May 6, 1930. W. J. PORTER 1,757,331

AUTOMOBILE DISPOSAL AND WITHDRAWAL STRUCTURE

Filed Sept. 12, 1928 4 Sheets-Sheet 1

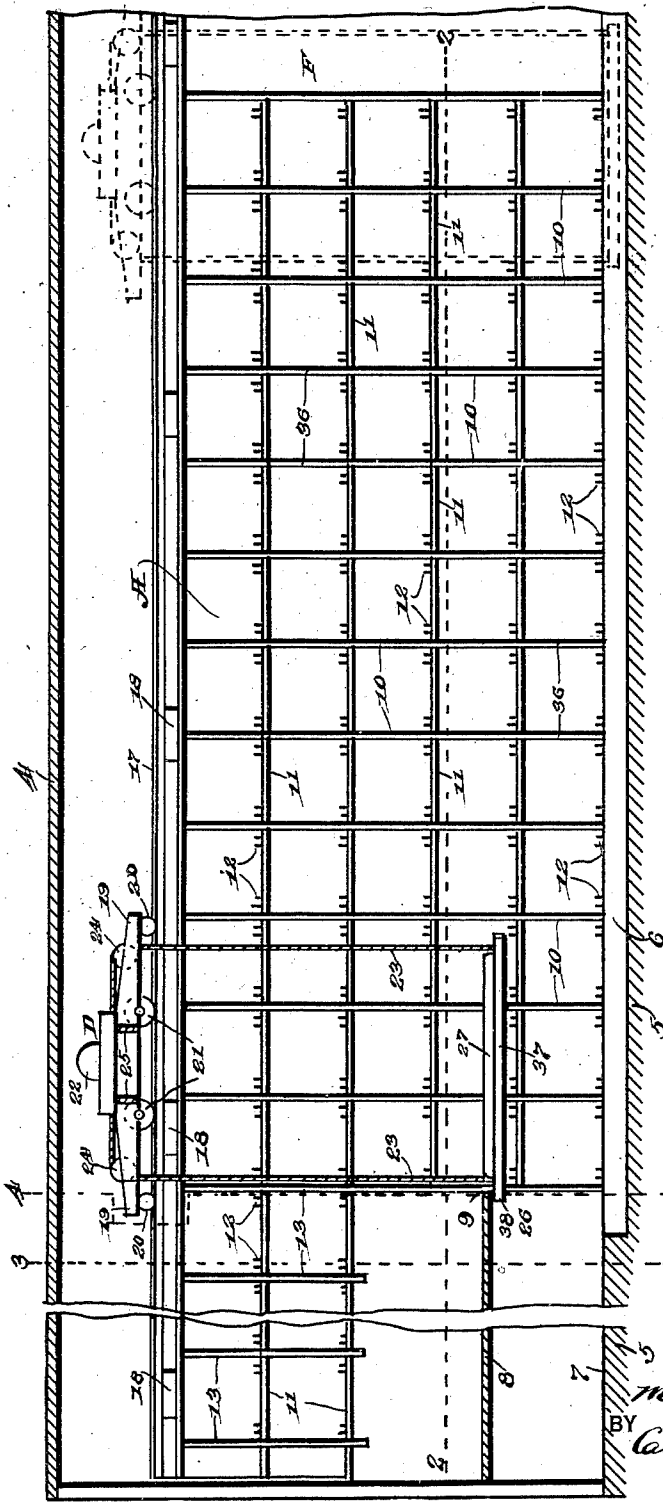


Fig. 1.

