July 28, 1931. L. M. KING 1,816,379

ROADWAY TRAFFIC GUIDE

Filed Dec. 8, 1928

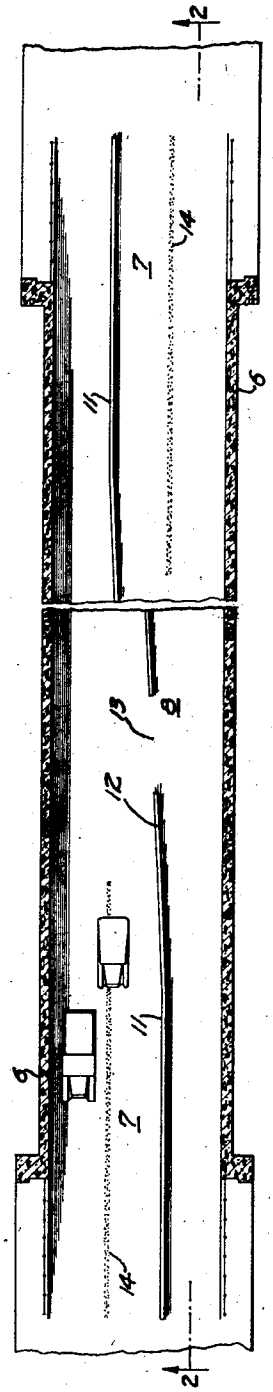


Fig. 1

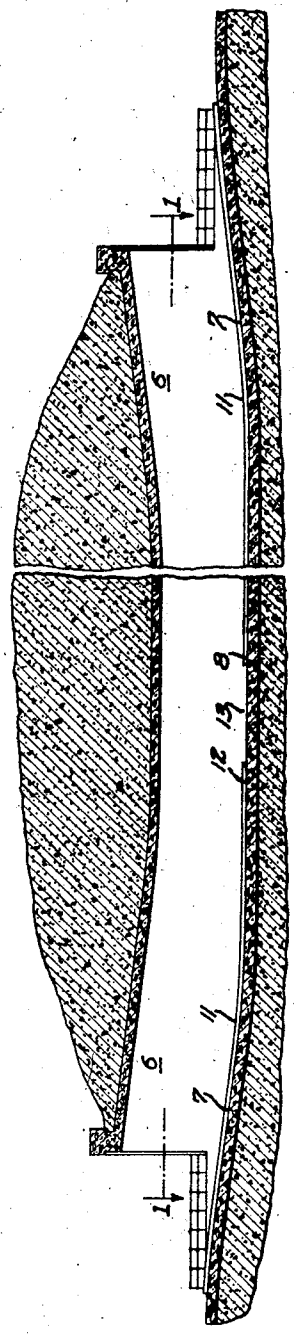


Fig. 2

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UNITED STATES PATENT OFFICE

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ROADWAY TRAFFIC GUIDE

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My invention relates to the control or guidance of traffic on roadways, and particularly on roadways having a grade of such proportions as to affect the speed of traffic thereon, and its broad purpose is to expedite such traffic.

An object of my invention is to provide a means of increasing the traffic capacity of a roadway greatly with but slight increase in cost.

One of the principal dangers in vehicular subway operation is from traffic jams, resulting in complete blockage or in partial blockage with a large number of motor vehicles moving gradually forward with engines running at slow speed and poor efficiency, and hence smoking or fuming badly. Such jams arise in a large measure on the adverse grade at the exit. Another object of my invention is to prevent jams so arising.

My invention possesses other objects and valuable features, some of which will be set forth in the following description of my invention which is illustrated in the drawings forming part of the specification. It is to be understood that I do not limit myself to the showing made by the said description and drawings, as I may adopt varying forms of my invention within the scope of the claims.

Referring to the drawings:

Figure 1 is a horizontal and Figure 2 a vertical sectional view of a subway embodying the roadway traffic guide of my invention. The planes of section of the two figures are indicated by the lines 1—1 in Fig. 2, and 2—2 in Fig. 1, respectively.

The speed of movement of traffic in congested roadways is dependent upon that of the slowest vehicles. The carrying capacity of a roadway depends directly upon the speed of the traffic and upon the number of lines of traffic in the roadway. Thus it follows where two traffic lanes are provided in one direction, one for fast and the other for slow traffic, that the carrying capacity of the roadway is not merely doubled, as compared with a single lane road, but may be increased many fold. Since the speed of all the traffic is limited by that of the slowest vehicle in line, a large loss of time occurs in any single lane road carrying mixed traffic, which is very largely eliminated where multiple lanes are provided.

The problem of traffic congestion is especially acute where the roadway traverses subways, grade separations, bridges, and similar engineering structures. In these places the width of the roadway is strictly limited. The cost of the structures rises so sharply with increased road width that the provision of double traffic lanes is seldom warranted, and turnouts or other provisions to permit passing are usually impossible. Traffic jams frequently occur at such points, and, especially in subways, these jams are sources of actual danger, since the large number of cars, moving slowly with throttled motors, intensify the ventilation problem.

