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(54) Horizontal layered traffic sign structure

(57) Horizontal layered traffic sign structure which consists of a longitudinal concrete body (2), which is fitted by its lower part (4) into the roadway (3), whereas the upper part (5) is visible above the roadway (3) with a horizontal proportion, whereas a side of the upper part

(5) of the longitudinal concrete body (2), which is oriented to the roadway (3) is provided by a profile, which is created by at least two bulged strips and indentations are placed between them, whereas this surface is painted with reflection paint (8).

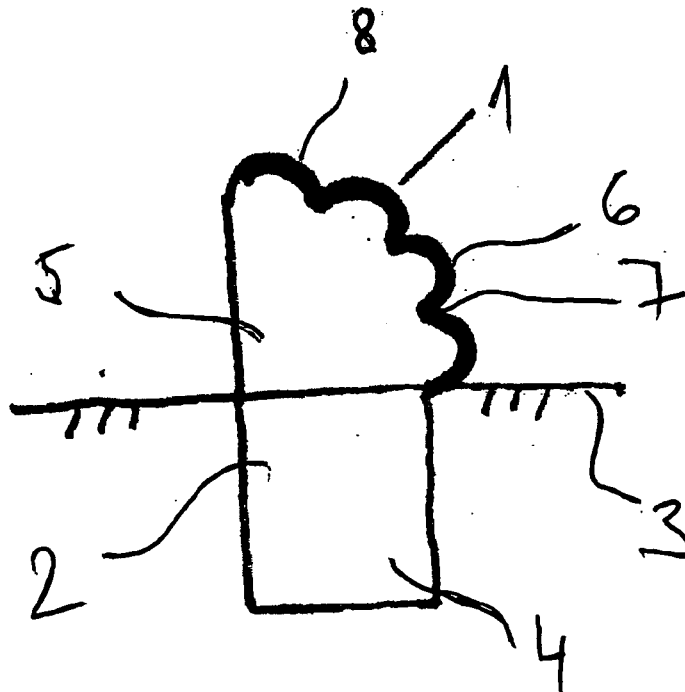


FIG. 1

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Description

Background of the Invention

[0001] The invention concerns the horizontal traffic sign structure situated along the side of a roadway, especially on such places where the profile of the roadway has a convex shape.

State of the art

[0002] At the present time roadways in the world are provided by two kinds of signs. On one hand there are vertical signs, which are arranged on sticks or hanging constructions as traffic signs, on the other hand there are horizontal signs arranged on the surface of the roadway in a form of coloured lines or symbols provided directly on the surface.

[0003] Disadvantage of vertical signs is that they are easy to overlook when the attention of a driver is dissipated by other stimuli, e.g. advertisements, surrounding landscape, town traffic etc., and there is worse allocation of that sign, e.g. a sign "Attention, pedestrian crossing", which does not indicate the distance to that pedestrian crossing. On the other hand the vertical sign is better to see from a long distance, thereby it makes possible to inform the driver about changing situation in advance.

[0004] Disadvantage of horizontal signs is its worse visibility from a long distance and its almost negligible visibility on places where roadways are convex shaped, it means on places of gradient reduction on places of an increase of declining and on the top of the hill. On the other hand its strong point is an exact allocation of the sign to a signed object, e.g. "Here is a pedestrian crossing", "Here is a narrowing of the roadway", etc.

[0005] In CZ 1993-2327 A1, reflection objects are presented, which are made of transparent material and they are equipped by colour spots on their surface divided so that the light can come into said reflection objects and afterwards come out with sufficient intensity to create a back-reflection. Said reflection objects are arranged on the surface of a roadway or other traffic surface, or they are arranged on horizontal signs. The document further presents production of said reflection signs wherein reflection objects are dropped out from a storage tank and afterwards, during their falling down they are gently sprayed by paint.

[0006] In CZ 1989-3131 A1 a thermoplastic material is presented, which is used for horizontal traffic sign, which contains 15 % to 30 % amount of a polypropylene, 1 % to 20 % amount of a titanium dioxide, 1 % to 30 % amount of a chalk, eventually 1 % to 10 % amount of an oil and a rest of it is a filler, which is e.g. marble powder, silicon sand, milled glass or their mixtures by a size up to 2 mm.

[0007] In EP 1503228 B1, DE 19521847 A1 and EP 1347099 A1 various reflection objects are presented, e.g. glass bullets, plastic bullets or bullets made by other materials, which are inserted via a glue into paints, which

are used to create strips. Said documents describe variety of apparatuses used to their uniform spraying. But as mentioned above, said reflection stripes are impossible to reflect a beam of light in some parts of a roadway.

[0008] The aim of present invention is to disclose a horizontal layered traffic sign structure, which enables to integrate qualities of a horizontal sign and a qualities of a vertical sign, namely to preserve an exact sign allocation with enhancing of their distance visibility, especially on a convex road profiles.

