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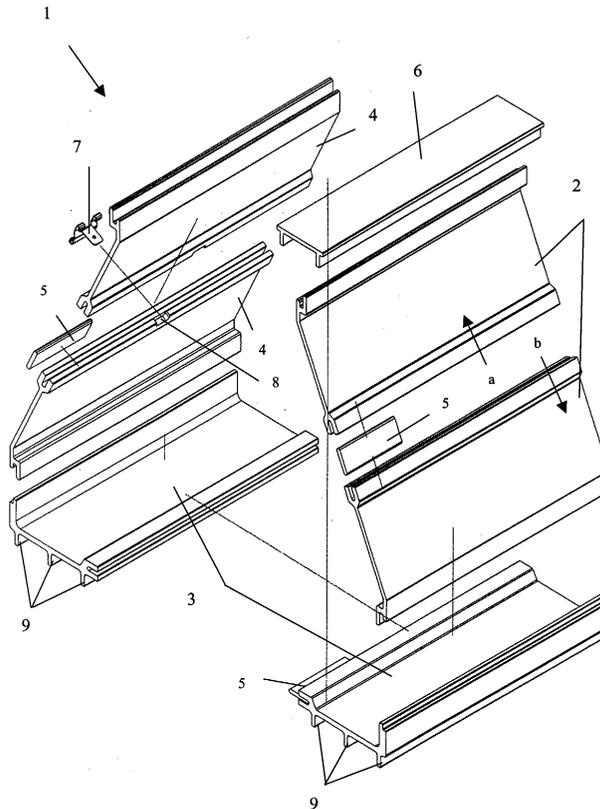
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(54) **Bordering construction**

(57) Bordering construction (1) comprising a wall made of synthetic material, enclosing a hollow space, the said wall being composed of at least two detachable wall parts (2,3 and 4) connected to one another.

The aggregate may be filled with a product to absorb collision energy.

The bordering construction may be used as a crash barrier and as an element for closing or raising dikes.



**Fig. 2**

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## Description

**[0001]** The invention relates to a bordering construction, comprising a wall made of synthetic material, which encloses a hollow space.

**[0002]** This invention more particularly relates to a bordering construction, which is used as a crash barrier and as an element for closing or raising a dike.

**[0003]** On roads and more particularly on main roads such as motorways it is desirable to separate the traffic lanes from one another by a kind of shielding, for instance by means of crash barriers.

Most of the time these are installed as a separation on roads with traffic in opposite direction in order to avoid that because of a driver's error or a road accident, the traffic in the one direction of the flow might get into touch with the traffic in the other direction. At the same time, on impact, crash barriers reduce the speed of the vehicles by absorbing the collision energy.

**[0004]** Different types of crash barriers are used as a separation, and among other things there are first of all separations made of concrete.

**[0005]** However, these have the disadvantage that vehicles which come into touch with them, are catapulted to the other side of the road as they have practically no dampening effect on impact.

**[0006]** An additional disadvantage is that because of the rough structure of the concrete, it is very difficult to provide such separations, for instance, with warning colours.

**[0007]** A second known separation is the metal crash barrier, which is often installed along motorways.

**[0008]** However, such crash barriers are less suitable to be installed in the central reservation as, in case of an accident, they are hardly able to prevent heavy traffic (for instance, trucks) from ending up on the opposite traffic lanes. Furthermore, in many cases, metal crash barriers are the cause of death in accidents with motorcyclists, and therefore motorcyclists sometimes refer to them as headhunters.

**[0009]** There are separations in existence, which are made of synthetic material, more particularly the boxes made of synthetic material. These are very short modules of one meter in length, which are all separately filled with water or sand. However, such separations are rarely used as a permanent crash barrier, as on impact, they are spread out all over the road.

An additional disadvantage of such boxes is their lack of compactness.

**[0010]** The purpose of the present invention is to provide for a bordering construction, comprising a wall made of synthetic material, enclosing a hollow space, where the above-mentioned disadvantages are no longer present.

