

(19)



Europäisches Patentamt

European Patent Office

Office européen des brevets



(11)

EP 0 839 246 B1

(12)

EUROPEAN PATENT SPECIFICATION

(45) Date of publication and mention
of the grant of the patent:

17.05.2000 Bulletin 2000/20

(21) Application number: **96923179.4**

(22) Date of filing: **11.07.1996**

(51) Int Cl.7: **E05B 19/00**, E05B 9/08

(86) International application number:
PCT/SE96/00944

(87) International publication number:
WO 97/04200 (06.02.1997 Gazette 1997/07)

(54) **A SAFE-KEEPING DEVICE FOR A KEY**

VORRICHTUNG FÜR DIE SICHERE AUFBEWAHRUNG EINES SCHLÜSSELS

DISPOSITIF DE GARDE POUR UNE CLEF

(84) Designated Contracting States:
DE DK FI GB

(30) Priority: **14.07.1995 SE 9502609**

(43) Date of publication of application:
06.05.1998 Bulletin 1998/19

(73) Proprietor: **ASSA AB**
S-631 05 Eskilstuna (SE)

(72) Inventor: **HÄGGSTRÖM, Ake**
S-921 42 Lycksele (SE)

(74) Representative: **Wennborg, Göte et al**
Kransell & Wennborg AB
Box 27834
115 93 Stockholm (SE)

(56) References cited:
US-A- 2 410 475 **US-A- 2 791 976**
US-A- 4 296 617

EP 0 839 246 B1

Note: Within nine months from the publication of the mention of the grant of the European patent, any person may give notice to the European Patent Office of opposition to the European patent granted. Notice of opposition shall be filed in a written reasoned statement. It shall not be deemed to have been filed until the opposition fee has been paid. (Art. 99(1) European Patent Convention).

Description

Technical Field

[0001] The present invention relates to a key safe-keeping device of the kind defined in the preamble of Claim 1.

[0002] Various key safe-keeping devices of essentially this kind are known to the art. For instance, SE,A, 8205720. (Låssmedjan) describes a key safe-keeping device consisting of a two-part threaded container intended for installation in the entrance door of apartments in apartment blocks between the outside and the inside of the door. The container is open towards the inside and is provided with a space for the temporary keeping of the apartment key. By rotating the barrel of the lock cylinder with the help of a pass key or master key, the container can be closed so that it is inaccessible from the outside. The lock cylinder can be removed in the unlocked position, whereby the apartment key is made accessible from the outside.

[0003] FR,A,0 164 288 (Di Maria) describes an arrangement with double lock cylinders which are arranged in parallel alongside one another.

[0004] SE,A,9402471-8 (ASSA) describes a device in which the tubular key-keeping unit on the inside of the cylinder lock incorporates an activation device so arranged as to interact with the carrier device of the cylinder lock in such a way that it can be rotated for the purpose of opening the cylinder lock only after actuation of the activating device from the inside of the unit.

[0005] In practice the activating device may consist of a second cylinder lock, in which case both cylinder locks have a shared carrier device, or their carrier devices are connected to one another.

[0006] In the case of the aforementioned device previously disclosed under the name of Låssmedjan, the tubular unit is concentric and combined with the anchoring element and partially encloses the latter. The relationship may be the opposite, however; that is to say the anchoring element may partially enclose the tubular unit.

[0007] When the key safe-keeping device is accommodated in a wall, for example in a corridor or other space in association with one or more apartments, the tubular unit is provided as a rule with an end wall or a bottom, and the anchoring element is reliably secured to the wall, for example embodied therein.

[0008] If the key safe-keeping device is instead accommodated in a door, the tubular unit is open at both ends as a rule, that is to say so that the apartment key can be placed inside the tubular unit from the inside of the door, for example if a service engineer needs to gain entry to the apartment when the occupier of the apartment is not at home.

Objects of the Invention

[0009] In a number of known cases in which key safe-keeping devices of the indicated kind have been used, a person without access to a pass key or master key has successfully gained access to the apartment key kept in the safe-keeping device for a key and has entered the apartment by using a tool to release the tubular unit from the anchoring element.

[0010] The present invention proposes to eliminate this serious shortcoming or drawback of known key safe-keeping devices.