Feature of the Invention

[0009] The above mentioned disadvantages are considerably eliminated by use of the horizontal layered traffic sign structure which consists of a longitudinal concrete body, which is fitted by its lower part into the roadway, whereas the upper part is visible above the roadway with a horizontal proportion, whereas a side of the upper part of the longitudinal concrete body, which is oriented to the roadway is provided by profile, which is created by at least two bulged strips and between them indentations are placed, whereas this surface is painted with reflection paint.

[0010] In an advantageous embodiment bulged strips are formed as convex bulged strips, whereas between them indentations are formed as conical grooves.

[0011] In another advantageous embodiment bulged strips are formed as strip edges, whereas between them indentations are formed as circular grooves.

Description of the Drawings

[0012] The invention will be further explained by using drawings, in which Fig. 1 is a schematic cross-section of the horizontal layered traffic sign structure in the first embodiment according to the invention and Fig. 2 is a schematic cross-section of the horizontal layered traffic sign structure in the second embodiment according to the invention.

Preferred Embodiments of the Invention

[0013] As illustrated in Fig. 1, the horizontal layered traffic sign structure 1 consists of a longitudinal concrete body 2, which is fitted by its lower part 4 into the roadway 3. The upper part 5 is visible above the roadway 3. A side of the upper part 5 of the longitudinal concrete body 2, which is orientated to the roadway 3 is provided by a profile. That surface of the horizontal traffic sign is not flat, but it is created as several surfaces of convex strips or bulged strips 6 and grooves 7 are between them. The surface, which is formed by bulged strips 6 and grooves 7 is painted by a reflection paint 8. Such spacial profile contains in each part of the profile different angle conditions concerning the light impact from the vehicle, as well as the profile of the roadway. Light is generated by headlights of a vehicle. Consequently, enough of reflected

light is delivered in every moment towards incoming vehicle and so the structure is good visible from a longer distance.

[0014] In general term the profile is consisting of bulges and indentations. It is possible to imagine a different version, where the upper part 5 is provided by strip edges 9 and between them are circular grooves 10. This embodiment is shown in Fig. 2. It is possible to imagine also combinations of said profiles.

[0015] A visibility problem of a sign for a long distance is solved by supplying of the vertical part of the dimension, where the layer of reflection paint 8 is not placed on the horizontal surface, but it is placed on the vertical surface of an horizontal object. The difference to a common concrete street curb which is painted by reflection paint is, that said innovation can use various angles from the headlights of a incoming vehicle. Bad visibility of the horizontal sign is normally due to a wrong angle between the horizontal sign and the beam of light of a coming vehicle. Most of the light, which is reflected from the surface of the reflection paint is not reflected towards the vehicle but in other directions. That is the reason why the driver is not able to see that sign from a long distance.

[0016] From that reasons the surface of the horizontal sign structure according to the invention is not compact, but it is formed by several layers of convex bulges 6 in form of strips. Each part of said strips offers a variety of angles. Because of that, enough of light is reflected towards the vehicle at every time in order to see the sign from a long distance. Because of the fact, that said sign is not crossable, it is suitable to arrange the sign along a side of a roadway, where it can inform e.g. about narrowing of the roadway, joining traffic lines or it can be placed between traffic lines as a traffic refuge on the pedestrian crossing.

[0017] The longitudinal concrete body 2 can be produced as rounded or straight segments.

3. Horizontal layered traffic sign structure according to the claim 1, **characterized in that**, bulged strips are formed as concave strip edges (9), whereas between them indentations are formed as circular grooves (10).

Claims

1. Horizontal layered traffic sign structure **characterized in that**, it consists of a longitudinal concrete body (2), which is fitted by its lower part (4) into the roadway (3), whereas the upper part (5) is visible above the roadway (3) with a horizontal proportion, whereas a side of the upper part (5) of the longitudinal concrete body (2), which is oriented to the roadway (3) is provided by a profile, which is created by at least two bulged strips and indentations are placed between them, whereas this surface is painted with reflection paint (8).
2. Horizontal layered traffic sign structure according to the claim 1, **characterized in that**, bulged strips are formed as convex bulgy strips (6), whereas between of them are indentation formed as conical grooves (7).

