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(54) **Modular unfoldable cover structure**

(57) A modular structure that can be anchored to the ground or to a wall, and which can then be unfolded to cover cars, boats or goods, includes a C-shaped container (1) that is also the structural element on which the cover rests and which is used to anchor it to the ground or to a wall or in order to arrange several structures to-

gether and is also used to store the support structure for the canvas, which folds down accordion-style into the container (1), equipped with a hinged lid (2), which when open allows the canvas support structure to be unfolded composed of two separate hoods (A) and (B), connected to each other at the top by two hinges (5) situated along a virtual connecting axis (H).

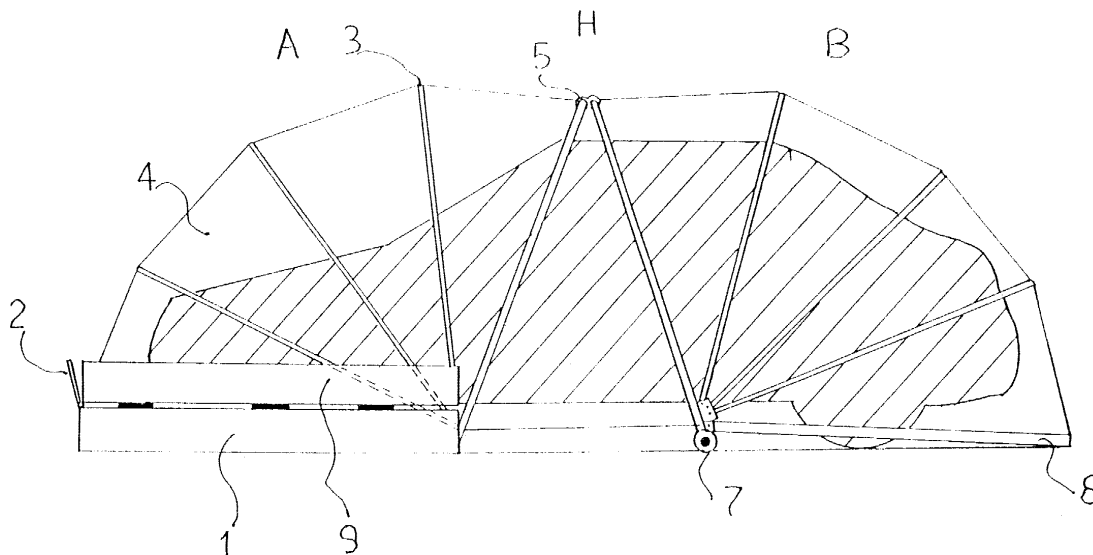


FIG. 3

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Description

Technical field

[0001] This invention is composed of a modular structure that can be unfolded and which can be used to cover motor vehicles or a varied range of other objects.

Prior art

[0002] Notwithstanding the fact that a great deal of research has been carried out on this matter, even on perfecting already existing systems for covering motor cars and motorcycles as an alternative to brick garages, which are not available to everyone both due to their cost, which is always exorbitant in regard to the vehicles to be covered, or to difficulty in finding space and obtaining the necessary permissions from local authorities. A possible alternative to a brick garage is to use a type of structure that can be disassembled, made of metal trelliswork of various types, usually fixed to the ground and covered with canvas; even though this type of structure is much more economic, it still occupies valuable space that could be used for other purposes when it is not necessary to cover the motor vehicle in question; another type of cover is a simple canvas or plastic cover placed directly over the vehicle, or over a temporary distancing support. These in particular are solutions that are not very practical, as they should only be used when both canvas cover and vehicle are perfectly clean, otherwise the dirt passes from one surface to the other, thus dirtying or even scratching the vehicle instead of protecting it, due to the abrasive effect of rubbing the canvas against the vehicle's paint-work when putting the cover on or taking it off. This is also not a particularly hygienic method of covering a vehicle, because the canvas is removed and folded by hand; due to its size it is difficult to fold and unfold and is also bulky to store, it transfers heat directly to the surface of the vehicle, offers no protection whatsoever from external agents, or from attempts to steal the vehicle itself.

The aims of this invention

[0003] After much detailed research to find the best technical solutions I have projected the following as an adequate alternative to the covers for motor vehicles that are already on the market today and which, as is clear from the considerations listed above, are not exempt from inconveniences. The cover for which I request patent protection represents a completely new idea in the sector because it presents a solution to various problematic techniques that are common to all the types of covers on the market today.

[0004] The aim of this invention is to eliminate these inconveniences through well-known methods and devices that are innovative in the ways they are assembled and used to overcome the inconveniences found in the

products already on the market; they are fully able to satisfy people's new habits and together form a product that is extremely practical to use.

[0005] Another aim of this invention is to obtain a product that has a simple and safe method of functioning, a structure is light in weight and yet robust, made from materials that are easily found and not expensive and the parts of which can be assembled easily and quickly, thus ensuring that industrial production is advantageous and the final cost of the product is very contained.

[0006] In particular, the principle objective of this invention is that of conceiving and assembling a structure that in its various preferred and proposed forms, for use in covering parked motor vehicles, boats, or other objects to be stored on private property, that is to create mini-garages or storage spaces that can be disassembled, thanks to its particularly simple anchoring characteristics and the way in which the product can be unfolded for use or folded for storage extremely easily in a very short time without the use of special tools and by people with no technical experience whatsoever.

