

DESCRIPTION

LOCKING STRUCTURE FOR COVER COVERING HANDLE SEAT

Technical Field

[0001]

The present invention relates to a locking structure for a cover covering a disk-shaped handle seat mounted on an inner side surface and an outer side surface of a door for supporting a square core provided with a handle, e.g., a lever handle or a door knob, at an end for actuating a latch lock attached to the door.

Background Art

[0002]

Conventionally, a disk-shaped handle seat mounted on an inner side surface and an outer side surface of a door for supporting a square core provided at an end with a handle, e.g., a lever handle or a door knob, for actuating a latch lock attached to the door is used. This handle seat is often fixed to a lock main body attached to a door by a bolt or the like. Therefore, such a bolt is exposed on the surface, and moreover a hub or the like for holding the square core to which the handle is fixed is also exposed. Therefore, after the door is attached, a cover is placed to cover the front surface and the outer circumferential surface to improve the external aesthetic

appearance. In particular, recently, a cover has been one of the very important components. For example, a cover and a handle are designed to be integrated to fit to a door or the like.

[0003]

Incidentally, needless to say, the cover for covering the handle seat requires easy attachment and easy removal for repair or replacement of a lock or the like. In addition, for example, beauty of aesthetic appearance is required as described above. Therefore, as presented, for example, in JP Utility Model Registration No. 3096257 and JP 2002-120796 A, generally, an engagement protrusion is used for fixation such that, for example, a protrusion provided on the inner side surface of the cover is locked to a recess or a step portion provided on the outer surface of the handle seat or a protrusion provided on the cover is engaged on an annular step portion provided on a rear surface edge of the handle seat.

[0004]

Furthermore, such covers are often rotated in the circumferential direction with the covers once being placed in a predetermined circumferential position of the handle seat to engage the protrusion on the recess or the step portion of the handle seat, and is rotated in the opposite direction to cancel the engagement such that, as described

above, engagement is easily made during attachment and is easily canceled during repair or replacement. In addition, because a tool is not used for forcible cancellation for removal, there is no concern that deformation or damage occurs during attachment and detachment.

[0005]

However, there is a problem that, because of the necessity of enabling easy engagement and disengagement as described above, a locked state is loosely formed, resulting in rotation of the cover in use followed by removal of the cover. In particular, when the cover for covering the handle seat also serves to retain the handle, there is also a problem that the cover is likely to rotate when the handle is operated and the rotation causes the handle to be removed.

Citation List

Patent Literature

[0006]

Patent Literature 1: JP 3096257 U

Patent Literature 2: JP 2002-120796 A

Summary of Invention

Technical Problem

[0007]

The present invention is made to overcome the aforementioned problems, and it is an object of the present invention to provide a locking structure for a cover covering a handle seat in which, needless to say, in the case of covering and in the case of removal as in the case of the conventional cover, a locking means between the handle seat and the cover is easily engaged and disengaged, and in the case of being placed, the locked state is reliably held and the cover is not removed.

Solution to Problem

[0008]

The present invention made to overcome the aforementioned problems is a locking structure for a cover placed to cover a front surface and a circumferential surface of a disk-shaped handle seat mounted opposite an inner side surface and an outer side surface of a door for supporting a square core equipped with a handle for actuating a latch mechanism arranged within a door, the locking structure including: a cover locking means including a plurality of protrusion-shaped cover-side locking portion protruding inward at circumferential intervals at an opening end edge of the cover, and a handle seat-side locking portion formed of a groove portion extending from a front surface to a rear surface through

which the cover-side locking portion formed on the cover can be inserted when the cover is placed and a hooking groove portion formed from the front surface to the rear surface of the handle seat continuously in a rotation direction of the groove portion, to which the cover is hooked when the cover-side locking portion formed on the cover is inserted when the cover placed is rotated; and a rotation prevention means including a latch arranged to be movable back and forth and biased in a direction of an end along an axis from a center to an outer circumferential surface of the handle seat at a position of the groove portion forming the handle seat-side locking portion and having, at an end, an engagement portion projecting and retracting with respect to a bottom surface of the groove portion such that, when the locking means is in a hooked state, the engagement portion is protruded to the groove portion and contacts the cover-side locking portion erected on the cover.

