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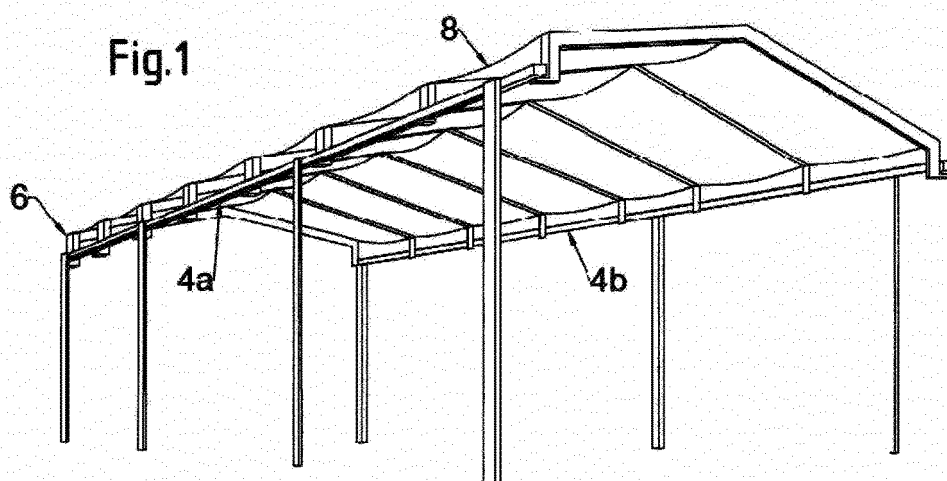
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(54) **MOBILE COVER**

(57) Retractable cover for covering a sports facility, playground, commercial or industrial outdoor installation comprising a flexible material (8) attached to a variety of trusses incorporating rolling devices that move along parallel guide rails (4a and 4b) from an extended position in which they cover an entire area to a retracted position in which they occupy a small space.

A mobile truss (6) connected to a drive mechanism

and a transmission system moves simultaneously along the guide rails (4a and 4b), pushing the other trusses during retraction. When the retractable cover is extended, the retractable truss (6) moves in the opposite direction, extending the flexible material (8), which tightens and pulls successively on all the trusses to cover the entire area that is to be covered.



Description

OBJECT OF THE INVENTION

[0001] This invention refers to a retractable cover comprising trusses fitted with wheeled runners for moving along two guide rails mounted in parallel. This rapidly extends a tarpaulin to totally or partially cover an area that is usually not covered. When retracted, the cover takes up little space and makes it possible to enjoy the good weather. It can be used to cover a sports facility, playground or outdoor commercial or industrial facility.

BACKGROUND OF THE INVENTION

[0002] At present there is a problem with outdoor sports facilities, where the weather can lead to postponed matches, classes or competitions.

[0003] The cover systems currently known for covering sports facilities are fixed structures such as buildings or large marquees that are complex and require an excess of means, materials and labour to build them. Furthermore, they do not make it possible to enjoy the good weather and they require artificial light.

[0004] There are also telescopic covers for swimming pools or recreational areas that have major construction problems at certain heights. This reduces their scope of application and these structures must be designed for each installation since the curves of the frames have to adapt perfectly, the dimensions of the sections that form the frames are very large and, as a result, they have problems with weight, transport and assembly. There is also an increase in the risk of deformation, structural damage and the cost of the cover.

DESCRIPTION OF THE INVENTION

[0005] To solve the above problems, this retractable cover has been devised with automatic or manual retraction to efficiently solve the problem of these installations.

[0006] This cover is composed of a variable number of aligned mobile trusses. They move on two parallel rails and the trusses are connected by a tarpaulin that is extended by the inertia of the first truss set in motion by a motor operated by a remote control or pushbutton. To keep the cover extended, all the trusses are pulled along by the first drive truss, the last truss, which always remains fixed, is locked.

[0007] This cover can be extended in length as desired, adding as many trusses as necessary and extending the surface of the tarpaulin to the desired size.

[0008] The trusses can be of various materials used to manufacture support structures, such as steel, aluminium and wood, etc.

The design of the truss can be any shape as long as it complies with manufacturing standards for building covers. The idea is for the truss to always be light, durable and above all safe.

[0009] Each truss consists of several parts that are joined together by pins for easy transport and assembly.

[0010] The trusses can be adjusted to any size because at each end, a smaller section has been inserted to make it telescopic. Once the desired size has been reached, several holes are made for the pins and the telescopic arm is locked with pins.

[0011] The end of each truss has a plate with wheels attached (bearing) by bolts. The particularity of the wheeled runner is that it has four vertical bearings acting as a carriage and two horizontal bearings to prevent it from jamming. Once the wheeled runner has been inserted in the guide rails, the vertical truss is held in position and can move smoothly and safely without jamming or coming out of the rail. As the truss moves smoothly, there is no significant resistance when it pulls and extends the tarpaulin, which avoids damage to the tarpaulin.

[0012] Truss assembly is easy and quick: once the support pillars and the guide rails have been assembled, the wheeled runners are attached to the trusses at the ends of the rails. Only two workers are needed: one lifts the trusses one by one from the centre using a manual lifting device; and the other, from a ladder, checks that the wheeled runner is in line with the guide rail and inserted in it. Once all the trusses are mounted on the guides, one of the workers fits a pin in all the ends of the guide rails as safety stops.

[0013] The two guide rails use a commercial section called guide section for sliding door, reference 5-PU-1. The guide section is welded to a rectangular section to prevent bending between the pillars. A third element is also bolted to the rectangular section. Said third element is a toothed rack for the traction of the trusses along the guide rail by means of the motor pinion and the cogs; these elements form a solid unit. This unit is fitted by joining together as many sections as necessary to cover the desired area. The guide rails are coupled together by bolts and fastened to the support pillars.

[0014] The support pillars are structural sections that can be fastened to the metal structure of a paddle tennis court by means of flanges or a bolted plate when there is an existing structure. This will provide savings in civil works, discreetly integrating the design of the cover and avoiding obstacles in the areas around the court.

[0015] When there is no structure to fasten the pillars to, such as a tennis court, the pillars are welded to anchor plates.

[0016] The height of the support pillars is variable depending on the facility or area that is to be covered. For sports facilities, the height will depend on the sport in question, always leaving a free space up to the height authorised by each federation or official body.