[0007] Another aim of this invention is that of realising a completely modular structure that can be used singularly or assembled in a series of an undefined number of elements or diverse configurations, according to the surface to be covered or in order to meet various possible needs.

[0008] Another aim of this invention is to realise a modular structure which, thanks to its particular anchoring characteristics, it can be transported together with all its accessories in such a way that the surface to which it is anchored will not be damaged in any way.

The description of the attached drawings and the way in which this invention is realised

[0009] The aims and advantages of this invention will be more clearly understood from the detailed description below and also by referring to the attached diagrams that are supplied in a purely illustrative form that is in no way limiting and in which:

[0010] Figure 1 shows a three dimensional view of the various elements and the unfolding phases of the covering structure of which this invention is composed.

[0011] Figure 2 shows a three dimensional view of the covering structure when it is completely unfolded.

[0012] Figure 3 shows a lateral view of the entire covering structure of which this invention is composed when it is placed over a motor vehicle.

[0013] Figure 4 shows a three dimensional view of the container for the covering structure, which is also a part of this invention, resting against a brick wall and ready to be unfolded.

[0014] Figure 5 shows a diagram of a way in which several structures can be arranged in order to form parking islands in large spaces.

[0015] Figure 6 shows a diagram of an example of a

covering structure for a motor vehicle.

[0016] Figure 7 shows a diagram of a further example of a covering structure for a boat.

[0017] Figure 8 shows a diagram of free edges of the end centered support rest on a wheel .

[0018] Figure 9 shows a diagram of a hinge with a limiting spring .

[0019] The modular structure of which this invention is composed includes a C-shaped container (1) that is also the structural element on which the cover rests and which is used to anchor it to the ground or to a wall or in order to arrange several structures together. This container (1) is equipped with a hinged lid (2), which when open allows the canvas support structure to be unfolded, and is also used to store the support structure for the canvas, which folds down accordion-style into the container (1).

[0020] The supporting structure for the canvas cover is composed of two separate hoods (A) and (B), each of which is made up of twin centered supports, which are connected to the anchoring structure at their free edges (C) and (C), and of a series of intermediate centered supports (3) which are attached to the canvas cover (4); the hoods (A) and (B) are connected to each other at the top by two hinges (5) situated along a virtual connecting axis (H).

[0021] The first hood (A) is equipped with a hinge (6) with a limiting spring on each of the free edges (C) of the end centered supports that will limit the angle of aperture of the hood (A) itself, while each of the free edges (C) of the end centered supports of hood (B) rests on a wheel (7) that supports the lateral covers (9) of the container (1) on its end centered supports (8).

[0022] As can be seen in figure 1, a) the container (1) is resting on the ground in the closed position; in b) the lid (2) is open and the hood (A) is completely lifted; in c) the hood (B) is being unfolded by pulling longitudinally on it in such a way that the centered supports unfold like a fan to form the configuration of complete extension as shown in figure 2.

[0023] The fact that the structure is divided into two hoods supplied with an assembly of hinges, limiting springs and wheels is worthy of note as it not only permits the cover to be unfolded and folded easily and quickly, but also for it to be adapted to the length of the vehicle to be covered, while ensuring that the painted surfaces of the vehicle will not be touched.

[0024] It is easy to fold and unfold the covering structure into the container (1). All that is necessary is to unlock an eventual safety device, lift the hood (B) by taking hold of the handle and oscillating it, pushing it towards the back, assisted by the wheels (7). During this folding movement towards the back the hoods (A) and (B) are superimposed one over the other around their virtual connecting axis (H), through which the entire structure can be folded inside the container (1). When the covering structure is folded into the container (1), all the centered support structures will be aligned one on top of the

other in such a way as to occupy the minimum of space possible and for them to be folded easily into the container (1) and to close its lid (2).

[0025] The actual covering canvas can be made of materials of various types and consistencies, for example, it can be realized with a thermal interspace, or using special materials capable of impeding the formation of ice or frost on the cover. Normally it is preferable that the structure should be light and yet robust and the covering cloth (4) made of an impermeable fabric in natural or synthetic fiber, with tubular seams on each side (or even extended longitudinally at the center) inside which an elastic cord is passed around the perimeter of the longest sides, ensuring that the entire cover is kept in tension. This system allows the cover to be folded easily and quickly into the container (1), together with the centered supports. The module that is the subject of this invention has a C-shaped configuration and the exterior dimensions as well as the interior structure can be varied through the use of longer or shorter centered supports and covers that will thus allow it to be adapted to motor vehicles or other articles of any dimension.

[0026] The modular composition of the invention permits one or more modules to be assembled in such a way as to cover large surface areas, practically without limit, as can be seen in figure 5.

[0027] The centered supports are made of plastic tubing, anodized aluminum, galvanized iron or other suitable materials bent to form a C-shape.

[0028] These centered supports are attached to the covering by sewing or are inserted into pre-shaped soldered or stitched pockets.

[0029] The surface at the bottom of the container (1), which is suitably equipped with drainage holes, forms the base through which the invention can be anchored to the ground or to a wall using expansion bolts. The aforesaid surface provides a perfect distribution of the weight onto the ground or to the wall and contrasts eventual transversal pressure, such as that from gusts of wind, for example.

[0030] The covering device described above, the subject of this invention, is useful to the owners of motor vehicles who have open parking spaces on private ground, usually adjacent to their homes, on which they can store motor vehicles or other items which they wish to protect from atmospheric agents such as sunlight, which might damage the paint work or overheat the inside of the vehicle, or from the formation of ice or frost on the vehicle while ensuring that the vehicle is always ready for use. But this invention is also useful to protect vehicles from bad weather, dust, tree resin, bird excrement and vandals.

