

FIG. 3 is a side view mainly showing a device for moving the table;

FIG. 4 is a front view of a cart;

FIG. 5 is a plan view of said cart;

FIG. 6 is a plan view showing a device for clamping the cart on the table;

FIG. 7 is a plan view showing a clamp device provided on the floor of a chamber;

FIG. 8 is a plan view showing an alternative embodiment of a clamp device;

FIG. 9 is a side view of the clamp device shown in FIG. 8;

FIG. 10 is a front view mainly showing a lift cage; and

FIG. 11 is a top plan view of said lift cage mainly showing an endless chain device.

The preferred embodiment of the present invention illustrated in the drawings is explained fully hereinafter. Numeral 1 in FIG. 1 indicates the whole of the multi-storied garage, in the central part of which the lift passage 3 of the lift cage 2 is vertically constructed. On each floor are provided a plurality of chambers such as (a1) through (a2'), as seen in FIG. 2, each of which chambers has its cart 4 which goes in and out freely for carrying a motor vehicle. Said lift cage 2 is lifted by wires 5 and operated by the lifting gear 6 which is provided on the roof of the multi-storied garage 1. The lift cage has almost the same depth as the multi-storied garage and has a floor space large enough to carry a plurality of carts 4 (two in the illustrated embodiment) along its depth.

Numeral 7 indicates a balance weight for the lifting wires 5, and numeral 8 is a protective device against dropping of the lift cage 2 attached to the four outer corners of the ceiling of the lift cage 2. An automatic stop device for the lift cage 2 is indicated by numeral 9. A clamp device 10 is carried on the cart 4 to lock a vehicle. 11 and 11A indicate clamp devices which are adapted to hold said cart 4 in position, when the cart 4 is received on the table 12 arranged transversely movably in the lift cage 2 and carried into a selected one of the chambers (a1) through (c2) illustrated in FIG. 1. 13 indicates a device for moving the table 12 in the lift cage 2 along the depth thereof.

Wheels 14 are rotatably fitted to support fittings 16 on the under side of the bed plate 15 of the cart 4. A pair of upright pins 17 provided on the reverse side of the bed plate 15 are disposed in a row along the length of said bed plate and spaced equally from the center thereof. Each of said pins 17 carry a rotatable locking wheel 18 at right angles thereto. Numerals 19 indicate pairs of spaced rods which project from both ends of the said bed plate 15.

Referring to the moving device 13 for the table 12 in FIG. 2 and FIG. 3, two pairs of brackets 20 are provided on the platform 21 of the lift cage 2, each pair of said brackets 20 spanning the platform 21 across the longer side thereof and supporting rotatably a screw rod 23 carrying a bevel gear 22 on its one end.

A reversible driving motor 24 is disposed at the center on one end of the platform 21, and the driving pulley 27 of said driving motor 24 is connected by a belt 28 with an intermediate pulley 26 fixed at the center of a transmission shaft 25. Bevel gears 29 provided on either end of said transmission shaft 25 are engaged with the bevel gears 22 of said screw rods 23.

Numeral 12 shows an oblong table, whereon two parallel guiderails 31 are transversely arranged, while the table 12 carries on the underside thereof a pair of supporting plates 32 in positions immediately above each screw rod 23, and a pair of supporting rods 33 are attached to said supporting plates 32.

Numeral 34 shows moving bodies, the lower parts of which are engaged to screw rods 23, and the upper parts of which are slidably keyed to said supporting rods 33, thereby supporting the table 12 and allowing it to move back and forth with the rotation of the screw rods 23. Springs 35 are attached as a shock absorber between the moving bodies 34 and the supporting plates 32. Stopper plates for the table 12 are indicated by numeral 36.

FIG. 5 shows a clamp device 10 for the motor vehicle C. A pair of pins 37 to which L-shaped levers 38 are rotatably fitted are fixed on the table 15 of said cart 4, and the pinch portions of said L-shaped levers 38 are shaped like the letter "S" and are adapted to pinch the wheels W of the vehicle C.

