

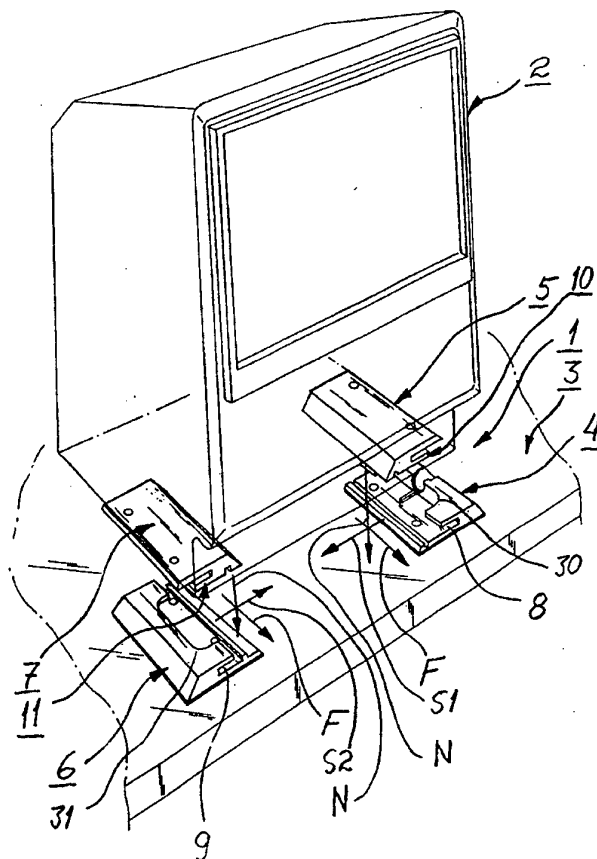
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(54) Title: LOCKING DEVICE

(57) Abstract

The present invention concerns a locking device for locking an object to a base, which device (1) comprises at least two to the base attached locking parts (4, 6) and at least two to the object attached locking parts (5, 7). Two of the locking parts (4-7) comprise grooves (8, 9) and the two other locking parts (4-7) comprise extensions (10, 11) directed towards the grooves. The locking parts (5, 7) comprising the extensions (10, 11) can be brought into cooperation with the locking parts (4, 6) comprising the grooves (8, 9) by inserting the extensions into the grooves and displacing them in a direction of displacement (F). At least two of the cooperating locking parts (4, 5) are lockable to each other by means of at least one locking element (14) in order to prevent displacement of the locking parts relatively each other in the direction of displacement (F). In order to facilitate mounting of the locking device at least two of the locking parts (4-7) comprise notches (30-33) which permit the locking parts (5, 7) attached to the object to be brought together with the locking parts (4, 6) attached to the base or vice versa in a direction (T) transverse to the direction of displacement (F).



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1.

Locking device.

The present invention relates to a locking device for locking on object relative to a support, which locking device includes at least two locking members anchored to the support and at least two locking members anchored to the object, whereby two of said locking members have grooves and the two other locking members have projections, whereby the locking members having the projections can be brought to cooperate with the locking members having the grooves by inserting said projections into said grooves and displace said projections therein in a direction of displacement and whereby at least two locking members cooperating with each other can be locked relative to each other by means of at least one locking means to prevent relative displacement of said locking members in the direction of displacement.

From SE patent specification 8400972-9 (438 174), GB patent specification 2 153 902 and US patent specification 4 024 737, locking devices of the above type are already known.

A problem with these prior art constructions is however, that the locking members can not be seen if large objects, e.g. computers, are locked by means of said members. This because large objects hide the locking members and it can be difficult and time consuming to find the entrance to the locking members on the support with the locking members on the object, since the object is often heavy and must be carried when looking for the correct position.

The object of the present invention has been to eliminate this drawback and at locking devices of the above type permit quick locking of the object without difficulty by one person. This is arrived at according to the invention by providing the abovementioned locking device with the characterizing features of claim 1.

By providing the locking device with these characterizing features, the locking members of the object can be

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brought in engagement with the locking members on the support by placing the object in position, whereafter it is easy to bring the locking members of the object in locking positions relative to the locking members on the support
5 by displacing said object somewhat when it is placed in position.

The invention will be further described below with reference to the accompanying drawings, in which

fig. 1 is a perspective view of a locking device according to the invention, the locking members of which are
10 mounted on a support and on an object in the form of a computer;

fig. 2 is a perspective view of the locking device of fig. 1 when the locking members on the computer engage the
15 locking members on the support;

fig. 3 is a perspective view of the locking device of fig. 1 when the locking members on the computer are moved together with the locking members on the support such that said members can be locked against displacement by means
20 of a locking means;

fig. 4 is a perspective view, partly in section, showing two locking members of the locking device moved together but not locked to each other;

fig. 5 is a perspective view, partly in section, of
25 the same locking members as in fig. 4 moved together and locked to each other;

fig. 6 is a perspective view of one of the locking members from the previous figures;

fig. 7 is a perspective view of another of said
30 locking members from the previous figures; and

fig. 8 is a perspective view of locking members located in series and connected to each other.

The locking device 1 illustrated in the drawings is adapted to lock an object 2, e.g. a computer or another
35 valuable object, relative to a support 3, e.g. a table top or a floor. The locking device 1 includes two locking

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members 4 and 6 anchored to the support 3 and two locking members 5 and 7 anchored to the object 2. The locking members 4-7 can be anchored to the support 3 and object 2 by means of screw joints (not shown) and/or special tape with a large holding or retaining capacity and/or a binder with a large retaining capacity in order to prevent unauthorized removal of the locking members 4-7.

