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(54) **DOOR LOCK ARRANGEMENT**

TÜRSCHLOSSANORDNUNG

DISPOSITIF DE SERRURE DE PORTE

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(56) References cited:

DE-A1- 10 024 592 DE-U1- 9 411 236

US-A- 235 963 US-A- 611 979

US-A- 2 497 189 US-A- 2 768 015

US-A- 3 651 673

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Description

[0001] The invention relates to a door lock arrangement according to the preamble of claim 1 comprising a lock body fitted with a front plate and a cover plate; the lock body has at least one bolt protruding from an opening in the front plate and can be attached by screws or the like fitted in screw holes of the front plate and can be furnished with said cover plate installed on the front plate, in which case the door or the like also has a recess for the front plate.

[0002] The installation of a separate cover plate on the front plate of a door lock embedded in a door or the like allows various surface finish alternatives to be taken into account so that this visible part of the door lock will be similar in style to other hardware on the door and its vicinity. Because many door locks are delivered without a cover plate, the solution must allow easy retrofitting of a cover plate as necessary when it is desired to change the surface finish.

[0003] A door lock is usually installed at the door factory, and it would be simplest for the door factory to use a standard recess made at the position of the front plate. If the lock is then fitted with a cover plate, the cover plate will unpleasantly protrude from the end surface of the lock unless the recess for the lock's front plate is simultaneously deepened. However, such deepening made after initial installation is quite a demanding task so it will be quite difficult to achieve a tidy installation without damaging the surface coating of the door. On the other hand, the door factory is practically unable to fit all of its doors with a front plate recess that would depthwise correspond to the use of a cover plate because if there was no cover plate, the door lock would be installed too deep, which would also result in a quite unpleasant appearance. E.g. US 611,979 discloses a door lock arrangement according to the preamble of claim 1, that can be mounted with or without a cover plate. The objective of the invention is to create a door lock arrangement with as simple structure as possible that allows easy installation of a door lock in a door or the like pivoting blade either with or without a cover plate and that minimises the required installation actions in different situations and ensures a tidy result.

[0004] The objectives of the invention will be achieved as described in more detail in claim 1 and the other claims. According to the invention, the back side of the front plate that is arranged against the door or the like has protrusions at the positions of the screw holes, and in case the lock body is installed without a cover plate, the front plate is supported by said protrusions in the front plate recess. The lock body can further be fitted with said cover plate that has screw holes corresponding to the screw holes in the front plate for attaching the cover plate using the same screws or the like, in which case the lock body is arranged to be installed so that the front plate is attached to the door or the like supported by its back surface that is at least substantially independent of said protrusions. Furthermore, the combined thickness of the

front plate and cover plate shall be chosen so that when installed together, the combined thickness substantially corresponds to the depth of said front plate recess.

[0005] The invention allows easy and simple installation of the front plate of a door lock and an optional cover plate installed on it so that their thickness in different cases will always roughly correspond to the front plate recess made in the door. Thus the door factory does not need to consider whether the locks used in the doors are fitted with a cover plate or not but the doors can be manufactured using a standard recess for the front plate, which will bring cost savings.

[0006] When it is desired to equip the door lock with a cover plate, the door lock is detached and cavities are made for said protrusions on the back side of the front plate only. This can be simply achieved by removing a small amount of material from their positions. This allows the door lock to be installed slightly deeper, supported by the back surface of the front plate, which makes it possible to neatly install the cover plate on it. Said removal of material from the positions of said protrusions only can be easily achieved without damaging other parts of the door surface particularly as the functionality of the solution does not require too much precision with regard to the dimensions of this local cavity. The depthwise dimension required for the standard recess for the front plate can be easily taken into account by manufacturing the front plate from a slightly thinner sheet material than usual, so that the combined thickness of the front plate and the cover plate suitably corresponds to the depth of the front plate recess in the door.

[0007] The screw holes in the front plate and cover plate are preferably furnished with mutually corresponding oblique guide surfaces that are most preferably arranged to correspond to the oblique surfaces in the head of the fixing screws. This allows simple and firm installation of the cover plate.

