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(54) **Gate of an improved type**

(57) The gate of an improved type comprises a support frame (2) substantially "U"-shaped and having a horizontal crossbar (4) and two vertical uprights (8 and 11) and at least one closing door (3). The main characteristic

of the present invention consists of the fact that, in use, the crossbar (4) is defined by two co-axial portions (5 and 6) connected by means of a first hinge (7) which allows said crossbar (4) to be folded up during its transport.

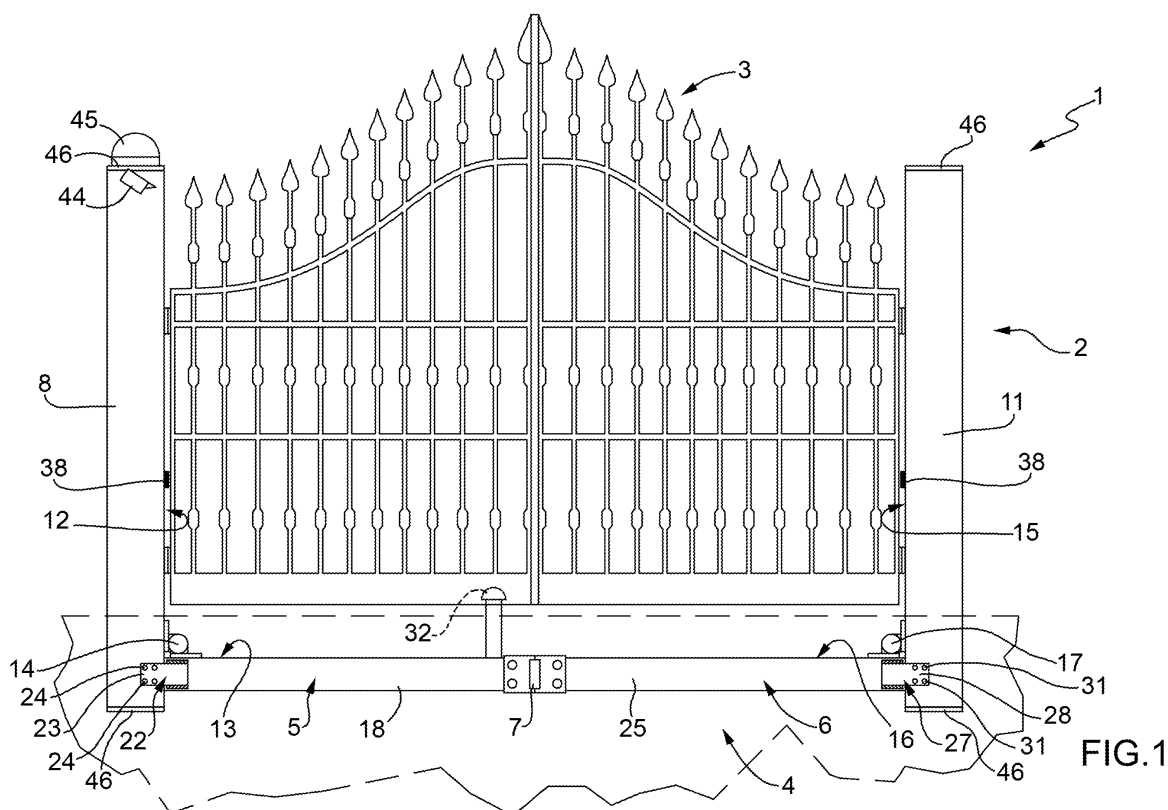
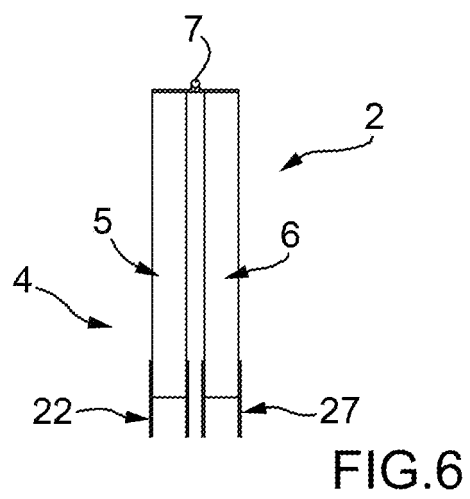


FIG.1



Description

[0001] The present invention relates to a gate of an improved type.

