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(54) Gate

(57) The invention relates to a gate for closing a passage, whereby said gate is provided with a carrier and with railings (2) or the like closing means connected to said carrier. The carrier movably couples the gate to a support by means of rollers (3) connected to said support, in such a manner that the gate can be opened and closed by moving the carrier relative to the support. The carrier is built up of two vertically spaced-apart beams (4,5) extending substantially horizontal and parallel to each other, and being interconnected by means of plate-shaped parts (6,7) symmetrically positioned on either side of said beams (4,5). The plate-shaped (6,7) parts are spaced-apart in a horizontal direction, at least over part of their height, by a distance which is larger than the width of the beams (4,5). The rollers (3) are mounted on the support in such a manner, that said rollers (3) roll on the upper side of the upper beam (4) and on the bottom side of the lower beam (5) respectively.

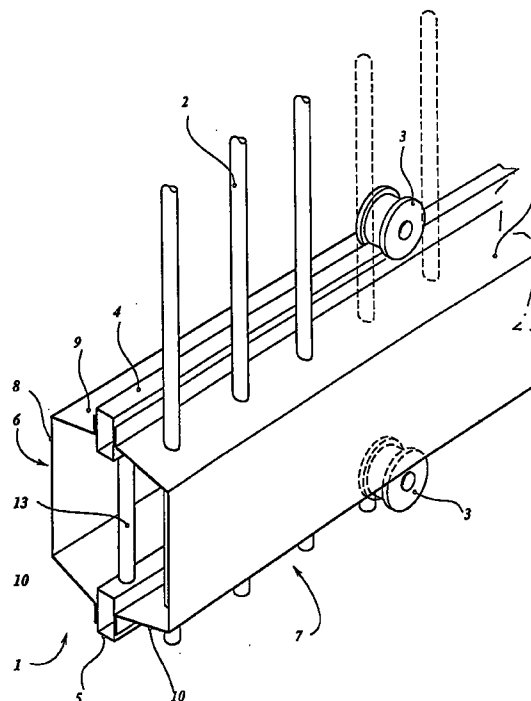


Fig. 1

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Description

The invention relates to a gate for closing a passage, whereby the gate is provided with a carrier and with railings or the like closing means connected to said carrier, whilst the carrier movably couples the gate to a support anchored with respect to the ground by means of rollers connected to said support, in such a manner that the gate can be opened and closed by moving the carrier relative to the support.

A gate of this type, which is known from EP-A-0 128 248, comprises a single unitary prestressed beam, which is supported by rollers which are eccentrically arranged with respect to the beam. This results in a disadvantageous loading of the beam, which has an adverse effect on the running qualities of the gate, i.e. the opening and closing of the gate.

Further there is known from NL-A-9101027 a gate with a carrier made from a rectangular beam-shaped core of foam covered at its sides by plate-shaped members adhered to said core. At the upper and lower sides of said carrier there has been provided profiles. The upper profile has a longitudinal groove for accommodating mounting means for upstanding railings and the lower profile has a longitudinal groove wherein rollers supporting the gate can run.

According to the invention the carrier is built up of two vertically spaced-apart beams extending substantially horizontal and parallel to each other, and being interconnected by means of plate-shaped parts symmetrically positioned on either side of said beams, said plate-shaped parts being spaced-apart in a horizontal direction, at least over part of their height, by a distance which is larger than the width of the beams, whilst the rollers are mounted on the support in such a manner, that said rollers roll on the upper side of the upper beam and on the bottom side of the lower beam respectively.

In this way a simple carrier of symmetric design may be obtained, which is advantageously supported by the rollers guiding the carrier during opening and closing of the gate. The plate-shaped parts of the carrier thereby provide the required stiffness in horizontal direction as well as a good torsional stiffness.

The invention will be explained in more detail hereafter with reference to parts of the gate according to the invention diagrammatically illustrated in the accompanying Figures.

Figure 1 is a perspective view of a part of a carrier for a gate according to the invention, with a few railings connected thereto and a few rollers guiding the carrier.

Figure 2 is a larger-scale cross-sectional view of Figure 1.

Figure 1 shows part of a carrier 1 arranged horizontally in use, said carrier together with the vertical railings 2 connected thereto forming a gate, in a similar manner as described in the aforesaid European Patent No. 0 128 248. When used as a gate which can be opened and closed the carrier is guided by a plurality of rollers 3 secured to supports anchored in the ground, a few of

said rollers being shown in Figures 1 and 2. Also with regard to a support of the movable gate of this type reference may be made to the aforesaid European Patent No. 0 128 248, which is why it is not considered necessary to discuss this in more detail herein.