[0008] In the following, the invention will be described in detail by referring to the enclosed schematic drawings, in which

- Figure 1 illustrates a door lock according to the invention fitted in a recess in a door and viewed from the side,
- Figure 2 illustrates a partial enlargement of the door lock of Figure 1 at the position of the fixing screw, and
- Figure 3 illustrates a view corresponding to the partial enlargement of Figure 2 in a situation where the door lock is additionally fitted with a cover plate installed on the front plate.

[0009] In the figures, reference number 1 refers to a door or the like pivoting wing with a recess 1a in which a door lock 2 is installed, said door lock comprising a lock body 3 equipped with a front plate 4 and a bolt 5. The door has a separate recess 1b for the front plate 4. The lock body 3 is attached to the door through the front plate 4 with screws 6.

[0010] As indicated in more detail in Figure 2, the front plate has protrusions 4a in connection with the holes for screws 6, which means that the front plate 4 is attached in the recess 1b supported by the very protrusions 4a. In practice it is sufficient that the height of the protrusions 4a is in the order of 0.5 mm. The recess 1b here is a so-called standard recess with a depth of approximately 2.5 mm. According to the invention, the front plate 4 is manufactured of a material that is slightly thinner than conventional, approximately 1.5 mm thick. Even though it therefore does not completely fill the recess 1b, the protrusions 4a make the difference quite small and unnoticeable.

[0011] Figure 3 illustrates a situation in which a cover plate 7 has been installed on the front plate 4 within the same front plate recess 1b. In practice, this has been done by first detaching the door lock 2 and making cavities 1c for the protrusions 4a at the positions of the screws 6 in the recess 1b. The location of the cavities in connection with the holes for the screws 6 is such that making them does not impose the risk of damaging visible surfaces of the door. The exact size and shape of the cavity do not play any essential role but the main issue is that the cavities 1c must be able to receive the protrusions 4a and thus allow the front plate 4 to be pressed slightly deeper into the front plate recess 1b. When the cover plate 7 is attached on the front plate 4 using the same screws 6, the combined thickness of the plates 4 and 7 approximately corresponds to the depth of the recess 1b and provides a tidy result. The thickness of the cover plate 7 can typically be chosen as 1 mm. As apparent from Figure 3, in this case the front plate 4 is supported by its back surface 4c outside the protrusions 4a against the bottom of the recess 1b.

[0012] In order to create a firm and tidy connection, guide surfaces 4b in the screw holes of the front plate 4 and the corresponding guide surfaces 7a in the cover plate are shaped as mutually corresponding oblique surfaces that correspond to the shape of the screw head 6a.

[0013] The invention is not limited to the embodiments presented but several variations can be thought of within the scope of the enclosed claims.

Claims

1. A door lock arrangement for installation in a recess (1a) within a door or the like (1), said arrangement comprising a lock body (3) fitted with a front plate (4) and comprising a cover plate (7); the lock body has at least one bolt (5) protruding from an opening in the front plate and can be attached by screws (6) or the like fitted in the screw holes of the front plate (4) and can be furnished with said cover plate (7) installed on the front plate (4), whereby the door or the like (1) also has a recess (1b) for the front plate (4), **characterised in that** the back side of the front plate (4) that is arranged against the door or the like (1)

has protrusions (4a) at the positions of the screw holes, and in case the lock body (3) is installed without a cover plate (7), the front plate (4) is supported by said protrusions (4a) in the front plate recess (1b), **in that** the lock body (3) can be fitted with a cover plate (7) that has screw holes corresponding to the screw holes in the front plate (4) for attaching the cover plate (7) using the same screws (6) or the like, in which case the lock body (3) is arranged to be installed so that the front plate (4) is attached to the door or the like (1) supported by its back surface (4c) that is at least substantially independent of said protrusions (4a), and that the combined thickness of the front plate (4) and the cover plate (7) is chosen so that when installed together, the combined thickness substantially corresponds to the depth of said front plate recess (1b).

2. A door lock arrangement according to Claim 1, **characterised in that** before the cover plate (7) is installed, cavities (1c) for said protrusions are arranged to be made in the front plate recess (1b) in the door or the like (1).
3. A door lock arrangement according to Claim 1 or 2, **characterised in that** the screw holes in the front plate (4) and the cover plate (7) are furnished with mutually corresponding oblique guide surfaces (4b;7a) that are most preferably arranged to correspond to the oblique surfaces in the head (6a) of the fixing screws (6).