The locking members 4 and 6 respectively, have grooves 8, 9 and the locking members 5 and 7 respectively, have projections 10, 11, whereby said grooves 8, 9 and projections 10, 11 are designed such that said projections 10, 11 can be moved into said grooves 8, 9 and fit therein. Furthermore, the locking members 5, 7 on the object 2 are located so relative to the locking members 4, 6 on the support 3 that by displacing the object relative to the support 3, it is possible to insert the projections 10, 11 of the locking members 5, 7 into the grooves 8, 9 of the locking members 4, 6 and then along said grooves in the direction of displacement F. Hereby, two pairs 12 and 13 respectively, of locking members are defined, of which one pair 12 consists of locking members 4 and 5 and the other pair 13 of locking members 6 and 7. The locking members in at least one of said pairs 12 and/or 13 of locking members (e.g. the locking members 4, 5 in pair 12), can be locked relative to each other by means of at least one locking means 14 (see e.g. fig. 3) so that said locking members 4, 5 are locked relative to each other such that they thereafter can not be displaced in relation to each other in the direction of displacement F, which means that the object 2 can not be moved relative to the support 3.

The locking members 4, 6 on the support 3 are also designed and provided such that either the groove 8 of one locking member 4 is open in a side direction S1 relative to the direction of displacement F, while the groove 9 of the other locking member 6 is open in the opposite side direction S2 relative to the direction of displacement F.

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As an alternative thereto, the locking members 4, 6 on the support 3 can be designed and provided such that the projection of one locking member is directed in one side direction S1 relative to the direction of displacement F, while the projection of the other locking member is directed in the opposite side direction S2 relative to the direction of displacement F. This alternative is not shown in the drawings, but means that the locking members 5, 7 provided on the object 2 instead are mounted on the support 3, while the locking members 4, 6 on the support 3 instead are provided on the object 2.

The locking members 5, 7 on the object 2 are designed and provided such that either the projection 10 of one locking member 5 is directed in a side direction S2 relative to the direction of displacement F, while the projection 11 of the other locking member 7 is directed in the opposite side direction S1 relative to the direction of displacement F, or that the locking members 5, 7 on the object 2 are designed and mounted such that the groove of one locking member is open in one side direction S1 relative to the direction of displacement F, while the groove of the other locking member is open in the opposite side direction S2 relative to the direction of displacement F. This alternative is neither shown in the drawings, but means that the locking members 4, 6 provided on the support 3 instead can be mounted on the object 2, while the locking members 5, 7 provided on the object 2 instead can be mounted on the support 3.

The various locking members 4-7 are also adapted to each other such that the projections of the locking members on the object or the support, seen in said side directions S1, S2, either protrude from the outside and inwards into or from the inside and outwards into the corresponding grooves in the locking members on the support 3 or the object 2 (see e.g. fig. 3).

Each locking member 4-7 is preferably U-shaped in

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cross section and the shanks 15, 16 on the locking member 4 are e.g. directed in the side direction S1 towards the locking member 6, while the shanks 17, 18 on the locking member 6 are directed in the opposite side direction S2 towards the locking member 4 (as is illustrated in the drawings). Alternatively, the shanks 15, 16 on the locking member 4 can be directed from the locking member 6 and the shanks 17, 18 on the locking member 6 can be directed from the locking member 4.

10 The shanks 19, 20 on the locking member 5 provided on the object 2 are e.g. directed in the side direction S1 towards the other locking member 7 on the object 2, while the shanks 21, 22 on the other locking member 7 provided on the object 2 are directed in the opposite side direction S2 towards the locking member 5. Alternatively, the shanks 19, 20 of the locking member 5 can be directed from the locking member 7 and the shanks 21, 22 of the locking member 7 be directed from the locking member 5.

The shanks 15, 16 and 17, 18 respectively, of the locking members 4, 6 define, seen in the side directions S1, S2, grooves 8, 9 that are open towards each other, while one of the shanks 19-22 on each of the locking members 5, 7 provided on the object 2 define, seen in said side directions S1, S2, projections 10, 11 which are directed towards each other and which engage the grooves 8, 9 of the locking members 4, 6.

Alternatively, the shanks 15-18 on the locking members 4, 6 on the support 3 can instead be directed from each other so that the grooves 8, 9 instead are open in a direction from each other. The shanks 19-22 on the locking members 5, 7 on the object 2 are then instead directed towards each other such that one of these shanks can engage said grooves 8, 9.

As a further alternative, the projections can instead be defined by the locking members provided on the support 3 and the grooves in the locking members on the object 2.

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Each locking member 4-7 preferably is U-shaped in cross section. The locking member 4 on the support 3 is located such that its web portion 23 is situated farthest away from the locking member 6 and the shanks 15, 16 protruding from this web portion 23 are directed towards said locking member 6. The locking member 6 is placed such that the web portion 24 thereof is located farthest away from the locking member 4 and the shanks 17, 18 protruding from said web portion 24 are directed towards the locking member 4. Alternatively, the position of the locking members 4, 6 can be turned around. The locking member 5 on the object 2 is located such that its web portion 25 is situated closest to the locking member 7 and the shanks 19, 20 protruding from said web portion are directed from the locking member 7. The locking member 7 is located such that its web portion 26 is situated closest to the locking member 5 and the shanks 21, 22 protruding from said web portion 26 are directed from the locking member 5.

Since the shanks of the locking members 4-7 are directed as defined above, grooves 8, 9 are provided in the locking members 4, 6 mounted on the support, which grooves are open towards each other in said side directions S1, S2, and projections 10, 11 are provided in the locking members 5, 7 located on the object 2, which projections are directed away from each other, in said side directions S1, S2, as is illustrated in the drawings, or are the grooves in the locking members 4, 6 on the support 3 instead directed away from each other while the projections on the locking members 5, 7 on the object 2 are directed towards each other.

On the locking members 4 and 6 respectively, the shanks 15 and 17 respectively, define anchoring portions or parts of anchoring portions through which said locking members 4, 6 is adapted to be mounted on the support 3. This can be done in various ways, e.g. by means of screws (not shown) which are not accessible for undoing when

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locking by means of the locking members has occurred and/
/or by means of a special tape (not shown) with a very
good adhering or retaining capacity and which are neither
accessible for unauthorized removal.