[0031] The cover can be extended to cover or partially cover the entire length of the vehicle, not just on its upper surface, but also laterally (complete cover) and is also extremely simple to use.

[0032] It is worthy of note that the modular structure that is the subject of this invention, when not in use, oc-

cupies a very limited space on the ground, or even no space at all if it is attached to a wall, and in any case it does not require a lot of space when it is fully extended, other than that strictly necessary to cover the vehicle.

[0033] It can be locked with a padlock or other security device to ensure that neither the container nor the cover, once it is in place over a vehicle or other articles, can be opened inopportunely.

[0034] If the cover is equipped with special automation devices, for example electric devices, the structure can be opened or closed automatically without any effort or manual intervention whatsoever on the part of the owner, thus giving it the advantage that it is even simpler and easier to use.

[0035] A structure as described in this invention, which uses extremely simple means to realize these functional and aesthetic characteristics, which it would be almost impossible to realize with other systems already on the market today, also guarantees that it can be installed solidly by anchoring it to the ground or to a wall, is extremely flexible in its uses, in particular that it is easy to open and close, occupies very little space when closed, is portable, its cost is very contained and it forms an efficacious response to the most varied needs, thus assuming great importance and commercial value.

Claims

1. A modular structure that can be anchored to the ground or to a wall, and which can then be unfolded to cover cars, boats or goods, characterised by the fact that includes a C-shaped container (1) that is also the structural element on which the cover rests and which is used to anchor it to the ground or to a wall or in order to arrange several structures together and is also used to store the support structure for the canvas, which folds down accordion-style into the container (1), equipped with a hinged lid (2), which when open allows the canvas support structure to be unfolded composed of two separate hoods (A) and (B), connected to each other at the top by two hinges (5) situated along a virtual connecting axis (H).
2. A modular structure that can be anchored to the ground or to a wall, and which can then be unfolded to cover cars, boats or goods as in claim 1) characterised by the fact that the first hood (A) is equipped with a hinge (6) with a limiting spring on each of the free edges (C) of the end centered supports that will limit the angle of aperture of the hood (A) itself, while each of the free edges (C) of the end centered supports of hood (B) rests on a wheel (7) that supports the lateral covers (9) of the container (1) on its end centered supports (8).
3. A modular structure that can be anchored to the ground or to a wall, and which can then be unfolded to cover cars, boats or goods as in claim 1) and 2) characterised by the fact that the following phases are used to unfold the cover: with the container (1) resting on the ground or anchored to a wall, in the closed position, simply lift the lid (2) and the cover (A) will unfold, the hood (B) is being unfolded by pulling longitudinally on it in such a way that the centered supports unfold like a fan to form the configuration of complete extension.
4. A modular structure that can be anchored to the ground or to a wall, and which can then be unfolded to cover cars, boats or goods as in claim 1) and 2) characterised by the fact that is easy to fold and unfold the covering structure into the container (1), in fact all that is necessary is to unlock an eventual safety device, lift the hood (B) by taking hold of the handle and oscillating it, pushing it towards the back, assisted by the wheels (7); during this folding movement towards the back the hoods (A) and (B) are superimposed one over the other around their virtual connecting axis (H), through which the entire structure can be folded inside the container (1).
5. A modular structure that can be anchored to the ground or to a wall, and which can then be unfolded to cover cars, boats or goods as in claim 1), 2) and 4) characterised by the fact that the covering cloth (4) made of an impermeable fabric in natural or synthetic fiber, with tubular seams on each side (or even extended longitudinally at the center) inside which an elastic cord is passed around the perimeter of the longest sides, ensuring that the entire cover is kept in tension. This system allows the cover to be folded easily and quickly into the container (1), together with the centered supports.
6. A modular structure that can be anchored to the ground or to a wall, and which can then be unfolded to cover cars, boats or goods as in claim 1) and 2) characterised by the fact that the modular composition of the invention permits one or more modules to be assembled in such a way as to cover large surface areas, practically without limit.
7. A modular structure that can be anchored to the ground or to a wall, and which can then be unfolded to cover cars, boats or goods as in claim 1) and 2) characterised by the fact that the centered supports are made of plastic tubing, anodized aluminium, galvanized iron or other suitable materials bent to form a C-shape; these centered supports are attached to the covering by sewing or are inserted into pre-shaped soldered or stitched pockets.
8. A modular structure that can be anchored to the

ground or to a wall, and which can then be unfolded to cover cars, boats or goods as in claim 1) and 2) characterised by the fact that the surface at the bottom of the container (1), which is suitably equipped with drainage holes, forms the base through which the invention can be anchored to the ground or to a wall using expansion bolts and the container (1) is equipped with special automation devices, for example electric devices, the structure can be opened or closed automatically without any effort or manual intervention whatsoever on the part of the owner.

