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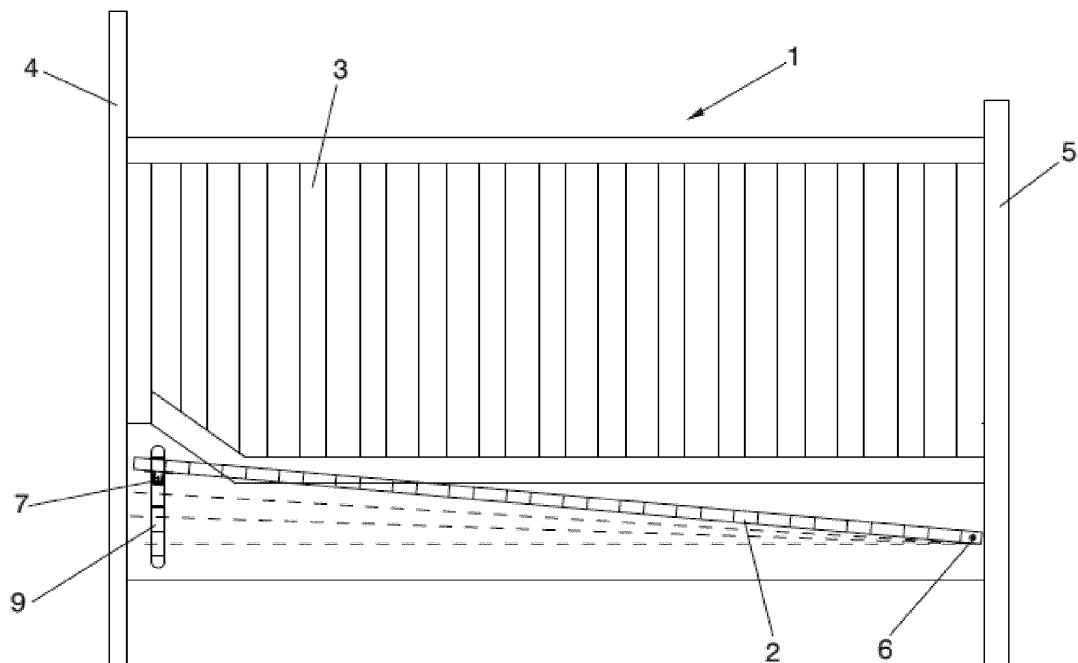
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(54) **Cradle with reclinable bed base**

(57) The present invention relates to a cradle with reclinable bed base having a bed base (2) arranged within longitudinal sides (3), the lower end or head (4) and the lower end (5), said bed base (2) is secured by means of an inclination mechanism comprising: articulated attachments (6) on both sides of one end of said bed base

(2); and, respective sets of retractable bolt (7) on both sides of the opposite portion linked to one another by means of a steel cable (8), which sets of retractable bolt tend to emerge towards the sides of the bed base (2) for fitting in respective guide parts (9), arranged in the manner that matches the longitudinal sides (3) and in which said bolts can be retained at different heights.



**FIG. 2**

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## Description

### Object of the Invention

**[0001]** The present invention, cradle with reclinable bed base, relates to a cradle incorporating a reclinable bed base, particularly a cradle or bed for small children the bed base of which is provided with an anchoring system which allows reclining it, slightly increasing the height of the upper area of the bed base or of the head thereof with respect to the lower area or lower end, allowing different degrees of inclination to provide comfort and to help baby to fall asleep if necessary.

**[0002]** The field of application of the present invention is encompassed within the sector of furniture industry, particularly focusing on the scope of cradles and child's bed manufacturing.

### Background of the Invention

**[0003]** As is known, babies or young children are often recommended to sleep with their heads slightly raised above the height of their feet for alleviating certain respiratory symptoms and for preventing stomach reflux, for which putting pillows under the head of the baby, putting folded blankets or other elements under the mattress lifting the upper portion thereof or other home remedies which allows achieving said higher position of the head are usually used, since even though some conventional cradles have regulation systems which allow placing the bed base at different heights, said systems are only designed for putting the bed base in a horizontal position when assembling the cradle.