5 In the web portion 23 of the locking member 4 there
is provided a recess 27 into which the locking means 14
can be inserted and in the web portion 25 of the locking
member 5 there is provided a recess 28 into which a locking
tooth 29 on the locking means 14 can be inserted. By in-
10 serting the locking means 14 into the recess 27 of the
locking member 4 and turn the key (not shown), the locking
tooth 29 is pivoted into the recess 28 of the locking mem-
ber 5, whereby the locking device is locked by preventing
displacement of the locking members 4, 5 relative to each
15 other in the direction of displacement F.

In order to facilitate mounting especially when the
locking members are hidden when they are moved together,
they can be designed such that the locking members 5, 7
on the object 2 can be moved together with the locking
20 members 4, 6 on the support 3 (or vice versa) in a connec-
ting direction N (see fig. 1) transverses to the direction
of displacement F until the locking members 5, 7 on the
object 2 from above engage the locking members 4, 6 on the
support 3 in positions partially overlapping each other
25 (see fig. 2) in such a way that the projections 10, 11 on
the locking members 5, 7 are situated in inserting posi-
tions adjacent to the grooves 8, 9 of the locking members
4, 6 so that said locking members 4, 6 guide the locking
members 5, 7 for guiding the projections into the grooves
30 8, 9 such that the object 2 and thus, its locking members
5, 7 are displaced in the direction of displacement F rela-
tive to the locking members 4, 6 on the support 3.

Preferably, the locking members 4-7 have recesses 30-33
in the shanks 16, 18, 20, 22 which permit bringing together
35 of the locking members 5, 7 with the locking members 4, 6
in the connecting direction N. These recesses 30-33 are

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preferably designed as edge recesses in the outer shanks 16, 18, 20, 22 and portions 34 of said shanks on both sides of said edge recesses are dimensioned such that such portions 34 on the locking members 5, 7 on the object 2 can be moved through the recesses 30, 31 in the locking members 4, 6 on the support 3.

At least the locking member 7 can be provided with a guide groove 35 which extends in the direction of displacement F and at least the locking member 6 can be provided with a guide projection 36 which also extends in the direction of displacement F. Preferably, the guide groove 35 is provided beside the projection 11 in the locking member 7 and the guide projection 36 is preferably provided beside the groove 9 in the locking member 6. Furthermore, the guide projection 36 engage the guide groove 35 when the locking members engage each other.

In order to render it more difficult to release or disconnect the locking members 4-7, said members can be provided with inclined outer surfaces 37-44 on two opposing sides, which surfaces are located such that two locking members cooperating with each other, e.g. each pair 12, 13 of locking members, have a shape which tapers from the support 3 in a direction towards the object 2.

The locking members 4-7 can be provided with devices 45 for connecting the corresponding locking members in series and eventually for locking these locking members to each other. These devices can e.g. comprise a screw 46 which protrudes through a hole in a locking member and which is screwed into an adjacent locking member.

For release or disconnection of at first hand locking members which are anchored or fixed with tape or similar fixing or anchoring means, at least one of the locking members 4-7 can be provided with at least one recess (not shown) into which a releasing or disconnecting tool (not shown) for releasing or disconnecting the locking member can be inserted so that one can pivot the locking member

therewith in a plane which is parallel with the surface onto which the locking member is attached until the tape or similar loosens. This recess is accessible for the releasing tool preferably only when two locking members engaging each other, are separated from each other.

Hereby, the recess can e.g. be provided in a shank 21 in a locking member 7 which when locked is brought in engagement with a locking member 6. By inserting the disconnecting tool into this recess and pivot the locking member 7 e.g. back and forth in the plane of the support 3, the tape or similar fixing or holding the locking member 6 is brought to loosen, since the guide groove 35 and the guide projection 36 inserted therein for engagement ensure transfer of the pivoting force of the releasing tool from the locking member 7 to the locking member 6. The locking member 4 can be released or loosened in a similar way if said member is designed such that the pivoting force from a releasing or disconnecting tool can be transferred thereto. Reversed, the locking members 5 and 7 can be released or loosened by means of locking members 4 and 6 if these latter members are provided with recesses for releasing or disconnecting tools and the design of the locking members is such that the pivoting force can be transferred therebetween.

The locking device according to the invention is not limited to the embodiment described above and shown in the drawings, but may vary within the scope of the following claims. As an example of various alternatives, it should be mentioned that the support 3 can be a table top, a floor, a cabinet or some other suitable support and the object 2 can be a data processing computer installation or some other object which need to be locked relative to the support. There may be more than two locking members on the support and the object and more than one pair of locking members can be provided with one or more locking means. Each locking member in a pair of said members may eventually

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comprise a guide groove (as is shown at the locking members 4, 5 in the pair 12 of said members). When required, a separate guide rod can be placed in said guide grooves, which rod engages both guide grooves simultaneously, i.e. the
5 guide rod has the same function as the guide projection 36 on the locking member 6. In many instances, the locking members in the pair 12 of locking members are guided sufficiently effectively by the locking means 14 between the locking members, while the locking members in the other
10 pair 13 thereof sometimes need to be guided relative to each other with an extra guiding device 35, 36 as is shown in the drawings.

