April 8, 1930. C. W. PEELLE 1,753,664

CENTER LOCK FOR COUNTERBALANCED ELEVATOR DOORS

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Fig. 1.

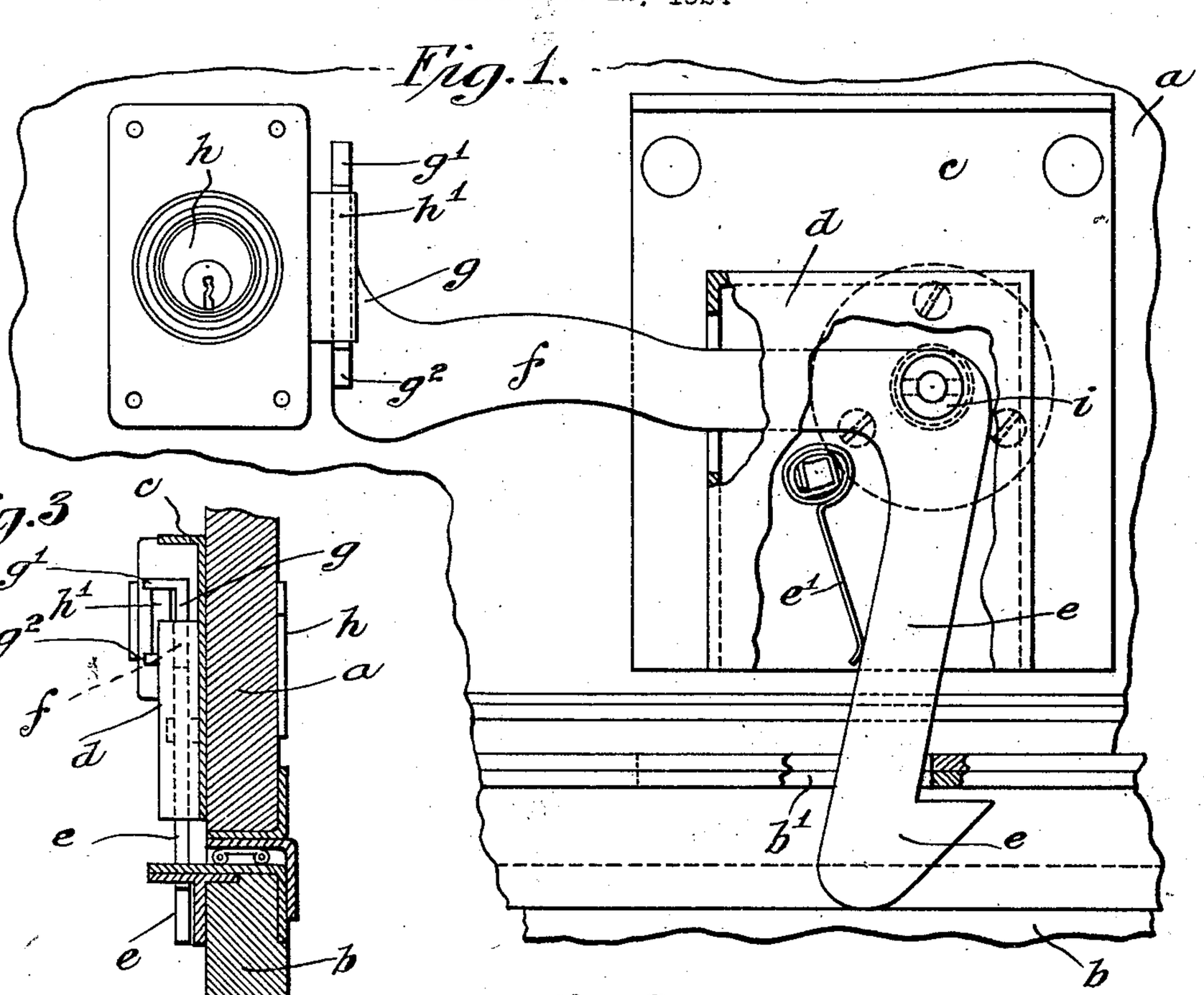
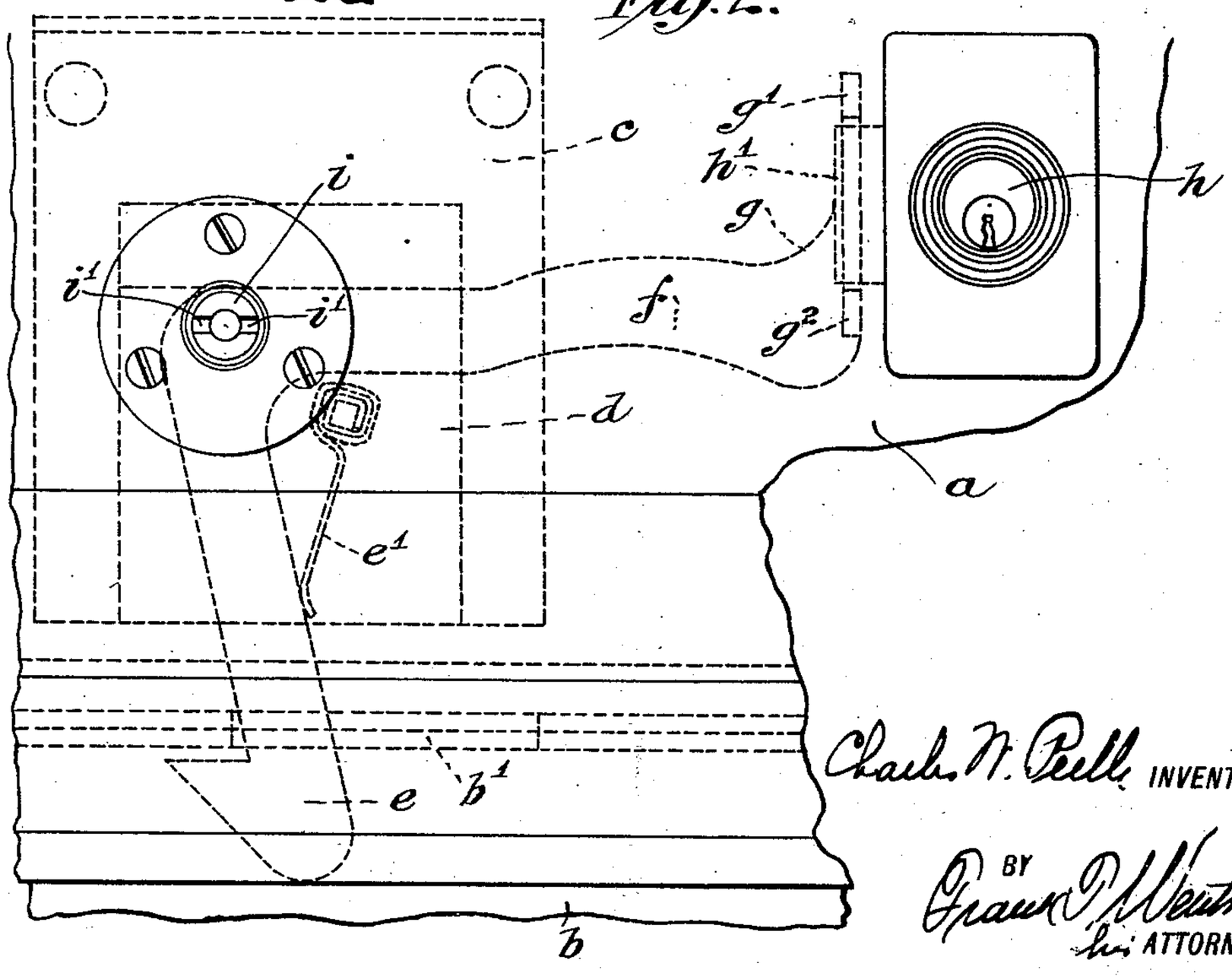


