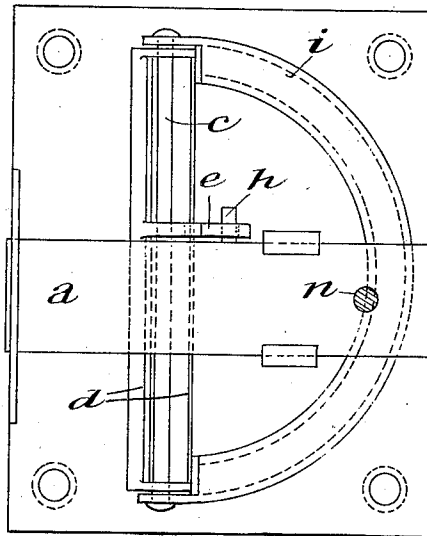


<sup>o</sup> APPLICATION FILED SEPT. 3, 1908.

Patented Jan. 14, 1913.

*Fig. 1*



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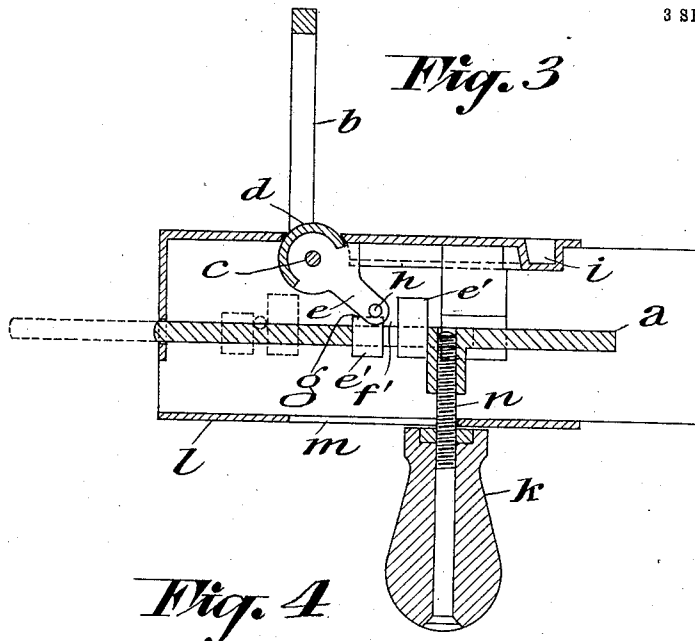
C. A. F. EHRNER & P. G. H. HALLONGREN.,  
LOCK.

APPLICATION FILED SEPT. 3, 1908.

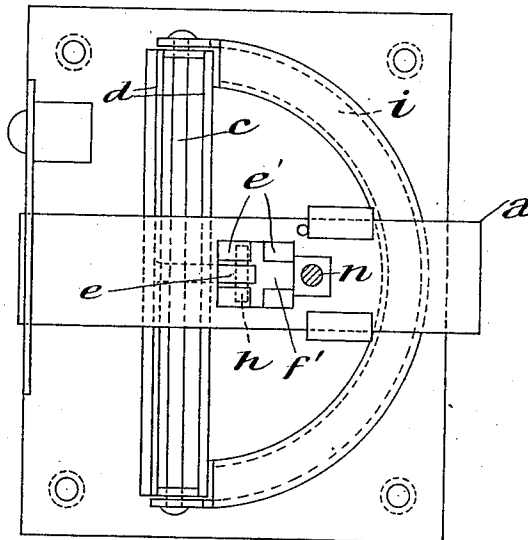
1,050,631.

Patented Jan. 14, 1913.

3 SHEETS—SHEET 2.



*Fig. 4*



*Witnesses*

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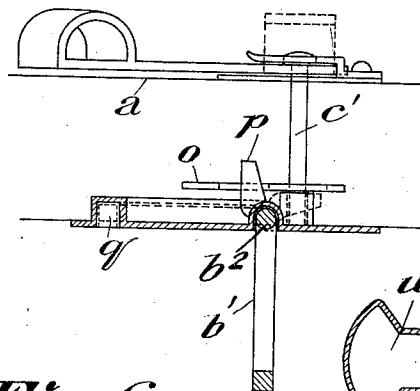
APPLICATION FILED SEPT. 3, 1908.

1,050,631.