Patentansprüche

1. Türschlossanordnung zur Montage in einer Ausnehmung (1a) innerhalb einer Tür oder dergleichen (1), wobei die Anordnung einen Schlosskörper (3) umfasst, der mit einer Vorderplatte (4) ausgestattet ist und der eine Abdeckplatte (7) umfasst; der Schlosskörper weist mindestens einen Bolzen (5) auf, der aus einer Öffnung in der Vorderplatte hervorragt und mit Schrauben (6) oder dergleichen befestigt werden kann, die in die Schraublöcher der Vorderplatte (4) passen, und kann mit der auf der Vorderplatte (4) montierten Abdeckplatte (7) versehen werden, wobei die Tür oder dergleichen (1) auch eine Ausnehmung (1b) für die Vorderplatte (4) aufweist, **dadurch gekennzeichnet, dass** die Rückseite der Vorderplatte (4), die an der Tür oder dergleichen (1) angebracht ist, Vorsprünge (4a) an den Positionen der Schraublöcher aufweist, und falls der Schlosskörper (3) ohne eine Abdeckplatte (7) montiert wird, wird die Vorderplatte (4) von den Vorsprüngen (4a) in der Vorderplattenausnehmung (1b) gestützt, dadurch dass der Schlosskörper (3) mit einer Abdeckplatte (7) ausgestattet sein kann, die Schraublöcher aufweist, die den Schraublöchern in der Vorderplatte

(4) entsprechen, um die Abdeckplatte (7) unter Verwendung der Schrauben (6) oder dergleichen zu befestigen, wobei in diesem Fall der Schlosskörper (3) dazu ausgelegt ist, so montiert zu werden, dass die Vorderplatte (4) gestützt durch ihre Rückseite (4c), die zumindest im Wesentlichen von den Vorsprüngen (4a) unabhängig ist, an der Tür oder dergleichen (1) angebracht ist, und dadurch dass die kombinierte Dicke der Vorderplatte (4) und der Abdeckplatte (7) so gewählt wird, dass bei gemeinsamer Montage die kombinierte Dicke im Wesentlichen der Tiefe der Vorderplattenausnehmung (1b) entspricht.