As is apparent from Figures 1 and 2 the carrier is provided with two beams 4 and 5, one being positioned directly above the other, which are of rectangular section in the illustrated embodiment and which are arranged in such a manner that their long sides extend vertically.

The two beams 4 and 5 are interconnected by two plate-shaped parts 6 and 7 positioned on either side of said beams. As appears in particular from Figure 2, each of said plate-shaped parts 6 and 7 is built up of a vertically extending plate portion 8, which is joined at its upper edge by a plate portion 9 sloping upwards in the direction of the beam 4, whilst each plate portion is joined at its lower edge by a plate portion 10 sloping downwards in the direction of the beam 5.

A double-folded plate portion 11 joins the upper edge of the plate portion 9 remote from the plate portion 8, said plate portion 11 abutting against one side of the upper beam 4.

Similarly a double-folded plate portion 12 joins the lower edge of the plate portion 10 remote from the plate portion 8, said plate portion 12 abutting against one side of the lower beam 5.

The plate-shaped parts 6 and 7 are fixed to the upper beam 4 by securing the double-folded plate portions 11 to the beam 4 by means of rivets or the like. Similarly the lower double-folded plate portions 12 are fixed to the lower beam 5 by means of rivets or the like.

As is furthermore shown in the Figures regularly spaced-apart bars 13 are provided between the beams 4 and 5 in order to keep the beams 4 and 5 the desired distance apart, in particular during assembly of the carrier 1. For this purpose the ends of the bars 13 may for example be threaded and be screwed into corresponding threaded holes provided in the beams 4 and 5. Furthermore it is possible to provide the bars 13 with shoulders (not shown), which abut against the boundary surfaces of the beams 4 and 5 facing each other, whilst the ends of the bars 13 extending beyond said shoulders are inserted into corresponding holes provided in the beams 4 and 5.

Furthermore vertically aligned holes are provided in the plate-shaped part 7, more in particular in the plate portions 9 and 10 of the plate-shaped part 7, through which bars 2 forming the railings of the gate are passed, which are secured against shifting in their longitudinal direction by means not shown.

When the carrier 1 is to be assembled a stress will be set up in at least one of the beams 4 and 5, preferably a tensile stress in the upper beam 4. Then the beam 5 will be mounted at the desired distance from the beam 4 by interposing the bars 13, whereupon the beams 4 and 5 are interconnected by securing the plate-shaped parts 6 and 7 to the beams 4 and 5. Then the tensile

stress on the beam 4 may be released. Upon releasing of the tensile stress on the beam 4 the carrier thus formed will tend to become slightly concave, in such a manner that the centre of curvature of said hollow carrier, seen in Figures 1 and 2, will be located above the carrier. During normal use the carrier, which is only supported near one end, at least in certain positions, will tend to deflect slightly under the influence of the weight of the gate, which will eventually result in a substantially straight position of the carrier. Another possibility to achieve a similar effect is to apply a pressure load to the beam 5 prior to assembling the beam 5 and the beam 4 into a carrier in the above-described manner. A third possibility is to apply a tensile load to the beam 4 as well as a pressure load to the beam 5 before interconnecting the two beams 4 and 5 in the above-described manner in order to form the carrier 1.

As is apparent from the Figures a symmetric construction of the carrier has been obtained, which carrier is supported in its central longitudinal plane by means of rollers 3 rolling on the upper side of the beam 4 and on the bottom side of the beam 5 respectively, as a result of which good running qualities of the beam are obtained.

Both the beams 4 and 5 and the plate-shaped parts 6 and 7 may be made of steel. It is possible thereby to use zinc-plated sheet material for producing the plate-shaped parts 6 and 7, which sheet material is coated with a coating of a desired colour.

For the beams 4 and 5 zinc-plated sections may be used, on which the rollers 3 roll. Wear-resistant running surfaces for the rollers are thereby obtained, namely shining borders formed by the parts of the beams 4 and 5 extending beyond the plate-shaped parts 6 and 7, which in combination with the coloured plate-shaped parts 6 and 7 may lead to a beautiful aesthetic effect.

By using the construction according to the invention it is thus possible to obtain an inexpensive gate having good running qualities and a beautiful appearance, which is retained also after prolonged use.

In addition to that the construction of the carrier is such that it is very strong and readily made of steel, as a result of which an economical manufacture of the carrier can be realized.

either side of said beams (4, 5), said plate-shaped parts (6, 7) being spaced-apart in a horizontal direction, at least over part of their height, by a distance which is larger than the width of the beams (4, 5), whilst the rollers (3) are mounted on the support in such a manner, that said rollers roll on the upper side of the upper beam (4) and on the bottom side of the lower beam (5) respectively.

