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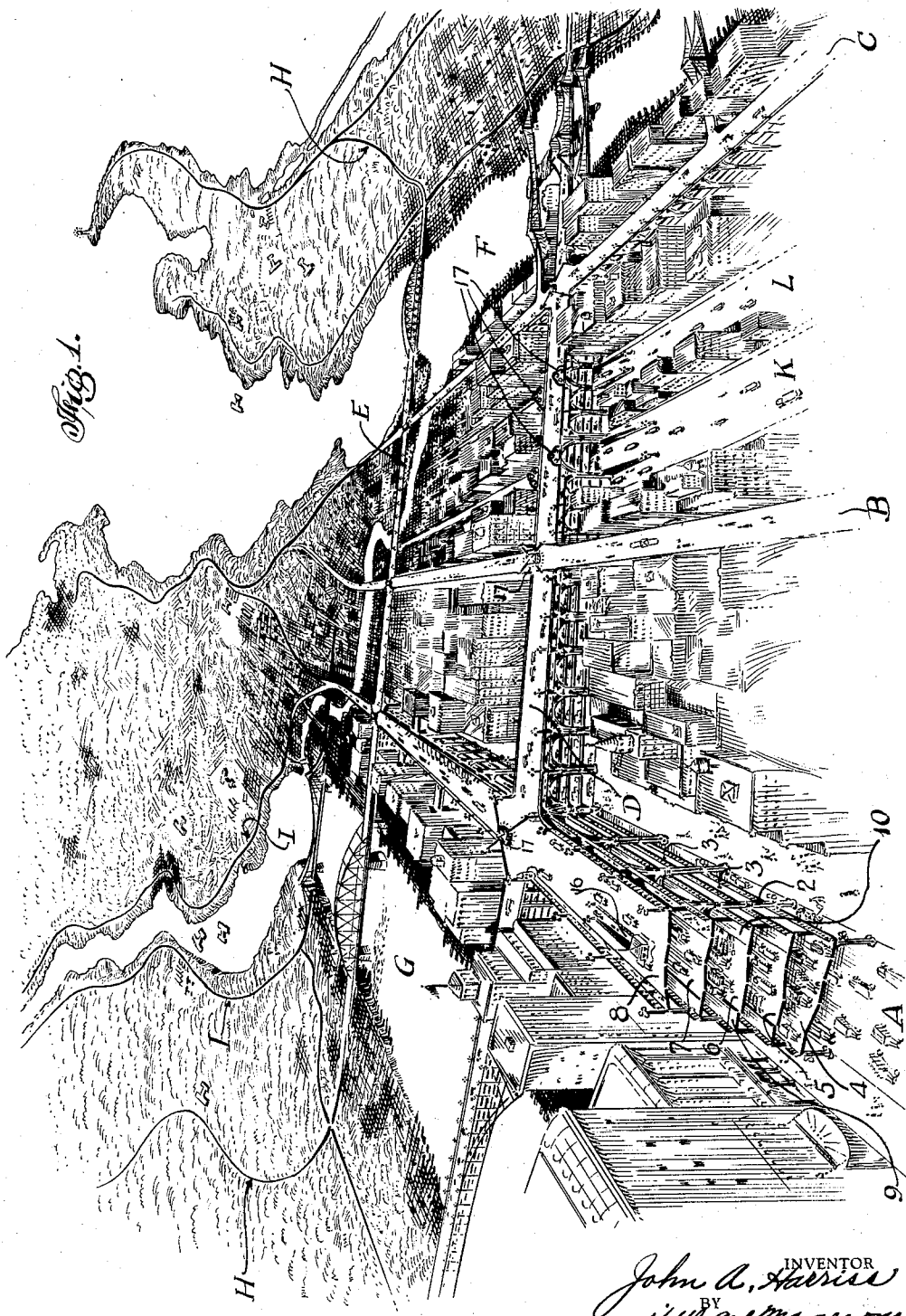
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TRANSIT APPARATUS

