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PADLOCK

This invention relates to a padlock of the kind including a lock body and a shackle, typically a substantially U-shaped shackle, a key-operated lock mechanism, preferably a cylinder lock with turnable locking discs, fitted into a cavity in the lock body to which at least one locking means is functionally connected for locking the shackle to the lock body, a cover element which is turnably connected, preferably by means of threads, to the lock body and which is arranged in front of the lock mechanism in a key insertion direction, and blocking means for fastening the cover element to the lock body.

Different versions of padlocks are produced for different purposes, inter alia depending on whether the padlock is to be provided with a facility for changing the lock mechanism or at least its opening combination. For this purpose it is known to provide padlocks with a cover element which is positioned in front of the lock mechanism and is removably fastened to the lock body. The cover element can then be removed after first opening the lock mechanism and moving the shackle into its releasing or open position.

If there is no need to provide the padlock with the facility referred to above, of changing the lock mechanism or its opening combination, a locking ring, for example, known as such can be used as a fastening arrangement. From the view point of production and in order to reduce stock items, on the other hand, it would be of advantage to keep different versions of padlocks to a minimum.

An aim of the invention is to provide a padlock of the kind referred to that is favourable from the view point of production and that can still be easily modified for different purposes according to need so that the mentioned possibility of changing the lock mechanism or the opening combination thereof is especially taken account of.

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The aim of the invention is achieved by providing a padlock of the kind referred to according to the characterising part of the ensuing claim 1.

By designing a padlock in accordance with the invention
5 it is sufficient to have only one padlock construction, whereby the facility for changing the lock mechanism or its opening combination, is determined by whether or not a locking ring is installed in the lock. When a locking ring is employed, the lock mechanism cannot be changed so that, if
10 desired, it is possible to leave the stop member completely out. However, the stop member can still be used with advantage in all versions, because then it offers, together with the locking ring, a double protection against attempts to break the cover element. If the locking ring is not
15 installed, the cover element can be removed and the lock mechanism changed after the shackle is first opened and the stop member is moved to a non-blocking position.

In practice the cover element includes at least one recess for partly receiving the stop member at the blocking
20 position thereof and a groove for partly receiving the locking ring. The groove is preferably located in front of the said at least one recess in the insertion direction of the key.

The cover element can with advantage include several recesses, preferably four recesses arranged at 90° intervals
25 around the cover element. This makes it easier to install the stop member at its blocking position partly located in one of said recesses.

The invention will now be described, by way of example only, with particular reference to the accompanying drawings,
30 in which:

Figure 1 is a sectional view of a padlock according to the invention with blocking means and a cover element removed,



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Figure 2 is the padlock shown in Figure 1 in an assembled condition in which the lock mechanism cannot be changed, and

Figure 3 is the padlock of Figure 1 in an assembled condition in which the lock mechanism is changeable.

5 In the drawings, the reference numeral 1 indicates a lock body of a padlock which is provided with a substantially U-shaped shackle 2. The lock body 1 includes a cavity 3 enclosing a key-operated lock mechanism 4, which is preferably a cylinder lock mechanism provided with turnable locking
10 discs, the opening combination of which is easily changeable when necessary. Functionally connected to the lock mechanism 4 are locking members or bolts 5 by means of which both ends of the shackle 2 can be locked to the lock body 1.

The cavity 3 of the lock body is provided with a cover
15 element 6 which is turnably supported, preferably by means of threads, on the lock body 1 and is arranged in front of the lock mechanism 4 in the insertion direction of the key. Blocking means are provided for fastening the cover element 6 to the lock body 1 and comprise firstly a stop member 7,
20 which is arranged transversally with regard to the cover element 6 and is removable in the open position (not shown) of the shackle 2. The stop member 7 is located in a bore 8 and preferably has screw threads for screw-threaded engagement with screw threads of the bore 8. In its closed position the
25 stop member 7 extends to some degree into a recess 12 formed in the cover element 6 and thereby prevents the cover element 6 from turning relative to the lock body 1. The cover element 6 is preferably provided with several recesses 12 so as to facilitate engagement of the stop member 7 with the cover
30 element 6. Conveniently four such recesses 12 are provided arranged at 90° intervals around the cover element 6.

Circumferential grooves 9 and 11 are provided, respectively, in the lock body 1 and the cover element 6. The grooves 9 and 11 open towards each other to enable a locking

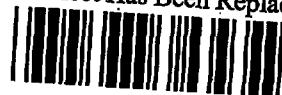


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ring 10 to be installed in the grooves to permanently lock the cover element 6 to the lock body 1. The locking ring 10 is conveniently in the form of a circlip which, in assembly of the padlock, can be contracted into the groove 11 during 5 screwing of the cover element 6 into the cavity 3. As the cover element is screwed fully home, the locking ring 10 resiliently expands into the surrounding groove 9. Figure 2 shows the padlock in which the locking ring 10 is in its locking position partly positioned in each of the grooves 9 10 and 11 and in which the stop member 7 projects into one of the recesses 12 formed in the cover element 6.

In Figure 3 an alternative assembly is shown in which the cover element 6 and the stop member 7 are installed, but in which the locking ring 10 has been omitted. Thus, after 15 opening of the shackle 2 to reveal the stop member 7 in the bore 8, the stop member 7 can be unscrewed sufficiently to disengage the stop member from the cover element 6. The cover element 6 can then be removed from its position by turning (e.g. unscrewing) so that the lock mechanism 4 can be removed 20 from the cavity 3. In this way the lock mechanism 4 can either be replaced or have its opening combination changed. If desired, however, the locking ring 10 can subsequently be positioned in its place according to need.

The invention is not restricted to the embodiments shown, 25 but several modifications are feasible within the scope of the ensuing claims.



