

DUAL-INTERACTIVE LOCK

1. Field of the Invention

The present invention relates to a door lock, and more particularly to a dual-interactive lock that drives interactively a latching bolt and a triggered bolt.

- 5 An interactive actuation of the latching bolt and the triggered bolt ensures that the guiding member is actuated exactly to move downwards. Then the guiding member drives a main bolt to change the door lock into a locking position.

2. Description of the Related Art

- A door lock, a necessary device in daily life, is mounted in a doorplate in an exit of a building. Generally, a locking bolt of a door lock connected retractably to a strike plate of a doorframe controls opening and closing of a doorplate in the doorframe. To ensure that the door lock in a locking position is not easy to break by an external force or to unlock, a user must prevent the locking bolt from retracting. The locking bolt keeps extending out of the door lock to ensure the door lock is locking.
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- A conventional door lock, as disclosed in DE102006060449(A1), is a self-locking door lock that has a transmission element, a locking bolt, a latching bolt, and a flexible control element. The transmission element drives the locking bolt to actuate. The flexible control element keeps the locking bolt in a locking position. The transmission element is driven by the latching bolt. However, when a door is closing, the flexible control element and the latching bolt are probably not retracted into the self-locking door lock together. One of the flexible control element and the latching bolt is retracted into the self-locking door lock to drive the transmission element. The other one of the flexible control element and the
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latching bolt is not actuated. Thus, the transmission element cannot drive the locking bolt and cannot keep the locking bolt in the locking position. Then the life and property of the user are under risk.

The other conventional door lock, as disclosed in US7431354B2, is a
5 guiding-locking door lock that has an auxiliary bolt, a stopper, a
guiding-transmission element, a latching bolt, and a locking bolt. The auxiliary
bolt operates with the stopper to drive the guiding-transmission element. The
latching bolt also drives the guiding-transmission element to actuate. The
guiding-transmission element has a groove that is disposed around a pin of the
10 locking bolt. The guiding-transmission element moves downwards to drive the
locking bolt and to keep the locking bolt in the locking position. However, when
the guiding-transmission element is pressed against a torsion spring or an
external force before the locking bolt extends, the locking bolt is stopped in a
midway or cannot be actuated to extend. The pin of the locking bolt cannot move
15 to a position of the groove of the guiding-transmission element. Then, the
locking bolt cannot be actuated. The locking bolt is stopped by the external force
and cannot be retracted into the guiding-locking door lock. The
guiding-transmission element cannot move downwards. Therefore, the
guiding-locking door lock cannot be actuated or cannot be in the locking position,
20 causing trouble to the user.

An objective of the present invention is to provide a dual-interactive lock
that drives interactively a latching bolt and a triggered bolt. An interactive
actuation of the latching bolt and the triggered bolt ensures that the guiding
member is actuated exactly to move downwards. Then the guiding member

drives a main bolt to change the door lock into a locking position.

To achieve the foregoing objective, the dual-interactive lock has a lock case, a latching bolt, a triggered bolt, an interactive member, a main bolt, a guiding member, and a driving assembly. The lock case has a first torsion spring, a

5 second torsion spring, a first restoring spring, a second positioning stub, and a supporting part. The first torsion spring, the second torsion spring, the first restoring spring, and the second positioning stub are mounted inside the lock case. The supporting part is formed inside the lock case. The latching bolt is mounted retractably in the lock case and abuts one of two ends of the first torsion

10 spring. The triggered bolt is mounted retractably in the lock case, is disposed at an interval from the latching bolt, and has a second restoring spring. The second restoring spring is mounted in the triggered bolt. One of two ends of the second restoring spring abuts the supporting part of the lock case. The interactive member is a tabular element, is mounted movably inside the lock case, and has a

15 second protruding stub. Both ends of the interactive member are disposed to and abut respectively the latching bolt and the triggered bolt. The second protruding stub is mounted through a central part of the interactive member, and connects to one of two ends of the first restoring spring. One of two ends of the second protruding stub is mounted through the lock case. The main bolt is mounted

20 retractably in the lock case, is disposed at an interval from the triggered bolt, and has a driving stub that is mounted in the main bolt. The guiding member is an elongated tab, is mounted movably in the lock case, and has a limiting groove, a first abutting part, a driving groove, an abutting recess, and a second abutting part. The limiting groove is defined longitudinally in the guiding member, is

mounted around the other end of the second protruding stub of the interactive member, and has a recessed part that is defined laterally in a bottom end of the limiting groove. The first abutting part is formed in one of two side surfaces of the guiding member. A top end surface of the first abutting part abuts one of two ends of the second torsion spring of the lock case. The driving groove is defined aslant in the guiding member from a bottom end of the guiding member towards a top end of the guiding member, is mounted around the driving stub of the main bolt, and has two first positioning parts that are defined respectively in two ends of the driving groove. The abutting recess is defined in one of two side edges of the guiding member, and is capable of abutting the second positioning stub of the lock case. The second abutting part is formed in the bottom end of the guiding member. The driving assembly is mounted inside the lock case, and is capable of abutting a bottom end surface of the first abutting part and the second abutting part.