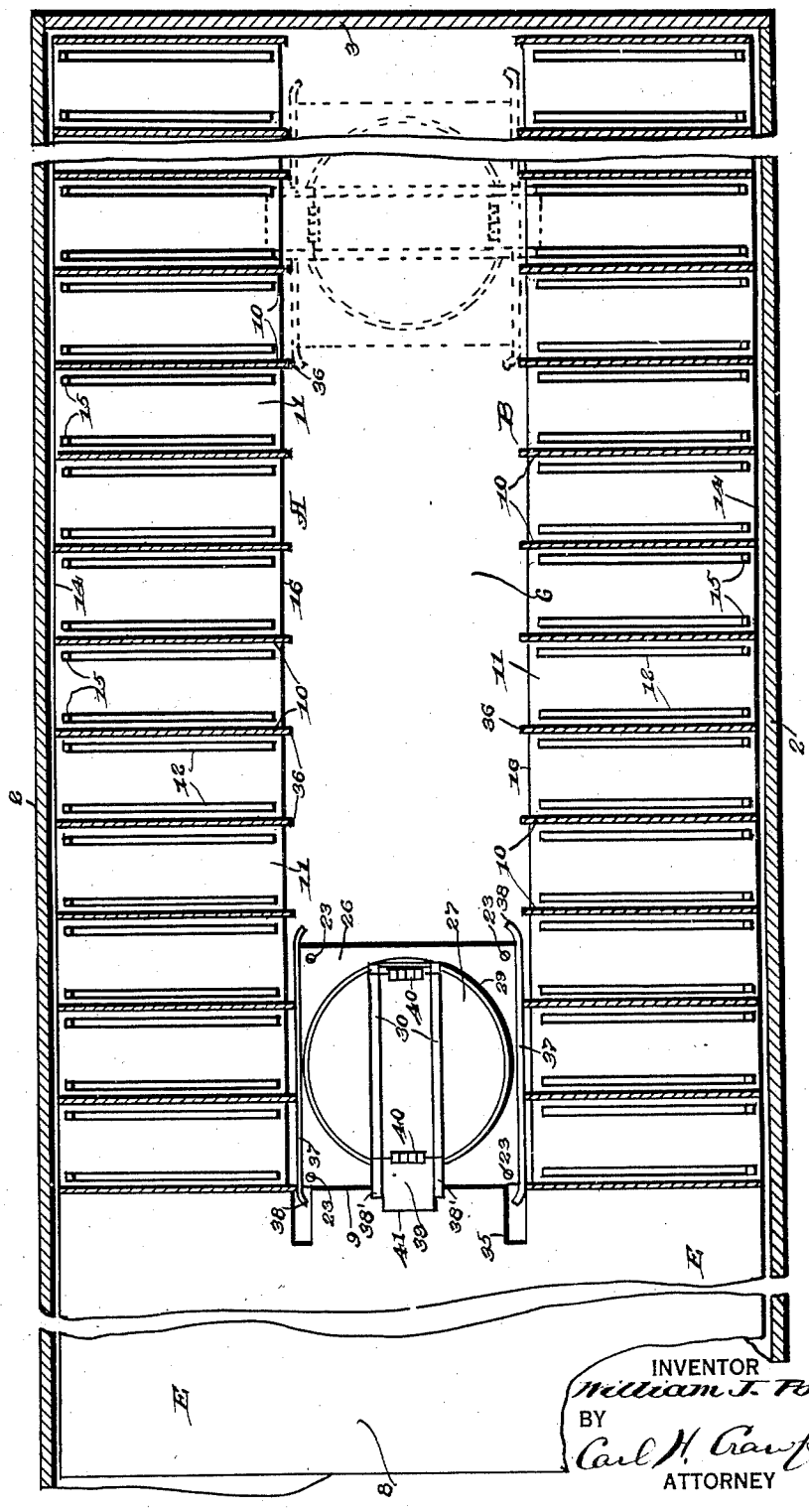
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Filed Sept. 12, 1928 4 Sheets-Sheet 2

Fig. 2.



