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(54) **Key lock device**

(57) A key lock device comprises a body (2) fit to be fixed to a door and provided with a seat (4) for a rotating member (6) provided, at one end, with a closure means (7) fit, in predetermined respective angular conditions, to lock and to unlock the door.

The rotating member (6) has a lock (10) provided with an elongated head mean (11) fit to engage a channel (12), carried out in the body (2), having circular sector

shape with each end provided with an enlargement (13, 14).

The head means (11) is fit to slide into the channel (12) to allow the opening and closing positioning of the closure mean (7) in a condition in which said head mean (11) is approximately aligned to the channel (12) and to stop the closure mean (7) when said head mean (11) is in one of the two enlargements (13, 14) and almost perpendicular in respect to the channel (12).

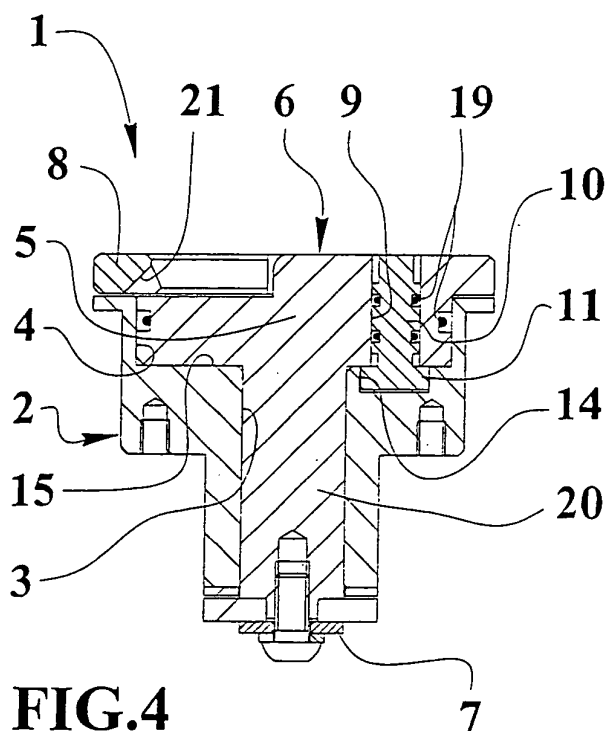


FIG.4

Description

[0001] The present invention relates to the technical field of closures for cabinets, peaks, furniture, fitting, and equipments and containers and it refers to a key lock device, in particular suitable for doors, openable limber boards, shutters and the likes.

[0002] There are known devices fit to be fixed close to the edge of a door, of a room, and provided with one portion manually operable for the rotation of a closure arm fit to engage protrusions or recess the room to avoid the rotation of the door and the opening of the room.

[0003] A drawback of some known devices consists in that, particularly if they are used in nautical environment, said device can be damaged due to oxidation and can be blocked.

[0004] Other drawback of said known devices consists in that the manually operable portions can protrude and be dangerous for the persons.

[0005] Further drawback of the known devices, particularly if they comprise key locks, consists in their complexity that causes malfunctions risks and high purchase and maintenance costs.

[0006] An object of the present invention is to propose a key lock device which is simple and extremely reliable even if it is used in critical environmental conditions.

[0007] Other object is to propose a device which can be installed aligned to the door without dangerous protrusions.

[0008] Further object is to propose a simple, economic device which is almost maintenance free.

[0009] The characteristics of the invention are evidenced in the following with particular reference to the attached drawings, in which:

- figure 1 shows an axonometric view of the key lock device, of the present invention;
- figure 2 shows a plan view of the device of figure 1;
- figure 3 shows an axonometric view of some parts of the device of figure 1;
- figure 4 shows a sectional view according to plane IV - IV of figure 2;
- figures 5 and 6 show longitudinal sectional views respectively of a rotating member and of a body of the device of figure 1;
- figures 7 - 10 show plan and schematic views of some elements of the device in a phase sequence of unlocking, opening or closing, and of locking of the device of figure 1.

[0010] With reference to the figures 1 - 10, numeral 1 indicates the key lock device, of the present invention, comprising a body 2 fit to be fixed to a door or the likes, known and not shown, of a room or space closed by said door.

