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(54) **Improvements introduced in multi-purpose lockers**

(57) The present patent is described as improvements introduced in multi-purpose lockers which, in accordance with the general characteristics thereof, and in order to provide a safer, comfortable and pleasant utilization of the latter to store the most varied types of products, incorporates in proprietary and specific structures a set of devices and improvements in metallic material or similar material properly arranged in the basis structure of multi-purpose lockers (1) with a differentiat-

ed design for the doors (2), a ventilation on the doors (3), (7), (8) and (9), a storage compartment (4), a multi-point type lock (5) and a door shield (6), so as to form a complete and fully safe set of improvements, whose shapes and internal and external arrangements provide a proper integration to the structure of multi-purpose lockers (1).

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Description

[0001] The present patent relates to multi-purpose lockers in general, more specifically to improvements introduced in multi-purpose lockers which, in accordance with the characteristics thereof, possesses as a basic principle the introduction of a proper and specific set of devices and improvements in proprietary structures to optimize the structure of a multi-purpose locker, in order to provide a safe, comfortable and pleasant utilization of the latter to store the most varied types of products in general, being based on a robust, safe and lasting set of devices. With a specific design and shape, easily accessible for a better adaptation, safety for the users, practical handling, functionality and accessible cost and due to its characteristics and dimensions, is easily adaptable to the locker structure and to several different types of products, users and places, regardless of the characteristics thereof.

[0002] The patent in question is characterized in that it aggregates components and processes in a differentiated concept to meet the various requirements the nature of its use demands, that is, a better utilization of multi-purpose lockers. Such concept provides the locker great efficiency, functionality, versatility, strength, durability and safety due to its excellent technical qualities, thereby providing advantages and improvements to the product as a whole, the general characteristics of which differ from the other shapes and models known in the current state of the art.

[0003] The present patent consists in the utilization of modern, versatile, efficient and functional improvements introduced in multi-purpose lockers, formed by an assembly of properly incorporated mechanical and functional solutions comprising a complete and differentiated multi-purpose locker, with an exclusive design, optimum finish details and proprietary characteristics, and incorporating a set of devices and improvements in proper and specific structures of high durability and strength, made of metallic material or similar material, properly arranged (fitted and attached) to the basis structure thereof such as a differentiated design for the doors as a safety and finish element, a ventilation on the doors to help air circulation inside the locker, a storage compartment as a secondary element to store objects, a multi-point type lock as a locker closing element and a door shield as a safekeeping and identifying element, so as to form a complete and fully safe set of improvements, whose shapes and internal and external arrangements provide a perfect integration to the structure of the multi-purpose locker, with the purpose of generating a general improvement on the way users handle the latter.

[0004] The present improvements introduced are based on the utilization of proprietary structures comprising components and processes in a differentiated concept, making it possible to solve some of the main inconvenients of the other shapes and models of multi-

purpose lockers known in the current state of the art and employed to store clothes or objects in general in schools, gyms, factories, offices, clubs, etc., which are located in an operating range in which the handling difficulties and accidents are frequent and whose shapes and/or products are obsolete and based on simple adaptations, as the ones locally handcrafted, which causes fragility and difficult maintenance, low strength and durability, or else they have a large structure, which means high costs, are difficult and slow to install and need high skilled labor.

[0005] The objects, advantages and other important characteristics of the patent in question can be more easily understood when read jointly with the appended drawings, wherein:

Figure 1A is a detailed perspective view of the locker door inner side showing the rounded fold.

Figure 1B is a longitudinal cross sectional view of the locker door inner side showing the rounded fold.

Figure 2A is a detailed perspective view of the locker door inner side showing the opening for attachment of the multi-point lock and the rounded fold.

Figure 2B is a detailed perspective view of the locker door outer side showing the opening for attachment of the multi-point lock and the rounded fold.

Figure 3A is a front view of the locker door showing the round-shaped ventilation perforations, the door shield and the multi-point lock.

Figure 3B is a front view of the locker door showing the square-shaped ventilation perforations, the door shield and the multi-point lock.