Numeral 40 denotes the base rods of the L-shaped levers 38 attached by tension springs 41. Supporting rods 42 fixed on said bed plate 15 are provided with hooks 43 adjustably held by nuts 44, said hooks 43 being engaged with said tension springs 41.

Two parallel guiderails 45 having a substantially U-shaped section employed for leading a vehicle C onto the cart 4 and removing it therefrom are longitudinally arranged on the bed plate 15. Stop plates 46 are arranged at the front ends of the guiderails 45 for causing the vehicle C to stop in position. Two guiderails 47 leading the cart 4 into and out of a chamber are arranged to run parallel with each other on the platform F of each of the chambers (a1) through (c2) as shown in FIG. 7.

Referring now to FIG. 6, a clamp device 11 for a cart 4 disposed on table 12 is shown. Numerals 48 indicate pins which are fixed at the central part of the table 12. Numerals 49 indicate a pair of pinch levers, having an open and curved end, the base portions of which are rotatably fitted to said pins 48. Numeral 50 denotes another pair of pinch levers which are arranged on said pins 48 symmetrically to said pinch levers 49 respectively. A guide rod 52 having a guide groove 51 is attached on the table 12 in the middle position between the outer ends of each pair of pinch levers 49 and 50.

Rods 53 are movably supported in the guide grooves 51 and hooks 54 are adjustably secured on the tips of pinch levers 49 and 50 by nuts 55. Numeral 56 indicates tension springs which pull said rods 53 and said hooks 54, and which give pinching force to pinch levers 49 and 50.

Attention is directed to the clamp device 11A for the cart 4 shown in FIG. 7 which is provided in each chamber (a1) through (c2). Rod 57 is attached to the rear center of the chamber floor F, and supports as a fulcrum a pair of pinch levers 58 by the central part. Base portions 59 of said levers 58 are spaced from, but joined with, each other by means of spring members similar to those on the clamp device 11 on said table 12. 60 indicates tips of the S-shaped and inverted S-shaped levers 58, which are outwardly curved. Arcuate pinch portions 61 of the pinch levers 58 are designed to pinch the locking wheels 18 of the cart 4.

Referring to FIG. 8 and FIG. 9, an alternative embodiment of the clamp device 11A provided in the chambers (a1) through (c2) will be explained. 62 indicates movable shafts, the base portions 63 of which are rotatably-attached horizontally by pins 65 to a pair of support plates 64 fixed on the floor F of chambers (a1) through (c2) and have flanges 66.

Numeral 67 indicates two slide cylinders fitted slidably to the movable shafts 62, on the tips of which are formed flanges 68. Compression springs 69 are provided between said flanges 68 and the flanges 66 of the movable shafts 62.

Hooks 70 are attached to said flanges 68 of the slide cylinders 67. Said hooks are formed in the middle thereof with bosses 71 and connected by a pin 72

passed through said bosses. Arcuate hook portions 73 which extend from both ends of the hooks 70, form locking portions 74.

Said locking portions 74 are opened and closed by said hook portions 73, which are provided on different planes so as to overlap each other.

75 indicates a stopper attached to the upper part of said left hook 70 shown in FIG. 9, which is able to contact with said right hook portions 73.

Numeral 76 indicates another stopper attached to the lower part of said right hook 70 shown in FIG. 9, which is able to contact with said left hook portions 73. The numeral 77 denotes a stop portion extending downward from the boss 71 of the hook 70 shown on the left in FIG. 9. Regulating plates 78 are provided on the left and right sides of the floor F and adapted to contact with the stop portion 77 of the hook 70. Said locking portions 74 of the hooks 70 are to lock the member 79 which has same function as the locking wheel 18 on the cart 4.