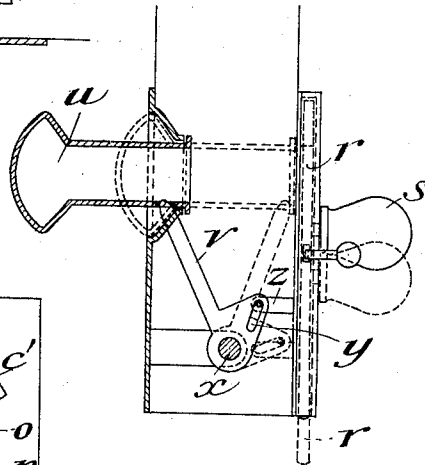
Patented Jan. 14, 1913.

3 SHEETS—SHEET 3.

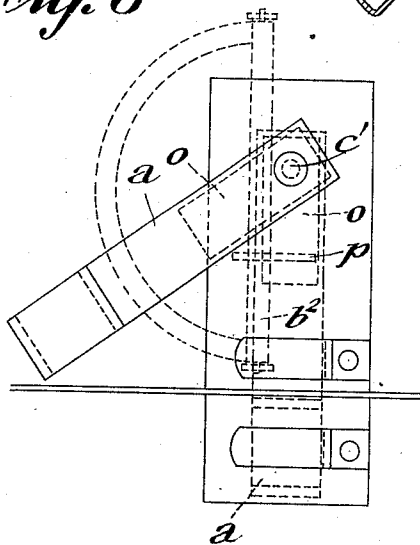
*Fig. 5*



*Fig. 7*



*Fig. 6*



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# UNITED STATES PATENT OFFICE.

CARL AXEL FREDRIK EHRNER, OF STOCKHOLM, AND PER GEORG HALVAR HALLONGREN, OF ELFSJÖ, NEAR STOCKHOLM, SWEDEN.

## LOCK.

1,050,631.

Specification of Letters Patent.

Patented Jan. 14, 1913.

Application filed September 3, 1908. Serial No. 451,592.

*To all whom it may concern:*

Be it known that we, CARL AXEL FREDRIK EHRNER, a subject of the King of Sweden, and resident of Frejgatan 46<sup>B</sup>, Stockholm, Sweden, and PER GEORG HALVAR HALLONGREN, a subject of the King of Sweden, and resident of Elfsjö, near Stockholm, Sweden, have invented certain new and useful Improvements in Locks, of which the following is a specification, reference being had therein to the accompanying drawings.

The present invention has for its object an improved lock which is principally characterized by the fact that the lock bolt or other locking device on the inner side of the door is connected with the handle on the outside of the same in the manner that when the bolt is acted upon for bolting the door the handle on the outside of the same will either be brought down into a groove in the door, respectively in a plate on the door, or in some other way be removed so that it cannot be caught when the door is bolted.

Another feature of our invention consists in arrangements whereby the handle is locked in its out-standing position when the door is unbolted.

Another feature of our invention consists in arrangements whereby the handle is locked in its removed position when the door is bolted.

Another feature of our invention consists in the arrangement of means that result in lost motion in the connection between the handle and bolt or other locking device.

The present lock is especially adapted to be applied in connection with doors of such rooms on which it is desirable to indicate at some distance that they are occupied, such as for instance closets, compartments of bathing houses, railway wagons, steamers and the like. Thus, when the handle is in its out-standing position it is a sign, that the room or compartment is unoccupied, but when the handle is in its removed position it is a sign that the room is occupied. The different positions of the handle can, as stated above, be observed at a distance.

The accompanying drawings illustrate some forms of embodiment of the invention.

Figures 1 and 3 are horizontal sections through two different forms of the lock. Figs. 2 and 4 respectively show side views of the said forms. Figs. 5 and 6 show a form of a lock where the bolt is turnable.

Fig. 7 shows a lock where the handle is drawn into the door when the latter is bolted.

In Figs. 1 and 2 *a* is the bolt, *b* is the handle, *c* is the pivot of the latter, *d* is a cylindrical part attached to the handle and *e* is a nose or projection connected with the said part. In the nose there is a hole or track *f* comprising an oblong part and a wider part at the free end of the nose. In the wider part of the hole there are two straight or plain surfaces *g* and *g*<sup>1</sup> so arranged that the former *g* is parallel with the bolt when the handle is in its out-standing position the latter *g*<sup>1</sup> being parallel with the bolt when the handle is in its removed position. *h* is a pin projecting from the bolt. *i* is the groove in the plate *j* on the outside of the door, in which the handle will be folded when removed. *k* is a knob by means of which the bolt is operated. On the inside of the door there is a plate *l* provided with a slit *m* for the screw *n* carrying the knob *k*.