Other objectives, advantages and novel features of the invention will become more apparent from the following detailed description when taken in conjunction with the accompanying drawings.

IN THE DRAWINGS

Fig. 1 is a front view of a dual-interactive lock in an unlocking position in accordance with the present invention;

Fig. 2 is an exploded perspective view of a guiding member of the dual-interactive lock in Fig. 1;

Fig. 3 is an enlarged front view of a malfunctioning interactive member of the dual-interactive lock in Fig. 1;

Fig. 4 is another enlarged front view of the malfunctioning interactive member of the dual-interactive lock in Fig. 1;

Fig. 5 is a front view of the dual-interactive lock in a second locking position of the dual-interactive lock in Fig. 1;

5 Fig. 6 is an enlarged front view of the dual-interactive lock in a first locking position of the dual-interactive lock in Fig. 1;

Fig. 7 is an enlarged front view of an auxiliary bolt in a locking position of the dual-interactive lock in Fig. 1;

Fig. 8 is a front view of the dual-interactive lock unlocking with a lock-core driving block in Fig. 1; and
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Fig. 9 is a front view of the dual-interactive lock unlocking with a handle driving block in Fig. 1.

With reference to Figs. 1 and 2, a dual-interactive lock in accordance with the present application has a lock case 10, a latching bolt 20, a triggered bolt 30,
15 an interactive member 40, a main bolt 50, a guiding member 60, and a driving assembly.

With reference to Figs. 1, 2 and 5, the lock case 10 has a case body 11, a plate 12, a first torsion spring 13, a second torsion spring 14, a third torsion spring 15, a first restoring spring 16, and a bearing 17.

20 The case body 11 has a first positioning stub 111, a second positioning stub 112, a third positioning stub 113, a fourth positioning stub 114, a first connecting stub 115, a second connecting stub 116, a third connecting stub 117, a supporting part 118, and a guiding groove 119.

Specifically, the lock case 10 consists of the case body 11, a casing element

(not shown in the figures) and the plate 12. The first positioning stub 111, the second positioning stub 112, the third positioning stub 113, the fourth positioning stub 114, the first connecting stub 115, the second connecting stub 116, and the third connecting stub 117 are mounted inside the lock case 10. The casing element (not shown) is mounted in the case body 11 and has a guiding groove (not shown) that corresponds in position to the guiding groove 119 of the case body 11.

The case body 11 is a rectangular, elongated and tabular member, and further has three protruding walls 110, a first mounting hole 101, a second mounting hole 102, and a third mounting hole 103.

The protruding walls 110 are formed respectively in three of four edges of the case body 11.

The first mounting hole 101, the second mounting hole 102 and the third mounting hole 103 are defined in the case body 11 and are spaced apart at intervals. The third mounting hole 103 is an elongated hole.

The first positioning stub 111, the second positioning stub 112, the third positioning stub 113, the fourth positioning stub 114, the first connecting stub 115, the second connecting stub 116, and the third connecting stub 117 are mounted in a side surface of the case body 11 and are spaced apart at intervals. The third positioning stub 113 is disposed in alignment with the second positioning stub 112.

Specifically, when the case body 11 is mounted in the casing element (not shown), screws are mounted through the casing element (not shown) and are respectively connected to the first connecting stub 115, the second connecting

stub 116, and the third connecting stub 117.

The supporting part 118 is formed in the side surface of the case body 11, and has a mounting groove that is defined in a central part of the supporting part 118.

5 The guiding groove 119 is defined laterally in the case body 11.

The plate 12 is an elongated tab, is mounted in the other one of the edges of the case body 11, and has multiple through holes 120 that are defined through the plate 12 and are spaced apart at intervals.

10 The first torsion spring 13 is mounted around the first connecting stub 115 of the case body 11 of the lock case 10. One of two ends of the first torsion spring 13 abuts the protruding wall 110.

The second torsion spring 14 is mounted around the second connecting stub 116 of the case body 11. One of two ends of the second torsion spring 14 abuts the first positioning stub 111.

15 One of two ends of the third torsion spring 15 is mounted around the third connecting stub 117.

One of two ends of the first restoring spring 16 is connected to the plate 12.