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AUTOMOBILE DISPOSAL AND WITHDRAWAL STRUCTURE

Filed Sept. 12, 1928 4 Sheets-Sheet 3

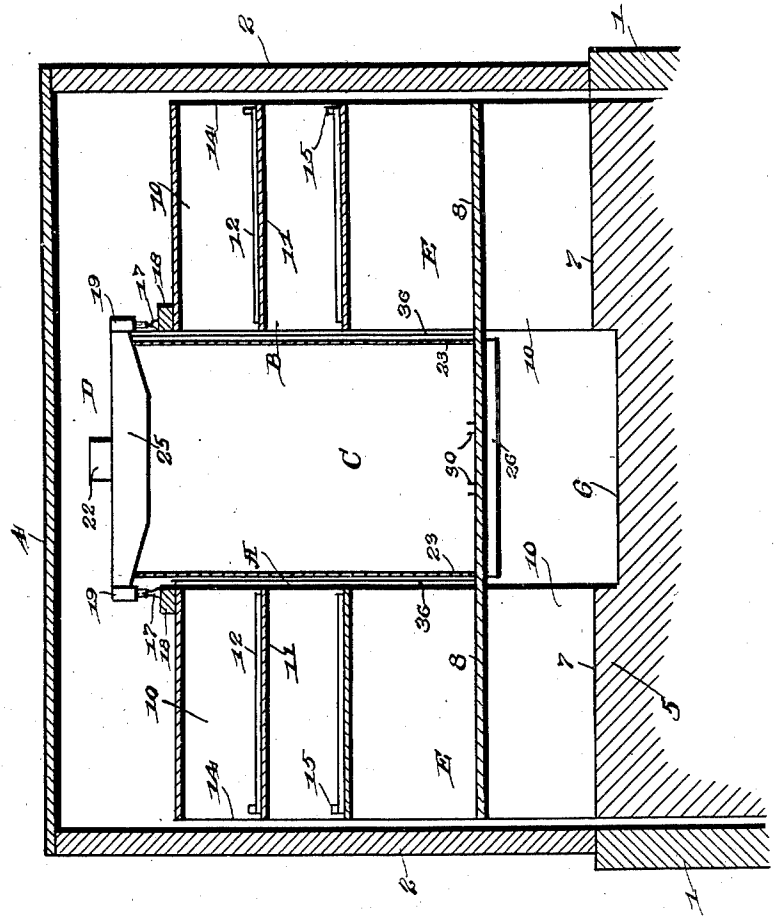


Fig 3

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Filed Sept. 12, 1928 4 Sheets-Sheet 4

Fig. 6.

