

INTERACTIVE DOOR LOCK

1. Field of the Utility Model

The present invention relates to a door lock, and more particularly to an interactive door lock that ensures a guiding member to drive a main bolt exactly and makes the main bolt in a locking position. The guiding member is actuated by a triggered bolt, and drives the main bolt extending out of the interactive door lock. The present invention prevents the door lock from being blocked by an external force and executes a door locking exactly that gives a user security in property and life and prevents a doorplate from a forced invasion.

2. Description of the Related Art(s)

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 is connected retractably to a strike plate of a doorframe to control opening or closing of a doorplate in the doorframe. If a user wants to keep the door lock in a locking position that gives the user a security and prevents the doorplate from a forced invasion, the locking bolt must be abutted exactly to extend out of the door lock.

A conventional door lock, as disclosed in DE102006060449(A1), is a self-locking door lock that has a transmission element and a locking bolt. The transmission element has an inclined groove that is defined aslant through the transmission element. The inclined groove has an upper positioning part and a lower positioning part that are formed respectively in both ends of the inclined groove. The locking bolt has a guiding pin that is mounted through the inclined groove. When the transmission element moves upwards or downwards, the guiding pin moves inside the inclined groove. When the guiding pin is located in

the upper positioning part, the locking bolt extends out of the self-locking door lock that is in a locking position. If the guiding pin is located in the lower positioning part, the locking bolt retracts in the self-locking door lock that is in an unlocking position.

5 Another conventional door lock, as disclosed in US7431354B2, is a guiding-locking door lock that has an auxiliary bolt, a stopper, a guiding-transmission element, a locking bolt, a first spring and a second spring. The auxiliary bolt operates with the stopper to control the guiding-transmission element that has a groove and a recess. The groove of the guiding-transmission
10 element is disposed around a pin of the locking bolt. When the guiding-transmission element moves upwards or downwards, the locking bolt operates with the guiding-transmission element and keeps the guiding-locking door lock in a locking position. Specifically, the first spring delivers a force that is formed by the auxiliary bolt retracted in the guiding-locking door lock to the
15 stopper. The stopper departs from the recess of the guiding-transmission element. Then, the guiding-transmission element that is not abutted by the stopper moves downwards and drives the locking bolt to operate. The second spring that is mounted axially inside the first spring makes the auxiliary bolt return to an original position.

20 An operational transmission of the conventional door lock, US7431354B2, is executed by an axial mounting of the first spring and the second spring. However, the resilient fatigue or a reciprocal collision of the springs will make a malfunctioning stopper. Therefore, the guiding-transmission element cannot move downwards to drive the locking bolt. Besides, if the locking bolt is blocked

by an external force, for example, a friction formed between the locking bolt and a hole of the strike plate in the doorframe, the guiding-locking door lock cannot be actuated or cannot be in a locking position, causing trouble to the user.

An objective of the present invention is to provide an interactive door lock
5 that ensures a guiding member to drive a main bolt exactly and makes the main bolt in a locking position. The guiding member is actuated by a triggered bolt, and drives the main bolt to extend out of the interactive door lock. The present invention prevents the door lock from being blocked by an external force and executes a door locking position exactly that gives a user security in property and
10 life and prevents a doorplate from a forced invasion.

To achieve the foregoing objective, the interactive door 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 second torsion spring, a second positioning stub, a third positioning stub, and a
15 supporting part. The first torsion spring, the second torsion spring, the second positioning stub, the third positioning stub, and the supporting part are mounted respectively inside the lock case. The third positioning stub is disposed in alignment to the second positioning stub. The latching bolt is mounted retractably in the lock case and abuts one of two ends of the first torsion spring.
20 The triggered bolt is mounted retractably in the lock case, is disposed at an interval from the latching bolt, and has a main block, a mounting tube, a first bolting rod, and a restoring spring. One of two ends of the mounting tube abuts the main block. One of two ends of the first bolting rod is mounted firmly in the main block and is mounted through the mounting tube. The other end of the first

bolting rod is mounted through the supporting part, and has a flange that protrudes annually from an outer surface of the first bolting rod. The restoring spring is mounted around the other end of the first bolting rod. Both ends of the restoring spring abut the flange and the supporting part respectively. The

