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LOCK DEVICE

BACKGROUND OF THE INVENTION

The present invention relates to an improved lock device.

Figs. 1 to 4 show a conventional insertion latch-type hanging lock which is composed of a main lock body A and a subsidiary lock body B integrally fixedly connected with each other. The main lock body A has an outward extending projecting post C which is inserted into a connecting hole B2 of the subsidiary lock body B. Two screws H1, H2 are screwed into a through thread hole B1 of the subsidiary lock body B and fixed in a notch C1 of the projecting post C of the main lock body A. Such design has some shortcomings as follows:

1. The pulling/fastening force for mating the main lock body A and the subsidiary lock body B with each other is limited.
2. It is complicated and time-consuming to assemble the screws H1, H2 for generating the pulling/fastening force.
3. Only a small section of front end of the screw H1 is inserted and fixed in the notch C of the projecting post C so that the connecting strength is weaker and loosening is very likely to take place later.
4. The bottom of the lock body is formed with a through thread hole K for a screw L to screw therein and

tighten on the door column M1 of an iron door M. Therefore, the fixing force is weak and the lock body tends to loosen from the door column M1.

5. After assembled, the screw L for fixing the lock body on the door column is positioned on outer side of the door and thus can be easily detached. Also, this leads to a poor appearance.
6. The through thread hole B1 in which the two screws H1, H2 are screwed communicate with the top section of the subsidiary lock body B. This destroys the integrality of the lock body and leads to poor appearance.

In order to solve the above problems, the applicant has filed Singapore Patent Application No. 200001266-6, entitled " improved lock (2) ". Now the applicant further improves relevant structure of Singapore Patent Application No. 200001266-6 (referred to as original design hereinbelow) and files this additional design. The main portions should be improved are:

1. In the original design, the thread hole 32 for connecting the main lock body 2 with the subsidiary lock body 3 is still exposed at the top section of the subsidiary lock body 3. Therefore, the structure as a whole and the appearance should be improved.
2. The lock body of the original design lacks design for fixing the lock body on the door column 41 of the iron door 4.

3. Corresponding to the design of the thread hole 32, the insertion latch 1 of the original design must be processed with a through hole 14. Therefore, the processing operation is complicated.

SUMMARY OF THE INVENTION

It is therefore a primary object of the present invention to provide an improved lock device in which the structure for connecting the main and subsidiary lock bodies is simplified so as to lower the processing and manufacturing cost.

It is a further object of the present invention to provide the above improved lock device in which the problem of exposure of the thread hole 32 of the original design is eliminated.

It is still a further object of the present invention to provide the above improved lock device in which the processing procedure for forming a through hole 14 on the insertion latch is eliminated.

It is still a further object of the present invention to provide the above improved lock device in which by means of the thread hole and the screw screwed therein, the lock device is firmly fixed on the door column 41. The thread hole and the screw are positioned on an indoor side of the lock device. Therefore, it is difficult to detach the lock device outdoors and a better fixing effect is achieved and the appearance is improved.

The present invention can be best understood through the following description and accompanying drawings wherein:

BRIEF DESCRIPTION OF THE DRAWINGS

Fig. 1 is a perspective view showing the application of a conventional hanging lock;

Fig. 2 is a perspective view of the conventional hanging lock;

Fig. 3 is a top view of the conventional hanging lock, showing the use thereof;

Fig. 4 is a sectional view of the conventional hanging lock;

Fig. 5 is a perspective view showing the application of the lock device of the present invention;

Fig. 6 is a perspective view of the lock device of the present invention;

Fig. 7 is a top view of the lock device of the present invention, showing the use thereof;

Fig. 8 is a sectional view of the lock device of the present invention;

Fig. 9 is a front view of the lock device of the present invention;

Fig. 10 is a top view of the lock device of the present invention according to Fig. 9;

Fig. 11 is a sectional view taken along line a-a of Fig. 10;

Fig. 12 is a view according to Fig. 11, showing an unlocked state of the lock device;

Fig. 13 is a sectional view taken along line b-b of Fig. 9;

Fig. 14 shows the lock device of the present invention with the door unlocked; and

Fig. 15 shows the lock device of the present invention with the door locked.