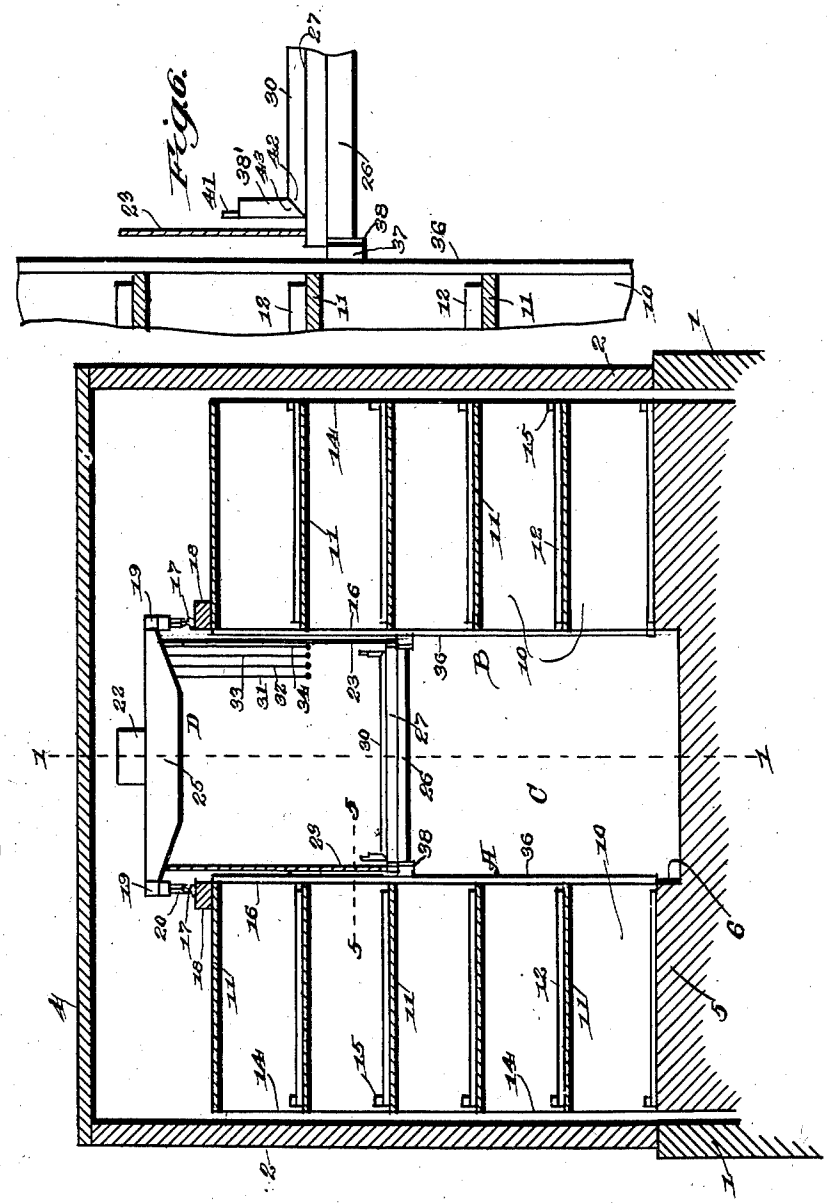


Fig. 4.

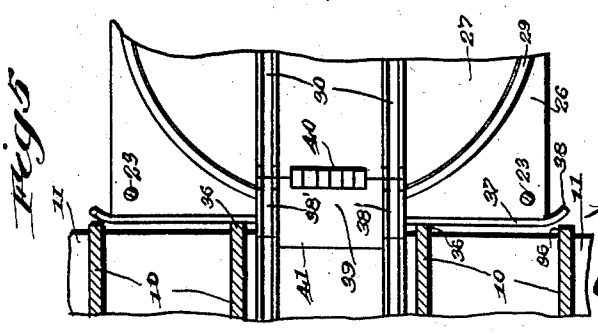


Fig. 5

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UNITED STATES PATENT OFFICE

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AUTOMOBILE DISPOSAL AND WITHDRAWAL STRUCTURE

Application filed September 12, 1928. Serial No. 305,433.

This invention is addressed to the problem of storage disposal and withdrawal of automobiles.

The invention includes a bank of floors which may be provided with car berths, or opposing banks of floors or berths in facing relation and spaced to form an intervening aisle, and along or abreast of which floors a car carrying platform is advanced longitudinally, vertically or diagonally, whereby a car can be transferred from a point of deposition to or from any of said floors or berths.

It is a feature of the invention to provide substantially vertically disposed stationary rails abreast of said floors or berths and to equip the platform with elongated shoe means adapted constantly to coact with said rails in relatively close working clearance so that the platform can be floatingly suspended and moved and guided to different positions of disposal and withdrawal.

It is a very special feature of this invention to locate said rails and proportion said shoes so that the latter will at all times engage at least two rails, and this feature, in combination with the clearance relation of the shoes and rails causes the same to function as a means for preventing undue lateral and longitudinal sway of the floatingly suspended platform while the latter is being longitudinally, vertically or diagonally advanced abreast of the guide rails.

My invention has many other objects and features which will be more fully described in connection with the accompanying drawings and which will be more particularly pointed out in and by the appended claims.

In the drawings:

Fig. 1, is a longitudinal vertical sectional view of my improved structure taken on line 1—1 of Fig. 4.

Fig. 2, is a horizontal sectional view on line 2—2 of Fig. 1.

Fig. 3, is a transverse vertical sectional view on line 3—3 of Fig. 1.

Fig. 4, is a similar view on line 4—4 of Fig. 1.

Fig. 5, is an enlarged sectional view on line 5—5 of Fig. 4, showing how the turn-table is locked in a position of registry with a berth to deposit or withdraw a car therefrom.

Fig. 6, is a similar enlarged view looking at the platform in edge elevation and showing the locking-channel apron device in a withdrawn position.

Like characters of reference designate similar parts throughout the different figures of the drawings.