**[0004]** The aim of the present invention is to thus develop a new type of cradle or child's bed the bed base of which has a practical, easy and fast to assemble and use system to enable reclining the bed base at a given time and adjust the inclination thereof as needed, it must be pointed out that the applicant is unaware of the existence of any other cradle with reclinable bed base or invention with similar application having technical, structural and constitutive features similar to those presented by the claimed invention proposed herein.

### Summary of the Invention

**[0005]** The cradle object of the present invention comprises a bed base arranged in the structure of a cradle, formed by two longitudinal sides, one end or upper portion or head and one end or lower portion, the bed base comprising an inclination mechanism having means which allow rotating same with respect to a shaft located between the longitudinal sides of the cradle at one end of the bed base, coinciding with the lower end of the cradle; and at the opposite end or upper end of the bed base, and on both sides thereof it has securing devices which can be retained at different heights of the longitudinal sides or of the ends of the cradle.

**[0006]** In particular, the bed base has an inclination mechanism comprising retractable bolts with spring installed in the front lower portion of the bed base on each side thereof, which bolts always slide at the same time through metal guide parts which are embedded in slots provided for such purpose in the longitudinal sides of the structure of the cradle, which have several steps for fixing the mentioned bolts therein at different heights, thus providing the possibility of lifting said front part of the bed base to different heights and subsequently reclining it with different angles.

**[0007]** The guide parts preferably have four steps allowing four different bed base positions, three positions with different degree of inclination and a completely flat or horizontal position.

**[0008]** To lift the bed base, the bed base is simply pulled upwards holding it by its first wooden crossbar and the pins slide through the metal guides until they are located in the desired position.

**[0009]** To lower the bed base, the system contemplates the existence of an element which allows the simultaneous activation of both pins or fastening element, preferably a securing element formed by a steel cable attaching the two pins and which allows retracting the bolts when it is pulled, so that they come out of the step in which they are held and enable lowering the bed base to its flat position passing through all the existing intermediate positions.

**[0010]** In the opposite portion of the bed base, i.e., in the portion corresponding to the feet, the bed base has articulated attachments on each side for rotating the bed base with respect to a shaft located between the longitudinal sides of the cradle, said attachments preferably being a metal pivot attaching it to the structure of the cradle and allowing it to tilt on a shaft for reclining it.

**[0011]** The benefits of this cradle with reclinable bed base in relation to conventional cradles is that with this system breathing is facilitated in the case of coughs, colds, bronchiolitis, or other respiratory conditions in babies or young children. It also prevents or helps to reduce reflux or baby colic.

**[0012]** On the other hand, the cradle object of the present invention has the advantage of being very easy to use by the users, its assembly also being very simple, since everything is tightened, fitted, and placed at the factory, and it is assembled like any other conventional cradle, all of its portions being assembled.

### Description of the Drawings

**[0013]** To complement the description of the invention and to aid a better understanding of the features thereof, a set of drawings is attached to the this specification in which the following has been depicted with an illustrative and nonlimiting character:

Figure 1 shows a lower plan view of an embodiment of the cradle with reclinable bed base object of the

invention, the arrangement of the main parts and elements it comprises being seen therein.

Figure 2 shows a cross-section view of the example of the cradle of the invention according to section A-A' shown in Figure 1, the inclined position of the bed base being seen therein.

Figure 3 shows a cross-section view of the cradle shown in the preceding figures according to section B-B' shown in Figure 1, where the cable attaching the two bolts of the reclining mechanism of the cradle is clearly seen.

Figures 4 and 5 show respective elevational, side and front views, respectively, of the guide parts with steps incorporated in the cradle of the invention on the longitudinal sides of the structure.

Figures 6 and 7 show respective perspective views of the set of bolt of the cradle of the invention as the elevation mechanism of the bed base.

Figures 8 to 13 show different orthogonal views of the parts forming the set of bolt. Specifically: Figures 8 and 9 show a plan view and an elevational view of the securing part; Figures 10 and 11 show a front elevational and side views of the intermediate bushing; and Figures 12 and 13 show the side elevational and plan views of the moveable pin, Figure 12 shows the cable fixed thereto.