A careful study of the problem thus presented shows that most vehicular subway jams have their origin on the adverse grade at the exit. On a favorable grade the disparity in speed between different classes of vehicles is slight. Furthermore, even minor accidents, such as fuel failure or ignition trouble, will not cause a tie-up, as the affected car can coast to the bottom of the grade. On the adverse grade, however, the speed of the lighter vehicles is but little reduced, while that of a heavily laden truck is much affected. Moreover, a temporarily disabled car becomes an absolute bar to traffic. Similar conditions may arise on any adverse grade, although not usually with such serious consequences.

Broadly considered, my invention comprises, in a roadway on a grade, means for defining paths for traffic in each direction, the path in the direction of adverse grade being wider than the path in the direction of favorable grade. The wide path is preferably marked to define lanes for fast and slow traffic. By means of this invention, the capacity of the roadway can be more than doubled at a relatively slight increase in cost.

The drawings show the application of my invention to a road passing thru a subway, which is indicated by the reference character 6. The roadway, as is usual in such cases, has inclined portions 7 adjacent the ends of the subway, with a substantially level portion 8 between them.

In the present instance, the roadway is wide enough for three lines of traffic. A curb 11 divides the roadway on the grades into paths for traffic in the two directions, the curb being placed about one third of the road's width from the right hand side of the road, facing downgrade. In the level portion of the roadway is placed a curb 12 which extends diagonally across the central longitudinal portion of the road on a line joining the ends of the curbs 11. Gaps 13 are preferably provided in the curb 12 to permit emergency passage from one path to the other. It is also advisable to define the lanes for fast and slow traffic by painted stripes 14, or other suitable markers.

Cars approaching the subway follow the single width path on the right. When the foot of the grade is reached the slower vehicles keep to the right of the road, while the lighter ones turn out as soon as the path widens sufficiently to permit, and take the left of the two lanes on the adverse grade at the exit. A car temporarily disabled on the level portion of the roadway may be easily pushed through one of the emergency gaps 13, to remain astride the curb in the center of the roadway and out of the way of traffic in either direction until aid can be secured. The gaps also may be used to allow fire apparatus or tow cars to turn within the subway. If a car be disabled on the adverse grade the other traffic can pass around it through the unblocked traffic lane. No curbs or other actual bars to traffic should be used between the lanes in a path, as this would seriously limit the usefulness of the double width path.

It will be seen that by the use of this invention a three-lane roadway on a grade has practically the same carrying capacity as a four-lane roadway, and more than double the capacity of a two-lane roadway. A roadway wide enough for three lines of traffic but without the guide would allow passing in either direction on the grade and would so produce a hazard too great to be permissible. The presence of this hazard would also tend to prevent use of the extra width to an economic extent.

It is obvious that the usefulness of this invention is not restricted to subways or to roadways of the width here described. The capacity of any roadway on a grade may be increased by providing lanes in the direction of adverse grade in excess of those in the direction of favorable grade, even when there are a plurality of the latter. Furthermore, altho the dividing curbs are preferred, they may be replaced by any type of traffic marker on the grades, and may even be entirely omitted in the level portion of the roadway without destroying the usefulness of my invention.

I claim:

1. In a roadway for traffic moving in opposite directions and having a favorable grade followed by an adverse grade in each direction, means for defining paths for traffic in each direction and providing lanes in the portions of said paths having adverse grades in excess of the lanes in the portions having favorable grades.

2. In a roadway for traffic moving in opposite directions and having an adverse grade, a favorable grade, and a substantially level portion joining said grades, means for defining paths for traffic in each direction on said roadway, said paths being wider in the portions of adverse grade than in the portions of favorable grade and widening gradually from the latter to the former in the substantially level portion.

3. In a roadway for traffic moving in opposite directions and having an adverse grade, a favorable grade, and a substantially level portion joining said grades, a curb dividing said roadway into paths for traffic in each direction, said paths being wider in the portions of adverse grade than in the portions of favorable grade, and said curb extending diagonally across the roadway to provide paths of graduated width in the substantially level portion.

4. In a roadway adapted to carry substantially equal traffic in two directions and having an adverse grade and a favorable grade in each direction and a depressed level portion joining said grades, means for defining paths for traffic in each direction, each of said paths being wider in the portion of adverse grade than in the portion of favorable grade to provide room for an even number of traffic lanes on the adverse grade and an odd number of traffic lanes on the favorable grade.

5. In a roadway adapted to carry substantially equal traffic in two directions and having an adverse grade and a favorable grade in each direction and a depressed level portion joining said grades, means for defining paths for traffic in each direction, each of said paths being wider in the portion of adverse grade than in the portion of favorable grade to provide room for a pair of traffic lanes on the adverse grade and a single traffic lane on the favorable grade.

In testimony whereof, I have hereunto set my hand.

LOCHIEL M. KING.