The bearing 17 is mounted around the fourth positioning stub 114. An inner surface of the bearing 17 abuts an outer surface of the fourth positioning stub 20 114.

With reference to Figs. 2 and 3, the latching bolt 20 is mounted retractably in the lock case 10, and has a latching base 21 and two latching elements 22.

The latching base 21 has two first protruding stubs 211 that protrude respectively from two side surfaces of the latching base 21. One of two ends of

the latching base 21 abuts the other end of the first torsion spring 13.

The first protruding stub 211 is mounted in the guiding groove 119 of the case body 11, and is capable of moving relative to the guiding groove 119.

Specifically, the first protruding stubs 211 are formed non-symmetrically in the
5 side surfaces of the latching base 21.

The latching elements 22 are mounted in two side surfaces of the other end of the latching base 21. The latching elements 22 are retractably mounted in one of the through holes 120 of the plate 12.

With reference to Figs. 2 and 3, the triggered bolt 30 is mounted retractably
10 in the lock case 10, is disposed at an interval from the latching bolt 20, and has a main block 31, a first bolting rod 32, and a second restoring spring 33.

The main block 31 is mounted retractably in another one of the through holes 120 of the plate 12.

The first bolting rod 32 is mounted movably through the mounting groove
15 of the supporting part 118. One of two ends of the first bolting rod 32 is mounted firmly in the main block 31.

The first bolting rod 32 has a flange 321 that protrudes annually from an outer surface of the first bolting rod 32.

The second restoring spring 33 is mounted around the other end of the first
20 bolting rod 32. One of two ends of the second restoring spring 33 abuts the supporting part 118 of the case body 11. The other end of the second restoring spring 33 abuts the flange 321.

With reference to Fig. 2, the interactive member 40 is mounted movably inside the lock case 10 and is capable of moving relative to the lock case 10. Both

ends of the interactive member 40 are disposed to and abut respectively the latching bolt 20 and the triggered bolt 30. Specifically, one of two ends of the interactive member 40 corresponds in position to the latching base 21 of the latching bolt 20.

5 The interactive member 40 is a tabular element and has a second protruding stub 41 that is mounted through a central part of the interactive member 40. The second protruding stub 41 is connected to the other end of the first restoring spring 16. One of two ends of the second protruding stub 41 is mounted through the third mounting hole 103 of the case body 11 of the lock case 10.

10 With reference to Figs. 1 and 5, the main bolt 50 is mounted retractably in the lock case 10, is disposed at an interval from the triggered bolt 30, and has an extending part 51 and a driving stub 52. Specifically, the main bolt 50 is retractably mounted in still another one of the through holes 120 of the plate 12.

15 The extending part 51 protrudes from one of two ends of the main bolt 50, and has a shifting groove 511. The shifting groove 511 is defined longitudinally in the extending part 51, and is disposed around the bearing 17 of the lock case 10. An inner surface of the shifting groove 511 abuts an outer surface of the bearing 17.

 The driving stub 52 is mounted in the extending part 51 of the main bolt 50.

20 With reference to Figs. 2 and 5, the guiding member 60 is an elongated tab, is mounted movably in the lock case 10, and has an indentation 61, a limiting groove 62, a first abutting part 63, a driving groove 64, an abutting recess 65, a second abutting part 66, a second positioning part 67, and a locking stub 68.

 The indentation 61 is defined in one of two side edges of the guiding

member 60.

The limiting groove 62 is defined longitudinally in the guiding member 60, is disposed around the other end of the second protruding stub 41 of the interactive member 40, and has a recessed part 621 that is defined laterally in a
5 bottom end of the limiting groove 62.

The first abutting part 63 is formed in one of two side surfaces of the guiding member 60. A top end surface of the first abutting part 63 abuts the other end of the second torsion spring 14 of the lock case 10.

The driving groove 64 is defined aslant in the guiding member 60 from a
10 bottom end of the guiding member 60 towards a top end of the guiding member 60. The driving groove 64 and a long axis of the case body 11 form an inclined angle, and the driving groove 64 is disposed around the driving stub 52 of the main bolt 50. The driving groove 64 has two first positioning parts 641 that are defined respectively in two ends of the driving groove 64.

15 The abutting recess 65 is defined in the other side edges of the guiding member 60, and is capable of abutting the second positioning stub 112 of the lock case 10.

The second abutting part 66 is formed in the bottom end of the guiding member 60.

20 The second positioning part 67 is formed in a bottom end of the other side edge of the guiding member 60 and is located adjacent to the abutting recess 65, and is capable of abutting the third positioning stub 113 of the lock case 10. Specifically, the second positioning part 67 is an inclined surface.