Filed April 29, 1927

3 Sheets-Sheet 1



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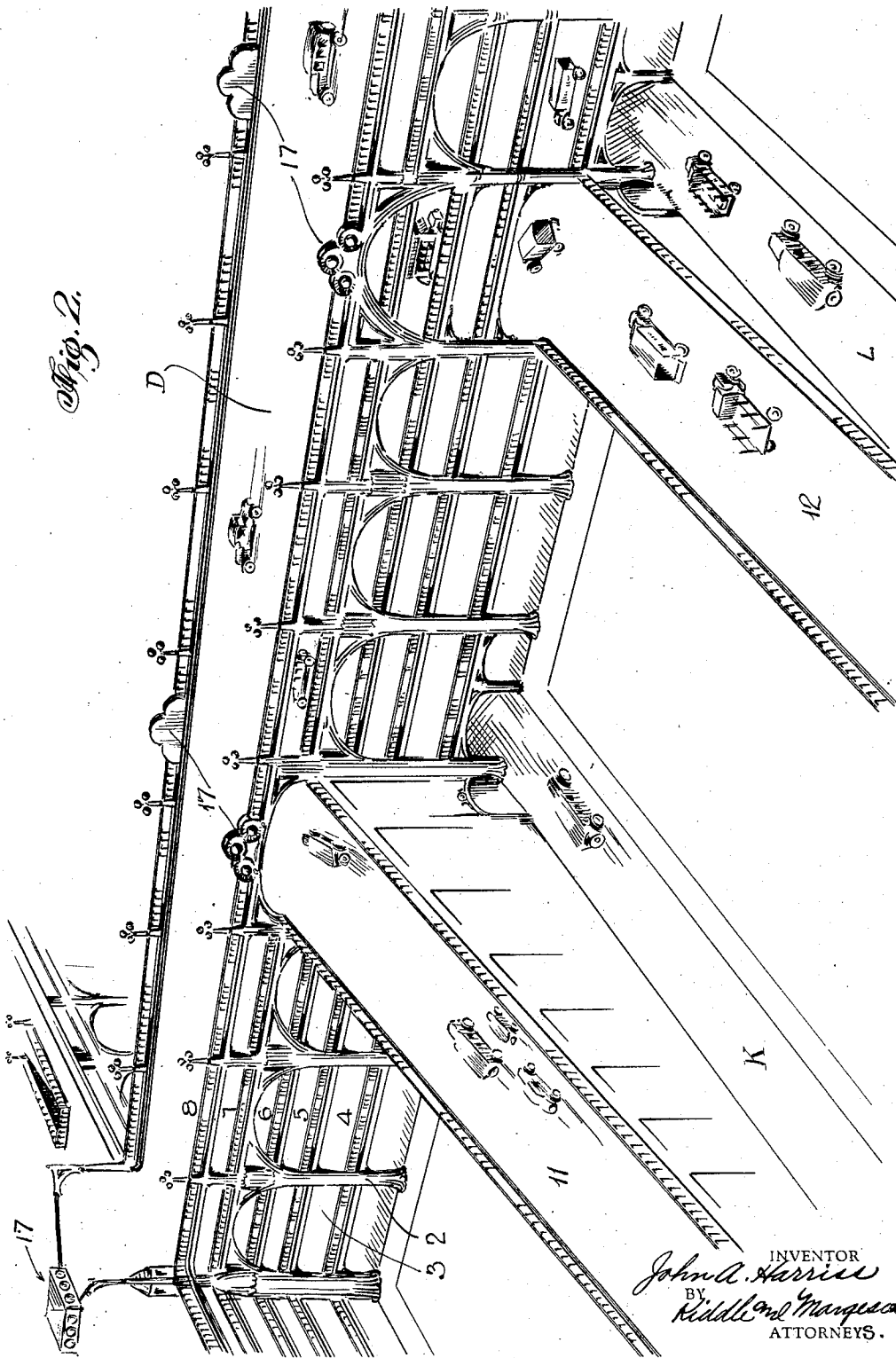
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