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Claims:

1. Locking device for locking an object relative to a support, which locking device (1) includes at least two locking members (4, 6) anchored to the support (3) and at least two locking members (5, 7) anchored to the object (2), whereby two of said locking members (4-7) have grooves (8, 9) and the two other locking members (4-7) have projections (10, 11), whereby the locking members (5, 7) having the projections (10, 11) can be brought to cooperate with the locking members (4, 6) having the grooves (8, 9) by inserting said projections (10, 11) into said grooves (8, 9) and displace said projections (10, 11) therein in a direction of displacement (F) and whereby at least two locking members (4, 5) cooperating with each other can be locked relative to each other by means of at least one locking means (14) to prevent relative displacement of said locking members (4, 5) in the direction of displacement (F),
- c h a r a c t e r i z e d i n that at least two of the locking members (4-7) are provided with recesses (30-33) which permit moving together the locking members (5, 7) on the object (2) with the locking members (4, 6) on the support (3) or vice versa in a connecting direction (N) transverse to the direction of displacement (F) until the locking members (5, 7) on the object (2) engage the locking members (4, 6) on the support (3) in positions which partially overlap each other (fig. 2) in such a way that the locking members (5, 7) on the object (2) thereafter are displaceable in the direction of displacement (F) relative to the locking members (4, 6) on the support (3) or vice versa until the locking members (5, 7 and 4, 6) on the object (2) and the support (3) can be locked to each other.
2. Locking device according to claim 1, c h a r a c t e r i z e d i n that the locking members (4-7) are designed such that projections (10, 11) on two locking members (5, 7) are located in inserting positions adjacent to

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two grooves (8, 9) in two other locking members (4, 6) after the bringing together of the locking members (5, 7) on the object (2), after the bringing together with the locking members (4, 6) on the support (3) or vice versa in the connecting direction (N) transverse to the direction of displacement (F), such that the locking members (4, 6) with the grooves (8, 9) guide the locking members (5, 7) having projections (10, 11) or vice versa for guiding said projections into said grooves or vice versa when the locking members (5, 7) on the object (2) are displaced in the direction of displacement (F) relative to the locking members (4, 6) on the support (3) or vice versa.

3. Locking device according to claim 1 or 2, characterized in that the recesses (30-33) are designed as edge recesses in outer shanks (16, 18, 20, 22) of the locking members (4-7) on the object (2) as well as the support (3) and that a portion (34) of each outer shank (16, 18, 20, 22) at least on one side of the recess (30-33) in at least one locking member (4-7) is so dimensioned that each such portion (34) can be moved in the connecting direction (N) through the recess (30-33) in another locking member (4-7).

4. Locking device according to any of claims 1 - 3, characterized in that the locking members (4, 6) on the support (3) are designed and provided such that either the groove (8) of one locking member (4) is open in a side direction (S1) relative to the direction of displacement (F), while the groove (9) of the other locking member (6) is open in the opposite side direction (S2) relative to the direction of displacement (F) or that the locking members (4, 6) on the support (3) are designed and provided such that the projection of one locking member is directed in one side direction (S1) relative to the direction of displacement (F), while the projection of the other locking member is directed in the opposite side direction (S2) relative to the direction of displacement (F).

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that the locking members (5, 7) on the object (2) are designed and provided such that either the projection of one locking member is directed in a side direction (S1) relative to the direction of displacement (F), while the projection (11) of the other locking member (7) is directed in the opposite side direction (S2) or that the locking members (5, 7) on the object (2) are designed and mounted such that the groove of one locking member is open in one side direction (S1) relative to the direction of displacement (F), while the groove of the other locking member is open in the opposite side direction (S2) relative to the direction of displacement (F) and that the projections of the locking members on the object (2) or the support (3), seen in said side directions (S1, S2), either protrude from the outside and inwards into or from the inside and outwards into the corresponding grooves in the locking members on the support (3) or the object (2).

5. Locking device according to any preceding claim, characterized in that one locking member (7) of at least two locking members (6, 7) cooperating with each other is provided with a guide groove (35) which extends in the direction of displacement (F) while the other locking member (6) of these two locking members (6, 7) cooperating with each other has a guide projection (36) which extends in the direction of displacement (F), and that the guide groove (35) and guide projection (36) preferably are provided in their respective locking members (6, 7) beside such a groove (9) and projection (11) respectively in the respective locking member (6, 7) that are adapted to cooperate with each other, whereby the guide groove (35) and the guide projection (36) engage each other when the projection (11) and groove (9) of the two cooperating locking members (6, 7) engage each other.

6. Locking device according to any preceding claim, characterized in that each locking member (4-7) has an essentially U-shaped cross section, that the

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shanks (15, 16) on a first (4) of the locking members (4, 6) provided on the support (3) are directed in a side direction (S1) towards another locking member (6) on the support (3) and the shanks (17, 18) on the other (6) of the locking members (4, 6) provided on the support (3) are directed in the opposite side direction (S2) towards said first (4) of said locking members (4, 6) on the support (3) or vice versa, and that the shanks (19, 20) on a first (5) of the locking members (5, 7) provided on the object (2) are directed in a side direction (S1) towards another locking member (7) on the object (2) and the shanks (21, 22) on the other (7) of the locking members (5, 7) provided on the object (2) are directed in the opposite side direction (S2) towards the first (5) of the locking members (5, 7) on the object (2) or vice versa, whereby web portions (23-26) and shanks (15-22) on the locking members (4-7) either define grooves (8, 9) which are open towards each other or vice versa and projections (10, 11) which are directed from each other or vice versa, respectively.

20 7. Locking device according to claim 6, c h a r a c -
t e r i z e d i n that a first (15, 17, 19, 21) of the
shanks on each locking member (4-7) define anchoring por-
tions or parts of anchoring portions through which the
locking member (4-7) in question is mounted on the support
25 (3) and the object (2) respectively, and that a second (16,
18, 20, 22) of said shanks on at least two (4, 6) of the
locking members defines, with said first shank (15, 17),
grooves (8, 9) and on two other locking members (5, 7),
projections (10, 11) which fit into the grooves (8, 9),
30 whereby the shanks (15, 17, 19, 21) defining anchoring por-
tions preferably are wider than the other shanks (16, 18,
20, 22) on the locking members (4-7).

8. Locking device according to claim 6 or 7, c h a -
r a c t e r i z e d i n that at least one (4) of the
35 locking members in a web portion (23) is provided with a
recess (27) into which the locking means (14) is inser-

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table and that the locking member (5) cooperating with said locking member (4) in a web portion (25) is provided with a recess (28) into which a locking tooth (29) on said locking means (14) is insertable.

