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(54) INLET DEVICE FOR CENTRAL VACUUM SYSTEM

EINLASSVORRICHTUNG FÜR ZENTRALSaugSYSTEM

DISPOSITIF D'ENTRÉE POUR ASPIRATEUR CENTRAL

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Description

Technical Field

[0001] The present invention consists of an inlet device, of the valve type, used in a Central Vacuum System (CVS) and built into the skirting board, namely in the kitchen of a house. The function of the device is to collect dust and small debris with the aid of a broom into the entrance of this CVS, by means of a micro-switch activated CVS mechanism located in the skirting board, so as to avoid the use of a vacuum cleaner or vacuum tube also connected to the CVS.

Prior Art

[0002] There are devices in the market which have the same function as the present invention. These devices present different solutions to carry out the CVS activation and for the opening/closure of the inlet device.

[0003] The US Patent Application 5504967 discloses a device which makes its opening/closure by means of a piece that rotates according to a vertical axis through the action of a turning pedal which is pushed by the user's foot. This same pedal, when rotating, turns the respective CVS on and off by means of an electric contact provided by the conduction or not of electricity by a spring between two contacts.

[0004] With regard to this device the present invention presents a completely different system of opening/closure, as while the said turning pedal easily breaks when the user inadvertently steps on it, the present invention uses a button which is not very prominent in relation to the device. The CVS activating mechanism itself is different, given that the present invention uses an electric contact micro-switch which is much more reliable than an electric contact system by means of a spring.

[0005] The US Patent Application 6292977 discloses a device that makes its opening/closure by means of two pieces. A first piece that turns according to a horizontal axis and serves to open/close the entrance of the respective CVS, which is actuated by a spring, which for an open position activates the CVS by means of an electrical contact provided by the conduction of electricity between two contacts. A second piece has an edge that serves for engaging the first piece into the closed position and also comprises a pedal of disengagement which, when lifted by the user's foot opens the first piece and triggers the operation of the device.

[0006] With regard to this device the present invention also presents a completely different system of opening/closure, as while the said rotating pedal is difficult to operate in the case where shoes higher than the pedal are used, the present invention uses a high sensitivity button which is easily actuated by any type of shoe. The CVS activating mechanism is also different, given that the present invention uses an electric contact micro-switch which is much more reliable than an electric contact sys-

tem by means of a spring.

Brief Description of the Figures

[0007] The present invention will now be explained below in greater detail by way of the accompanying drawings, in which:

- Figure 1 shows an exploded perspective view of the assemble of the invention, showing the main components;
- Figure 2 shows a top view of the base body (1);
- Figure 3 shows a frontal view of the base body (1);
- Figure 4 shows a side view of the base body (1);
- Figure 5 shows a perspective view of the base body (1) with enlargement of details;
- Figure 6 shows a frontal view of the cover (2);
- Figure 7 shows a perspective view of the cover (2) with enlargement of details;
- Figure 8 shows a perspective view of the assemble of the invention, showing the cover in the closed position;
- Figure 9 shows a perspective view of the cover (2) with a protuberance (19);
- Figure 10 shows a perspective view of the base body (1) with a through hole (20).

Summary of the invention

[0008] The object of the present invention is to overcome the drawbacks existing in the current devices since it possesses innovative solutions for the main features of this type of apparatus, such as, for example, strength and reliability.

[0009] Therefore, the inlet device for central vacuum system comprises:

- a base body (1) which can be assembled on the wall at the height of the skirting board;
- a cover (2) which engages in the base body (1);
- an unlocking button (3) which disengages the cover (2);
- a sealing strip (4) which is glued to the base body (1);
- a micro-switch (5) which engages in the base body (1);
- a helical torsion spring (6) engaged in the cover (2), by means of a pin, which causes the cover (2) to open in relation to the base body (1).

Description of the Invention

[0010] The present invention is formed by a set of pieces, shown in Figure 1, which is described below, in such a way which renders its running and the advantages that presents apparent in relation to the prior art.

[0011] The base body (1), shown in Figures 2-5, is a piece essentially in the parallelepipedic shape, without the rear and lower sides, which has a nozzle (7) of stand-

ard diameter projecting in its back face, for connection to the CVS by means of a tube contained therein. From said nozzle (7) up to the back face (8) of the base body (1), which lies at the face of the wall when the device is installed, there is a channel (9) with a shape which allows to pass from the circular shape of the nozzle (7) to a rectangular shape and that works as an entrance for the rubbish when the cover (2) is open.

[0012] The base body (1) has further locking means of the body (10) to hold the cover (2) in the closed position, such as represented in Figure 8. These means have two projections for engagement of the locking means of the cover (16) and are placed in the back face (8) of the base body (1), preferably between the said channel (9) and the top of the base body (1).

[0013] At the top of the base body (1) there are, in its inner face, two pivoting means of the body (14), which allow the pivoted fixation of the cover (2) to the base body (1). In addition, in the inner face of the top of the base body (1) there are means for fixation of the spring (12).

