Feb. 21, 1928. 1,659,608

H. R. MILLER

MEANS FOR COORDINATING SURFACE TRANSPORTATION ON CITY STREETS

Filed April 12 1926 5 Sheets-Sheet 1

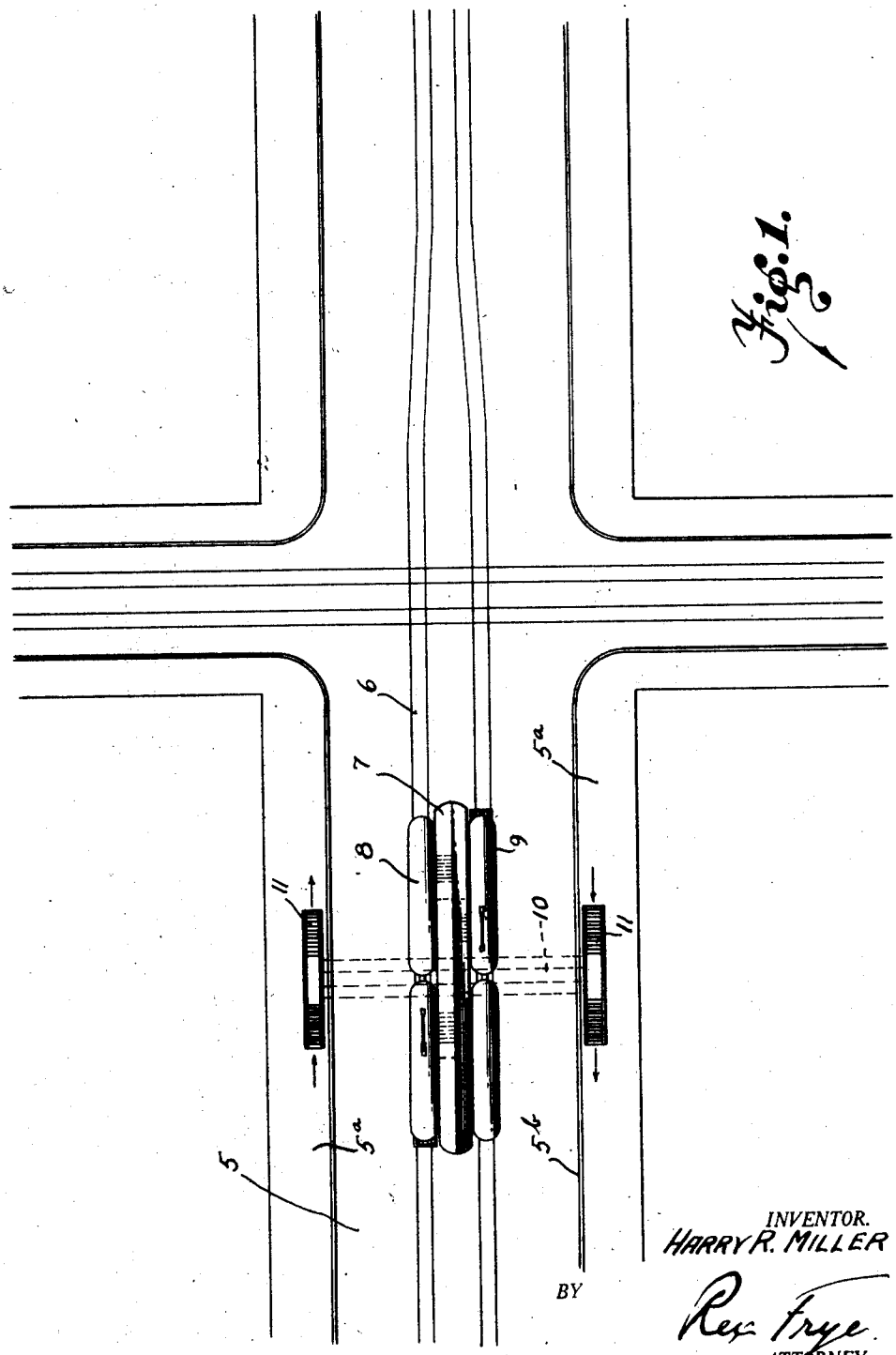


Fig. 1.

INVENTOR.
HARRY R. MILLER

BY

Rex Frye.
ATTORNEY.