CLAIMS

1. A padlock including a lock body (1) and a shackle (2) movable between open and closed positions, a key-operated lock mechanism (4) fitted into a cavity (3) in the lock body to which at least one locking means (5) is functionally connected for locking the shackle to the lock body (1), a cover element (6) which is turnably connected to the lock body (1) and which is arranged in front of the lock mechanism (4) in a key insertion direction, and blocking means for fastening the cover element (6) to the lock body (1), characterised in that the said blocking means comprise a stop member (7) which is arranged in the lock body transversally with regard to said key insertion direction, is removable in the open position of the shackle (2) and prevents turning of the cover element (6) relative to the lock body (1) when in a blocking position, and a groove (9) in the lock body (1) surrounding the cover element to enable a locking ring (10) to be retained therein for engagement with the cover element (6) to lock the latter permanently to the lock body (1).

2. A padlock according to claim 1, characterised in that a locking ring (10) is positioned in said groove (8) in the lock body (1) and engages with the cover element (6) to lock the latter permanently to the lock body (1).

3. A padlock according to claim 2, characterised in that the cover element (6) includes a groove (11) for partly receiving the locking ring (10), and that the groove (11) is located in front of the said at least one recess (12) in the key insertion direction.

4. A padlock according to any of the preceding claims, characterised in that the cover element (6) includes a plurality of recesses (12) angularly spaced apart around the cover element (6), any one of which is able to partly receive the stop member (7) at the blocking position thereof depending on the angular position of the cover element (6).



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5. A padlock according to any one of the preceding claims, characterised in that the key-operated lock mechanism comprises a cylinder lock with turnable locking discs.

6. A padlock according to any one of the preceding 5 claims, characterised in that the cover element (6) is screw-threadedly connected to the lock body (1).

7. A padlock including a lock body (1) and a shackle (2), a lock mechanism (14) fitted into a cavity (3) in the lock body (1) to which at least one lock bolt (5) is 10 functionally connected for locking the shackle (2) to the lock body (1), a cover element (6) which is turnably connected to the lock body (1) and which is arranged in front at the lock mechanism (4) in a key insertion direction, and blocking means for fastening the cover element (6) to the lock body (1), 15 characterised in that the said blocking means comprises a stop member (7) which is arranged in the lock body (1) transversally with regard to the cover element (6), is removable in an open position of the shackle (2) and prevents turning of the cover element (6) relative to the lock body (1) 20 when in a blocking position, and a locking ring (10) positionable in a groove (9) in the lock body (1) surrounding the cover element (6) and arranged to be installed in its position for permanently locking the cover element (6) to the lock body (1).