5 interactive member is mounted rotatably inside the lock case and has a rotating part that is formed in one of two side edges of the interactive member. The rotating part is abutted between the other end of the mounting tube and flange of the first bolting rod, and has an abutting stub and a third mounting hole. The abutting stub protrudes from the rotating part. The third mounting hole is defined

10 through the rotating part and is disposed around the first bolting rod of the triggered bolt. The main bolt is mounted 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 mounted movably in the lock case and has a first abutting part, a limiting groove, a driving groove, an abutting groove, and a

15 second abutting part. The first abutting part is formed in a side surface 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 limiting groove is defined longitudinally in the guiding member, is disposed around the abutting stub of the rotating part, and has a first positioning part that is defined laterally in a bottom

20 end of the limiting groove. 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 and is disposed around the driving stub of the main bolt. The abutting groove is defined in one of two side edges of the guiding member, and is capable of abutting the second positioning stub and the third 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.

5 Other objectives, advantages and novel features of the utility model 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 an interactive door lock in an unlocking position in
10 accordance with the present invention;

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

Fig. 3 is an exploded perspective view of an interactive member of the interactive door lock in Fig. 1;

15 Fig. 4 is an operational front view of the interactive member of the interactive door lock in Fig. 1;

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

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

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

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

Fig. 9 is a front view of the interactive door lock unlocking with a handle driving block in Fig. 1.

With reference to Fig. 1, an interactive door lock in accordance with the present application has a lock case 10, a latching bolt 20, a triggered bolt 30, an
 5 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 bearing 16, a first mounting hole 101, and a second mounting hole
 10 102.

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.

15 The case body 11 is a rectangular, elongated and tabular member, and further has three protruding walls 110 that are formed respectively in three of four edges of the case body 11. The first mounting hole 101 and the second mounting hole 102 are defined in the case body 11.

The first positioning stub 111, the second positioning stub 112, the third
 20 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 a side surface of the case body 11 of the lock case 10 and are spaced apart at intervals. The third positioning stub 113 is disposed in alignment with the second positioning stub 112.

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.

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

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

Specifically, the lock case 10 consists of the case body 11, a casing element (not shown in the figures) and the plate 12. The casing element (not shown) is
 10 mounted in the case body 11 and has a guiding groove (not shown) and two mounting holes (not shown) that correspond in position respectively to the guiding groove 119 of the case body 11, the first mounting hole 101, and the second mounting hole 102. The casing element (not shown) is mounted through
 by multiple screw fasteners that are mounted respectively in the first connecting
 15 stub 115, the second connecting stub 116 and the third connecting stub 117.

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
 20 stub 116 of the case body 11. One of two ends of the second torsion spring 14 abuts the first positioning stub 111.

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

The bearing 16 is mounted around the fourth positioning stub 114. An inner

surface of the bearing 16 abuts an outer surface of the fourth positioning stub 114.

With reference to Figs. 2, 4 and 5, the latching bolt 20 is mounted retractably in the lock case 10, and has a latching base 21 and two latching
5 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 stubs 211 are mounted respectively in the guiding
10 grooves 119 of the lock case 10 and are capable of moving relative to the guiding grooves 119. Specifically, the first protruding stubs 211 are formed non-symmetrically in the 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
15 of the through holes 120 of the plate 12.

With reference to Figs. 2 to 4, the triggered bolt 30 is mounted retractably in the lock case 10, is disposed at an interval from the latching bolt 20, and has a main block 31, a mounting tube 32, a first bolting rod 33 and a restoring spring 34.

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

One of two ends of the mounting tube 32 abuts the main block 31.

The first bolting rod 33 has a flange 331 that protrudes annually from an outer surface of the first bolting rod 33. One of two ends of the first bolting rod

33 is mounted firmly in the main block 31, and is mounted through the mounting tube 32. The other end of the first bolting rod 33 is mounted through the supporting part 118 of the case body 11, and is capable of moving relative to the supporting part 118.

5 The restoring spring 34 is mounted around the other end of the first bolting rod 33. Both ends of the second restoring spring 34 abut respectively the flange 331 of the first bolting rod 33 and the supporting part 118 of the case body 11.

10 With reference to Fig. 2 and 3, the interactive member 40 is mounted rotatably inside the lock case 10, and has a positioning hole 41, a rotating part 42, and a fifth positioning stub 43. Specifically, the interactive member 40 has two plates that are mounted perpendicularly to each other.