Figure 3C is a front view of the locker door showing the louver ventilation system, the door shield and the multi-point lock.

Figure 3D is a front perspective view of the locker door showing the vertical round-shape ventilation perforations, the door shield and the multi-point lock.

Figure 3E is a rear perspective view of the locker door showing the vertical round-shape ventilation perforations, the multi-point lock and the rounded fold.

Figure 4A is a rear perspective view of the locker door showing the storage compartment in the closed position and the multi-point lock therein.

Figure 4B is a rear perspective view of the locker door showing the storage compartment in the open position and the multi-point lock therein.

Figure 4C is a front perspective view of the locker door showing the multi-point lock for the storage compartment.

Figure 4D is a detailed rear perspective view of the locker door showing the storage compartment in detail.

Figure 5A is a front view of the locker door shield. Figure 5B is a front perspective view of the locker door shield.

Figure 5C is a rear perspective view of the locker door shield.

[0006] As can be inferred from the appended drawings that illustrate and integrate the present descriptive report of the patent for utility model of "Improvements Introduced in Multi-Purpose Lockers", the appended figures show the same in a general manner, comprising a complete and with proprietary characteristics multi-purpose locker (1) incorporating a set of devices and improvements in proprietary and specific structures of high durability and strength, made of metallic material or similar material having equal or higher lightness and strength, whose shapes and internal and external arrangements are properly arranged (fitted and attached) to the basis structure of the multi-purpose locker (1), the improvements comprising a differentiated design for the doors (2) formed by a rounded fold (2A) having a general curved shape creating a geometric shape similar to a pipe symmetrically arranged around the entire periphery of the door ends (A), so as to provide greater safety and finish to the door assembly (A) by eliminating sharp edges and comers; a round-shaped ventilation on the doors (3) formed by an upper (3A) and a lower (3B) assembly horizontally and symmetrically arranged parallel to the upper and lower ends, respectively, each possessing a set of perforations (3C) properly aligned to each other so as to form a general rectangular shape with the purpose of helping air circulation inside the multi-purpose locker (1); a storage compartment (4) having a general parallelepipedal shape and hollow on its upper face possessing a tab (4A) along the rear upper end, a small cut-out (4B) having a rectangular shape centered on the right-hand side face and a rear flap (4C) having a general shape similar to an inverted "L" horizontally and symmetrically arranged between the door inner side (A) and along the rear lower end of the storage compartment (4), at this point by means of a hinge (4D), the lock (5) possessing a double inner catch (5A) in this configuration, one to be engaged on the door side (A) on the right and lock the latter and the other to be engaged on the small cutout (4B) on the left and lock the storage compartment (4) with the purpose of helping store objects with greater safety inside the multi-purpose locker (1); a multi-point type lock (5) having a general circular shape, a compact and robust shape in micro-cast stainless steel material or similar material with excellent mechanical strength bolted to the circular-shaped opening (B) of the door (A) of the multi-purpose locker (1) near the clear lateral side thereof and possessing a single or double inner catch (5A) with the purpose of generating greater safety and a differentiated configuration to the assembly thereof; and a door shield (6) having a general rectangular shape possessing a sweep (6A) along the right-hand side, a central opening (6B) having a circular shape, an upper recess (6C) having a rectangular shape and a small cutout (6D) along the upper side of the left-hand lateral side, being the shield vertically fitted under

pressure to the door (A) opening (B) of the multi-purpose locker (1), around the lock (5), with the purpose of safe-keeping and identifying the multi-purpose locker (1).

[0007] The improvements introduced in multi-purpose lockers, according to the use needs and as shown in Figure (3B), can comprise a square-shaped ventilation on the doors (7), formed by an upper (7A) and a lower (7B) assembly horizontally and symmetrically arranged parallel to the upper and lower ends, respectively, each possessing a set of small perforations (7C) having general square shapes properly aligned to each other so as to form a rectangular shape with the purpose of helping air circulation inside the multi-purpose locker (1).