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H. R. MILLER

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Filed April 12, 1926 5 Sheets-Sheet 2

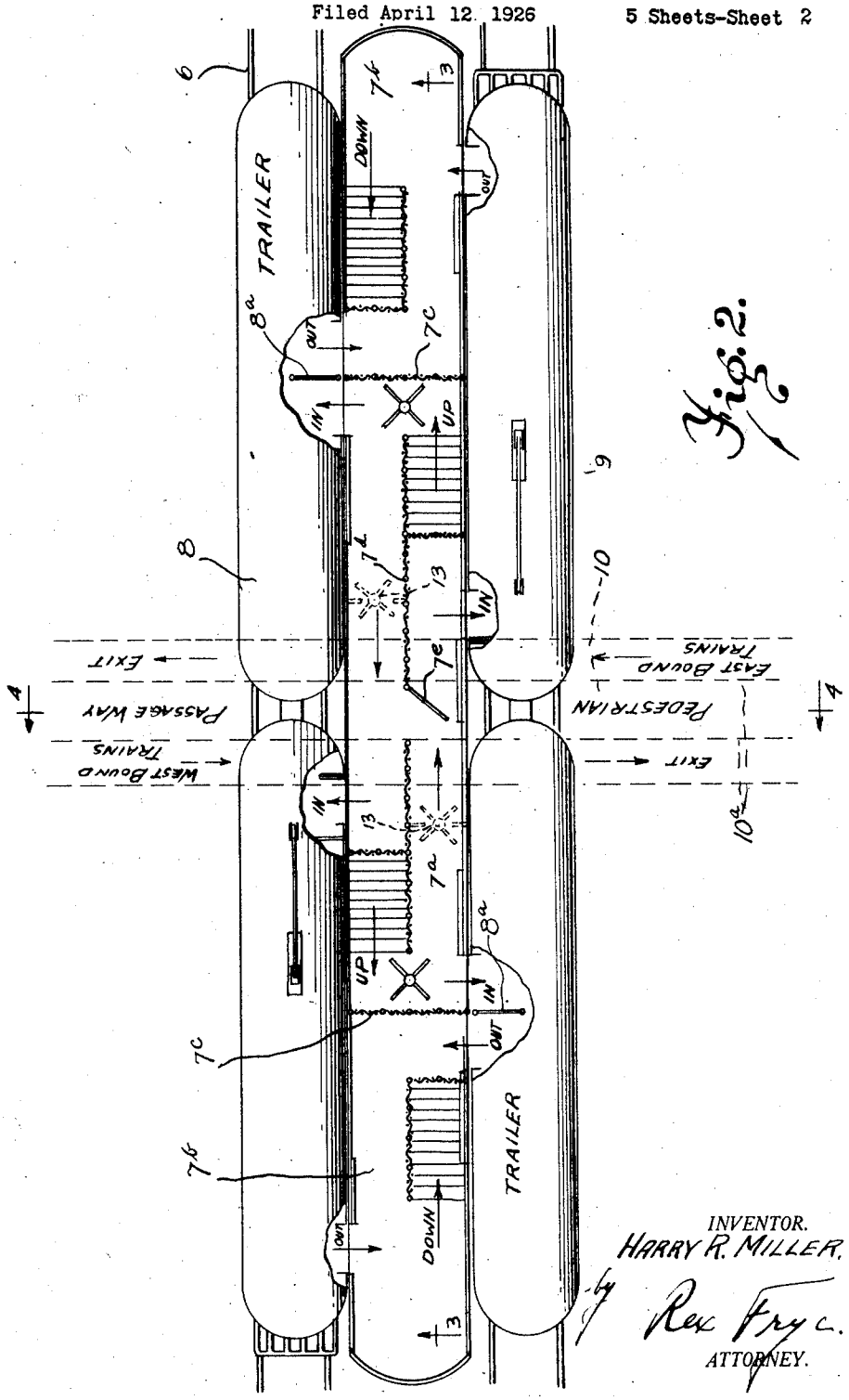


Fig. 2.

INVENTOR.
HARRY R. MILLER.
Rex Fry C.
ATTORNEY.

