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(54) **Continuous façade**

(57) Suspended façade (1) for the enclosure and/or the cladding of buildings and comprising a plurality of substantially flat sheets (10) arranged side by side with each other according to a first and a second given direction and inclined to each other by an angle of substantially 90°; the façade (1) comprising a frame (20) presenting at least one stanchion (21) oriented according to the first direction, some means of attachment (27) associated with each stanchion (21) for interfacing the sheets (10) with the respective stanchion (21) in a given manner; the means of attachment (27) being of axially freely sliding type along each corresponding stanchion (21), and by comprising at least an adjustment device (28) of the position of at least one sheet (10).

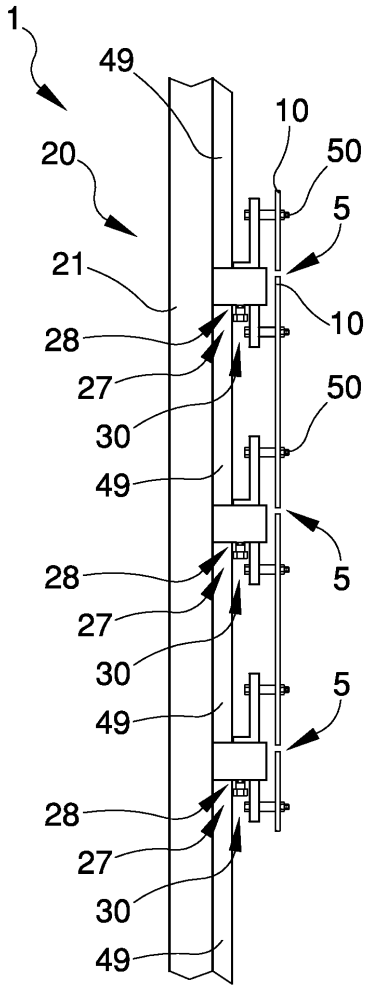

Fig. 1

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Description

[0001] The present invention relates to a suspended façade comprising a plurality of sheets carried by a plurality of stanchions. In particular, the present invention relates to a suspended façade comprising a plurality of sheets carried by a plurality of stanchions and including a device for adjusting the position of the said sheets with respect to the said stanchions along at least one given direction.

BACKGROUND OF THE INVENTION

[0002] It is known that in the field of suspended façades carried by vertical stanchions such as those produced by the Italian company entitled Faraone, corresponding, for example to the Air System design and/or Quadrifoglio System design, and also to products from the German company Schüco, including façades carried on tensile cables, and façades for the installation of solar panels. In these cases the sealing problems between the sheets are particularly important, and need to be resolved wherever they occur, in order to avoid infiltration of rainwater or similar. Particularly interesting among Faraone products is a support element rigidly connectable to a respective stanchion and having a number of arms, typically four, to each of which it is possible to connect the corner of a sheet for its respective support.

[0003] As is known, the realisation and the completion of these architectural structures proves particularly onerous from various points of view, given that even the slightest misalignment between the sheets can produce a particularly obvious anti-aesthetic effect and can cause seepage of rainwater to the inside of the façade and therefore of the building, with unacceptable consequences. It is not infrequent for such misalignment to become obvious only at the end of the installation. In any case, when this occurs, it can be more practical to completely dismantle the façade which has just been installed, or at least as far as the level of sheets from which the problem of misalignment has started to become evident, from the aesthetic point of view or even just from the point of view of thermal or water insulation. From the description given above, the criticality may be deduced of the correct preparation of the components of the suspended façade, starting with the particular attention which must be paid to the correspondence between the design dimensions and the actual dimensions found in the course of installation of the façade; and of the extreme care which must be taken in the cutting of the components, including also the standardised components, such as for example the profiled bars of the stanchions, and of any shims which must be provided under the supports of the stanchions. Even so, the greatest care must be taken in the correct positioning of the hardware necessary to suspend the sheets chequerboard-fashion on the said stanchions. From the description given above, it is easy to understand the reasons for the extremely high costs of these installations, both in terms of design and in terms of the materials and components used, and also in terms of the installation, for example, of hydraulic insulation, for the purposes of thermal and acoustic insulation with regard to the thermal bridges between inside and outside caused by the hardware connecting the sheets to the metal stanchions. It therefore becomes easy to understand the reasons which entail that these architectural structures are accessible to a particularly limited and circumscribed market, and substantially for buildings of museum or conservation type, or of great architectural value.

[0004] As regards what is described above, the problem of making suspended façades less structurally complex and installable on stanchions having sections of any shape whatever, of making suspended façades more easily installable, and of making the positioning of the sheets relative to each other more simply adjustable after installation and possibly when installation has been totally completed, represents an interesting challenge for the applicant, who has the self-imposed objective of making suspended façades less costly, with the aim of allowing more widespread use of this type of construction. This would make access to this market interesting to a large number of construction companies, and among these also to those with average training skills, and therefore with ordinary economic capacity.

[0005] In view of the situation described above, it would be desirable to have available a suspended façade which, besides enabling the disadvantages, typical of the known art set forth above, to be limited and if possible overcome, could define a new standard for these less important types of architectural structure and installation requirements.

SUMMARY OF THE PRESENT INVENTION

[0006] The present invention relates to a suspended façade comprising a plurality of sheets carried by a plurality of stanchions. In particular, the present invention relates to a suspended façade comprising a plurality of sheets carried by a plurality of stanchions and including a device for adjusting the position of the said sheets with respect to the said stanchions along at least one given direction.

[0007] An object of the present invention is to create a suspended façade which will permit the resolution of the disadvantages set forth above, and which will be capable of satisfying a series of requirements to which in the present state of affairs there is no answer, and therefore of representing a new and original source of economic advantage, able to alter the current market in suspended façades. A particular object of the present invention is to simplify the erection of suspended façades, to allow the micrometric adjustment of the sheets relative to the stanchions in a simple manner, and to facilitate the repositioning of the various sheets relative to the stanchions in the event of the discovery of misalignment, without the necessity for repeating the fitting ex novo, as it is

currently necessary to do with the systems of continuous façades known at present.

[0008] A further object of the present invention is to reduce the fitting and repositioning times of the sheets in a continuous façade to limited times using absolutely minimal equipment, making it possible for continuous façades to be assembled by personnel with limited skill and experience.

[0009] According to the present invention a continuous façade is created whose principal characteristics will be described in at least one of the claims which follow.

[0010] A further objective of the present invention is to provide equipment for the support of suspended façades.