Fig. 1

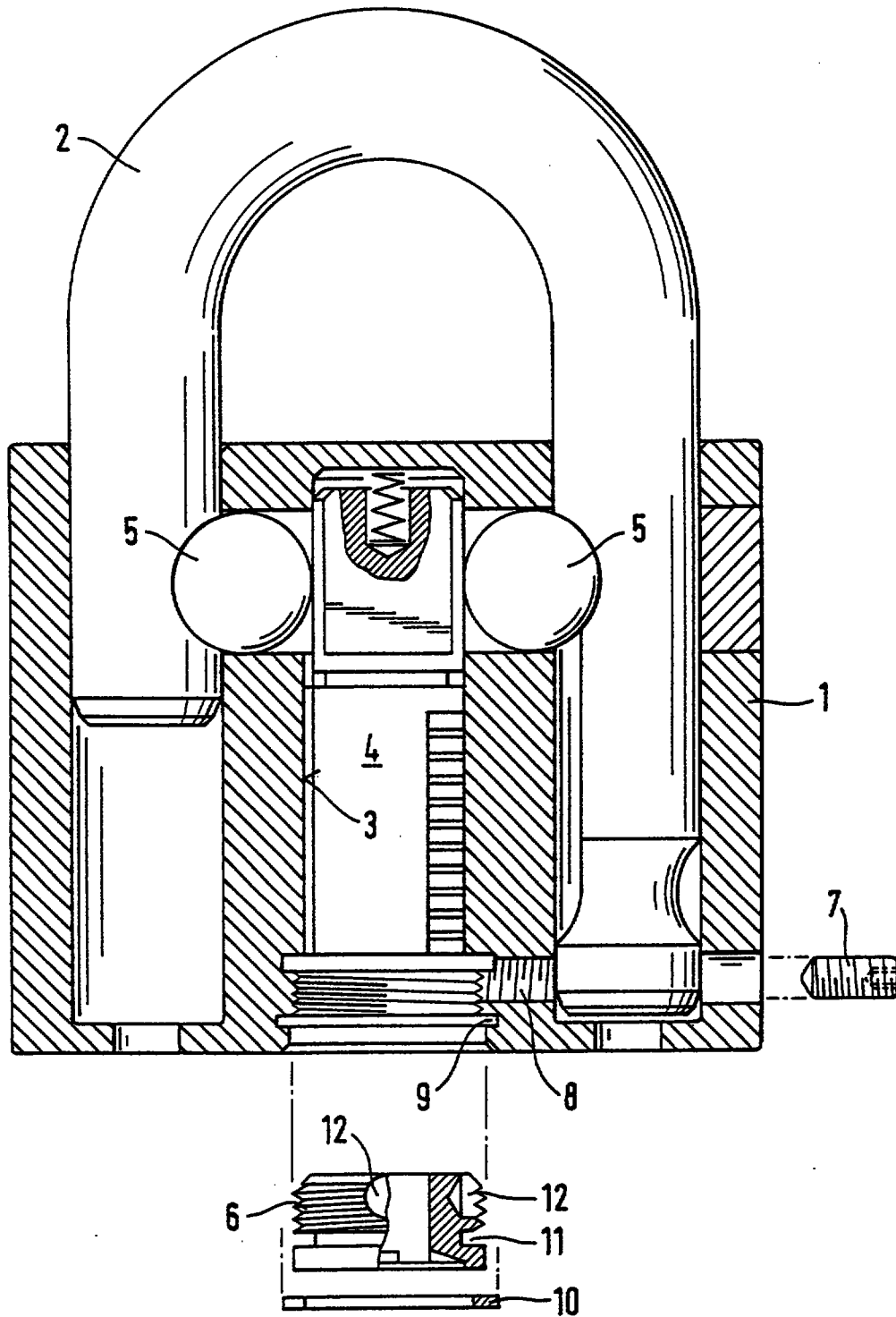




Fig. 2

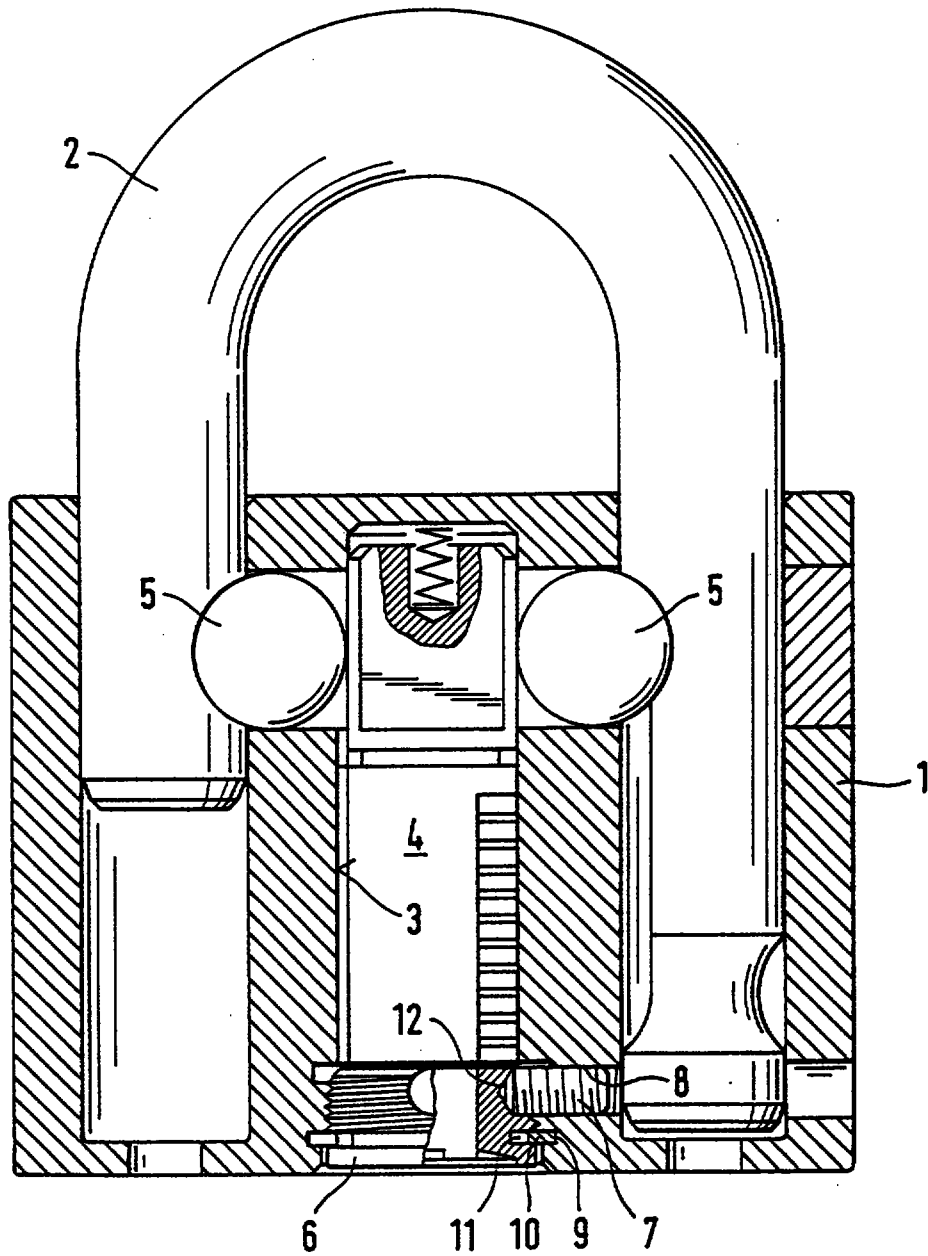
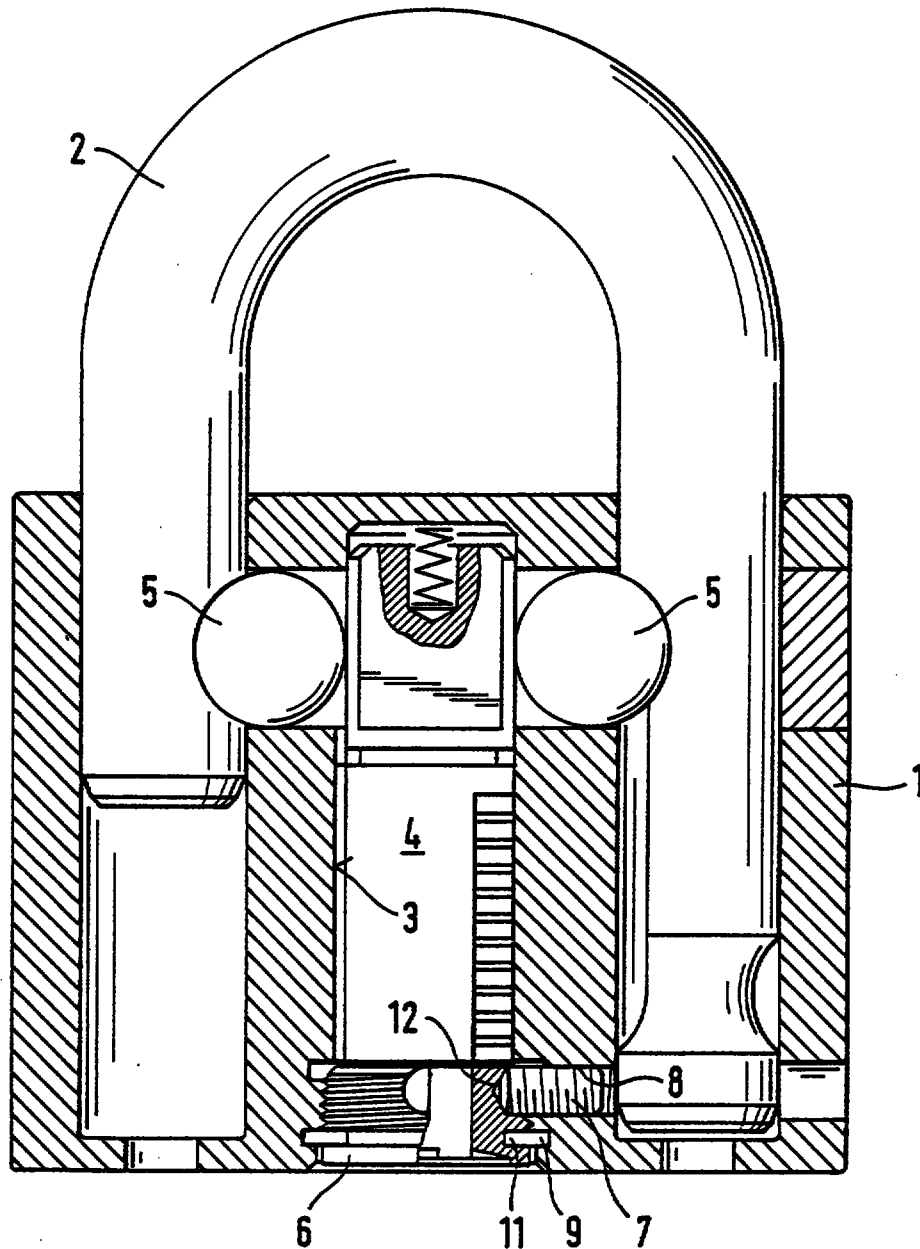