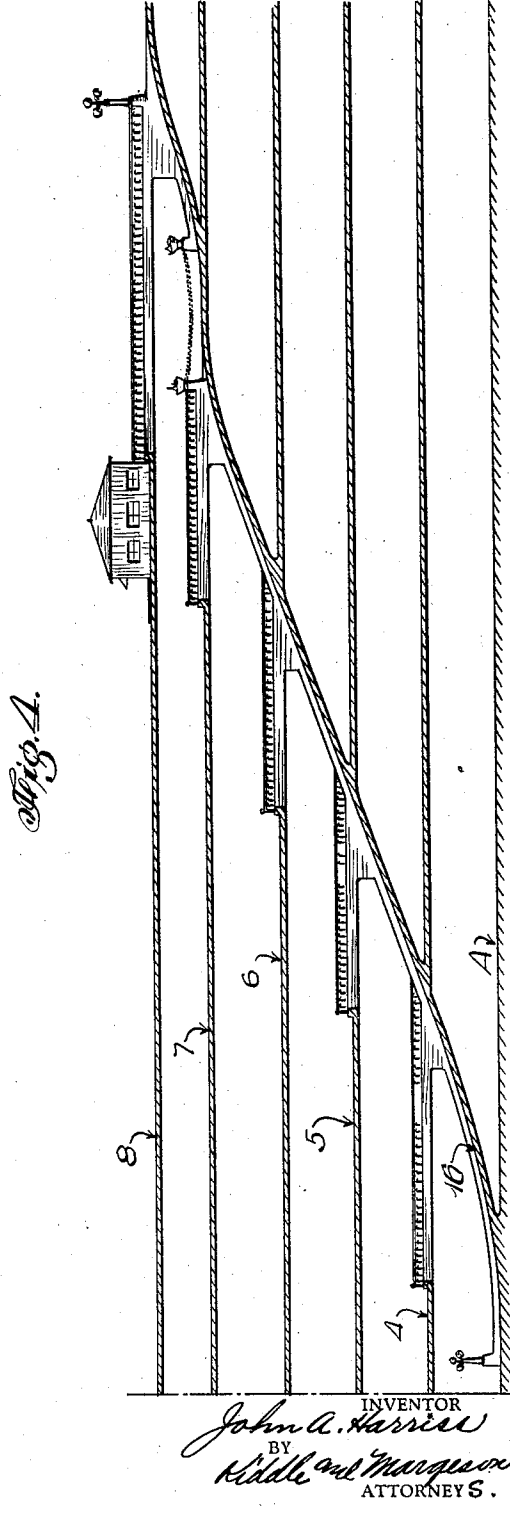
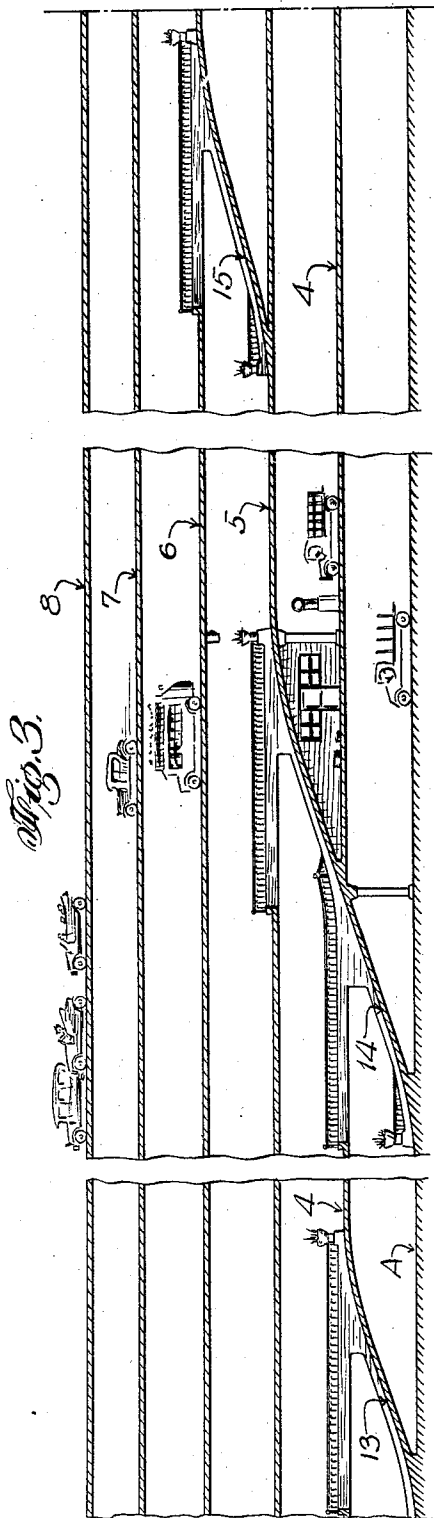
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TRANSIT APPARATUS

