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(73) Patenthaver: **Merten GmbH, Fritz-Kotz-Strasse 8, 51674 Wiehl, Tyskland**

(72) Opfinder: **Pisek, Martin, Dvorakova 551, 765 02 Otrokovice, Tjekkiet**

(74) Fuldmægtig i Danmark: **RWS Group, Europa House, Chiltern Park, Chalfont St Peter, Bucks SL9 9FG, Storbritannien**

(54) Benævnelse: **Elektrisk installationsanordning**

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Description

The invention relates to an electric installation device according to the preamble of patent claim 1.

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Electric installation devices in the form of sockets are inserted as part of building installation technology and are usually mounted in fixed positions. Depending on the area of use and purpose, these sockets are frequently provided with 10 covers in order to avoid the penetration of foreign bodies and furthermore also to prevent unauthorised access.

15 Numerous solutions are known from the prior art in order to close the opening of the socket with a cover. For example, it is known from EP 0 786 833 B1 to use a hinged cover arranged in an articulated manner. Furthermore separate fastener inserts are known.

20 A disadvantage with these known solutions is that both in the closed position and in the open position the covers protrude over the remaining components of the installation device, for example, the central plate or the frame. Generally there is a need for a closable but as flat as possible structural unit, where in particular in the living area visually pleasing 25 solutions are additionally desired.

30 Sockets with child protection are known from DE 87 08 617 U1 and WO 03/096486 A1 in which openings for the plug contacts of device plugs can be closed by pivotable or slidable elements.

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US-B1-6545218 discloses an installation device according to the preamble of claim 1.

35 DE 429 630 C discloses a lightbulb socket which can be closed with a fastener in the form of an iris diaphragm. Known from US 4 217 019 A is an electric plug connection, the coupling of which can be closed with a fastener in the form of an iris diaphragm.

It is therefore the object of the present invention to eliminate the aforesaid disadvantages and provide an installation device which is configured to be closable and 5 flat.

This object is solved by the features specified in patent claim 1. Advantageous embodiments are obtained from the subclaims.

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The invention according to patent claim 1 comprises an installation device with a fastener which is integrated in a front element and therefore configured to be flat. In the closed state an almost surface-flush surface is formed between 15 front element and fastener. The fastener opens and closes in the plane of the front element. Fastening elements are mounted and guided at the edge in the front element and radially surround a central region, preferably a receiving space in the form of a socket. No additional space is required in front of 20 or behind the front element. On the contrary the fastener is integrated in the existing structure by optimizing the space and the component arrangement.

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The fastener has a plurality of fastening elements which extend in the plane of the front element and are each arranged movably around a fixed bearing. In so doing, the fastening elements move inwardly and/or outwardly with respect to the midpoint of the front element. The individual fastener elements are mechanically coupled in order to ensure a correct 30 movement sequence of the fastener elements during opening and closing of the fastener. Preferably for this purpose the fastener elements are guided in a surrounding guiding element wherein the pins of the fastener elements slide in slotted link-type grooves of the guide element.

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The fastener can be either be moved at the front directly by means of handling elements on the front element or by automatic mechanisms which drive the fastener at a central

location, for example, via a transmission in conjunction with the guide element. In addition to the fastener which is to be operated manually, there is an embodiment in which the fastener mechanism is driven electrically by means of a correspondingly small electric motor. Depending on the design, the electric motor can be activated in different ways, for example, directly by means of a function key on the installation device or by remote control. Particularly wireless functionalities, for example radio or IR components are feasible here. A sensory detection of approaching metals, e.g. the contact pins of a device plug is advantageous in order to hereby bring about an automatic opening of the fastener. Furthermore, an authorization interrogation is possible so that an opening of the fastener is only made by means of special access signals, for example, transponder signals or numerical codes. Practically therefore there are variously equipped front elements which can be used according to the application.

In a particularly advantageous embodiment, the front elements including the fastener elements can be adapted seamlessly by suitably configured surfaces to the surrounding surfaces and thus integrated. Informative letterings and printings of the fastener elements are also feasible.

A universally usable front element is provided which can be retrofitted to existing installation devices as required. It is essential here that only the device-specific front element must be exchanged for retrofitting to the installation device.

It is not necessary to dismantle the device socket or the supporting frame. The existing geometry of the device socket can be used unchanged since the fastening points and contact points are retained.

Further details, features and advantages of the invention are obtained from the following description of a preferred exemplary embodiment by reference to the drawings.

In the figures:

Figure 1 shows a schematic structure of an installation device.

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Figures 2a-f show schematically the structure of a front element of the installation device and an opening cycle of a fastener.

10 Figure 3 shows a perspective view of a surface-mounted arrangement with half-open closure and handling elements.

15 Components which are the same or have the same effect are provided with the same reference numbers in the following description.

