B. F. FITCH.

FREIGHT TRANSFER STATION AND WAREHOUSE.

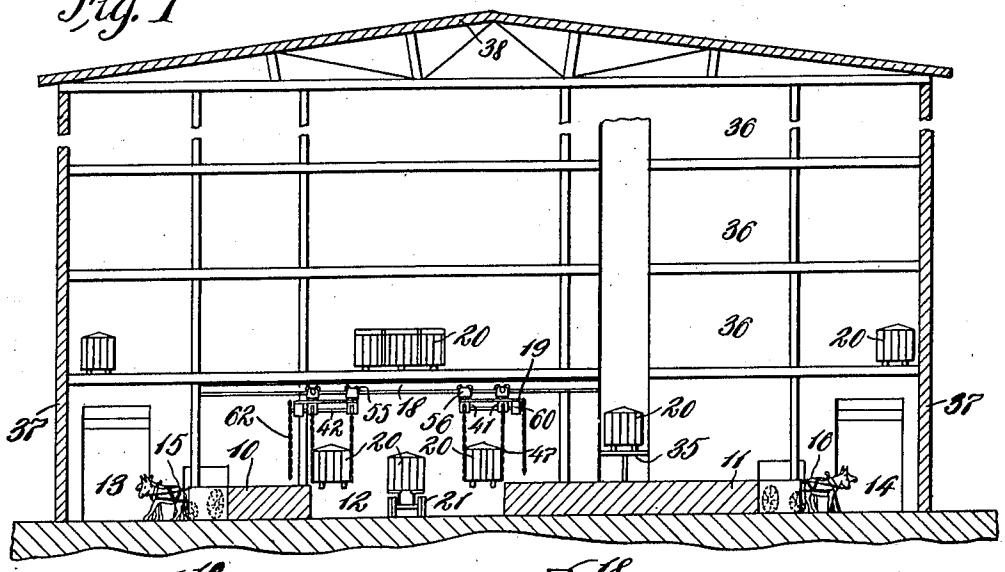
APPLICATION FILED SEPT. 1, 1917.

1,261,504.

Patented Apr. 2, 1918.