[0017] The material for the tarpaulin can be canvas, cloth, plastic or any flexible or pliable material. Air exhaust valves can be fitted to the cover material to prevent the sail effect.

[0018] The cover can be waterproof and it can also be

used to cast shade on the facility. In this case, drilled or interlocking flexible materials will be used, such as raffia or perforated mesh, which also reduces the weight of the cover.

[0019] The tarpaulin is fitted when all the trusses have been installed and collected at the end. One of the workers, from a personnel lifting device, fits the tarpaulin on the trusses in sections that are easy to handle. The tarpaulin is fastened to each truss using conventional pressure elements, preferably threaded. The tarpaulin fits across the entire cover but sections of tarpaulin can also be fitted to cover the sides.

[0020] When the cover is to be extended, a motor is started up by remote control. The motor is bolted to the first truss, the cog of the motor moves along a rack attached longitudinally to the guide rail and it extends from the start to the end of said guide. Bearings are also fitted to the first truss to turn a shaft that runs from one end to the other of the truss. The shaft ends have cogs to transmit the motion of the motor when it moves from one guide to the other, which is also fitted with a rack. This allows the wheeled runners to move simultaneously along the two guides and makes sure that the trusses are parallel. At the end of the sweep, the motor stops when the limit switch comes into contact with a fixed stop. The motor can be stopped at any time by operating the remote control.

[0021] To retract the cover, the motor is operated with the remote control and the drive truss runs in reverse along the same sweep. This slackens each section of tarpaulin, dragging each mobile truss on the way owing to the contact of the wheeled runners on each truss against each other. At end of the sweep, the motor stops when the limit switch comes into contact with a fixed stop.

[0022] The retraction and extension actions described above are to collect the cover on one side of the facility only. To retract the tarpaulin on both sides of the facility, simply remove the racks and couple two shafts at the ends. One will be the drive shaft and will be connected to the motor, which will be fixed by a fastening plate, and the other shaft will be driven by a chain joining them together from end to end of the sweep of the cover. When the cover is extended, the motor trusses will be in the middle of the sweep. Accordingly, the chain will be attached to one of the drive trusses in the section that goes in one direction, and the other drive truss will be attached to the section that moves in the opposite direction. Thus, when the motor rotates in one direction, the chain will separate the two trusses and when it rotates in the opposite direction, it will bring them together. The two rotation directions will therefore extend or retract the cover. At the end of the sweep, the motor will stop when a rev-counter limit switch counts the revs set for the extension and retraction of the cover.

[0023] When the cover does not have to be very high, the support pillars can be removed and the guide rail can be assembled inverted directly at ground level to avoid dangerous obstacles once the cover has been retracted.

The guide would be embedded and the trusses would extend to the ground on both sides, reversing the wheeled runners to sit on and roll along the guide rail embedded in the ground.

DESCRIPTION OF THE DRAWINGS

[0024] For better understanding of what is described herein, drawings are attached showing, by way of example but not limited thereto, the following:

Figure 1 shows a perspective view of the retractable cover in extended position.

Figure 2 shows a perspective view of the retractable cover in retracted position.

Figure 3 shows a layout view of the retractable cover in extended position.

Figure 4 shows an elevation view of figure 3.

Figure 5 shows a left-side view of figure 3 in extended position.

Figure 6 shows figure 5 in retracted position.

Figure 7 shows an exploded view A of figure 4.

Figure 8 shows an elevation view of a wheeled runner (part 5).

Figure 9 shows a layout view of figure 8.

Figure 10 shows the operation of a retractable cover in the left-side view and in extended position with a central opening system in two sections driven by a chain and motor.

Figure 11 shows figure 10 in retracted position.

Figure 12 shows a layout view of figure 11 in extended position.

Figure 13 shows an elevation view of a retractable cover with a configuration where the guides are directly embedded in the ground.

Figure 14 shows a left-side view of figure 13. In retracted position.

Figure 15 shows the retractable cover of figure 14 in extended position.

PREFERRED EMBODIMENT OF THE INVENTION

[0025] The views given in figures 1 and 2 show an overview of the retractable cover 1 in its preferred embodiment in extended position (fig.1) and in retracted position (fig.2). This does not mean that the embodiments shown in the drawings are limiting; the retractable cover is applicable to sports facilities or outdoor spaces. The realisation of the preferred embodiment is shown in figure 3, which shows the set of parts that make up the invention. To facilitate understanding, each part is numbered and assigned a letter when there are several pieces in one unit, e.g. in figure 4 the set of parts 6a, 6b, 6c, 6d, 6e and 6f, which make up the drive truss 6.

[0026] Figures 3 and 4 show two views of a section of the retractable cover with the support pillars parts 12a, 12b, 12c and 12d, which are structural sections that can be fastened directly to an existing structure, such as a

paddle tennis court, by flanges with pins or bolted plates once their level and alignment have been checked and are correct. The height of the support pillars will be determined by the federal body of the sport played under the cover. For example, on a paddle tennis court, the height of the support pillars will be 6 m, which is the free height authorised by the Spanish Paddle Tennis Federation. The support pillars (12a, 12b, 12c and 12d) are used to hold the two rails horizontally, comprising parts 1a (gear rack), 3a (rectangular section), 4a (guide section for sliding door reference 5- PU-1 or custom-made) for the left-side rail and parts 1b (gear rack), 3b (rectangular section), 4b (guide section for sliding door reference 5- PU-1 or custom-made) for the right-side rail (see exploded view in figure 7). The sets of parts that make up the guide rails come in sections that are assembled at the workshop. The parts of the rail are welded or bolted together before they are painted. These sets make transport and on-site installation easier.

[0027] The guide rails are coupled to the support pillars (12a, 12b, 12c and 12d) by welds, flanges or bolts. Each guide rail section coupled to another rail section sits on and is coupled to a support pillar, e.g. 3a with 3c on 12d or 3b with 3d on 12c.

[0028] A variable number of retractable trusses are inserted in the guide rails and then aligned 13, 14 and 15. Each truss consists of several parts 6a, 6b, 6c, 6d, 6e, 6f, 5a and 5b coupled together with bolts. Each truss can be adjusted to any size because at each end 6a and 6d, a smaller section 6b and 6e has been inserted, making it telescopic. Once the desired size has been reached, several holes are made and the truss is locked with bolts 6f.