[0011] This object is achieved in accordance with the invention with a key safe-keeping device of the aforesaid kind and having the characteristic features set forth in the characterizing clause of Claim 1.

[0012] Because the tubular unit and the anchoring element overlap one another in the area of the latching member of the lock cylinder and exhibit at that point at least partially coinciding apertures or recesses, of which at least the inner aperture is a through penetrating hole, the latching member is able to extend through said hole and engage in the aperture or the hole in the outwardly lying part, wherein relative movement between both parts, for example rotation of the tubular part by means of a suitably designed tool, is essentially prevented.

[0013] The object of the invention is thus realised with the aid of simple means and without costly supplementary devices.

[0014] The anchoring element may be a nut element having a thread for engagement with a corresponding thread on the tubular unit. In this case it is preferable for the nut element to include a flange, preferably an end flange, for engagement with the adjacent lateral surface of the door and for picking up and securing and, when appropriate, for embodying the safe-keeping device in the wall, which in that case will be recessed so as to accommodate the tubular unit.

[0015] A modified key safe-keeping device in accordance with the invention is shown in Claim 3. In this embodiment, the latching member is received in the outwardly lying aperture or the hole under the influence of the cylinder lock as it is introduced into the tubular unit, that is to say no rotation of the barrel of the lock cylinder is required in order to activate the latching member. The barrel can nevertheless typically exhibit or typically coact with a latching member for the purpose of attaching the cylinder lock to the tubular unit.

[0016] Further characteristics of a key safe-keeping device in accordance with the invention will be apparent from the following description of a number of preferred embodiments of the device.

[0017] The description is made with reference to the accompanying drawings.

Brief Description of the Drawings

[0018] Fig. 1 is a section through a first embodiment

of an inventive key safe-keeping device intended for installation in a door.

[0019] Fig. 2 is a section through a second embodiment of an inventive key safe-keeping device for installation in a wall or a wall element.

[0020] Figs. 3 and 4 are sections through a third embodiment of the inventive key safe-keeping device, wherein the barrel and an additional latching member connected thereto are shown in different positions in the two Figures.

Description of preferred embodiments

[0021] Referring first to Fig. 1, there is shown a key safe-keeping device 1 mounted in a through-penetrating hole in a door 2 and consisting of a tubular unit 3 which is openably closed at one end by a cylinder lock 4 having a lock cylinder 5. The lock cylinder includes a barrel or plug 6 having a slot for the insertion of a pass key or a master key 7.

[0022] Turning of the key 7 will activate the barrel 6 and a latching member 20 coacting therewith in the manner described below such as to enable the cylinder lock 4 to be removed and provide access to the inside of the tubular unit 3, in which an apartment key 8 is kept. A service engineer with access to the pass key 7 can thus be permitted entry to the apartment, provided that the occupier of the apartment has placed the key 8 in the tubular unit 3.

[0023] The tubular unit 3 is concentric and is combined with an anchoring element in the form of a nut element 11 provided with an end flange 11a. To this end, the tubular unit 3 has an external thread 3b which interacts with an internal thread 11b on the anchoring element. Appropriate adaptation to the thickness of the door in question can be achieved by rotating the tubular unit 3 and/or the anchoring element 11, so as to anchor the tubular in the recess in the door 2.

[0024] A cross pin 16 in the tubular unit 3 supports the lock cylinder 5 with the cylinder lock in its inserted position.

[0025] The barrel 6 of the cylinder lock has a latching device 20 which, when the barrel 6 is rotated by means of the key 7, engages in an aperture 14 in the enveloping or mantle surface of the tubular unit 3. The aforementioned aperture 14 is through penetrating, that is to say it consists of a hole in the mantle surface. This hole or aperture 14 in the tubular unit aligns, at least in part, with an aperture or hole 15 in the anchoring element 11.

[0026] Rotation of the barrel 6 by means of the key 7 to the position shown in Fig. 1 will cause the latching member 20 to move through the hole 14 in the tubular unit 3 and engage in the aperture or the hole 15 in the anchoring element. The latching member will then secure the tubular unit essentially against rotational movement relative to the anchoring element 11, by engaging in the outer aperture or hole 15.

[0027] Thus the tubular unit 3 can no longer be un-

screwed from the anchoring element 11 with the aid of a tool.