2 SHEETS—SHEET 1.

Fig. 1



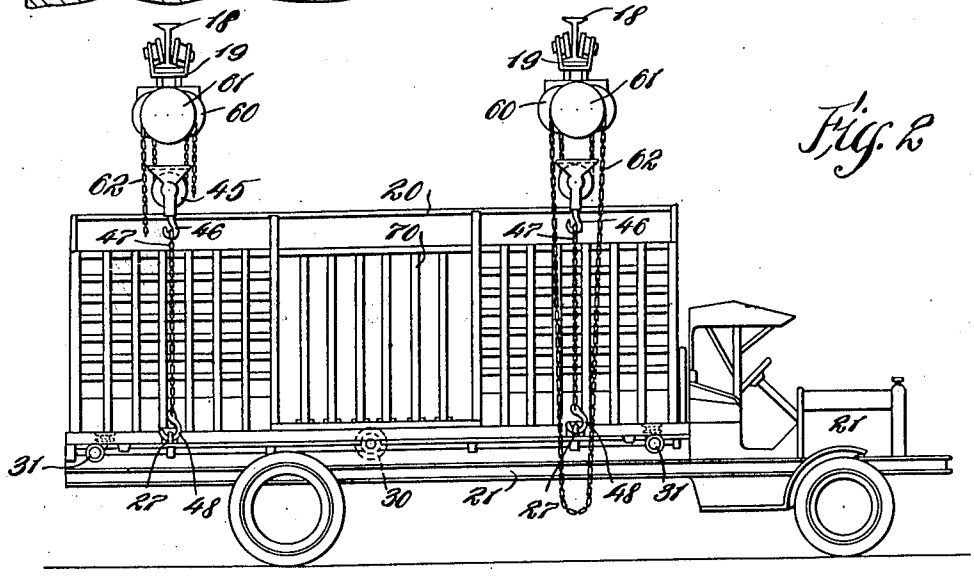


Fig. 2

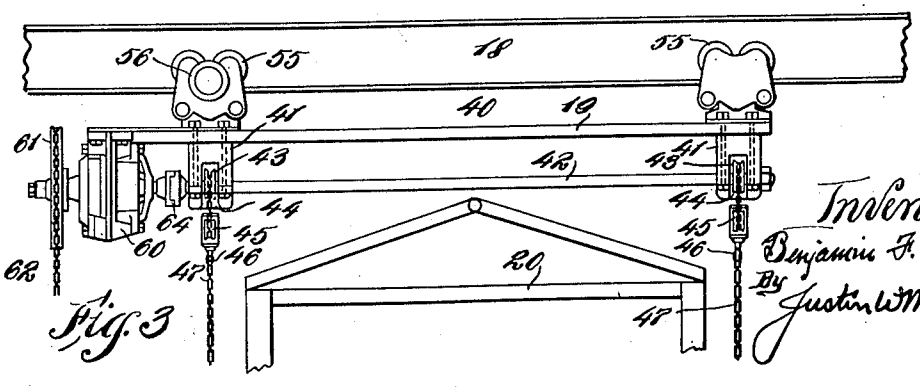


Fig. 3

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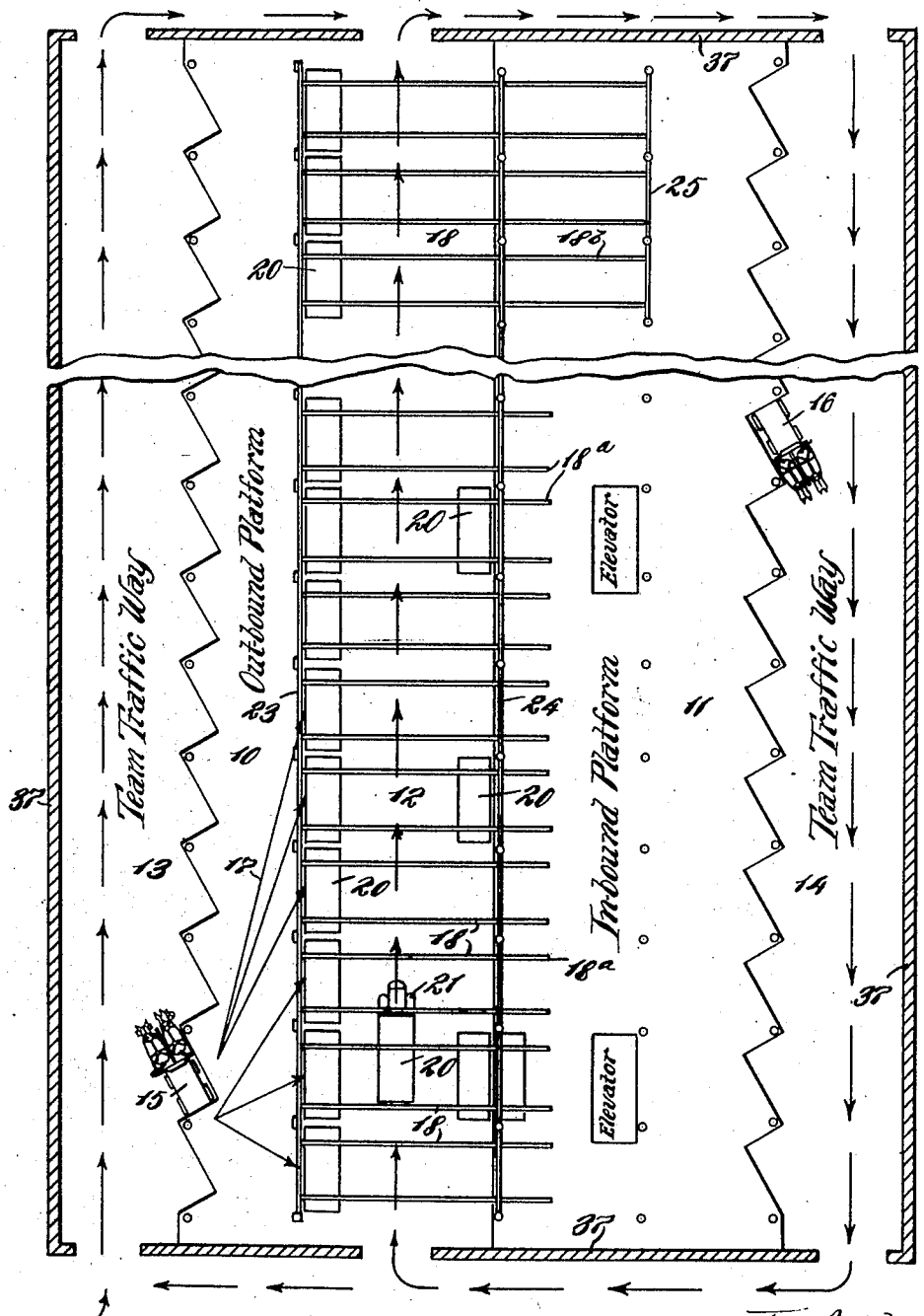


Fig. 1.