[0011] According to the present invention a equipment for the support of suspended façades is created whose principal characteristics will be described in at least one of the claims which follow.

BRIEF DESCRIPTION OF THE DRAWINGS

[0012] Further characteristics and advantages of the suspended façade according to the present invention will appear more clearly from the following description, explained by reference to the attached drawings which illustrate some nonlimiting examples of embodiment, in which identical or corresponding parts of the suspended façade are identified by the same reference number. In particular:

- Figure 1 is a view in lateral elevation of a portion of a suspended façade according to a first preferred embodiment of the present invention;
- Figure 2 illustrates on an enlarged scale and with parts removed for clarity a detail taken from Figure 1;
- Figure 3 is an enlarged frontal view, with parts removed for clarity, of a portion of Figure 1;
- Figure 4 is a preferred embodiment of Figure 1;
- Figure 5 illustrates on an enlarged scale and with parts removed for clarity a detail taken from Figure 4;
- Figure 6 illustrates on an enlarged scale and with parts removed for clarity a second version of a detail taken from Figure 4;
- Figure 7 illustrates on an enlarged scale and with parts removed for clarity a third version of a detail taken from Figure 4;
- Figure 8 illustrates on plan, on an enlarged scale and with parts removed for clarity a third preferred embodiment of Figure 1;
- Figure 9 is a frontal view of Figure 8;
- Figure 10 is a frontal view of a first detail taken from Figure 9;
- Figure 11 is a frontal view of a second detail taken from Figure 9;
- Figure 12 illustrates on an enlarged scale and with parts removed for clarity a variant of Figure 8;

DETAILED DESCRIPTION OF THE PRESENT INVENTION

[0013] In Figure 1, no.1 indicates, in its entirety, a suspended façade rigidly coupled to the walls of an architectural structure known and therefore not illustrated. This façade 1 includes a plurality of sheets 10 substantially identical to each other and delimited by a perimeter normally rectangular or square, without this representing an implicit limitation to the present invention, given that, if necessary, it could present other forms. Normally, and also in the case taken as an example of embodiment of the present invention, the rectangular or square sheets 10 are typically arranged chequerboard fashion with the respective sides 11 and 12 arranged parallel to vertical direction 2 and to horizontal direction 3 in proximity to a plurality of nodes 5, visible in Figures 1-3, 8, 9, 12. Usually the sheets are made of a transparent material, such as standard or plate glass, but they could also be made in a plastic or metallic material of any other kind, provided that it is producible in panels delimited by a perimeter of given shape and dimensions.

[0014] Still with reference to Figure 1, façade 1 has a frame 20 comprising a plurality of stanchions 21, only one of which is illustrated in figure 1 for simplicity. Each stanchion 21 extends along a given direction, which for simplicity in the attached drawings is always direction 2, and is connected rigidly to the known and not illustrated outer walls of the above-mentioned architectural structure, which also is known and not illustrated. Each stanchion 21 is conveniently realised by means of an extruded bar which, for convenience, is indicated by the same reference number 21, and presents a transverse section of standard type or is produced on the basis of specific design requirements. Normally these bars 21 include longitudinal ribs which delimit transverse housings for mechanical support components which will be better described subsequently in the present description.

[0015] An attachment device 27 is associated with each stanchion 21 to interface between the sheets 10 and the stanchions 21 in freely sliding manner axially, in such a way as, in use, to permit variation of the positioning of the sheets 10 along longitudinal direction 2.

[0016] Each attachment device 27, furthermore, includes a first adjustment device 28, which includes, for each sheet 10, a first support unit 30, visible by reference to Figures 2 and 3 and having a base 31 connected in prismatic manner to a corresponding stanchion 21 to freely slide according to the vertical direction 2 to a position definable at will along its corresponding stanchion 21. In particular, each base 31 carry a support 32 having at least one arm 33 profiled to carry rigidly a sheet 10 in a given manner. Each support 32 is connected to the respective base 31 in prismatic manner along a particular direction which, in the example in question, and without representing an implicit limitation to the present invention, coincides with vertical direction 2. It is as well to point out that each support 32 will have as many arms

33 as are required to interface with the sheets 10 which correspond to a given node. In the case of the intermediate supports 32, four arms are normally provided, whereas these are reduced to the two upper ones for the terminal supports 32 fitted at the top of the relative stanchion 21, or to the two lower arms for the support fitted at the foot of the stanchion, or to the two side arms for the sides at the ends. Therefore, each first unit 30 is capable of regulating the relative position of the corresponding support 32 with respect to the relative base 31 along a given direction, which coincides in the case in question with vertical direction 2. It is as well to observe that, in the present case, each support 32 is maintained stably in position within the respective base 31 by gravity. The first adjustment device 28 includes, furthermore, a female thread 36 formed in the said base 31 and parallel to the stanchions 21, therefore oriented along vertical direction 2. The first Device 28 includes, furthermore, a counterpart 37, carried by support 32 and facing the female thread 36 to cooperate end-on with the extremity 38 of a threaded component 39. By virtue of what is described above, the first adjustment device 28 allows the position of at least one sheet 10 to be adjusted in the direction identified by the respective stanchion 21, and therefore with the sheets 10 installed allows the positioning of two bases 31 connected by one sheet 10 to be corrected in the vertical direction 2 and, consequently, two consecutive sheets 10 connected by means of only one support 32. This last feature is particularly useful during the installation of the Façade 1. The choice of using a combination of female thread 36-threaded component 39 allows micrometric adjustments to be made to the position of sheets 10 in direction 2.

[0017] With reference to any one of Figures 1-4, each arm 33 is associated with a housing 34 for an elongated component 50, capable of being coupled stably and substantially edge-on with a respective sheet 10. On the other hand, it will be noted that each sheet 10 presents at least one hole 14 (Figure 2) to house transversely a respective elongated component 50 in order to connect the arm 33 and the respective sheet 10 stably to each other.

[0018] With reference to Figures 1, 2 (4 and 5), the attachment device 27 includes at least one spacing component 49 fitted between at least two of the bases 31 associated with each stanchion 21, to function as axial reference for the bases 31 on the respective stanchions 21, in such a way as to define a minimum distance between two consecutive bases 31. These spacers 49 are coupled prismatically to the stanchions 21, and are therefore left free to move on the stanchions 21 themselves in such a way that they can be moved longitudinally, including micrometrically, to permit the variation of the axial position of the bases 31 and therefore of the supports 32 and, finally, of the sheets 10.