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3 Sheets-Sheet 3



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UNITED STATES PATENT OFFICE

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TRANSIT APPARATUS

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My invention relates to transit apparatus and transit systems adapted to be employed in improving transit facilities not only in congested areas, such as large cities, but throughout the country as a whole.

The handling of traffic in the larger cities, like New York, for example, has become such a problem that despite the many plans suggested, it is almost impossible to move the traffic at sufficient speed to prevent congestion, and, in fact, almost complete stagnation at times, particularly in the business districts.

Many plans have been devised for overcoming this condition of affairs, such as regulation by traffic control lights, the building of underground passageways, and the arcing of streets, and other plans too numerous to mention. All of these suggested plans, however, have proven unsatisfactory for one reason or another, the problem of proper ventilation and tremendous cost of construction being a great drawback to the underground systems, while with other suggested plans it becomes necessary to alter, and in some cases to completely demolish, buildings along the proposed way, involving the outlay of enormous sums of money by the community and a great loss to property owners.

The apparatus of the present invention, I believe, overcomes all these difficulties in a practicable fashion, being of such a character that the same may be installed in existing streets if desired without necessitating the tearing down or the alteration in any way of buildings along these streets, and, in fact, without the expenditure of the tremendous sums of money necessarily now expended for structures used heretofore. My improved apparatus is so arranged also that the same may be readily installed not only in or along main highways or streets, but in cross streets or highways as well, and may be extended at a practicable and commercial cost throughout the country, so as to provide a net-work of weather-protected, self-ventilating highways throughout the country, connecting all of the larger communities as well as opening up unlimited areas within short distances of existing large cities and towns, which areas are now more or less dormant.

Another feature of great advantage inherent in the present apparatus is that the same may be constructed or erected along and over the right of way of existing railroad lines, thereby overcoming the necessity of constructing entirely new roads paralleling those rights of way while affording, due to the construction of my improved apparatus, a protection for the railroad lines along which it passes which in and of itself is of great advantage.

At the present time the expense of maintenance, to say nothing of the expense of initial construction, of roads or highways and city streets is enormous. This maintenance cost is due, especially along state highways, not only to the large number of vehicles passing over these thoroughfares, but to the action of the elements as well. My improved apparatus is of such a character as not only to enable a greatly increased number of vehicles to be transported safely and speedily as compared with existing roads, but provides for protection against the elements of the roadways or thoroughfares along which these vehicles will travel, thereby reducing the cost of maintenance due to weather destruction to a minimum.

My improved apparatus is also of such a character as to provide adequate parking and loading spaces for traffic from the surrounding territory coming into a community where my apparatus is installed; landing spaces for aeroplanes, enabling a plane to land in a city for example, if desired or necessary the installation of power lines without going underground; the installation of illuminating gas lines enabling both electricity and gas to be carried into communities where the cost of installation up to now has been prohibitive. My improved apparatus is adapted also to carry gasoline and oil lines thereby relieving the streets of these objectionable features. I provide also for segregation of the different types of vehicles traveling over my improved highway, in that the fastest moving vehicles, such as pleasure cars, for example, will have their own highway or thoroughfare along which they may proceed, while slower moving vehicles, such as busses,

trucks, etc., may, if desired, each have their own right of way. In this way each class of traffic may be speeded up to the maximum.

It is a further object of my invention to provide transit apparatus which is of such a character that the highways may intersect, thereby providing for installation in cross streets and enabling traffic through these streets to be speeded up as well as the traffic through the main arteries or streets of a city or a community.

A further object of my invention is to provide for adequate ventilation in the construction of the apparatus itself, eliminating the necessity of installing elaborate and expensive ventilating apparatus. In providing for this ventilation I also overcome the drawbacks inherent in prior structures suggested for relieving traffic congestion, in that the light to buildings along my improved highway will not be excluded to a detrimental extent, thereby eliminating the necessity of installing artificial lighting systems in such buildings. The value of this feature will be appreciated in city installations, while the self-ventilating feature is of value not only in city installations, but installations made anywhere.

My improved apparatus is of such a character that the same may be constructed throughout of steel and concrete, so as to be practically indestructible, or at least so as to reduce the cost of maintenance to the minimum, and in this very connection, as above noted, the fact that the roadways are protected against destruction by the elements will go a long way toward keeping the cost of maintenance down, particularly as compared with the cost of maintenance on exposed State highways.

Another object of my invention is to provide transit apparatus in which, if desired, moving roadways for pedestrians may be provided, particularly in the vicinity of loading and unloading stations for busses and the like, and I may say that these moving roadways or conveyors may be of any practicable length, and will enable pedestrians to be transported for some distance to bus terminals with ease and facility and without interfering in any way with vehicular traffic.

Actually in effect I take the greater part of traffic off the streets of communities, thereby removing the chief cause of many accidents and traffic troubles; in other words, I cure the disease by removing the cause.