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UNITED STATES PATENT OFFICE.

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FREIGHT-TRANSFER STATION AND WAREHOUSE.

1,261,504. Specification of Letters Patent. Patented Apr. 2, 1918.

Original application filed February 12, 1917, Serial No. 148,075. Divided and this application filed September 1, 1917. Serial No. 189,410.

To all whom it may concern:

Be it known that I, BENJAMIN F. FITCH, a citizen of the United States, residing at Evanston, in the county of Cook and State of Illinois, have invented a certain new and useful Improvement in Freight-Transfer Stations and Warehouses, of which the following is a full, clear, and exact description, reference being had to the accompanying drawings.

My prior application, No. 148,075, filed February 12, 1917, of which this is a division, shows, describes and claims a transfer system for freight terminals wherein the various terminal stations in a given territory are coördinated with one or more automobile trucks adapted to travel between the different stations, and a set of interchangeable bodies are provided adapted to be supported at any of the stations alongside of the platform and receive the freight arriving in cars and then be deposited bodily on a truck and transported by it over city streets to another station. Such a system enables freight arriving at any terminal or transfer point to be immediately trucked across the platform into various removable motor truck bodies, assigned to various destination points, such bodies, when loaded, being moved by trolley hoists onto awaiting trucks, and at once moved without delay to the destination station.

A feature of the system referred to is that one or more destination stations may be provided comparatively distant from a railway track and used in the most convenient city location for delivering or receiving package freight. Such an "off-track" or inland terminal provides a short haul for the shipper or consignee, enabling, as it does, the location of the station irrespective of topographic or other city conditions, which would make impractical the extension of a railway track to such point. The off-track or inland terminal furthermore may be combined with the storage ware-house, providing great convenience to both the railroad and shippers, and insuring considerable revenue for the railroad.

The present application relates to this off-track terminal and ware-house. It comprises in its preferred form inbound and outbound platforms, spaced apart and having at their outer sides runways for the wagons or trucks of shippers or consignees, while the space between the platforms is utilized by the transfer trucks and their removable bodies. Suitable hoisting and transporting mechanism is provided over this space adapted to remove the bodies from incoming trucks and support such bodies adjacent to the edge of the platform and, when loaded, redeposit them on a truck. The ware-house is preferably located above the platforms, and an elevator is provided for lifting the removable bodies to higher floors for storage. Other features of the invention will be apparent from the following description of a preferred embodiment thereof.

In the drawings, Figure 1 is a vertical section through an off-track terminal and ware-house responding to this invention. Fig. 2 is a side elevation on a larger scale of an automobile transfer truck with a removable body, showing also, in end elevation, a pair of trolley hoists for raising and transporting the body. Fig. 3 is a view at right angles to Fig. 2 of a dual hoisting mechanism, which may be conveniently employed. Fig. 4 is a sectional plan of the ware-house and transfer station just below the ceiling of the first story.

The off-track terminal and ware-house in the form shown in Figs. 1 and 4 comprises an outbound platform 10, an inbound platform 11, with an automobile runway 12 between them, and team spaces 13 and 14 on the outersides of the two platforms. The platforms are preferably made on their outer sides in a saw-tooth form arranged to accommodate a large number of vehicles which drive in a definite direction in the team trackways and are backed into saw-toothed bays. These bays preferably incline in the general direction of traffic, and provide platform space coextensive with both the side and the end of the vehicle enabling ready loading or unloading at the rear or side of the vehicle, or both. Examples of vehicles in the unloading and loading positions are indicated respectively at 15 and 16 in Fig. 4.

Extending across the automobile runway 12 are shown numerous I-beams 18 arranged in pairs. Each of these I-beams may carry a dual hoist 19, which is adapted to raise and shift removable truck bodies 20, any of

which may be transported to or from the station by a truck 21.

The I-beams 18 are shown as extending over the inbound platform 11 and are thus adapted to deposit a removable body 20 on this platform. These I-beams may, if desired, be suspended from longitudinal girders 23 and 24. Some of these beams are shown at 18^a as cantalivered beyond their supporting posts at the edge of the platform, and others at 18^b as extending still farther across the platform and supported by an additional girder 25.

Each removable body 20 has points of support 27 at its opposite sides near the ends—conveniently in the form of eyes to which hooks 28 on the lower ends of the hoist chains may be engaged. The bodies are also provided with wheels 30 and 31 at their bases.