[0019] The attachment device 27 includes, furthermore, for at least one of the bases 31 of each stanchion 21, an associated second adjustment device 29, visible in Figure 4 and in greater detail in Figure 5, in combination with a first adjustment device 28. This second adjustment device 29 includes at least one second support unit 40 of adjustable longitudinal extension and carried fixed with respect to the frame 20 in association with at least one given base 31. This second support unit 40 includes a counterpart component 41 capable of determining a starting height, adjustable at will for the corresponding base 31. In particular, this component 41 can rest on the ground and be associated with the base 31 located at the least distance from the ground itself, or the flooring on which the base portion of the corresponding stanchion 21 rests. It is as well to observe that, in this way, it will be possible to adjust, with only a single operation, the position of all the sheets 10 and the relative supports 32 with respect to the flooring on which the relative stanchion 21 rests. For sake of simplicity, in the Figures 4-7 the level of the ground/flooring where the component 41 rests has been indicated with the letter G. Alternatively, as shown only in the Figure 4, each second support unit 40/counterpart component 41 could be carried fixed by the corresponding stanchion 21 through e.g. a prominence, known and not illustrated, at any other given level of height indicated as G' It will be noted that in Figure 4, to illustrate functionally the type of second device 29, counterpart component 41 includes a bolt 48 whose shank 48a is housed inside a lower portion of base 31, and whose head 48b at its lower end touches the ground/flooring, so that rotating the said bolt causes the raising or lowering of the entire "train" of spacers 49 and bases 31 accordingly.

[0020] According to the variant shown in Figures 8-11, at least one elongated component 50 has associated with it an interface component 52 presenting at least one seat 54 to house the elongated component 50 itself. This seat 54 is profiled in a particular way to define at least one tangential reference for at least one respective sheet 10 along the directions 2 and 3. Each interface component 52 includes at least one rectilinear portion capable of defining a reference along direction 2 and/or direction 3. Preferably, at least one interface component 52 is conformed substantially as a cross, and includes two rectilinear portions 56 and 58 substantially at right angles to each other, respectively capable of defining a reference for at least one sheet 10 along directions 2 and 3.

[0021] It is as well to point out that, both in the version in Figures 1-4 and in the version in Figures 8-11, each elongated component 50 is capable of cooperating with two sheets 10 edge-on and transversely, by means of a gripping connector 60 located by a respective pair of end-stop components 62 and 63 carried by the same elongated component 50. Of the two end-stop components 62 and 63, one may be fixed, and the other movable to define axial end-stops, at least one of which is adjustable longitudinally in order to stably couple face-on with sheets 10 of different thickness.

[0022] In virtue of what is described above, each elongated component 50 can be realised by means of a bolt 50 and the two end-stop components can be constituted,

respectively, by the head of the bolt and a nut which, for convenience, are indicated in the drawings by the same reference numbers 62 and 63. As is obvious, this type of mounting is particularly advantageous in the case of installation of sheets 10 constituted by solar panels or in a material which cannot be drilled, or present housings for attaching pins passing through them.

[0023] According to Figure 12, the second adjustment device 29 can include between each base 31 and the respective stanchion 21 sliding components 42 whose function is to minimise the friction in the relative movement between each base 31 and the respective stanchion 21. In particular, these sliding components 42 can be of the type with permanent effect, to remain active in operation, in case it is thought desirable to have the possibility of frequently modifying the setup of the façade 1, or alternatively of the type with temporary effect, if they are required to be active only at the installation stage or at any following stages during maintenance. In the first case, the sliding components 42 can include at least one plain bearing 44 or even a rolling bearing known and not illustrated, provided that the fixed part (stanchion 21) and the moving parts (spacers 49 and bases 31) are suitably sized, according to the technology already applied in the sailing field; in the second case, the sliding components can include a lubricant of given density, known and not illustrated, which may also be liquid to be applied by gravity and to easily fill the gaps which occur in the mortise coupling between the mating sections of stanchions 21 and spacers 49 and between stanchions 21 and bases 31.

[0024] In addition, with reference to figure 6, each second support unit 40 could include a linear actuator 46 whose presence may be justified for purposes of earthquake-proofing or of trim adjustment of level in installations on terrain in zones of high seismic risk. Alternatively, with reference to Figure 7, second support unit 40 may include an elastic element 47 of a mechanical nature or of other nature but equivalent from the functional point of view.

[0025] By virtue of what is described above, the use and maintenance of façade 1 have evidently been clearly described and require no further explanation. It is however as well to observe that each interface component 52 exercises an action of support of the sheet 10 which rests on it, and an action of traction of the sheet 10 below it.

[0026] Finally, it is clear that modifications and variations may be made to façade 1 above described and illustrated without for this reason departing from the protective compass of the present invention.

[0027] By virtue of what is described above, the installation of suspended façade 1 is evidently extremely simple, as also is the adjustment of any misalignment in direction 2.It appears evident that façade 1 described above allows the purposes of the applicant to be fully achieved, and, finally, allows the market to be transformed for suspended façades, which from being architectural structures whose realisation is reserved for particularly bold or costly installations, in terms both of design and of installation, become potentially realisable by construction firms which have available a labour-force of ordinary experience. The particular simplicity of installation allows the sale to be envisaged of suspended façades as installation kits (at least for buildings of limited vertical dimensions), which require safety equipment of affordable cost, manageable even by do-it-yourself enthusiasts.

Claims

1. Suspended façade (1) for the enclosure and/or the cladding of buildings and comprising a plurality of substantially flat first sheets (10) arranged side by side with each other according to a first and a second given direction (2) (3) and inclined to each other by an angle of substantially 90°; the façade (1) comprising a first frame (20) presenting at least one first stanchion (21) oriented according to a said first given direction (2), first means of attachment (27) associated with each said first stanchion (21) for interfacing each said first sheets (10) with the respective said first stanchion (21) in a given manner; **characterised in that** the said first means of attachment (27) are of axially freely sliding type along each corresponding said first stanchion (21), and by comprising at least first means of adjustment (28) of the position of at least one first sheet (10).

2. Façade according to claim 1, **characterised in that** the said first means of attachment (27) include at least one first support unit (30) associated with a corresponding said first stanchion (21) and at least a said first sheet (10); each said first support unit (30) comprising a first base (31) connected in a prismatic manner to the corresponding said first stanchion (21) in order to be positionable at will along the said first stanchion (21) itself, and the said first means of adjustment (28) being able to adjust the relative position of each said first sheet (10) with respect to the corresponding said first base (31) along the said first given direction (2).

