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(54) **Device for preventing vehicles from driving in the prohibited direction**

(57) The object of the invention is a device for preventing the driving of vehicles in the forbidden direction, which is made possible by a physical stopping of vehicles that are driving in the wrong direction, while the traffic signals separately allow a driving in the direction of access to the highway.

The device for preventing the driving of vehicles in

the forbidden direction has spring elements (1, 10) placed in a housing (2) placed in a channel (2) constructed across the direction of travel, wherein the projecting part (1a, 10a) of the spring element when driving in the right direction will bend and thus allow the vehicle to pass, while when driving in the wrong direction the tires of the vehicle will be punctured, so that further travel of the vehicle in the prohibited direction is not possible.

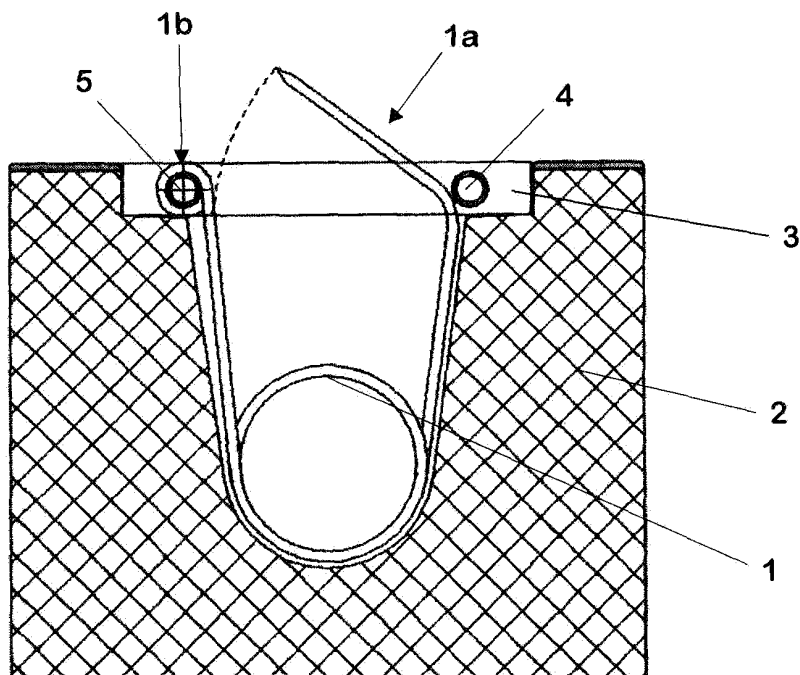


Fig. 4

Description

[0001] The object of the invention is a device for preventing the driving of vehicles in the forbidden direction, which is made possible by a physical stopping of vehicles that are driving in the wrong direction, while the traffic signals separately allow a driving in the direction of access to the highway. The invention comes under section E01 F 13/10 of the international patent classification.

[0002] The technical problem that the proposed invention successfully solves is the design of such a device for physical stopping of a vehicle that is driving in the forbidden or wrong [direction], which will enable in simple fashion a physical stopping of the vehicle with puncturing of the tires of the vehicle so that it is not possible to continue driving with the vehicle.

[0003] Solutions for this technical problem can be found in systems for monitoring the movement of vehicles and, when a vehicle is found to be driving in the wrong direction, actuating of road barriers that physically stop the vehicle. An example of such a solution is described in the French patent document No. 2 879 793. This solution requires a major intervention in the existing road infrastructure with replacement of electronic components and the barrier mechanism itself; it is also necessary to provide an energy source for the operation.

[0004] There are also solutions that work on the principle of a physically actuated barrier, that is, usually steel spikes or similar elements that pierce the rubber of a vehicle if they are approached from the wrong direction, while in the proper approach from the permitted direction these spikes by means of various mechanisms sink into the foundation and thoroughfare is possible. Thus, in German patent document No. 36 31 315 is described a solution, wherein a channel is made across the direction of travel, in which is placed a mechanism that pushes a lever into the channel in event of the proper direction of travel, or holds it by means of a spring in the upper position when the direction of travel is wrong and thereby punctures the tires of the vehicle. Similar design solutions are also described in the patent documents US 4,097,170, US 5,192,158, US 7,025,526 and WO 2009/123485. In all cited documents, the solution is such that there are elements which puncture the tires of a vehicle driving in the wrong direction, movably placed in a channel or removable base (such as in US 7,025,526), so that when a vehicle is moving in the right direction the tires move over them and they are sunk into the base by various mechanisms, but if moving in the wrong direction they are lifted upright so as to puncture the tires. In all described devices, the retraction or raising of the elements is dependent on their movement either by means of spring elements or mechanisms that contain a lot of movable parts (such as in document WO 2009/123485). Since the raised barriers are subjected to weather changes (ice, water) and also soiling (dust, mud, etc.), the movement of the vehicle stopping elements on the axles of the spring mechanisms or various movable construc-

tions is questionable in lengthy use.