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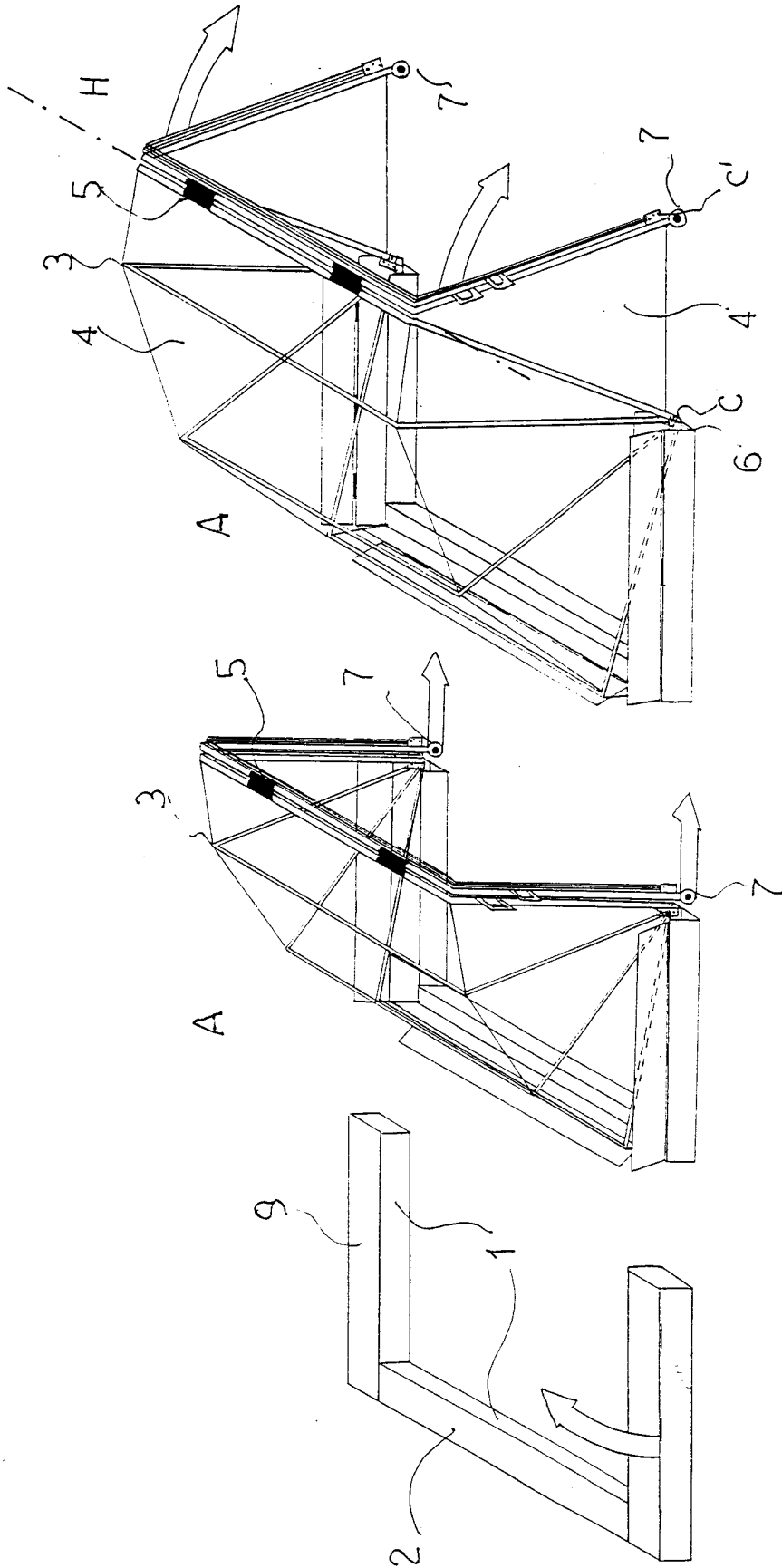