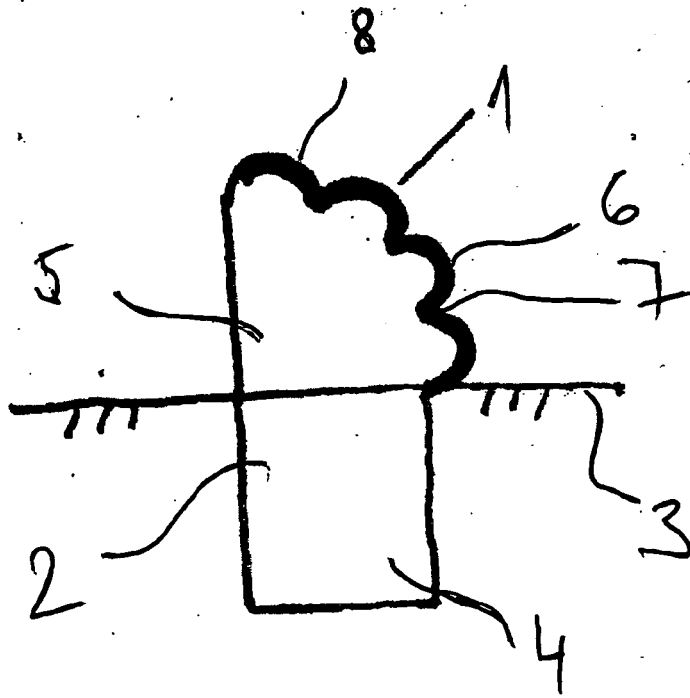


FIG. 1

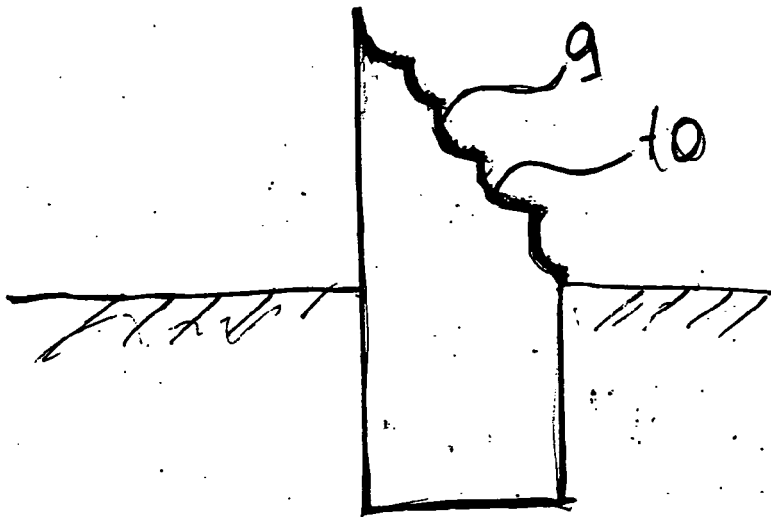


FIG. 2



EUROPEAN SEARCH REPORT

Application Number
EP 10 01 4983

DOCUMENTS CONSIDERED TO BE RELEVANT			
Category	Citation of document with indication, where appropriate, of relevant passages	Relevant to claim	CLASSIFICATION OF THE APPLICATION (IPC)
X	JP 2009 127326 A (MATSUOKA CONCRETE INDUSTRY CO) 11 June 2009 (2009-06-11) * the whole document *	1-3	INV. E01F9/053 E01C11/22
X	BE 547 405 A (LES GRES GUERIN) 15 May 1956 (1956-05-15) * figures * * page 2, paragraphs 6,8 *	1-3	
Y	BE 565 075 A (T. BARBE) 15 March 1958 (1958-03-15) * figure 3 * * page 2, paragraph 3 * * page 3, paragraph 4 *	1	
Y	GB 513 358 A (GEORGE EDWARD MITCHELL) 10 October 1939 (1939-10-10) * figures 9,11,13 * * page 1, lines 14-27 * * page 3, lines 9-18 *	1	
Y	FR 1 441 061 A (CIMENTERIES ET BRIQUETERIES RE) 3 June 1966 (1966-06-03) * page 1, left-hand column, paragraph 1-4 *	1	
The present search report has been drawn up for all claims			TECHNICAL FIELDS SEARCHED (IPC) E01F E01C
3	Place of search The Hague	Date of completion of the search 19 April 2011	Examiner Tran, Kim Lien
<p>CATEGORY OF CITED DOCUMENTS</p> <p>X : particularly relevant if taken alone Y : particularly relevant if combined with another document of the same category A : technological background O : non-written disclosure P : intermediate document</p> <p>T : theory or principle underlying the invention E : earlier patent document, but published on, or after the filing date D : document cited in the application L : document cited for other reasons & : member of the same patent family, corresponding document</p>			

EPO FORM 1503 03/82 (F04/C01)

**ANNEX TO THE EUROPEAN SEARCH REPORT
ON EUROPEAN PATENT APPLICATION NO.**

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This annex lists the patent family members relating to the patent documents cited in the above-mentioned European search report. The members are as contained in the European Patent Office EDP file on The European Patent Office is in no way liable for these particulars which are merely given for the purpose of information.

19-04-2011

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EPO FORM P0458

For more details about this annex : see Official Journal of the European Patent Office, No. 12/82

REFERENCES CITED IN THE DESCRIPTION

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Patent documents cited in the description

- CZ 19932327 A1 [0005]
- CZ 19893131 A1 [0006]
- EP 1503228 B1 [0007]
- DE 19521847 A1 [0007]
- EP 1347099 A1 [0007]