#### Preferred Embodiment of the Invention

**[0014]** In view of the mentioned drawings, a preferred embodiment of the invention is described below. Therefore, as seen in said drawings, the cradle (1) object of the invention has a bed base (2), conventionally arranged within respective longitudinal sides (3), an upper end or a head (4) and a lower end (5), which bed base is secured to said longitudinal sides (3) by means of an inclination mechanism comprising:

- articulated attachments (6), for example consisting of pivots, on both sides of one end of said bed base (2), preferably the end corresponding to the lower portion or lower end (5),
- and on both sides of the opposite portion, therefore preferably in the upper portion or close to the head (4), respective sets of retractable bolt (7) which are linked to one another by means of a steel cable (8) and tend to emerge towards the sides of the bed base (2) for fitting in respective guide parts (9), arranged in a manner that matches the longitudinal sides (3) of the cradle embedded in slots made for such purpose, and in which said bolts can be retained at different heights.

**[0015]** In a preferred embodiment of the invention as seen in Figures 4 and 5, the guide parts (9) consist of a flat metal bar having several steps (9a), preferably four, determining four retention positions.

**[0016]** In turn, as seen in Figures 6 to 13, each of the

sets of retractable bolt (7) consists of:

- a securing part (10), shown in Figures 8 and 9, consisting of a metal part having a U-shaped cross-section with holes (10a) in its side branches (10b) which allow fixing it on the lower portion of the bed base (2), and it has therein a cross shaft (10c) slightly shifted with respect to its centre;
- an intermediate bushing (11), which can be seen in Figures 10 and 11, consisting of a tubular part made of plastic material, configured in the shape and size for fitting tightly in the securing part (10) and having, coinciding with the cross shaft (10c) of said securing part (10), respective side boreholes (11a) which are traversed by said cross shaft (10c);
- and a moveable pin (12) which is the retractable part holding the set of bolt (7) in the steps (9a) of the guide parts, consisting of an elongated metal part with two differentiated portions: a wider proximal portion in which it has a window (12a) where a fastening stop (12b) with a set screw (12c) is inserted retaining the end of the cable (8), making it pass through a borehole provided in said portion, which has a size preventing its passage through the U-shaped securing part (10) and the intermediate bushing (11); and a narrower distal portion, the size of which does allow it to be tightly inserted in the intermediate bushing (11), protruding from the opposite end of same and of the securing part (10), the protruding end of this distal portion of the pin being wedge-shaped (12d) for sliding along the steps (9a) of the guide parts (9) upon lifting the bed base (2) and supporting it by its flat side thereon. In this distal portion of the moveable pin (12), there has also been provided an inner hole (12e) which is traversed by the cross shaft (10c) of the securing part (10) and in which a spring (12f) is housed.

**[0017]** Therefore, upon pulling the cable (8), the respective ends of which are secured by means of the fastening stop (12b) to each moveable pin (12) of each set of bolt (7), said moveable pins (12) are retracted and their respective wedge-shaped ends (12d) stop abutting with the steps (9a) of the guide parts (9), allowing lowering the bed base (2).

**[0018]** Upon releasing the cable (8), the spring (12f) pushes the moveable pin (12) again making the wedge-shaped end (12d) protrude from the securing part (10) again and rest in any of the steps (9a) of the guide parts (9) or, if the bed base (2) is lifted without pulling the cable (8), it slides on said steps allowing adjusting the reclining height.

#### **Claims**

1. A cradle with reclining bed base comprising a bed base (2) arranged in the structure of a cradle com-

prising two longitudinal sides (3), one end or upper portion or head (4) and one end or lower portion (5), **characterised in that** said bed base (2) comprises an inclination mechanism having:

- means which allow rotating same with respect to a shaft between both longitudinal sides of the cradle at one end of the bed base, and
- securing devices which can be retained at different heights of the longitudinal sides or ends of the cradle at the opposite end of the bed base on both sides thereof.