[0014] At the anterior side of the base body (1) there are two fixation holes (13) in order to allow the hold the device to the wall and one hole (15) for placement of the micro-switch (5), whereby its contact with the cover (2) supplies an electric signal to convey to the CVS the information whether the cover (2) is open or closed. That is, when the cover (2) is open these means of command carry out the aspiration of the air, which is interrupted when the cover (2) closes.

[0015] The lateral faces (11) of the base body (1) have a small slope upwards at the lower part for the rubbish not to accumulate.

[0016] The cover (2), shown in Figures 6 and 7, is a piece essentially in the parallelepipedic shape, without the anterior side, which engages to the base body (1) through of the pivoting means of the cover (17), which engage the pivoting means of the body (14). There are also means of fixation of the spring (12) with the support for the respective pin of the spring, in that the said spring (6) under pressure causes the opening of the cover (2).

[0017] In the cover, there are two locking means of the cover (16) that receive an unlocking button (3), which is slidably engaged to the locking means of the cover (16). When the cover (2) is closed, the locking means of the cover (16) are engaged to the locking means of the body (10). In order to open the cover (2) it is necessary for the user to press the unlocking button (3), which will push the locking means of the body (10) until the connection is released.

[0018] At the back face of the cover (2) a sealing strip (4) is placed in a position in which, with the cover in the closed position, completely seals the exit of the channel (9) of the base body (1).

[0019] At the lower face of the cover (2) there are two notches (18) at the passage of the fixation holes (13) in order to allow the installation of the device already totally assembled at the intended place.

[0020] The operation of the device put forward by the

present invention is quite simple and reliable. The device is normally with the cover in the closed position. When the user decides to use the CVS by way of the present invention, the unlocking button (3) must be pressed, which causes the opening of the cover. With the cover in the open position the micro-switch (5), which is fixed at the base body (1), conveys an electronic signal to the CVS in order that it begins to vacuum.

[0021] In a preferred embodiment the cover (2) has a protuberance (19) placed at about mid height of the cover (2). To allow the protuberance (19) to fit the base body (1) when the cover (2) is in the closed position the through hole (20) has the shape of the protuberance (19) section.

[0022] The protuberance (19) forms a stop for said cover (2) when it is in open position. When the cover (2) is opened by the unlocking button (3) the protuberance (19) stops in a recess (21) located in the base of the through hole (20) of the base body (1).

[0023] It should be clear that the embodiments of the present inlet device for a central vacuum system previously described are only potential examples of implementation, established merely for a clear understanding of the principles of the invention. Variations and modifications to the embodiments previously referred to can be realized without substantially departing from the scope of protection as defined by the appended claims.

Claims

1. Inlet device for Central Vacuum System for being built into the skirting board to collect dust and small debris from the floor, **characterized in that** it comprises:

a base body (1) which shape is essentially parallelepipedic, without the rear and lower sides, which has a nozzle (7) projecting in its back face for connection to the Central Vacuum System from said nozzle (7) up to the back face (8) of the base body (1), which has a channel (9) with a shape which allows to pass from the circular shape of the nozzle (7) to the shape of the inlet of the rubbish, further has locking means (10) of the body, has at the top of the inner face of the base body (1) pivoting means (14) of the body, which allow the pivoted fixation of a cover (2), also has two fixation holes (13) in order to allow to hold the device to the wall and one hole (15) for placement of the micro-switch (5), whereby its contact with the cover (2) provides an electric signal to supply a command signal to the said Central Vacuum System;

a cover (2) which shape is essentially parallelepipedic, without the anterior side, which engages pivoting means of the body (14) through pivoting means of the cover (17), has means of fixation of the spring (12) with the support for the

respective pin of the spring, **in that** the said spring (6) under pressure causes the opening of the cover (2),
 also has locking means of the cover (16) which, when the cover is in the closed position, are engaged to the locking means of the body (10);
 an unlocking button (3), slidably engaged to the locking means of the cover (16), which when pressed by the user will push the locking means of the body (10) until the connection is released;
 a sealing strip (4) placed on the back face of the cover (2), in a position in which, with the cover (2) in the closed position, completely seals the exit of the channel (9).

2. Device according to claim 1, **characterized in that** the lower face of the cover (2) has two notches (18) in the passage of the fixation holes (13) for the installation of the device already totally assembled at the intended place.
3. Device according to claim 1, **characterized in that** the back face (8) of the base body (1) lies at the face of the wall when the device is installed.
4. Device according to claim 1, **characterized in that** the locking means of the body (10) to hold the cover (2) in the closed position have two projections for engagement of the locking means of the cover (16) and are placed in the back face (8) of the base body (1), preferably between the said channel (9) and the top of the base body (1).
5. Device according to claim 1, **characterized in that** the lateral faces (11) of the base body (1) have a small slope upwards at the lower part.
6. Device according to claim 1, **characterized in that** the cover (2) has a protuberance (19), placed in the back face of the cover (2) at mid-height, that forms a stop when said cover (2) is opened by the unlocking button (3) and stops in a recess (21) located in the base of the through hole (20) in the base body (1).
7. Device according to claim 6, **characterized in that** the through hole (20) has the shape of the protuberance (19) section to allow said protuberance (19) to go through the base body (1) when the cover is closed.