The construction described enables any of the bodies to be readily supported by the four lift chains, of two dual hoists, and either suspended adjacent to the edge of the platform or trolleyed over on the platform. When on the platform, the body may be readily rolled thereon by manual means or by a suitable tractor.

When the off-track terminal above described is combined with a storage ware-house above it, I prefer to make such storage ware-house of a plurality of stories and provide one or more elevators, so that when freight is received from other stations and the consignee is not ready to receive it a removable body may simply be rolled onto one of the elevators, as indicated at 35 and raised to another floor as 36 for storage. This ware-house is shown as provided with inclosing walls 37 and as having a number of floors, indicated at 36, and a suitable roof 38. The building may be made as many stories high as desired.

The great desirability of using in a city one or more off-track terminals of the character described will be apparent from the following considerations. Railroads in the past have invested enormous sums for rights of way and terminal realty in all large cities, to provide freight stations located as conveniently for shippers as the topography and arrangement of the city would allow. This has been with a view to providing a short haul from the shipper to the railroad terminal. One result, however, has been to make the territory in the immediate vicinity so valuable that the railroad cannot afford to expand at that terminal, when congestion demands it. The resultant high price of the adjacent land has also driven manufacturers and others to seek locations in outlying territory. By my system of off-track terminals the railroad may expand as much as necessary without either acquiring expensive realty adjacent to its own terminals or purchasing an expensive right of way in a city to a new terminal. They may simply employ rail transfer platforms at existing stations and locate the off-track terminals where most convenient. Furthermore, my off-track terminals may be at locations where grades, expensive intervening buildings or other conditions make it practically impossible for a railroad track to be laid.

In the operation of the off-track terminal shown in Figs. 1 and 4, it is proposed that the outbound platform 10 have empty bodies suspended on its hoists next to the inner edge or truck driveway for the full length of the platform, the floors of these bodies being on the platform level. As the wagons with freight to be shipped enter the team trackway 13, in the direction of the arrows, they can back with the least possible delay into empty saw-tooth pockets and unload their freight, which may be hand-trucked, as indicated by the direction lines 17 in Fig. 4, direct to the bodies assigned to the different freight stations comprised within the system.

In the meantime, at various railroad track terminals, freight arriving from freight cars has been installed in removable bodies which are loaded and hauled to the off-track terminal. Now, as the loaded truck enters the central portion 12 of the off-track terminal shown, it proceeds to some location opposite a point where no removable body is suspended adjacent to the inbound platform 11. The chains of the overhead hoists are then hooked onto the body which is on the truck and the same is moved to the edge of the inbound platform for unloading, and a loaded body is shifted laterally from the outbound platform over the truck, and the latter proceeds to the railway terminal designated by the billing of the freight contained in the newly placed body.

Now, the consignor's wagon or truck 15 which has discharged its load in a saw-tooth pocket of the outbound platform, may drive out of the station and follow the line of traffic and enter the team traffic way 14, back up into one of the pockets of the inbound platform, as indicated at 16, and receive freight destined for such consignee.

Whenever freight received at the off-track terminal cannot be conveniently received by the consignee, the body it occupies, or another body to which it is transferred, is simply raised to the platform, rolled on the platform to the elevator, and stored until the consignee is ready to receive the freight.

In the normal operation of my off-track terminal the newly received bodies, after being unloaded at the inbound platform, will be simply trolleyed across to the outbound platform to receive a fresh load. However, as may often occur, the unloading process

at the inbound platform will not balance in time duration with the loading at the outbound platform. This difference is readily relieved by rolling the empty bodies along the inbound platform beneath available pairs of I-beams, by which they may be trolleyed over against the outbound platform.

While the present invention is not concerned with the specific construction of dual hoist or removable body employed, it may be stated that each dual hoist may conveniently be constructed according to the manner of application No. 151,883, filed March 2, 1917, by Edward Y. Moore. Such is the construction shown in Figs. 2 and 3 hereof, which may be briefly described as follows, reference being had to Mr. Moore's application for a fuller description.

