June 25, 1968 L. J. DUNNE 3,389,677

TRAFFIC CONTROL DEVICE

Filed Dec. 16, 1966

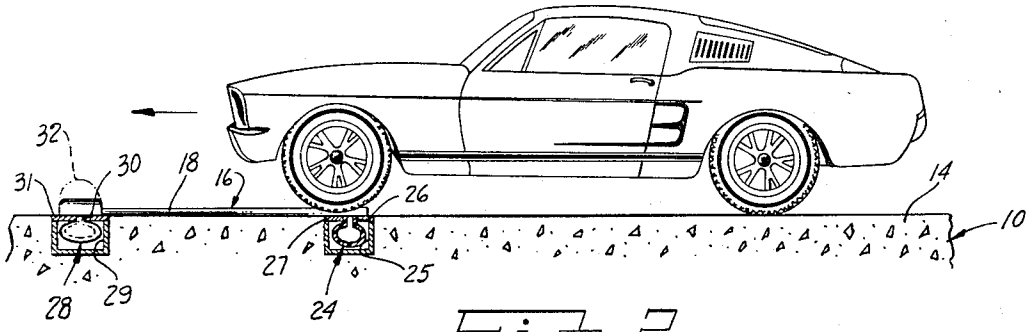


Fig. 2

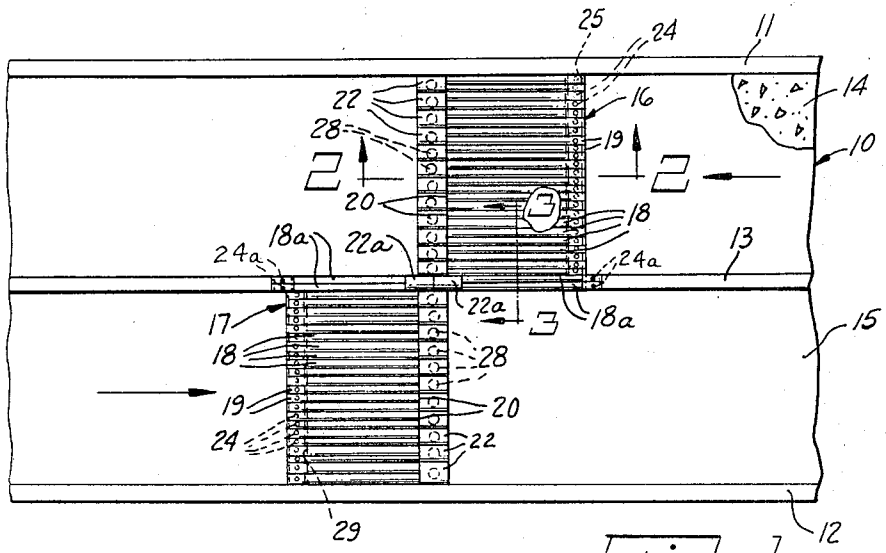


Fig. 1

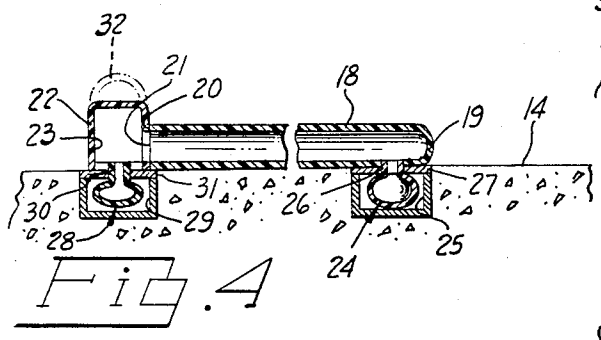


Fig. 4

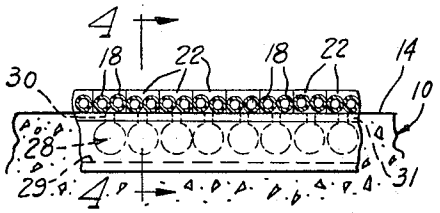


Fig. 3

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TRAFFIC CONTROL DEVICE

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This invention relates to a traffic control apparatus, and more particularly to a traffic control apparatus adapted to indicate to the driver of a vehicle that he is exceeding the speed limit on a straight roadway or a dangerous curve, or that he is entering a freeway or the like in an exit lane instead of an entrance lane.