I have generally indicated the foundation of a building at 1, the walls at 2 and 3 and the roof at 4. It is one of the advantages of my invention to provide a storage disposal and withdrawal structure that is self contained and self stable within, and which may be installed in any kind of building of suitable form, without necessitating the construction of a building especially for the purpose of housing my improved structure. However, if desired, a building may be especially constructed for the purpose.

In the drawings I have generally indicated a foundation at 5, which is separate and distinct from the foundation 1, of the housing, and this foundation 5, is shown provided with a trough-shaped clearance way 6, for a purpose which will later appear. Laterally of this clearance way, there is afforded floor space 7, which may be partitioned off and usefully employed in any desired manner dependent upon the requirements of the particular installation.

A point of car ingressing an egressing deposition is shown in the form of a lobby receiving floor 8, which is preferably at the street level, or in any event, accessible to the cars from the street, and which, as shown, is coextensive with the full width of the structure at the front portion thereof. Thus, an ample receiving capacity is afforded to accommodate any reasonable congestion of cars.

This disposition of the lobby floor above the floor 7, affords room for what may be a tire shop, on one side, and wash and grease racks on the other, as indicated in the drawings, although of course this is merely an illustrative example of selected utilities of the space and is not to be considered a definite limitation, of the invention. It will also be understood that the clearance way 6 will not usually, in practice, extend much forwardly of the rear portion 9, of floor 8.

Extending longitudinally of the building, and mounted on its own foundation 5, are two banks of opposed car floors or berths which I will generally indicate at A and B, and as both are identical in structure and formation, only one need be described in detail and only one berth need be described. At this point, however, it may be informative to state that these opposed banks of berths A and B are in substantially parallel relation, in the present embodiment, and that they are spaced apart from each other sufficiently to form an intervening aisle C, therebetween. As will be seen from the drawings, this aisle is coextensive in length, with the length of said banks.

As the invention does not appertain to any specific structural details of the banks, I will very generally indicate the same and will state that in physical structure, they may vary widely within the skill of an architect or structural steel designer.

As shown, the bank consists of a series of vertically disposed walls, whether skeleton or solid, and which are mounted on the foundation 5, and are of the height shown to extend from the bottom to the top of the bank of berths. In width, as shown in Fig. 3, these vertical walls would be equal to the length of berth desired. These vertical walls 10, would also be spaced apart, as shown in Fig. 1, a distance equal to the width of berth desired, and in the drawings, I have shown all the berths of the same size, although in practice, this may be varied as desired or required. In the main portion of each bank, I have shown five series of berths, or a capacity in height of five superposed berths, which extend above and below floor 8.

The banks are completed by a series of horizontally disposed walls 11, suitably joined to the vertical walls 10, and forming therewith the series of berths shown, in the bank A. These walls 11, are spaced apart in superposed relation the distance required to form berths of the required or desired height and the width of said walls 11, is preferably equal to the width of walls 10. As the walls 11, for the floor and ceiling of each berth, except for the floors of the lowermost berths, I preferably equip said walls 11 with channels 12, or similar means for guiding the wheels of the car so that the latter may be easily advanced into and out of the berths off from or onto the transfer means, to be later described. In accordance with my invention, and as shown in Figs. 1 and 3, I make use of the space above the lobby floor, on each side of the aisle, by extending berths of the upper rows, which as shown, are the two uppermost rows, over and forwardly of the lobby. These berths may consist of the same or similar horizontal walls 11, and relatively shorter vertical walls 13.

As shown in Figs. 3 and 4, the outer ends 14, of the berths, are slightly in spaced relation to the walls 2, of the housing building and need not be closed except by the latter. However, in some installations it may be desired to close the outer ends independently of the building walls. In any event, I have indicated suitable blocks 15, for arresting rolling movement of the cars toward the outer ends of the berths. When the cars have thus been finally deposited or positioned, of course the brakes will be applied, as usual. However, it will be noted that the entrance ends 16, of the opposed banks A and B, open toward each other, or in other words, the berths of one bank open toward the berths of the opposed bank, the berths being in transverse alinement although this is not essential.