Fig. 3



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PADLOCK

This invention relates to a padlock of the kind including a lock body and a shackle, typically a substantially U-shaped shackle, a key-operated lock mechanism, preferably a cylinder lock with turnable locking discs, fitted into a cavity in the lock body to which at least one locking means is functionally connected for locking the shackle to the lock body, a cover element which is turnably connected, preferably by means of threads, to the lock body and which is arranged in front of the lock mechanism in a key insertion direction, and blocking means for fastening the cover element to the lock body.

Different versions of padlocks are produced for different purposes, inter alia depending on whether the padlock is to be provided with a facility for changing the lock mechanism or at least its opening combination. For this purpose it is known to provide padlocks with a cover element which is positioned in front of the lock mechanism and is removably fastened to the lock body. For instance US-A-4545223 shows a turnable cover element which is retained in its position in the lock body by means of a separate blocking means. The cover element can then be removed after first opening the lock mechanism, moving the shackle into its releasing or open position and then removing the blocking means from its blocking position.

If there is no need to provide the padlock with the facility referred to above, of changing the lock mechanism or its opening combination, a locking ring, for example as shown in DE-A-3421754, can be used as a fastening arrangement. From the view point of production and in order to reduce stock items, on the other hand, it would be of advantage to keep different versions of padlocks to a minimum. The above cited documents represent the prior art as referred to in the preamble of the appended claim 1.

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The aim of the invention is achieved by providing a padlock of the kind referred to according to the characterising part of the ensuing claim 1.

By designing a padlock in accordance with the invention it is sufficient to have only one padlock construction, whereby the facility for changing the lock mechanism or its opening combination, is determined by whether or not a locking ring is installed in the lock. When a locking ring is employed, the lock mechanism cannot be changed so that, if desired, it is possible to leave the stop member completely out. However, the stop member can still be used with advantage in all versions, because then it offers, together with the locking ring, a double protection against attempts to break the cover element. If the locking ring is not installed, the cover element can be removed and the lock mechanism changed after the shackle is first opened and the stop member is moved to a non-blocking position.

In practice the cover element includes at least one recess for partly receiving the stop member at the blocking position thereof and a groove for partly receiving the locking ring. The groove is preferably located in front of the said at least one recess in the insertion direction of the key.

The cover element can with advantage include several recesses, preferably four recesses arranged at 90° intervals around the cover element. This makes it easier to install the stop member at its blocking position partly located in one of said recesses.

The invention will now be described, by way of example only, with particular reference to the accompanying drawings, in which:

Figure 1 is a sectional view of a padlock according to the invention with blocking means and a cover element removed,

Figure 2 is the padlock shown in Figure 1 in an assembled condition in which the lock mechanism cannot be changed, and

Figure 3 is the padlock of Figure 1 in an assembled condition in which the lock mechanism is changeable.

In the drawings, the reference numeral 1 indicates a lock body of a padlock which is provided with a substantially U-shaped shackle 2. The lock body 1 includes a cavity 3 enclosing a key-operated lock mechanism 4, which is preferably a cylinder lock mechanism provided with turnable locking discs, the opening combination of which is easily changeable when necessary. Functionally connected to the lock mechanism 4 are locking members or bolts 5 by means of which both ends of the shackle 2 can be locked to the lock body 1.

The cavity 3 of the lock body is provided with a cover element 6 which is turnably supported, preferably by means of threads, on the lock body 1 and is arranged in front of the lock mechanism 4 in the insertion direction of the key. Blocking means are provided for fastening the cover element 6 to the lock body 1 and comprise firstly a stop member 7, which is arranged transversally with regard to the cover element 6 and is removable in the open position (not shown) of the shackle 2. The stop member 7 is located in a bore 8 and preferably has screw threads for screw-threaded engagement with screw threads of the bore 8. In its closed position the stop member 7 extends to some degree into a recess 12 formed in the cover element 6 and thereby prevents the cover element 6 from turning relative to the lock body 1. The cover element 6 is preferably provided with several recesses 12 so as to facilitate engagement of the

stop member 7 with the cover element 6. Conveniently four such recesses 12 are provided arranged at 90° intervals around the cover element 6.