5 9. Locking device according to any preceding claim, characterized in that the locking members (4-7) on two opposing sides are provided with inclined outer surfaces (37-44) which are located such that pairs (12, 13) of locking members, each comprising two locking
10 members cooperating with each other, have a shape which tapers from the support (3) in a direction towards the object (2).

10. Locking device according to any preceding claim, characterized in that the locking members
15 (4-7) are provided with devices (45) for connecting the corresponding locking members in series with identical or substantially identical locking members (4-7) and eventually for locking locking members connected in series, to each other.

20 11. Locking device according to any preceding claim, whereby the locking members (4-7) preferably are provided on the support (3) and/or the object (2) by means of an adhering tape or similar, characterized in
that at least one of the locking members (4-7) has at least
25 one recess into which a releasing or disconnecting tool for releasing or disconnecting the locking member is insertable, so that one can pivot said locking member with said tool in a plane which is parallel with the surface to which said locking member is attached or anchored, un-
30 til the tape or similar loosens.

Fig. 3

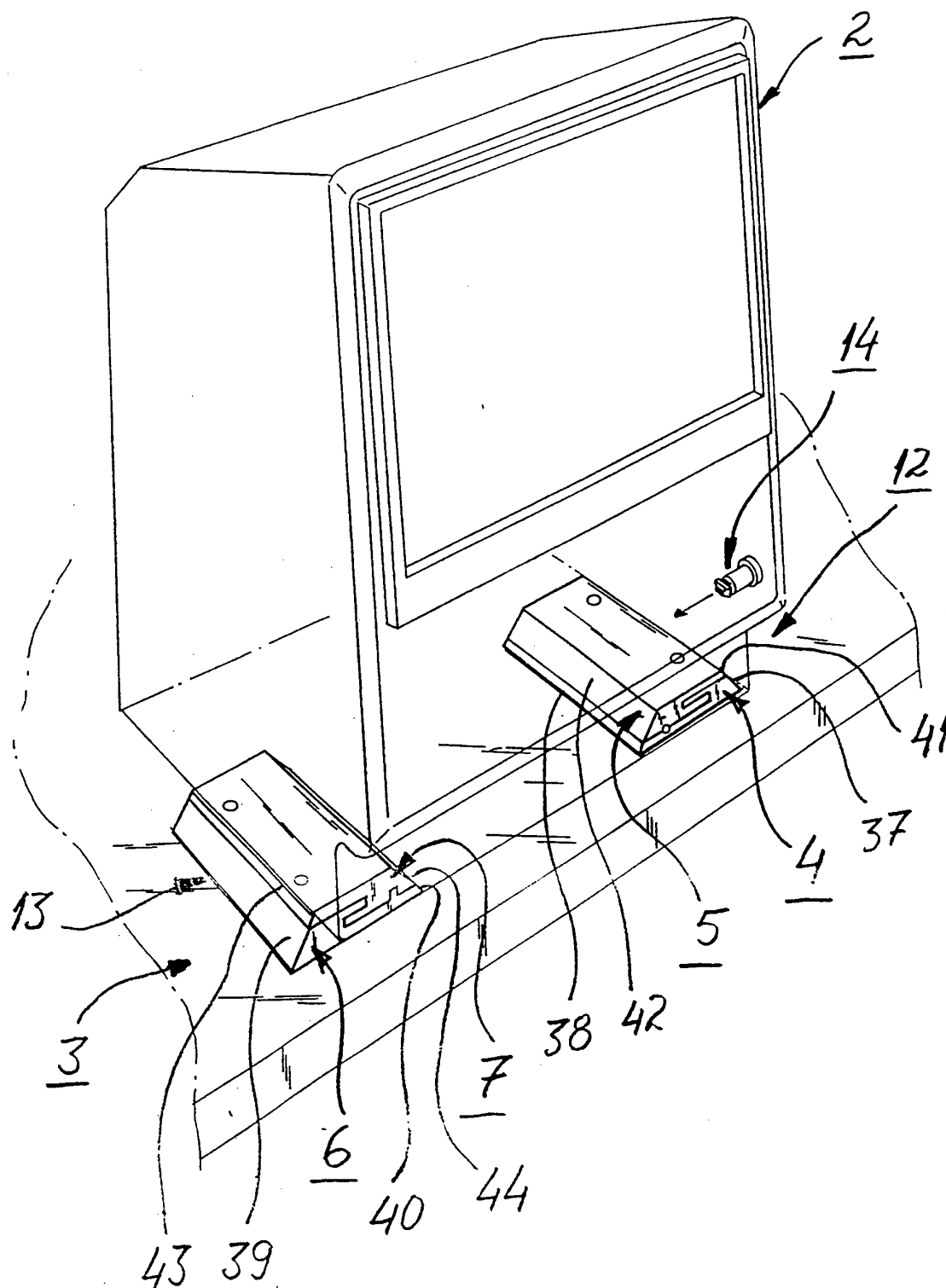


Fig. 4

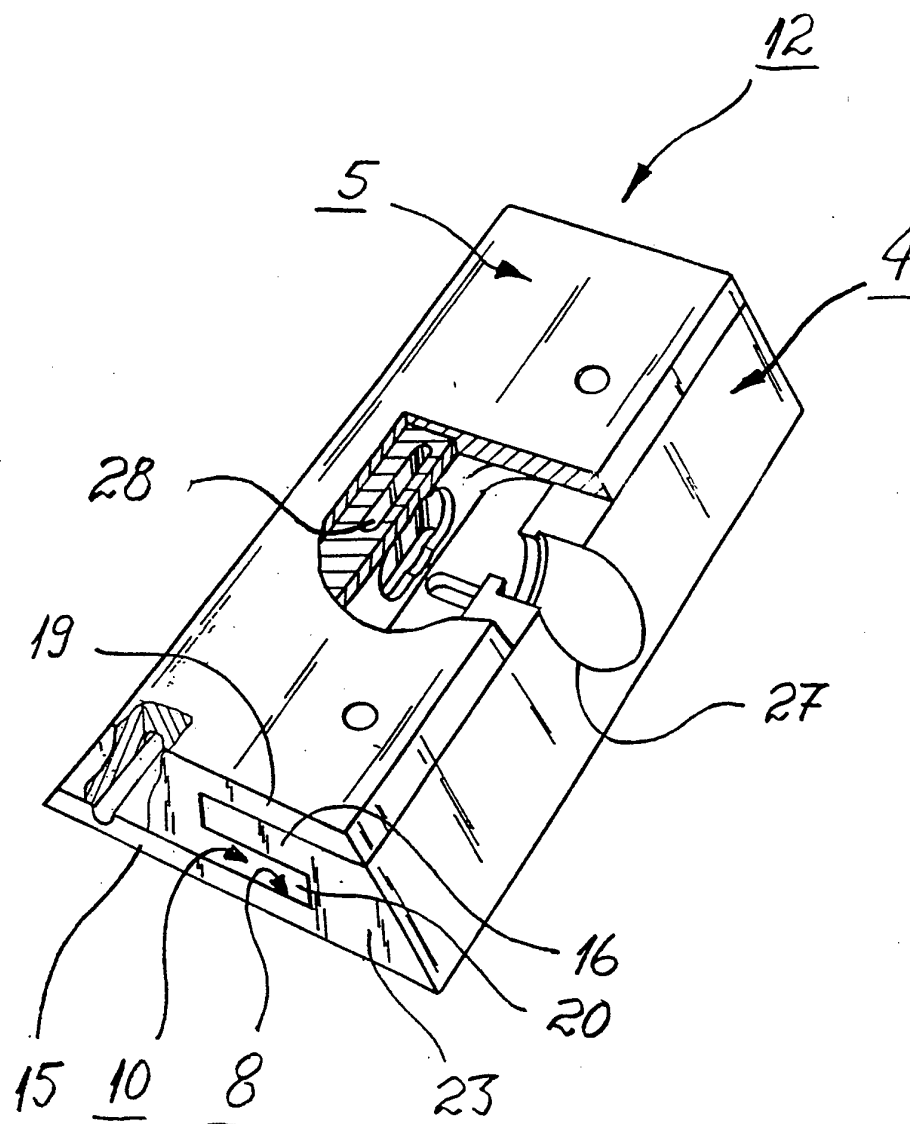


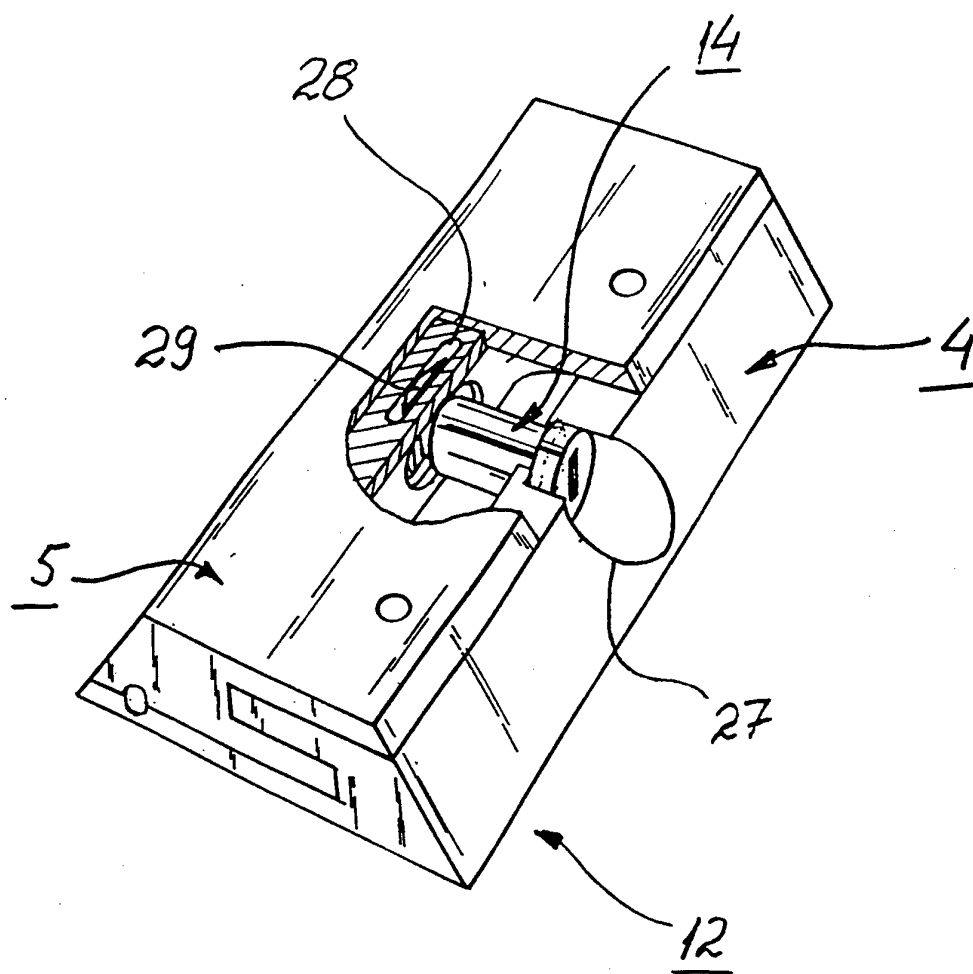
Fig. 5

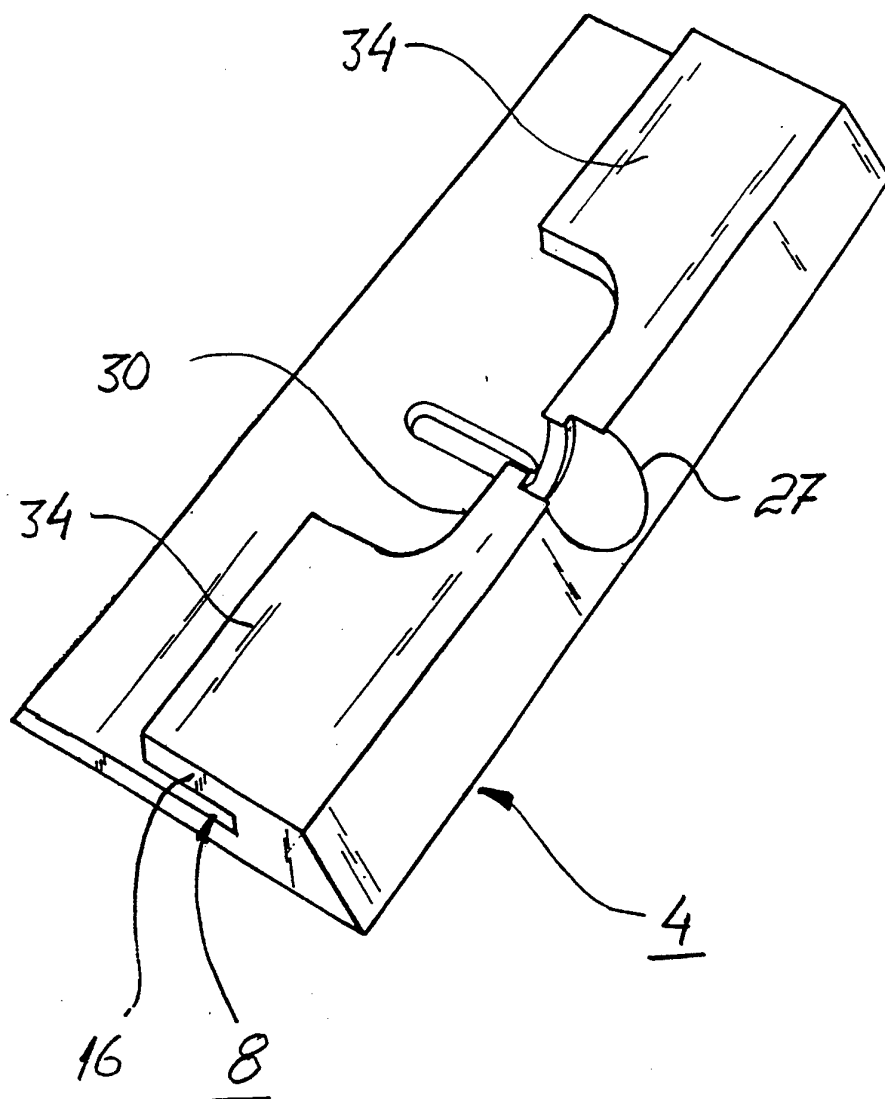
Fig. 6

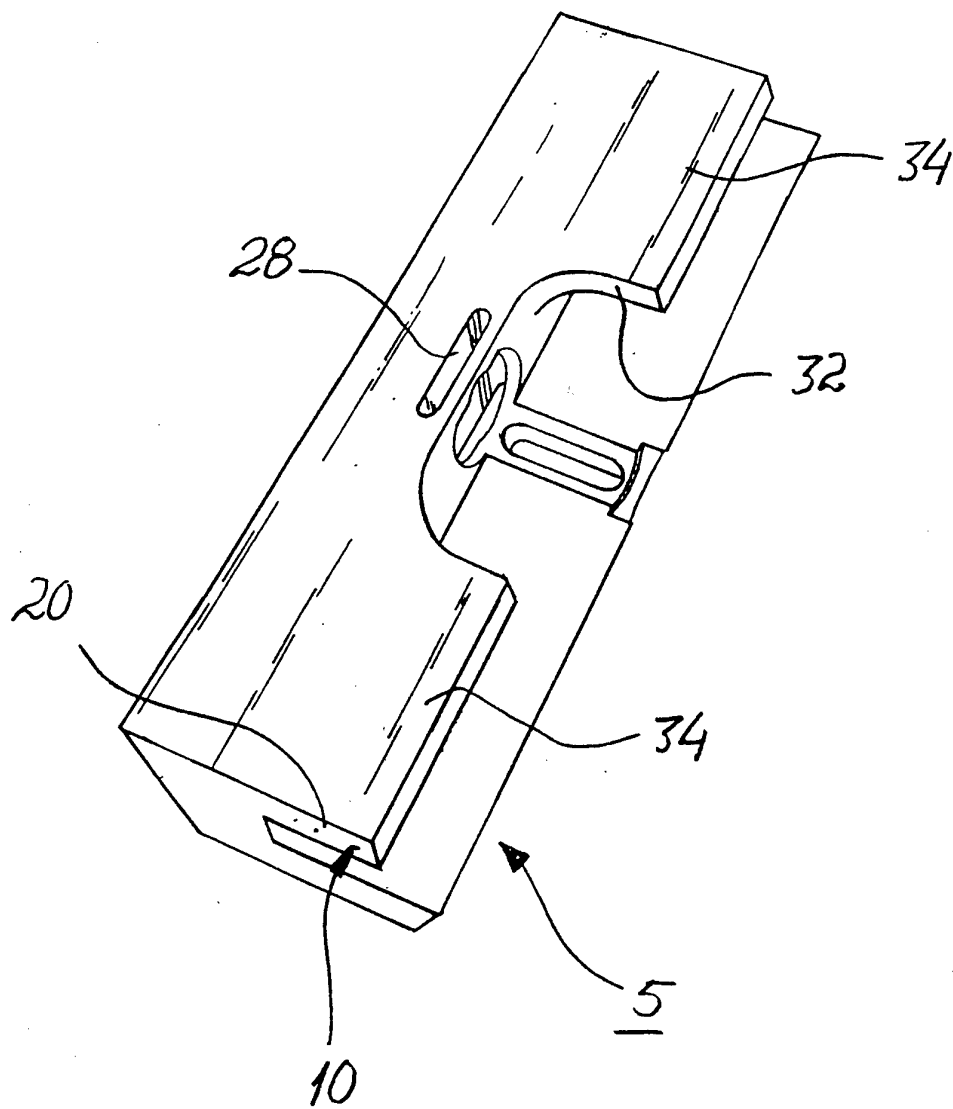
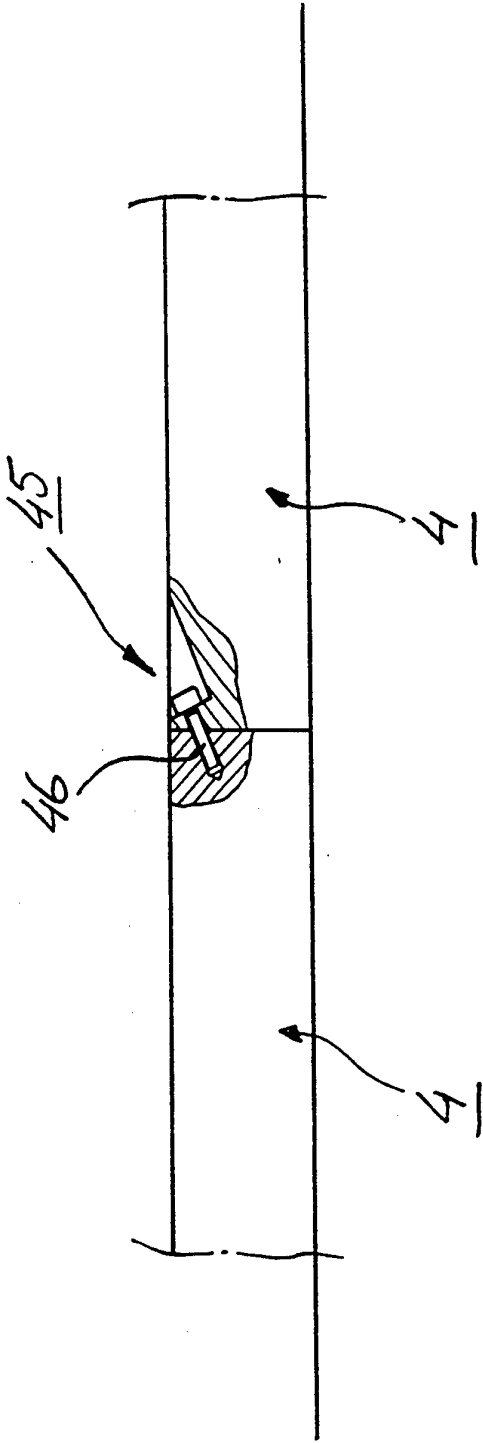
Fig. 7