[0011] The body 2 is provided with a passing opening 3 comprising a cylindrical seat 4 for a cylindrical portion 5, almost complementary and coaxial to said seat 4, of

a rotating member 6.

[0012] Said rotating member 6 is provided with a cylindrical protrusion 20 housed in the passing opening 3 of the body 2. The end of the protrusion 20 jutting out of the body has a closure mean 7, fixed by screw means or the like, and consisting of, for example, a shaped plate. The shaped plate of the closure means 7 is fit, in predetermined respective angular conditions, to block closed the door, matching with an inner face of an element of the room, and to unlock the door.

[0013] The other end of the rotating member 6 is equipped with a handle means 8 to open and to close the door.

[0014] The cylindrical portion 5 of the rotating member 6 has an eccentric housing 9, in order to house, in a rotating manner, a lock member 10 provided with an elongated head mean 11 fit to engage with a channel 12, obtained in the body 2 on an annulus face 15 of the cylindrical seat 4.

[0015] The channel has circular sector shape with each end provided with an enlargement seat 13, 14.

[0016] In a condition in which the elongated head mean 11 is approximately parallel with the respective tangent of the circumference sectors of the channel, said head mean 11, following to the manual operation of the handle mean 8, can slide into the channel 12 to allow the rotation of the rotating member 6, the opening and closing of the closure mean 7.

[0017] The head means 11 is fit to lock the closure mean 7 in the opening or the closing position when said head mean 11 is in one of the two enlargements 13, 14 and it is oriented almost perpendicularly to the corresponding tangent to the circumference sector.

[0018] The plain shape of the rotating member 6 is circular and the handle means 8 has semi-annular shape.

[0019] The ends of the handle mean 8 are pivoted to the rotating member 6 which is provided with an embedded housing for said handle mean 8.

[0020] The handle mean 8 is equipped with a grasping recess 21 fit to facilitate the raising thereof.

[0021] The housing 9 of the cylindrical portion 5 of the rotating member 6 is almost cylindrical shaped and is parallel in respect to the geometric axis of cylindrical seat 4, to house in rotating manner the lock member 10 which is also almost cylindrical shaped, with said head mean 11 protruding towards the channel.

[0022] The channel 12, engaged in sliding manner by the head mean, is carried out on an annulus face 15 of the cylindrical seat 4 of the body 2.

[0023] The end of the lock member 10 opposite to the head means 11 has a connection 16 for a control key mean 17.

[0024] The head 11 of the lock member 10 has oval shape or elongated rectangular shape with semicircular convex smaller sides.

[0025] Each enlargement seat 13, 14 comprises two semicircular lobes to allow the rotation of the head mean 11 of the lock member 10 between the respective aligned

and perpendicular conditions in respect to the respective final tract of the semicircular channel 12.

[0026] Each enlargement seat 13, 14 comprises a stop 18, corresponding to the common match point of the lobes, in order to prevent a rotation approximately bigger than 90° of the head mean 11 of the lock member 10 between the aligned and perpendicular conditions in respect to the respective final tract of the semicircular channel 12. Also the jointing point of one of the two lobes of each seat with the arc shaped section of the channel can serve to block the rotation of the head mean, in cooperation or in alternative, to the stop 18. The stop 18, for example, can be by carried out by means of milling of the piece or can be carried out by means of the insertion of pins or screws or pivots, known but not shown.

[0027] A further alternative provides that the enlargement seats 13, 14 have circular shape, or anyway in such a shape which does not prevent free rotation of the head, and that they are provided with a stop, for example consisting of a pivot, dowel or the like, fit to limit the rotation of the head 11 in the range of approximately 90° between the aligned and perpendicular conditions in respect to the semicircular channel 12.

[0028] The device 1 comprises a set of hydraulic sealing means 19, for example so-called "O-Ring" kind, interposed between the body 2 and the rotating member 6 and between the lock member 10 and the respective housing 9 in the rotating member 6.

[0029] The operation of the device associated with the door of the room or of a space, provides that an user rotates the handle mean 8 in a first direction to raise it from the rotating member and in a second direction, around the longitudinal axis of the device, to put this latter and the door in the opening or closing condition.