Referring to FIG. 10 and FIG. 11, the endless chain device 80 which is arranged to move the cart 4 will be described. Driving shaft 81 provided with driving chain wheels 83 is rotatably fitted to bearing stands 82 placed on the right side of floor of lift cage 2, and driven chain wheels 85 are rotatably fitted to bearing stands 84 placed on the left side of the floor of lift cage 2. Endless chains 86 provided with arms 87 connects said driving chain wheels 83 with driven chain wheels 85. The parts are so located that, with the movement of the endless chains 86, the tip 88 of one of the arms 87 enters the space between the rods 19 of the pair provided at one end of the bed plate 15 of the cart 4, thereby shifting the cart 4 transversely as the arm contacts the leading pin of the associated pair. A reversible motor 89 is supported at a suitable place in the lift cage, such as on the upper corner, and is connected to the driven pulley 91 of said driving shaft 81 by belt 90. In FIG. 10 there is shown an automatic stop device 9 comprising a lever 92 pivotally fitted to a portion of inner wall 93 of the chamber, the tip 96 of said lever 92 projects into the lift passage 3 when it is attracted by electromagnet 95. Switch rod 97 pivoted on said tip 96 is arranged to open or close a switch 98.

A rod 99 having a weight 102 which is attracted by an electromagnet 101 provided on a portion of inner wall 100 is arranged by a stopper 103 to move vertically. 104 indicates an L-shaped stop lever pivotally attached to said portion of inner wall 100, the lower end 106 of which is linked at 107 to a lower end of said rod 99, and the upper end of which is brought into contact with the underside of the floor of the lift cage 2 to stop its lowering. Each chamber (a1) through (c2) is provided with switch 109 which is adapted to actuate an automatic controller (not shown) employed for stopping the motor 89 in the lift cage 2 and then deenergizing the electromagnet 101 in order to return the stop rod 104 to its initial position. A switch 110 fixed at the bottom part 111 of the lift cage 2 is arranged to operate the motor 89 of lift cage 2. A stopper 112 for a cart is provided in each chamber (a1) through (c2).

The operation of the preferred embodiments will be explained in detail. First, attention is directed to the clamp device 10, when a motor vehicle C is loaded on

the cart 4 situated on the table 12 in the lift cage 2. The vehicle C is moved along the parallel guide rails 45 which are constructed on the bed plate 15. The wheels W of the motor vehicle C go forward along the guide rails, urging outwardly the L-shaped levers 38, each of which is attached with a tension spring 41, and are pressed by pinch portions 39, so that said vehicle is secured and fixed on said cart 4. In this way, the clamp device 10 makes it possible to shift the vehicle safely with the cart 4. In the present invention, it is easy to draw out the motor vehicle C from the bed plate of the cart 4, if an external force which surpasses the tensile force of the spring 41 is given.

The moving device 13 for the table 12 will be described. The transmission shaft 25 is rotated by the operation of the driving motor 24 through the driving pulley 27, the belt 28 and the intermediate pulley 26. Along with the rotation of said transmission shaft 25, the screw rods 23 are rotated through the bevel gears 29 and 22, so that the moving bodies 34 are moved by the screw motion of the screw rods 23, thereby, moving forwards the table 12 and the cart 4 connected to said moving bodies 34 by the supporting rods 33 and the compression springs 35. When the table 12 contacts the stopper plates 36, a limit switch (not shown) causes the driving motor 24 to stop, whereby the motion of the screw rods 23 and the table 12 comes to a stop.

In this case the screw rods 23 continue to rotate because of the inertia, so that the moving bodies 34 further move. But the springs 35 provided between said moving bodies 34 and the supporting plates 32 eventually cause the inertia of said screw rods to vanish.

Practical operation of endless chain device 80 which shifts the cart 4 to the right to enter the chamber (a2) will be described with reference to FIG. 10. Upon stopping of the lift cage 2, the closing of the switch 110 fixed at the bottom part of said lift cage 2 by the tip 108 of the stop rod 104 will initiate the rotation of motor 89 so that the driving chain wheels 83 engaged with driving shaft 81 start rotating to advance the chains in the direction of arrow "P" by the belt 90. Accordingly the tip 88 of one of the driving arms 87 provided on the endless chains 86 enters and is locked between the rods 19 of the pair at the left end of the cart 4, so that said cart 4 is shifted by the arm 87 into the desired chamber (to the direction of arrow "P") along the guide rails 47. The parts are so arranged that stopper 112 stops cart 4 in a position at which arm 87 disengages the pin 19 against which it was pushing as illustrated in dotted lines in FIG. 10.