Circumferential grooves 9 and 11 are provided, respectively, in the lock body 1 and the cover element 6. The grooves 9 and 11 open towards each other to enable a locking ring 10 to be installed in the grooves to permanently lock the cover element 6 to the lock body 1. The locking ring 10 is conveniently in the form of a circlip which, in assembly of the padlock, can be contracted into the groove 11 during screwing of the cover element 6 into the cavity 3. As the cover element is screwed fully home, the locking ring 10 resiliently expands into the surrounding groove 9. Figure 2 shows the padlock in which the locking ring 10 is in its locking position partly positioned in each of the grooves 9 and 11 and in which the stop member 7 projects into one of the recesses 12 formed in the cover element 6.

In Figure 3 an alternative assembly is shown in which the cover element 6 and the stop member 7 are installed, but in which the locking ring 10 has been omitted. Thus, after opening of the shackle 2 to reveal the stop member 7 in the bore 8, the stop member 7 can be unscrewed sufficiently to disengage the stop member from the cover element 6. The cover element 6 can then be removed from its position by turning (e.g. unscrewing) so that the lock mechanism 4 can be removed from the cavity 3. In this way the lock mechanism 4 can either be replaced or have its opening combination changed. If desired, however, the locking ring 10 can subsequently be positioned in its place according to need.

The invention is not restricted to the embodiments shown, but several modifications are feasible within the scope of the ensuing claims.



CLAIMS

REPLACEMENT

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1. A padlock including a lock body (1) and a shackle (2) movable between open and closed positions, a key-operated lock mechanism (4) fitted into a cavity (3) in the lock body to which lock mechanism at least one locking means (5) is functionally connected for locking the shackle to the lock body (1), a cover element (6) which is turnably connected to the lock body (1) and which is arranged in front of the lock mechanism (4) in a key insertion direction, and blocking means for fastening the cover element (6) to the lock body (1), characterised in that the said blocking means comprise a stop member (7) which is arranged in the lock body transversally with regard to said key insertion direction, is removable in the open position of the shackle (2) and prevents turning of the cover element (6) relative to the lock body (1) when in a blocking position, a groove (9) in the lock body (1) surrounding the cover element, and a locking ring (10), said locking ring (10) being adapted to be retained in the groove (9) for engagement with the cover element (6) to lock the latter permanently to the lock body (1).
2. A padlock according to claim 1, characterised in that the locking ring (10) is positioned in said groove (9) in the lock body (1) and engages with the cover element (6) to lock the latter permanently to the lock body (1).