The locking stub 68 protrudes from a side surface of the guiding member

60.

With reference to Figs. 1 and 8, the driving assembly is mounted inside the lock case 10, and is capable of abutting a bottom end surface of the first abutting part 63 and the second abutting part 66. Specifically, the driving assembly has a
5 lock-core driving block 70 and a handle driving block 90.

The lock-core driving block 70 is mounted rotatably in the second mounting hole 102 of the case body 11, and has two projections 71. The projections 71 protrude radially from an outer surface of the lock-core driving block 70, are spaced apart at an interval, and are capable of abutting the second
10 abutting part 66. When the lock-core driving block 70 is mounted in the dual-interactive lock of the present invention, a knob is mounted in the lock-core driving block 70 inside a room. A lock-core that is driven by a specific key is mounted in the lock-core driving block 70 outside the room. The lock-core driving block 70 belongs to a conventional technique, and details thereof are
15 omitted.

With reference to Fig. 5, the dual-interactive lock of the present invention further has an auxiliary bolt 80. The auxiliary bolt 80 is mounted inside the lock case 10, is disposed at an interval from the main bolt 50, and has a base plate 81 and a second bolting rod 82.

20 The base plate 81 is mounted movably inside the case body 11, and has a first extending stub 811, a second extending stub 812, a third extending stub 813, and a locking groove 814. A top end of the base plate 81 abuts the third positioning stub 113 of the case body 11.

The first extending stub 811 protrudes from a side surface of the base plate

81 and is capable of abutting the main bolt 50, as shown in Fig. 8.

The second extending stub 812 protrudes from the side surface of the base plate 81, is disposed at an interval from the first extending stub 811, and is mounted through the other end of the third torsion spring 15.

5 A third extending stub 813 protrudes from the side surface of the base plate 81, is disposed at intervals from the first extending stub 811 and the second extending stub 812, and is capable of abutting the projections 71 of the lock-core driving block 70, as shown in Fig. 6.

10 The locking groove 814 is defined in the top end of the base plate 81, and is capable of receiving the locking stub 68 of the guiding member 60.

The second bolting rod 82 is mounted in a side edge of the base plate 81, and is mounted retractably in one of the through holes 120 of the plate 12 of the lock case 10.

15 With reference to Figs. 1 and 9, the handle driving block 90 is mounted rotatably in the first mounting hole 101 of the case body 11, and has a lever 91 that is capable of abutting the bottom end surface of the first abutting part 63. When the handle driving block 90 is mounted in the dual-interactive lock of the present invention, a handle is mounted in the handle driving block 90 inside a room. The handle drives the handle driving block 90 to rotate. The handle
20 driving block 90 belongs to a conventional technique, and details thereof are omitted.

With reference to Figs. 3 and 4, when the interactive member 40 is malfunctioning, the dual-interactive lock of the present invention cannot be in a locking position. Either the main block 31 or the latching elements 22 abut a

strike plate of a doorframe when a doorplate is closed. Therefore, the main block 31 or the latching elements 22 are retracted into the plate 12 to abut the interactive member 40. However, the main block 31 or the latching elements 22 abutting the interactive member 40 cannot overcome a resilience force of the first restoring spring 16 that is exerted on the second protruding stub 41. Furthermore, the second protruding stub 41 cannot escape from the recessed part 621. The interactive member 40 is moved around the second protruding stub 41. The guiding member 60 cannot move downwards to shift the dual-interactive lock into the locking position.

When the main block 31 and the latching elements 22 abut the strike plate of the doorframe, the main block 31 and the latching elements 22 retract into the plate 12 together. Then, the interactive member 40 overcomes the resilience of the first restoring spring 16, and moves laterally. The second protruding stub 41 escapes from the recessed part 621, as shown in Fig. 5. Thus, the dual-interactive lock of the present invention shifts into a locking position. When the second protruding stub 41 is located in a longitudinal part of the limiting groove 62, the second torsion spring 14 exerts a downward force on the first abutting part 63. The guiding member 60 moves downwards. The driving groove 64 drives the driving stub 52 to move. The main bolt 50 extends out of the plate 12. Then the guiding member 60 abuts the first protruding stubs 211. The latching elements 22 keep extending out of the plate 12. Even though an external force is exerted on the doorplate, the latching elements 22 cannot retract into the lock case 10 to keep the dual-interactive lock in the locking position. Meanwhile, the driving stub 52 is located in the first positioning part 641, as shown in Fig. 7. The

abutting recess 65 abuts the third positioning stub 113. Therefore, the main bolt 50 cannot retract into the lock case 10 by the external force to unlock the dual-interactive lock. After the main block 31 and the latching elements 22 retract into the plate 12 together, if the latching elements 22 that are driven by the first torsion spring 13 do not extend into the strike plate of the doorframe, the first protruding stub 211 is embedded in the indentation 61, as shown in Fig. 4. Then, the dual-interactive lock is not in the locking position. Thus, the main block 31 and the latching elements 22 retract into the plate 12 together, and then the latching elements 22 and the main block 31 are abutted by the second restoring spring 33 and extend into the strike plate of the doorframe, and the dual-interactive lock is in the locking position.