3. Façade according to claim 2, **characterised in that** each said first support unit (30) includes a first support (32) associated with at least one said first sheet (10) and coupled to a corresponding said first base (31) in prismatic manner to freely slide along the said first given direction (2); the said first means of adjustment (28) being able to adjust the relative position of each said first support (32) with respect to the corresponding said first base (31) along the said first given direction (2).

4. Façade according to claim 2 or 3, **characterised in**

that the said first means of attachment (27) include at least one second support unit (40) of adjustable longitudinal extension carried fixed with respect to the said first frame (20) in association with at least one second base (31) among the said first bases (31) of each said first stanchion (21) in the said first given direction (2); the said second support unit (40) comprising a first counterpart component (41) capable of defining a starting height definable at will for the relative said first base (31).

5. Façade according to claim 4, **characterised in that** the said first means of attachment (27) include second means of adjustment (29) able to adjust the position of all the first sheets (10) corresponding to a relative said first stanchion (21) with respect to the flooring on which the said first stanchion (21) rests; the said second means of adjustment (29) comprising at least the said second support unity (40) and the said second base (31)

6. Façade according to claim 4 or 5, **characterised in that** the said second base (31) is the first base (31) at least distance from the ground (G).

7. Façade according to claim 4 or 5, **characterised in that** each said second support unit (40)/first counterpart component (41) is carried fixed by the corresponding first stanchion (21) at a given level of height (G').

8. Façade according to any claim 3-7, **characterised in that** the said first means of adjustment (28) are of threaded type, and include a first female thread (36) formed in the corresponding said first base (31) and oriented according to the said first direction (2), a first counterpart (37) associated with the said first support (32) facing the said first female thread (36) and a first threaded component (39) for the adjustment of the relative position of said first support (32) along the said first direction (2).

9. Façade according to any of claims 3-8, **characterised in that** each said first support (32) is maintained stably in position with respect to the said first base (31) by gravity.

10. Façade according to any claim 3-9, **characterised in that** each said first support (32) has at least one first arm (33) capable of carrying rigidly a said first sheet (10) in a given manner.

11. Façade according to any of the claims 2-10, **characterised in that** the said first means of attachment (27) include at least one first spacing component (49) fitted between at least two of the said first bases (31) of each said first stanchion (21) to define a minimum distance between the said first bases (31).

12. Façade according to claim 11, **characterised in that** each said first spacing component (49) is connected prismatically to the respective said first stanchion (21), in such a way as to be freely sliding longitudinally together with at least one of the corresponding said first bases (31).

13. Façade according to claims 10 and 11 or claims 10 and 12, **characterised in that** each said first arm (33) has associated with it a said first housing (34) for an said elongated component (50) capable of coupling stably and substantially edge-on with a respective said first sheet (10).

14. Façade according to claim 13, **characterised in that** each said first sheet (10) presents at least one first hole (14) for housing transversely a said first elongated component (50) in order to connect the said first arm (33) and the said first sheet (10) stably to each other.

15. Façade according to claim 14, **characterised in that** for at least one said first elongated component (50) a first interface component (52) is provided, presenting at least one housing (54) for a said first elongated component (50) and profiled in a particular manner to define at least one tangential reference for at least one respective said first sheet (10) along the said first and second given directions (2) (3).

16. Façade according to claim 15, **characterised in that** the said first interface component (52) includes at least one first rectilinear portion (56) (58) capable of defining a reference along the said first and/or the said second direction (2) (3).

17. Façade according to claim 16, **characterised in that** the said first interface component (52) is conformed substantially as a cross, and includes two first rectilinear portions (56) (58) substantially at right angles to each other, respectively capable of defining a reference for at least one said first sheet (10) along the said first and second directions (2) (3).

18. Façade according to claim 16 or 17, **characterised in that** each said first elongated component (50) is capable of cooperating with two said first sheets (10) edge-on and transversely, by means of suitable first gripping means of connection (60).

19. Façade according to claim 18, **characterised in that** the said first gripping means of connection (60) include a pair of first end-stop components (62) (63) associated with each said first elongated component (50) for defining the axial stops, at least one of them adjustable longitudinally for coupling stably with first sheets (10) of different thickness.

20. Façade according to any of the claims 2-19, **characterised in** of comprising first means of sliding (42) interposed between each said first stanchion (21) and each respective said base (31).

21. Façade according to claim 20, **characterised in that** the said first means of sliding (42) are of the type with permanent effect, to remain active in operation.

22. Façade according to claim 21, **characterised in that** the said first means of sliding (42) include at least one first plain bearing (42).

23. Façade according to claim 21, **characterised in that** the said first means of sliding (42) include at least one first rolling bearing component.

24. Façade according to claim 20, **characterised in that** the said first means of sliding (42) are of the type with temporary effect, to remain active during installation or maintenance.

25. Façade according to claim 24, **characterised in that** the said first means of sliding (42) include a lubricant of given density.

26. Façade according to any of claims 4-7 or any of claims 8-25 in dependence of claim 4, **characterised in that** the said second support unit (40) includes a linear actuator (46).

27. Façade according to any of claims 4-7 or any of claims 8-25 in dependence of claim 4, **characterised in that** the said second support unit (40) includes a first elastic component (47) or devices of other nature but equivalent from a functional point of view.

28. Equipment for the support of suspended façades (1) which includes a plurality of substantially flat second sheets (10) arranged side by side with each other according to a third and a fourth given direction (2) (3) and inclined to each other by an angle of substantially 90°; the equipment comprising a second frame (20) presenting at least one second stanchion (21) oriented according to a said third given direction (2), second means of attachment (27) associated with each said second stanchion (21) for interfacing the said second sheets (10) with the respective said second stanchion (21) in a given manner; **characterised in that** the said second means of attachment (27) are of axially freely sliding type along each corresponding said second stanchion (21), and by comprising at least third means of adjustment (28) of the position of at least one second sheet (10).

29. Equipment according to claim 28, **characterised in that** the said second means of attachment (27) include at least one third support unit (30) associated with a corresponding said second stanchion (21) and with at least a said second sheet (10); each said third support unit (30) comprising a third base (31) connected in a prismatic manner to the corresponding said second stanchion (21) in order to be positionable at will along the said second stanchion (21) itself, and the said third means of adjustment (28) being able to adjust the relative position of each said second sheet (10) with respect to the corresponding said third base (31) along the said second given direction (2).