2. The cradle according to claim 1, **characterised in that** the securing devices are located on both sides of an end of said bed base (2) and comprise respective sets of retractable bolt (7) emerging towards the sides of the bed base (2) for fitting in respective guide parts (9) arranged in the manner that matches the longitudinal sides (3) or ends of the cradle in which said bolts can be retained at different heights.
3. The cradle according to claims 1 and 2, **characterised in that** the securing devices are linked to one another by means of an element allowing their simultaneous activation.
4. The cradle according to claim 3, **characterised in that** said activation element is a steel cable (8).
5. The cradle according to claim 1, **characterised in that** the means which allow rotating the bed base are articulated attachments (6).
6. The cradle according to claim 2, **characterised in that** the guide parts (9) consist of a flat metal bar having steps (9a) determining many other retention positions.
7. The cradle according to claim 2, **characterised in that** each of the sets of retractable bolts (7) consists of:
  - a securing part (10) with a U-shaped cross-section;
  - an intermediate bushing (11) with side boreholes (11a) which are traversed by said cross shaft (10c);
  - and a movable pin (12) with a fastening stop (12b) retaining the end of the cable (8), with a spring (12f) and a protruding end resting in the guide part (9).
8. The cradle according to claim 7, **characterised in that** the movable pin (12) is an elongated part with two differentiated portions: a wider proximal portion in which it has a window (12a) where the fastening stop (12b) is inserted; and a narrower distal portion,

which is tightly inserted in the intermediate bushing (11), the protruding end of which is wedge-shaped (12d); **in that** there has been provided in said moveable part (12) an inner hole (12e) which is traversed by a cross shaft (10c) of the securing part (10) and in which the spring (12f) is housed.

9. The cradle according to claim 7, **characterised in that** the securing part (10) and the moveable pin (12) are metal parts and the intermediate bushing (11) is a part made of plastic material.