Patentansprüche

1. Einlass-Einrichtung für eine in einem Sockelleiste zu installierende Zentralvakuumanlage zum Ansaugen von Staub und von kleinen Abfällen von dem Boden, **dadurch gekennzeichnet, dass** sie aus folgenden Bausteinen besteht:

einen im wesentlichen parallelfach gestalteten Basiskörper (1), der keine Rück- oder Unter-Seiten hat, der eine sich von seiner Rückseite ragende Düse (7) ausweist, die zur Verbindung der oben erwähnten Düse (7) mit der Zentralvakuumanlage bis zu der Rückseite (8) des Basiskörpers (1) dient, der weiterhin mit einem Kanal (9) versehen ist, der so gestaltet ist, dass er den Übergang von der Rundgestaltung der Düse (7) zu der Gestaltung des Staub- und Müll-Einlass gewährleistet, der außerdem mit Verriegelungseinrichtungen (10) für den Körper sowie mit oben an der Innenseite des Basiskörper (1) angebrachten Körper-Schwenkeinrichtungen (14) versehen ist, die die Schwenkbefestigung einer Abdeckung (2) erlauben, der auch zwei Befestigungslöchern (13) für die Befestigung der Einrichtung an einem Mauer aufweist und außerdem mit einem anderen Loch (15) für die Anbringung des Mikroschalters (5) versehen ist, wobei wenn dieser Mikroschalter die Abdeckung (2) berührt, ein elektrisches Signal erzeugt wird, das die Sendung eines Steuersignals zur Zentralvakuumanlage veranlasst;
 eine im wesentlichen parallelfache Abdeckung (2), die keine Rückseite hat, die in der Körper-Schwenkeinrichtungen (14) durch die Abdeckung-Schwenkeinrichtungen (17) eingreift, die Befestigungsmittel für die Feder (12) aufweist und eine Halterung für den Federstift besitzt, wobei die oben erwähnte Feder (6), wenn sie unter Last steht, die Öffnung der Abdeckung (2) veranlasst; diese Abdeckung ist weiterhin mit Abdeckungs-Verriegelungseinrichtungen (16) versehen, die in den Körper-Verriegelungseinrichtungen (10) eingreifen wenn die Abdeckung zu ist;
 ein Entriegelungsdruckknopf (3), der unter die Abdeckungs-Verriegelungseinrichtungen (16) schiebt, und der, wenn der Benutzer ihn drückt, die Körper-Verriegelungseinrichtungen (10) andrückt, bis die Verbindung gelöst wird;
 eine Dichtstreife (4), die in einer bestimmten Lage in der Abdeckungs-Unterseite (2) angebracht ist, und somit gewährleistet, dass, wenn die Abdeckung (2) zu ist, der Kanalausgang (9) absolut dicht ist.

2. Einrichtung gemäß Anspruch 1 **dadurch gekennzeichnet, dass** die Abdeckungs-Unterseite (2) zwei in der Öffnung der Befestigungslöcher (13) angebrachten Ausfräsungen (18) aufweist, die für die Aufstellung der schon eingebauten Einrichtung in dem dafür vorgesehen Platz bestimmt sind.
3. Einrichtung gemäß Anspruch 1 **dadurch gekennzeichnet, dass** nach der Aufstellung der Einrichtung, die Rückseite (8) des Basiskörpers (1) an der

Wandanlagefläche anliegt.

4.] Einrichtung gemäß Anspruch 1 **dadurch gekennzeichnet, dass** die Körper-Verriegelungseinrichtungen (10) zwei Nasen aufweisen, die die Abdeckung (2) zu halten und die in der die Abdeckungs-Verriegelungseinrichtungen (16) eingreifen, und weiterhin **dadurch gekennzeichnet dass** die Körper-Verriegelungseinrichtungen an die Rückseite (8) des Basiskörper (1) angebracht sind, vorzugsweise zwischen den oben erwähnten Kanal (9) und die Oberseite des Basiskörper (1). 5 10
5. Einrichtung gemäß Anspruch 1 **dadurch gekennzeichnet, dass** die seitlichen Oberflächen (11) des Basiskörper (1) in seinem unteren Teil eine geringe sich nach oben erstreckende Neigung aufweisen. 15
6. Einrichtung gemäß Anspruch 1 **dadurch gekennzeichnet, dass** die Abdeckung (2) eine mittig an die Rückseite der Abdeckung (2) angebrachte Ausstülpung (19) aufweist, die einen Anschlag für die erwähnte Abdeckung (2) bildet, wenn sie mit dem Druckknopf (3) geöffnet ist, und die in eine Aussparung (21) in dem Boden des Durchlasslochs (20) des Basiskörpers (1) eingreift. 20 25
7. Einrichtung gemäß Anspruch 1 **dadurch gekennzeichnet, dass** das Durchlassloch (20) entsprechend der Ausstülpung (19) gestaltet wurde, damit diese Ausstülpung (19) durch den Basiskörper (1) hindurchgehen kann, wenn die Abdeckung zu ist. 30