Removal of the cart 4 from the chamber to the table 12 is effected by the reverse rotation of said motor 89, so that the arm 87 of one of the endless chains 86 starts traveling in the direction of arrow "Q" to enter between the pair of pins 19 adjacent to the lift passage 3 and engages and advances a pin and the cart 4 to return the cart to its initial position upon the table 12.

To shift the cart 4 from table 12 to the chamber on the left as viewed in FIG. 10 when required is effected in the reverse manner, i.e. by operating chains 86 to advance arm 87 to enter between the pair of pins located at the right in FIG. 10. Said motor 89 is operated to start rotation not only by closing of the switch 110 but by the coupling operation of said switch and a controlling switch (not shown).

The clamp device 11A for the cart 4 provided in each chamber (a1) through (c2) will be described with reference to FIG. 7. When the cart 4 is shifted from the lift cage 2 to the floor F of the chamber as described in the foregoing, the locking wheels 18 attached on the reverse side of the bed plate 15 are forced into between the pinch levers 58 and pinched by said pinch levers 58 fastened tightly by the tension springs 56, so that the cart 4 is kept in its position on the floor F of the chamber. Carrying the cart 4 out of the chamber when required is easily effected by giving the cart 4 an external force large enough to disengage the locking wheels 18 from the pinch levers 58.

The clamp device 11 for the cart 4 provided on the table 12 will be described. As explained in the foregoing, the cart 4 is shifted from the floor F of the chamber onto the table 12, then the locking wheels 18 attached on the reverse side of the bed plate 15 are caused to rotate along the pinch levers 49 or 50 and secured tightly by the tension springs 56 in positions where said pinch levers 49 and 50 meet, so that the cart 4 having said locking wheels in the reverse side, is held in position on the table 12. It is easy to draw out the cart 4 from the table 12, by giving an external force large enough to disengage the locking wheels 18 from the levers 49 and 50.

Another embodiment of the clamp device 11A provided in the chamber (a1) through (c2) will now be described with reference to FIG. 8.

When the cart 4 is shifted from the table 12 into the chamber, the member 79 attached on the reverse side of said cart 4 runs into the open locking portions 74 of the hooks 70 so that the movable shafts 62, the base portions 63 of which are pivotably fitted by the pins 65, are caused to rotate. As the movable shafts 62 get nearer to the center-to-center line of the support plates 64, the slide cylinders 67 move outwardly against the force of the compression springs 69, and as the movable shafts 62 get farther from said line after passing it, the slide cylinders 67 urged inwardly by force of the compression springs 69, so that the hooks 70 pivot about pin 72. The hooks 73 move toward each other until they abut against the stoppers 75 and 76 respectively, and latch the member 79 of the cart 4. The stop portion 77 formed at the boss 71 of one hook 70 abuts against the regulating plate 78 and stops the movable shafts 62. Thus the cart 4 is secured in its position in the chamber. To carry said cart 4 secured by the clamp device 11A out of the chamber can be easily performed by giving a sufficiently large external force for moving the movable shafts 62 in the reverse direction against the force of the compression springs 69.

The practical operation for taking a motor vehicle C into a desired chamber will be described. For carrying the motor vehicle C into the chamber (a1) on the highest floor from the entrance E on the first floor, suppose now, to make the explanation short, that the lift cage 2 stays on the highest floor; first, the cart 4 is carried out from the chamber (a1) by the operation of the endless chain device 80 onto the table 12 in the lift cage 2 and is locked by the clamp device 11. In this case, the lift cage 2 must be raised a little and disengaged from the lever 104. Closing the control switch (not shown) causes the motor M to rotate reversely and energizes the electromagnet 101 of the automatic stop

device 9. The rod 99 is attracted by the magnet 101 so that the tip 108 of the stop rod 104 pivoted at 107 to the lower end of the rod 99 protrudes from its position shown in a broken line Y in FIG. 10 into the lift passage 3, as shown in the drawing. Therefore after the motor M stops operating, said stop rod 104 supports the bottom part 111 of the lift cage 2 which descends a little because of the looseness of the wire 5 and maintains the floor of the table 12 at just the same level as the floor of the entrance.