With reference to Fig. 6, when the main bolt 50 extends into the strike plate of the doorframe, the main bolt 50 may not extend into the strike plate entirely due to slight misalignment between the main bolt 50 and the strike plate that causes the main bolt 50 to be improperly worn or obstructed. Because of the second positioning stub 112 abutting the abutting recess 65 and the second positioning part 67 abutting the third positioning stub 113, the dual-interactive lock is still capable of entering a first locking position, and enters a second locking position. Even though the driving stub 52 is in a midway of the driving groove 64 and is not located in the first positioning parts 641, the main bolt 50 still keeps extending out of the dual-interactive lock and does not retract into the lock case 10. Then, the dual-interactive lock of the present invention is in the locking position. Furthermore, the second positioning part 67 is an inclined surface. When the guiding member 60 moves downwards, the second

positioning part 67 abuts the second positioning stub 112 and the third positioning stub 113 in sequence. The guiding member 60 passes through smoothly. Therefore, the abutting recess 65 abuts the second positioning stub 112 to achieve the first locking position.

5 The main bolt 50 is located in a moving path of the first extending stub 811, as shown in Fig. 8. When the main bolt 50 is in the locking position, the main bolt 50 does not obstruct a moving of the first extending stub 811. With reference to Figs. 6 and 7, the user operates the knob inside the room or the key outside the room to drive the projections 71 abutting the third extending stub 813. Then, the
10 base plate 81 moves outwards. The second bolting rod 82 extends out of the lock case 10. The dual-interactive lock is in the locking position. Meanwhile, the locking stub 68 of the guiding member 60 is embedded in the locking groove 814 of the base plate 81. The locking stub 68 ensures that the auxiliary bolt 80
15 extends out of the lock case 10 and is in the locking position. Because the third positioning stub 113 abuts the top end of the base plate 81, the base plate 81 moves horizontally.

To unlock the dual-interactive lock, the user operates the lock-core driving block 70 to rotate. With reference to Fig. 8, the projection 71 abuts the second abutting part 66. Then, the guiding member 60 moves upwards. The driving
20 groove 64 drives the driving stub 52 to move. The main bolt 50 retracts into the lock case 10. Meanwhile, the main bolt 50 abuts the first extending stub 811. The auxiliary bolt 80 is unlocking.

In case of emergency such as a fire accident and needing evacuation, the user rotates the handle. The handle driving block 90 is accordingly rotated. The

lever 91 abuts the first abutting part 63, as shown in Fig. 9. Then the guiding member 60 moves upwards. Therefore, the main bolt 50 and the auxiliary bolt 80 are unlocking.

The interactive member 40 is mounted in the lock case 10 and is capable of
 5 adjusting a moving route of the interactive member 40. The interactive member 40 ensures that the latching bolt 20 and the triggered bolt 30 are interactively retracted into the lock case 10 when the door is closing. The second protruding stub 41 of the interactive member 40 escapes from the recessed part 621 of the limiting groove 62 of the guiding member 60, and moves to the limiting groove
 10 62. Thus, the guiding member 60 moves downwards with the resilience of the second torsion spring 14. Then, the latching bolt 20 and the triggered bolt 30 operate interactively to drive the guiding member 60 to move downwards. The latching bolt 20 and the triggered bolt 30 operating interactively eliminate a situation that the guiding member of the conventional door lock cannot be driven.
 15 Meanwhile, the guiding member 60 is capable of abutting the second positioning stub 112 and the third positioning stub 113 of the door lock 10 to avoid the main bolt 50 unlocking caused by the external force. Furthermore, the auxiliary bolt 80 that is mounted in the dual-interactive lock is operated with the main bolt 50, and gives the user enhanced security.