[0008] The improvements introduced in multi-purpose lockers, according to the use needs and as shown in Figure (3C), can comprise a louver ventilation system on the doors (8), formed by an upper louver assembly (8A) horizontally and symmetrically arranged parallel to each other and to the upper end, each possessing an inner cutout having a rectangular shape and a front flap (8B) having a curved shape along the front side of the inner cutout with the purpose of helping air circulation inside the multi-purpose locker (1).

[0009] The improvements introduced in multi-purpose lockers, according to the use needs and as shown in Figures (3D) and (3E), can comprise a vertical round-shaped ventilation on the doors (9), formed by a central assembly (9A) vertically and symmetrically arranged along one of the sides of the door (A) front side, possessing a set of perforations (9B) properly aligned to each other so as to create a rectangular shape with the purpose of helping air circulation inside the multi-purpose locker (1).

[0010] The components of the improvements introduced in multi-purpose lockers are fully fitted and attached, are quickly installed and/or removed, do not present any distorting or breakable parts, are highly resistant and completely safe. After fitted and attached to the structure of the multi-purpose locker (1), the components are locked and attached, thus preventing them from getting loose or breaking when in use, thus making the assembly fully available for a better utilization of the multi-purpose locker by the users. Therefore, the multi-purpose locker (1) can be easily used without worries of any nature as regarding its durability and safety.

[0011] As their structure are made of metallic material or similar material with equal of higher lightness and strength, the improvements introduced in multi-purpose lockers and the components thereof, are rustproof and waterproof, have a high level of durability and strength, provide great safety and, when routinely used in the multi-purpose lockers (1), do not present any risks of fatigue or to the users.

[0012] For all of the above, this is an invention that will be well received by users and companies employing lockers to store several types of objects in general, since the present improvements introduced in multi-purpose

lockers present several advantages, such as: great safety, reliability and agility; great resistance and general durability, as well as a low or no wear of the assembly as a whole; greater comfort, facility and safety to the users; great efficiency and performance in its use due to its general conception; fully accessible costs, which provides an optimum cost/benefit ratio; practical and safe use by any users, regardless of the characteristics thereof; great mobility and flexibility; low weight and general dimensions; attractive and modern design; practical and safe assembly and installation; general arrangements that do not upset the multi-purpose locker normal operation (1); and the certainty of always having a multi-purpose locker (1) to store the most varied products that fully meets the basic ergonomic, safety, strength and durability conditions required for its use.

[0013] For all of the above, the improvements introduced in multi-purpose lockers can be classified as a fully versatile, efficient, practical and safe set of means to allow a better utilization of multi-purpose lockers (1) in the most varied places and for various users, regardless of the general characteristics thereof, being easily installed and handled, as well as having excellent general characteristics; the sizes, dimensions and quantities may vary, depending on the use needs.