The positioning hole 41 is defined through a center of one of the plates of the interactive member 40.

15 The rotating part 42 is formed in one of two side edges of the interactive member 40, is abutted between the other end of the mounting tube 32 and the flange 331 of the first bolting rod 33, and has an abutting stub 421 and a third mounting hole 422. Specifically, the rotating part 42 is formed in the other plate of the interactive member 40.

The abutting stub 421 protrudes from the rotating part 42.

20 The third mounting hole 422 is defined through the rotating part 42 and is mounted around the first bolting rod 33 of the triggered bolt 30. Specifically, an axis of the third mounting hole 422 is perpendicular to an axis of the positioning hole 41. An inner diameter of the third mounting hole 422 is greater than an outer diameter of the first bolting rod 33.

The fifth positioning stub 43 is mounted firmly in the case body 11 of the lock case 10 and is mounted through the third mounting hole 422. Specifically, the fifth positioning stub 43 is a pivot of the interactive member 40 that rotates with the retractable triggered bolt 30.

5 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.

10 The extending part 51 protrudes from one of two ends of the main bolt 50, and has a shifting groove 511 that is defined longitudinally in the extending part 51 and is disposed around the bearing 16 of the lock case 10. An inner surface of the shifting groove 511 abuts an outer surface of the bearing 16.

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

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

The recess 61 is defined in one of two side edges of the guiding member 60.

20 The first abutting part 62 is formed in a side surface of the guiding member 60. A top end surface of the first abutting part 62 abuts the other end of the second torsion spring 14 of the lock case 10.

The limiting groove 63 is defined longitudinally in the guiding member 60, is disposed around the abutting stub 421 of the rotating part 42, and has a first positioning part 631 that is defined laterally in a bottom end of the limiting

groove 63. A width of the first positioning part 631 is greater than a width of the abutting stub 421.

The driving groove 64 is 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, is disposed around the driving stub 52 of the main bolt 50, and has two first positioning parts 641 that are respectively defined in two ends of the driving groove 64. Specifically, the driving groove 64 and a long axis of the case body 11 form an inclined angle.

The abutting groove 65 is defined in the other side edge of the guiding member 60, and is capable of abutting the second positioning stub 112 and the third positioning stub 113 of the lock case 10.

The second abutting part 66 is formed in the bottom end 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 62 and the second abutting part 66. Specifically, the driving assembly has a 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 are 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 abutting part 66 of the guiding member 60. When the lock-core driving block 70 is mounted in the interactive door 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 omitted.

With reference to Figs. 1 and 9, a handle driving block 90 is mounted
5 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 62 of the guiding member 60. When the handle driving block 90 is mounted in the interactive door 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
10 rotate. The handle driving block 90 belongs to a conventional technique, and details thereof are omitted.

With reference to Fig. 5, the interactive door 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
15 and a second bolting rod 82.

The base plate 81 is mounted movably inside the case body 11, and has a first extending stub 811, a second extending stub 812, and a third extending stub 813.

The first extending stub 811, the second extending stub 812 and the third
20 extending stub 813 protrude from a side surface of the base plate 81, and are spaced apart at intervals.

The first extending stub 811 is capable of abutting the main bolt 50, as shown in Fig. 8.

The second extending stub 812 is mounted through the other end of the

third torsion spring 15, as shown in Fig. 5.

The third extending stub 813 is capable of abutting the projections 71 of the lock-core driving block 70, as shown in Fig. 6.

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

When a doorplate that has the interactive door lock of the present invention is closed in a doorframe, the latching elements 22 and the main block 31 that abut a strike plate of the doorframe retract into the plate 12. With reference to
 10 Figs. 3 to 5, the main block 31 abuts the rotating part 42 of the interactive member 40 by the mounting tube 32. Meanwhile, because the inner diameter of the third mounting hole 422 is greater than the outer diameter of the first bolting rod 33, the rotating part 42 rotates relative to the first bolting rod 33. Then, the abutting stub 421 departs from the first positioning part 631. The abutting stub
 15 421 is located in a longitudinal part of the limiting groove 63. The second torsion spring 14 exerts a downward force on the first abutting part 62. Therefore, the guiding member 60 moves downwards. The driving groove 64 drives the driving stub 52 of the main bolt 50 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
 20 elements 22 keep extending out of the plate 12. Even though an external force is exerted on the doorplate, the latching elements 22 do not retract into the lock case 10 that keeps the latching bolt 20 and the main bolt 50 of the interactive door lock respectively in a locking position. Meanwhile, the driving stub 52 is located in the second positioning part 641, as shown in Fig. 5. The abutting