DETAILED DESCRIPTION OF THE PREFERRED EMBODIMENT

Please refer to Figs. 5 to 15. The entire lock device of the present invention is fixed on the door column 41 of the iron door 4. Two sides of the latch hole 21 of the main lock body 2 for the insertion latch 1 are formed with through thread holes 24 for screws to screw therein so as to fix the lock device on the door column 41.

The insertion latch 1 is inserted into the latch hole 21 of the main lock body 2. The through thread holes 24 do not communicate with the latch hole 21. A projecting post 23 protrudes from one side of the main lock body 2. The projecting post 23 is formed with a through hole 231.

The subsidiary lock body 3 is formed with an insertion hole 31 for the projecting post 23 of the main lock body 2 to insert therinto. An assembling cavity 34 is perpendicularly disposed in the insertion hole 31. The assembling cavity 34 has large diameter upper section and small diameter lower section.

The bottom end of the assembling cavity 34 communicates with the insertion hole 31. The top end of the assembling cavity 34 communicates with a thread hole 36. A fastening pin 35 is vertically movably disposed in the assembling cavity 34. A fastening screw 37 is disposed in the thread hole 36. A spring 38 is fitted around the fastening pin 35. The top end of the fastening pin 35 is formed with a slope face 351 corresponding to the fastening screw 37. The bottom end of the fastening pin 35 is also formed with a slope face 352 corresponding to through hole 231 of the projecting post 23 inserted in the insertion hole 31. A locating pin 341 is disposed on one side of upper section of the assembling cavity 34. The locating pin 341 projects into the cavity, serving as an upper dead end of the fastening pin 35. When the fastening pin 35 is positioned at the upper dead end, the bottom end of the fastening pin 35 does not protrude into the insertion hole 31. When the fastening screw 37 is screwed inward, the fastening pin 35 is pushed to move downward so as to connect and lock the main lock body 2 with the subsidiary lock body 3.

The present invention has the following advantages:

1. The thread hole for connecting the main lock body with the subsidiary lock body is not exposed to outer side (as shown in Fig. 11).
 2. The insertion latch is free from the through hole so that the cost for processing is saved.
 3. The entire lock device is fixed on the door column of the iron door at an indoor side of the lock device.
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Therefore, it is difficult to detach the lock device outdoors. As a result, a better fixing effect is achieved and the appearance is improved.

4. The processing operation is simplified so that the manufacturing cost is lowered.
5. The entire structure of the lock device is more perfectly designed.
6. The shortcomings of the conventional design are eliminated.

The above embodiment is only used to illustrate the present invention, not intended to limit the scope thereof. Many modifications of the above embodiment can be made without departing from the spirit of the present invention.



WHAT IS CLAIMED IS:

1. Lock device comprising a lock body composed of a main lock body and a subsidiary lock body connected with each other and an insertion latch, the lock device being characterized in that:

two sides of a latch hole of the main lock body for the insertion latch to insert therinto are formed with through thread holes which do not communicate with the latch hole; and the subsidiary lock body is formed with an insertion hole for a projecting post of the main lock body to insert therinto, an assembling cavity being perpendicularly disposed in the insertion hole, a bottom end of the assembling cavity communicating with the insertion hole, a top end of the assembling cavity communicating with a thread hole, a fastening pin being vertically movably disposed in the assembling cavity, a fastening screw being disposed in the thread hole, whereby when the fastening screw is screwed inward, the fastening pin is forced to move downward so as to connect and lock the main lock body with the subsidiary lock body.

2. Lock device as claimed in claim 1, wherein the assembling cavity has a large diameter upper section and a small diameter lower section.
3. Lock device as claimed in claim 1, wherein a spring is fitted around the fastening pin disposed in the assembling cavity, each of a top and a bottom ends of the fastening pin being



formed with a slope face.

4. Lock device as claimed in claim 1, wherein a locating pin is disposed on one side of upper section of the assembling cavity, the locating pin projecting into the cavity, serving as an upper dead end of the fastening pin.