Claims

1. "IMPROVEMENTS INTRODUCED IN MULTI-PURPOSE LOCKERS", **characterized in that** it comprises a complete multi-purpose locker (1) incorporating an set of devices and improvements in proprietary and specific structures of high durability and strength, made of metallic material or similar material with equal or higher lightness and strength, whose shapes and internal and external arrangements are properly arranged (fitted and attached) to the basis structure of multi-purpose lockers (1).
2. "IMPROVEMENTS INTRODUCED IN MULTI-PURPOSE LOCKERS", in accordance with claim 1, **characterized in that** it incorporates a differentiated design for the doors (2) formed by a rounded fold (2A) having a general curved shape creating a geometric shape similar to a pipe symmetrically arranged around the entire periphery of the door (A) ends to eliminate sharp edges and comers.
3. "IMPROVEMENTS INTRODUCED IN MULTI-PURPOSE LOCKERS", in accordance with claim 1, **characterized in that** it incorporates a round-shaped ventilation on the doors (3), formed by an upper (3A) and a lower (3B) assembly horizontally and symmetrically arranged parallel to the upper and lower ends, respectively, each possessing a set of perforations (3C) properly aligned to each other so as to form a rectangular shape.
4. "IMPROVEMENTS INTRODUCED IN MULTI-PURPOSE LOCKERS", in accordance with claim 1, **characterized in that** it incorporates a storage compartment (4) having a general parallelepipedal shape and hollow on its upper face possessing a tab (4A) along the rear upper end, a small cutout (4B) having a rectangular shape centered on the right-hand side face and a rear flap (4C) with a shape similar to an inverted "L" horizontally and symmetrically attached between the door (A) inner side and along the rear lower end of the storage compartment (4), at this point by means of a hinge (4D), the lock (5) possessing an inner double catch (5A) in this configuration, one to be engaged on the door side (A) on the right and the other to be engaged on the small cutout (4B) on the left.
5. "IMPROVEMENTS INTRODUCED IN MULTI-PURPOSE LOCKERS", in accordance with claim 1, **characterized in that** it incorporates a multi-point type lock (5) having a general circular shape, a compact and robust shape in micro-cast stainless steel material or similar material with excellent mechanical strength bolted to the circular shaped opening (B) of the door (A) of the multi-purpose locker (1), near the clear lateral side thereof and possessing an inner single or double catch (5A).
6. "IMPROVEMENTS INTRODUCED IN MULTI-PURPOSE LOCKERS", in accordance with claim 1, **characterized in that** it incorporates a door shield (6) having a general rectangular shape possessing a sweep (6A) along the right-hand side, a central opening (6B) with circular shape, an upper recess (6C) having a rectangular shape and a small cutout (6D) along the upper side of the left-hand lateral side, being the shield vertically fitted under pressure to the door (A) opening (B) of the multi-purpose locker (1), around the lock (5).
7. "IMPROVEMENTS INTRODUCED IN MULTI-PURPOSE LOCKERS", in accordance with claim 1, **characterized in that** it incorporates a square-shaped ventilation on the doors (7), formed by an upper (7A) and a lower (7B) assembly horizontally and symmetrically arranged parallel to the upper and lower ends, respectively, each possessing a set of small perforations (7C) having general square shapes properly aligned to each other so as to form a rectangular shape.
8. "IMPROVEMENTS INTRODUCED IN MULTI-PURPOSE LOCKERS", in accordance with claim, **characterized in that** it incorporates a louver ventilation system on the doors (8), formed by an upper louver assembly (8A) horizontally and symmetrically parallel to each other and to the upper end, each possessing an inner cutout having a rectangular shape

and a front flap (8B) having a curved shape along the front side of the inner cutout with the purpose of helping air circulation inside the multi-purpose locker (1).

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9. "IMPROVEMENTS INTRODUCED IN MULTI-PURPOSE LOCKERS", in accordance with claim 1, **characterized in that** it incorporates a vertical round-shaped ventilation on the doors (9), formed by a central assembly (9A) vertically and symmetrically arranged along one of the sides of the door (A) front side possessing a set of holes (9B) properly aligned to each other so as to form a rectangular shape.

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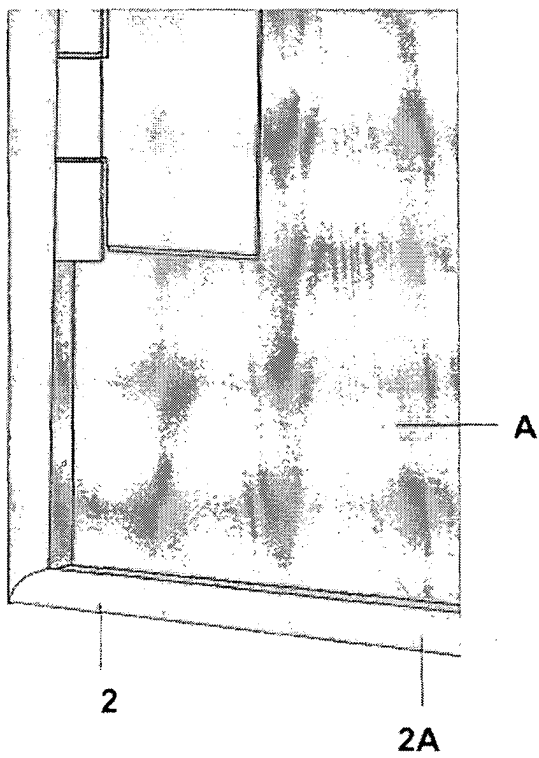