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H. R. MILLER

MEANS FOR COORDINATING SURFACE TRANSPORTATION ON CITY STREETS

Filed April 12, 1926 5 Sheets-Sheet 3

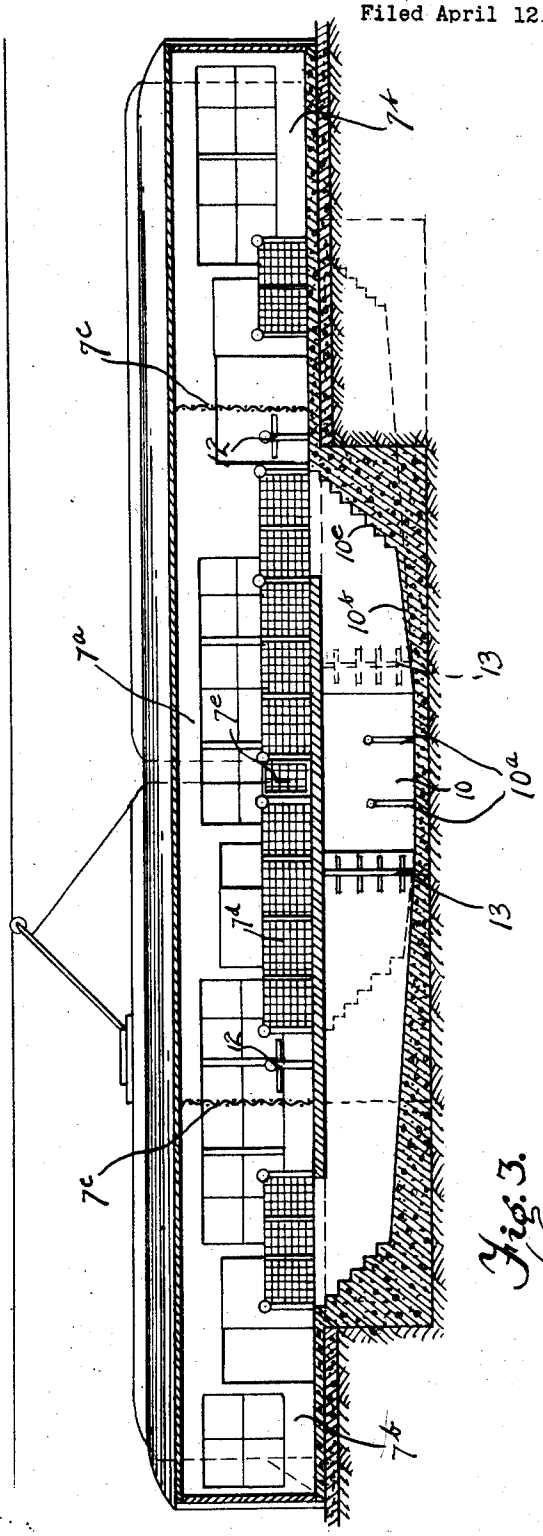


Fig. 3.

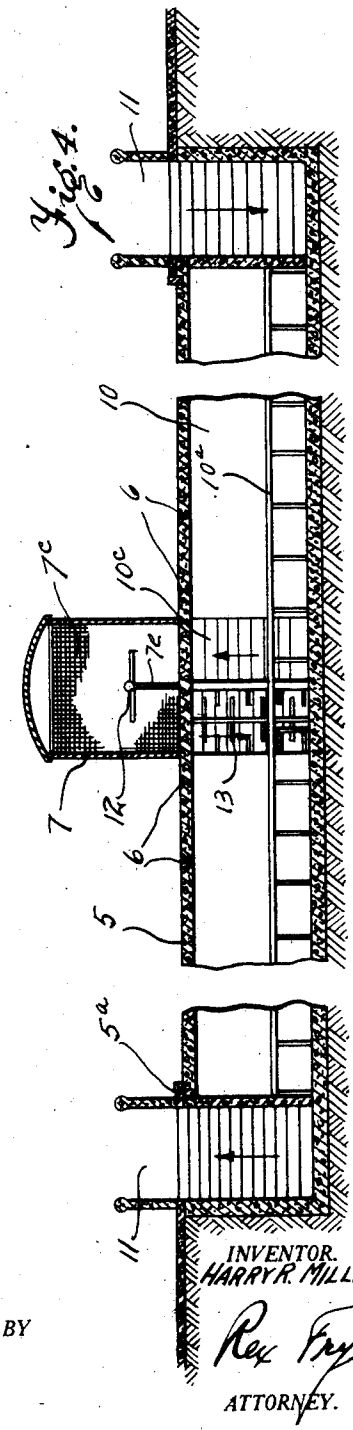


Fig. 4.

INVENTOR.
HARRY R. MILLER.

BY Rex Frye.

ATTORNEY.