The structure and the mode of operation of the installation device 1 according to the invention is explained in detail hereinafter. For example, an installation device 1 in the form 20 of a socket is shown which is fastened in an installation housing 2 which is fixed in a fixed position in a building wall 3. The socket 1 comprises a device socket 4 which surrounds a supporting frame 5 on the outside which enables the socket 1 to be fastened in the installation housing 2. A 25 front element 6 is fastened on the front side in which a receiving space 7 for a device plug 8 is formed and which can be one- or multi-part according to the application. Connecting terminals 9 and associated metal contact elements are arranged in the device socket 4 into which connecting contacts 10 of the device plug 8 are plugged on the front side. Furthermore, 30 an earthing clip, not shown, is arranged in the device socket 4 which is used for contact of an earthing contact of the device plug 8 on the front side. A supply line 11 laid on the wall side supplies the socket 1 with a mains voltage, where 35 the individual lines 12 are fixed detachably in the connecting terminals 9 (Figure 1).

Figures 2a-f show an inner view of a front element 6 so that

the components of a fastener 13 integrated therein can be seen. The fastener 13 comprises a plurality of fastener elements 14 which extend in the plane of the front element 6 and are configured in a wing-like manner. The fastener 5 elements 14 are each arranged movable around a fixed bearing 15 and mechanically coupled in order to ensure a correct movement sequence during opening and closing of the fastener 13. For this purpose the fastener elements 14 are guided in a surrounding guide element 16, wherein the pins 17 of the 10 fastener elements 14 slide in slotted-link-like grooves 18 of the guide element 16. The guide element 16 is configured to be annular and indented at some points. A pre-tensioned spring 19 acts on the guide element 16 in order to enable an almost automatic opening or closing of the fastener 13 after a first 15 movement pulse or to secure the opening position.

An opening cycle of the fastener 13 can be tracked by reference to Figures 2a-f. In the closed state an almost surface-flush surface is formed between front element 6 and 20 fastener 13. During opening the fastener elements 14 guided by the guide element 16 move uniformly radially outwards with respect to the midpoint of the front element 6 and expose the socket 7 so that a device plug 8 can be introduced. The correct movement sequence of the fastener elements 14 is 25 ensured by the surrounding guide element 16, wherein the pins 17 of the fastener elements 14 slide in the grooves 18. In the closed state an almost surface-flush surface is formed between front element 6 and fastener 13. The fastener elements 14 are located completely at the edge in the front element 6 and 30 radially surround the socket 7.

Figure 3 shows an exemplary embodiment of a surface-mounted installation where here in particular handling element 20 are visible which enable a front-side manual movement of the 35 fastener 13. Further embodiments not shown are obtained in particular by automatic mechanisms which drive the fastener 13 at a central location, for example, via a transmission in conjunction with the guide element 16.

The preceding illustration of the exemplary embodiment is only intended for illustrative purposes and does not serve the purpose of restricting the invention.

Patentkrav

1. Installationsanordning (1) bestående af en sokkel (4), af en på soklen (4) fastgjort bæreramme (5) og af et frontelement (6), idet der på en bagside af soklen (4) kan sluttet ledninger (12), og idet frontelementet (6) er fastgjort på en frontside af soklen (4), idet der i frontelementet (6) er integreret en lukkemekanisme (13), som kan bevæges i frontelementets (6) niveau, idet lukkemekanismen (13) har flere lukkeelementer (14), kendetegnet ved, at lukkeelementerne omgiver et optagerum (7) radialt og hver især er placeret bevægeligt omkring et fast leje (15), idet lukkeelementerne (14) kan bevæges indad og/eller udad i forhold til midtpunktet i frontelementet (6).
- 15 2. Installationsanordning ifølge et af de foregående patentkrav, kendetegnet ved, at lukkeelementerne (14) er koblet mekanisk.
- 20 3. Installationsanordning ifølge et af de foregående patentkrav, kendetegnet ved, at lukkeelementerne (14) er ført kulisseagtigt i et omgivende føringselement (16).
- 25 4. Installationsanordning ifølge et af de foregående patentkrav, kendetegnet ved, at lukkemekanismen (13) kan betjenes manuelt ved hjælp af håndteringselementer (20), der er udformet på frontelementet (6).
- 30 5. Installationsanordning ifølge et af de foregående patentkrav, kendetegnet ved, at lukkeelementerne (14) kan drives på et centralt sted.
- 35 6. Installationsanordning ifølge et af de foregående patentkrav, kendetegnet ved, at lukkemekanismen (13) åbner og lukker automatisk ved hjælp af en fjeder (19).
7. Installationsanordning ifølge et af de foregående patentkrav, kendetegnet ved, at lukkemekanismen (13) kan

drives ved hjælp af en elektromotor.