30. Equipment according to claim 29, **characterised in that** each said third support unit (30) includes a second support (32) associated with at least one said second sheet (10) and coupled to the corresponding said third base (31) in prismatic manner to freely slide along the said third given direction (2); the said third means of adjustment (28) being able to adjust the relative position of each said second support (32) with respect to the corresponding said third base (31) along the said third given direction (2).

31. Equipment according to claim 29 or 30, **characterised in that** the said second means of attachment (27) include at least one fourth support unit (40) of adjustable longitudinal extension carried fixed with respect to the said second frame (20) in association with at least one fourth base (31) among the said third bases (31) of each said second stanchion (21) in the said third given direction (2); the said fourth support unit (40) comprising a second counterpart component (41) capable of defining a starting height definable at will for the relative said first third base (31).

32. Equipment according to claim 31, **characterised in that** the said second means of attachment (27) include fourth means of adjustment (29) able to adjust the position of all the second sheets (10) corresponding to a relative said second stanchion (21) with respect to the flooring on which the said second stanchion (21) rests; the said fourth means of adjustment (29) comprising at least the said fourth support unity (40) and the said fourth base (31)

33. Equipment according to claim 31 or 32, **characterised in that** the said fourth base (31) is the third base (31) at least distance from the ground (G).

34. Equipment according to claim 31 or 32, **characterised in that** each said fourth support unit (40)/second counterpart component (41) is carried fixed by the corresponding second stanchion (21) at a given level of height (G').

35. Equipment according to any claim 30-34, **charac-**

terised in that the said third means of adjustment (28) are of threaded type, and include a second female thread (36) formed in the corresponding said third base (31) and oriented according to the said third direction (2), a second counterpart (37) associated with the said second support (32) facing the said second female thread (36) and a second threaded component (39) for the adjustment of the relative position of said second support (32) along the said third direction (2).

36. Equipment according to any of claims 30-35, **characterised in that** each said second support (32) is maintained stably in position with respect to the said third base (31) by gravity.

37. Equipment according to any claim 30-36, **characterised in that** each said second support (32) has at least one second arm (33) capable of carrying rigidly a said second sheet (10) in a given manner.

38. Equipment according to any of the claims 29-37, **characterised in that** the said second means of attachment (27) include at least one second spacing component (49) fitted between at least two of the said third bases (31) of each said second stanchion (21) to define a minimum distance between the said third bases (31).

39. Equipment according to claim 38, **characterised in that** each said second spacing component (49) is connected prismatically to the respective said second stanchion (21), in such a way as to be freely sliding longitudinally together with at least one of the corresponding said third bases (31).

40. Equipment according to claims 37 and 38 or claims 37 and 39, **characterised in that** each said second arm (33) has associated with it a second housing (34) for an second elongated component (50) capable of coupling stably and substantially edge-on with a respective said second sheet (10).

41. Equipment according to claim 40, **characterised in that** each said second sheet (10) presents at least one second hole (14) for housing transversely a said second elongated component (50) in order to connect the said second arm (33) and the said second sheet (10) stably to each other.

42. Equipment according to claim 41, **characterised in that** for at least one said second elongated component (50) a second interface component (52) is provided, presenting at least one second housing (54) for a said second elongated component (50) and profiled in a particular manner to define at least one tangential reference for at least one respective said second sheet (10) along the said third and fourth given directions (2) (3).

43. Equipment according to claim 42, **characterised in that** the said second interface component (52) includes at least one second rectilinear portion (56) (58) capable of defining a reference along the said third and/or the said fourth direction (2) (3).

44. Equipment according to claim 43, **characterised in that** the said second interface component (52) is conformed substantially as a cross, and includes two second rectilinear portions (56) (58) substantially at right angles to each other, respectively capable of defining a reference for at least one said second sheet (10) along the said third and fourth directions (2) (3).

45. Equipment according to claim 43 or 44, **characterised in that** each said second elongated component (50) is capable of cooperating with two said second sheets (10) edge-on and transversely, by means of suitable second gripping means of connection (60).

46. Equipment according to claim 45, **characterised in that** the second gripping means of connection (60) include a pair of second end-stop components (62) (63) associated with each said second elongated component (50) for defining the axial stops, at least one of them adjustable longitudinally for coupling stably with second sheets (10) of different thickness.

47. Equipment according to any of the claims 28-46, **characterised in** of comprising second means of sliding (42) interposed between each said second stanchion (21) and each respective said third base (31).

48. Equipment according to claim 47, **characterised in that** the said second means of sliding (42) are of the type with permanent effect, to remain active in operation.

49. Equipment according to claim 48, **characterised in that** the said second means of sliding (42) include at least one second plain bearing (42).

50. Equipment according to claim 48, **characterised in that** the said second means of sliding (42) include at least one second rolling bearing component.

51. Equipment according to claim 47, **characterised in that** the said second means of sliding (42) are of the type with temporary effect, to remain active during installation or maintenance.

52. Equipment according to claim 51, **characterised in that** the said second means of sliding (42) include a lubricant of given density.

53. Equipment according to any of claims 31-34 or any of claims 35-52 in dependence of claim 4, **characterised in that** the said fourth support unit (40) includes a second linear actuator (46).

54. Equipment according to any of claims 31-34 or any of claims 35-52 in dependence of claim 4, **characterised in that** the said fourth support unit (40) includes a second elastic component (47) or devices of other nature but equivalent from a functional point of view.