[0028] The tubular unit is provided at its outer end, in the area of the barrel 6, with an attachment flange 3a which engages with the outside of the door 2 such as to fix the tubular unit 3 to the door in coaction with the flange 11 on the anchoring element 11 engaging with the inside of the door. The key safe-keeping device can be covered from the inside of the door by means of a removable cover 23.

[0029] The embodiment illustrated in Fig. 2 is intended for installation in a wall or a wall element 17 and differs from the embodiment illustrated in Fig. 1, amongst other things in that the tubular element, which is designated 3' in Fig. 2, has a bottom or an end wall 3' c. The apartment key accommodating space inside the tubular element is thus accessible only from the outside after having removed the cylinder lock 4.

[0030] The two embodiments of the key safe-keeping device correspond to one another in other respects.

[0031] Other embodiments are also possible within the scope of the inventive concept. The tubular element 3 and 3' may thus instead have an internal thread (not shown) for coaction with an anchoring element (not shown) which is partially enclosed by said tubular element and which has a corresponding external thread. Types of connection between a tubular unit and an anchoring element other than the illustrated screw threaded connections are also possible within the scope of the invention.

[0032] Figs. 3 and 4 illustrate a modified version of the key safe-keeping device shown in Figs. 1 and 2. Another type of cylinder lock designated 4' is used here, wherein the lock barrel 6' interacts with a rotatable latching member 6' a, the sole function of which is to secure the cylinder lock to, and to release it from the tubular unit, here designated 3".

[0033] The tubular unit 3" has an aperture 14' which, with the unit in its installed position, aligns at least partially with an aperture 15' in the anchoring element 11'.

[0034] The aperture 14' has located therein a latching member 21 provided with an inner head 21a, which, when activated by the lock cylinder 5' of the cylinder lock 4' when the cylinder lock is introduced, describes a movement directed radially outwards so that the latching member 21 engages in the external anchoring element 11' and thereby secures the tubular unit 3" against rotational movement relative to the anchoring element.

[0035] An O-ring 25 is fitted into a central recess in the latching member 21. When the cylinder lock 4' is removed, the O-ring functions to retain the latching member in its assumed position. When dismantling the unit, however, the latching member is easily removed by manipulating its head 21a, for example with a screwdriver. A recess in the tubular unit 3" facilitates this operation.

[0036] As with the earlier embodiment, this embodiment is also intended to be door-mounted and the anchoring element 11' on the inside of the door is also cov-

ered by a removable cover member 23.

Claims

1. A key safe-keeping device for installation in a hole in a door (2), wall (17) or similar in which a key can be kept, for instance an apartment key, said device consisting of a tubular unit (3; 3'; 3'') having an open or closed inner end and an outer end which is open-ably closed by a cylinder lock (4; 4'), said key being removable through the tubular unit after opening the cylinder lock with a pass key or a master key (7) and subsequent removal of the cylinder lock from the tubular unit, and which tubular unit (3; 3'; 3'') is concentrically connected to an anchoring element (11; 11') for the attachment of the unit to the door (2), wall (17) or the like, and which cylinder lock (4; 4') actuates a latching member (20; 21) so arranged as to secure the unit or the cylinder lock and the unit (3; 3'; 3'') to the anchoring element (11; 11'), **characterized** in that when the tubular unit (3; 3'; 3'') is installed, an aperture (14; 14') in said unit aligns at least partially with an aperture (15; 15') in the anchoring element (11; 11'); and in that at least the inner aperture has the form of a through penetrating hole through which the latching member (20; 21) is insertable so as to engage in the outwardly lying aperture or the hole, such that the unit is secured against rotational movement relative to the anchoring element.
2. A key safe-keeping device according to Claim 1, wherein the anchoring element is a nut element (11) having a thread (11b) for engagement with a corresponding thread (3b; 3'b) on the tubular unit (3; 3'), **characterized** in that the anchoring element (11) includes a flange, preferably an end flange (11a), for engagement with the adjacent lateral surface of the door (2) and for receiving and securing and, if appropriate, for embodiment in the wall (17), in which latter case the wall will be provided with a tubular unit accommodating recess.
3. A key safe-keeping device according to Claims 1 or 2, *characterized* in that the latching member (21) is radially moveable inside the element (3'') and can be moved into outwardly lying aperture or the hole (15') by the cylinder lock (4') as the lock is inserted into the tubular unit (3'').