8. Installationsanordning ifølge et af de foregående patentkrav, kendetegnet ved, at elektromotoren kan aktiveres ved hjælp af en knap eller pr. fjernudløsning.

9. Installationsanordning ifølge et af de foregående patentkrav, kendetegnet ved, at lukkemekanismen (13) aktiveres ved hjælp af sensorisk registrering af metaller.

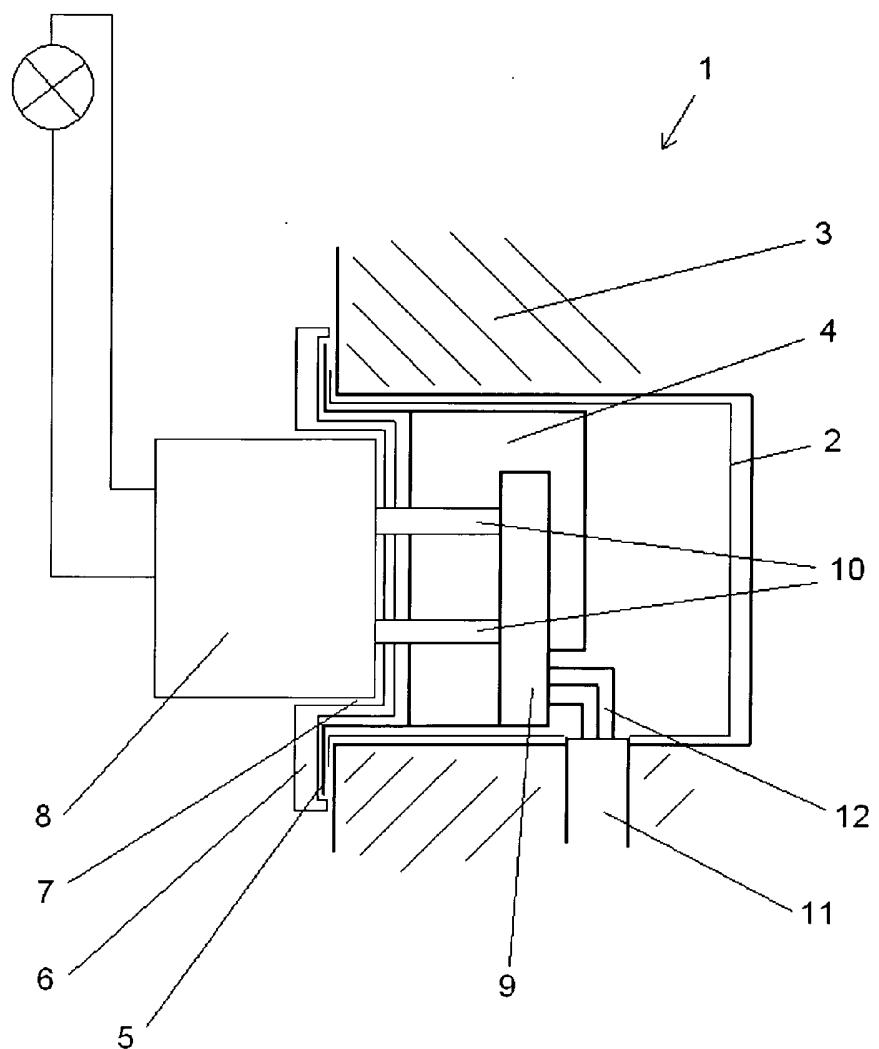