groove 65 abuts the third positioning stub 113. Thus, the main bolt 50 keeps extending out of the lock case 10, which ensures the interactive door lock of the present invention is in a locking position and does not retract in the lock case 10 to unlock. When the main block 31 abuts the strike plate of the doorframe and retracts in the lock case 10, the main block 31 overcomes a resilience of the restoring spring 34 and abuts the mounting tube 32, the interactive member 40, and the flange 331 of the first bolting rod 33 in sequence. When the doorplate is closed exactly, the latching bolt 20 extends out of the lock case 10 and extends into the strike plate of the doorframe.

Besides, after the main block 31 and the latching elements 22 are retracted into the plate 12 in the same time, 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 interactive door lock is not in the locking position. Thus, even though the main block 31 and the latching elements 22 are retracted into the plate 12 at the same time, the latching elements 22 and the main block 31 that are abutted by the restoring spring 34 must extend into the strike plate of the doorframe to make the interactive door lock 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, which is caused by an external factor. The interactive door lock is still in a first-stage-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 plate 12. Because the abutting

groove 65 is abutted by the second positioning stub 112, the main bolt 50 does not retract into the lock case 10. Thus, the interactive door lock operates in the first-stage-locking position.

The main bolt 50 is located in a moving path of the first extending stub 811,
 5 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 to abut the third extending stub 813. Then, the base plate 81 moves outwards. The second bolting rod 82 extends out of the lock
 10 case 10. Thus, the interactive door lock is in the locking position.

If the user wants to unlock the interactive door 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 groove 64 drives the driving stub 52 to move. The main bolt 50
 15 retracts into the lock case 10. Meanwhile, the main bolt 50 abuts the first extending stub 811 of the base plate 81, and the auxiliary bolt 80 is also unlocking.

If the user inside the room encounters an emergency, such as a fire accident, or must be evacuated, the user may operate the handle to open the door. The
 20 handle driving block 90 is rotated, and the lever 91 abuts the first abutting part 62, as shown in Fig. 9. Then, the guiding member 60 moves upwards. Therefore, the main bolt 50 and the auxiliary bolt 80 are unlocking at the same time.

In the present invention, the interactive member 40 that makes the triggered bolt 30 driving the guiding member 60 eliminates a malfunctioning transmission

of the door lock. Meanwhile, the second positioning stub 112 of the door lock 10 prevents the main bolt 50 from unlocking that is caused by the external force or the friction formed between the main bolt 50 and the hole of the strike plate.

Besides, the auxiliary bolt 80 that is operated with the main bolt 50 brings the
5 present invention multiple locking functions, giving the user more security.

CLAIMS

1. An interactive door 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 second positioning stub (112) mounted inside the lock case (10);

a third positioning stub (113) mounted inside the lock case (10) and
disposed in alignment with the second positioning stub (112); and

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

10 a latching bolt (20) mounted retractably in the lock case (10) and abutting
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 main block (31);

15 a mounting tube (32), one of two ends of the mounting tube (32)
abutting the main block (31);

a first bolting rod (33), one of two ends of the first bolting rod (33)
mounted firmly in the main block (31) and through the mounting tube (32), the
other end of the first bolting rod (33) mounted through the supporting part (118)
20 of the lock case (10) and having a flange (331) protruding annually from an outer
surface of the first bolting rod (33); and

a restoring spring (34) mounted around the other end of the first bolting
rod (33), both ends of the restoring spring (34) abutting the flange (331) and the
supporting part (118) respectively;

an interactive member (40) mounted rotatably inside the lock case (10) and having a rotating part (42) formed in one of two side edges of the interactive member (40), abutted between the other end of the mounting tube (32) and the flange (331) of the first bolting rod (33), and having

5 an abutting stub (421) protruding from the rotating part (42); and
 a third mounting hole (422) defined through the rotating part (42) and disposed around the first bolting rod (33) of the triggered bolt (30);