Feb. 21, 1928. 1,659,608

H. R. MILLER

MEANS FOR COORDINATING SURFACE TRANSPORTATION ON CITY STREETS

Filed April 12, 1926 5 Sheets-Sheet 4

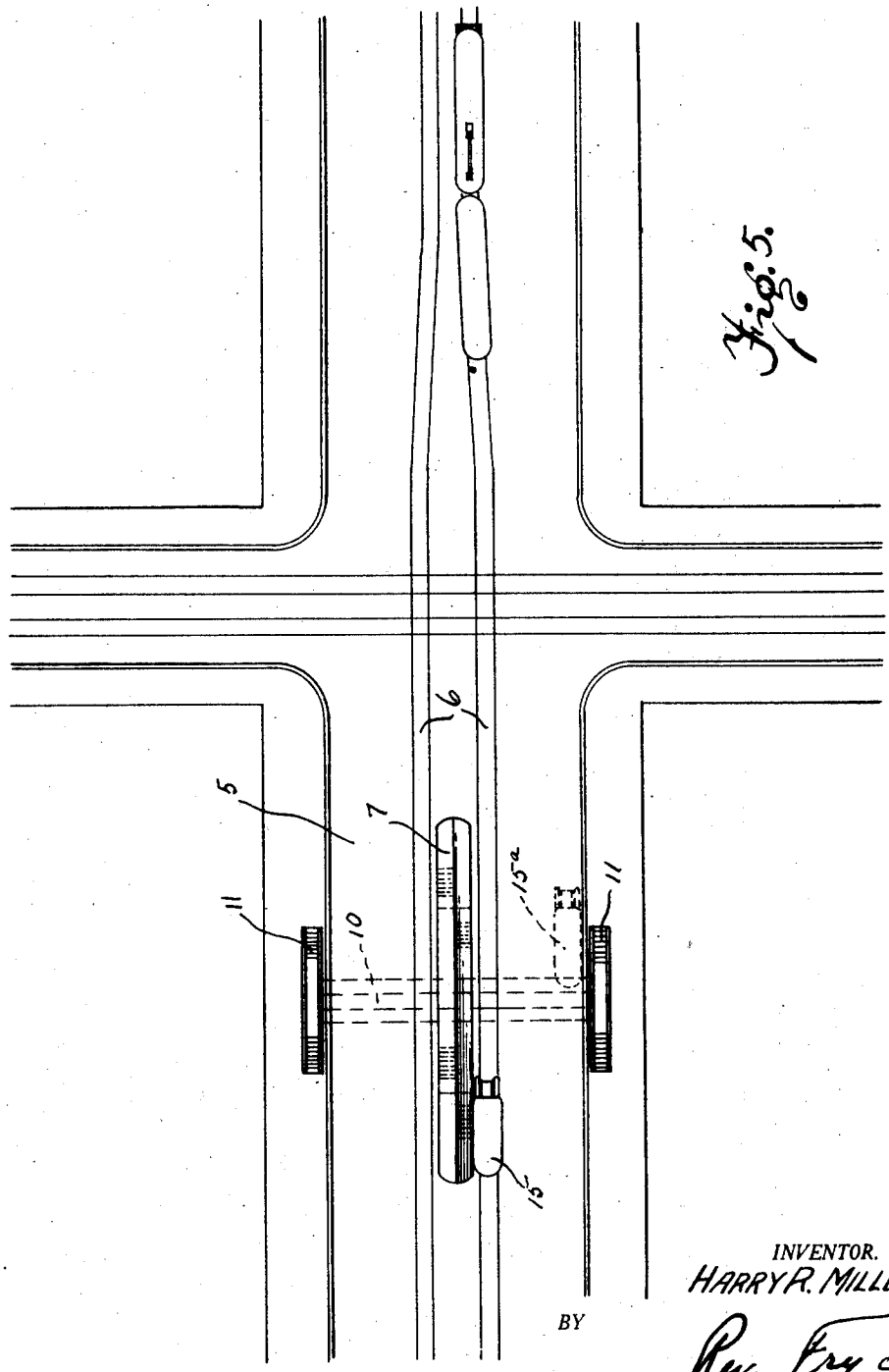


Fig. 5.

INVENTOR.
HARRY R. MILLER.

BY

Rex Fry C.
ATTORNEY.

Feb. 21, 1928. 1,659,608

H. R. MILLER

MEANS FOR COORDINATING SURFACE TRANSPORTATION ON CITY STREETS

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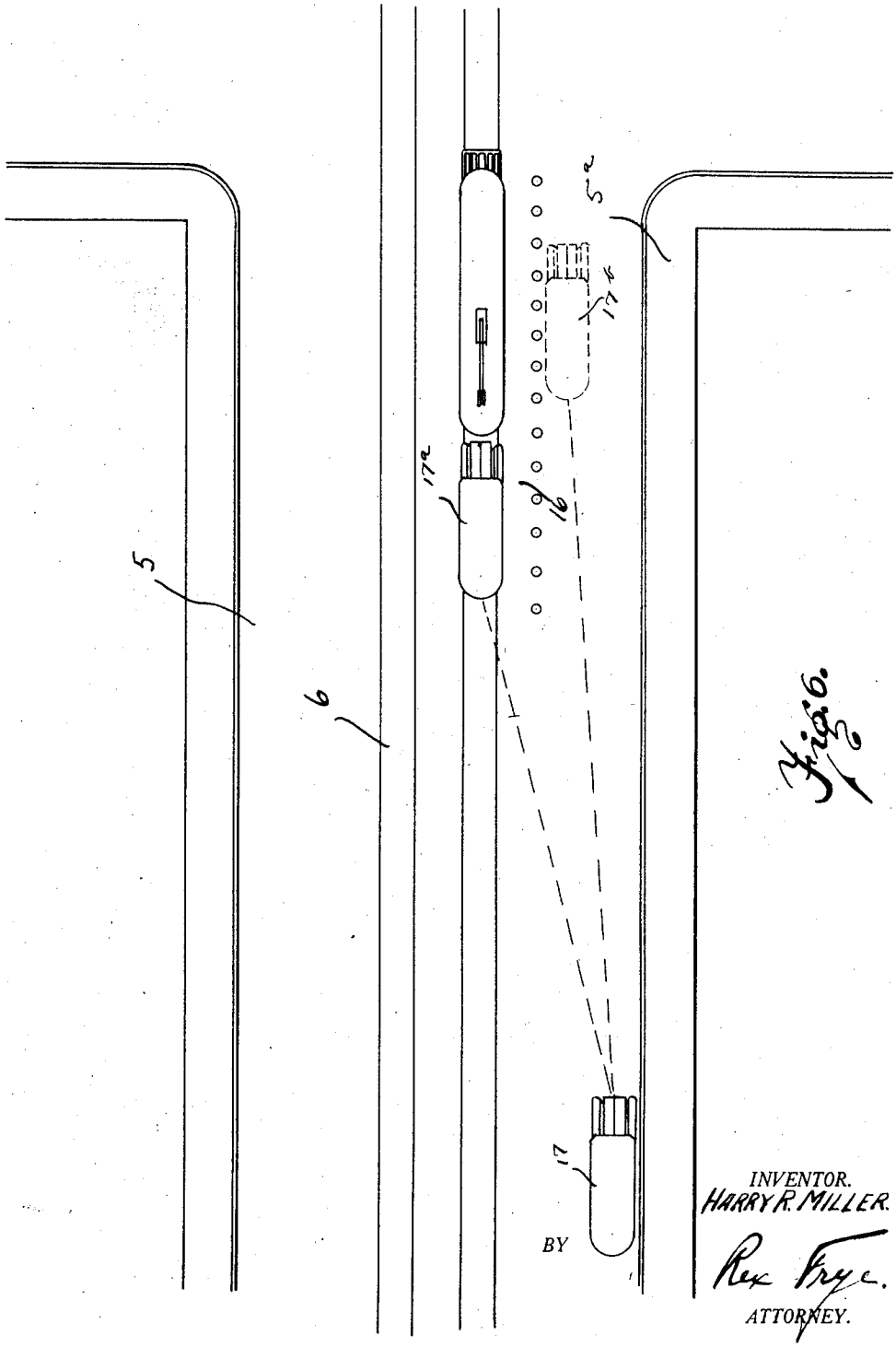