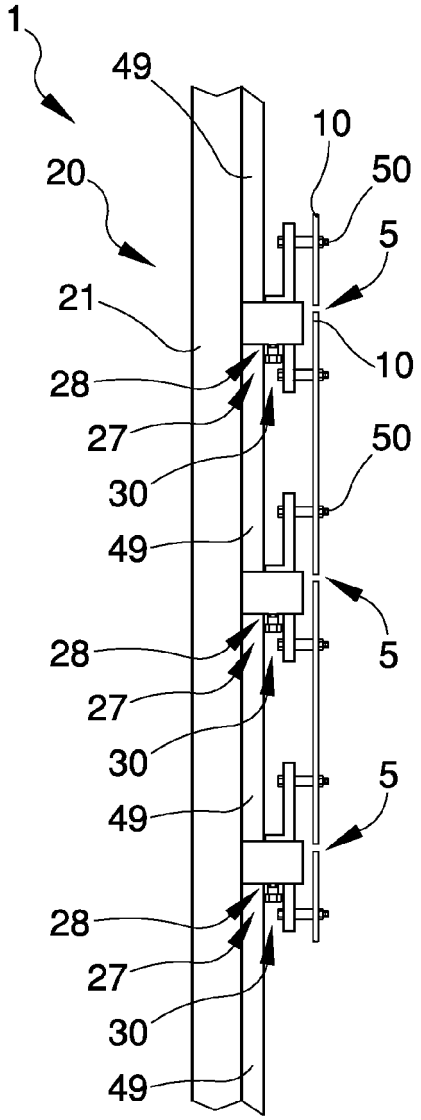

Fig. 1

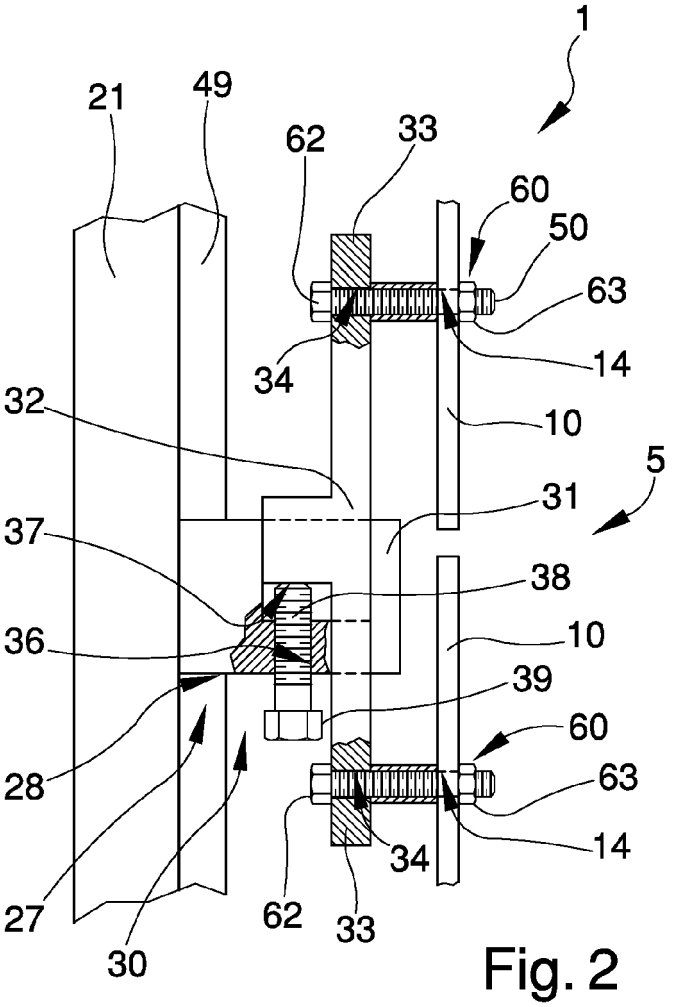

Fig. 2

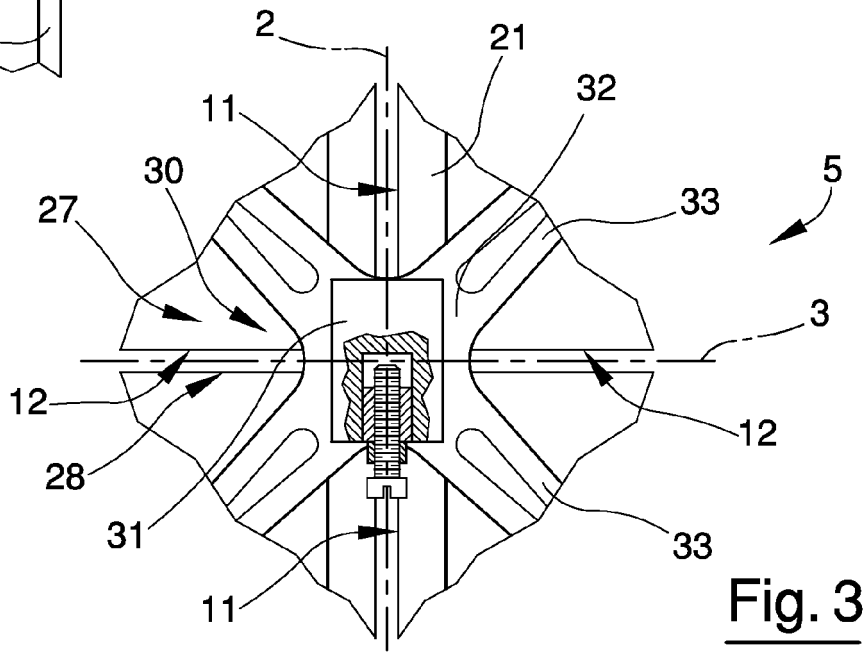

Fig. 3

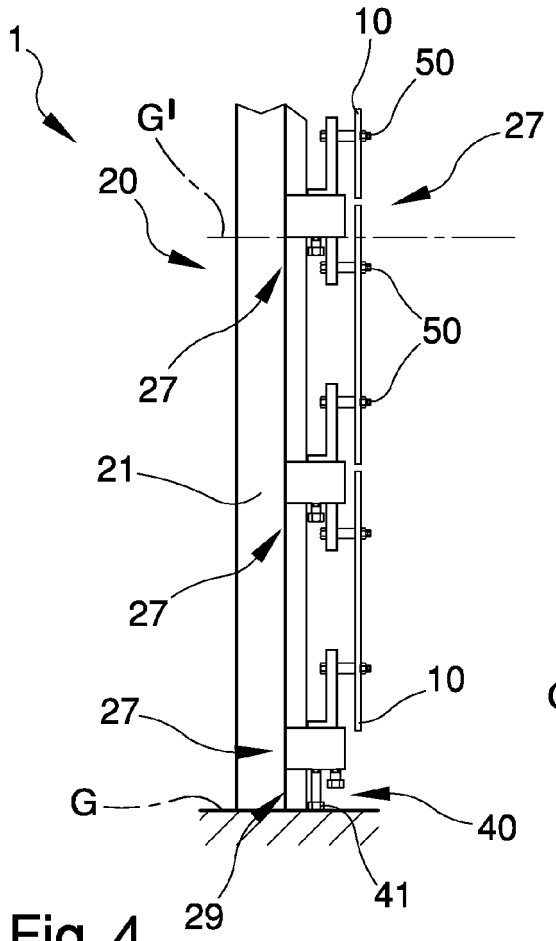

Fig. 4

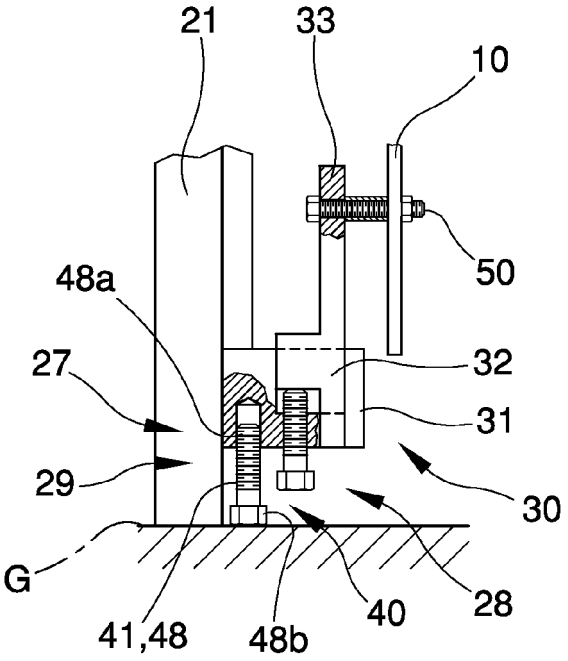