In brief, my improved apparatus comprises a supporting frame or skeleton, preferably made of steel, with open sides and with a plurality of traffic levels arranged in superposed relation. The roadways of these several levels, as above mentioned, may be of concrete, for example, and to arrange for the movement of traffic from one level to another

within the structure I provide at suitable intervals ramps or inclined ways leading from one roadway to another along which vehicles may readily proceed.

While my apparatus is of such a character that the same may be installed along the main street or highway of a city, and if desired to have driveways or walks leading therefrom to buildings along the right of way, I have also provided that the same may be installed in cross streets, so as to relieve traffic in these streets as well, and in this connection, in order that vehicles may enter my improved structure, I have provided for entry of the vehicles to the different levels in such a fashion that all vehicles are not required to pass along or through the same street. For example, I have arranged my apparatus so that vehicles desiring to enter one level may pass along one street, while vehicles desiring to enter another level will proceed to that level from another street, and so on, in this way, as above noted, avoiding the necessity of all vehicles desirous of entering the apparatus proceeding along a single street. It is understood, of course, as above explained, that within the structure itself provision is made for the passage of vehicles from one level to another.

My improved apparatus is also of such a character that the same may be extended across waterways, thereby providing for the speeding up of traffic in and out of communities which may be bounded or bordered by rivers, bays, or the like.

As above noted, my improved apparatus is capable of installation along railroad rights of way, and it will be appreciated that this is of great advantage to the companies owning these rights of way as well as to the communities through which they pass, inasmuch as the expense of installation can be divided between the owners of the rights of way and such communities, rather than the communities defraying the entire expense of constructing the highways, as is now the case.

In the accompanying drawings, wherein I have illustrated an embodiment of my invention—

Figure 1 is a schematic drawing of a city and the surrounding country, showing an installation of my apparatus;

Fig. 2 is a perspective view of the apparatus itself; and

Figs. 3 and 4 are longitudinal views of my improved apparatus.

Referring to the drawings in detail and first of all to Fig. 1, A, B and C designate three streets or highways of a city, and D and E intersecting cross streets, each of these streets being provided with my improved apparatus. The cross streets are shown extended into the outlying country, crossing the rivers F and G. H designates extensions, in effect, of the cross streets D and E, these

extensions being equipped with my apparatus along the right of way of a railroad, while the extensions I of the main streets or highways A, B and C, it may be assumed, are along existing State roads. K and L designate streets not equipped with my multiple highway but provided with ramps for the passage of vehicles from the street level to the cross town highways in the cross streets D and E.

My improved apparatus comprises a structural steel skeleton or frame 2, open at the sides from top to bottom, as indicated at 3. This steel skeleton or frame supports a plurality of roadways, designated 4, 5, 6, 7 and 8. These roadways are for vehicular traffic and constructed of concrete, but they may be, if desired, and preferably are provided with sidewalks 9 and 10 for pedestrians. The lowermost roadway 4 is at such elevation above the ground or initial level as to leave ample headroom for vehicular traffic on the initial level. The fact that the supporting skeleton or frame is of structural steel not only permits of production manufacture of my apparatus and hence reduction in cost of manufacture but it enables me to leave the sides of my improved highway open, to provide adequate natural ventilation for the entire apparatus; and in outlying districts probably sufficient light for lighting the apparatus, although it will be understood that artificial lighting will be provided.

While in Fig. 1 I have shown my highways as intersecting, it is to be understood that in some communities, particularly in outlying country districts, probably no intersecting highway will be employed.

In Fig. 2 I have shown on a somewhat enlarged scale, with respect to the showing in Fig. 1, the manner in which my improved highway is constructed, so as to permit vehicles to enter the same from the street level. Referring to this figure of the drawing as well as to Fig. 1, it will be seen that the street K is provided with a ramp 11 and the street L with a ramp 12, these ramps extending from the street level to different levels in my improved highway. The ramp 11, for instance, permits vehicles to travel from the street level K to the level 4 of the cross town highway D, while the ramp 12 permits vehicles to run from the street level L to the level 5 of the same cross town highway. These ramps are merely illustrative, it will be understood, inasmuch as the number and location of the ramps entering the cross town highway or the main highways erected in the streets A, B and C may be varied. It will be seen that these ramps, therefore, will permit of vehicles proceeding along streets not equipped with my improved apparatus to enter the apparatus at a desired level and to proceed therealong without conflict of traffic such as would occur if upper levels could