[0009]

In addition, according to the present invention, when an inset hole for a tool for retracting the latch into the handle seat is formed in a position where an inner surface of a body portion of the cover contacts the latch, a rotation prevention state between the handle seat and the cover can very easily be canceled.

[0010]

In particular, the latch formed on the handle seat is arranged to face downward and the inset hole for the tool is not exposed to the outer surface, which does not impair external aesthetic appearance.

[0011]

Additionally, the present invention is particularly effective when the cover also serves to retain the handle.

Advantageous Effects of Invention

[0012]

According to the present invention, needless to say, the locking means between the handle seat and the cover can easily be engaged and disengaged in the case of covering and in the case of removal as in the case of the conventional cover, and the locked state is reliably held and the cover is not removed when placed, and in particular it is very effective when being used for a handle seat of a type in which the cover for covering the handle seat also serves to retain the handle, the cover being easily rotated when the handle is operated.

Brief Description of Drawings

[0013]

Fig. 1 is a schematic cross-sectional view

indicating a preferred embodiment of the present invention.

Fig. 2 is a perspective view viewed from a lower side of the embodiment illustrated in Fig. 1.

Fig. 3 is an exploded perspective view of a handle seat of the embodiment illustrated in Fig. 1.

Fig. 4 is a transverse cross-sectional view of the embodiment illustrated in Fig. 1.

Fig. 5 is an explanatory view indicating a state of use of the embodiment illustrated in Fig. 1.

Description of Embodiments

[0014]

A preferred embodiment of the present invention is described below in detail with reference to the drawings.

[0015]

Fig. 1 is an exploded perspective view indicating a state in which, for example, a preferred embodiment of the present invention is used, for example, in a door 2 for indoors in which a latch mechanism 1, which is a box-shaped latch lock on which a latch bolt 11 is arranged to be projectable and retractable, is embedded in an attachment groove 22 formed on an edge 21. Handle seats 3A, 3B used in the present inventions are respectively arranged on an inner side surface 23 and an outer side surface 24 of the door 2 opposite each other and are mounted in the same

manner as the conventional handle seat by bolts 51, 51 and threaded cylinders 52, 52 through through-holes 25, 25 formed through the door 2. Covers 4A, 4B having a thin, bottomed cylindrical shape having a U-shape in cross-section are placed on the handle seats 3A, 3B, respectively.

[0016]

In particular, in the present embodiment, a square core 6 for actuating the latch mechanism 1 is formed of two halved square core members 6A, 6B. In addition, handles 7A, 7B having a lever shape equipped at ends of the square core members 6A, 6B are held. This configuration differs from a conventional type (not illustrated) in which handles are equipped at both ends of a single square core.

[0017]

In greater details, the handle seats 3A (3B) of the present embodiment have a mutually symmetrical structure and have a bottomed cylindrical shape generally showing a thin shape, and accommodate a handle seat main body 31 formed with through-holes 32, 32 for the bolts 51, 51 (or the threaded cylinders 52, 52) illustrated in Fig. 1 for attachment to the door 2, and, in the handle seat main body 31, a hub 33 rotatably accommodated and formed, at a center, with an insertion hole for the square core members 6A (6B), and a return spring 34 for rotating the hub 33 in an actuation direction and a reverse direction.

[0018]

On an outer circumferential surface 35 of the handle seat main body 31, at four points - upper and lower and right and left - orthogonal each other, four handle seat-side locking portions 8a, 8b, 8c, 8d having an arc-shaped grooves on which the cover 4A(4B) is hooked are formed opposite the cover-side locking portions 9a, 9b, 9c, 9d. The cover-side locking portions 9a, 9b, 9c, 9d having a protruding shape in which an end surface protruding inward at predetermined intervals in a circumferential direction at an opening end edge 41 of the cover 4A(4B) at four points - upper and lower and right and left orthogonal each other has an arch with a predetermined width is hooked.