[0030] A simple variant of the invention, which can be understood without requiring any drawing, provides that the lock member 10 comprises a security key lock and that the head mean 11 is fixed to the rotating element of said lock.

[0031] In said variant, the control key mean 17 is constituted by a safety key lock.

[0032] An advantage of the present invention is to provide a key lock device which is simple and extremely reliable even if it is used in nautical and critical environmental conditions in general.

[0033] Other advantage is to provide a device which can be installed aligned to the door without having dangerous protrusions.

[0034] Further advantage is to provide a simple and economic device and which can be almost maintenance free.

Claims

1. Key lock device comprising a body (2) fit to be fixed to a door and provided with a seat (4) for a rotating member (6) provided, at an end, with a closure

means (7) fit, in predetermined respective angular conditions, to lock and to unlock the door; said device being **characterized in that** the rotating member (6) has a lock member (10) provided with an elongated head means (11) fit to engage a channel (12), obtained in the body (2), having circular sector shape with each end provided with an enlargement (13, 14); the head mean (11) being fit to slide in the channel (12) to allow the opening and the closing positioning of the closure mean (7) in a condition in which said head mean (11) is approximately aligned to the channel (12) and to block the closure means (7) when said head mean (11) is in one of the two enlargements (13, 14) and almost perpendicular in respect to the channel (12).

2. Device according to claim 1 **characterized in that** the seat (4) has cylindrical shape and it is carried out in a passing opening (3) of the body (2) and it is fit to house in rotating manner an almost complementary and coaxial cylindrical portion (5) of the rotating member (6).
3. Device according to claim 1 **characterized in that** the end opposite to the closure means (7) of the rotating member (6) has a handle means (8) for opening and closing the door.
4. Device according to claim 3 **characterized in that** the plain view of the rotating member (6) has circular shape and **in that** the handle means (8) has semicircular shape with ends pivoted to the rotating member (6) provided with an embedded housing for said handle mean (8).
5. Device according to claim 2 **characterized in that** the cylindrical portion (5) of the rotating member (6) has an almost cylindrical shaped housing (9), and parallel in respect to the geometric axis of the cylindrical seat (4), to house in a rotating manner the lock member (10) having almost cylindrical shape, with said head means (11) being protruding.
6. Device according to claim 1 **characterized in that** the channel (12) is carried out on an annulus face (15) of the cylindrical seat (4) of the body (2).
7. Device according to claim 1 or to claim 5 **characterized in that** the end opposite to the head mean (11) of the lock member (10) has a coupling (16) for a control key mean (17).
8. Device according to claim 1 **characterized in that** the head (11) of the member of the lock mean (10) has oval shape or elongated rectangular shape or with semicircular convex smaller sides.
9. Device according to claim 1 or to claim 8 **character-**

ized in that each enlargement (13, 14) comprises two semicircular lobes to allow the rotation of the head (11) of the lock member (10) between respective aligned and perpendicular conditions in respect to the respective final tract of the semicircular channel (12). 5

10. Device according to claim 1 or to claim 8 **characterized in that** each enlargement (13, 14) comprises a stop (18) to avoid rotations bigger than about 90° of the head means (11) of the lock member (10) between the aligned and perpendicular conditions in respect to the respective final tract of the semicircular channel (12). 10

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11. Device according to claim 5 **characterized in that** it comprise a set of hydraulic sealing means (19) interposed between the body (2) and the rotating member (6) and between the lock member (10) and the respective housing (9) in the rotating member (6). 20

12. Device according to claim 2 **characterized in that** the closure mean (7) is fixed to an end of a cylindrical protrusion (20) of the rotating member (6) housed in the passing opening (3) of the body (2). 25

13. Device according to claim 4 **characterized in that** the handle means (8) is provided with a grasping recess (21) fit to facilitate the raising thereof. 30