Fig.1A

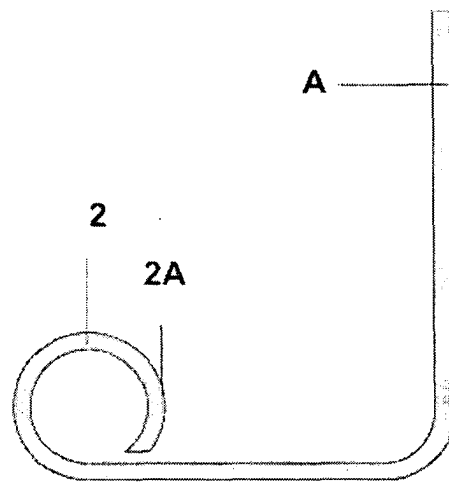


Fig.1B

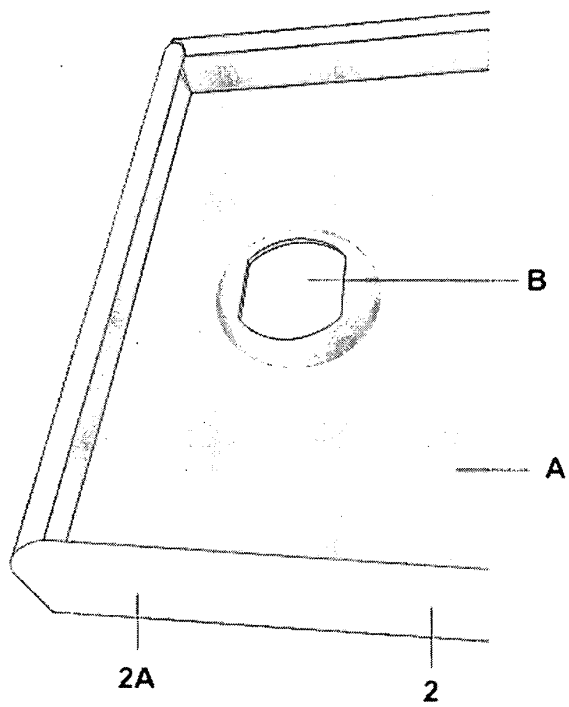


Fig.2A

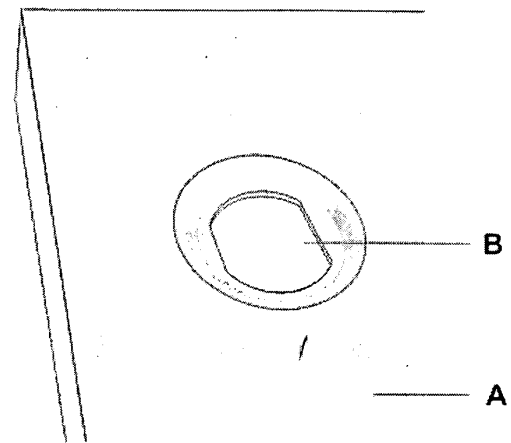


Fig.2B

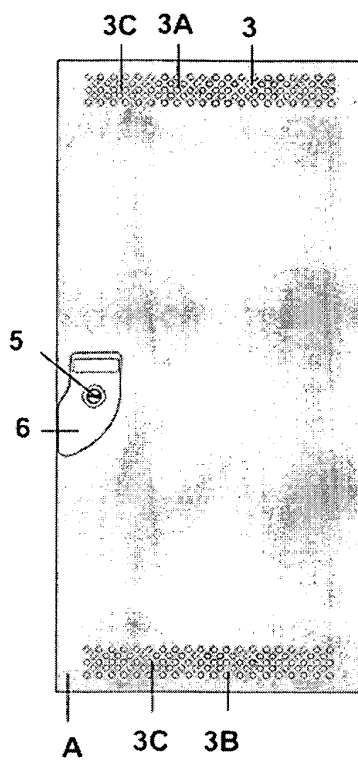


Fig.3A

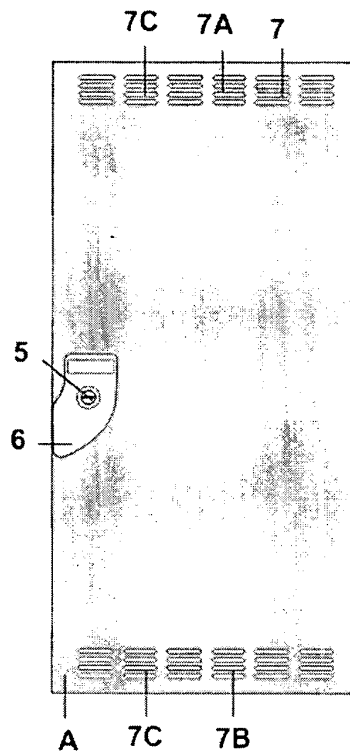


Fig.3B

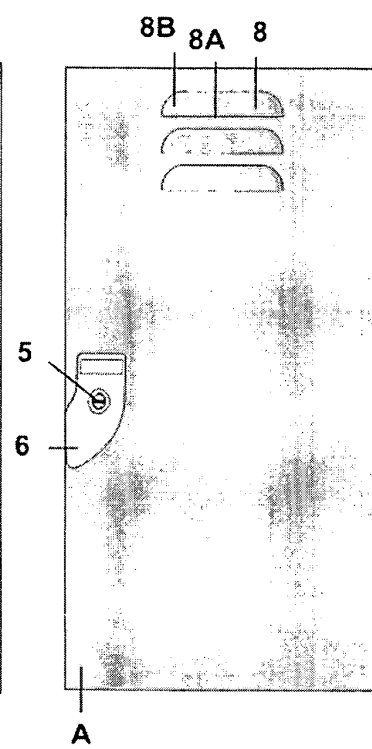


Fig.3C

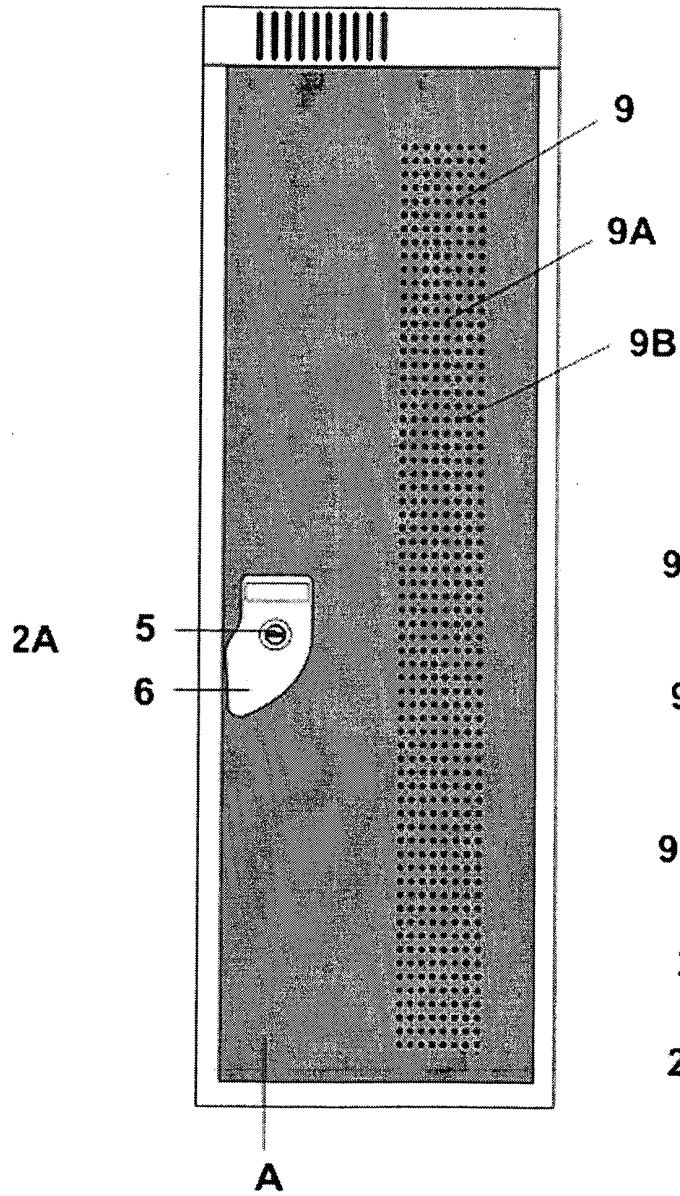


Fig.3D

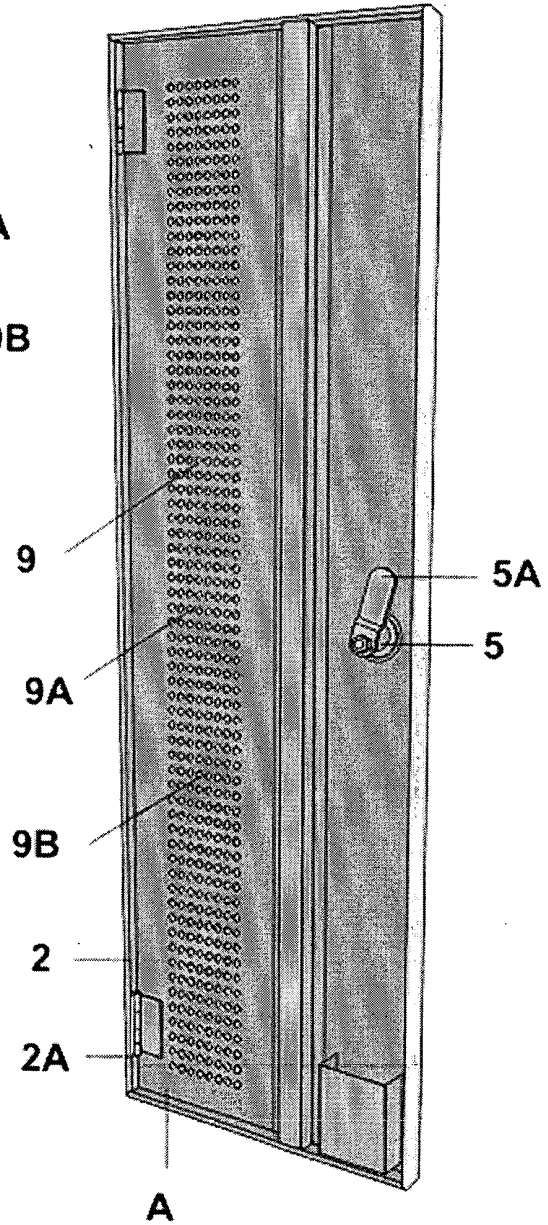


Fig.3E

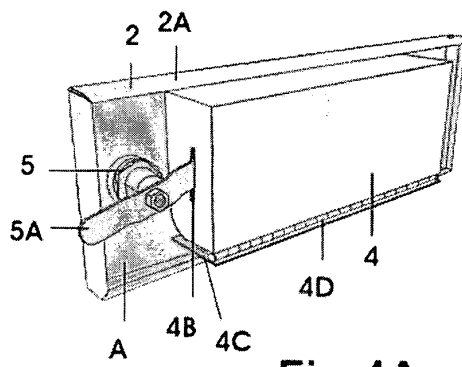


Fig. 4A

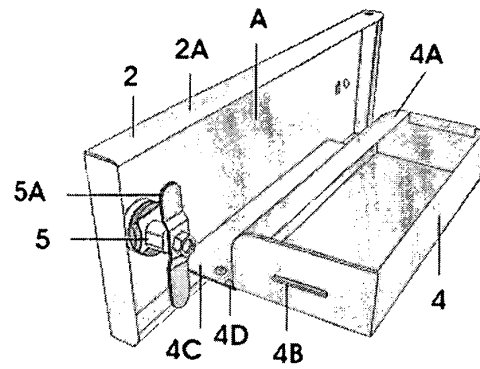