Fig. 1

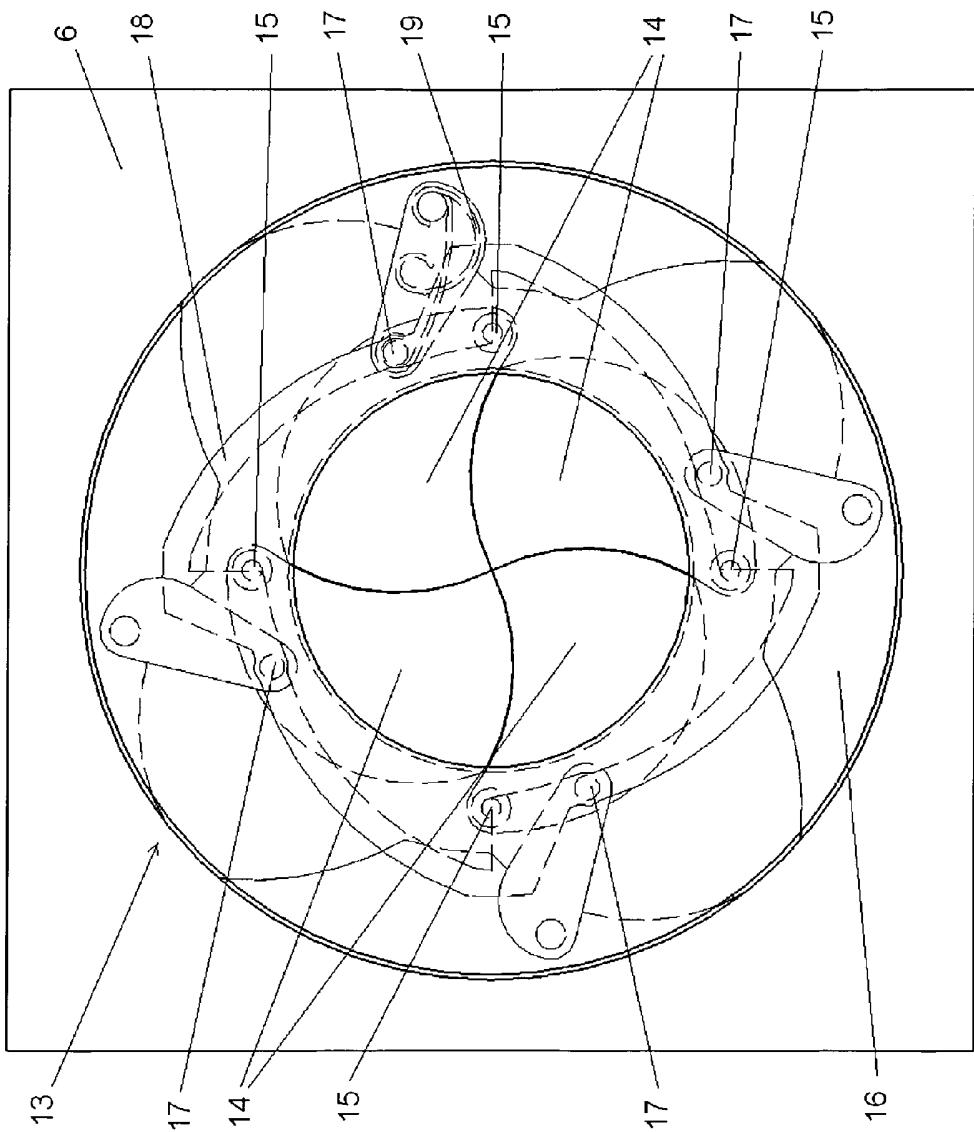


Fig. 2a

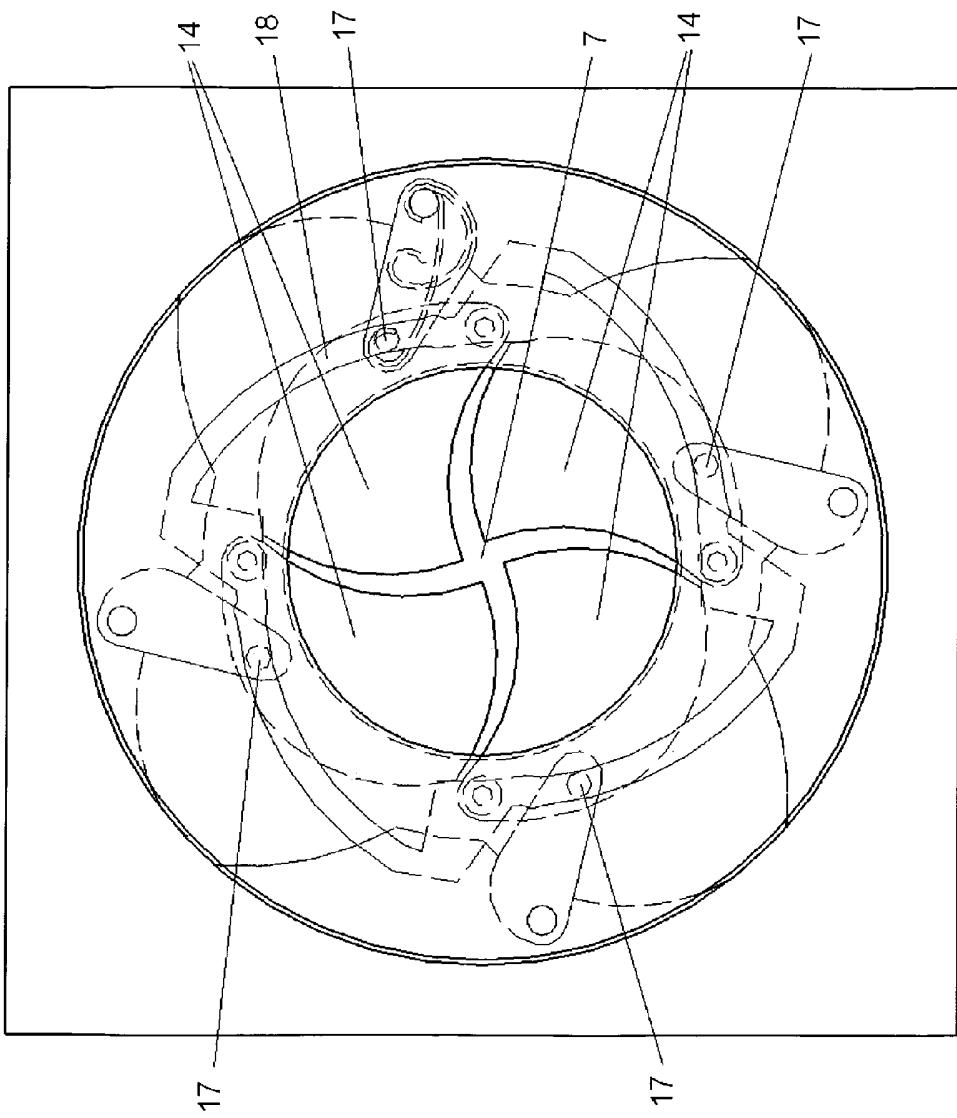


Fig.2b