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FIG.2

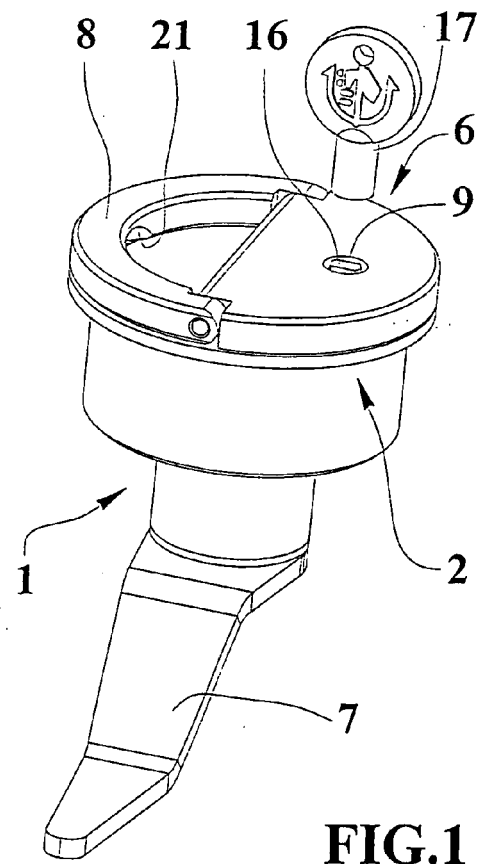
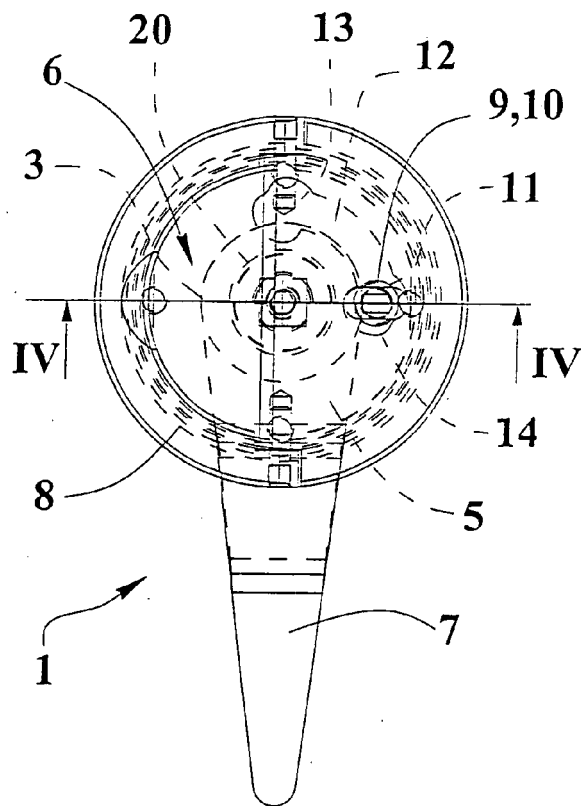