**[0011]** The purpose of the invention is attained by providing for such a bordering construction, the wall of which, made of synthetic material, is composed of at least two detachable wall parts connected to one another.

er.

**[0012]** This has the advantage that the bordering part can be assembled on the spot and is capable of being stacked compactly.

5 **[0013]** According to a preferred embodiment of the bordering construction according to the invention, the wall parts are composed of expanded synthetic material.

10 **[0014]** Because of this, a considerable saving of material is obtained on the one hand and a machinability similar to that of wood is obtained on the other hand.

**[0015]** According to a particular embodiment of the bordering construction according to the invention, the wall parts are composed of polyvinyl chloride.

15 **[0016]** According to a particular embodiment of the bordering construction according to the invention, the synthetic material used is a recycled synthetic material.

20 **[0017]** By making use of recycled synthetic materials, it is possible to contribute to the environmental protection.

**[0018]** In a preferred embodiment of the bordering construction according to the invention, the wall parts are mechanically connected to one another.

25 **[0019]** In a more particular embodiment of the bordering construction according to the invention, two wall parts are connected to one another by means of a MS-polymer glue.

30 **[0020]** According to another preferred embodiment of the bordering construction according to the invention, the said aggregate is substantially composed in the shape of a triangle, each side comprising at least two parts.

**[0021]** By composing the aggregate in the shape of a triangle a much greater stability is obtained.

35 **[0022]** According to a particular preferred embodiment of the bordering construction according to the invention, the said aggregate is provided with a co-extruded layer.

40 **[0023]** This has the advantage that colouring is very easily done by applying a coloured co-extruded layer.

**[0024]** According to a most particular embodiment of the bordering construction according to the invention, the hollow space is at least partly filled with a product to absorb the collision energy.

45 **[0025]** Because of this a bordering construction is obtained which is very well capable of absorbing shocks coming from the outside.

**[0026]** According to a particularly advantageous embodiment of the bordering construction according to the invention, the product with which the said aggregate is filled at least partly is a granular product.

50 **[0027]** By filling the aggregate with a granular product, such as, for instance, sand or earth, which are often available on the site where it is to be installed, a solid construction is obtained, which, moreover, is particularly well suited for absorbing collision energy.

55 **[0028]** According to a particular embodiment of the bordering construction according to the invention, the

said aggregate is filled with water, which is often available on the construction site.

[0029] According to a more particular embodiment of the bordering construction according to the invention, the wall parts are stackable and fitting together.

[0030] Because of this, the wall parts may be stacked easily and compactly, because of which a considerable saving of space is obtained during storage and transport.

[0031] According to a most particular embodiment of the bordering construction according to the invention, the said aggregate is provided to be used as a crash barrier and as an element for closing or raising dikes.

[0032] In order to further clarify the characteristics of the present invention and to indicate additional advantages and particulars thereof, a more detailed description of a bordering construction according to the invention will follow. It may be obvious that nothing in the following description may be interpreted as a restriction of the protection of this invention demanded for in the claims.

[0033] In this description reference is made, by means of reference numbers, to the enclosed drawings in which:

Figure 1 is a vertical cross-section of the different parts of the bordering construction;

Figure 2 is a perspective representation of the various parts of the bordering construction.

[0034] The bordering construction (1) is made of an expanded, possibly recycled polyvinyl chloride (PVC). The parts (2,3 and 4) may be provided with a thin coloured layer of about 0.5 mm, by means of co-extrusion, which will need no further maintenance. Because of this the surface has the property that graffiti may be very simply removed. The bordering construction (1) can also be coated in any colour, preferably with a coating which is anti-graffiti and anti-dazzling because of the scattered reflection of the incidence of light on the specific granular satin gloss surface of the coating.

[0035] The use of an expanded PVC has a double advantage, on the one hand, a considerable saving of material is obtained and on the other hand, it may be easily machined (comparable to wood).

[0036] The bordering construction (1) consists substantially of three extruded parts (2,3 and 4) connected to one another to form a triangle. Because of this the aggregate (1) has a much greater stability on impact. In order to close off the construction entirely, it has been provided with an upper part (6).