FIG. 1

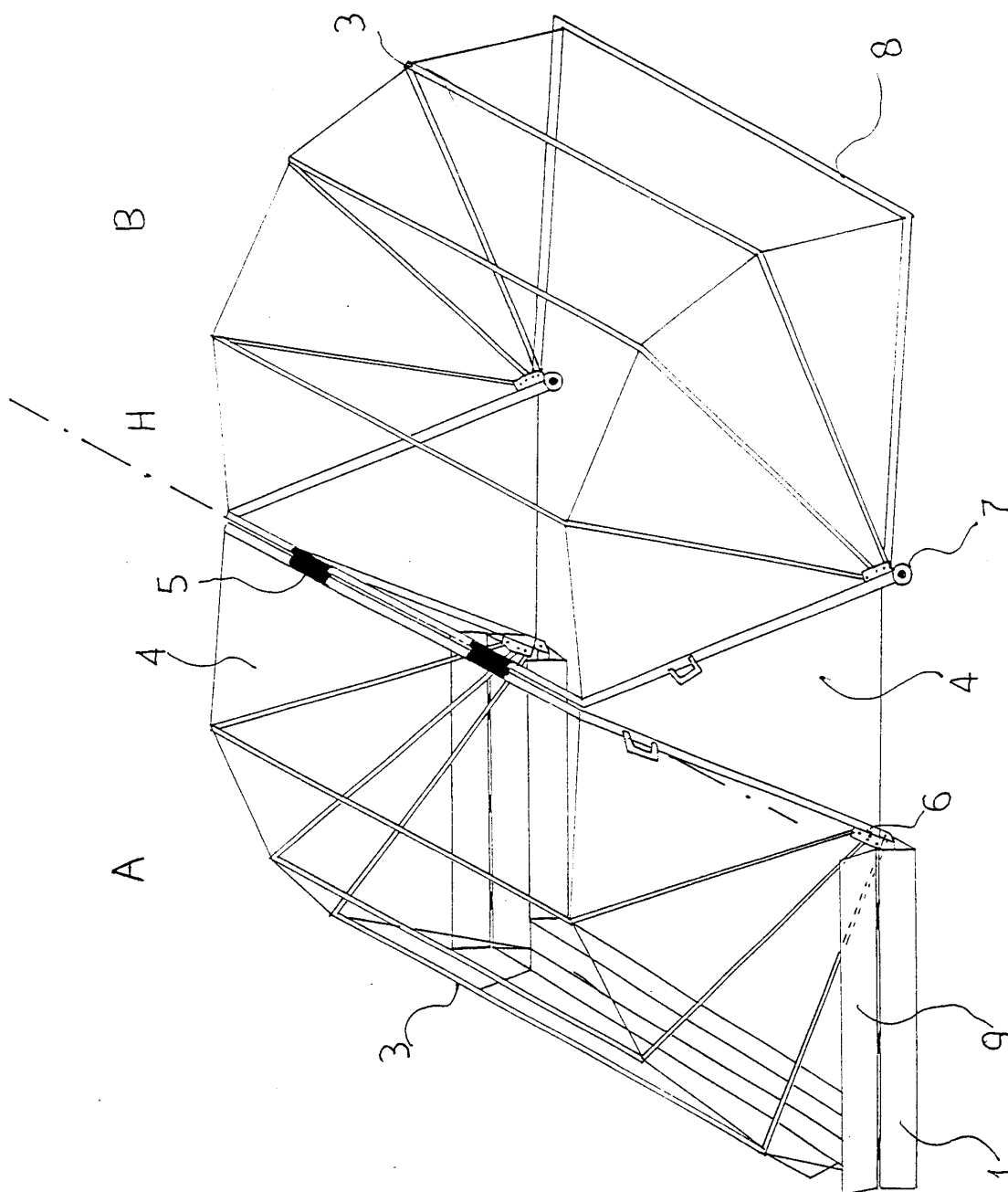


FIG. 2

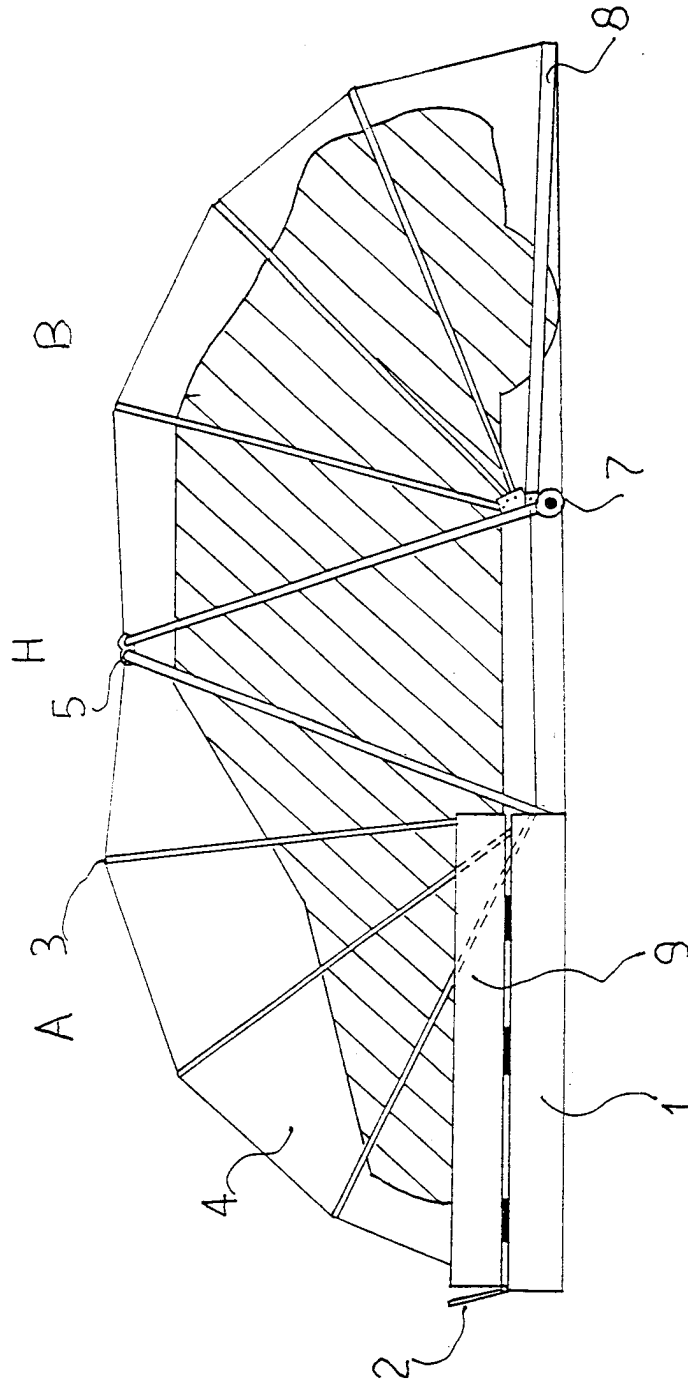


FIG. 3