Revendications 35

1. Dispositif d'admission pour Système de Vide Central, à être installé dans la plinthe, pour succion de poussières et de détritrus de petites dimensions du sol, **caractérisé en ce que** ce dispositif comprends: 40

un corps de base (1), à forme essentiellement parallélépipédique, sans parois arrière et inférieurs, équipé d'une manchette (7) qui se projette de son paroi arrière et qui sert à la connexion au Système de Vide Central de la manchette (7) ci-avant mentionnée au paroi arrière (8) du corps de base (1), équipé d'un conduit (9) dont la forme permet la transition de la forme circulaire de la manchette (7) à la forme de l'admission des poussières et des détritrus, équipé aussi de dispositifs de verrouillage (10) du corps, équipé en outre de dispositifs pivotants (14) installés dans la surface supérieure du paroi intérieur du corps de base (1) qui assurent soit le pivotement du corps, soit l'installation pivotante d'un couvercle (2), ayant de plus deux orifices de fixation (13) qui permettent la fixation 45 50 55

du dispositif au mur et encore un autre orifice (15) pour l'installation du microcontacteur (5), dont le contact avec le couvercle (2) assure qu'un signal électrique déclenche l'émission d'un signal de commandement pour le Système de Vide Central ci-avant mentionné;

un couvercle (2) à forme essentiellement parallélépipédique, sans le paroi antérieur, auquel s'accrochent les dispositifs pivotants du corps (14) à travers des dispositifs du couvercle (17), équipé de dispositifs de fixation du ressort (12) avec le support pour l'axe du ressort, étant donné que lorsque l'avant-mentionné ressort (6) est comprimé, il déclenche l'ouverture du couvercle (2), équipé de plus de dispositifs de verrouillage du couvercle (16) que, lorsque le couvercle est fermé, s'accrochent aux dispositifs de verrouillage du corps (10);

un bouton de déblocage (3), qui peut s'accrocher par coulissement aux dispositifs de verrouillage du couvercle (16) et qui, lorsque l'utilisateur le pousse, repousse les dispositifs de verrouillage du corps (10) jusqu'à libérer la connexion;

une bande d'étanchéité (4) installée dans la surface arrière de la couverture (2), dans une position dans laquelle, lorsque le couvercle (2) est fermé, cette bande d'étanchéité isole complètement la sortie du conduit (9).

2. Dispositif selon la revendication 1, **caractérisé en ce que** la surface inférieure du couvercle (2) a deux encoches (18) dans le passage des orifices de fixation (13) pour l'installation du dispositif, déjà complètement monté, dans le local prévu.
3. Dispositif selon la revendication 1, **caractérisé en ce que**, lorsque le dispositif est installé, la surface arrière (8) du corps de base (1) est appuyé contre le mur.
4. Dispositif selon la revendication 1, **caractérisé en ce que** les dispositifs de verrouillage du corps (10) qui maintiennent le couvercle (2) fermé ont deux saillances pour l'accrochement des dispositifs de verrouillage du couvercle (16) et sont localisés dans la paroi arrière (8) du corps de base (1), de préférence entre l'avant-mentionné conduit (9) et la surface supérieure du corps de base (1).
5. Dispositif selon la revendication 1, **caractérisé en ce que** les parois latéraux (11) du corps de base (1) ont une petite inclinaison vers le haut dans leur partie inférieure.
6. Dispositif selon la revendication 1, **caractérisé en ce que** le couvercle (2) a une saillance (19), localisée dans le paroi arrière du couvercle (2), à mi-hauteur,

qui forme une butée lorsque l'avant-mentionnée couvercle (2) est ouvert avec le bouton de déblocage (3) et qui s'encastre dans un espace (21) prévu pour son encastrément dans la base de l'orifice de passage (20) du corps de base (1).

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7. Dispositif selon la revendication 6, **caractérisé en ce que** l'orifice de passage (20) a la forme de la section de la saillance (19), pour permettre l'avant-mentionnée saillance (19) de traverser le corps de base (1) lorsque le couvercle est fermé.