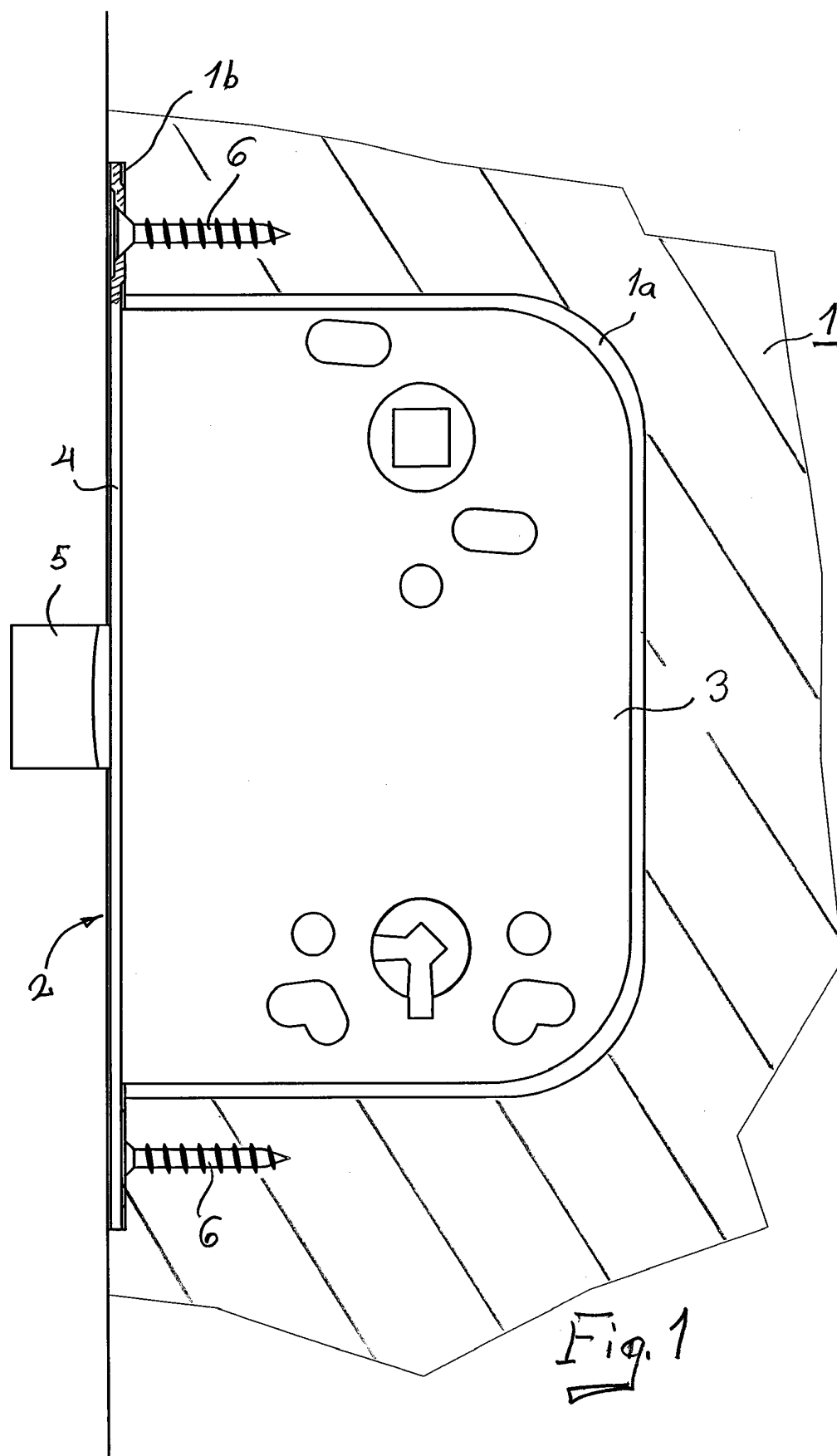
2. Türschlossanordnung nach Anspruch 1, **dadurch gekennzeichnet, dass** vor der Montage der Abdeckplatte (7) Vertiefungen (1c) für die Vorsprünge in der Vorderplattenausnehmung (1b) in der Tür oder dergleichen (1) angebracht werden.
3. Türschlossanordnung nach Anspruch 1 oder 2, **dadurch gekennzeichnet, dass** die Schraublöcher in der Vorderplatte (4) und der Abdeckplatte (7) mit sich gegenseitig entsprechenden schrägen Führungsflächen (4b; 7a) versehen sind, die am meisten bevorzugt so angeordnet sind, dass sie den schrägen Flächen im Kopf (6a) der Befestigungsschrauben (6) entsprechen.