[0029] Said set of parts form truss 6, which moves in the guide rails thanks to wheeled runners 5a and 5b (figures 8 and 9), which are coupled to it at the ends by a nut 26. The particularity of the wheeled runner is that it has a chassis 5b with shafts 28, 29, 30 and 31 welded to it. Four vertical wheels 21, 22, 23 and 24 are fitted to it acting as carriages, together with two horizontal wheels 25 and 27. This unit prevents the truss from tipping over or jamming. The first truss 6 is identical to the others 13, 14 and 15, except that it is coupled to a motor 9 with a toothed pinion 9a and a drive shaft comprising 2a (toothed pinion) 10d (shaft) 10a (telescopic shaft), 10c (shaft), 10b (bolt to lock the telescopic unit after adjusting the size) and 2b (toothed pinion) (see exploded view 7). The shaft is coupled to truss 6 by 11a and 11b (bearing cage). Truss 6 differs from the other trusses as it is the drive truss. The trusses are connected by a tarpaulin 8 fastened with bolts 7 fitted with wide-brimmed washers and rubber gaskets. Each truss has several bolts 7 proportionally distributed along each one. The tarpaulin 8 drags trusses 13 and 14 when the inertia of the drive truss 6 is set in motion by the motor 9, as shown in figure 5. The motor can be operated or stopped using a remote control or contactor. When it reaches its end of sweep, it stops thanks to a limit switch that may work by contact

or rev-counter. For safety, a pin 20 is inserted at the end of the rail 4a to prevent the trusses from tipping due to a fail in the limit switch.

[0030] To keep the trusses parallel when the motor 9 moves with its pinion 9a along the rack 1a, it is necessary to transmit said movement to the rack 1b. This is achieved by the drive shaft 10, which transmits the movement of the pinion 2a. As the latter is mounted on the truss 6, which is also the support for the motor 9, there is a synchronised movement of both parts 9a and 2a, which in turn rotate the pinion 2b (which is connected to 2a by the shaft 10) on the rack 1a.

To keep the cover extended, since trusses 13 and 14 are dragged along by the tarpaulin 8 and the drive truss 6, the last truss 15 is locked with pins 16, 17, 18 and 19.

When the tarpaulin is retracted, the rotation of the motor 9 is reversed, causing the drive truss 6 to move in the opposite direction. The tarpaulin 8 is slackened and retracted as a central fold in the section covered by trusses 13 and 6. As the tarpaulin 8 is fastened by bolts 7, as described above, it is folded in the centre in this section only, while the wheeled runners 5a and 5b of the drive truss 6 come into contact with wheeled runners 5c and 5d of truss 13. The drive truss 6 moves along and drags all the wheeled runners 5e, 5f, which come into contact with it and all the tarpaulin is then retracted up to truss 15 and the wheeled runners 5g and 5h. At the end of sweep, the motor is locked by the limit switch, leaving all the trusses retracted at the end of the guide rail and the tarpaulin folded in several sections, as shown in figure 6.

[0031] The sections used for the structure of the retractable cover can be common steel, stainless steel, aluminium or derivatives, composite materials or wood.

[0032] Figure 10 shows a possible variant of the mechanism for opening and closing the retractable cover. This option opens the retractable cover in two sections of cover 8a and 8b, which will be joined together in the centre of the sweep. This distributes the weight of the cover in very long sections, making better use of the retraction area. A motor M rotates a shaft 2c located at the end of the two guide rails 4a and 4b and drives the two toothed plates 2d and 2e that are connected to it. These plates are attached to two chains f1 and f2, which in turn transmit the movement to another shaft 2f, also fitted with two toothed plates 2g and 2h, positioned at the opposite end of the two guide rails 4a and 4b. The two chains f1 and f2 are each mounted in a closed circle. The drive trusses 6h and 6g are fastened to the chains to transmit the movement for extending and retracting the cover. The truss 6h is connected to the chains f1 and f2 by flanges b and d in the upper section, moving in one direction, and the truss 6g is connected to the chains f1 and f2 by flanges c and e in the lower section, moving in the opposite direction. When the motor M rotates clockwise, the cover is extended. When the motor M rotates anticlockwise, the cover is retracted.

[0033] Figure 13 shows another possible variant of the retractable cover. This option makes it possible to mount

the guide rails 4a and 4b directly embedded in the ground, which avoids the use of support pillars if the retractable cover has a height of less than 3 or 4 m. When mounting the guide rails 4a and 4b embedded in the ground, they have to be mounted inverted with the open section facing up. The wheeled runners 5a, 5b, 5c, 5e and 5g are also mounted inverted on the trusses, which are extended to the desired height. As it is close to the ground, this variant can be mounted without automation and the tarpaulin can be extended and retracted manually.

Claims

1. RETRACTABLE COVER comprising a variety of structural elements, supported on pillars (12a, 12b, 12c and 12d) aligned in parallel, inserted in shoes and interconnected by horizontal guide rails (4a and 4b) to form a parallel rolling track supporting retractable cover elements, **characterised by** the fact that the support pillars (12a, 12b, 12c and 12d) horizontally support two guide rails, between which a variable number of mobile trusses are aligned 13, 14 and 15, where each truss is composed of several parts 6a, 6b, 6c, 6d, 6e, 6f, 5a and 5b that are connected together, where in each end 6a and 6d a smaller section 6b and 6e is inserted to make it telescopic; where each truss (6, 13, 14 and 15) is positioned on the guide rails on wheeled runners 5a and 5b coupled to it at the ends; where the trusses (6, 13, 14 and 15) are interconnected by a tarpaulin 8 fastened with bolts (7); where there is also a drive shaft 10 that transmits the movement of a pinion 2a mounted on truss 6.
2. RETRACTABLE COVER according to claim 1, **characterised by** the fact that the two rails are composed of parts 1a (gear rack), 3a (rectangular section), 4a (guide section for sliding door reference 5-PU-1 or custom-made) for the left-side rail and parts 1b (gear rack), 3b (rectangular section), 4b (guide section for sliding door reference 5-PU-1 or custom-made) for the right-side rail (see exploded view in figure 7).
3. RETRACTABLE COVER according to claims 1 and 2, **characterised by** the fact that each guide rail section coupled to another rail section sits on and is coupled to a support pillar, e.g. 3a with 3c on 12d or 3b with 3d on 12c.
4. RETRACTABLE COVER according to claims 1 and 2, **characterised by** the fact that the wheeled runner has a chassis 5b with shafts 28, 29, 30, 31 welded to it. Four vertical wheels 21, 22, 23, 24 are fitted to it acting as carriages, together with two horizontal wheels 25 and 27.
5. RETRACTABLE COVER according to claim 1, **char-**

acterised by the fact that the first truss 6 is identical to the others 13, 14, 15, except that it is coupled to a motor 9 with a toothed pinion 9a and a drive shaft comprising 2a (toothed pinion) 10d (shaft) 10a (telescopic shaft), 10c (shaft), 10b (bolt to lock the telescopic unit after adjusting the size) and 2b (toothed pinion). The shaft is coupled to truss 6 by 11a and 11b (bearing cage).