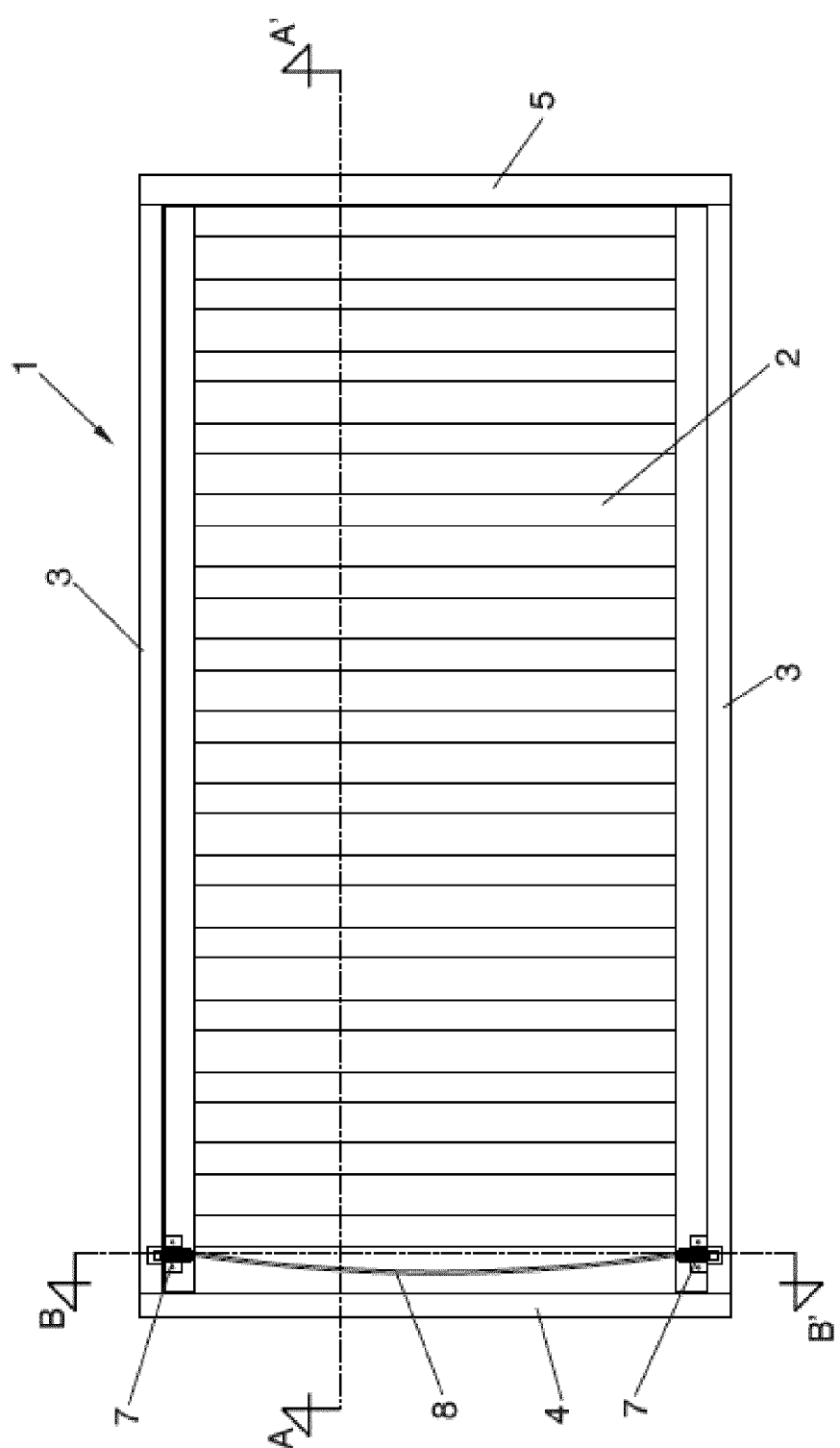


FIG. 1