As shown, each dual hoist 19 comprises a frame beam 40 carrying bearings 41 in which is mounted a shaft 42 on which are two lift wheels 43 over which extend lift chains 44. Each lift chain is provided with a movable pulley 45 carrying a hook 46. From this hook depends a chain 47 provided at its lower end with a hook 48 adapted to extend into the side eyes 27 of the removable body 20. The trolley frame 40 is supported by suitable wheels 55 riding on the flanges of the I-beams 18. Any suitable means (indicated by the wheel 56 on one of the trolleys) may operate mechanism to shift the trolley hoist in and out as a unit. 60 indicates a suitable power mechanism for rotating the shaft 42. This power mechanism has a drive shaft on which is a hand wheel 61 adapted to be driven by a suitable hand chain 62. Mechanism, not shown, within the casing 60 reduces the speed and increases the power of rotation. The driven shaft is connected by a suitable coupling 64 with the shaft 42.

The mechanism described enables the arriving truck to be driven into place beneath the trolley hoists and four hooks 48 positioned in the four eyes 27 of the body, and then the body raised free from the truck frame and trolleyed to the proper platform or onto the inbound platform, as desired. Similarly the trolley hoists enable the placing of loaded bodies on empty trucks. By having two independently operating dual hoists, each hoist itself operating as a unit, it follows that either end of the body may be raised without transverse tipping and may be readily transported laterally. The independence of the two dual hoists enables convenient engagement of the body without requiring the truck to be accurately parallel with the edge of the platform.

The removable bodies 20 may be of any approved form. They may, for instance, be specifically constructed, as shown more fully in my patent application heretofore mentioned. Briefly, the body may have removable slatted slides 70 and a removable end. The supporting wheels at the base of the body conveniently comprise two wheels 30 on stationary transverse axes adjacent to the transverse center at the opposite sides, and two casters 31 adjacent to the longitudinal center at the opposite ends. The truck frame 31 is provided with suitable means for receiving and positioning the removable body.

Having thus described my invention, what I claim is:

1. The combination of a pair of elevated platforms spaced apart to provide a vehicle space between them, there being vehicle spaces on the outer sides of the two platforms, the outer edges of the platforms being of a saw-tooth form providing bays which on one side incline in one direction and on the other side incline in the opposite direction.

2. The combination of a pair of elevated platforms spaced apart to provide a vehicle space between them, there being vehicle spaces on the outer sides of the two platforms, the outer edges of the platforms being of a saw-tooth form and the inner edges being straight and continuous, and hoisting and transporting mechanism associated with the intermediate space and adapted to transport removable bodies of trucks to or from the inner edge of either platform.

3. In an apparatus of the class described, the combination of a pair of elevated platforms having saw-tooth outer edges and vehicle spaces beyond them and a space between the platforms adapted to accommodate automobile trucks, a set of removable bodies for such trucks, and trolley hoisting mechanism adapted to support such bodies and lift them from a truck frame and shift them laterally into coöperation with either platform.

4. The combination of a pair of elevated platforms spaced apart to provide a vehicle space between them, there being vehicle spaces on the outer sides of the two platforms, the outer edges of the platforms being of a saw-tooth form providing bays which on one side incline in one direction and on the other side incline in the opposite direction and the inner edges being straight and continuous, and trolley hoisting mechanism associated with the intermediate space and adapted to transport removable bodies of trucks to or from the inner edge of either platform or onto one of the platforms.

5. The combination of a pair of elevated platforms spaced apart to provide a vehicle space between them, there being vehicle spaces on the outer sides of the two platforms, and hoisting and transporting mechanism associated with the intermediate space and adapted to transport removable

bodies of trucks to or from the inner edge of either platform.

6. The combination of a pair of separated platforms, vehicle spaces on the outer sides of the platforms, a vehicle space between the platforms, trolley trackways overhanging the intermediate vehicle space, a set of removable bodies adapted to be suspended by said trackways adjacent to the inner edge of either platform, and a truck adapted to convey said removable bodies to or from the station.

7. The combination of a pair of separated platforms, vehicle spaces on the outer sides of the platforms, a vehicle space between the platforms, trolley trackways above the immediate vehicle space, said trackways overhanging one of the platforms, trolley hoists on said trackways, a set of removable bodies adapted to be suspended by said hoists adjacent to the inner edge of either platform or moved onto one of them, and a truck adapted to convey said removable bodies to or from the station.

8. In an apparatus of the character described, the combination of a pair of separated platforms having vehicle spaces on their opposite sides, a space between the platforms for trucks, a set of removable bodies for such trucks, and mechanism adapted to hoist and transport said removable bodies.

9. In an apparatus of the character described, the combination of a pair of separated parallel platforms having vehicle spaces on their opposite sides, a space between the platforms for trucks, a set of removable bodies for such trucks, and a hoisting mechanism coöperating with the removable bodies adjacent to such space and adapted to hoist them from the trucks and transport them laterally to the inner edge of either platform.