Fig. 4B

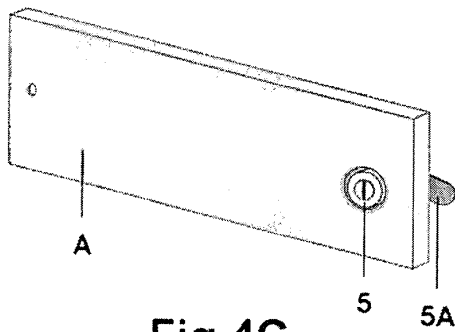


Fig. 4C

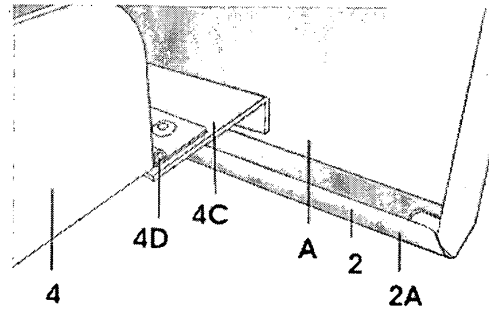


Fig. 4D

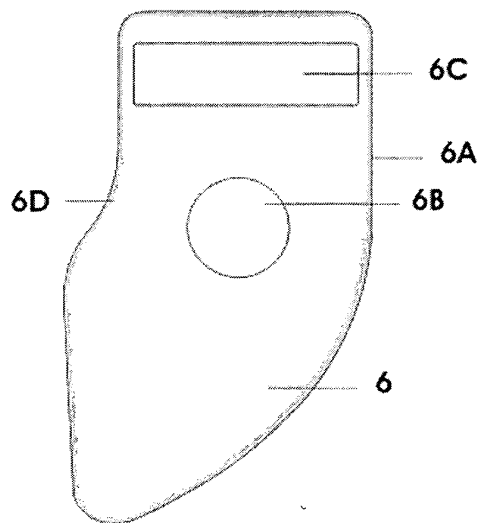


Fig.5A

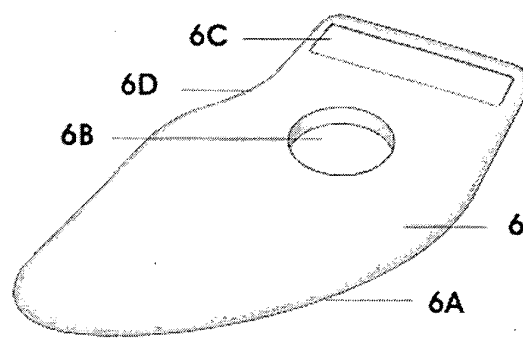


Fig.5B

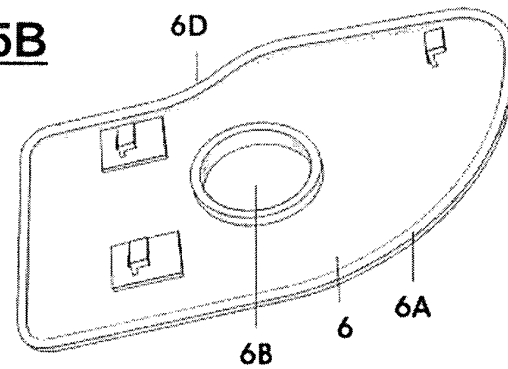


Fig.5C



European Patent
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EUROPEAN SEARCH REPORT

Application Number
EP 04 02 4804

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A		5-7	A47B
The present search report has been drawn up for all claims			
Place of search Munich		Date of completion of the search 1 February 2005	Examiner Klintebäck, D
CATEGORY OF CITED DOCUMENTS T : theory or principle underlying the invention E : earlier patent document, but published on, or after the filing date D : document cited in the application L : document cited for other reasons & : member of the same patent family, corresponding document X : particularly relevant if taken alone Y : particularly relevant if combined with another document of the same category A : technological background O : non-written disclosure P : intermediate document			

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**ANNEX TO THE EUROPEAN SEARCH REPORT
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This annex lists the patent family members relating to the patent documents cited in the above-mentioned European search report.
The members are as contained in the European Patent Office EDP file on
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