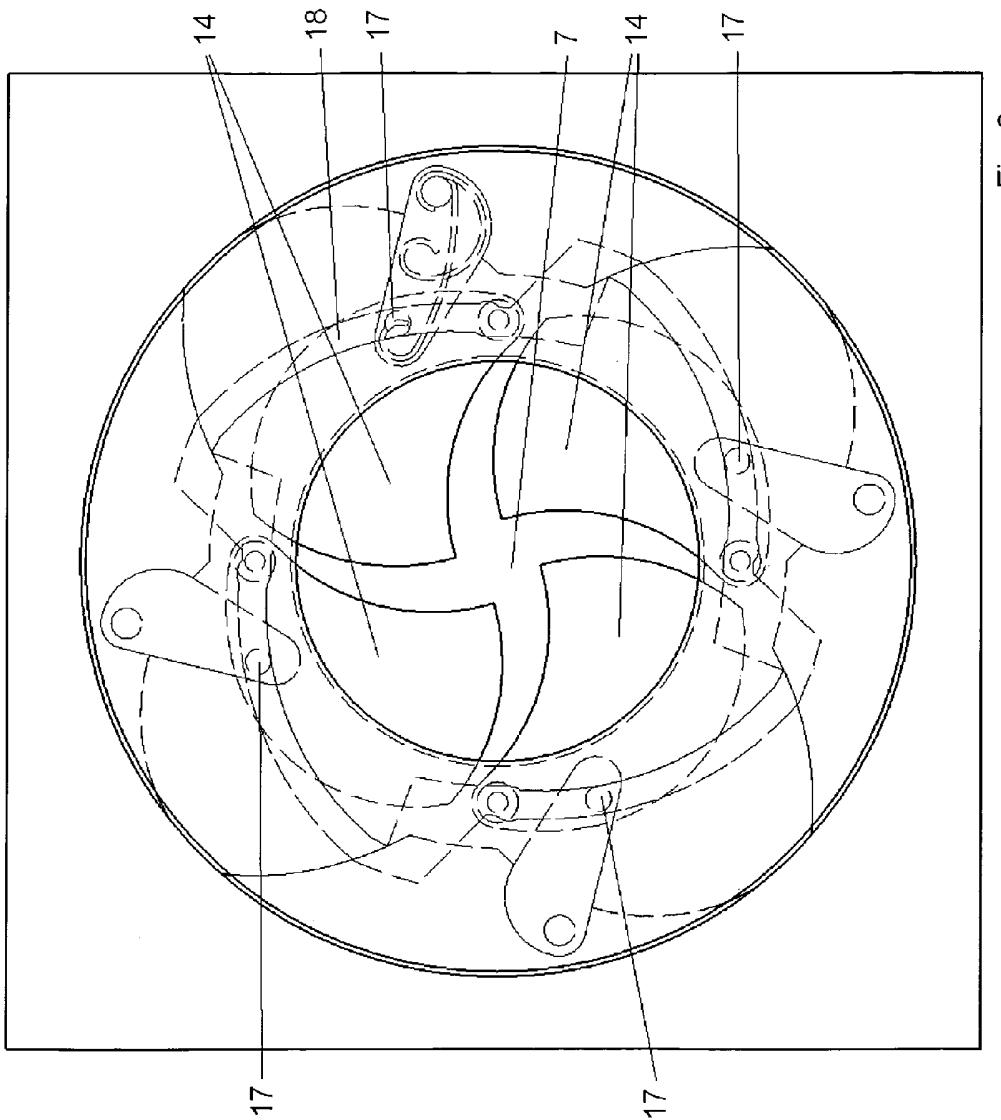


Fig. 2c

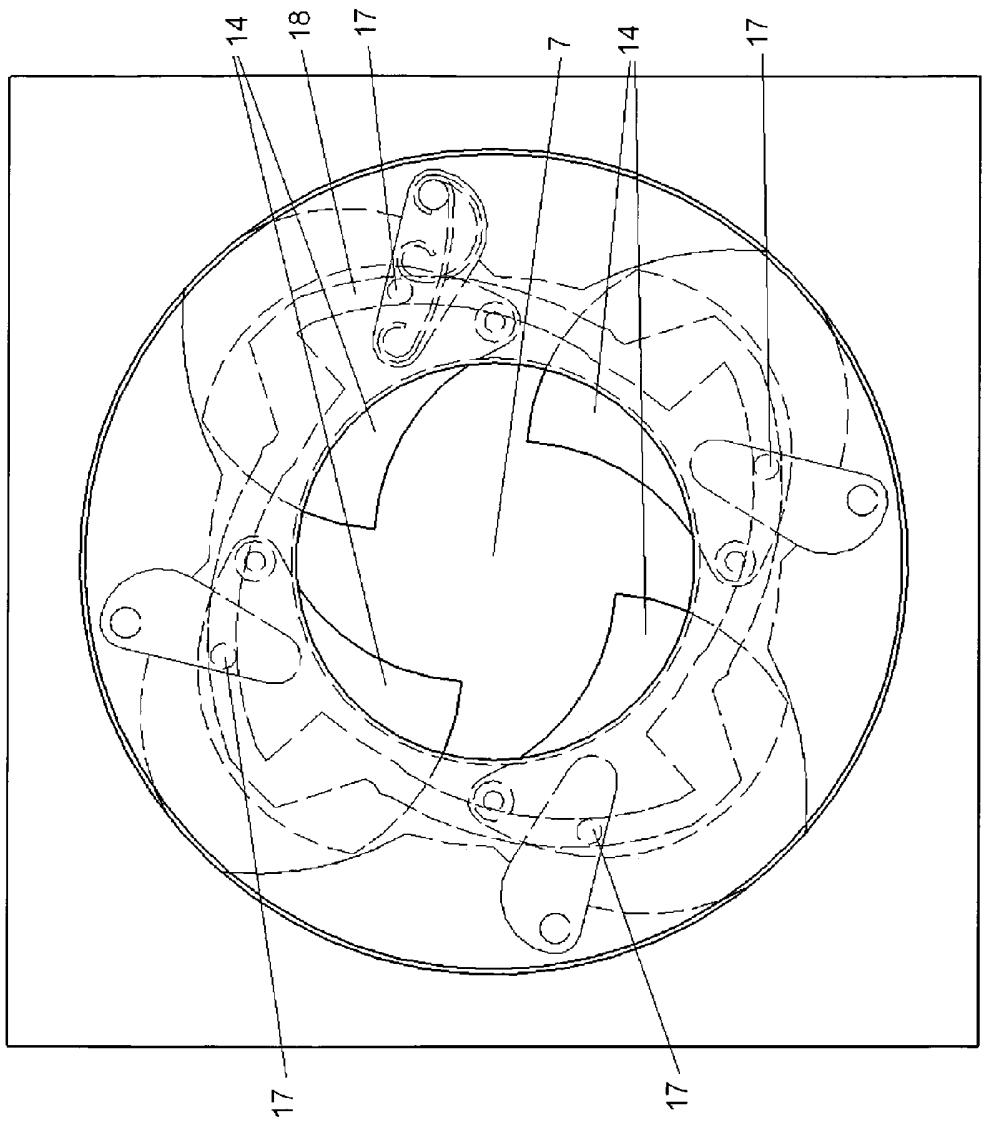


Fig. 2d

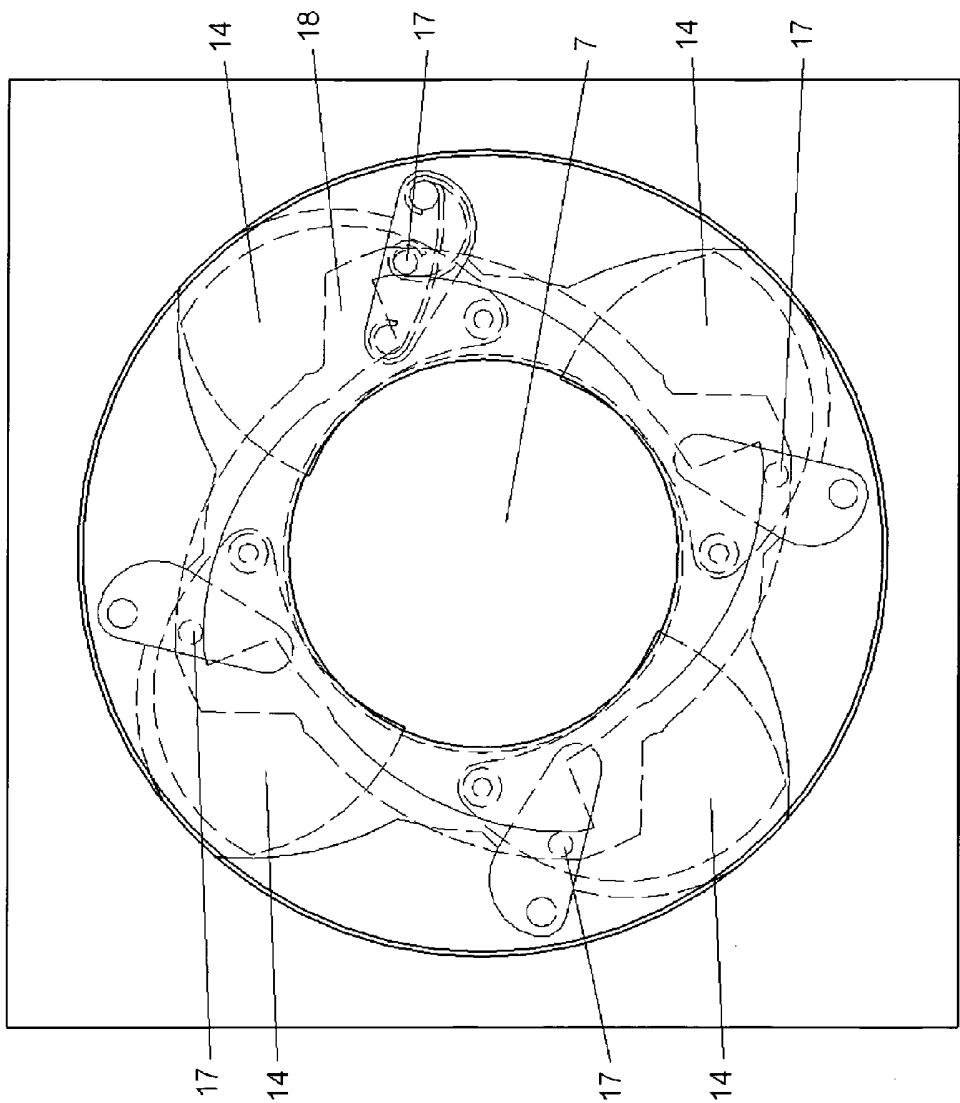