Fig. 5

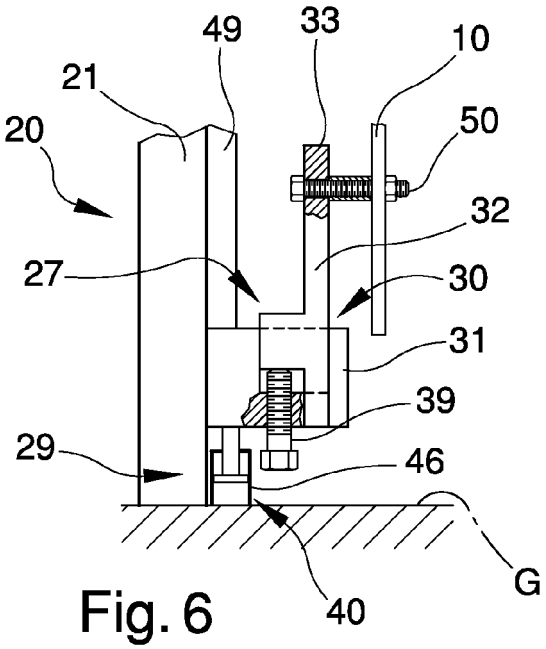

Fig. 6

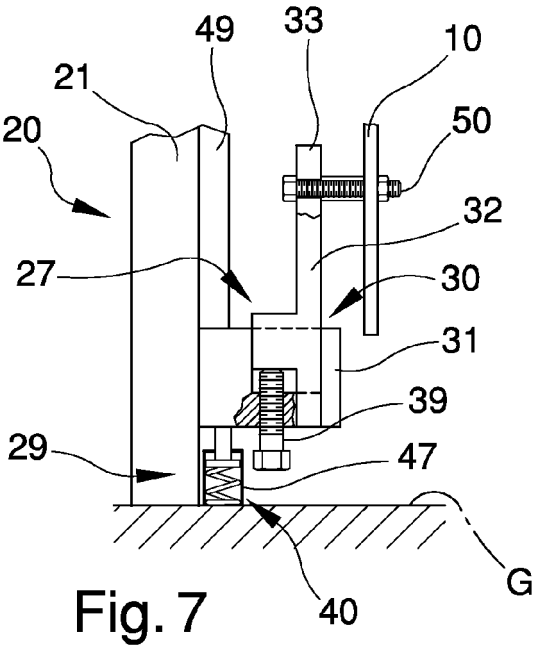

Fig. 7

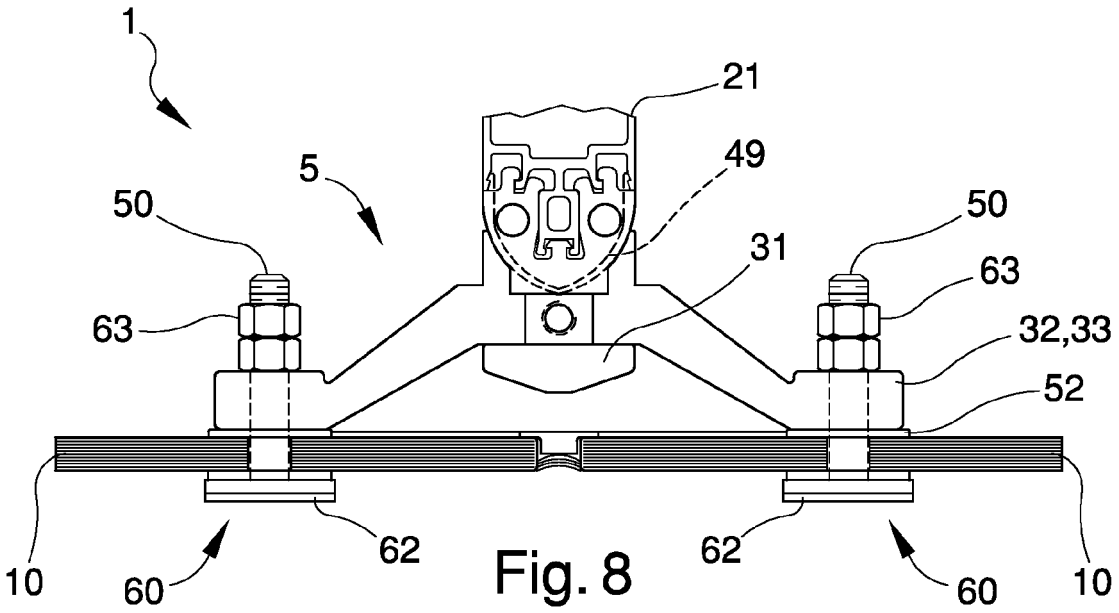
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Fig. 8