Fig. 6.

INVENTOR.
HARRY R. MILLER.
Rex Frye.
ATTORNEY.

Patented Feb. 21, 1928. 1,659,608

UNITED STATES PATENT OFFICE.

HARRY R. MILLER, OF DETROIT, MICHIGAN, ASSIGNOR OF ONE-HALF TO NICHOLAS J. SCHORN, OF DETROIT, MICHIGAN.

MEANS FOR COORDINATING SURFACE TRANSPORTATION ON CITY STREETS.

Application filed April 12, 1926. Serial No. 101,396.

This invention relates to means for coordinating surface transportation on the streets of cities and towns so as to effect safely an express and local service and the necessary exchange of passengers between the two.

My invention has for its primary object the coordination of street cars running on tracks, preferably in the central portions of the street, with motor busses or the like running on the street surface without the use of tracks whereby the street cars are utilized for comparatively fast and long runs between stops, i. e., a so called "express" service, while the busses are utilized for comparatively slow and short runs in a so-called "local" service, handling the passengers from street corners to express depots as feeders for the street cars and from depots to street corners intermediate express stops to complete the trips of passengers whose destinations are intermediate the express stops.

A further object of my invention is the arrangement of express depots between street car tracks and separated from each other by comparatively long distances, as, for example, half mile intervals, and connecting the depots with the sidewalks of the adjacent street by passage ways on a different level than the street whereby prospective passengers or ex-passengers may traverse the distance between the depots and the sidewalks without danger of accident from vehicular traffic on the streets. The sidewalk terminals of such passageways may be located adjacent the curbs to enable passengers to conveniently transfer from a bus stopped at the curb to a street car or vice versa through the passageways.

A further object of my invention is the construction of express depots adjacent street car tracks arranged so as to facilitate the entrance and exit of passengers to and from the street cars, and also facilitate their entrance to, passage through and exit from the depots, or enable a convenient exchange of passengers from street cars to busses or vice versa through the medium of the depots only.

A further object of my invention is the arrangement of the depots and passageways connecting them with adjacent sidewalks so as to segregate incoming and outgoing passengers, whereby prepayment of fares, distribution of transfers and other means for controlling the movement of passengers may be conveniently provided for.

Other objects and advantages will be apparent from the following description, wherein reference is made to the accompanying drawings illustrating preferred embodiments of my invention and wherein similar reference numerals designate similar parts throughout the several views.

In the drawings:

Fig. 1 is a plan view of one of my improved express depots arranged between street car tracks and connected with adjacent sidewalks by means of a subwalk or passageway.

Fig. 2 is an enlarged detail plan view, showing the floor arrangement of my improved express depot and the means employed for facilitating the movement of incoming and outgoing passengers between the depot and street cars.

Fig. 3 is a vertical view through an express depot and its subwalk, taken substantially on the line 3—3 of Fig. 2.

Fig. 4 is a vertical cross section through the express depot and subwalk, taken substantially on the line 4—4 of Fig. 2.

Fig. 5 is a plan view of an express depot and subwalk with motor busses utilized for local traffic stopped at the side of the depot and at the side of a sidewalk terminal of the subwalk respectively, and

Fig. 6 is a plan view showing a means of utilizing my coordinating express and local traffic service on city streets with the use of only the usual safety zone instead of an express depot.