Fig. 2e

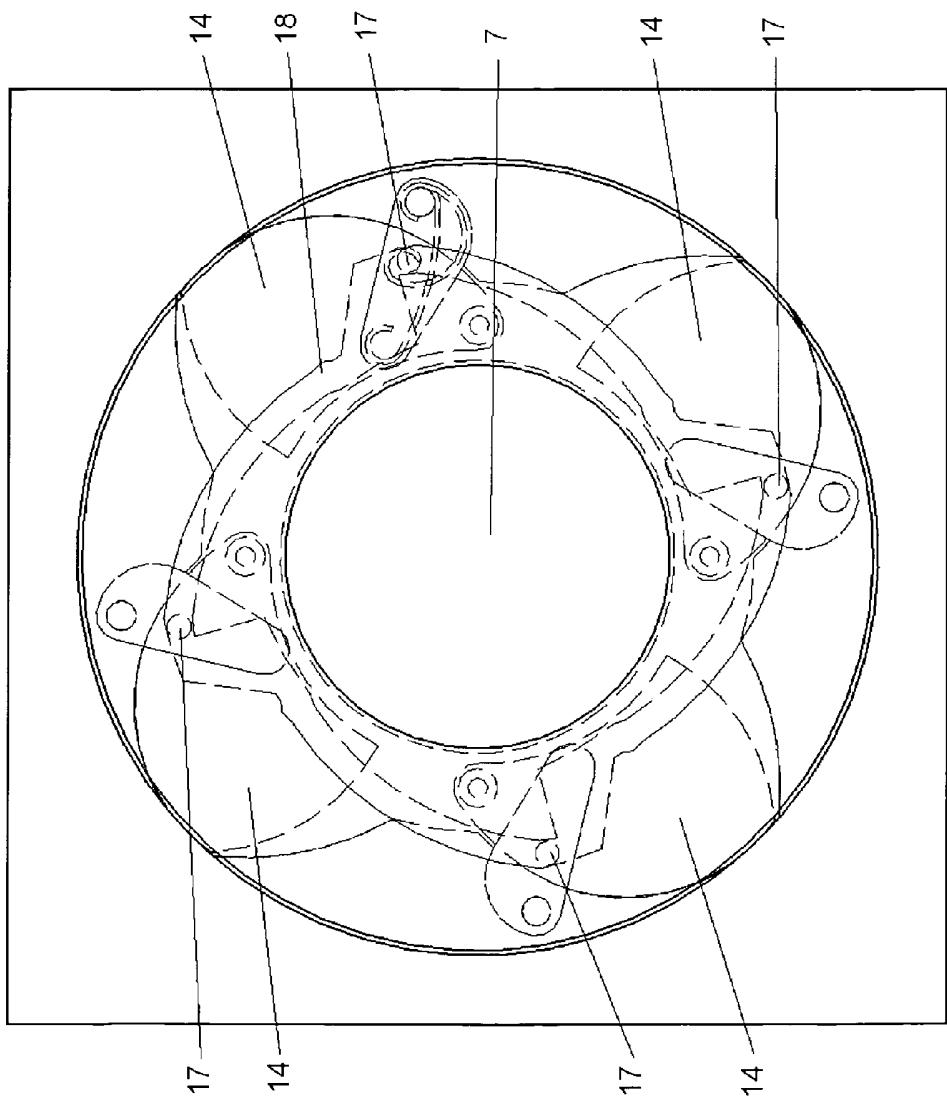


Fig. 2f

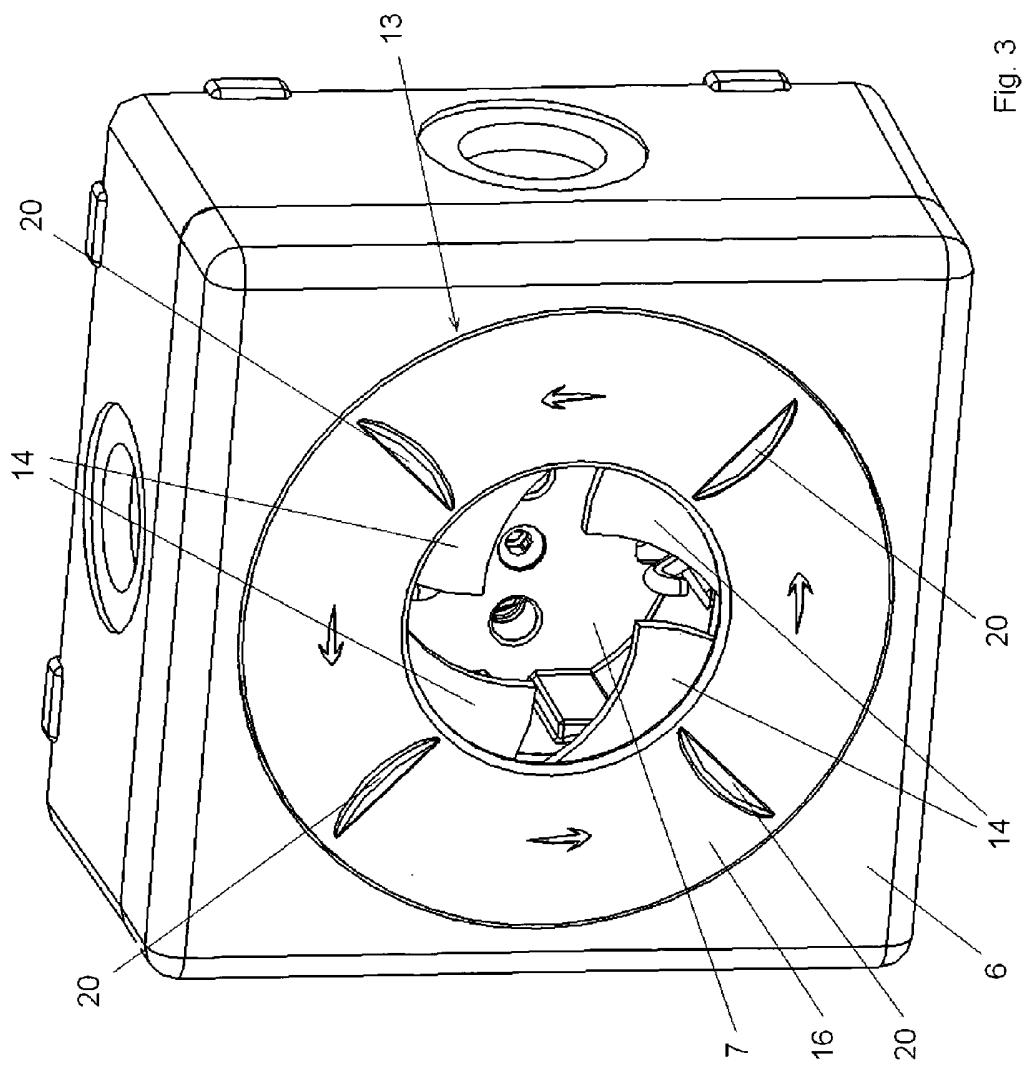


Fig. 3