An important problem faced by the traffic and safety departments of states, cities and other municipalities is how to reduce the number of fatal accidents on the roadways in their respective jurisdictions. The number of vehicles in use on the public highways has increased each year, and the number of lives lost in automobile traffic accidents has also increased with the resultant additional traffic. Traffic studies have shown that a great number of traffic deaths are caused by excessive speed. Many safety devices have been incorporated in automobiles in an effort to reduce fatal injuries incurred in traffic accidents. However, other than providing speed controls on automobiles there is only one practical method to reduce the number of traffic deaths caused by excessive speed and that is to provide a means for controlling the driving habits of vehicle operators, whereby they will drive their vehicles within the safe speed limits prescribed by the traffic control authorities. Accordingly, in view of the foregoing, it is an important object of the invention to provide a novel traffic control apparatus which will solve the problem of controlling the operators of vehicles so as to reduce traffic accidents and deaths caused by excessive speeds.

It is another object of the present invention to provide a novel traffic control apparatus which will remind operators of vehicles that they are exceeding the posted speed limit, and wherein the reminder is given in a positive manner.

It is still another object of the present invention to provide a novel traffic control apparatus which is simple and compact in construction, economical to manufacture, efficient and indiscriminate in operation, foolproof, substantially maintenance-free, and which will function in all types of weather in the daytime or nighttime.

It is a further object of the present invention to provide a novel traffic control apparatus which is designed to limit the top speed of vehicles on public roadways by creating a low barrier across a roadway through the action of a rolling vehicle tire that inflates a flexible barrier means which causes the barrier to be formed across a roadway, whereby when a vehicle hits the barrier a jolt is incurred by the vehicle if it is exceeding a set speed limit.

It is still a further object of the present invention to provide a novel traffic control apparatus for indicating excess speed and incorrect traffic flow of vehicles over a roadway which comprises, a plurality of closed, elongated flexible air tubes; said plurality of air tubes being disposed parallel to the direction of flow of vehicular traffic over the roadway, and in a side-by-side relationship across the roadway; a plurality of closed, inflatable tubular barrier members disposed at one end of said plurality of elongated air tubes, at right angles to the length of the first mentioned air tubes, and in alignment across the roadway; said plurality of tubular barrier members being in communication with at least one of said elongated air tubes; and, the other end of said plurality of elongated air tubes being disposed toward the approaching vehicular traffic on a roadway, whereby all traffic passing over a roadway must pass over the traffic control apparatus, and when the tires of a vehicle roll lengthwise over some of the elongated tubes, the air in said last mentioned elongated tubes will be forced forwardly into the tubular barrier members communicating with the last mentioned elongated tubes and said last named barrier members will be inflated and provide a momentary barrier across the roadway in the path of the tires of said vehicle and provide a jolt to the vehicle as it passes thereover.

Other objects, features and advantages of this invention will be apparent from the following detailed description, appended claims, and the accompanying drawing.

In the drawing:

FIG. 1 is a plan view of a strip of roadway provided with a traffic control apparatus made in accordance with the principles of this invention;

FIG. 2 is a fragmentary, elevational section view of the roadway illustrated in FIG. 1, showing an enlarged cross section view of the speed control apparatus with the front pheels of a vehicle on the front end of said apparatus;

FIG. 3 is an enlarged, fragmentary, elevational section view of the traffic control apparatus illustrated in FIG. 1, taken along the line 3—3 thereof, and looking in the direction of the arrows; and,

FIG. 4 is an enlarged, broken, elevational section view of the traffic control structure illustrated in FIG. 3, taken along the line 4—4 thereof, and looking in the direction of the arrows.

Referring now to the drawings, and in particular to FIG. 1, the numeral **10** generally indicates a roadway which is bounded by the curbs **11** and **12**. The numeral **13** indicates the usual painted centerline strip of the roadway. The numeral **14** indicates the roadway lane for traffic proceeding to the left of the roadway, as viewed in FIG. 1, and the numeral **15** indicates the other roadway lane for traffic proceeding to the right. The numerals **16** and **17** generally indicate a pair of traffic control apparatuses made in accordance with the principles of the present invention and which are disposed in operative positions across the roadway lanes **14** and **15**, respectively.