[0019]

Each handle seat-side locking portion 8a, 8b, 8c, 8d formed on the outer circumferential surface 35 of the handle seat 3A (3B) is formed of a groove portion 38 extending from a front surface 36 to a rear surface 37 through which each cover-side locking portion 9a, 9b, 9c, 9d formed on the cover 4A (4B) can be inserted when the cover 4A (4B) is placed on the handle seat 3A (3B), and a hooking groove portion 39 contiguously formed in a rotation direction of the groove portion 38 from the front surface 36 to the rear surface 37 of the handle seat and to which each cover-side locking portion 9a, 9b, 9c, 9d formed on

the cover 4A (4B) is inserted when the placed cover is rotated so that the cover 4A (4B) is hooked. In the drawings, reference numeral 40 indicates a lid plate for covering an opening of the handle seat main body 31.

[0020]

In addition, in the present embodiment, a rotation prevention means 10 formed of a latch arranged be movable back and forth along an axis d toward the outer circumferential surface 35 from a center in a position of the groove portion 38 forming the locking portion 8 formed on a lower side of the handle seat of the handle seat main body 31 and is biased in a direction of an end by a coil spring 101, and has, at an end, an engagement portion 102 for projecting and retracting with respect to a bottom surface of the groove portion 38 is arranged on the groove portion 38.

[0021]

Furthermore, in the present embodiment, a shaft member 71 to which the handle 7A (7B) is fit at a proximal end is inserted through a through-hole 42 formed through the cover 4A(4B) and is rotatably and fixedly secured by a retainer ring 43, and a proximal end of the square core member 6A(6B) is non-rotatably inserted and supported via a coil spring 73 in a square hole 72 formed at an end of the shaft member 71.

[0022]

In the present embodiment having the aforementioned configuration, the covers 4A(4B) equipped with the handles 7A(7B) and the square core members 6A(6B) are placed and hooked on the handle seat 3A(3B) arranged on the inner side surface 23 and the outer side surface 24 of the door 2 as illustrated in Fig. 1.

[0023]

The present embodiment is used, for example, for a door of a hotel. The hub 12 of the latch mechanism 1 is divided in a hub casing 13 into two: an indoor hub member 12A to which the square core member 6A on the indoor side is inserted and an outdoor hub member 12B to which the square core member 6B on the outdoor side is inserted. The hub member 12A is rotatably arranged in the hub casing 13 as with a usual hub and is engaged on the latch bolt 11. The handle 7A having a lever shape equipped at an end of the square core 6A on the indoor side is rotated to project or retract the latch bolt 11 to perform locking and unlocking. Meanwhile, the hub member 12B is fixed to the hub casing 13. The handle 7B having a lever shape equipped at an end of the square core 6B on the outdoor side cannot be rotated. In this structure, unlocking cannot be made from the outdoor side.

[0024]

Next, the operation of the present embodiment in use is described with reference to Fig. 5.

[0025]

Fig. 5(a) illustrates a state in which the cover 4A(4B) is placed on the handle seat 3A(3B) arranged on the door 2 illustrated in Fig. 1. When the cover 4A(4B) is placed, each cover-side locking portion 9a, 9b, 9c, 9d formed on the cover 4A(4B) is inserted to the groove portion 38 of each handle seat-side locking portion 8a, 8b, 8c, 8d formed on the handle seat 3A(3B), the handle seat-side locking portions 8a, 8b, 8c, 8d being arranged in corresponding positions.

[0026]

At this time, the engagement portion 102 formed at an end of the rotation prevention means 10 formed of a latch arranged in a position of the groove portion 38 of the handle seat-side locking portion 8b on a lower side of the handle seat 3A (3B) is pressed by the cover-side locking portion 9b of the cover 4A (4B) and is retracted to the bottom surface of the groove portion 38 such that the cover-side locking portion 9b is fit to the groove portion 38 without interference.

[0027]

In particular, in the present embodiment, the square core member 6A(6B) and the handle 7A(7B) are preliminarily

equipped on the cover 4A(4B). Therefore, simply when the cover 4A (4B) is placed and hooked on the handle seat 3A(3B), the square core member 6A(6B) is inserted to the hub 33 arranged on the handle seat 3A(3B) and the latch mechanism 1 set on the door 2 illustrated in Fig. 1, and furthermore there is no need of subsequent effort of fixedly securing the handle 7A(7B).