 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
 10 the main bolt (50);

 a guiding member (60) mounted movably in the lock case (10) and having
 a first abutting part (62) formed in a side surface of the guiding member (60), a top end surface of the first abutting part (62) abutting one of two ends of the second torsion spring (14) of the lock case (10);

15 a limiting groove (63) defined longitudinally in the guiding member (60), disposed around the abutting stub (421) of the rotating part (42), and having
 a first positioning part (631) defined laterally in a bottom end of the limiting groove (63);

 a driving groove (64) defined aslant in the guiding member (60) from a
 20 bottom end of the guiding member (60) towards a top end of the guiding member (60) and disposed around the driving stub (52) of the main bolt (50);

 an abutting groove (65) defined in one of two side edges of the guiding member (60), and being capable of abutting the second positioning stub (112) and the third positioning stub (113) of the lock case (10); and

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 being capable of abutting a bottom end surface of the first abutting part (62) and the second
5 abutting part (66).

2. The interactive door 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); and

10 a second mounting hole (102) defined in the case body (11) and disposed at an interval from the first mounting hole (101), wherein a long axis of the case body (11) and the driving groove (64) of the guiding member (60) form an inclined angle, and the first torsion spring (13), the second torsion spring (14), the second positioning stub (112), the third positioning stub (113) and the
15 supporting part (118) are mounted in a side surface of the case body (11); and 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),
20 spaced apart at an interval, and being capable of abutting the second abutting part (66) of the guiding member (60); 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 (62) of the guiding member (60).

3. The interactive door lock as claimed in claim 2, wherein
the lock case (10) further has

a third torsion spring (15); and

a third connecting stub (117) mounted in the side surface of the case

5 body (11) and mounted through one of two ends of the third torsion spring (15);

and

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

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

10 having

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

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

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

20 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 interactive door lock as claimed in claim 3, wherein
the lock case (10) further has

a plate (12) having multiple through holes defined through the plate
(12), spaced apart at intervals, and receiving respectively the latching bolt (20),
5 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

a bearing (16);

the case body (11) is a rectangular, elongated and tabular member, one of
10 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
edges of the case body (11), one of the protruding walls (110) abutting the other
end of the first torsion spring (13);

15 a first connecting stub (115) mounted in the side surface of the case
body (11) and mounted through the first torsion spring (13);

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) mounted in the side surface of the case
20 body (11) and mounted through the second torsion spring (14); and

a fourth positioning stub (114) mounted in the side surface of the case
body (11) and mounted through the bearing (16), wherein an inner surface of the
bearing (16) 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) and disposed around the bearing (16) of the lock case (10), wherein an inner surface of the shifting groove (511) abuts an outer surface of the bearing (16), and the driving stub (52) is mounted in the
5 extending part (51).

5. The interactive door lock as claimed in claim 4, wherein
the lock case (10) has two guiding grooves (119) defined laterally in the lock case (10); and
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
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).

6. The interactive door lock as claimed in claim 5, wherein the supporting part (118) of the lock case (10) has a mounting groove defined in a central part of
20 the supporting part (118) and mounted in the first bolting rod (33) of the triggered bolt (30).

7. The interactive door lock as claimed in claim 6, wherein the interactive member (40) has two plates mounted perpendicularly to each other and further has

a positioning hole (41) defined through a center of one of the plates of the interactive member (40), wherein the rotating part (42) is formed in the other plate of the interactive member (40), and an axis of the positioning hole (41) is perpendicular to an axis of the third mounting hole (422); and

a fifth positioning stub (43) mounted firmly in the lock case (10) and mounted through the third mounting hole (422).

10

8. The interactive door lock as claimed in claim 7, wherein the driving groove (64) of the guiding member (60) and a long axis of the lock case (10) form an inclined angle, and the driving groove (64) has two first positioning parts (631) defined respectively in two ends of the driving groove (64); and

15 the driving stub (52) of the main bolt (50) is capable of mounting in the first positioning parts (631).

9. The interactive door lock as claimed in claim 1, wherein the driving groove (64) of the guiding member (60) and a long axis of the lock case (10) form an inclined angle, and the driving groove (64) has two first positioning parts (631) defined respectively in two ends of the driving groove (64); and

20 the driving stub (52) of the main bolt (50) is capable of mounting in the first positioning parts (631).