Patentansprüche

1. Schlüssel-Sicherheitsaufbewahrungsvorrichtung zur Installation in einem Loch in einer Tür (2), einer Wand (17) oder ähnlichem, in welcher ein Schlüssel, beispielsweise ein Wohnungsschlüssel, aufbe-

wahrt werden kann, wobei die Einrichtung aus einer röhrenförmigen Einheit (3; 3'; 3'') besteht, welche ein offenes oder geschlossenes inneres Ende und ein äußeres Ende aufweist, welches aufschließbar von einem Zylinderschloß (4; 4') verschlossen ist, wobei der Schlüssel durch die röhrenförmige Einheit nach dem Öffnen des Zylinderschlusses mit einem Zugangsschlüssel oder einem Hauptschlüssel (7) und der nachfolgenden Entfernung des Zylinderschlusses von der röhrenförmigen Einheit entferntbar ist, und wobei die röhrenförmige Einheit (3; 3'; 3'') konzentrisch mit einem Verankerungselement (11; 11') zur Befestigung der Einheit an der Tür (2), der Wand (17) oder ähnlichem verbunden ist, und das Zylinderschloß (4; 4') ein Klinkenelement (20; 21) betätigt, das so angeordnet ist, daß es die Einheit oder das Zylinderschloß und die Einheit (3; 3'; 3'') an dem Verankerungselement (11; 11') sichert,

dadurch gekennzeichnet, daß,

wenn die röhrenförmige Einheit (3; 3'; 3'') installiert ist, eine Öffnung (14; 14') in der Einheit zumindest teilweise mit einer Öffnung (15; 15') in dem Verankerungselement (11; 11') fluchtet; und dadurch, daß zumindest die innere Öffnung die Form eines durchtretenden Durchgangsloches aufweist, durch welches das Klinkenelement (20; 21) einführbar ist, um in die außerhalb liegende Öffnung oder das Loch einzugreifen, derartig, daß die Einheit gegen Drehbewegung relativ zu dem Verankerungselement gesichert ist.

2. Schlüssel-Sicherheitsaufbewahrungsvorrichtung gemäß Anspruch 1, wobei das Verankerungselement ein Schraubenmuttern-Element (11) ist, welches ein Gewinde (11b) zum Eingriff in ein korrespondierendes Gewinde (3b; 3'b) an der röhrenförmigen Einheit (3; 3') aufweist, dadurch gekennzeichnet, daß das Verankerungselement (11) einen Flansch, bevorzugt einen Endflansch (11a), einschließt zum Eingriff mit der angrenzenden Seitenoberfläche der Tür (2) und zum Aufnehmen und Sichern und, falls zweckdienlich, zum Einfügen in die- und (17), wobei im letzteren Fall die Wand mit einer die röhrenförmige Einheit aufnehmenden Vertiefung versehen werden wird.
3. Schlüssel-Sicherheitsaufbewahrungsvorrichtung gemäß Anspruch 1 oder 2, dadurch gekennzeichnet, daß das Klinkenelement (21) radial im Inneren des Elements (3'') bewegbar ist und durch das Zylinderschloß (4') in die außerhalb liegende Öffnung oder das Loch (15') bewegt werden kann, wenn das Schloß in die röhrenförmige Einheit (3'') eingeführt wird.

Revendications

1. Dispositif de conservation en sûreté d'une clé destiné à une installation dans un trou d'une porte (2), d'un mur (17) ou analogue dans lequel une clé peut être conservée, par exemple une clé d'appartement, ledit dispositif étant constitué d'une unité tubulaire (3, 3', 3'') comportant une extrémité intérieure ouverte ou fermée et une extrémité extérieure qui est fermée avec possibilité d'ouverture par une serrure à cylindre (4, 4'), ladite clé pouvant être enlevée par l'intermédiaire de l'unité tubulaire après ouverture de la serrure à cylindre avec un passe-partout ou une clé maîtresse (7) et enlèvement ultérieur de la serrure à cylindre de l'unité tubulaire, et laquelle unité tubulaire (3, 3', 3'') est reliée de façon concentrique à un élément d'ancrage (11, 11') en vue de la fixation de l'unité à la porte (2), au mur (17) ou analogue, et laquelle serrure à cylindre (4, 4') actionne un élément de verrouillage (20, 21) agencé de façon à assujettir l'unité ou la serrure à cylindre et l'unité (3, 3', 3'') à l'élément d'ancrage (11, 11'), caractérisé en ce que, lorsque l'unité tubulaire (3, 3', 3'') est installée, une ouverture (14, 14') dans ladite unité s'aligne au moins en partie avec une ouverture (15, 15') dans l'élément d'ancrage (11, 11'), et en ce qu'au moins l'ouverture intérieure présente la forme d'un trou pénétrant à travers lequel l'élément de verrouillage (20, 21) peut être inséré de façon à venir en prise avec l'ouverture disposée vers l'extérieur du trou, de sorte que l'unité est immobilisée vis-à-vis d'un mouvement en rotation relativement à l'élément d'ancrage.