Referring now to the drawings, the numeral 5 designates a city street having arranged in its central portion street car tracks 6, which at comparatively long intervals are spaced apart for a greater distance than the ordinary distance so as to permit the location of a depot or station 7 between the street car tracks. The depots or stations 7 are of much greater length than width, and their floor space is subdivided into a central and end portions to facilitate the movements of passengers to and from the street cars 8 and 9 on the tracks beside the depot, as hereinafter pointed out. The depots 7 are connected with the sidewalks 5^a of the street by means of subwalks or passageways 10 arranged transversely of the street and having terminals 11 located in the sidewalks adjacent the

curbs 5b. As herein shown the terminals 11 each have a pair of steps between the surface of the pavement and the floor of the subwalk 10, and preferably I utilize one of these flights of stairs for incoming passengers and the other for the use of outgoing passengers as they leave the depots 7. The subwalk 10 is preferably divided longitudinally into three lanes by means of railings 10a or the like so as to segregate and guide the persons desiring to enter the depots 7, or pass through the subwalks 10 from one side of the street to the other, from the persons who are leaving the depots. Gates, however, may be arranged in the railings 10a at intervals to enable persons who have accidentally entered the wrong lane to cross to their proper lane. Beneath the depot 7 the subwalk 10 is widened substantially as shown in Fig. 3 and provided with inclined ramps 10b or flights of stairs 10c, or combinations of the two to facilitate the movement of persons to and from the depots 7. I preferably provide a pair of entrance passageways between the subwalk 10 and the opposite ends of the central portion of the depots, one of these entrance passageways being intended to receive prospective passengers intending to board street cars going in one direction and the other passageway to receive prospective passengers intending to board street cars going in the opposite direction. These entrance passageways open directly from the subwalk 10 and have no turnstile or other deterrent means adjacent the subwalk 10. However, within the depot adjacent the upper terminal of such entrance passageways I preferably provide turnstiles 12 through which the prospective passengers must pass in order to reach the street cars 8 or 9. The turnstiles 12 may be of the check or coin controlled type, or their operation may be controlled by a guard or ticket taker, or in any other desired manner. The rotation of the turnstiles 12 may also be utilized for counting the prospective passengers entering the depot as well as for operating a signal system for indicating to the motormen of approaching street cars the presence of prospective passengers in the depot, substantially as disclosed in my last Patent No. 1,580,314, issued April 13, 1926.

Exit passageways are preferably provided between the end portions of the depots 7 and subwalks 10, substantially as shown in Fig. 3, and such passageways are provided with a turnstile 13 or other deterrent means adjacent their subwalk terminals. These turnstiles 13 may be readily rotated by persons passing from the depot to the subwalk, but are controlled so that they cannot be rotated in the opposite direction, and accordingly, they prevent the accidental or malicious passage of persons from the subwalk to the end portions of the depots 7.

The floor spaces of the depots 7 are preferably subdivided substantially as shown in Fig. 2 into a central compartment 7a and two end compartments 7b. Partitions 7c are arranged between the central and end compartments, and such partitions may extend entirely across the depots and from floor to ceiling, or may comprise railings or the like. The purpose of these partitions 7c is to prevent the accidental or malicious passage of persons from the end compartments to the central compartment. In addition, a longitudinal railing 7d may be arranged to divide the central compartment 7a into two long portions, one of which is adapted to receive the passengers intending to enter street cars going in one direction and the other is intended to receive the passengers intending to board street cars going in the opposite direction. A gate 7e is preferably arranged substantially centrally of the railing 7d to enable the ready passage of persons who have accidentally entered the wrong portion of the depot to reach the proper street car. The railings 7c extend from side to side across the depot and are intended to substantially align with separator railings 8a in street cars having doors for the entrance and exit of passengers substantially centrally of the side of the car (note Fig. 2). Cars having such central doors are often used as trailers behind cars having entrance doors adjacent one extremity and exit doors adjacent the opposite extremity, and for purposes of exemplification I have shown herein cars of the two types fastened to form a train. When such a train is used the train is stopped with the separator railings 8a in substantial alignment with one of the railings 7c of the depot, either by automatic stops or by shifting the car until substantial alignment has been secured. Thereupon when the doors are opened passengers standing in the central portion of the depot can immediately enter either the forward car or the trailer of the train, while passengers in the cars can immediately pass into the end sections of the depot. As will be obvious from Fig. 2, the prospective passengers from the central portion of the depot can enter the cars on either side of the depot and passengers from the cars on either side of the depot can enter the end portions of the depot. This arrangement tends to speed up the passage of passengers to and from the street cars, and also lends itself to a ready coordination of express and local traffic service, as hereinafter pointed out.