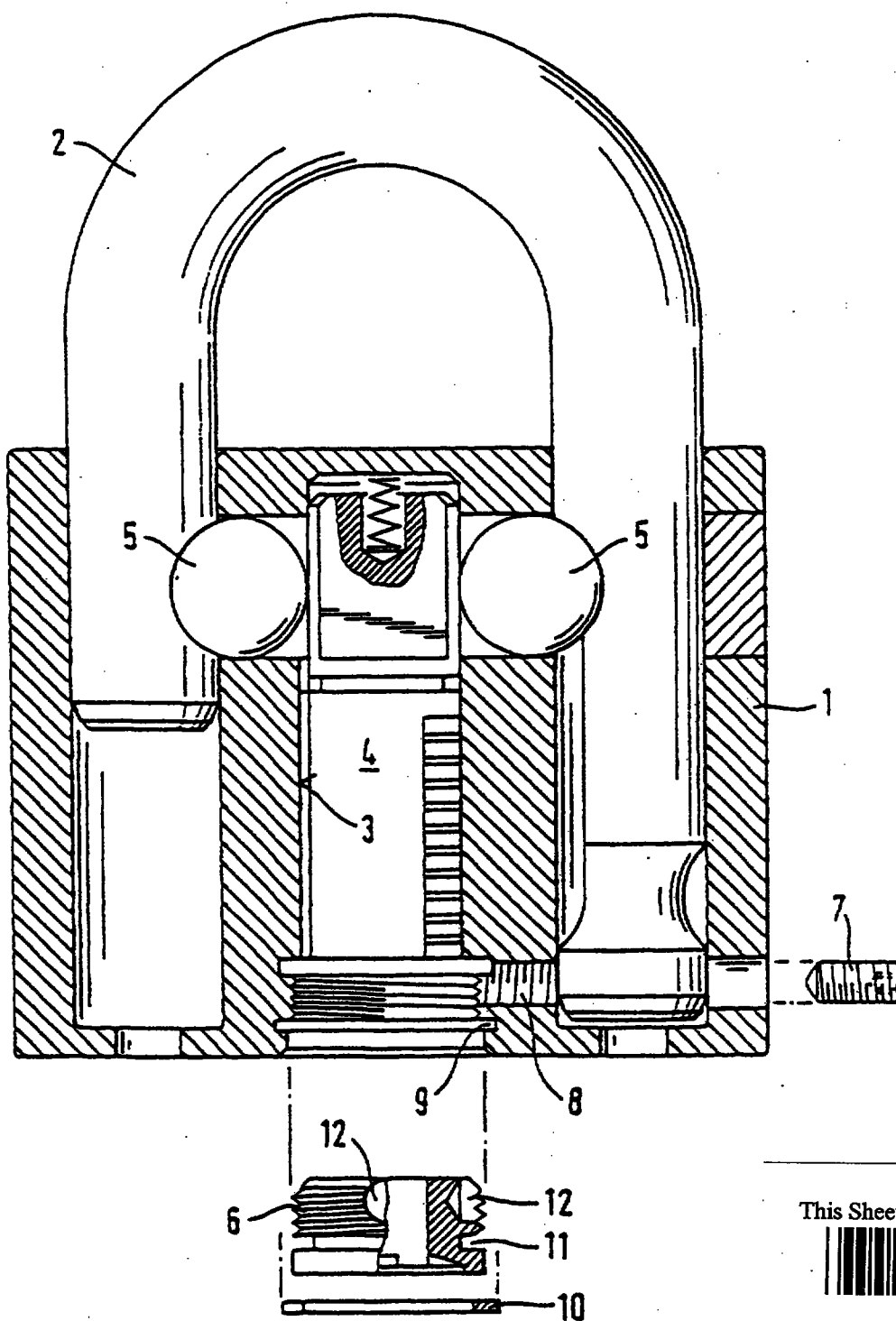


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3. A padlock according to claims 1 or 2, characterised in that the cover element (6) includes a groove (11) for partly receiving the locking ring (10), and that the groove (11) is located in front, in the key insertion direction, of at least one recess (12) arranged to partly receive the stop member (7) at the blocking position thereof.
4. A padlock according to any of the preceding claims, characterised in that the cover element (6) includes a plurality of recesses (12) angularly spaced apart around the cover element (6), any one of which is able to partly receive the stop member (7), at the blocking position thereof, depending on the angular position of the cover element (6).
5. A padlock according to any one of the preceding claims, characterised in that the key-operated lock mechanism comprises a cylinder lock with turnable locking discs.
6. A padlock according to any one of the preceding claims, characterised in that the cover element (6) is screwthreadedly connected to the lock body (1).

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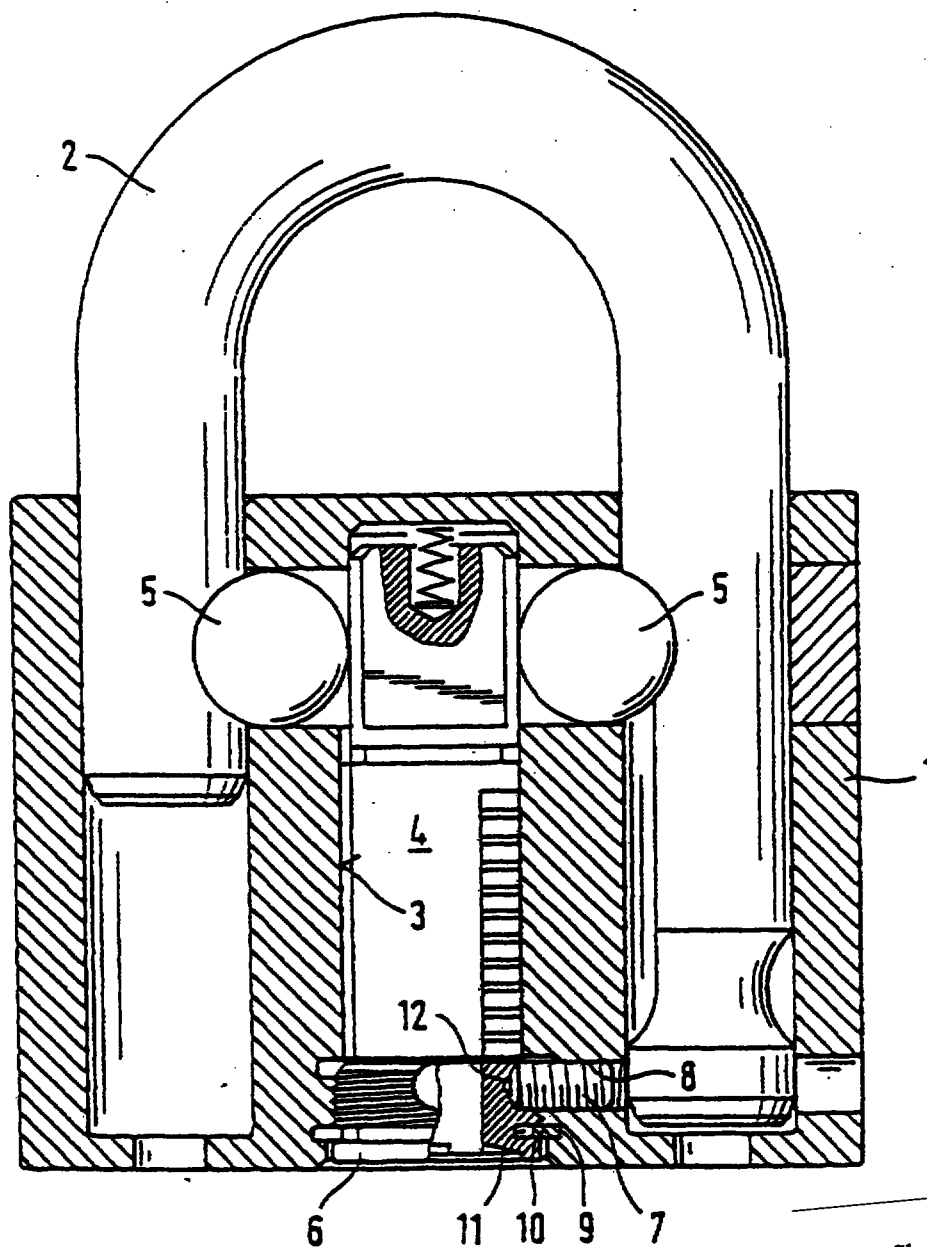
Fig. 1