[0037] The parts (2,3 and 4) are connected to one another, either mechanically or by means of a MS-polymer glue, MS stands for Modified Sical, which is a modified form of a standard silicone paste. By making use of this glueing technique, the physical properties of the synthetic material will not be affected.

[0038] Each part (2,3 and 4) is composed of two iden-

tical parts (a and b) connected to one another by means of a connecting piece (5).

[0039] By composing each part (2,3 and 4) of the bordering construction (1) of two identical parts (a and b), the costs for extrusion tools can be reduced. The extrusion of a profile of these dimensions is also much simpler.

[0040] By splitting the parts (2,3 and 4), it is possible to apply metal brackets (7) in a cavity (8) already provided, without many additional operations.

[0041] Such brackets (7) may be used to apply additional internal stiffenings. Thus, in case the aggregate (1) will be filled with concrete, the anchorings may be attached to said brackets (7).

[0042] The bordering construction (1) may be used as a crash barrier and as an element for closing or raising dikes. In case the construction (1) is used as a temporary dike, the projections (9) will ensure that the construction (1) will not move in consequence of the water pressure.

[0043] Furthermore, the construction (1) may be filled with water, gravel or with a product well suited to absorb the collision energy, this may be a granular product such as, for instance, sand.

## Claims

1. Bordering construction (1) comprising a wall made of synthetic material, enclosing a hollow space, **characterized in that** the said wall is composed of at least two detachable wall parts (2,3 and 4) connected to one another.
2. Bordering construction (1) according to claim 1, **characterized in that** the wall parts are composed of expanded synthetic material.
3. Bordering construction (1) according to anyone of the preceding claims, **characterized in that** the wall parts (2,3 and 4) are composed of polyvinyl chloride.
4. Bordering construction (1) according to anyone of the preceding claims, **characterized in that** the said synthetic material is a recycled synthetic material.
5. Bordering construction (1) according to anyone of the preceding claims, **characterized in that** the wall parts (2,3 and 4) are mechanically connected to one another.
6. Bordering construction (1) according to anyone of the preceding claims, **characterized in that** the wall parts (2,3 and 4) are connected to one another by means of a Modified Sical polymer glue.

7. Bordering construction (1) according to anyone of the preceding claims, **characterized in that** the said aggregate (1) is substantially composed in the shape of a triangle, each side comprising at least two parts (a and b). 5
8. Bordering construction (1) according to anyone of the preceding claims, **characterized in that** the said aggregate (1) is provided with a co-extruded layer. 10
9. Bordering construction (1), **characterized in that** the hollow space is filled, at least partly, with a product for absorbing collision energy. 15
10. Bordering construction (1) according to claim 7, **characterized in that** the said product is a granular product.
11. Bordering construction (1) according to claim 7, **characterized in that** the said product is water. 20
12. Bordering construction (1) according to anyone of the preceding claims, **characterized in that** the wall parts (2,3 and 4) are stackable and fitting together. 25
13. Bordering construction (1) according to anyone of the preceding claims, **characterized in that** the said construction (1) is provided to be used as a crash barrier and/or as an element for closing or raising dikes. 30