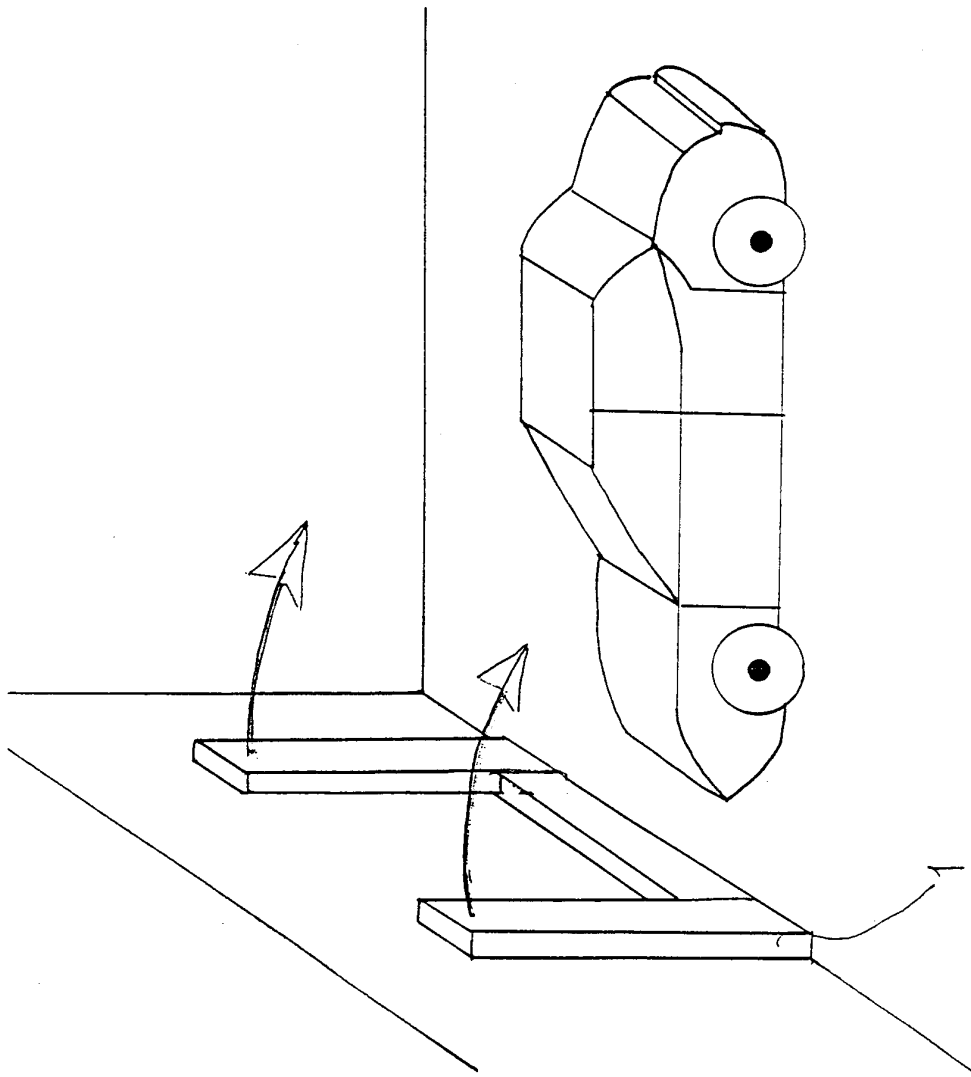


FIG.4

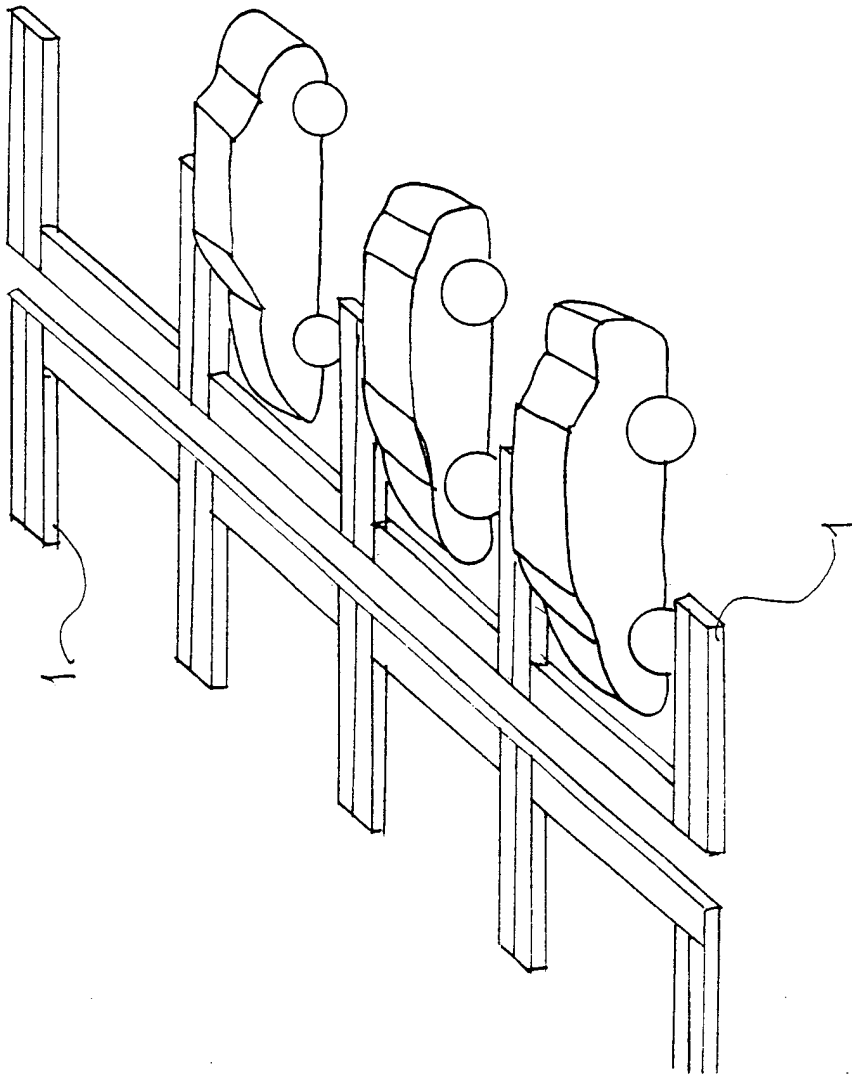


FIG.5