CLAIMS

1. A dual-interactive lock, comprising:

a lock case (10) having

a first torsion spring (13) mounted inside the lock case (10);

5 a second torsion spring (14) mounted inside the lock case (10);

a first restoring spring (16) mounted inside the lock case (10);

a second positioning stub (112) mounted inside the lock case (10); and

a supporting part (118) formed inside the lock case (10);

a latching bolt (20) mounted retractably in the lock case (10) and abutting

10 one of two ends of the first torsion spring (13);

a triggered bolt (30) mounted retractably in the lock case (10), disposed at an interval from the latching bolt (20), and having

a second restoring spring (33) mounted in the triggered bolt (30), one of two ends of the second restoring spring (33) abutting the supporting part (118)

15 of the lock case (10);

an interactive member (40) being a tabular element and mounted movably inside the lock case (10), both ends of the interactive member (40) disposed to and abutting respectively the latching bolt (20) and the triggered bolt (30), and the interactive member (40) having

20 a second protruding stub (41) mounted through a central part of the interactive member (40), connecting to one of two ends of the first restoring spring (16), and one of two ends of the second protruding stub (41) mounted through the lock case (10);

a main bolt (50) mounted retractably in the lock case (10), disposed at an

interval from the triggered bolt (30), and having a driving stub (52) mounted in the main bolt (50);

a guiding member (60) being an elongated tab, mounted movably in the lock case (10), and having

5 a limiting groove (62) defined longitudinally in the guiding member (60), mounted around the other end of the second protruding stub (41) of the interactive member (40), and having a recessed part (621) defined laterally in a bottom end of the limiting groove (62);

a first abutting part (63) formed in one of two side surfaces of the
10 guiding member (60), a top end surface of the first abutting part (63) abutting one of two ends of the second torsion spring (14) of the lock case (10);

a driving groove (64) defined aslant in the guiding member (60) from a bottom end of the guiding member (60) towards a top end of the guiding member (60), disposed around the driving stub (52) of the main bolt (50), and having two
15 first positioning parts (641) defined respectively in two ends of the driving groove (64);

an abutting recess (65) defined in one of two side edges of the guiding member (60), and being capable of abutting the second positioning stub (112) of the lock case (10); and

20 a second abutting part (66) formed in the bottom end of the guiding member (60); and

a driving assembly mounted inside the lock case (10) and capable of abutting a bottom end surface of the first abutting part (63) and the second abutting part (66).

2. The dual-interactive lock as claimed in claim 1, wherein
the lock case (10) further has

a case body (11) having

a first mounting hole (101) defined in the case body (11);

5 a second mounting hole (102) defined in the case body (11); and

a third mounting hole (103) defined in the case body (11), being an
elongated hole, and disposed around the second protruding stub (41) of the
interactive member (40), wherein a long axis of the case body (11) and the
driving groove (64) of the guiding member (60) form an inclined angle, the first
10 torsion spring (13), the second torsion spring (14), the first restoring spring (16)
and the second positioning stub (112) are mounted in a side surface of the case
body (11) and the supporting part (118) is formed in the side surface of the case
body (11); and

a third positioning stub (113) disposed in alignment with the second
15 positioning stub (112) and mounted in the side surface of the case body (11);

the guiding member (60) further has a second positioning part (67) formed
in the side edge of the guiding member (60) and located adjacent to the abutting
recess (65), and being capable of abutting the third positioning stub (113) of the
lock case (10); and

20 the driving assembly has

a lock-core driving block (70) mounted rotatably in the second
mounting hole (102) of the case body (11), and having two projections (71)
protruding radially from an outer surface of the lock-core driving block (70),
spaced apart at an interval, and abutting the second abutting part (66); and

a handle driving block (90) mounted rotatably in the first mounting hole (101) of the case body (11), and having a lever (91) capable of abutting the bottom end surface of the first abutting part (63).

5 3. The dual-interactive lock as claimed in claim 2, wherein

the lock case (10) further has

a third torsion spring (15) mounted inside the lock case (10); and

a third connecting stub (117) mounted in the case body (11) and

mounted through one of two ends of the third torsion spring (15); and

10 the dual-interactive lock further has an auxiliary bolt (80) mounted inside the lock case, disposed at an interval from the main bolt (50) and having

a base plate (81) mounted movably inside the case body (11) and

having

a first extending stub (811) protruding from a side surface of the

15 base plate (81) and being capable of abutting the main bolt (50);

a second extending stub (812) protruding from the side surface of

the base plate (81), disposed at an interval from the first extending stub (811),

and mounted through the other end of the third torsion spring (15); and

a third extending stub (813) protruding from the side surface of

20 the base plate (81), disposed at intervals from the first extending stub (811) and the second extending stub (812), and being capable of abutting the projections (71) of the lock-core driving block (70); and

a second bolting rod (82) mounted in a side edge of the base plate (81)

and mounted retractably in the lock case (10).