In such coordinated service, the street cars are utilized for express service, and passengers enter or leave the street cars only at the depots. The prospective passengers for the street cars can enter the central portion of the depot either by passing through the subwalk 10 or by entering such central portion

directly from a motor bus 15 stopped at one side of the depot, substantially as shown in full lines in Fig. 5. When the motor bus 15 stops at the side of the depot the passengers intending to continue their journey on the express street cars may be directly delivered to the central portion of the depot, and accordingly, no transfer or other identification check is needed in the use of my coordinated system. Similarly the bus 15 utilized for local service may directly receive passengers from the end portions of the depot who desire to continue their journey to points intermediate express depots. With this arrangement the buses 15 may traverse the entire route paralleling the street car tracks 6, or move back and forth over only a comparatively small portion of the route. In either case the motor buses 15 will pick up passengers at street corners intermediate the express depots and deliver them to the nearest express depot, and receive passengers from the depot who in turn will be delivered to street corners intermediate express depots. This arrangement is my preferred arrangement, since it simplifies the coordination of local and express traffic, and does away with the need of transfers or other identification checks.

However, the system may utilize the delivery of passengers from the local busses to the sidewalk terminals of the subwalks, substantially as shown in dotted lines in Fig. 5. With this arrangement motor busses 15ª will pick up passengers at street corners intermediate express depots and deliver them to the sidewalk ends of crosswalks at adjacent depots, furnishing them transfers or other identification checks to enable them to enter the central portions of the depots without further payment of fare by walking through the subwalk to the depot entrance and passing through the turnstile 12 in the same manner as passengers who directly enter the subwalk without using the motor busses. In the same way passengers who desire to use the motor busses to complete their journey after riding the major portion of it on the express street cars may receive transfers or other identification checks in the street cars or at time of paying their fare in an express depot, then leave the street car at the desired depot and pass through the subwalk to the sidewalk terminal thereof, where they may enter a bus 15ª to complete their journey.

The simplicity and practicability of my improved coordinating means is believed to be apparent. The street cars may move at a comparatively high rate of speed and make comparatively few stops, whereby passengers may be transported for long distances in considerably less time than now required in surface transportation by street cars. Moreover, passengers are not required to walk comparatively long distances to reach street car depots, but may be carried thereto from any corner intermediate the express depots, and may also be delivered to the desired corner after having ridden the major portion of their trip on the street cars. The passengers are protected from liability of accident by collision with vehicular traffic, either by being delivered by the motor busses directly to the express depots, or by utilizing the subwalks between the sidewalks and depots. Thus, the speed of surface transportation is materially increased while safety of the passengers is enhanced. A saving is also effected in operating costs over the usual methods of conducting street car and motor bus transportation.

An incidental result which is of great benefit to traffic in the larger cities is that vehicular traffic is not compelled to stop when the street cars stop, inasmuch as the delivery of the passengers directly from busses to depots or through the subwalks from the sidewalks to the express depots between the tracks leaves the street between the car and the curb free for the continued use of vehicular traffic. This enables the speeding up of vehicular traffic and avoids the congestion usual on busy streets when automobiles and other vehicular traffic are compelled to stop simultaneously with street cars.

In Fig. 6 I have shown an adaptation of my improved coordinating system without the use of specially prepared express depots. Instead I utilize the ordinary safety zone 16 adjacent the street car tracks and usually located between the tracks and one curb. Prospective passengers may enter the safety zone 16 in the usual way and thence board street cars which operate as expresses as in my previously described embodiment. Also motor busses 17 may pick up passengers at street corners intermediate safety zones 16 and deliver those passengers who desire to proceed by express street cars to safety zones, the busses either passing onto the street car tracks adjacent the safety zones, as shown at 17ª in Fig. 6, or stopping along the outer side of the safety zone 16, as shown at 17ᵇ in Fig. 6. Reversely, passengers may leave the express cars at the safety zone 16 nearest their destination, and be transported the remainder of their journey in motor busses. With this use of my improved coordinating system, it is necessary to issue transfers or other indentification checks to enable the exchange of passengers from street cars to busses or vice versa without further payment of fare on the part of the passengers. This last mentioned embodiment has an advantage of cheapness of installation, but my first described embodiment is preferred because of the greater facility in handling the exchange of passengers and because of the in-

creased safety of the passengers in passing from street cars or busses to the pavements.

While it will be apparent that the illustrated embodiments of my invention herein disclosed are well calculated to adequately fulfill the objects and advantages primarily stated, it is to be understood that the invention is susceptible to variation, modification and change within the spirit and scope of the subjoined claims.

Having described my invention, I claim

1. A method of coordinating surface transportation on city streets comprising street car tracks in the central portion of a street, street cars thereon utilized for express service, motor busses movable on the street and utilized for local service, and stations between the street car tracks utilized as exchange stations for passengers using both the street cars and busses.

2. A method of coordinating surface transportation on city streets comprising street car tracks in the central portion of a street, street cars thereon utilized for express service, motor busses movable on the street and utilized for local service, stations between the street car tracks utilized as exchange stations for passengers using both the street cars and busses, and passageways on a different level than the street for conducting passengers between the stations and the side walks of the street.