Reference will next be made to the improved means for effecting transfer of cars from the lobby floor to any one of the berths of either bank, or effecting transfer of a car from any berth of either bank to the lobby floor.

As shown, said means is in the form of a travelling crane and I have shown trackage 17 suitably mounted on blocks 18, supported by the banks and on the tops thereof, said trackage extending for the full length of travel of the crane. A traveling crane structure, of any approved type, is generally indicated at D, and may consist of track sections 19 having suitable supporting wheels 20, running on said trackage. Said sections may also have larger propulsion wheels 21, driven from a source of power such as an electric motor 22, the latter being suitably geared to said wheels in a manner not shown, and having suitable connection with a source of electric power, all of which is clearly within the skill of a traveling crane manufacturer. I have shown four platform lifting cables 23, which are trained over wheels 24, which latter may be suitably geared to said motor 22, or an additional motor, as desired. It is the purpose to provide a traveling crane propelled by its own power, and which is equipped to also raise or lower a platform, to be later described. I have shown the track sections of the crane connected by a transverse section 25, as will be clear by reference to Fig. 4.

Depending from said traveling crane is a platform 26, to which the lower ends of cables 23 are connected so that the platform will not only be carried by the crane, but can be ele-

vated or lowered thereby into disposal or withdrawal registry with any one of the berths above or below floor 8, or forwardly thereof, and this platform is preferably square and of sufficient size to receive a car of the usual length.

In those installations where the car is moved onto the platform in a direction coincident with the longitudinal axis of the aisle C, as at present shown, it is desirable to have means for shifting the position of the car after it has been brought into a position of registry with a selected berth.

To this end, the platform 26 is provided with a suitable form of turn-table 27 which is rotatable thereon about its own axis 28. I have shown a flange 29, on platform 26, that forms a guide for the turn-table and of course the latter will be mounted on suitable anti-friction devices, (not shown) to facilitate turning of the table on the platform, with slight manual effort on the part of the operator, or by power, if desired, which latter would be clearly within the skill of a constructor. I have shown the turn-table 27 provided with channels 30 to receive the wheels of the car, and these channels 30 will of course be the same distance apart as are the channels 12, of the various berths. The operator of course will ride on the platform while the car is being transferred and I have shown operating means for controlling the crane which are in the form of operating cords 31 and 32, for causing elevation or lowering of the platform, and a cord 33 for causing the crane to advance in one direction and a cord 34 for causing it to advance in another direction. The clearance way 6, hereinbefore referred to, is sufficient to permit the platform 26 to be lowered into a position to bring the channels 30, on a level with the channels 12, of the lower tier of berths.

I will next describe a feature of the invention which is designed to restrict swinging of the platform longitudinally of the aisle and which is also adapted to restrict lateral movement thereof.

I prefer to provide each bank with a series of oppositely arranged and vertically disposed platform guiding means such as guide rails 36, which are stationary and may be properly lubricated the same as are the usual elevator guide rails. These rails, as shown, are contiguous with the vertical walls 10, and one rail 36 may be suitably mounted on each of said walls, and also on walls 13. On the two sides of the elevator platform 26, I provide elongated guide shoes 37 whose ends 38, are bent inwardly so that they will not catch against the rails 36 and obstruct progress of the platform. There will be only a slight clearance between the rails 36 and the shoes 37, and the latter are long enough to extend past two of the rails, in any event, so that by this provision, I insure stable, clearance guidance of the floatingly suspended platform either when it ascends, descends, or when it is being advanced horizontally, or diagonally along the aisle and therefore transversely of the rails 36, or in any angular relation to said rails.

I will next describe a feature whereby the turn-table may be locked in a registered position with any berth to deliver or withdraw a car, or whereby it may be locked to opposite berths whereby a car could be delivered from the platform into one berth and another car from an opposite berth might be withdrawn onto the platform without changing the position thereof.