4. The dual-interactive lock as claimed in claim 3, wherein
the lock case (10) further has

a plate (12) connected to the other end of the first restoring spring (16)
and having

5 multiple through holes (120) defined through the plate (12),
spaced apart at intervals, and receiving respectively the latching bolt (20), the
triggered bolt (30), the main bolt (50) and the auxiliary bolt (80), wherein the
latching bolt (20), the triggered bolt (30), the main bolt (50) and the auxiliary
bolt (80) are retractably mounted through the plate (12); and

10 a bearing (17);

the case body (11) is a rectangular, elongated and tabular member, one of
four edges of the case body (11) is connected to the plate (12), and the case body
(11) further has

three protruding walls (110) formed respectively in the other three
15 edges of the case body (11), one of the protruding walls (110) abutting the other
end of the first torsion spring (13);

a first connecting stub (115), one of two ends of the first connecting
stub (115) mounted in the side surface of the case body (11) and the other end of
the first connecting stub (115) mounted in the first torsion spring (13);

20 a first positioning stub (111) mounted in the side surface of the case
body (11) and abutting the other end of the second torsion spring (14);

a second connecting stub (116), one of two ends of the second
connecting stub (116) mounted in the side surface of the case body (11) and the
other end of the second connecting stub (116) mounted in the second torsion

spring (14); and

a fourth positioning stub (114), one of two ends of the fourth positioning stub (114) mounted in the side surface of the case body (11) and the other end of the fourth positioning stub (114) mounted in the bearing (17),

5 wherein an inner surface of the bearing (17) abuts the fourth positioning stub (114); and

the main bolt (50) has an extending part (51) protruding from one of two ends of the main bolt (50) and having

a shifting groove (511) defined longitudinally in the extending part (51)
10 and disposed around the bearing (17) of the lock case (10), wherein an inner surface of the shifting groove (511) abuts an outer surface of the bearing (17), and the driving stub (52) is mounted in the extending part (51).

5. The dual-interactive lock as claimed in claim 4, wherein

15 the lock case (10) has two guiding grooves (119) defined laterally in the lock case (10);

the latching bolt (20) has

a latching base (21) having

two first protruding stubs (211) protruding respectively from two
20 side surfaces of the latching base (21), mounted respectively in the guiding grooves (119) of the lock case (10), and being capable of moving relative to the guiding grooves (119); and

two latching elements (22) mounted in two side surfaces of one of two ends of the latching base (21) and retractably mounted in the lock case (10); and

one of the two ends of the interactive member (40) corresponding in position to the latching base (21).

6. The dual-interactive lock as claimed in claim 5, wherein

5 the supporting part (118) of the lock case (10) has a mounting groove defined in a central part of the supporting part (118); and

the triggered bolt (30) has

a main block (31) mounted retractably in the lock case (10); and

a first bolting rod (32) mounted movably through the mounting groove

10 of the supporting part (118), one of two ends of the first bolting rod (32) mounted firmly in the main block (31), the other end of the first bolting rod (32) mounted through the second restoring spring (33), and the first bolting rod (32) having

a flange (321) protruding annually from an outer surface of the first bolting rod (32) and abutting the other end of the second restoring spring (33).

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7. The dual-interactive lock as claimed in claim 1, wherein

the lock case (10) has two guiding grooves (119) defined laterally in the lock case (10);

the latching bolt (20) has

20 a latching base (21) having

two first protruding stubs (211) protruding respectively from two side surfaces of the latching base (21), mounted respectively in the guiding grooves (119) of the lock case (10), and being capable of moving relative to the guiding grooves (119); and

two latching elements (22) mounted in two side surfaces of one of two ends of the latching base (21) and retractably mounted in the lock case (10); and one of the two ends of the interactive member (40) corresponding in position to the latching base (21).

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8. The dual-interactive lock as claimed in claim 7, wherein the supporting part (118) of the lock case (10) has a mounting groove defined in a central part of the supporting part (118); and the triggered bolt (30) has

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a main block (31) mounted retractably in the lock case (10); and

a first bolting rod (32) mounted movably through the mounting groove of the supporting part (118), one of two ends of the first bolting rod (32) mounted firmly in the main block (31), the other end of the first bolting rod (32) mounted through the second restoring spring (33), and the first bolting rod (32) having

15

a flange (321) protruding annularly from an outer surface of the first bolting rod (32) and abutting the other end of the second restoring spring (33).

9. The dual-interactive lock as claimed in claim 1, wherein

the supporting part (118) of the lock case (10) has a mounting groove

20

defined in a central part of the supporting part (118); and

the triggered bolt (30) has

a main block (31) mounted retractably in the lock case (10); and

a first bolting rod (32) mounted movably through the mounting groove of the supporting part (118), one of two ends of the first bolting rod (32) mounted

firmly in the main block (31), the other end of the first bolting rod (32) mounted through the second restoring spring (33), and the first bolting rod (32) having a flange (321) protruding annually from an outer surface of the first bolting rod (32) and abutting the other end of the second restoring spring (33).