Then, the motor vehicle C is shifted in the foregoing way onto the table 4 in the lift cage 2 and is held in position by the clamp device 10. And after that, the control switch again makes the motor M rotate in the normal direction and energizes the electromagnet 95 of the automatic stop device 9. Then, the lift cage 2 carrying the cart 4 is raised in the lift passage by winding up the wire 5, and the tip 96 of the lever 92 is pushed upwards by the protective device 8 against dropping of the lift cage 2 as shown in a broken line in FIG. 10, whereby the switch 98 is closed by the switch lever 97. By this switch action the operation of the motor M of said lifting device 6 is stopped, the electromagnet 95 is deenergized and at the same time the electromagnet 101 is energized. Accordingly, in the same way as mentioned before, the stop lever 104 is pivoted to support the bottom part 111 of the lift cage 2 so as to maintain the table 12 on the same level as the floor of the chamber (a1). With supporting said bottom part 111, the lever 104 also closes the switch 110 in order to make the endless chain device 80 operate, so that the cart 4 on the table 12 is moved into the chamber (a1) with the vehicle C locked safely on the table 12.

The foregoing explanation has been made by example of the chamber (a1) which is located at the nearer side to the entrance E. When a motor vehicle must be shifted to the chamber (a1') or (a2'') on the farther side from the entrance, the vehicle C is mounted on the cart 4, and the moving device 13 operates to shift the table 12 with the cart 4 to the farther side, followed by the foregoing sequence of operation to carry the vehicle C into the chamber.

The operation for taking out a vehicle mounted on a cart 4 from the chamber (a2) when the empty lift cage 2 stays on the first floor, will be described. First, the motor 89 provided in the lift cage 2 is caused to rotate in the reverse direction by the control switch, the motor M for the lifting gear 6 is rotated in the normal direction and the electromagnet 95 for the chamber is energized, whereby the lift cage 2 rises as high as the chamber. At this moment, the lever 92, the switch 98, the electromagnet 101 and the stop lever 104 are actuated or energized in their order, to stop the lift cage 2, the bottom part 111 of which is supported by the stop lever 104 which closes the switch 110. Accordingly, the endless chain device 80 is operated to shift the cart 4 loaded with the vehicle C out of the chamber, and once the cart is secured on the table 12 by the clamp device 11, the lift cage 2 is raised a little by the rotation of the motor M and the electromagnet 101 of the automatic stop device 9 is deenergized, so that the stop lever 104 returns to its position indicated by a broken line Y in FIG. 10 and said lift cage 2 lowers to the entrance E by virtue of the reverse rotation of the motor M, whereupon taking the vehicle C out of the multi-storied garage

is completed. It is desirable to decelerate the rotation of the motor M so as to reduce the speed for winding or rewinding of the wire 5 just before the lift cage 2 stops moving.

It will be understood that the present invention provides a multi-storied garage for storing a number of vehicles C on different floor levels in a limited area of land safely, surely and automatically, wherein it is assured that there is no rolling or falling of vehicles as they are held on the carts 4 latched by the clamp devices 11 and 11A on the table 12 or in the chambers while descending or ascending in the lift passage 3.

Moreover, the multi-storied garage of the present invention can house motor vehicles C, not only in chambers (a1) through (c2) adjacent to the entrance E but also in chambers (a1') through (c2') beyond said chambers (a1) through (c2), by comprising a lift cage which has the length covering all chambers provided along the depth of the garage and a table 12 movably arranged on the floor of the lift cage. Different from the known installations which house motor vehicles only in the chambers provided on both sides of the lift cage, the present invention has a marvellous effect of providing a multiplicate number of chambers which a single lift cage 2 can serve and load with vehicles.

It is understood that various changes and modifications may be made in the embodiments illustrated and described herein without departing from the scope of the invention as determined by the following claims.