As shown, the channels 12, of the berths, terminate slightly inside the innermost edges of the floors 11. The channels 30, on the turn-table 27 have a hinged extension which may comprise the two channels 38′ and a locking plate 39, on which said locking channels 38′ are mounted. Said locking plate 39 is hinged to the platform 27, at 40 and it will be seen that the plate 39, extends beyond the channels 38′, so as to be disposed between channels 12, of the berth, such extension being indicated at 41. This extension 41, constitutes, with the channels 12, the actual locking means. Of course, this channel locking means is provided on each end of the turn-table channels 30, so that both diametrical points of the turn-table can be locked to the respective opposed banks, if desired. In order to permit the locking channels to be readily swung on their hinged connection, out of a locking position, I chamfer the channels 30, at 42, and I likewise chamfer the channels 38′, at 43, as clearly shown in Fig. 6.

Thus, it will be seen that when the device is in the position shown in Fig. 5, the turn-table is not only locked into a position of registry with a berth, but also the turntable and berth channels are locked in a position of registry so as to accurately guide the car onto or off from the turn-table, as the case may be. This is particularly important in combination with a platform that is floatingly suspended as it will be clear that when either or both locking channels 38′ are in the active position shown in Figs. 5 and 6, the floor and platform channels 12 and 30, respectively, will not only be locked in registry, but the platform itself will be effectively held against horizontal movement.

Although the operation of my invention may be clear from the foregoing, it will be briefly recapitulated as follows:

Any number of cars, in accordance with the capacity of the lobby floor 8, may be received thereby from the street and parked in areas indicated at E. When it is desired to berth a car, the crane and platform will be disposed in the position shown in Figs. 1 and 2 so that the car can be driven onto the channels 30, under its own power and the brakes applied

when the car has advanced onto the turn-table into the proper position. If the car is to be berthed in any of the berths vertically above or below the platform, as shown in Fig. 1, it is merely necessary for the operator to cause the platform to either ascend or descend into disposal registry with the selected berth, without causing the crane to advance either one way or the other. After the platform has been disposed in a suitable registry position with the selected berth, then, the operator will shift the turn-table 27, a quarter turn to dispose the channels 30 into alinement with the channels of the selected berth. Then, the car can be driven into the berth under its own power until the wheels of the car engage bumper blocks 15, whereupon the brakes of the car will be applied.

Thus, I have described one disposal step. If it is desired to berth the car in a berth at a longitudinal distant point from floor 8, and either above or below the same, the operator will cause the crane to advance to the desired vertical tier and will then cause the cables to be paid out or paid in, in accordance with the elevation of the selected berth of such tier to get the platform into registry therewith, as has been previously described, and the berthing operation will be the same. Or, the operator may advance the crane and either cause the platform to ascend or descend simultaneously while it advances.

In the matter of withdrawal of a car from a berth, it will be clear that the operator will cause the crane to advance and either elevate or lower the floatingly suspended platform into registry with the determined berth and shift the turn-table 27 to dispose its channels 30 into registry with the channels of the selected berth so that the car can be run out from its berth under its own power, onto the turn-table. Thereafter, the crane and platform may be energized to return to the position shown in Fig. 1, whereupon the turn-table may be again restored to the position shown therein and the car can be run off from the turn-table 27, onto the lobby floor. In order to permit the platform to reach the lowermost extreme left hand corner berth of Fig. 1, I may provide suitable slots 35, in floor 8, as will now be clear.

It will also be clear that the aisle C, extends over floor 8 and forwardly of the rear end 9, thereof, the crane can be actuated to dispose the platform in registry with any of the berths which are disposed in over-hanging relation to floor 8. At the rear end of the structure, a suitable space F, is provided to permit the platform to reach or attain a position of registry with the rearmost berths.

It will not be necessary to again describe the operation of the channel locking means in view of the previous description thereof.

While I have shown and described the floors equipped with vertical walls forming berths for the cars, I do not consider these berths to be absolutely essential to my invention as in some cases, the floors may function as car berths in the total absence of walls 10.

It will now be clear that I can install my improved structure inside of most any type of previously constructed store or warehouse building without the necessity of altering the foundation thereof, strengthening the walls or in any way modifying the latter, or the roof.