Fig. 8



INTERNATIONAL SEARCH REPORT

International application No.

PCT/SE 93/01038

A. CLASSIFICATION OF SUBJECT MATTER

IPC5: E05B 73/00

According to International Patent Classification (IPC) or to both national classification and IPC

B. FIELDS SEARCHED

Minimum documentation searched (classification system followed by classification symbols)

IPC5: E05B

Documentation searched other than minimum documentation to the extent that such documents are included in the fields searched

SE,DK,FI,NO classes as above

Electronic data base consulted during the international search (name of data base and, where practicable, search terms used)

C. DOCUMENTS CONSIDERED TO BE RELEVANT

Category*	Citation of document, with indication, where appropriate, of the relevant passages	Relevant to claim No.
X	US, A, 5116015 (M.M. GASSAWAY), 26 May 1992 (26.05.92)	1
Y	--	2-3,5,7-9
X	US, A, 5154456 (D.E. MOORE ET AL), 13 October 1992 (13.10.92)	1
Y	--	2-3,5,7-9
Y	US, A, 4024737 (C.E. MCINTURFF), 24 May 1977 (24.05.77)	2-3,5,7-9
	--	

☒ Further documents are listed in the continuation of Box C.☒ See patent family annex.

* Special categories of cited documents:

"A" document defining the general state of the art which is not considered to be of particular relevance

"E" earlier document but published on or after the international filing date

"L" document which may throw doubts on priority claim(s) or which is cited to establish the publication date of another citation or other special reason (as specified)

"O" document referring to an oral disclosure, use, exhibition or other means

"P" document published prior to the international filing date but later than the priority date claimed

"T" later document published after the international filing date or priority date and not in conflict with the application but cited to understand the principle or theory underlying the invention

"X" document of particular relevance: the claimed invention cannot be considered novel or cannot be considered to involve an inventive step when the document is taken alone

"Y" document of particular relevance: the claimed invention cannot be considered to involve an inventive step when the document is combined with one or more other such documents, such combination being obvious to a person skilled in the art

"&" document member of the same patent family

Date of the actual completion of the international search

15 March 1994

Date of mailing of the international search report

24-03-1994

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INTERNATIONAL SEARCH REPORT

International application No.

PCT/SE 93/01038

C (Continuation). DOCUMENTS CONSIDERED TO BE RELEVANT

Category*	Citation of document, with indication, where appropriate, of the relevant passages	Relevant to claim No.
Y	US, A, 4691891 (R. DIONNE), 8 Sept 1987 (08.09.87) --	2-3,5,7-9
Y	GB, A, 2153902 (R.M. TIPENE), 29 August 1985 (29.08.85) --	2-3,5,7-9
Y	SE, B, 438174 (INNOVANT AB), 1 April 1985 (01.04.85) -- -----	2-3,5,7-9

INTERNATIONAL SEARCH REPORT

Information on patent family members

28/01/94

International application No.

PCT/SE 93/01038

Patent document cited in search report		Publication date	Patent family member(s)		Publication date
US-A-	5116015	26/05/92	NONE		
US-A-	5154456	13/10/92	NONE		
US-A-	4024737	24/05/77	NONE		
US-A-	4691891	08/09/87	NONE		
GB-A-	2153902	29/08/85	AU-A-	3857985	15/08/85
SE-B-	438174	01/04/85	CA-A-	1252640	18/04/89
			DE-A-	3505668	22/08/85
			EP-A,B-	0174335	19/03/86