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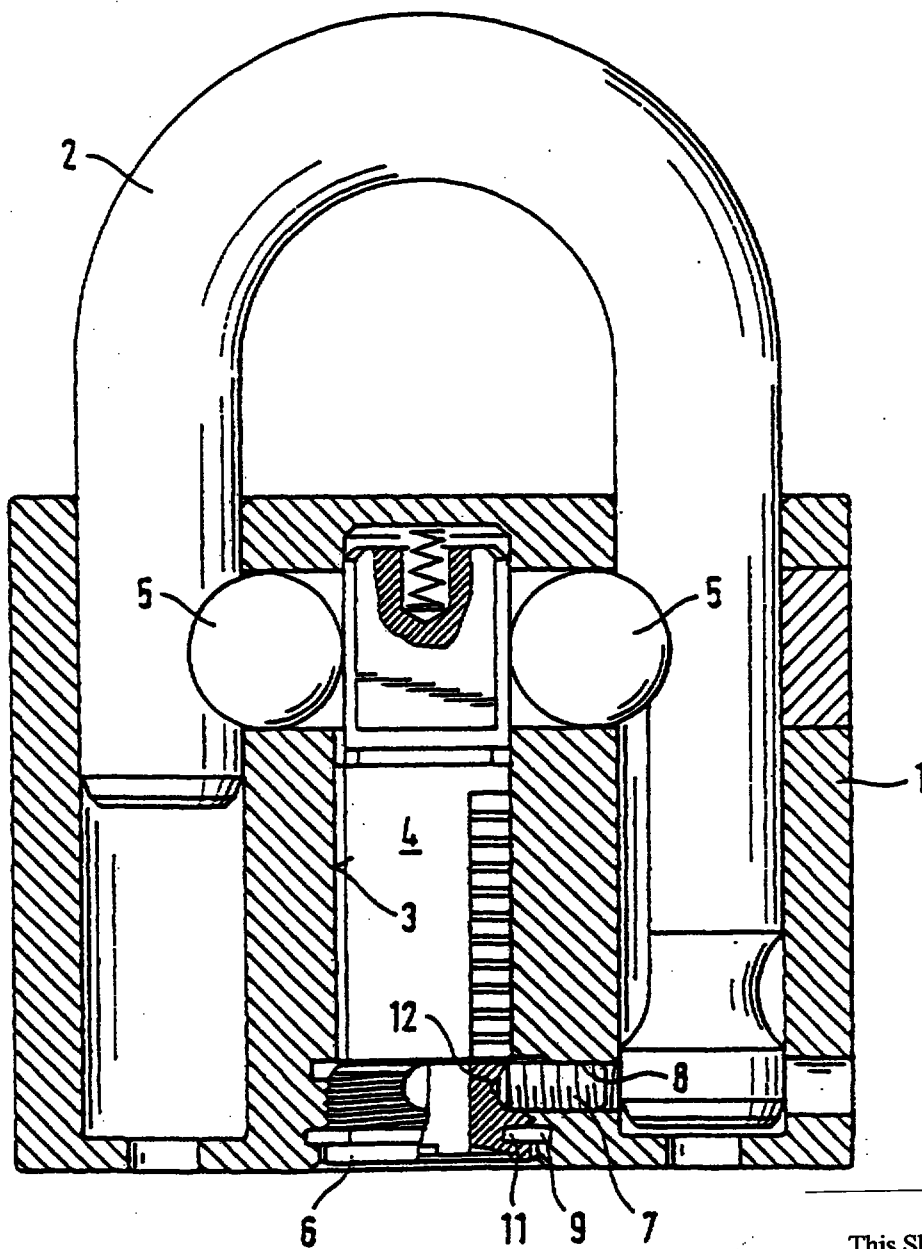
Fig. 2

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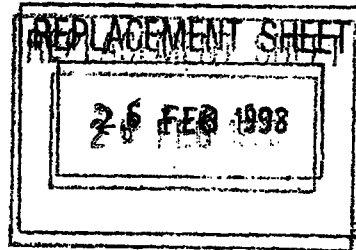
Fig. 3



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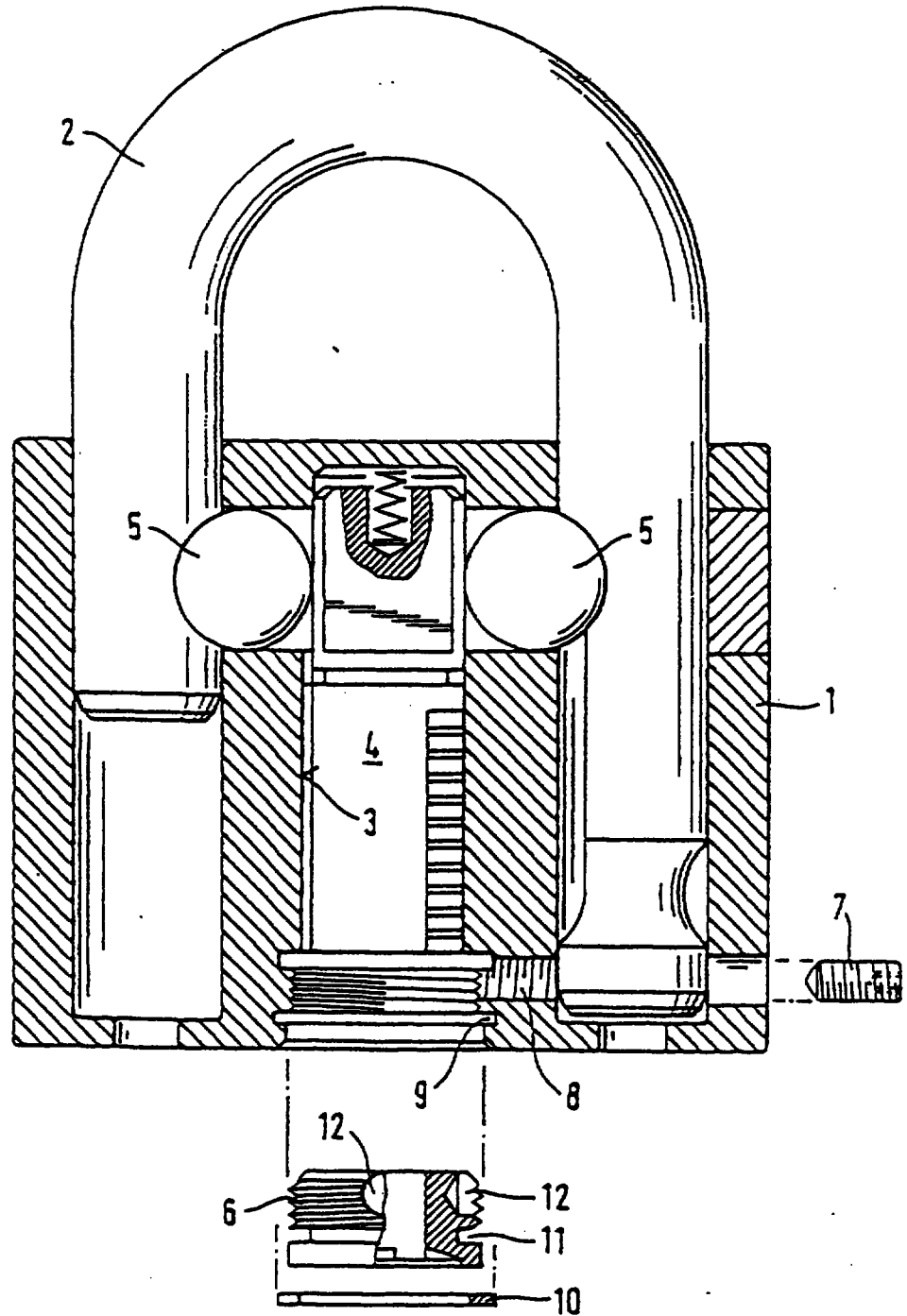
ABSTRACTPADLOCK