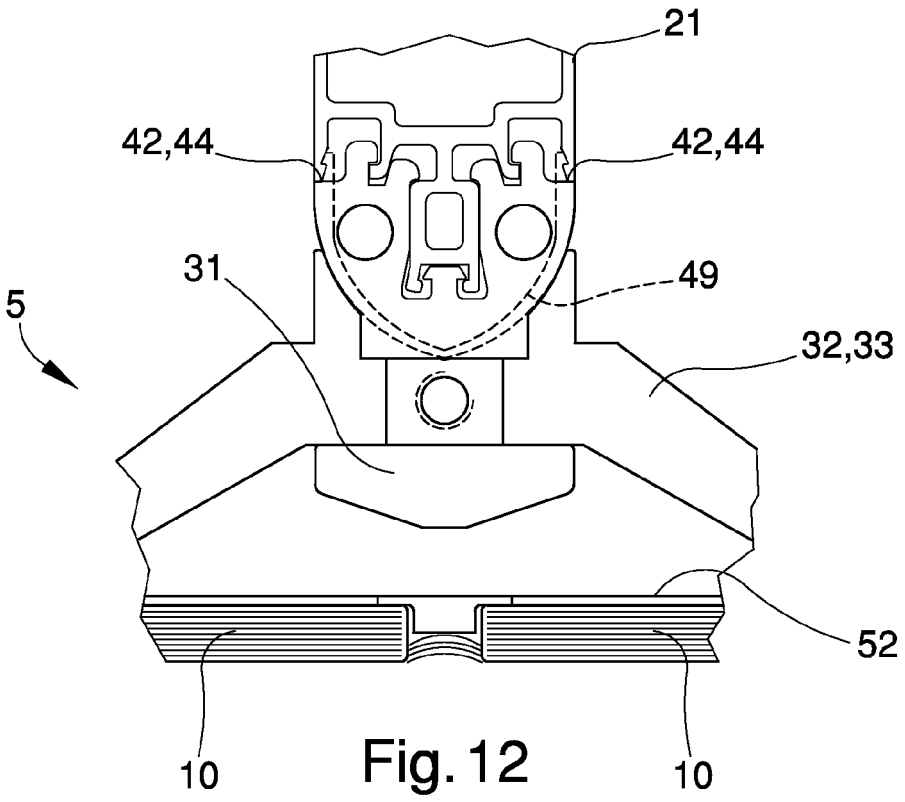
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Fig. 12

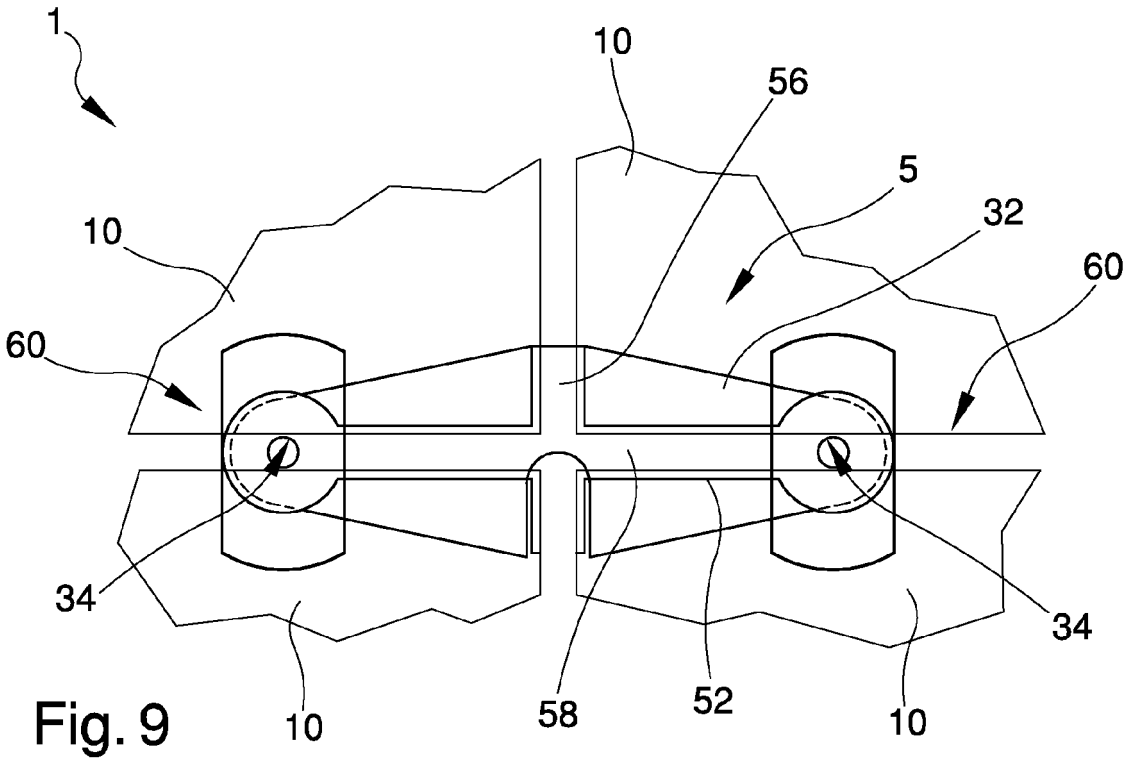

Fig. 9

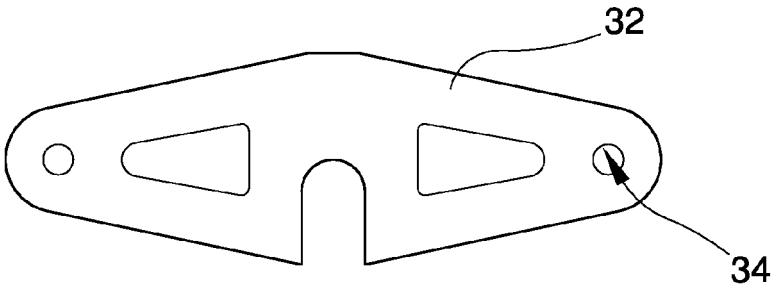

Fig. 10

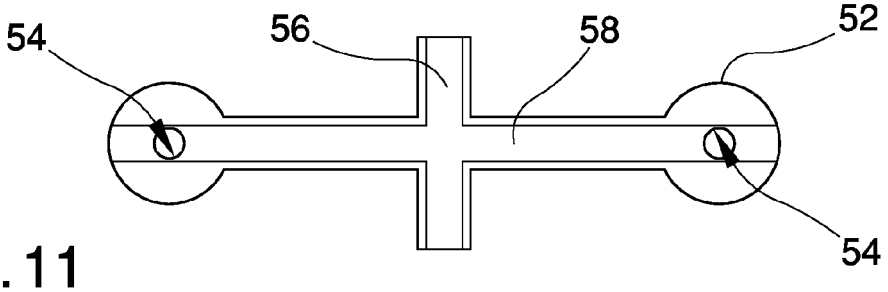

Fig. 11