6. RETRACTABLE COVER according to claim 1, **characterised by** the fact that as the drive shaft 10, which transmits the movement of the pinion 2a, is mounted on the truss 6, which is also the support for the motor 9, there is a synchronised movement of both parts 9a and 2a, which in turn rotate the pinion 2b (which is connected to 2a by the shaft 10) on the rack 1a.
7. RETRACTABLE COVER according to claim 1, **characterised by** the fact that the last truss 15 is locked with pins 16, 17, 18 and 19.
8. RETRACTABLE COVER according to claims 1 to 7, **characterised by** the fact that a motor M rotates a shaft 2c located at the end of the two guide rails 4a and 4b and drives the two toothed plates 2d and 2e that are connected to it. These plates are attached to two chains f1 and f2, which in turn transmit the movement to another shaft 2f, also fitted with two toothed plates 2g and 2h, positioned at the opposite end of the two guide rails 4a and 4b. The two chains f1 and f2 are each mounted in a closed circle. The drive trusses 6h and 6g are connected to the chains to transmit the cover extension and retraction movements. The truss 6h is connected to the chains f1 and f2 by flanges b and d in the upper section, moving in one direction, and the truss 6g is connected to the chains f1 and f2 by flanges c and e in the lower section, moving in opposite direction.
9. RETRACTABLE COVER according to claims 1 to 7, **characterised by** the fact that when mounting the guide rails 4a and 4b embedded in the ground, they have to be mounted inverted with the open section facing up. The wheeled runners 5a, 5b, 5c, 5e and 5g are also mounted inverted on the trusses, which are extended to the desired height.

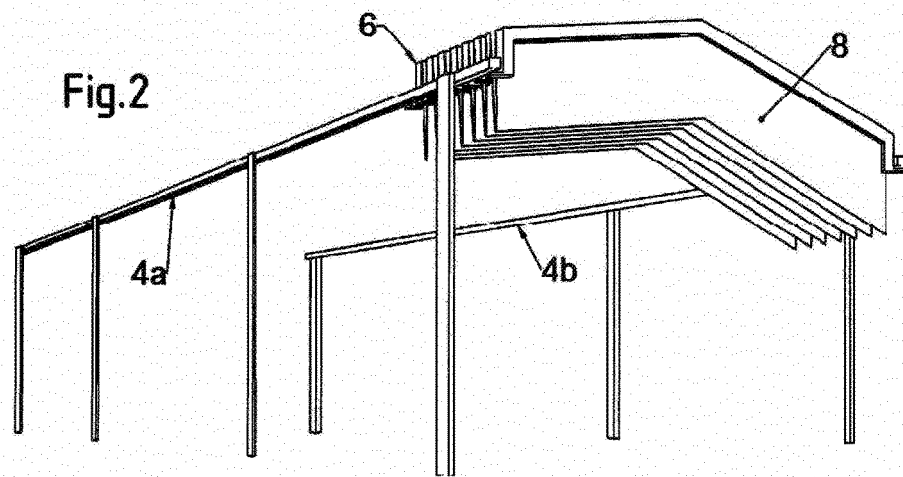
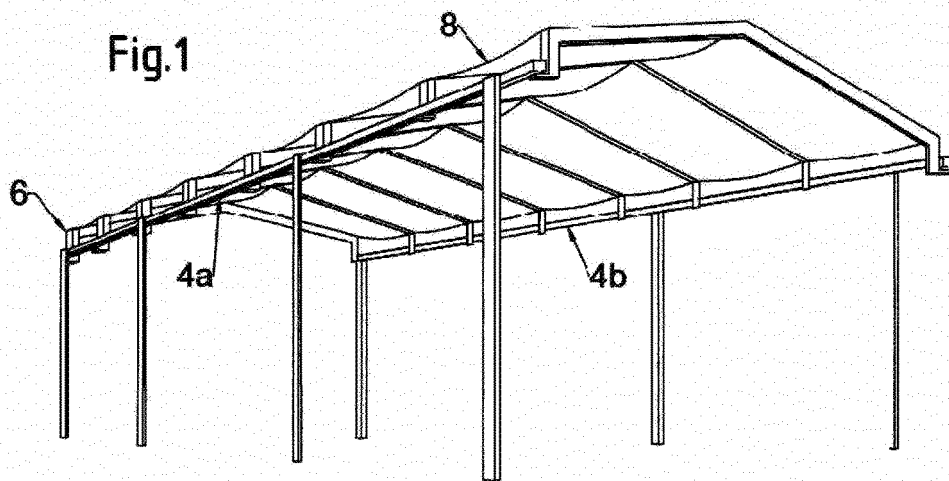