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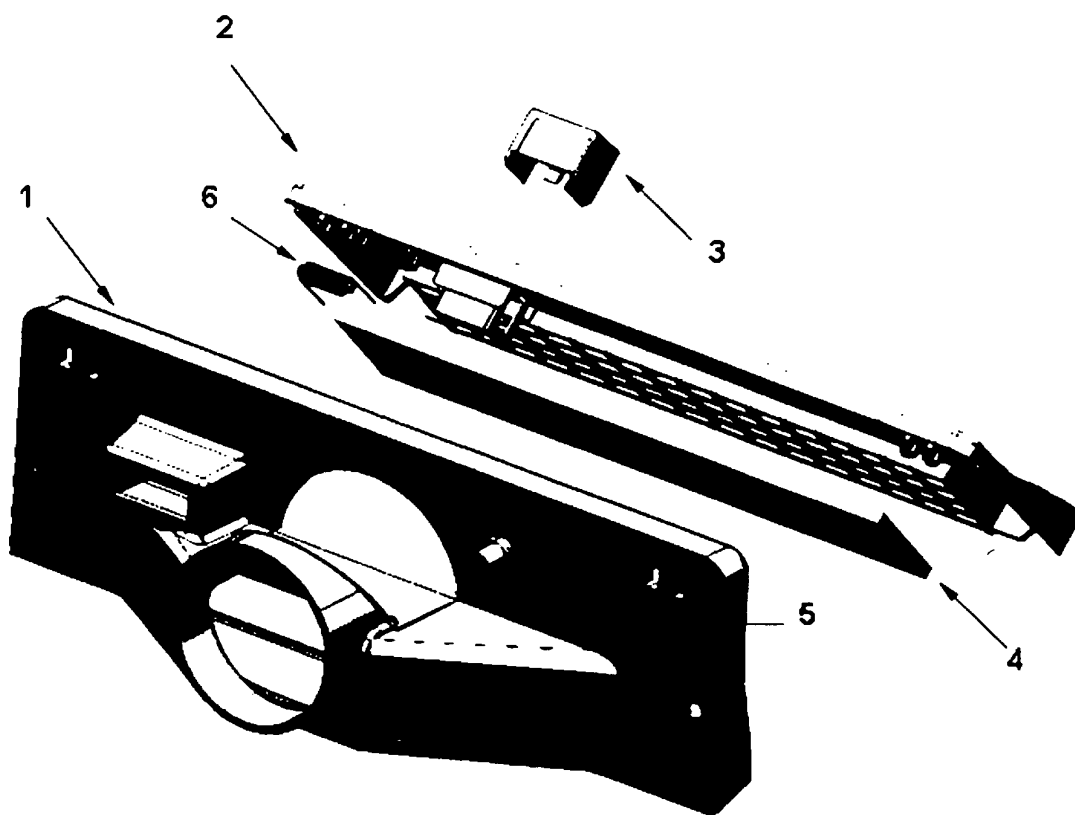