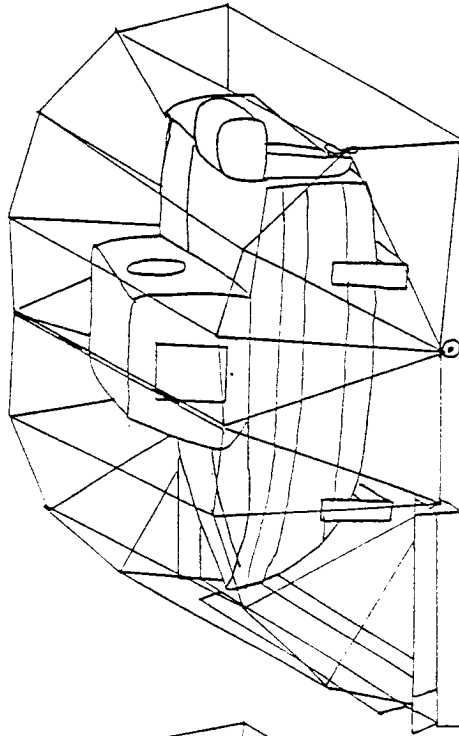


FIG. 7

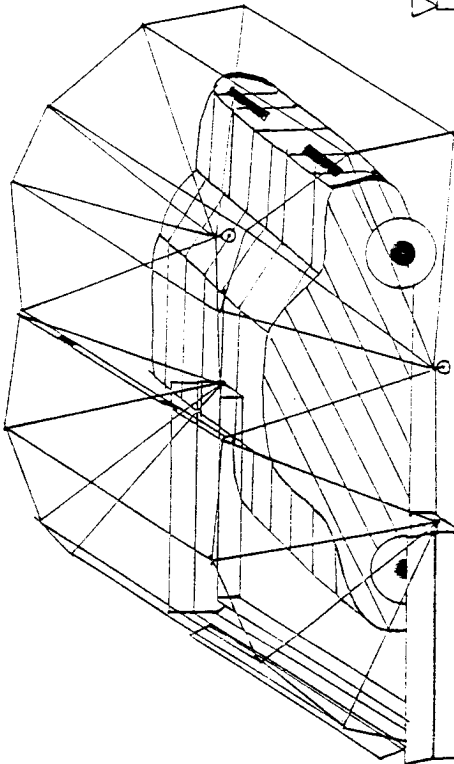
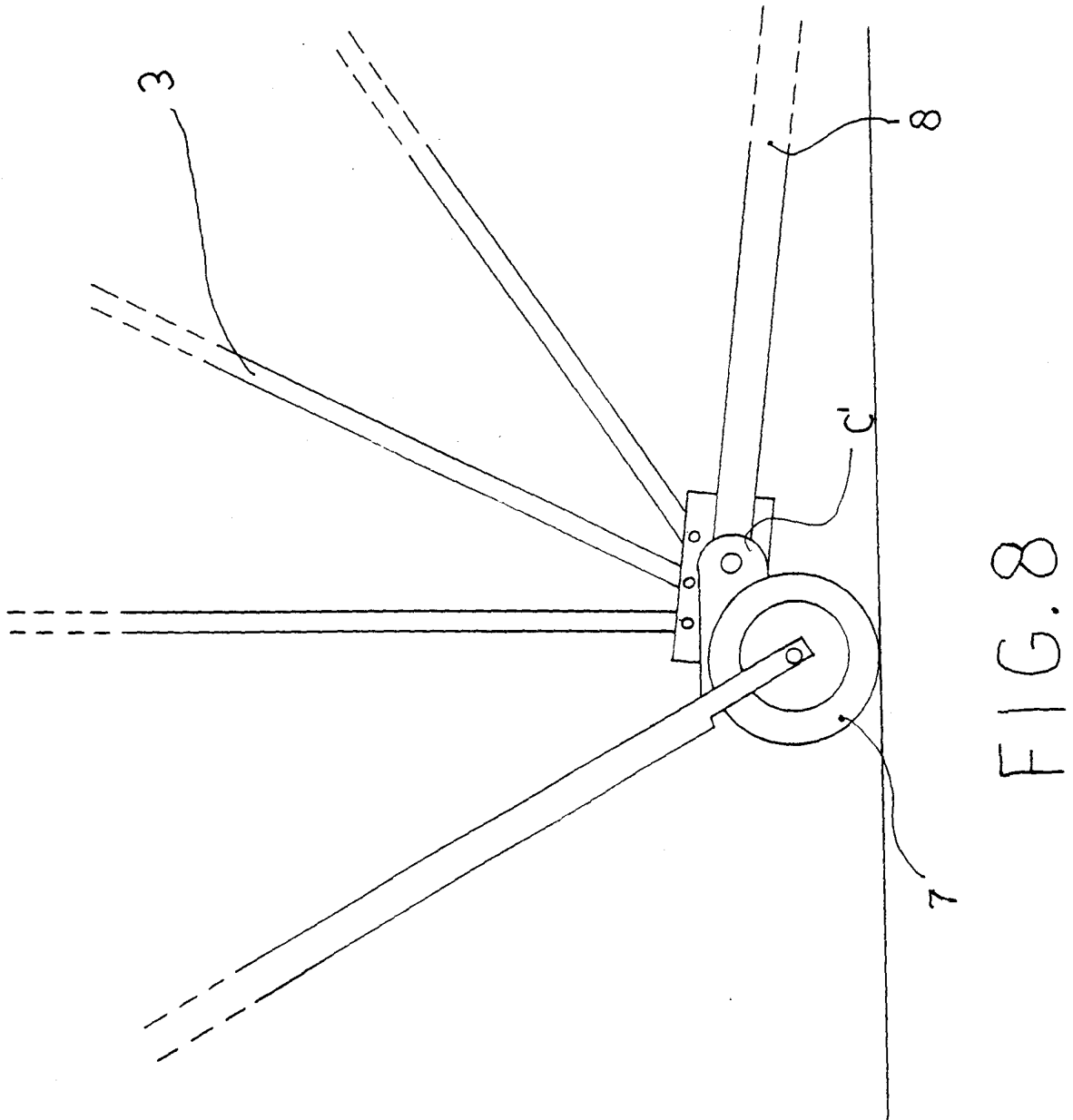