5

10. The dual-interactive lock as claimed in claim 2, wherein the lock case (10) has two guiding grooves (119) defined laterally in the lock case (10);

the latching bolt (20) has

10 a latching base (21) having

two first protruding stubs (211) protruding respectively from two side surfaces of the latching base (21), mounted respectively in the guiding grooves (119) of the lock case (10), and being capable of moving relative to the guiding grooves (119); and

15 two latching elements (22) mounted in two side surfaces of one of two ends of the latching base (21) and retractably mounted in the lock case (10); and

one of the two ends of the interactive member (40) corresponding in position to the latching base (21).

20 11. The dual-interactive lock as claimed in claim 10, wherein

the supporting part (118) of the lock case (10) has a mounting groove defined in a central part of the supporting part (118); and

the triggered bolt (30) has

a main block (31) mounted retractably in the lock case (10); and

a first bolting rod (32) mounted movably through the mounting groove of the supporting part (118), one of two ends of the first bolting rod (32) mounted firmly in the main block (31), the other end of the first bolting rod (32) mounted through the second restoring spring (33), and the first bolting rod (32) having
5 a flange (321) protruding annually from an outer surface of the first bolting rod (32) and abutting the other end of the second restoring spring (33).

12. The dual-interactive lock as claimed in claim 2, wherein
the supporting part (118) of the lock case (10) has a mounting groove
10 defined in a central part of the supporting part (118); and
the triggered bolt (30) has
a main block (31) mounted retractably in the lock case (10); and
a first bolting rod (32) mounted movably through the mounting groove
of the supporting part (118), one of two ends of the first bolting rod (32) mounted
15 firmly in the main block (31), the other end of the first bolting rod (32) mounted through the second restoring spring (33), and the first bolting rod (32) having
a flange (321) protruding annually from an outer surface of the first bolting rod (32) and abutting the other end of the second restoring spring (33).

20 13. The dual-interactive lock as claimed in claim 3, wherein
the lock case (10) has two guiding grooves (119) defined laterally in the lock case (10);
the latching bolt (20) has
a latching base (21) having

two first protruding stubs (211) protruding respectively from two side surfaces of the latching base (21), mounted respectively in the guiding grooves (119) of the lock case (10), and being capable of moving relative to the guiding grooves (119); and

5 two latching elements (22) mounted in two side surfaces of one of two ends of the latching base (21) and retractably mounted in the lock case (10); and
 one of the two ends of the interactive member (40) corresponding in position to the latching base (21).

10 14. The dual-interactive lock as claimed in claim 13, wherein
 the supporting part (118) of the lock case (10) has a mounting groove defined in a central part of the supporting part (118); and
 the triggered bolt (30) has

 a main block (31) mounted retractably in the lock case (10); and

15 a first bolting rod (32) mounted movably through the mounting groove of the supporting part (118), one of two ends of the first bolting rod (32) mounted firmly in the main block (31), the other end of the first bolting rod (32) mounted through the second restoring spring (33), and the first bolting rod (32) having
 a flange (321) protruding annually from an outer surface of the first bolting
 20 rod (32) and abutting the other end of the second restoring spring (33).

 15. The dual-interactive lock as claimed in claim 3, wherein
 the supporting part (118) of the lock case (10) has a mounting groove defined in a central part of the supporting part (118); and

the triggered bolt (30) has

a main block (31) mounted retractably in the lock case (10); and

a first bolting rod (32) mounted movably through the mounting groove of the supporting part (118), one of two ends of the first bolting rod (32) mounted
5 firmly in the main block (31), the other end of the first bolting rod (32) mounted through the second restoring spring (33), and the first bolting rod (32) having
a flange (321) protruding annually from an outer surface of the first bolting rod (32) and abutting the other end of the second restoring spring (33).

10 16. The dual-interactive lock as claimed in claim 4, wherein

the supporting part (118) of the lock case (10) has a mounting groove defined in a central part of the supporting part (118); and

the triggered bolt (30) has

a main block (31) mounted retractably in the lock case(10); and

15 a first bolting rod (32) mounted movably through the mounting groove of the supporting part (118), one of two ends of the first bolting rod (32) mounted firmly in the main block (31), the other end of the first bolting rod (32) mounted through the second restoring spring (33), and the first bolting rod (32) having
a flange (321) protruding annually from an outer surface of the first bolting
20 rod (32) and abutting the other end of the second restoring spring (33).