Fig. 3

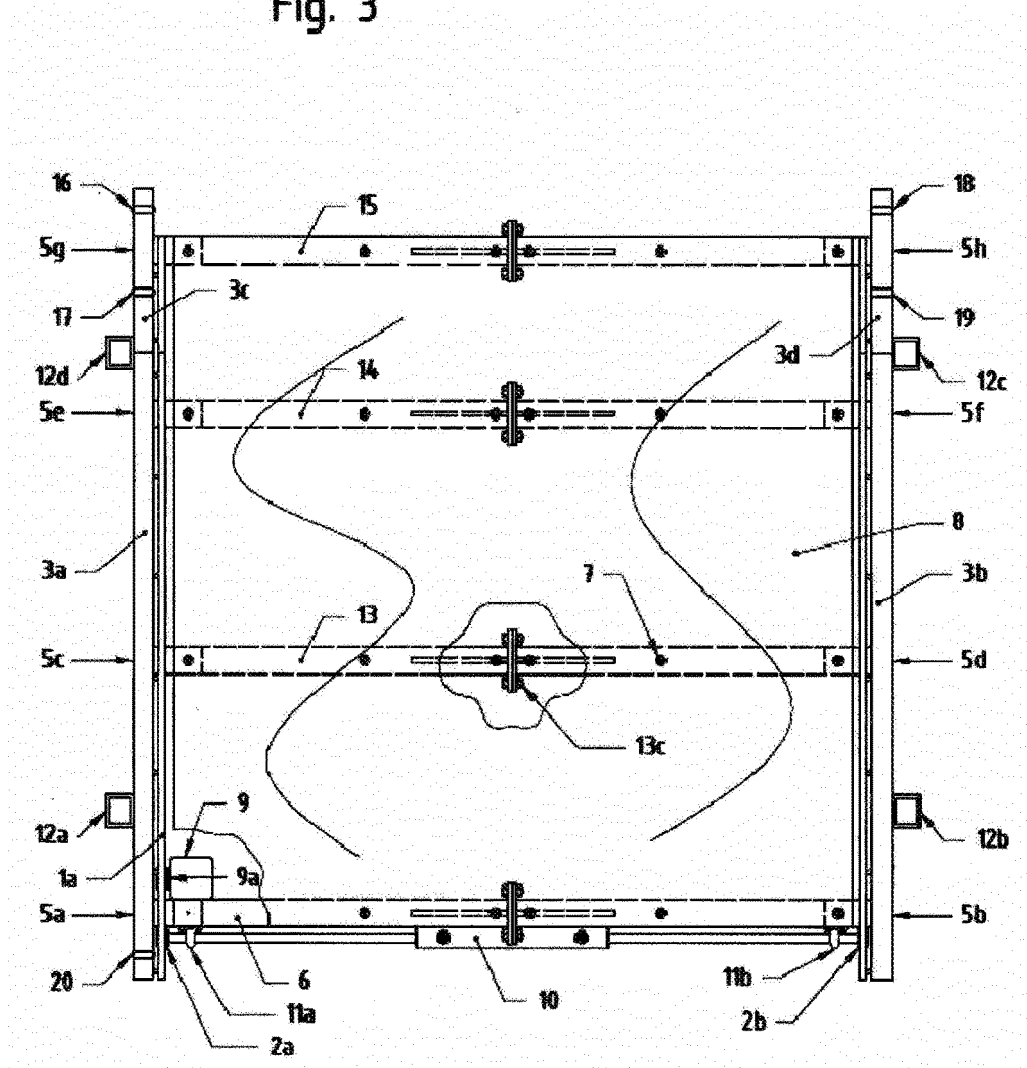


Fig. 4

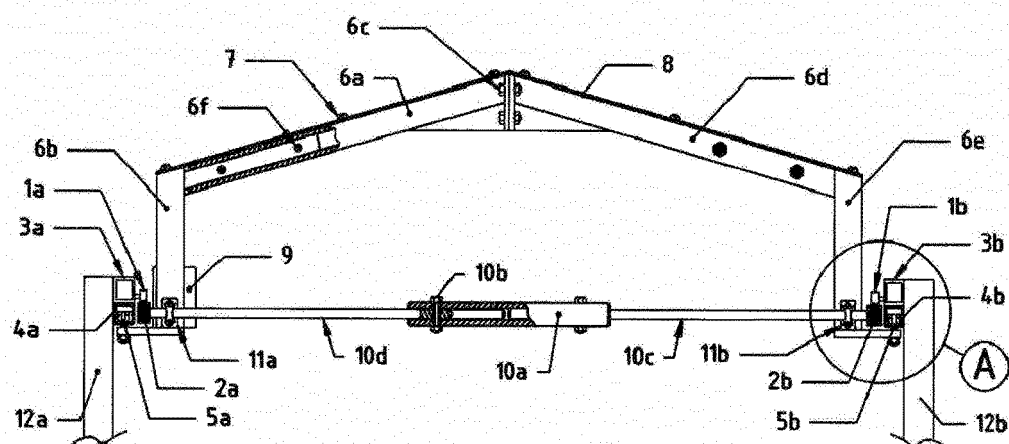


Fig. 5

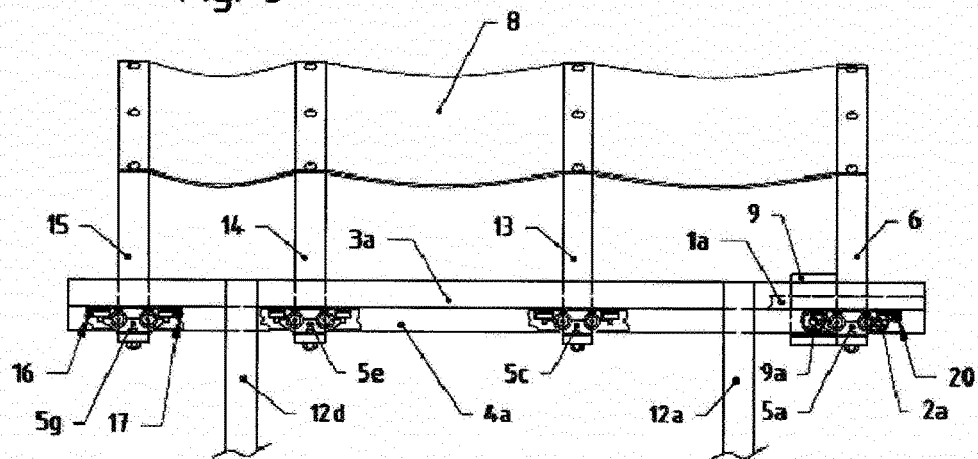


Fig. 6

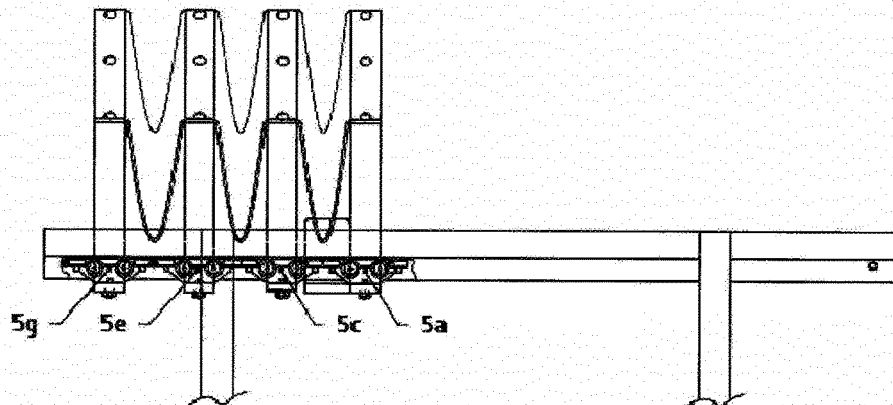


Fig. 7