As shown in FIGS. 1 and 3, the traffic control apparatus of the present invention comprises a plurality of closed, elongated, flexible air tubes **18** which are made from any suitable material as for example, a flexible plastic material or a rubber material. The air tubes **18** are illustrated as being circular in cross section, but it will be understood that they may be of any desired cross section, as for example, square or rectangular. The front ends **19** of the tubes **18** are each closed. As best seen in FIG. 1, the elongated air tubes **18** are disposed on the roadway **10** in a direction parallel to the flow of vehicular traffic over the roadway, and in a side-by-side relationship across the roadway **10**.

As shown in FIG. 4, the rear end **20** of each of the elongated air tubes **18** is connected by any suitable means to an inflatable tubular barrier member **22**. The rear end of each tube **18** communicates through an opening **21** with the interior **23** of the adjacent inflatable barrier member **22**. As shown in FIG. 1, two of the elongated air tubes **18** communicate with a single inflatable barrier member **22**. It will be understood that the number of air tubes **18** communicating with each barrier member **22** can be one or more, as desired. It will also be understood, that the barrier members **22** are connected together to form a continuous barrier across the roadway lanes, as **14** and **15** in FIG. 1. The barrier members **22** may be made from any suitable flexible material, as for example, a plastic material, a rubber material, and the like.

As illustrated in FIG. 1, an inflatable reservoir **24** is disposed beneath the front end of each of the elongated air tubes **18** to relieve air pressure in each of the tubes **18**. The reservoirs **24** are illustrated as being formed

as inflatable sacks. Each reservoir **24** may be made from the same material used for forming the tubes **18** and the barrier members **22**.

As shown in FIG. 4, the reservoirs **24** are preferably disposed in a suitable chamber **25** formed below the surface of the roadway lane **14** in the transverse direction.

An individual reservoir **24** is connected to each of the elongated air tubes **18** by an individual tube **26** which is fixed to the reservoir **24** and the tube **18**. The tubes **26** extend through suitable apertures in a cover plate **27** which is disposed under the air tubes **18** and extends transversely of the roadway lane **14** in a position to enclose the reservoir chamber **25**. It will be understood, that the plate **27** is made preferably from steel, or other suitable material, to provide the necessary strength to support vehicles passing thereover. The cross section area of the passage provided by the tube **26** may be of any suitable size, since this passage does not provide any flow control function, but merely serves to relieve the air pressure in the closed tubes **18**.

As illustrated in FIG. 4, each of the tubular barrier members **22** is provided with an inflatable reservoir **28** disposed therebeneath in a suitable chamber **29** in the roadway **14**. Each reservoir **28** is connected by a suitable tube **30** to its respective barrier member **22**. Each tube **30** passes through a suitable aperture in a plate **31** that forms a cover over the chamber **29**. The plate **31** is made from steel or other suitable material of a strength sufficient to support traffic passing thereover. Each tube **30** is provided with a passage therethrough having a predetermined size or flow capacity for controlling the passage of air under pressure from a barrier member **22** to its reservoir means **28** for relieving the air pressure in each of the barrier members **22** when air is forced into the same because of a vehicle wheel rolling over the communicating elongated air tubes **18**. The reservoir means **28** is illustrated as being formed as an inflatable sack which may be made from the same material from which the tubes **18** and the barrier members **22** are formed.

FIG. 1 illustrates the two traffic control apparatuses **16** and **17** formed in offset side-by-side disposition to provide a traffic control means for both of the lanes **14** and **15** at the same point on the roadway **10**. The corresponding parts of the traffic control apparatuses **16** and **17** have been marked with the same reference numerals since they are identical. The front ends of the air tubes **18***a* of the two traffic control devices **16** and **17** that are disposed on the centerline strip **13** have been moved forwardly to permit the two barrier members **22***a* to be disposed in alignment with each other. It will be understood, that a single or separate traffic control apparatus as **16** or **17** may be employed in positions other than as shown in FIG. 1.