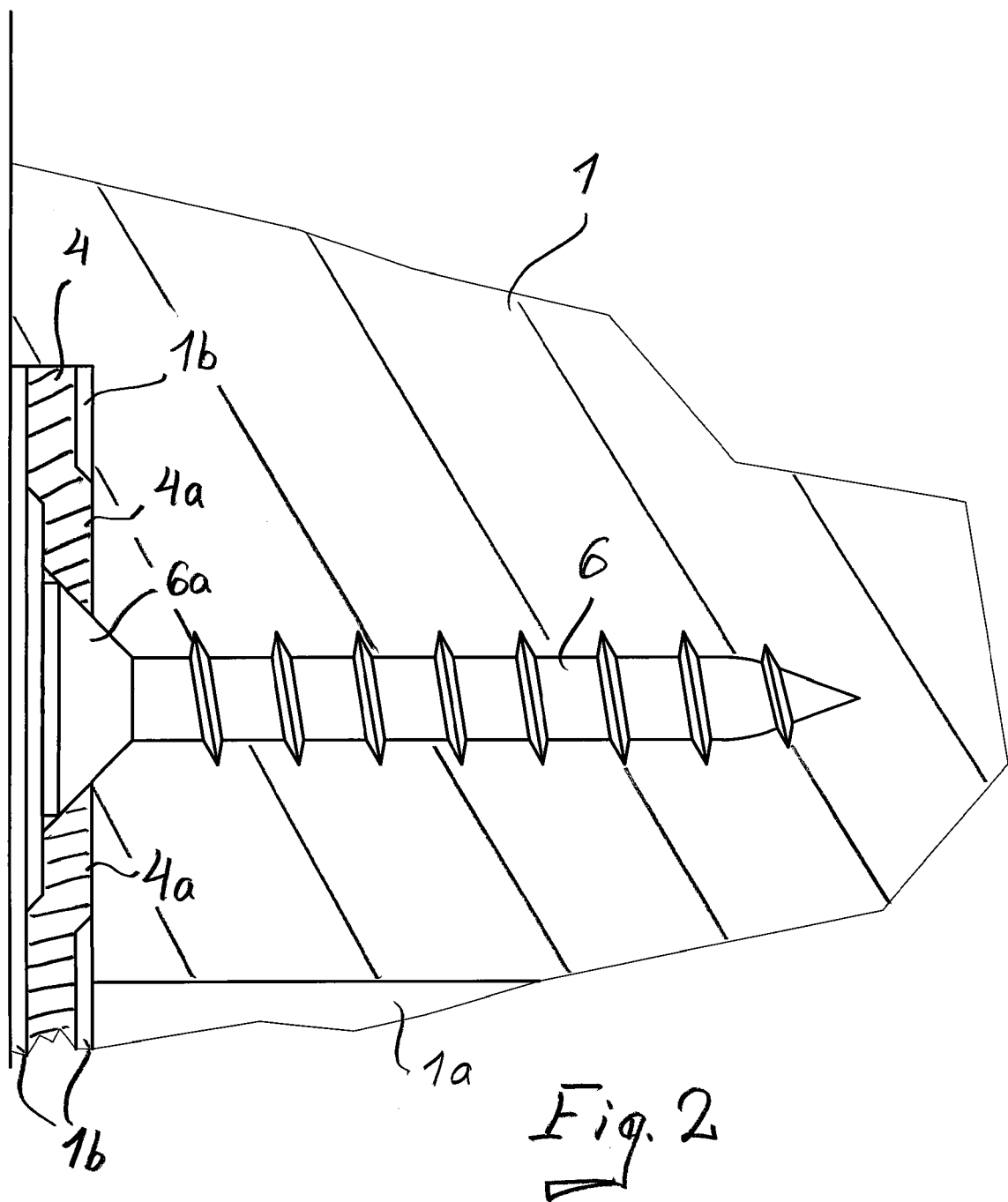
arrière (4c) qui est au moins sensiblement indépendante desdites saillies (4a), et que l'épaisseur combinée de la plaque frontale (4) et de la plaque de recouvrement (7) est choisie de manière à ce que, si elles sont installées ensemble, l'épaisseur combinée corresponde sensiblement à la profondeur dudit retrait de la plaque frontale (1b).