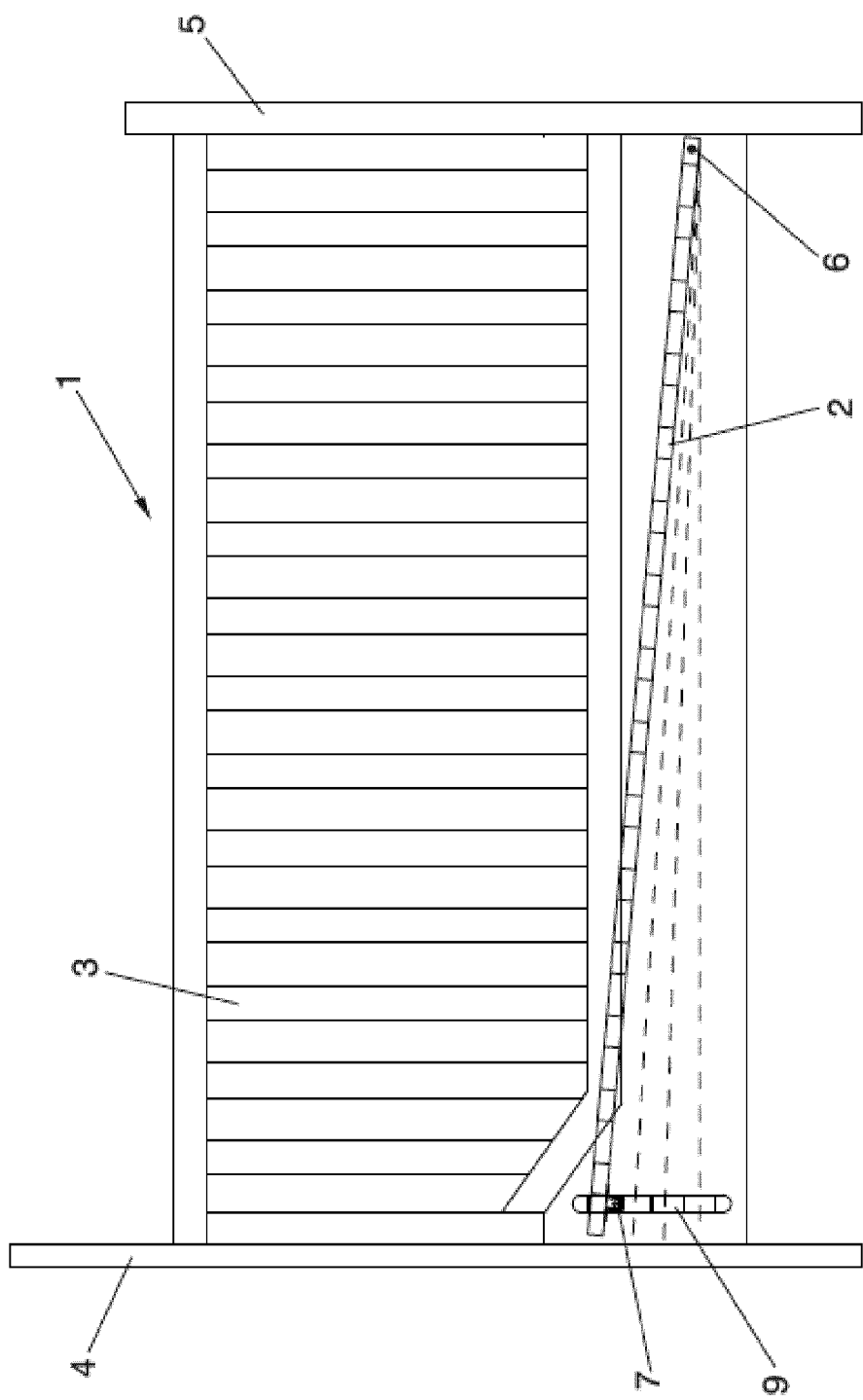
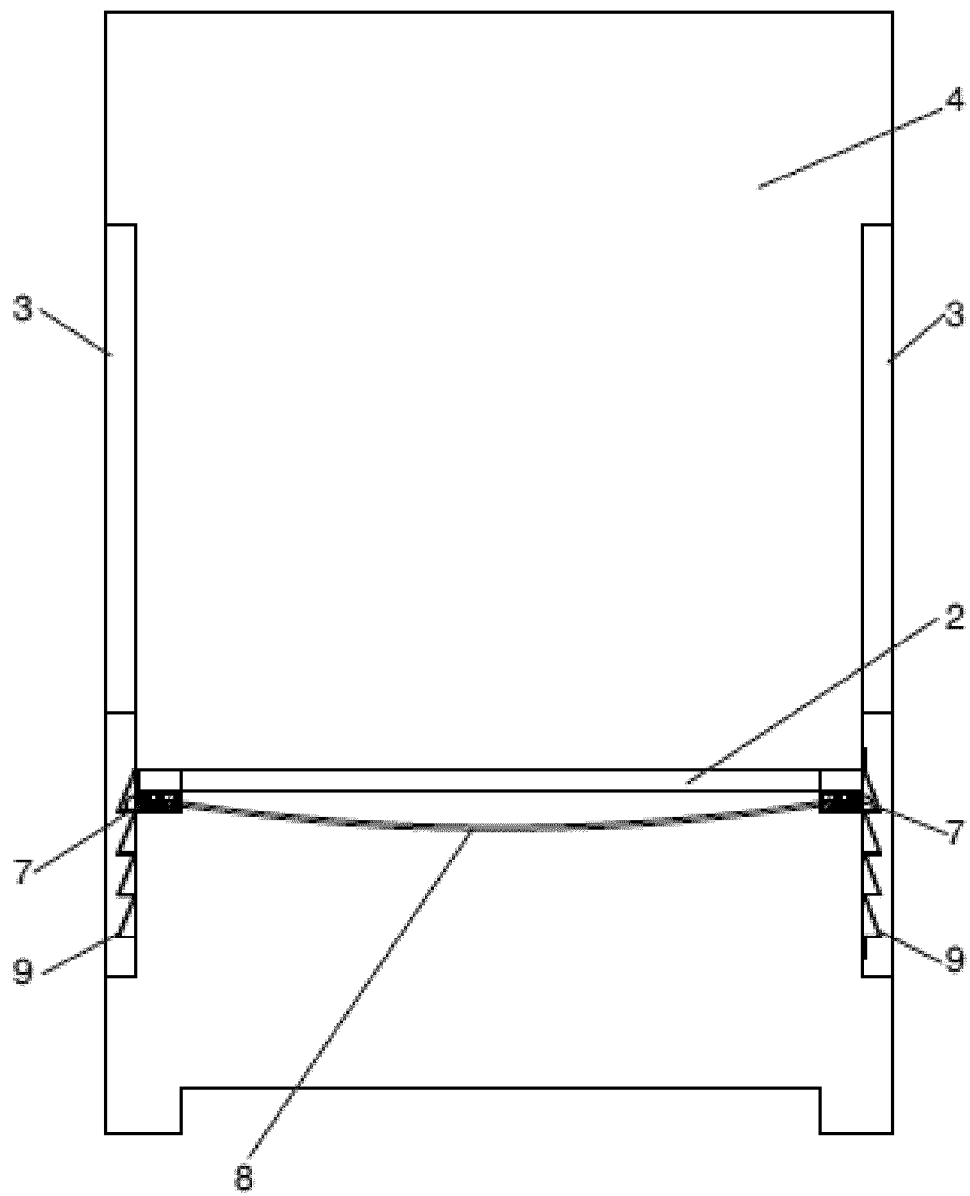
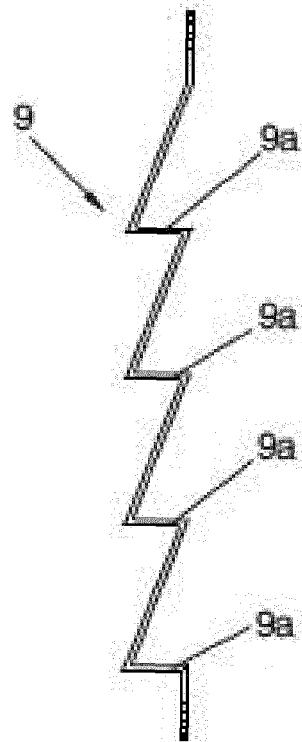