In operation, the air in the closed system traffic control apparatuses would be preferably under a pressure slightly above atmospheric pressure. When a vehicle as illustrated in FIG. 2 rolls onto the front end of some of the elongated tubes **18**, the wheels of the vehicle moving over the tubes **18** squeeze or force the air in these tubes in a forward direction into the larger, inflatable barrier members **22**. The barrier members **22** which are in direct line with the moving wheels of the vehicle are inflated to a predetermined size as indicated by the dotted line **32** in FIG. 2. The barrier produced by the inflated barrier members **22** exists or is raised momentarily since each barrier member **22** is connected to a separate reservoir means **28** through a bleed-off passage **30**, and the bleed-off action commences when the build-up of air pressure in the barrier member **22** commences. The rate of bleed-off of the air pressure in each barrier member **22** is set according to the speed limit posted on the roadway **10**. If the vehicle exceeds the speed limit, the barrier members **22** do not have a chance, or sufficient time to bleed-off into the reservoirs **28** before the front wheels of the vehicle hits the momentarily created barrier. If the vehicle is moving within the posted speed limit, the barrier members **22** bleed-off a sufficient amount of air into their reservoirs **28** so that the vehicle will roll over the deflated barrier members **22** without incident.

It will be understood that the length of the air tubes **18**, the internal diameters and air volume capacities would be selected in accordance with the capacities of the barrier members **22** and the reservoirs **24** and **28**, the flow capacity of the passages **30**, and the time interval range required for a particular speed range over which the traffic control device may be employed. It will also be understood, that the flow capacity of the passages **30** may be varied to change the speed limit control for each traffic control apparatus without changing the other physical limitations of the particular apparatus.

The traffic control apparatuses of the present invention may be used on side streets in residential neighborhoods where many children have been injured by drivers operating their vehicles over the safe speed limits for such side streets. The traffic control device will provide a sense of relief to the parents of children in the neighborhood where it is used since they know the drivers passing over such streets will be made aware of their high speed if they travel over the safe speed limit.

The traffic control apparatus of the present invention may also be used in other locations, as for example, on freeway ramps to signal wrong way traffic on the ramps, on dangerous curves on freeways, and the like. A warning sign posted along a roadway announcing the use of the traffic control apparatus of the present invention would be effective in slowing down traffic violators, since they would be aware that they would hit the barrier created by the traffic control apparatus if they violate the posted speed limit.

While it will be apparent that the preferred embodiment of the invention herein disclosed is well calculated to fulfill the objects above stated, it will be appreciated that the invention is susceptible to modification, variation and change without departing from the proper scope or fair meaning of the subjoined claims.

What is claimed is:

1. A traffic control apparatus for indicating excessive speed of vehicles over a roadway, comprising:

(a) a plurality of closed, elongated, flexible air tubes;

(b) said plurality of air tubes being disposed parallel to the direction of flow of vehicular traffic over said roadway, and in a side-by-side relationship across said roadway;

(c) a plurality of closed, inflatable post-like tubular barrier members disposed at one end of said plurality of elongated air tubes, at right angles to the length of said tubes, and in alignment transverse of said roadway;

(d) each of said plurality of tubular barrier members being in fluid communication with at least one of said elongated air tubes; and,

(e) the other end of said plurality of elongated air tubes being disposed toward the approaching vehicular traffic on said roadway, whereby the wheels of said vehicular traffic pass lengthwise over some of said elongated tubes causing the air in said tubes to be forced forwardly into respective tubular barrier members inflating said members to provide a momentary flexible barrier across said roadway in the path of said wheels.

2. A traffic control apparatus as defined in claim **1**, including:

(a) reservoir means in fluid communication with each of said inflatable barrier members for relieving the air pressure in said barrier members.

3. A traffic control apparatus as defined in claim **1**, including:

(a) reservoir means for each of said inflatable barrier members;

(b) passage means connecting each barrier member to its respective reservoir means; and,

(c) each passage means being provided with a pre-

determined flow capacity for controlling the passage of air under pressure from a barrier member to its reservoir means.

4. A traffic control apparatus as defined in claim 3, including:

(a) a reservoir means in fluid communication with each of said plurality of elongated air tubes at said other end of each air tube.

5. A traffic control apparatus as defined in claim 4, wherein:

(a) said elongated air tubes are connected together.

6. A traffic control apparatus as defined in claim 4, wherein:

(a) said tubular barrier members are connected together.

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