10. The combination of a platform, a vehicle space at one edge thereof, trolley hoisting mechanism adjacent to the other edge, a vehicle space at the latter edge, a plurality of removable bodies adapted to be supported by the trolley hoisting mechanism, a warehouse above the platform, and means for raising removable bodies from the platform to the upper stories of the warehouse.

11. In an apparatus of the class described, the combination of a platform, vehicle runways on opposite sides thereof, hoisting mechanism on one side of the platform, a set of removable bodies adapted to be supported by said hoisting mechanism, transfer truck adapted to receive any of said bodies, a storage warehouse above the platform, and an elevator rising from the platform.

12. The combination of a pair of platforms separated by a vehicle space and having vehicle spaces on their opposite sides, hoisting mechanism coöperating with the intermediate space, a plurality of removable truck bodies adapted to be raised and transported by said trolley hoisting mechanism, a truck for said truck bodies, a warehouse surmounting the platforms and intermediate space, and an elevator to the upper floors of the warehouse.

13. The combination of a pair of separated platforms, vehicle spaces on the outer sides of the platforms, a vehicle space between the platforms, trolley trackways overhanging the intermediate vehicle space, a set of removable bodies adapted to be suspended by said trackways adjacent to the inner edge of either platform, a truck adapted to convey said removable bodies to or from the station, a warehouse surmounting the platforms and intermediate space, and means for raising a loaded body to the upper stories of the warehouse.

14. The combination of a pair of elevated platforms spaced apart to provide a vehicle space between them, there being vehicle spaces on the outer sides of the two platforms, hoisting and transporting mechanism associated with the intermediate space and adapted to transport removable bodies of trucks to or from the inner edge of either platform, a storage warehouse above the platforms and intervening space, and means for raising a loaded removable body to the upper stories of said warehouse.

15. The combination of a pair of elevated platforms spaced apart to provide a vehicle space between them, there being vehicle spaces on the outer sides of the two platforms and the inner edges being straight and continuous, and trolley hoisting mechanism associated with the intermediate space and adapted to transport removable bodies of trucks to or from the inner edge of either platform or onto one of the platforms, a storage warehouse above the latter platform and an elevator from the latter platform to the upper stories of said warehouse.

16. In an apparatus of the class described, the combination of a pair of elevated platforms having vehicle spaces at their outer edges and a space between them adapted to accommodate automobile trucks, a set of removable bodies for such trucks, trolley trackways above the intermediate space and overhanging one of the platforms, trolley hoisting mechanism on said trackways adapted to support the removable bodies and lift them from a truck frame and shift them laterally onto one of the platforms, a storage warehouse above the two platforms and the various vehicle spaces, and an elevator leading from the platform overhung by the trackways to the upper stories of the warehouse.

17. The combination of an elevated platform, vehicle runways at the opposite edges

thereof, a plurality of removable truck bodies provided with rollers adapted to support them, hoisting mechanism adapted to suspend said bodies adjacent to one edge of the platform or shift them onto the platform, a storage warehouse above the platform, and means for elevating loaded bodies from the platform to the upper stories of the warehouse.

18. In an apparatus of the character described, the combination of an elevated platform having vehicle runways on its opposite edges, an automobile truck and a set of removable bodies therefor, hoisting mechanism adapted to support said bodies adjacent to one edge of the platform or move them over the platform, said bodies having rollers by which they may be conveniently rolled on the platform, a storage warehouse having a plurality of stories, and an elevator leading from the platform to the upper stories.

19. The combination of an elevated platform having vehicle runways at its opposite edges, a set of trolley trackways arranged in pairs over one of said runways and overhanging the platform, a storage warehouse above said platform, an elevator rising from the platform to the upper stories of the warehouse, and a set of removable vehicle bodies adapted to be suspended by hoists on the trolley trackways adjacent to the platform edge or moved onto the platform, each body being provided with supporting rollers.

20. The combination of a pair of elevated platforms spaced apart to provide a vehicle space between them, there being vehicle spaces on the outer sides of the two platforms, an automobile truck, a set of removable bodies provided with supporting rollers, trolley hoisting and transporting mechanism associated with the intermediate space and adapted to transport said removable bodies of trucks to or from the inner edge of either platform or onto one of the platforms, a storage warehouse above the platform and intervening space, and an elevator from one of the platforms to the upper stories of said warehouse, said elevator having a supporting surface adapted to register with the platform.

In testimony whereof, I hereunto affix my signature.

BENJAMIN F. FITCH.