FIG.1

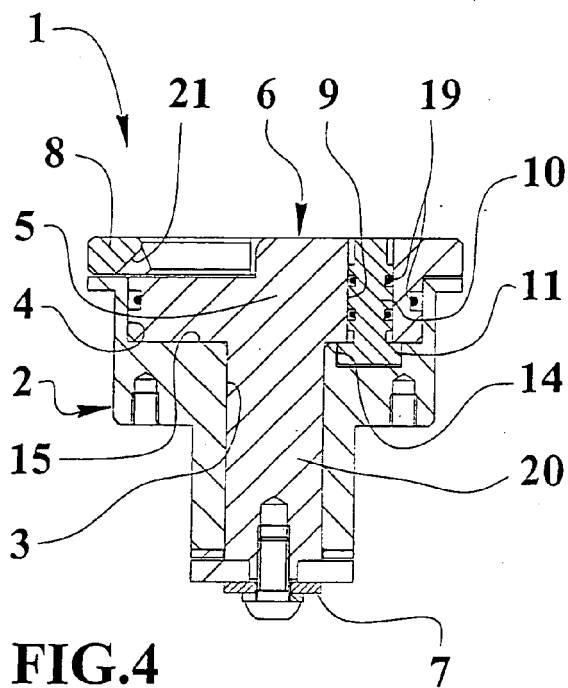


FIG.4

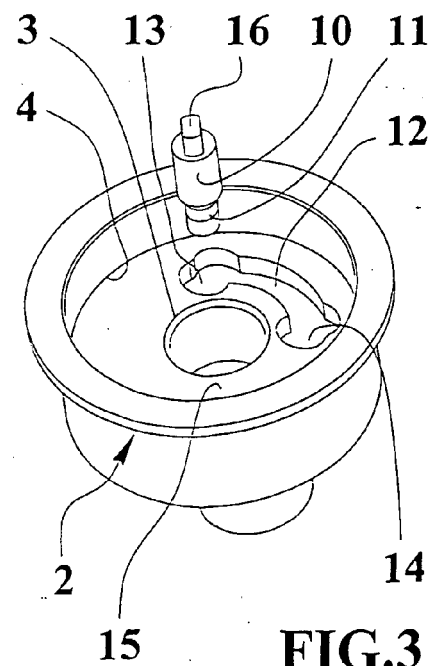


FIG.3

FIG.5

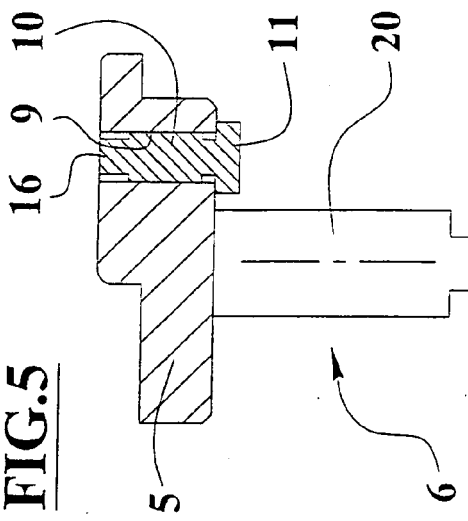


FIG.7

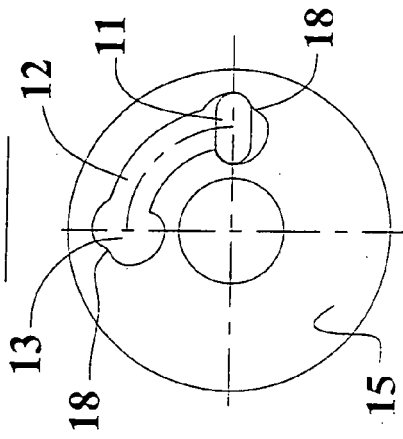


FIG.8

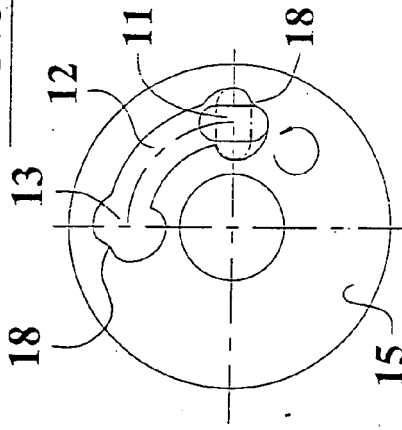


FIG.6

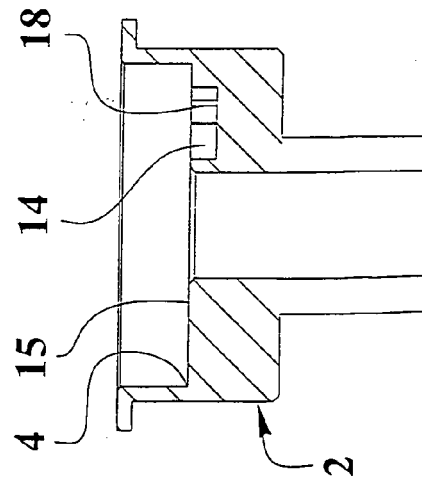


FIG.9

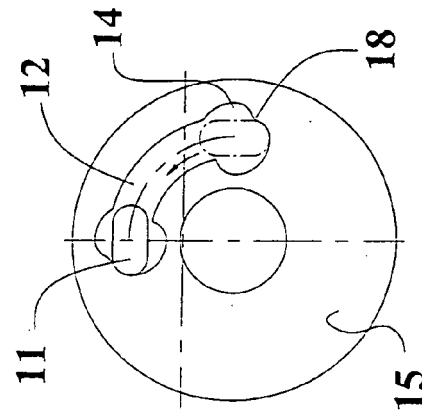


FIG.10