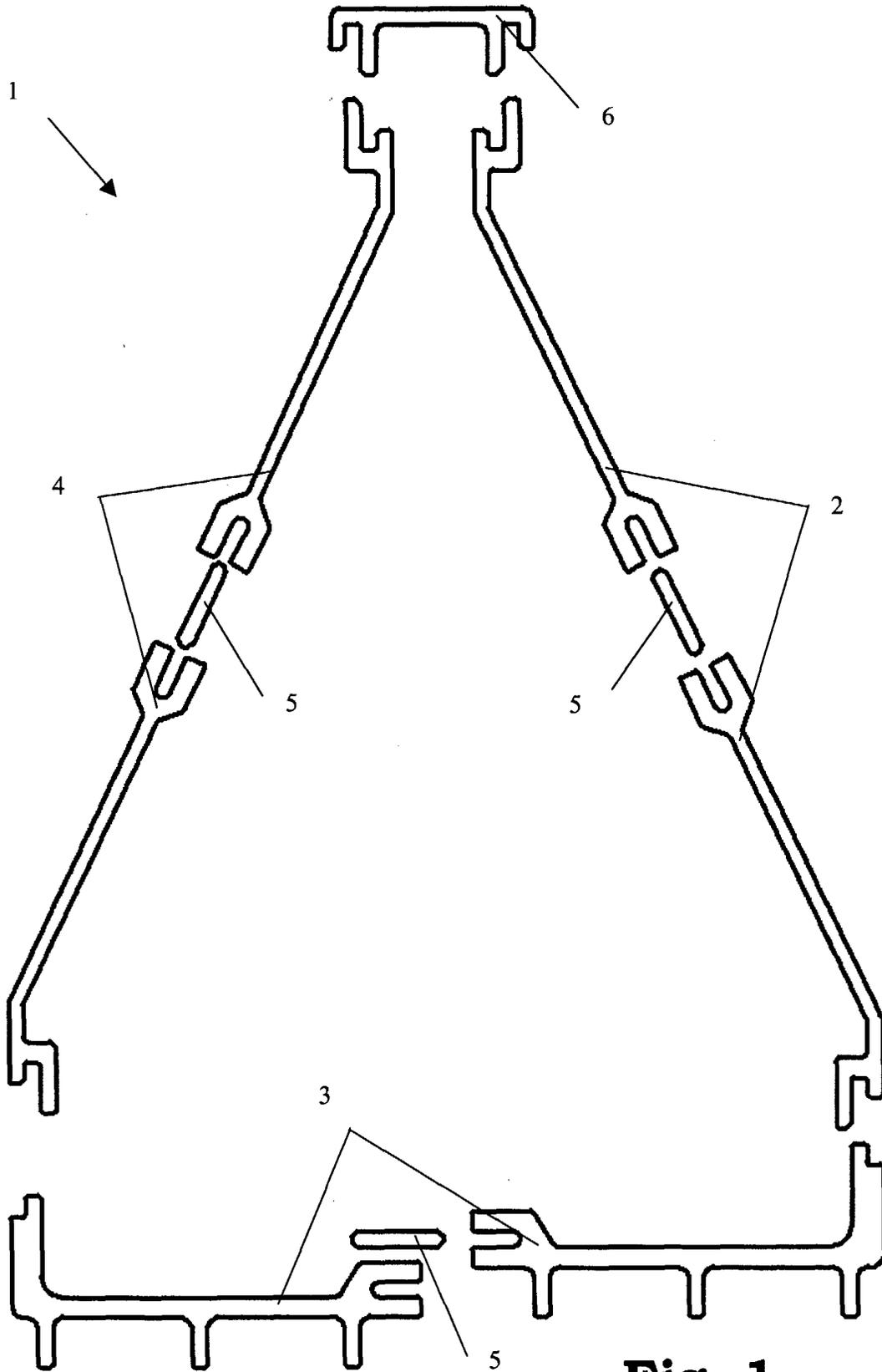
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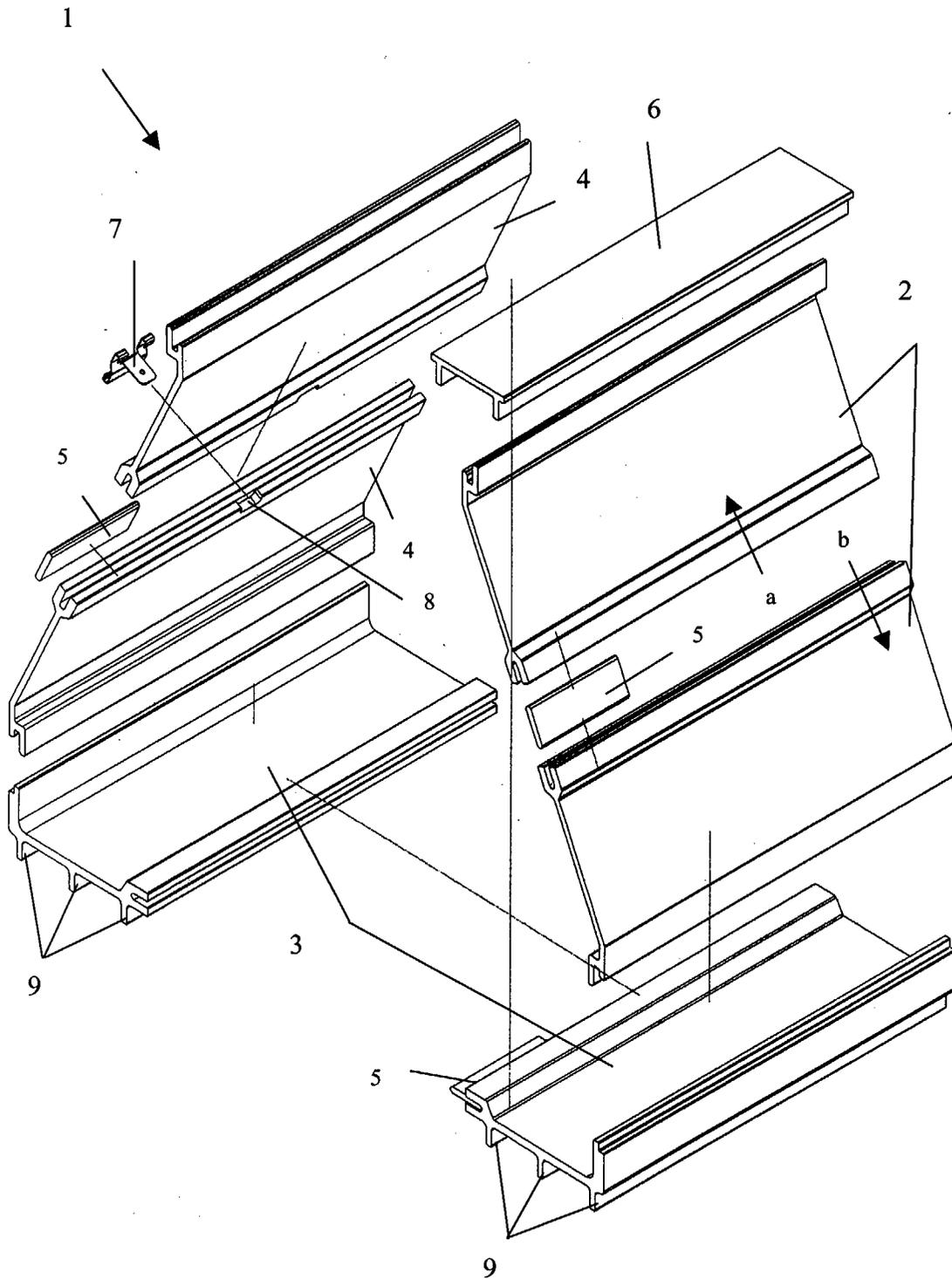
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**Fig. 1**



**Fig. 2**



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EUROPEAN SEARCH REPORT

Application Number  
EP 03 07 7240

DOCUMENTS CONSIDERED TO BE RELEVANT			
Category	Citation of document with indication, where appropriate, of relevant passages	Relevant to claim	CLASSIFICATION OF THE APPLICATION (Int.CI.7)
A	FR 2 743 825 A (SECCO EDGAR) 25 July 1997 (1997-07-25) * page 2, line 6 - page 3, line 14; figures 1-3 * -----	1,9,13	E01F15/08
			TECHNICAL FIELDS SEARCHED (Int.CI.7)
			E01F E02B
The present search report has been drawn up for all claims			
Place of search	Date of completion of the search	Examiner	
THE HAGUE	26 September 2003	Mysliwetz, W	
CATEGORY OF CITED DOCUMENTS		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	
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			

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**ANNEX TO THE EUROPEAN SEARCH REPORT  
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EP 03 07 7240

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.

26-09-2003

Patent document cited in search report	Publication date	Patent family member(s)	Publication date
FR 2743825      A	25-07-1997	FR      2743825 A1	25-07-1997

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