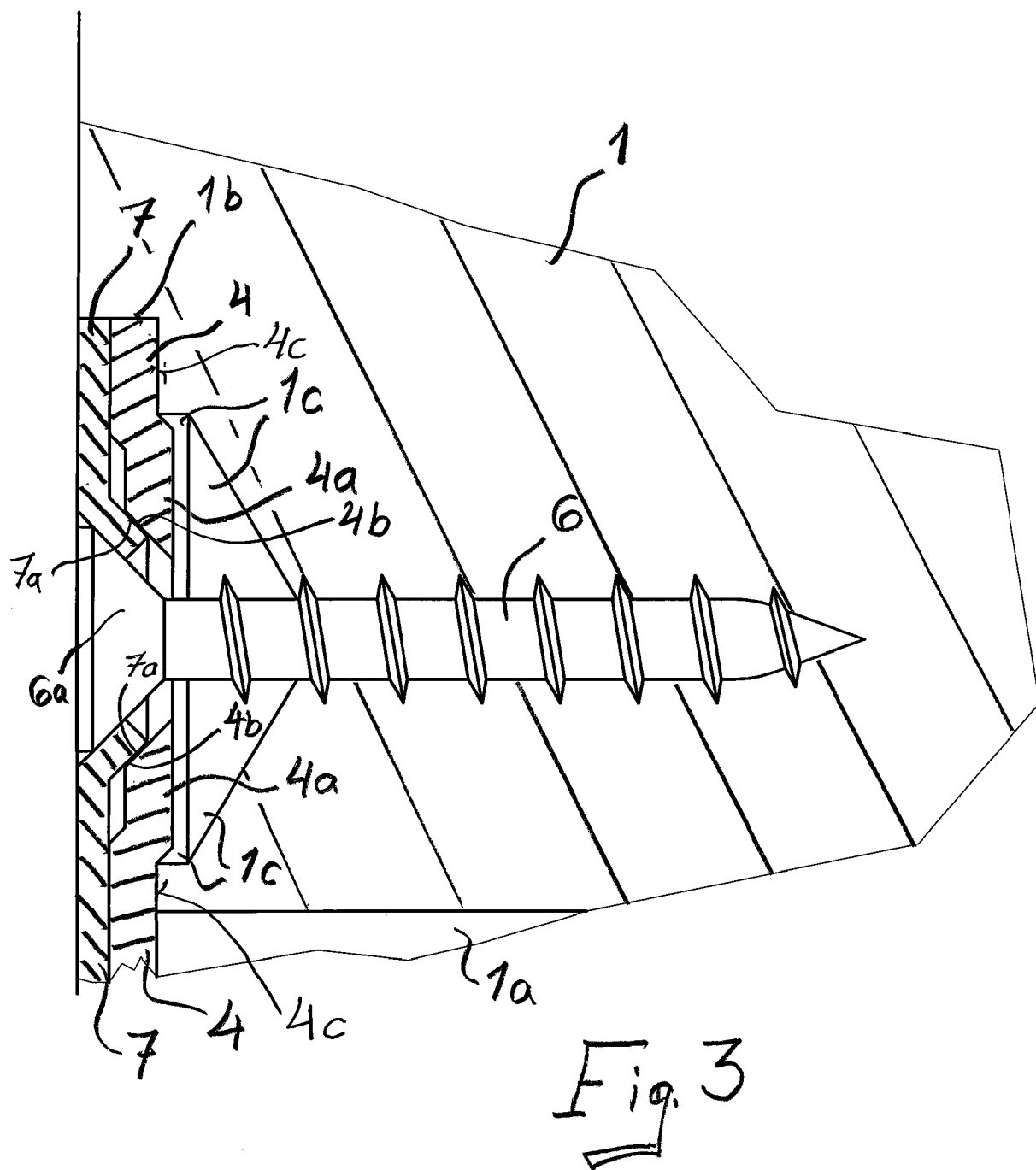
2. Dispositif de verrou de porte selon la revendication 1, **caractérisé en ce que**, avant l'installation de la plaque de recouvrement (7), des cavités (1c) pour lesdites saillies sont pratiquées dans le retrait de la plaque frontale (1b) dans la porte ou similaire (1).
3. Dispositif de verrou de porte selon la revendication 1 ou 2, **caractérisé en ce que** les trous de vis de la plaque frontale (4) et de la plaque de recouvrement (7) sont garnis de surfaces de guidage obliques se correspondant mutuellement (4b; 7a) qui sont le plus préférentiellement conçues pour correspondre aux surfaces obliques de l'intérieur de la tête (6a) des vis de fixation (6).

Revendications

1. Dispositif de verrou de porte destiné à être installé dans un retrait (1a) dans une porte ou similaire (1), ledit dispositif comprenant un corps de verrou (3) doté d'une plaque frontale (4) comprenant une plaque de recouvrement (7) ; le corps de verrou comportant au moins un goujon (5) dépassant d'une ouverture de la plaque métal et pouvant être fixé par des vis (6) ou similaires ajustées dans les trous de vis de la plaque frontale (4) et pouvant être garni avec ladite plaque de recouvrement (7) installée sur la plaque frontale (4), la porte ou similaire (1) comportant aussi un retrait (1b) pour la plaque frontale (4), **caractérisé en ce que** la face arrière de la plaque frontale (4) qui est disposée contre la porte ou similaire (1) comporte des saillies (4a) aux positions des trous de vis et, dans le cas où le corps de verrou (3) est installé sans plaque de recouvrement (7), la plaque frontale (4) est supportée par lesdites saillies (4a) du retrait de la plaque frontale (1b), **en ce que** le corps de verrou (3) peut être équipé d'une plaque de recouvrement (7) qui comporte des trous de vis correspondant aux trous de vis de la plaque frontale (4) pour fixer la plaque de recouvrement (7) en utilisant les mêmes vis (6) ou similaires, dans lequel cas le corps de verrou (3) est conçu pour être installé de manière à ce que la plaque frontale (4) soit fixée à la porte ou similaire (1) supportée par sa surface







REFERENCES CITED IN THE DESCRIPTION

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Patent documents cited in the description

- US 611979 A [0003]