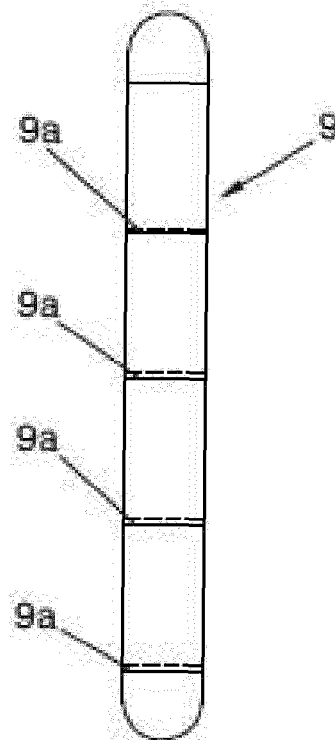
FIG. 2



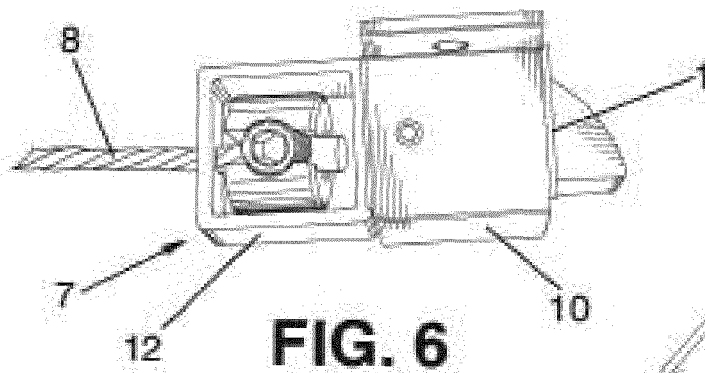
**FIG. 3**



**FIG. 4**

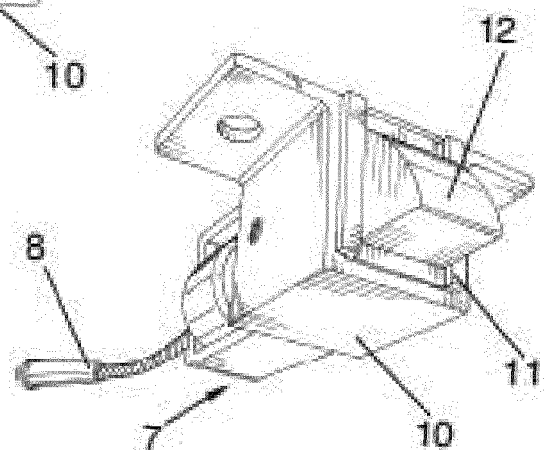


**FIG. 5**

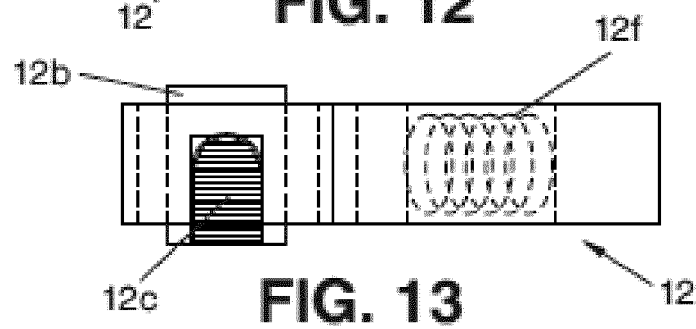
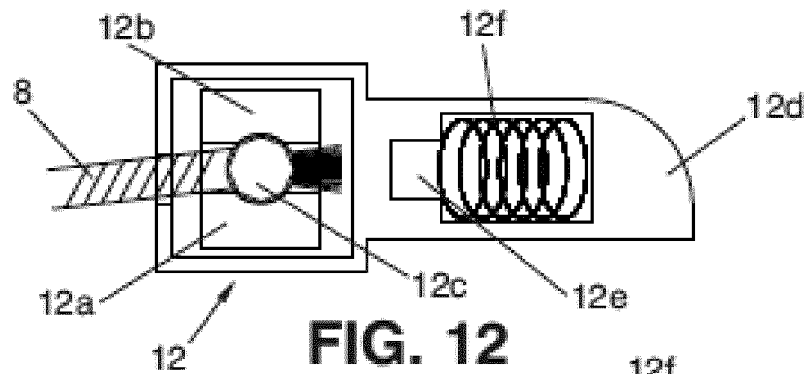
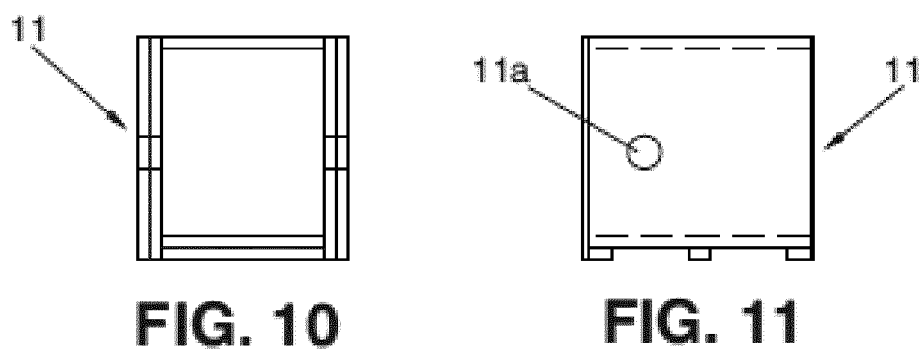
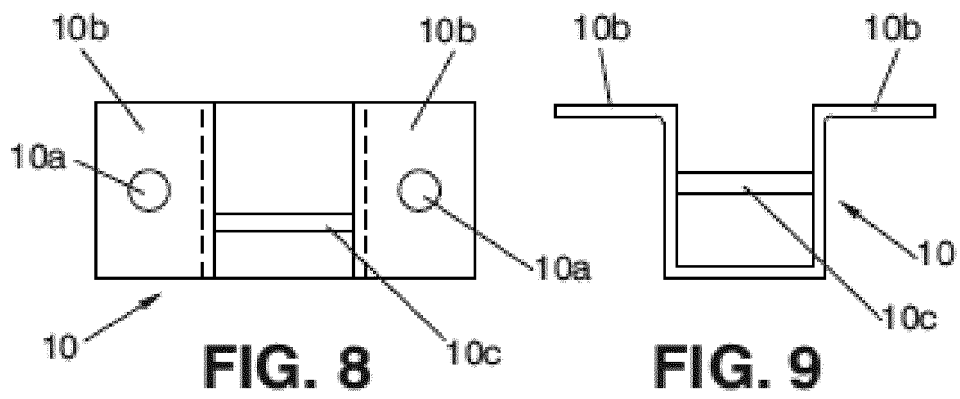


**FIG. 6**

**FIG. 7**









## EUROPEAN SEARCH REPORT

Application Number  
EP 12 38 2244

DOCUMENTS CONSIDERED TO BE RELEVANT			
Category	Citation of document with indication, where appropriate, of relevant passages	Relevant to claim	CLASSIFICATION OF THE APPLICATION (IPC)
X A	US 2 242 307 A (SAMUEL KROLL ET AL) 20 May 1941 (1941-05-20) * page 1, right-hand column, line 21 - page 3, left-hand column, line 45; figures 1-11 *	1,3,5 2,4,6-9	INV. A47D7/01
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			A47D A47C
1	Place of search Munich	Date of completion of the search 7 November 2012	Examiner Klintebäck, Daniel
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**ANNEX TO THE EUROPEAN SEARCH REPORT  
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07-11-2012

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