FIG. 6



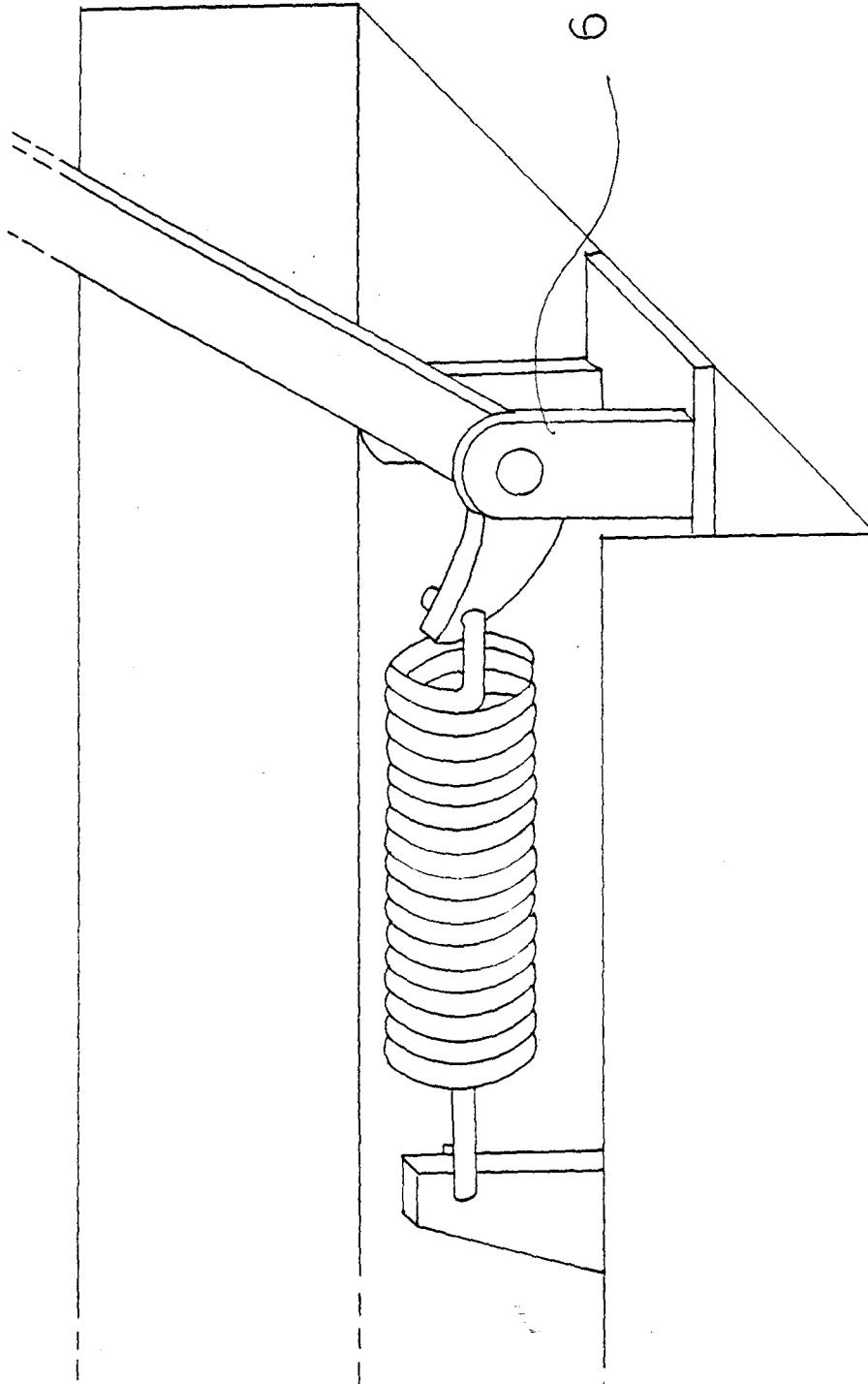


FIG. 9