Fig. 1

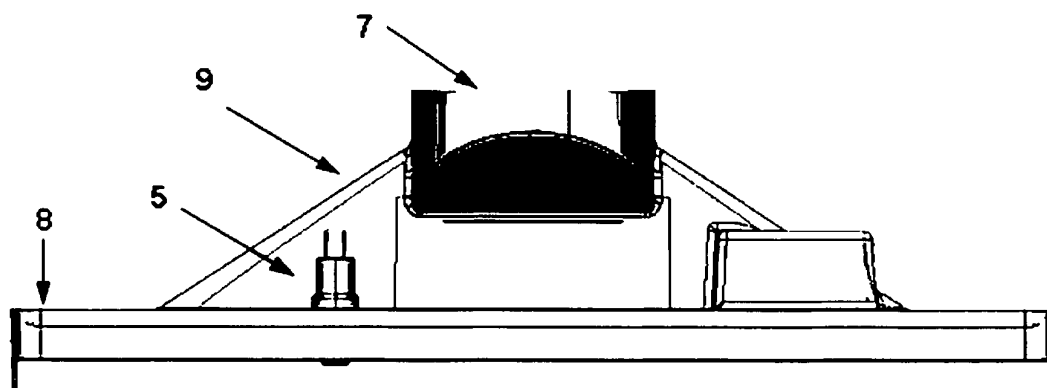


Fig. 2

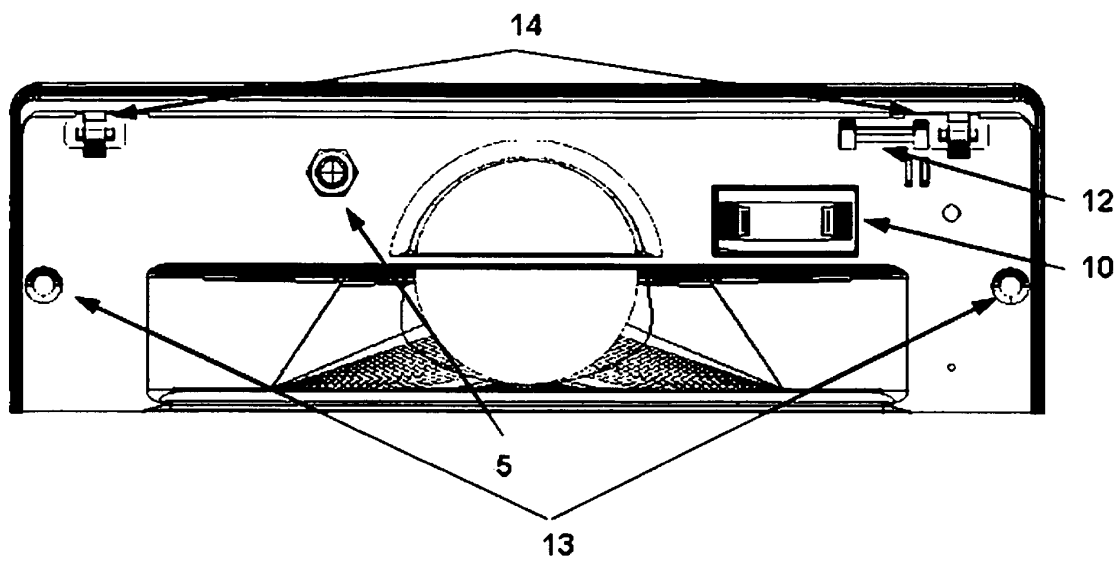


Fig. 3

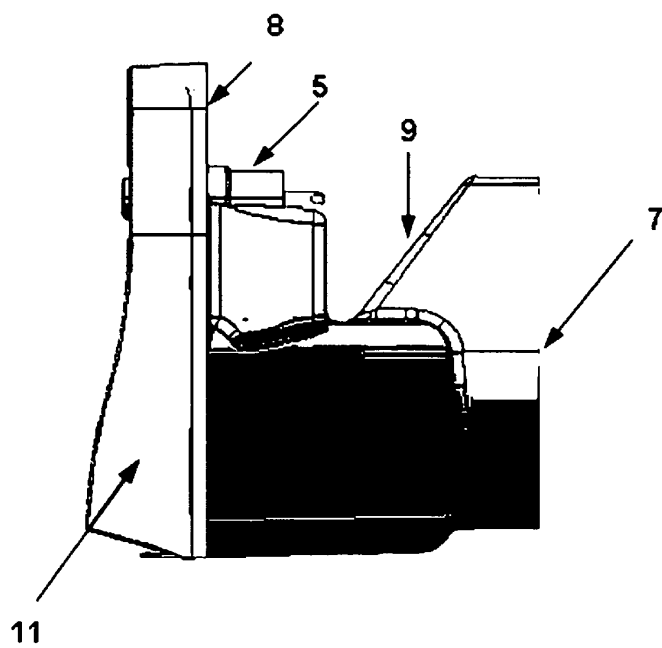


Fig. 4

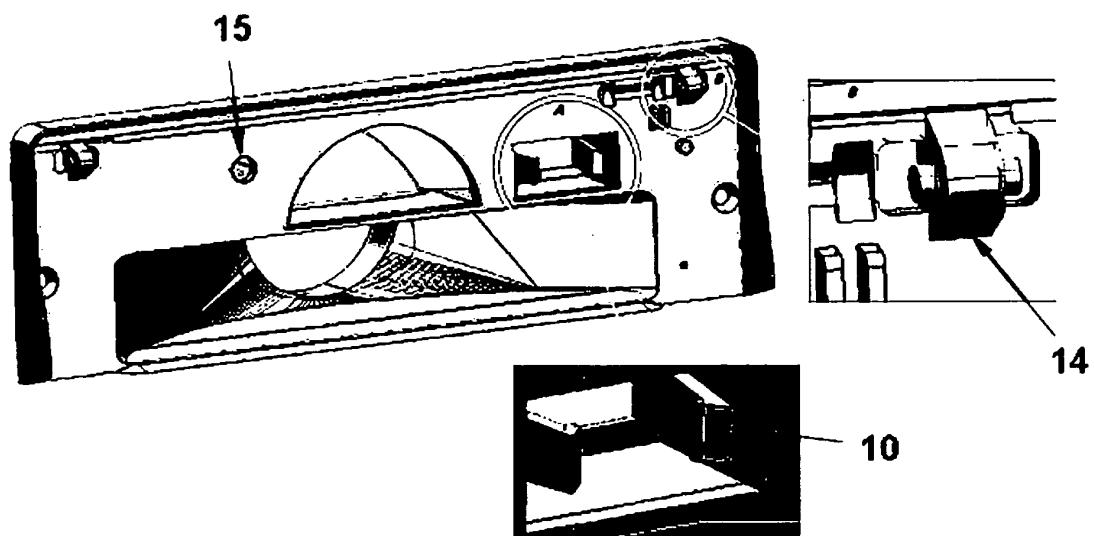


Fig. 5