3. A method of coordinating surface transportation on city streets comprising street car tracks in the central portion of a street, street cars thereon utilized for express service, motor busses movable on the street and utilized for local service, stations between the street car tracks utilized as exchange stations for passengers using both the street cars and busses, and subwalks arranged below the street for conducting passengers between the stations and sidewalks of the street.

4. In a system for coordinating surface transportation on city streets, street car tracks arranged in the central portion of the street, street cars movable thereon and utilized for express service, motor busses movable on the street and utilized for local service, spaced depots arranged between the tracks and adapted to receive passengers from both street cars and busses, and a passageway on a different level from the street for conducting passengers to and from the depots and the sidewalks of the street.

5. In a system for coordinating surface transportation on city streets, street car tracks arranged in the central portion of the street, street cars movable thereon and utilized for express service, motor busses movable on the street and utilized for local service, spaced depots arranged between the tracks and adapted to receive passengers from both street cars and busses, and a passageway on a different level from the street for conducting passengers to and from the depots and the sidewalks of the street, the depots being arranged with separated portions for incoming and outgoing passengers respectively.

6. In a system for coordinating surface transportation on city streets, street car tracks arranged in the central portion of the street, street cars movable thereon and utilized for express service, motor busses movable on the street and utilized for local service, spaced depots arranged between the tracks and adapted to receive passengers from both street cars and busses, and a passageway on a different level from the street for conducting passengers to and from the depots and the sidewalks of the street, the depots being arranged with a central portion for incoming passengers and end portions for outgoing passengers.

7. In a system for coordinating surface transportation on city streets, street car tracks arranged in the central portion of the street, street cars movable thereon and utilized for express service, motor busses movable on the street and utilized for local service, spaced depots arranged between the tracks and adapted to receive passengers from both street cars and busses, and a passageway on a different level from the street for conducting passengers to and from the depots and the sidewalks of the street, the depots being arranged with separated portions for incoming and outgoing passengers respectively, the separators between the portions being adapted to align with separators in the street cars when stopped adjacent the depots to segregate incoming and outgoing passengers.

8. Means for facilitating surface transportation on city streets including spaced street car tracks in the central portion of the street, a depot arranged between the street car tracks, and a subwalk arranged below the surface of the street between the depot and the sidewalks of the street, the depot being subdivided into a central portion for passengers about to enter street cars running on the tracks and end portions to receive passengers leaving the street cars.

9. Means for facilitating surface transportation on city streets including spaced street car tracks in the central portion of the street, a depot arranged between the street car tracks, a subwalk arranged below the surface of the street between the depot and the sidewalks of the street, the depot being subdivided into a central portion for passengers about to enter street cars running on the tracks and end portions to receive passengers leaving the street cars, and separate passageways from the subwalk to the central and end portions of the depot.

10. Means for facilitating surface trans-

portation on city streets including spaced street car tracks in the central portion of the street, a depot arranged between the street car tracks, a subwalk arranged below the surface of the street between the depot and the sidewalks of the street, the depot being subdivided into a central portion for passengers about to enter street cars running on the tracks and end portions to receive passengers leaving the street cars, and passageways from each side of the subwalk to the central portion of the depot and passageways from each end portion of the depot to the subwalk.

11. Means for facilitating surface transportation on city streets including spaced street car tracks in the central portion of the street, a depot arranged between the street car tracks, a subwalk arranged below the street from sidewalk to sidewalk substantially centrally of the depot, separators in the subwalk to guide pedestrians therethrough, the depot being arranged with a central portion to receive prospective passengers for the street cars running on the tracks and end portions to receive passengers leaving the street cars, a passageway from the subwalk to the central portion of the depot, and passageways from the end portions of the depot to the opposite sides of the subwalk.

12. Means for facilitating surface transportation on city streets including spaced street car tracks in the central portion of the street, a depot arranged between the street car tracks, a subwalk arranged below the street from sidewalk to sidewalk substantially centrally of the depot, separators in the subwalk to guide pedestrians therethrough, the depot being arranged with a central portion to receive prospective passengers for the street cars running on the tracks and end portions to receive passengers leaving the street cars, a separator dividing the central portion of the depot longitudinally, passageways leading from opposite sides of the subwalk to the respective divisions of the central portion of the depot, and passageways leading from opposite sides of the subwalk to the respective end portions of the depot.

13. Means for facilitating surface transportation on city streets including spaced street car tracks in the central portion of the street, a depot arranged between the street car tracks, a subwalk arranged below the street from sidewalk to sidewalk substantially centrally of the depot, separators in the subwalk to guide pedestrians therethrough, the depot being arranged with a central portion to receive prospective passengers for the street cars running on the tracks and end portions to receive passengers leaving the street cars, a separator dividing the central portion of the depot longitudinally, passageways leading from opposite sides of the subwalk to the respective divisions of the central portion of the depot, turnstiles arranged in the central portion of the depots at the head of said passageways, passageways leading from the opposite sides of the subwalk to the respective end portions of the depot, and turnstiles arranged in the last mentioned passageways adjacent the subwalks.

In witness whereof I hereunto set my hand.

HARRY R. MILLER.