5
10
15
20
25
30

2. Dispositif de conservation en sûreté d'une clé selon la revendication 1, dans lequel l'élément d'ancrage est un élément d'écrou (11) comportant un filetage (11b) en vue d'un accouplement avec un filetage correspondant (3b, 3'b) sur l'unité tubulaire (3, 3'), caractérisé en ce que l'élément d'ancrage (11) comprend une collerette, de préférence une collerette d'extrémité (11a), en vue d'un contact avec la surface latérale adjacente de la porte (2) et destiné à la réception et à la mise en sécurité et, si cela est approprié, pour le mode de réalisation dans le mur (17), dans ce dernier cas le mur sera muni d'un évidement de logement d'unité tubulaire.

35
40
45

3. Dispositif de conservation en sûreté de clé selon les revendications 1 ou 2, caractérisé en ce que l'élément de verrouillage (21) peut être déplacé radialement à l'intérieur de l'élément (3'') et peut être déplacé jusque dans l'ouverture disposée vers l'extérieur ou le trou (15') par la serrure à cylindre (4') lorsque la serrure est insérée dans l'unité tubulaire (3'').

50
55

Fig. 1

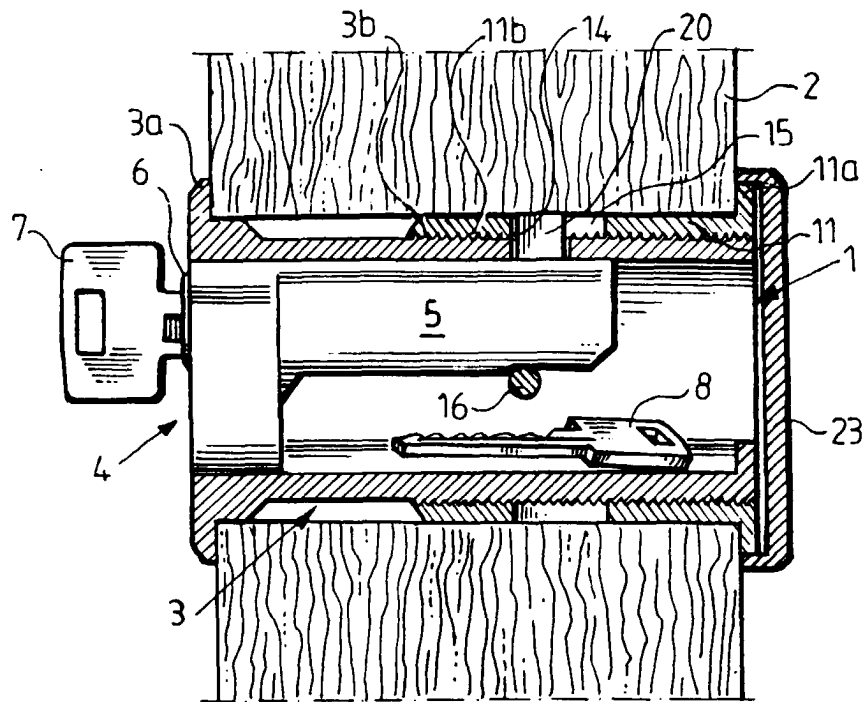


Fig. 2

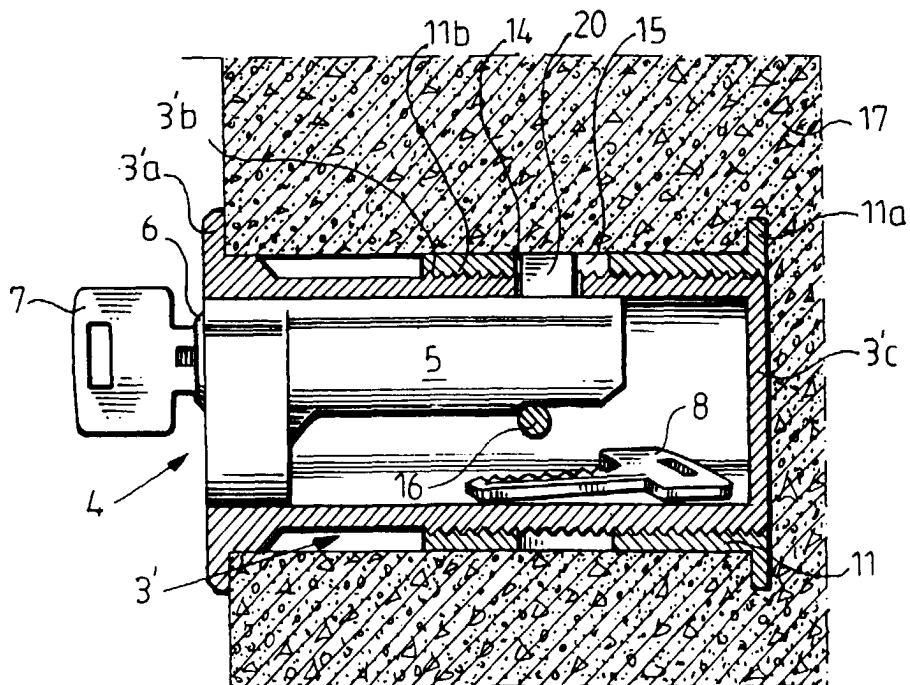


Fig.3

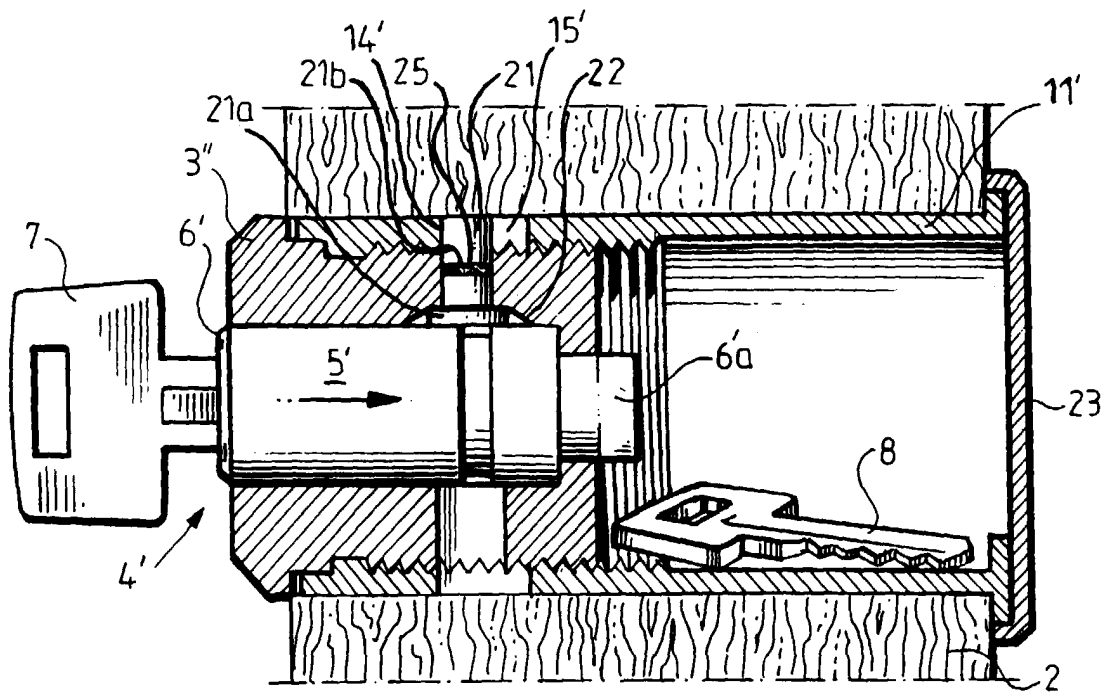


Fig. 4