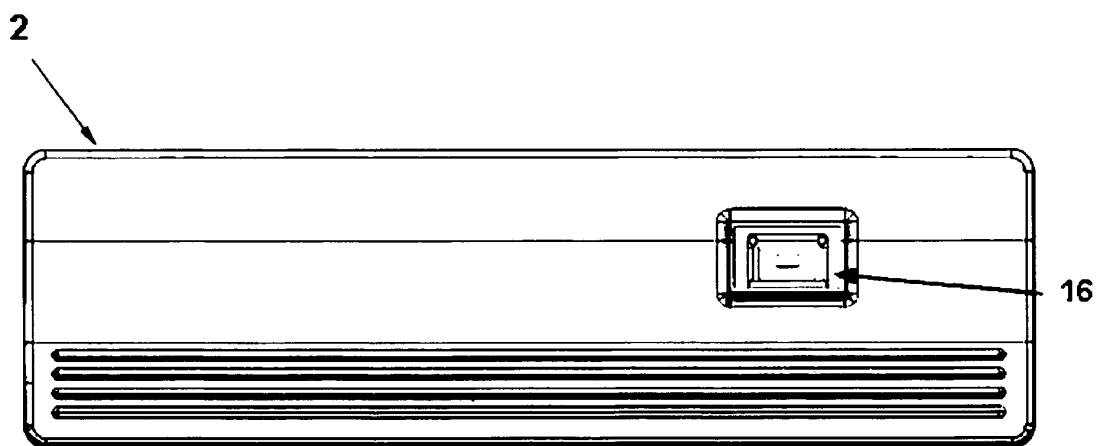


Fig. 6

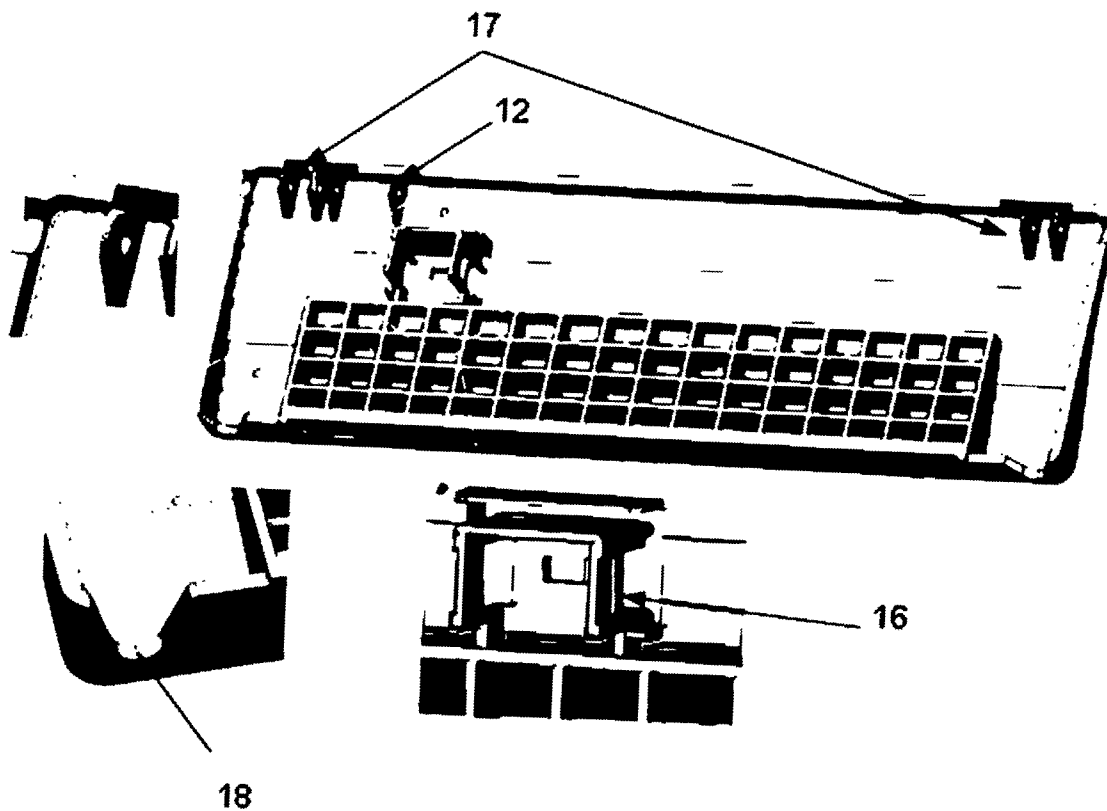


Fig. 7

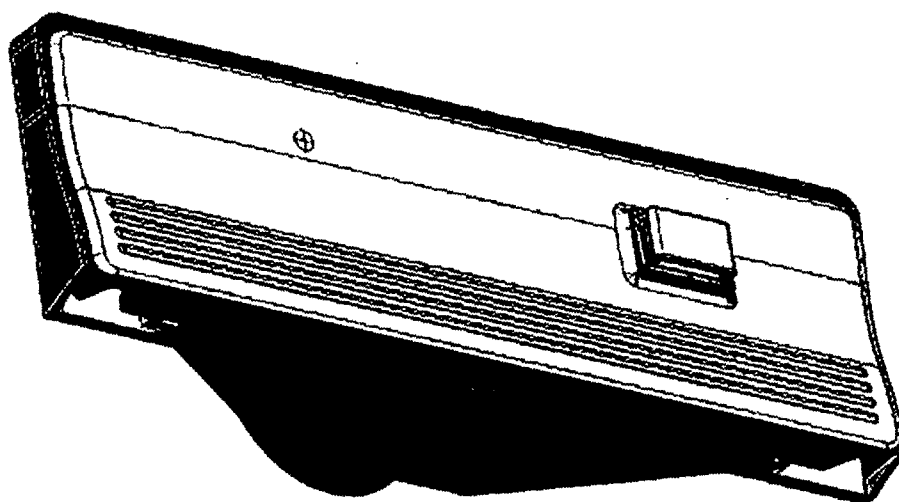


Fig. 8

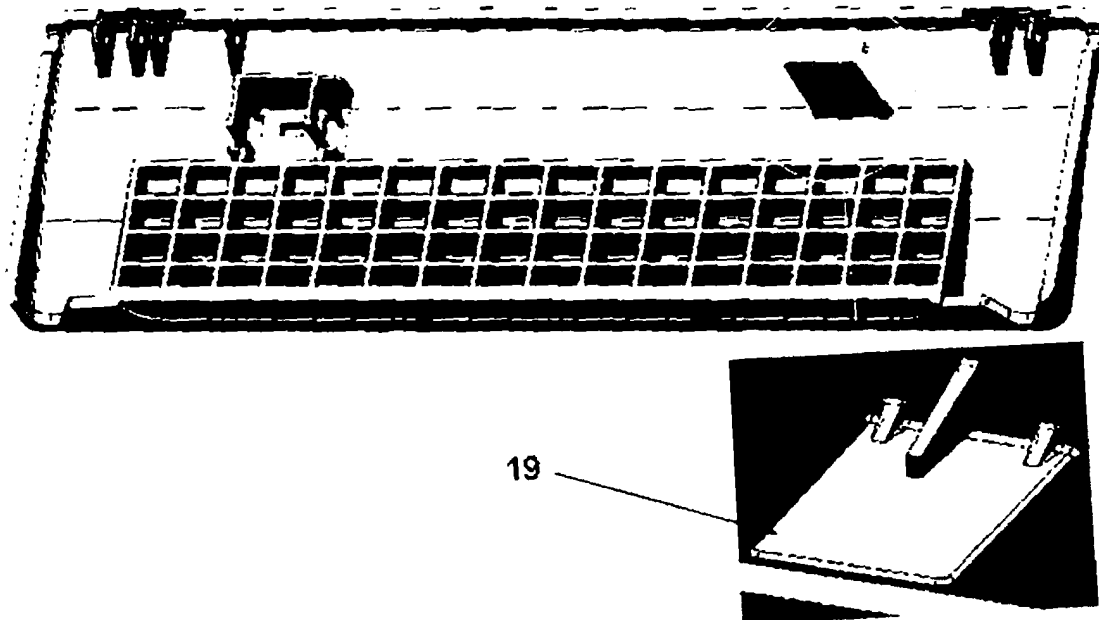


Fig. 9

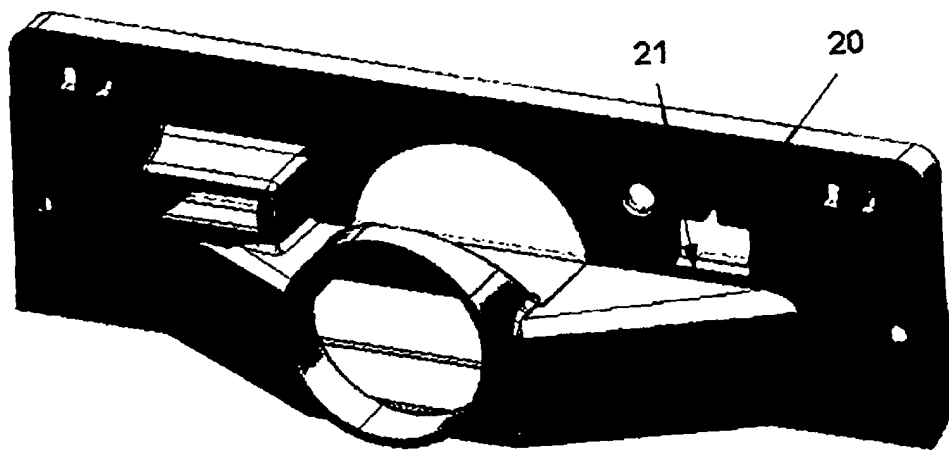


Fig. 10

REFERENCES CITED IN THE DESCRIPTION

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Patent documents cited in the description

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- US 6292977 B [0005]