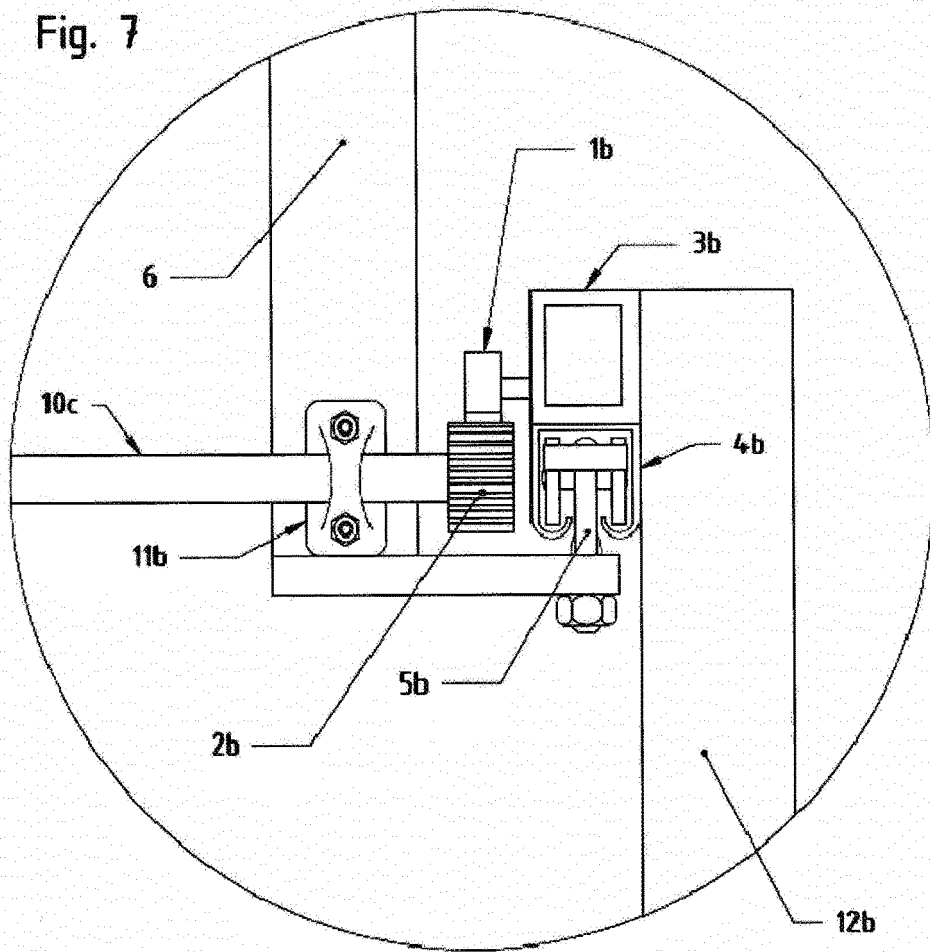


Fig. 8

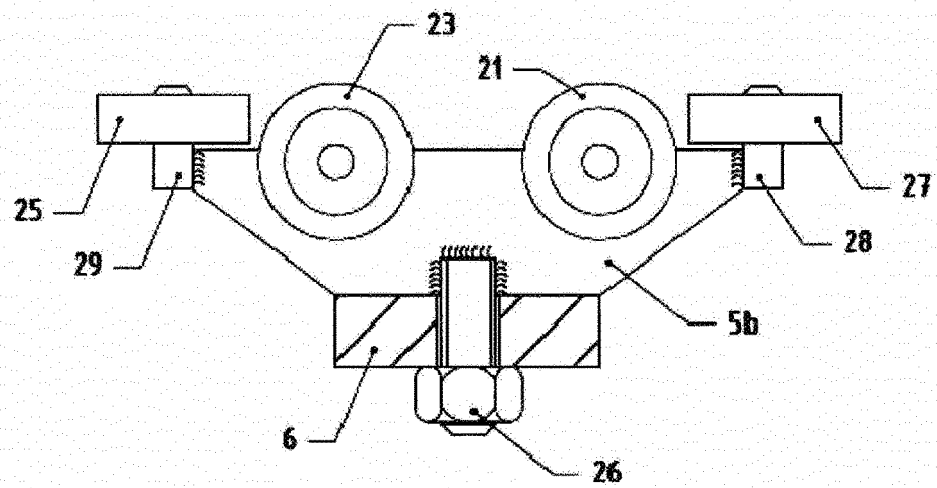


Fig. 9

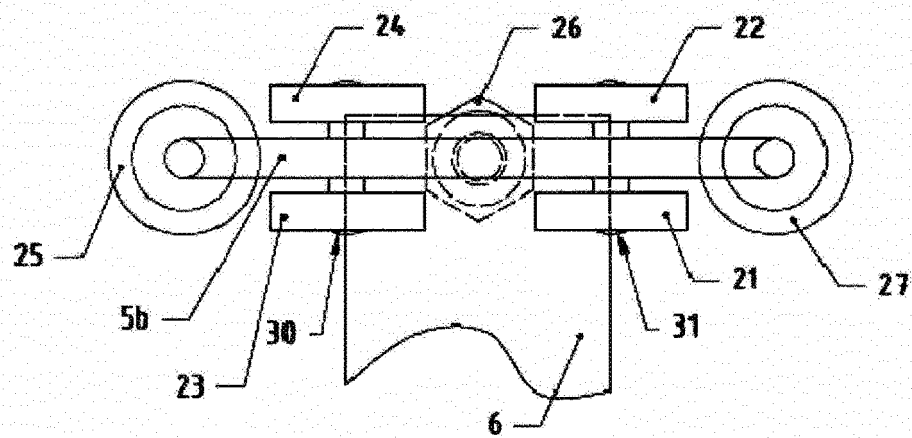


Fig. 10

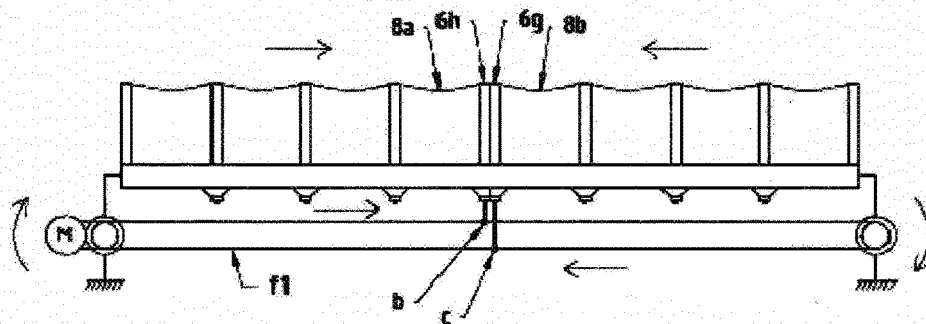


Fig. 11