2. Gate according to claim 1, characterized in that the beams (4, 5) extend over a part of their height beyond said plate-shaped parts (6, 7) at the upper and lower sides of the carrier (1).
3. Gate according to claim 1 or 2, characterized in that said plate-shaped parts (6, 7) comprise vertically extending plate portions (8), which are connected to the upper beam (4) by means of upwardly sloping plate portions (9) joining their upper edges, and which are connected to the lower beam (5) by means of downwardly sloping plate portions (10) joining their bottom edges.
4. Gate according to any one of the claims 1 - 3, characterized in that the ends of said plate-shaped parts (6, 7) are provided with double-folded plate portions (11), which abut against the beams (4, 5) and which are fixed to said beams (4, 5).
5. Gate according to any one of the preceding claims, characterized in that spacing means (13) are provided between said beams (4, 5).
6. Gate according to any one of the preceding claims, characterized in that said beams (4, 5) are zinc-plated.
7. Gate according to any one of the preceding claims, characterized in that the railings (2) of said gate are secured to one of said plate-shaped parts (7).

Claims

1. A gate for closing a passage, whereby said gate is provided with a carrier (1) and with railings (2) or the like closing means connected to said carrier (1), whilst the carrier (1) movably couples the gate to a support anchored with respect to the ground by means of rollers (3) connected to said support, in such a manner that the gate can be opened and closed by moving the carrier (1) relative to the support, characterized in that said carrier (1) is built up of two vertically spaced-apart beams (4, 5) extending substantially horizontal and parallel to each other, and being interconnected by means of plate-shaped parts (6, 7) symmetrically positioned on