10. The interactive door lock as claimed in claim 1, wherein
the lock case (10) has two guiding grooves (119) defined laterally in the
lock case (10); and
the latching bolt (20) has

5 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
10 ends of the latching base (21), and retractably mounted in the lock case (10).

11. The interactive door 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 mounted in the first bolting rod (33)
15 of the triggered bolt (30).

12. The interactive door lock as claimed in claim 11, wherein the
interactive member (40) has two plates mounted perpendicularly to each other
and further has

20 a positioning hole (41) defined through a center of one of the plates of
the interactive member (40), wherein the rotating part (42) is formed in the other
plate of the interactive member (40), and an axis of the positioning hole (41) is
perpendicular to an axis of the third mounting hole (422); and

a fifth positioning stub (43) mounted firmly in the lock case (10) and

mounted through the third mounting hole (422).

13. The interactive door lock as claimed in claim 12, wherein the driving groove (64) of the guiding member (60) and a long axis of the lock case (10) form an inclined angle, and the driving groove (64) has two first positioning parts (631) defined respectively in two ends of the driving groove (64); and the driving stub (52) of the main bolt (50) is capable of mounting in the first positioning parts (631).

14. The interactive door lock as claimed in claim 2, wherein the driving groove (64) of the guiding member (60) and a long axis of the lock case (10) form an inclined angle, and the driving groove (64) has two first positioning parts (631) defined respectively in two ends of the driving groove (64); and the driving stub (52) of the main bolt (50) is capable of mounting in the first positioning parts (631).

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

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

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).

16. The interactive door lock as claimed in claim 15, wherein the
5 supporting part (118) of the lock case (10) has a mounting groove defined in a central part of the supporting part (118) and mounted in the first bolting rod (33) of the triggered bolt (30).

17. The interactive door lock as claimed in claim 16, wherein the
10 interactive member (40) has two plates mounted perpendicularly to each other and further has

a positioning hole (41) defined through a center of one of the plates of the interactive member (40), wherein the rotating part (42) is formed in the other plate of the interactive member (40), and an axis of the positioning hole (41) is
15 perpendicular to an axis of the third mounting hole (422); and

a fifth positioning stub (43) mounted firmly in the lock case (10) and mounted through the third mounting hole (422).

18. The interactive door lock as claimed in claim 17, wherein the driving
20 groove (64) of the guiding member (60) and a long axis of the lock case (10) form an inclined angle, and the driving groove (64) has two first positioning parts (631) defined respectively in two ends of the driving groove (64); and

the driving stub (52) of the main bolt (50) is capable of mounting in the first positioning parts (631).

19. The interactive door lock as claimed in claim 3, wherein the driving groove (64) of the guiding member (60) and a long axis of the lock case (10) form an inclined angle, and the driving groove (64) has two first positioning parts (631) defined respectively in two ends of the driving groove (64); and
5 the driving stub (52) of the main bolt (50) is capable of mounting in the first positioning parts (631).

20. The interactive door lock as claimed in claim 3, wherein
10 the lock case (10) has two guiding grooves (119) defined laterally in the lock case (10); and
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
15 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).

20 21. The interactive door lock as claimed in claim 20, 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 mounted in the first bolting rod (33) of the triggered bolt (30).

22. The interactive door lock as claimed in claim 21, wherein the interactive member (40) has two plates mounted perpendicularly to each other and further has

5 a positioning hole (41) defined through a center of one of the plates of the interactive member (40), wherein the rotating part (42) is formed in the other plate of the interactive member (40), and an axis of the positioning hole (41) is perpendicular to an axis of the third mounting hole (422); and

a fifth positioning stub (43) mounted firmly in the lock case (10) and mounted through the third mounting hole (422).

10

23. The interactive door lock as claimed in claim 22, wherein the driving groove (64) of the guiding member (60) and a long axis of the lock case (10) form an inclined angle, and the driving groove (64) has two first positioning parts (631) defined respectively in two ends of the driving groove (64); and

15 the driving stub (52) of the main bolt (50) is capable of mounting in the first positioning parts (631).

24. The interactive door lock as claimed in claim 4, wherein the driving groove (64) of the guiding member (60) and a long axis of the lock case (10) form an inclined angle, and the driving groove (64) has two first positioning parts (631) defined respectively in two ends of the driving groove (64); and

20

the driving stub (52) of the main bolt (50) is capable of mounting in the first positioning parts (631).