be reached only by traversing portions of lower levels. By arranging the several ramps 11 and 12 to have their ground or initial level ends at different distances from the multiple road super-structure, I am able to provide ramps whose surfaces are substantially parallel to each other and have approximately the same degree of grade. In addition to the advantages of lower power expenditure in ascending the ramps, the difference in location of the entering ends of the several ramps incident to variation in the length of the ramps further assists in avoiding congestion of traffic by distribution of portions thereof at more or less remote points. As I have before pointed out, vehicles can proceed from one level to the other within the structure itself, and this has been illustrated in Figs. 3 and 4, Fig. 4 being merely a continuation of the apparatus of Fig. 3. Referring to these figures of the drawing and bearing in mind that the same is a longitudinal section of my multiple highway erected in the street A, for instance, it will be seen that a ramp 13 is provided within the structure itself for permitting of the passage of vehicles from the street A to the level or roadway 4. In addition to this ramp, I provide a ramp 14 to permit vehicles to be driven from the street level to the level 5 of my highway, and from the level 5 such vehicles may ascend to the next level by way of a ramp 15. Extending from the street A is a ramp 16 provided for the purpose of permitting vehicles to proceed from the street to level 7 and top or upper level or roadway 8. As a practical proposition, trucks, for example, could proceed by the ramp 13 to the level 4 and travel to their destination along this level or roadway or thoroughfare; busses could proceed to levels 5 and 6, while passenger vehicles may proceed to roadways or levels 7 and 8. Each class of traffic being provided with a thoroughfare reserved for that class of traffic alone may proceed at maximum speed along such thoroughfare. In other words, slow-moving vehicles, such as loaded trucks, will not interfere with the passage of faster-moving vehicles, such as busses and pleasure automobiles, while, extending it still further, the rapid passage of pleasure vehicles would not be interfered with by slower-moving traffic, such as busses and trucks. It is to be understood also that the ramps above referred to may be used for traffic in both directions, i. e., the ramps at one side of my multiple highway may be used for the passage of vehicles going in one direction, while traffic in the opposite direction may use the ramps on the opposite side of the structure or roadways.

It will be understood that at the intersection of the cross streets, so to speak, with the main streets, the various levels merge into one another; the level 7, for instance, on a

main street being at the same level as the roadway 7 on an intersecting street or highway. All of the roadways 4, 5, 6 and 7 are fully protected against the elements, the upper level or roadway 8 being the only one which is not covered. The fact that the upper level is uncovered is somewhat of an advantage, however, in that it permits of an unobstructed view of the surrounding country from vehicles traveling therealong, provides landing spaces for aeroplanes if desired, while in the event of a storm, these vehicles may readily descend by the nearest ramp to the protected roadway below.

I have not attempted to illustrate, and hence will not describe in detail, the lighting systems or method of traffic light control which will be installed in my improved apparatus, except merely diagrammatically, as indicated at 17, for instance. It will be understood, however, that traffic control lights similar to those now employed in most communities may be readily installed. However, the main object of my invention is obviously accomplished by my improved apparatus in a practicable way. That is to say, by segregating the different classes of traffic and by providing a thoroughfare for each class of traffic, I am able to expedite the passage of the different classes of traffic at the speed each class of traffic is capable of, and inasmuch as the roadways or thoroughfares of my improved apparatus are arranged in superposed relation, I have effected this result in the minimum of space.

I believe that the expense of erecting my improved apparatus will not be prohibitive, as compared with the expense of building State highways, but in any event, this extra expense, if any, will be more than offset by the reduction in cost of maintenance, as compared with the cost of maintenance of State highways at present. Obviously, the installation of my improved apparatus from city to city will synchronize commercial and industrial life, bringing the outlying districts into close contact with important centers, so that not only will my improved apparatus enable traffic congestion to be relieved in cities and towns, but traffic may be speeded up throughout the whole country.

What I claim is:

1. In multiple highway structures, the combination of a plurality of superimposed road surfaces sufficiently above initial level to provide clearance for vehicular traffic on the initial level, supporting means for said superimposed surfaces, and means of approach from the initial level to each of said superimposed surfaces independently of the other for avoiding traffic interference on one level incident to access to another, said several means of approach having surfaces substantially parallel to each other.

2. The combination set forth in claim 1

wherein the means of approach to the superimposed surfaces outstand laterally of the multiple highway structure.

This specification signed this 27th day of April, 1927.

JOHN A. HARRISS.

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