What I claim is:

1. A multi-storied garage comprising an entrance, a lift passage and storage chambers each having a floor, a lift cage shiftable in said lift passage, mobile carts for supporting and carrying motor vehicles received through the entrance of the garage to be stored in said chambers, said cart including supporting wheels and a pair of horizontally disposed depending wheel means for locking said cart in said lift cage and storage chambers, a mobile table mounted in said lift cage for carrying said carts, said table including a pair of guide rails disposed on the upper surface thereof along which the supporting wheels of the carts are adapted to move, spring pressed lever means located on said mobile cart for holding a motor vehicle in a selected position on the cart, spring pressed lever means located on said table for engaging said pair of depending wheel means for holding said cart in a selected position on said table, means for moving said table to selected location within said lift cage and holding it in that position, means for automatically stopping said lift cage carrying the table and the cart mounted thereon at a selected floor level of the garage, means for shifting said cart from said mobile table against the action of said spring pressed lever means on said mobile table into a selected storage chamber and for shifting said cart from a selected chamber to said mobile table, and spring pressed lever means located in each chamber for engaging said pair of depending wheel means for holding the cart in a selected position on the floor of said chamber.

2. A multi-storied garage as defined in claim 1, wherein said vehicle holding means comprises a pair of pins projecting upwardly from the cart, a substantially L-shaped lever pivotally carried on each of said pins and having a substantially S-shaped pinch portion and a base portion, anchor means carried by said carts and a

tension spring extending between the base portion of each lever and an anchor means whereby the wheels at opposite sides of a vehicle positioned on the cart are pressed by the pinch portions of said levers and thus releasably retained on the cart.

3. A multi-storied garage as defined in claim 1, wherein said cart holding means comprises a pair of pins carried by said table spaced longitudinally of and equally spaced from the center of said table, a pair of curved levers pivotally carried on each of said pins and extending in opposite directions from each pin, a pair of tension springs each connecting the ends of adjacent levers of said pairs said pair of depending wheel means being engageable by said levers to thereby retard movement of the cart on the table.

4. A multi-storied garage as defined in claim 1, wherein said means for holding a cart in said selected position in a chamber includes a pin carried by the floor of each chamber, a pair of pinch levers pivotally carried on said pin, said levers crossing each other at said pin, and a tension spring connecting said levers at one end, the opposite ends of said levers being symmetrically shaped substantially like the letter "S" and terminating in outwardly curved portions, spaced rotatable members carried by and projecting below the cart received between and frictionally engaged by said S-shaped ends of said levers.

5. A multi-storied garage as defined in claim 4, wherein each storage chamber has on the floor thereof a pair of rails and the cart is supported by wheels which travel along said rails.

6. A multi-storied garage comprising an entrance, a lift passage and storage chambers each having a floor, a lift cage shiftable in said lift passage, mobile carts for

carrying motor vehicles received through the entrance of the garage to be stored in said chambers, a mobile table mounted in said lift cage for carrying said carts, spring pressed means for holding a motor vehicle in a selected position on a cart, spring pressed means for holding said cart in a selected position on said table, means for moving said table to selected locations within said lift cage and holding it in that position, means for automatically stopping said lift cage carrying the table and the cart mounted thereon at a selected floor level of the garage, means for shifting said cart from said table against the action of said spring pressed cart holding means into a selected storage chamber and for shifting said cart from a selected chamber to said table, spring pressed means in each chamber for holding the cart in a selected position on the floor of said chamber, said means for holding a cart in said selected position on the floor of a chamber comprises a pair of spaced supporting members carried by the floor of the chamber, a shaft pivoted to each supporting member to swing in a horizontal plane parallel to the floor, a flange carried by each shaft, a cylinder slidable on each shaft and provided with a flange, a compression spring encircling each cylinder and abutting a cylinder mounted flange and a shaft mounted flange at its opposite ends, a hook member carried by each cylinder, means pivotally connecting said hook members, each hook member having a pair of hook portions projecting laterally at opposite sides of said pivotal connection, stop means on said hook members adapted to abut to limit pivotal movement of said hook members, and a locking member projecting below the cart and engageable with cooperating hook portions.

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