[0002] As is known, gates installed outside buildings comprise a substantially "U"-shaped support frame defined by a bottom crossbar which is embedded in the ground and two vertical uprights that are welded to the bottom crossbar. The support frame either supports two doors, one on each vertical upright, or a sliding door. The support frame can be assembled either at the time of installation which involves the relative labour costs or at the factory with the subsequent problems of storage and transportation. Moreover when said support frame has been installed the electronic control unit for controlling the opening and closing of the gate must be installed. This essentially consists of fitting the control unit box to the support frame and making all the various electric connections, increasing installation costs.

[0003] The purpose of the present invention is to provide a gate of an improved type that overcomes the drawbacks described above and which in particular has reduced overall dimensions and is thus easy to store and transport and in which the electronic control unit is incorporated.

[0004] According to the present invention there is provided a gate of an improved type comprising:

a support frame substantially "U"-shaped and having a horizontal crossbar and two vertical uprights; and at least one closing door;

characterized in that, in use, said crossbar is defined by two co-axial portions connected by means of a first hinge which allows said crossbar to be folded up during its transport.

[0005] In order to better understand the present invention, a non-limiting embodiment thereof will now be described by way of example with the help of the figures in the accompanying drawing, in which:

figure 1 is a front view of a gate of an improved type produced according to the present invention;
figure 2 is a rear view of the gate in figure 1; and
figures 3 to 6 are schematic views of a part of the gate in figure 1 in the various stages of preparation for packaging.

[0006] With reference to figures 1 and 2, designated as a whole by number 1 is a gate of an improved type comprising a support frame 2 which is substantially "U"-shaped. In this embodiment the gate 1 comprises two closing doors 3 hinged to the support frame 2 but from the following description it will become apparent that an alternative embodiment of the gate 1 could be provided with a single closing door of the sliding type.

[0007] The support frame 2 comprises a horizontal crossbar 4 which, in use, is embedded in the ground or

rather in cast concrete. The crossbar 4 is made of a metal, is internally hollow and has a rectangular cross-section. The crossbar 4 consists of two co-axial portions 5 and 6 connected by means of a hinge 7 which allows said crossbar 4 to be folded up during its transport as illustrated in figures 3 to 6 and allows the portions 5 and 6 to be arranged coaxially at the time of installation.

[0008] The support frame 2 also comprises two vertical uprights 8 and 11 which are also made of a metal, are internally hollow and have a rectangular cross-section that is preferably the same as the cross-section of the crossbar 4. Each upright 8 and 11 is hinged at the axial free end of a corresponding portion 5 and 6 of the crossbar 4 so that the uprights 8 and 11 can be arranged parallel to the portions 5 and 6 for transporting the frame 2 and so that the uprights 8 and 11 can be placed in a position orthogonal to the crossbar 4 at the time of installation. The frame 2 can be folded up to be transported as illustrated in figures 3 to 6. A hinge 14 is placed between the inner side surface 12 of the upright 8 and the upper surface 13 of the portion 5. In use said hinge 14 is embedded in the ground as its sole purpose is to allow the frame 2 to be folded up. Similarly a hinge 17 is placed between the inner side surface 15 of the upright 11 and the upper surface 16 of the portion 6.

[0009] With reference to figures 1 and 2, a respective plate 22 is welded to the axial free ends on the front surface 18 and on the rear surface 21 of the portion 5, one appendix 23 of said plate 22 extending beyond the end of the portion 5. In use the appendices 23 embrace the lower end of the upright 8 to which they are fastened by means of a plurality of bolts 24. Likewise a respective plate 27 is welded to the axial free ends on the front surface 25 and on the rear surface 26 of the portion 6, an appendix 28 of said plate 27 extending beyond the end of the portion 6. In use the appendices 28 embrace the lower end of the upright 11 to which they are fastened by means of a plurality of bolts 31.

[0010] A wing 32 is fixed to the upper surface 13 of the portion 5 and may be fitted at the time of installation or may be entirely inside the portion 5 during transport and then slid upwards and fastened to the surface 13 at the time of installation. If the gate 1 is provided with a single sliding door the crossbar 4 supports a guide for the moving elements of said sliding door.