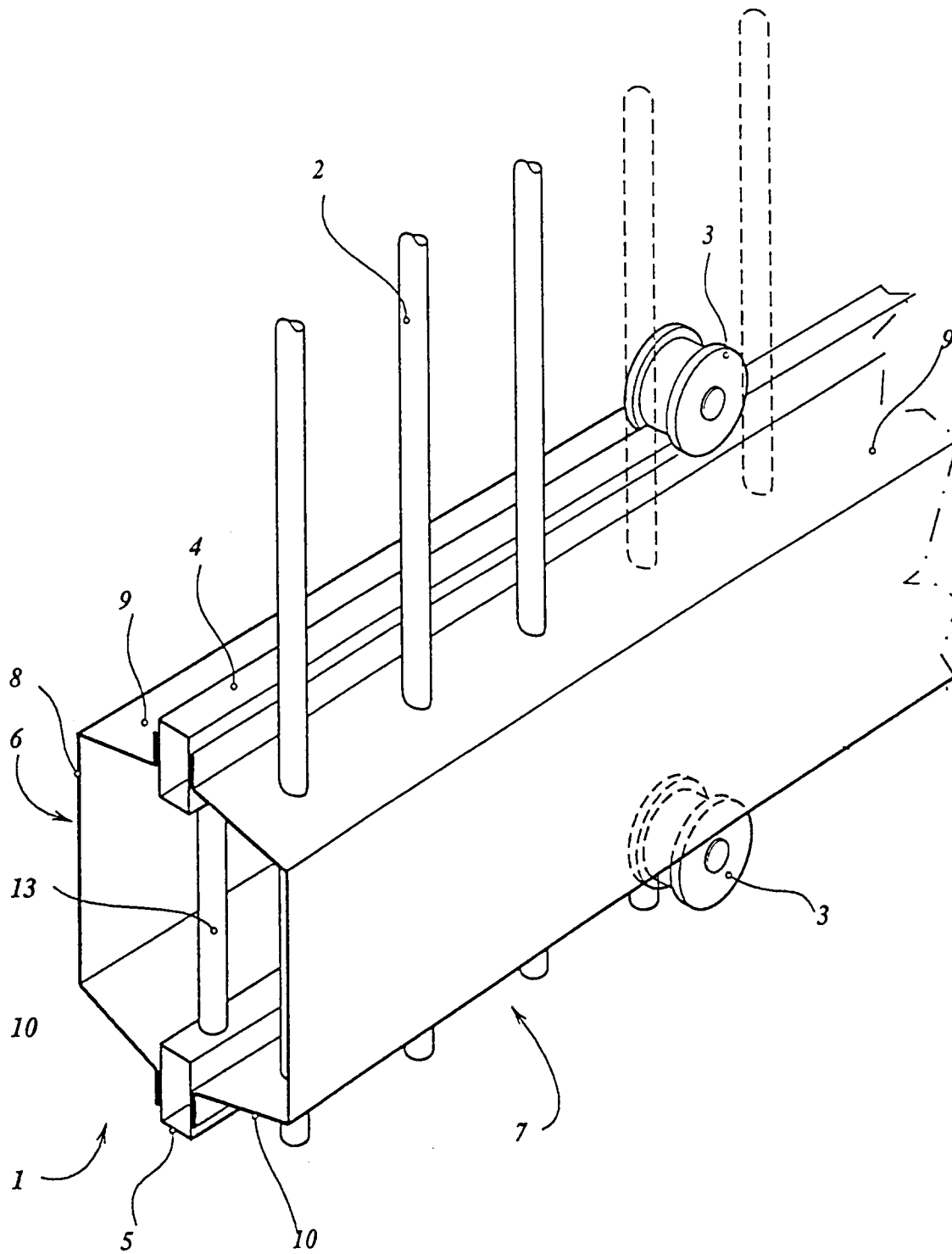


Fig. 1

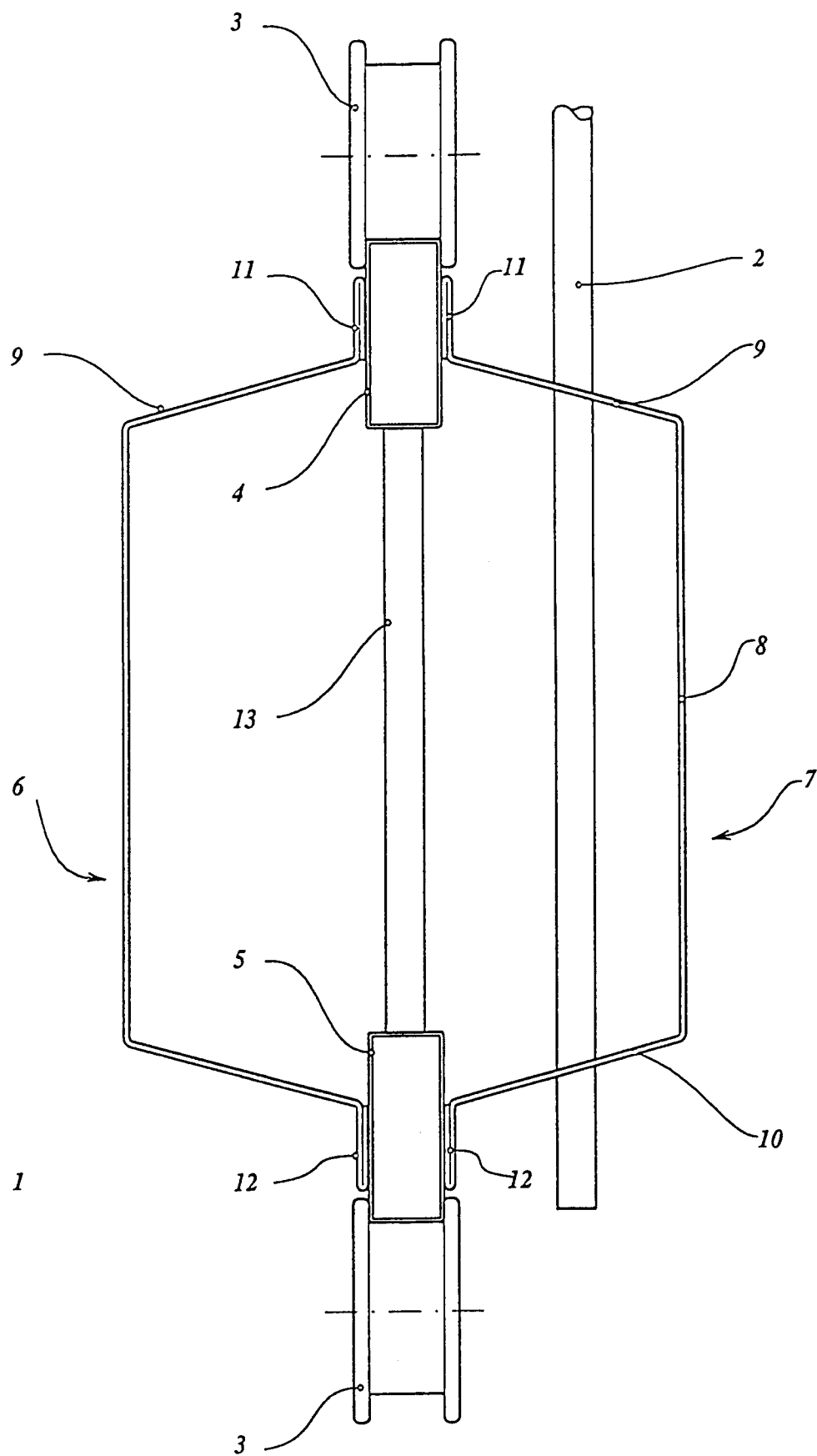


Fig. 2