[0005] The technical problem which the proposed invention solves satisfactorily is a design solution for such a device to prevent the travel of vehicles in the prohibited direction, making possible a physical prevention of further travel by means of a projecting part of a spring element placed in a channel constructed across the direction of travel, wherein the projecting part of the spring element when driving in the right direction will bend and thus allow the vehicle to pass, while when driving in the wrong direction the tires of the vehicle will be punctured, so that further travel of the vehicle in the prohibited direction is not possible.

[0006] We shall explain the invention more closely with a sample embodiment and figures, which show:

- Fig. 1** the spring element of the device for preventing driving in the forbidden direction in side view;
- Fig. 2** the spring element seen in the driving direction;
- Fig. 3** a double spring element seen in the driving direction;
- Fig. 4** a side view in cross section of the device for preventing vehicles from driving in the forbidden direction;
- Fig. 5** plan view of the device for preventing vehicles from driving in the forbidden direction.

[0007] The device of the invention for preventing the driving of vehicles in the forbidden direction, which is made possible by a physical stopping of vehicles that are driving in the wrong direction, while the traffic signals so permit, is shown in Fig. 3 and 4, while Fig. 1 to 3 show only the spring element. The spring element 1 is formed as a spring element, having at one end an ear 1b, while the other projecting end 1a is preferably sharpened and placed at an acute angle with respect to the horizontally installed spring element 1 in the housing 2 of the device according to the invention.

[0008] The device of the invention for preventing the driving of vehicles in the forbidden direction, which is made possible by a physical stopping of vehicles, has spring elements 1 placed at appropriate distances in a housing 2 so that these lie in a troughlike channel of the housing 2. At the upper edge of the channel of the housing 2 run two rods 4, 5, of which the rod 5 is shoved through the ears 1b of spring elements 1 lying in the troughlike channel of the housing 2, while the rod 4 offers support to the projecting ends 1a of the spring elements 1, while at the same time the rods 4, 5 serve as guideways for intermediate bearing plates 3, which separate the individual spring elements 1 from each other and at the same time provide the necessary firmness to the overall connection of the device according to the invention. The channel 2 in which the spring elements 1 are placed can also serve at the same time to drain away the water that collects on the roadway.

[0009] The spring element 1 can also be made as a double spring element 10, which is shown in Fig. 3. The

spring element 10 has the same function as with the described spring element 1, wherein during use the rod 5 is shoved through the ears 10b of the spring elements 10 lying in the troughlike channel of the housing 2, while the rod 4 offers support to the projecting double ends 10a of the spring elements 10. The double projecting ends 10a offer stronger resistance to the tires of a vehicle traveling in the forbidden direction.

[0010] The device for preventing the driving of vehicles in the forbidden direction, which is made possible by a physical stopping of vehicles that are driving in the wrong direction, while the traffic signals so permit, is used such that the housing 2 is installed in the roadway in the wrong direction of travel. The housing 2 with the spring elements 1 placed inside is set up so that preferably the sharpened projecting end 1a of the spring element 1 is placed at an acute angle relative to the horizontally installed housing 2 and faces the direction from which traffic is prohibited.

[0011] When the wheels of a vehicle that is moving in the permitted direction drive across the projecting ends 1a or 10a of a spring element 1,10, they will bend so that the tires of the vehicles are not damaged, whereas if the vehicle is driving in the forbidden direction the projecting ends 1a, 10a of the spring element 1,10 are driven into the wheel and will puncture the tire, so that further travel of the vehicle in the prohibited direction is no longer possible.

[0012] In winter conditions, it is possible to assure the operation of the device of the invention in a simple known way by using, for example, an electrical heating cable, which prevents the formation of ice and, thus, a limiting of the operation of the device.

[0013] The device for preventing a travel of vehicles in the prohibited direction by making possible a physical stopping of the vehicle according to the invention as described above completely solves the technical problem and furthermore the device, which does not have movable parts or parts running on axles, is easy to fabricate, install and use and it does not require major servicing interventions between operations.

forbidden direction according to claim 1,

characterized in that,

the housing (2) with the spring elements (1,10) placed therein is situated such that preferably the projecting end (1a, 10a) of the spring element (1) faces the direction from which traffic is prohibited.