A padlock including a lock body (1) and a substantially U-shaped shackle (2), a lock mechanism (4) fitted into a cavity (3) in the lock body and to which at least one lock bolt (5) is functionally connected for locking the shackle to the lock body (1), a cover element (6), which is turnably connected to the lock body (1), preferably by means of threads, and which is located in a key-insertion direction in front of the lock mechanism (4), and blocking means for fastening the cover element (6) to the lock body (1). The blocking means comprise a stop member (7) which is arranged in the lock body transversally with regard to the cover element (6), is removable in the open position of the shackle (2) and prevents, in its blocking position, turning of the cover element (6) relative to the lock body (1), and a locking ring (10) positionable in a groove (9) in the lock body (1) surrounding the cover element and arranged to be installed in its position if the cover element (6) is to be locked permanently to the lock body (1).

REPLACEMENT SHEET
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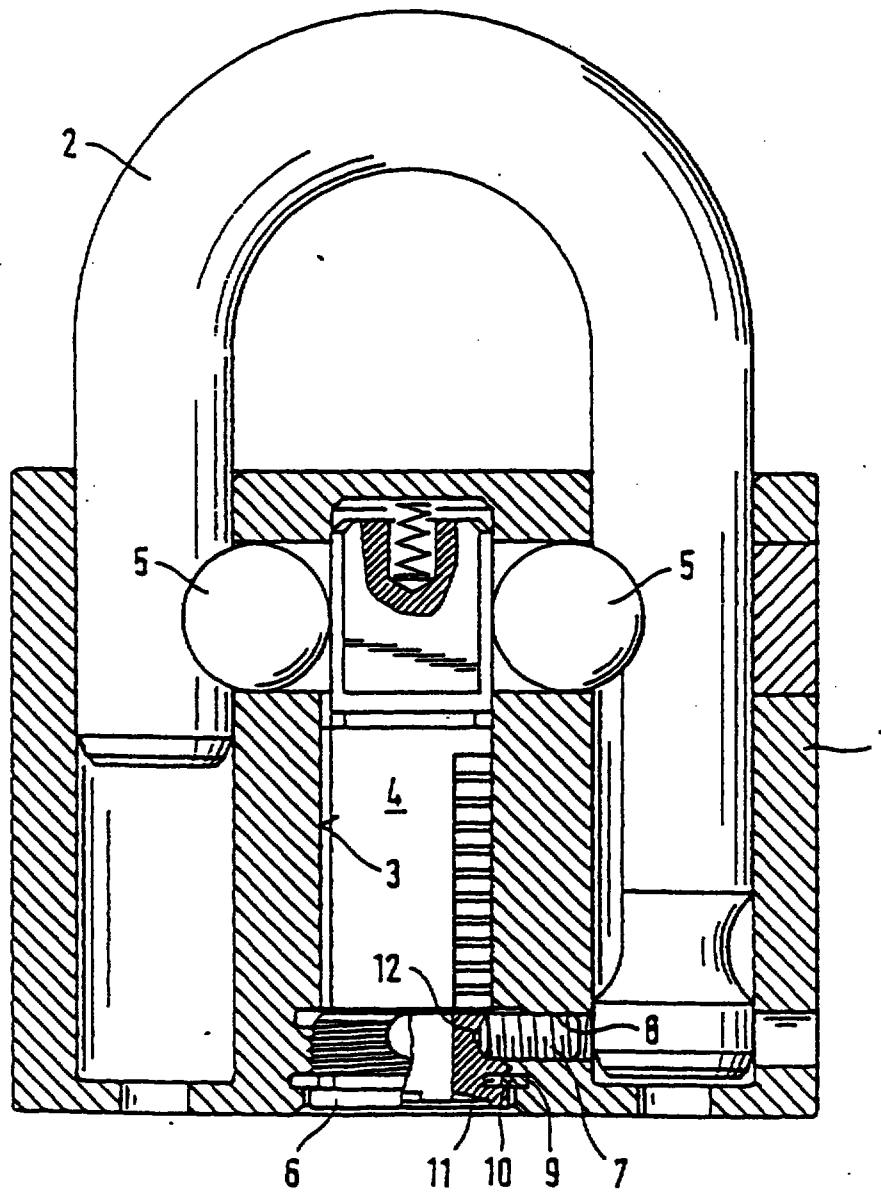
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Fig. 1



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Fig. 2

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Fig. 3