[0028]

In the present embodiment, a lower end 103 of the engagement portion 102 formed at an end of the rotation prevention means 10 at an end surface on the inset side of the cover 4A(4B) is formed in a chamfered shape. Therefore, simply when the cover 4A(4B) is placed on the handle seat 3A(3B), regarding the engagement portion 102 formed at an end of the rotation prevention means 10 protruding to the groove portion 38, regarding the cover-side locking portion 9b, the engagement portion 102 of the rotation prevention means 10 protruding to the bottom surface of the groove portion 38 is naturally pressed in a direction of the proximal end along the chamber and is brought into state of being retracted from the groove portion 38, and the cover-side locking portion 9b is fit to the groove portion 38. For prevention, the engagement portion 102 is preliminarily pressed by a finger or a tool so as to be brought into a state of being retracted from the groove portion 38, and

the cover-side locking portion 9b is inserted to the groove portion 38.

[0029]

Then, as illustrated in Fig. 5(b), when the cover 4A(4B) placed on the handle seat 3A(3B) is rotated in a locking direction, each cover-side locking portion 9a, 9b, 9c, 9d is shifted to a hooking groove portion 39, which is contiguous to the groove portion 38, from the groove portion 38 forming each handle seat-side locking portion 8a, 8b, 8c, 8d, and when further rotated, as illustrated in Fig. 5(c), each cover-side locking portion 9a, 9b, 9c, 9d is inserted to the hooking groove portion 39 such that the locking means formed of the cover-side locking portions 9a, 9b, 9c, 9d and the handle seat-side locking portions 8a, 8b, 8c, 8d is brought into a hooked state. In particular, the cover-side locking portion 9b is shifted to the hooking groove portion 39 and releases the groove portion 38. Therefore, the engagement portion 102 of the rotation preventive means retracted into the groove portion 38 by the cover-side locking portion 9b is protruded to the groove portion 38, and contacts the cover-side locking portion 9b shifted to the hooking groove portion 39 to prevent rotation of the cover 4A(4B). Therefore, the cover 3A(3B) placed on the handle seat 4A(4B) will not be removed.

[0030]

In addition, in the present embodiment, in a position where an inner surface of an outer circumference of the cover 4A (4B) contacts the engagement portion 102 of the rotation prevention means 10, an inset hole 105 for a tool 104 having a small rod shape for retracting the engagement portion 102 into the handle seat (4B) is formed. [0031]

Therefore, for cancellation between the respective cover-side locking portions 9a, 9b, 9c, 9d and the respective handle seat-side locking portions 8a, 8b, 8c, 8d, an end of the tool 104 inset into the inset hole 105 presses the engagement portion 102 of the rotation prevention means 10 against the biasing force of the coil spring 101 in a direction of the bottom surface of the groove portion 38 such that the contact state of the engagement portion 102 with respect to the cover-side locking portion 9b is canceled to allow for rotation of the cover 4A(4B) in an anti-hooking direction. The cover 4A(4B) can very easily be removed when removed in a state where the respective cover-side locking portions 9a, 9b, 9c, 9d are inserted to the groove portions 38 of the corresponding respective handle seat-side locking portions 8a, 8b, 8c, 8d as illustrated in Fig. 5(a). Therefore, repair or replacement of components or the like also can be made very easily.

[0032]

In particular, in the present embodiment, the respective cover-side locking portions 9a, 9b, 9c, 9d having a protruding shape in which the end surface inwardly protruding on four points - upper and lower and right and left - orthogonal to each other at predetermined intervals in the circumference direction at the opening end edge 41 of the cover 4A(4B) and having an arc with a predetermined width are arranged at constant intervals. However, for example, only the cover-side locking portion 9d is formed long, and only the handle seat-side locking portion 8d of the handle seat-side locking portions 8a, 8b, 8c, 8d formed opposite the cover-side locking portion 9d is also formed long corresponding to the cover-side locking portion 9d. The locking position in the rotation direction of the cover 4A(4B) is restricted. Therefore, in the present embodiment, the rotation prevention means 10 is invariably arranged on a lower side. The inset hole 105 for the tool 104 having a small rod shape for retracting the engagement portion 102 formed on the cover 4A(4B) into the handle seat (4B) is positioned at a lower hidden part such that there is no need to worry about impairment of aesthetic appearance.