[0011] With reference to figure 2, the upright 8 internally houses an electronic control unit 33; the inside of the upright 8 being accessible via a panel 34 apt to close a window 35 made in the rear face 36 of the upright 8. The control unit 33 is apt to control two electric motors 37 (one for each door 3) one mounted on the upright 8 and the second on the upright 11. Two photocells 38 are also connected to the control unit 33, one mounted on the upright 8 and the second on the upright 11. The rear face 36 of the upright 8 also supports a panel 41 for controlling the control unit 33 by inserting a key which is not illustrated and/or by means of a stored code to be typed on relative buttons of said panel 41 or sent on air (radio

frequency, infrared, etc.).

[0012] The uprights 8 and 11 also have additional windows 42 covered by corresponding panels 43 which can be used to access the interior of said uprights 8 and 11 to carry out maintenance work. The upright 8 is preferably provided with a camera 44 apt to view the access to the gate and a light source 45 apt to be fed by means of said control unit 33 during the opening and closing operations of the gate 1.

[0013] Note that all the electric cables that connect the control unit 33 with the various components described above are arranged inside the support frame 2, which is therefore fitted with cable carriers and/or cable trays. Moreover the upper and lower ends of the uprights 8 and 11 are closed by respective covers 46 provided with seals that are not illustrated. Lastly, note that a power supply cable 48 of the control unit 33 passes from the upright 11 through a small notch 47 (closable by means of a cover fitted with a seal) made in the lower end thereof. There is preferably an electric socket close to the control unit 33 for connection via the cable 48 to the electric power mains.

[0014] As shown in figures 3 to 6 once the gate 1 has been manufactured at the factory it can be folded up by first turning the uprights 8 and 11 (figure 4) until they are substantially parallel to the respective portions 5 and 6 of the crossbar 4 (figure 5) and then by folding the crossbar 4 (figure 6) so that the portions 5 and 6 are substantially parallel to one another. After transporting the gate 1 to the place in which it is to be installed, the above operations must be performed in reverse order to arrange the gate 1 as shown in figure 3.

[0015] The numerous advantages of the present invention are apparent from the above description.

[0016] In particular the support frame of the gate can be folded up to reduce its overall dimensions for storage and transport. Moreover the gate is already fitted with all the necessary components (electronic control unit, photocells, camera, control panels, etc.) before being installed. With the gate according to the present invention, once the gate leaves the factory the only operations that are required consist of opening out the support frame, embedding the base of the support frame in the ground and connecting the control unit mains cable to the electric power mains. It is thus apparent not only that the gate can be installed easily and quickly but also that installation costs are significantly reduced in that there is no need for specialised labour except that necessary to embed the base of the support frame in the ground, which means the gate can be installed by the end user. All things considered, the gate is a do-it-yourself installation.

Claims

1. Gate of an improved type, comprising:

a support frame (2) substantially "U"-shaped

and having a horizontal crossbar (4) and two vertical uprights (8 and 11); and
at least a closing door (3);

5 **characterized in that**, in use, said crossbar (4) is defined by two co-axial portions (5 and 6) connected by means of a first hinge (7) which allows said crossbar (4) to be folded up during its transport.

10 2. Gate according to claim 1, **characterized in that** said vertical uprights (8 and 11) are hinged at the axial free end of said corresponding portion (5 and 6) of said crossbar (4) so that said uprights (8 and 11) are parallel to said portions (5 and 6) during the transport of said frame (2), and so that said uprights (8 and 11) are in a position orthogonal to said crossbar (4) during their installation.

15 3. Gate according to claim 2, **characterized in that** each of said portions (5 and 6) has at least one plate (22 and 27) on which, in use, the lower end of said corresponding upright (8 and 11) is firmly fixed.

20 4. Gate according to one of the preceding claims, **characterized in that** said supporting frame (2) is made of a metal.

25 5. Gate according to claim 4, **characterized in that** said crossbar (4) and said uprights (8 and 11) are internally hollow.

30 6. Gate according to claim 5, **characterized in that** said uprights (8 and 11) have the same section as said crossbar (4).

35 7. Gate according to one of the preceding claims, **characterized in that** it comprises two of said doors (3), each of them supported by a corresponding said upright (8 and 11).

40 8. Gate according to claim 7, **characterized in that** one of said portions (5 or 6) is provided with a wing (32).

45 9. Gate according to one of claims 1-6, **characterized in that** it comprises a single door (3) sliding along a guide supported by said crossbar (4).