It will also be seen that I entirely avoid the costly ramp construction that is now considered so necessary, to effect ascent and descent of cars to floors of different elevation.

By means of the novel construction whereby banks of tiers of car berths are disposed in opposed relation with an intervening aisle, and with the berths of one bank opening toward the berths of the opposed bank, and by means of a single traveling car transfer means operating in said aisle, I can economize space and increase capacity, which is not possible with any other construction known to me.

In addition to increasing storage capacity and economizing space, I increase the speed and facility with which cars can be put into and taken out of storage, as it will be clear that a car may be put into storage, and on the return trip, a car can be withdrawn from storage.

While I have shown and described opposed banks of car berths, it will be clear that with one bank of berths including opposed sets of vertical guide rails, and a car transferring means movable abreast thereof, I could build a very high storage capacity in a very narrow building.

It will also be noted that when a car is stored in one of these berths, it is inaccessible to anyone other than the operator of the transfer device. Thus it would not be necessary to equip the berths with doors that might be locked although this could readily be done, in view of the disclosure made herewith.

While I have shown a traveling car transfer means in the form of an over-head crane, it will readily be seen that an elevator traveling on trackage in clearance way 6, would clearly be the patentable equivalent of the over-head crane.

While I have shown one form of my invention, I do not wish to be limited thereto except for such limitations as the claims may import.

I claim:

1. In an automobile storage disposal and withdrawal structure, opposed banks of car berths with the berths of opposed banks opening toward each other and said banks being spaced apart to form an intervening aisle, vertically disposed guide rails on opposite sides of said aisle, a receiving floor for

ingressing and egressing cars adjacent said aisle, and a floatingly suspended platform movable longitudinally and vertically in said aisle for effecting transfer of a car from said floor into a position of disposal relation to any berth of either bank or from any berth of either bank back to said floor, said platform having horizontally disposed elongated shoes coacting with said rails.

2. In an automobile storage disposal and withdrawal structure, opposed banks of car berths spaced apart to form an intervening aisle, vertically disposed guide rails on opposite sides of and along said aisle, a lobby floor adjacent said aisle for ingressing and egressing cars, a travelling crane movable above said banks and longitudinally of said aisle from and toward said floor, a car carrying platform having a turn-table thereon for directly receiving a car, and cable means operated by said crane and floatingly suspending said platform in said aisle and whereby a car can be transferred from said floor on said turn-table into registering relation for disposal into any berth of either bank or from any berth of either bank back to said floor, and said platform having horizontally disposed shoes sufficiently elongated to always engage a plurality of said rails against movement of said platform laterally.

3. In an automobile storage disposal and withdrawal structure, opposed banks of car berths spaced to form an aisle between said banks, vertically disposed guide rails on the facing sides of said banks, a car carrying platform movable in said aisle and having elongated shoes adapted to engage said rails to arrest lateral play of said platform and retard longitudinal movement thereof, and an over-head crane having cable connection with said platform for operating the latter vertically and longitudinally along said aisle for transfer of a car to or from any berth of any bank.

4. In an automobile storage disposal and withdrawal structure, opposed banks of alined car floors spaced apart to form an intervening aisle and said opposed floors having alined wheel guiding channels, upright platform guiding rails in said aisle, a floatingly suspended car carrying platform movable vertically, longitudinally or diagonally in said aisle into registry with said guiding channels and having elongated shoes for clearance engagement with said rails, and guiding channels on said platform having extensions movable over said shoes and into engagement with the guiding channels of said floors.

5. In an automobile storage disposal and withdrawal structure, opposed sets of stationary upright guide rails spaced to form an intervening aisle, a bank of car berths adjacent one set of said rails, a car carrying platform between said sets of rails and having shoe means in constant guided relation with said rails, and means for advancing said platform diagonally longitudinally and vertically in said aisle in guided relation to said rails, into disposal or wthdrawal registry with any of said berths.

In witness whereof, I have hereunto affixed my signature.

WILLIAM JAMES PORTER.