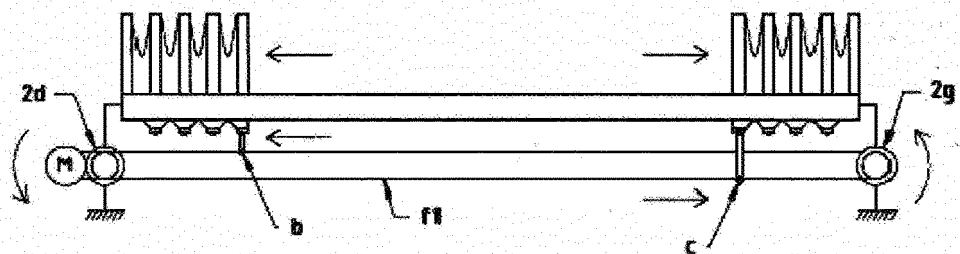


Fig. 12

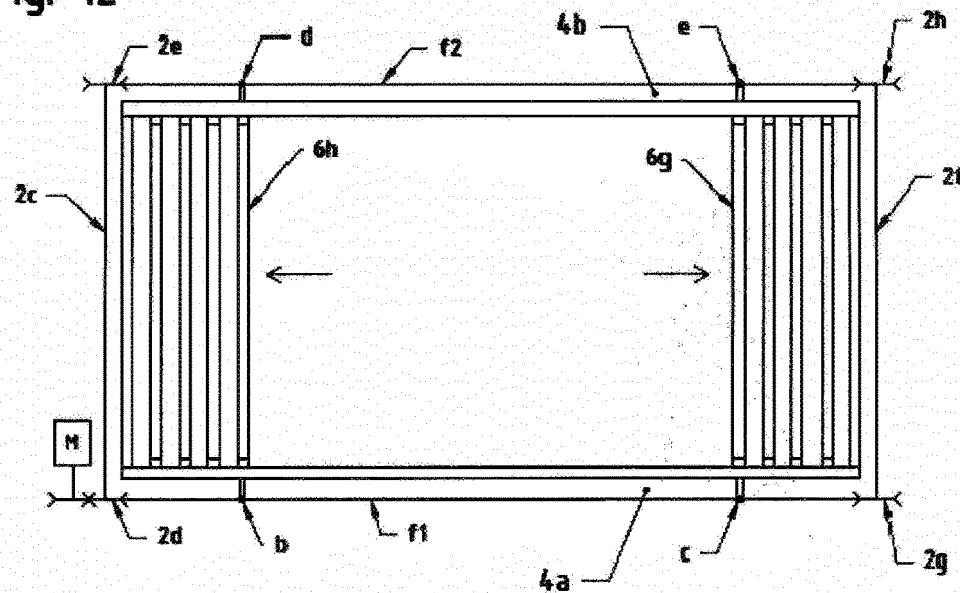


Fig. 13

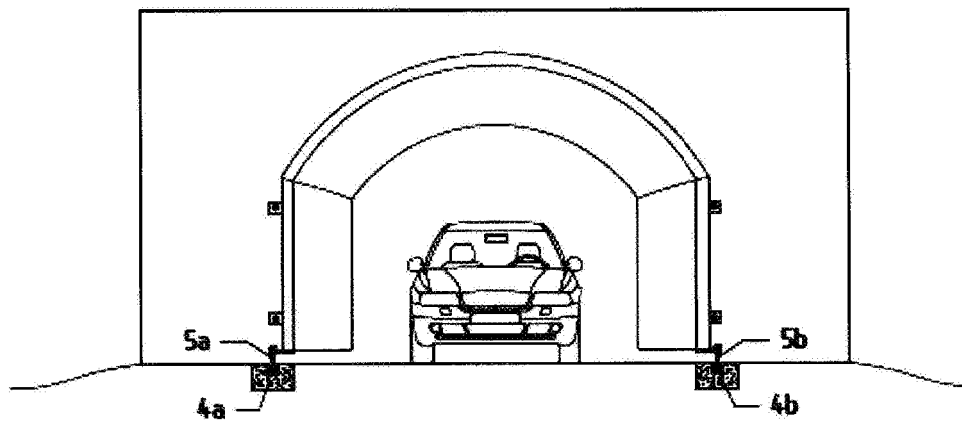


Fig. 14

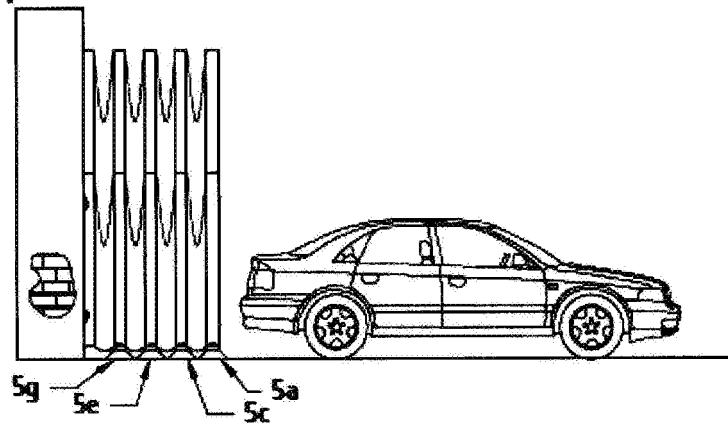
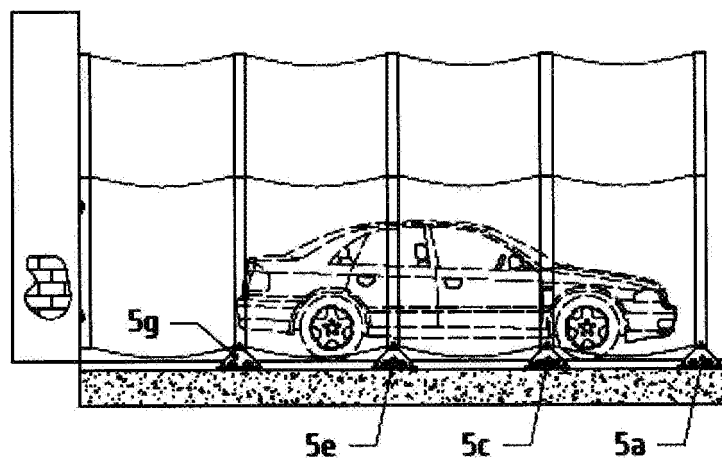