50 10. Gate according to one of said preceding claims, **characterized in that** it comprises an electronic control unit (33) placed inside said first upright (8 and 11) and apt to control moving elements (37) of said door (3).

55 11. Gate according to claim 10, **characterized in that** it comprises two photocells (38), one for each of said uprights (8 and 11) and controlled by said control unit (33).

12. Gate according to claim 10 and/or 11, **characterized in that** it comprises a panel (41), placed on one of said uprights (8 and 11) and controlling said control unit (33), e.g. by inserting a key and/or by means of a stored code to be typed on relative buttons of said panel (41) or sent on air. 5
13. Gate according to one of claims 10-12, **characterized in that** it comprises a camera (44) apt to view the access to the gate. 10
14. Gate according to one of claims 10-13, **characterized in that** it comprises a light source (45) apt to be fed by means of said control unit (33) during the opening and closing operations of said door (3). 15
15. Gate according to one of claims 10-14, **characterized in that** it comprises a window (35) made in said first upright (8) in order to make its interior accessible, said window being provided with a closing panel (34). 20

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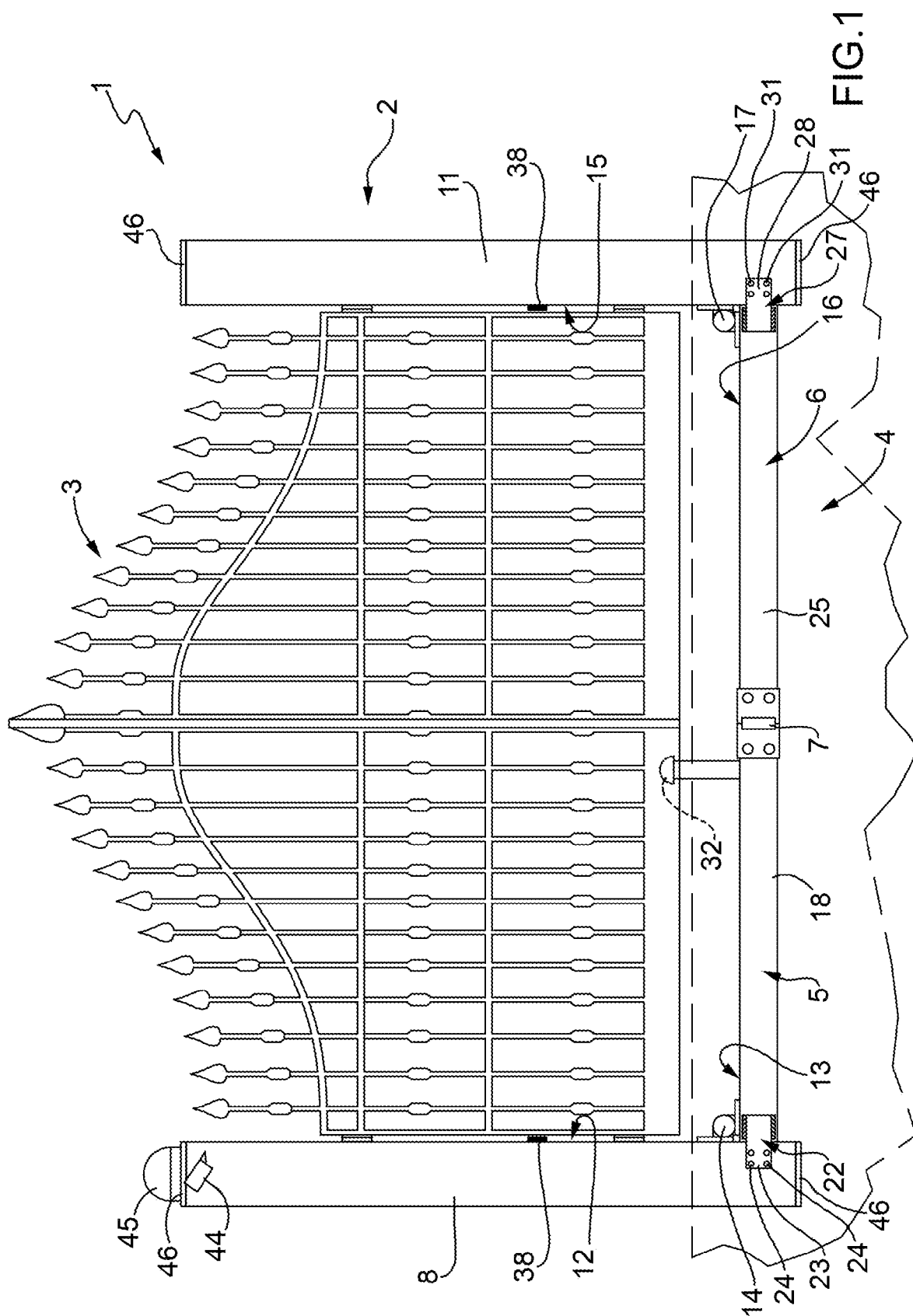
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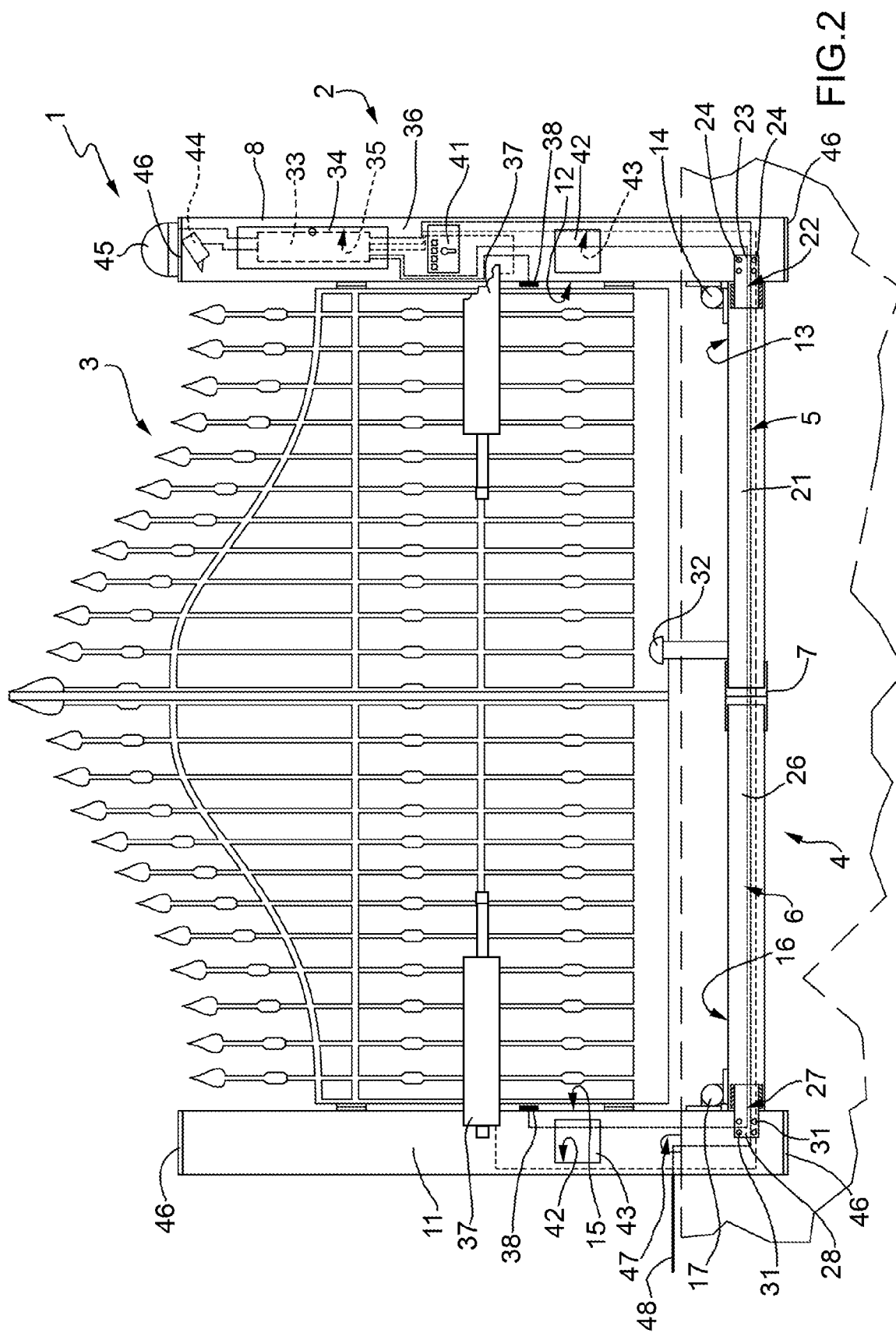
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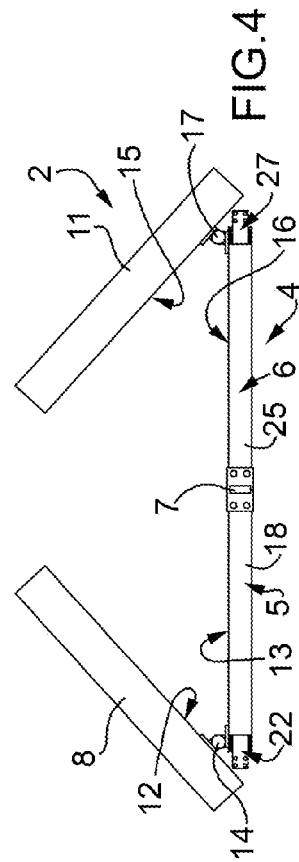
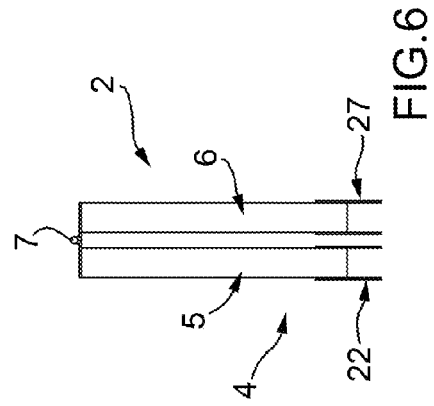
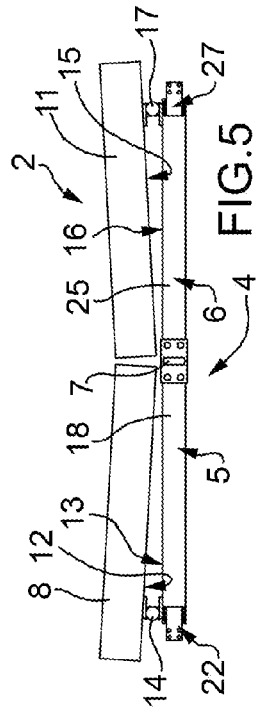
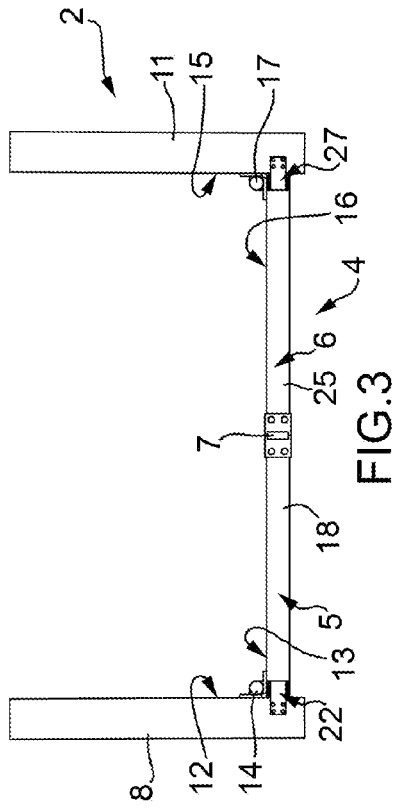
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EUROPEAN SEARCH REPORT

Application Number
EP 09 16 7214

DOCUMENTS CONSIDERED TO BE RELEVANT			
Category	Citation of document with indication, where appropriate, of relevant passages	Relevant to claim	CLASSIFICATION OF THE APPLICATION (IPC)
A	FR 2 876 140 A (EUROPORTE SARL [FR]) 7 April 2006 (2006-04-07) * figure 1 * -----	1	INV. E06B11/02
			TECHNICAL FIELDS SEARCHED (IPC)
			E06B
The present search report has been drawn up for all claims			
Place of search The Hague		Date of completion of the search 18 November 2009	Examiner Verdonck, Benoit
CATEGORY OF CITED DOCUMENTS 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 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			

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

EP 09 16 7214

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
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18-11-2009

Patent document cited in search report	Publication date	Patent family member(s)	Publication date
FR 2876140	A	07-04-2006	NONE

EPO FORM P0459

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