[0033]

In the present embodiment, the respective cover-side locking portions 9a, 9b, 9c, 9d and the respective handle

seat-side locking portions 8a, 8b, 8c, 8d may be arranged at uniform intervals such that a uniform, stable locked state can be formed over the entire circumference. However, the respective cover-side locking portions 9a, 9b, 9c, 9d and the respective handle seat-side locking portions 8a, 8b, 8c, 8d, which are locked to each other, may be mutually positioned not at uniform intervals (not illustrated).

[0034]

As described heretofore, according to the present embodiment, not only mounting can be made easily and quickly, but also removal can be made easily. There is no need to worry about deformation of or damage to the cover 4A(4B) during attachment and detachment.

[0035]

In the present embodiment, the hub 12 is divided in the hub casing 13 into two: the hub member 12A on the indoor side to which the square core member 6A on the indoor side is inserted and the hub member 12B on the outdoor side to which the square core member 6B on the outdoor side is inserted. Furthermore, the hub member 12B on the outdoor side is fixed to the hub casing 13. Thus, the operation of the handle 7B from the outdoor side is restricted. However, when the hub member 12B is configured to have the same structure as the hub member 12A on the indoor side, a configuration enabling locking and unlocking

from indoor and outdoor sides can be made so as to be used for various purposes.

[0036]

In addition, in the present embodiment, the cover 4A(4B) preliminarily including the handle 7A(7B) is indicated. However, needless to say, the present embodiment may be carried out similarly with respect to a different type of handle seat including the conventional handle seat in which handles are fixedly secured to both ends of a square core subsequently inserted into the conventional handle seat.

Reference Signs List

[0037]

1	latch mechanism
2	door
3A	handle seat
3B	handle seat
4A	cover
4B	cover
6	square core
6A	square core member
6B	square core member
7A	handle
7B	handle

8a, 8b, 8c, 8d	handle seat-side locking portion
9a, 9b, 9c, 9d	cover-side locking portion
10	rotation prevention means
11	latch bolt
12	hub
12A	hub member
12B	hub member
13	hub casing
21	edge
22	attachment groove
23	inner side surface
24	outer side surface
31	handle seat main body
32	through-hole
33	hub
34	return spring
35	outer circumferential surface
36	front surface
37	rear surface
38	groove portion
39	hooking groove portion
40	lid plate
41	opening end edge
42	through-hole
43	retainer ring

51	bolt
52	threaded cylinder
71	shaft member
72	square hole
73	coil spring
101	coil spring
102	engagement portion
103	lower end
104	tool
105	inset hole
331	hub casing
d	axis

CLAIMS

1. A locking structure for a cover covering a handle seat, the cover being placed to cover a front surface and a circumferential surface of a disk-shaped handle seat mounted opposite an inner side surface and an outer side surface of a door for supporting a square core equipped with a handle for actuating a latch mechanism arranged within the door, the locking structure comprising:

a cover locking means including a plurality of protrusion-shaped cover-side locking portions protruding inward at circumferential intervals at an opening end edge of the cover, and a handle seat-side locking portion formed of a groove portion extending from a front surface to a rear surface through which the cover-side locking portion formed on the cover can be inserted when the cover is placed and a hooking groove portion formed from a front surface to a rear surface of the handle seat continuously in a rotation direction of the groove portion, to which the cover is hooked when the cover-side locking portion formed on the cover is inserted when the cover placed is rotated; and

a rotation prevention means including a latch arranged to be movable back and forth and biased in a direction of an end along an axis from a center to an outer circumferential surface of the handle seat at a position of

the groove portion forming the handle seat-side locking portion and having, at an end, an engagement portion projecting and retracting with respect to a bottom surface of the groove portion such that, when the locking means is in a hooked state, the engagement portion is protruded to the groove portion and contacts the cover-side locking portion erected on the cover.

2. The locking structure for a cover covering a handle seat according to claim 1, wherein, in a position where an inner surface of a body portion of the cover contacts the engagement portion of the rotation prevention means, an inset hole for a tool for retracting the engagement portion into the handle seat is formed.

3. The locking structure for a cover covering a handle seat according to claim 1 or 2, wherein the rotation prevention means arranged on the handle seat is arranged at a lower position.

4. The locking structure for a cover covering a handle seat according to claim 1, 2 or 3, wherein the cover also serves to retain the handle.