The function of the above described lock is the following: When the room or compartment is unoccupied the different parts are in the positions indicated on Fig. 1. Thereby the pin *h* rests on the plain surface *g* thereby locking the handle in its out-standing position so that it cannot be folded down. Now, if the door is to be bolted by a person who is in the room or compartment the bolt, by means of the knob, is slid to the position indicated by dotted lines in Fig. 1. On account of the fact that there is a lost motion in the connection between the bolt and the handle the bolt moves to begin with without acting upon the handle; thereafter the pin *h* will act upon the opposite surface of the track *f* thereby causing the handle to be folded down so that it is finally introduced into the groove *i*. The different parts of the lock thereby occupy the positions indicated by dotted lines in Fig. 1. The pin hereby rests on the plain surface *g*<sup>1</sup> thereby locking the handle in its folded down position, and thereby preventing the opening of the handle by the introduction of a sharp tool or the like between the handle and the side wall of the groove.

By providing for lost motion in the connection between the bolt and the handle the following is attained: If for instance, the bolt has not been slid to the end of its path

and, consequently, the handle has not come down into the groove *i* the same can be folded up to its extreme out-standing position from the outside of the door, whereby the bolt is simultaneously brought to the right. Hereby the pin will, however, be in contact with the left side of the track even after the handle has come to its extreme out-standing position. The door, however, cannot be opened unless the pin is in contact with the right side of the track (surface *g*), but as the bolt can be slid over to this position only by means of the knob *k*, it will be impossible to open the door from without, even if the handle by a mistake has not come down into the groove *i*.

In the form of embodiment shown in Figs. 3 and 4 the pin *h* is attached to the projecting part *e*, the track *f* being arranged in a part *e*<sup>1</sup>, projecting from the bolt. The surface *g* for locking the handle in the out-standing position is in this case the end surface of the projection *e*<sup>1</sup>.

Figs. 5 and 6 show another form of the lock in which the bolt *a* can be turned on the pivot *c*<sup>1</sup>. With the said pivot is connected a bar *o* or similar device which, on turning the pivot *c*<sup>1</sup>, acts upon a projection *p* connected with the shaft *b*<sup>2</sup> of the handle *b*<sup>1</sup>. When the door is to be bolted and the bolt is thereby moved from the position in Fig. 5 to that indicated by dotted lines in the same figure the bar *o* will act upon the projection *p* so that the handle is folded down and forced into the groove *y*.

In Fig. 7 *r* is the bolt, *s* is the knob by which the bolt can be operated, and *u* is the handle, which is arranged in such a manner that it is drawn into a hole in the door when the door is bolted. This position is indicated by dotted lines in Fig. 7. The handle *u* is connected with a lever *v*, which is pivotally mounted on a pivot *x*. This lever is connected with the bolt in such a manner that a pin which is attached to a bar *z* enters a groove *y* in a part projecting from a lever *v*.

It is to be understood that the construction of the several parts can be varied in many respects without going out of the limits of the present invention.

Having now described our invention what we claim as new and desire to secure by Letters Patent is:

1. A device of the character described comprising a bolt, a handle mounted for rotary movement having a projection thereon, means on the bolt positioned to contact with the projection on the handle to impart movement to the handle when the bolt is moved, the contact of the projection on the handle with the means on the bolt holding the handle against movement when the bolt is at the limit of its movement in either direction.

2. A device of the character described comprising a bolt, a handle mounted for rotary movement having a projection thereon and means on the bolt positioned to contact with the projection on the handle to impart movement to the handle when the bolt is moved, said bolt having movement independent of the handle before the means on the bolt contacts with the projection on the handle.

3. A device of the character described comprising a bolt capable of reciprocal movement, a handle capable of rotative movement having a projection thereon, and means on the bolt positioned to contact with the projection on the handle to impart such rotative movement to the handle when the bolt is moved, said bolt having movement independent of the handle before the means on the bolt contacts with the projection on the handle.

In testimony whereof we have signed our names hereunto in the presence of two subscribing witnesses.

CARL AXEL FREDRIK EHRNER.  
PER GEORG HALVAR HALLONGREN.

Witnesses:

HJALMAR ZETTERSTRÖM,  
ELVA ROSEN.