3. Device for preventing the travel of vehicles in the forbidden direction according to claim 2,

characterized in that,

the projecting end (1a, 10a) of the spring element (1) is preferably placed at an acute angle with respect to the horizontally installed spring element (1,10) in the housing (2) of the device according to the invention.

4. Device for preventing the travel of vehicles in the forbidden direction according to claims 1 to 3,

characterized in that,

the projecting end (1a, 10a) of the spring element (1) is sharpened.

Claims

1. Device for preventing the travel of vehicles in the forbidden direction,

characterized in that

spring elements (1, 10) are placed in a housing (2) at appropriate distances so as to lie in a troughlike channel of the housing (2), while at the upper edge of the channel of the housing (2) run two rods (4, 5), of which the rod (5) is shoved through the ears (1b, 10b) of spring elements (1, 10) lying in the troughlike channel of the housing (2) and, together with the rod (4), they present guideways for intermediate bearing plates (3).

2. Device for preventing the travel of vehicles in the

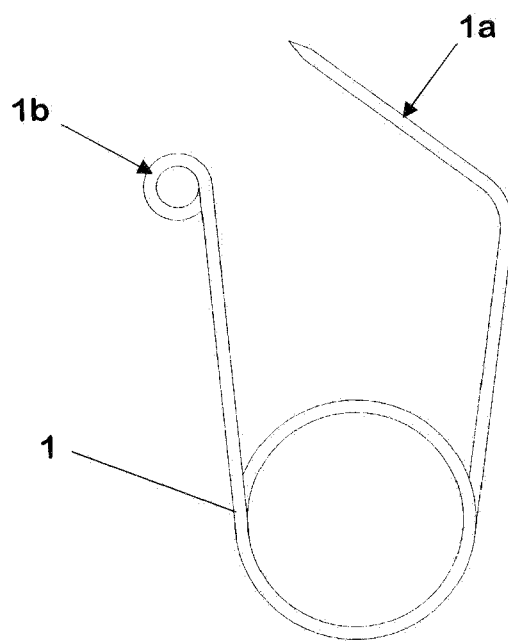


Fig. 1

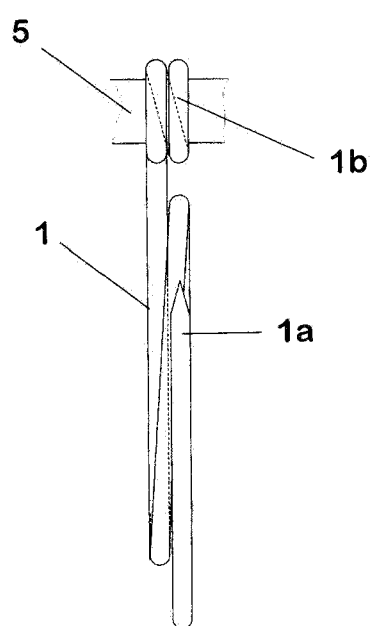


Fig. 2

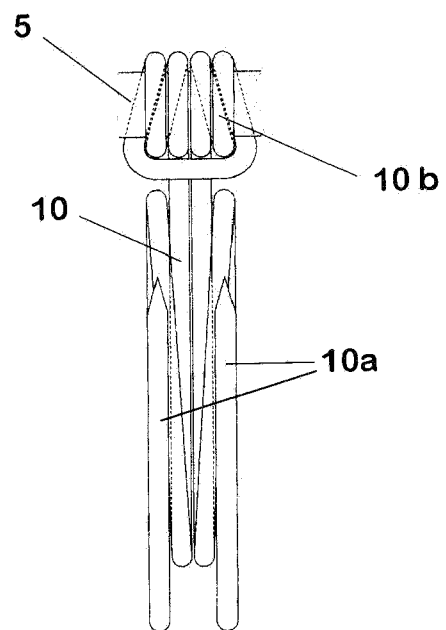


Fig. 3

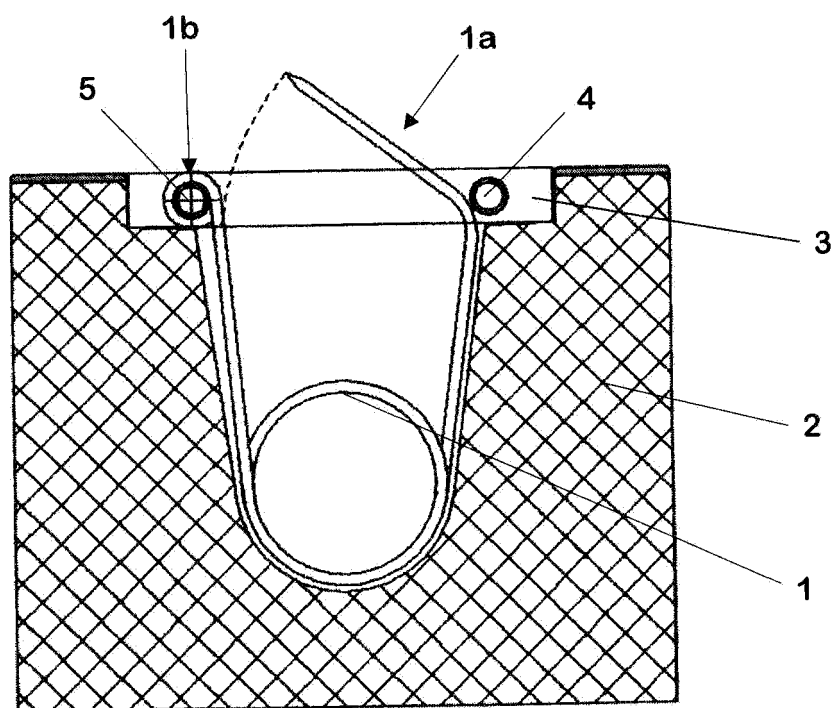
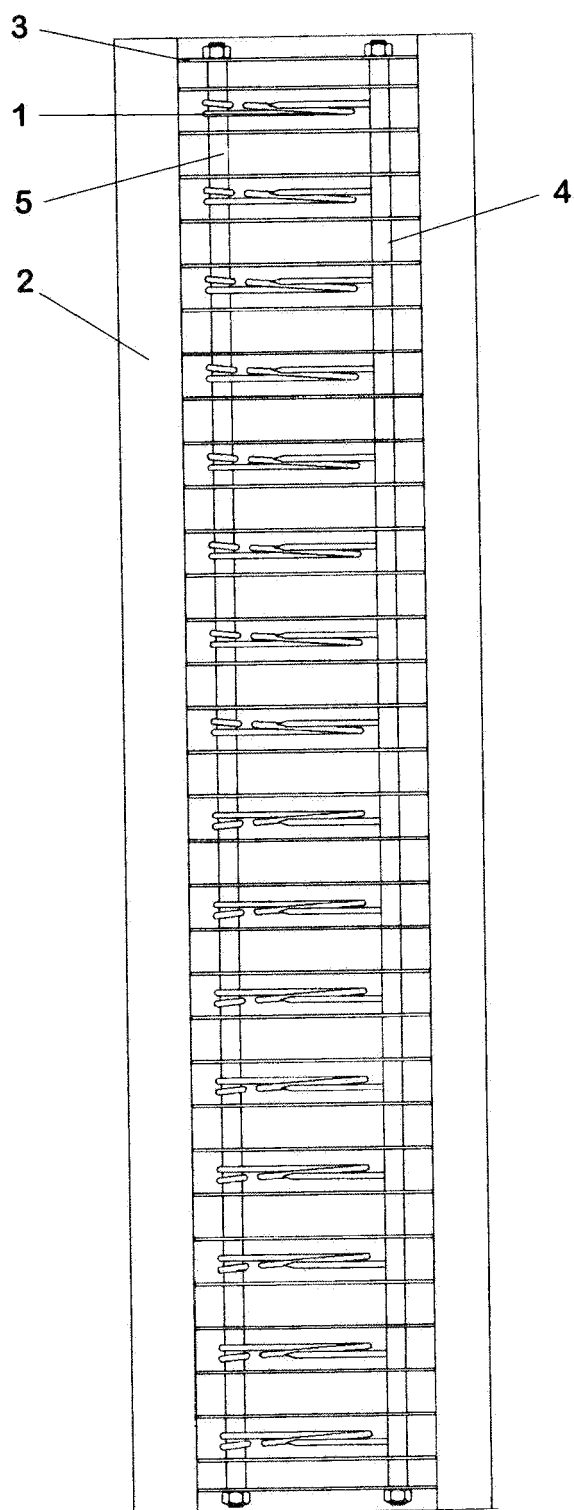


Fig. 4



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REFERENCES CITED IN THE DESCRIPTION

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