Fig. 15



INTERNATIONAL SEARCH REPORT

International application No.
PCT/ES2014/000058

A. CLASSIFICATION OF SUBJECT MATTER

E04F10/02 (2006.01)

According to International Patent Classification (IPC) or to both national classification and IPC

B. FIELDS SEARCHED

Minimum documentation searched (classification system followed by classification symbols)

E04F

Documentation searched other than minimum documentation to the extent that such documents are included in the fields searched

Electronic data base consulted during the international search (name of data base and, where practicable, search terms used)

EPODOC, INVENES

C. DOCUMENTS CONSIDERED TO BE RELEVANT

Category*	Citation of document, with indication, where appropriate, of the relevant passages	Relevant to claim No.
A	US 2603171 A (SMITH HORACE G) 15/07/1952, column 2, line 14- column 4, line 54; figures.	1-4
A	US 2001035204 A1 (LIN ZONG-TSAN) 01/11/2001, figures	1,8
A	IT BO980243 A1 (CORRADI S R L) 15/10/1999, figures 2,3,4.	1-4,8
A	ES 1054415U U (HIDALGO GIL JUAN ANTONIO) 16/07/2003, columnas 3 and 4; figures.	1-4,8
A	ES 1016096U U 16/10/1991, pages 4 and 5; figures.	1,8
A	GR 1005752 B (AFOI APOSTOLOPOULOI O E) 20/12/2007, figures	1-8

☒ Further documents are listed in the continuation of Box C.

☒ See patent family annex.

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Date of the actual completion of the international search
15/07/2014

Date of mailing of the international search report
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INTERNATIONAL SEARCH REPORT

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PCT/ES2014/000058

C (continuation).	DOCUMENTS CONSIDERED TO BE RELEVANT	
Category *	Citation of documents, with indication, where appropriate, of the relevant passages	Relevant to claim No.
A	JP H09290829 A (SUZUKI SHUTTER MFG) 11/11/1997, figures 1,2 14-18.	8
A	US 3760550 A (MUELLER W ET AL.) 25/09/1973, figures.	1

Form PCT/ISA/210 (continuation of second sheet) (July 2009)

INTERNATIONAL SEARCH REPORT

International application No.
PCT/ES2014/000058

Box No. II Observations where certain claims were found unsearchable (Continuation of item 2 of first sheet)

This international search report has not been established in respect of certain claims under Article 17(2)(a) for the following reasons:

1. ☐ Claims Nos.:
because they relate to subject matter not required to be searched by this Authority, namely:
2. ☐ Claims Nos.:
because they relate to parts of the international application that do not comply with the prescribed requirements to such an extent that no meaningful international search can be carried out, specifically:
3. ☐ Claims Nos.:
because they are dependent claims and are not drafted in accordance with the second and third sentences of Rule 6.4(a).

Box No. III Observations where unity of invention is lacking (Continuation of item 3 of first sheet)

This International Searching Authority found multiple inventions in this international application, as follows:

Claims 1-7 relate to a movable roof with a canvas (8) attached to trusses (6, 13-15) that move on parallel rolling tracks (4) by means of trolleys (5). The actuation system has a motor (9) with a drive shaft (10) that is attached to the first truss (6) and transmits the movement thereto by means of a pinion (2) of the shaft that engages a toothed rack (1) of the tracks (4). The truss (6) is moved together with the motor and the drive shaft.

Claim 8 claims the movement of the trusses on the tracks, the actuation system being formed by a motor M that rotates a shaft 2, the motor and the shaft being firmly attached to the end of the rolling tracks, the shaft transmitting the movement to two toothed disks at the ends thereof, which in turn move a closed-loop chain in the tracks, the trusses being attached to these chains and moving together with the chains. The motor and the drive shaft remain fixed at one end.

1. ☐ As all required additional search fees were timely paid by the applicant, this international search report covers all searchable claims.
2. ☒ As all searchable claims could be searched without effort justifying additional fees, this Authority did not invite payment of additional fees.
3. ☐ As only some of the required additional search fees were timely paid by the applicant, this international search report covers only those claims for which fees were paid, specifically claims Nos.:
4. ☐ No required additional search fees were timely paid by the applicant. Consequently, this international search report is restricted to the invention first mentioned in the claims; it is covered by claims Nos.:

Remark on Protest

- ☐ The additional search fees were accompanied by the applicant's protest and, where applicable, the payment of a protest fee.
- ☐ The additional search fees were accompanied by the applicant's protest but the applicable protest fee was not paid within the time limit specified in the invitation.
- ☐ No protest accompanied the payment of additional search fees.

INTERNATIONAL SEARCH REPORT

International application No.

PCT/ES2014/000058

Information on patent family members

Patent document cited in the search report	Publication date	Patent family member(s)	Publication date
US2603171 A	15.07.1952	NONE	
US2001035204 A1	01.11.2001	US6546943 B2 CN2416728Y Y	15.04.2003 31.01.2001
ITBO980243 A1	15.10.1999	IT1299972 B1	04.04.2000
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ES1016096U U	16.10.1991	ES1016096Y Y	01.07.1992
GR1005752 B	20.12.2007	NONE	
JPH09290829 A	11.11.1997	NONE	
US3760550 A	25.09.1973	NONE	

Form PCT/ISA/210 (patent family annex) (July 2009)