Fig. 3

Fig. 2.



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UNITED STATES PATENT OFFICE

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CENTER LOCK FOR COUNTERBALANCED ELEVATOR DOORS

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My invention relates to center locks for counterbalanced elevator doors, and more particularly to a lock of this type which, during such times as it is desired to permit free access to a floor in a building from the elevator car, may be manually released upon opening a door, and which will automatically latch when closing a door, but which may be positively locked so as to prevent the opening of the door except by a person provided with a key to release the latch member and thus prevent the unauthorized opening of the doors.

At the present time, different floors of large loft buildings, or warehouses, are commonly occupied by different manufacturing, or merchandising, concerns, access being had to the various floors by the same elevator or elevators. Such elevators are ordinarily of the freight carrying type, and are also commonly used to carry passengers, particularly when a concern has offices upon the same floor where it produces or stores its merchandise. Such elevators are sometimes operated by regular attendants, while at other times they are operated by workmen who chance to be engaged at the moment in moving mechandise from one floor of a building to another. In such buildings the door opening communicates directly with the manufacturing or storage floor space, the elevator door itself being used as the sole protection against intruders and the sole guard against thefts of materials of a bulk to require the use of the elevator for their removal from a floor. During the working hours, the likelihood of such intrusion, or such theft, is minimized because of the presence of workers in the factory or storage place, but at night time, or after working hours, with locks now commonly used, anybody may gain ready access to a floor of the building from the elevator car. Hence, during such hours, when anybody may have access to any loft of the building, the theft of merchandise is not difficult.

With the above conditions in mind, I have provided a lock mechanism employing a pivoted latch member which ordinarily is mounted upon the upper section of the counterbalanced door structure, and engages a keeper plate upon the lower door section, this latch member having associated therewith, and being so constructed as to be engaged by, the bolt of a key controlled lock mechanism, so that when the latch member is engaged with the keeper it may be positively held against such movement as will permit the separation of the two door sections, and when the bolt is withdrawn, will permit the actuation of this latch member and of the doors in the usual manner. The key controlled lock mechanism is, like the latch, preferably mounted upon the lower door section, and if so desired, a type of tumbler mechanism may be used which may be key actuated from either the floor, or the shaft, side of the door.

In addition to the key controlled dead, or night, lock construction in combination with the pivoted latch, I so construct said latch member that, if desired, when the dead or night lock is released, the latch may be actuated to permit the opening of the door from the floor side, the construction being such however, that this cannot be done except by a person having a special key for the purpose. This additional means by which the latch may be actuated, is provided for the purpose of permitting the testing of the latch in conjunction with the use of the night or dead lock, and also to permit access to the shaft as an emergency measure as in the event of fire, or to permit a watchman to pass from floor to floor of the building by means of the elevator car.

The invention consists primarily in a center lock for counterbalanced elevator doors embodying therein the combination with a pair of oppositely and vertically movable door sections, of a manually operative latch member pivotally mounted upon the shaft side of one of said sections, a keeper carried by the other section in operative relation to said latch member, co-operating members one of which is carried by said latch member and the other of which is mounted upon the door section carrying said latch member, whereby said latch member when it is engaged with said keeper may be positively held against movement from either side of the door, and

key controlled means whereby said co-operating members may be disengaged one from the other to permit the free engagement or disengagement of said latch member and said keeper; and in such other novel features of construction and combination of parts as are hereinafter set forth and described, and more particularly pointed out in the claims hereto appended.

Referring to the drawings,

Fig. 1 is a fragmentary view of adjacent portions of two sections of a counterbalanced elevator door from the shaft side thereof, said sections having combined therewith a center lock mechanism embodying my invention;

Fig. 2 is a similar view from the floor side of the elevator door; and

Fig. 3 is a vertical section of the adjacent portion of the door sections, and the locking mechanism upon a reduced scale.

Like letters refer to like parts throughout the several views.

In the embodiment of my invention shown in the drawings, *a* indicates the upper section of a counterbalanced elevator door of the usual and well known construction, and *b* the lower section of said door. These sections *a* and *b* are mounted to have simultaneous movement in opposite directions in the same vertical plane.

The type of door shown in the drawings is of the metal sheathed, wood panelled type, and the detailed construction of these door sections and the manner of mounting them form no part of my present invention, as such is old and well known in this art.

It is also an old practice with such doors to provide a pivoted latch member usually carried by the upper door section, passing through a keeper formed by the top bar of the lower door section, and so constructed that when the doors approach the meeting point of the two door sections as they are closed, the latch member will be actuated to lock the door sections in this position. The meeting point of the two door sections is usually about halfway of the height of the door opening, the latch member being positioned adjacent the lower bar of the frame of the upper door section. The latch member is positioned upon the shaft side of the door so as to be accessible only from the elevator car.

While this type of door has been extensively used, the latch mechanism has heretofore afforded a safeguard merely to the extent of limiting the opening of the door from the shaft side, this lock serving as a safeguard against accidents as a result of doors being opened from the floor side.

By my present invention, I provide a latch mechanism having the characteristics above referred to, supplemented by a construction and a co-operating mechanism by which the latch member may be maintained in the locked position. For securing the desired result, I provide the door section *a* with a housing plate *c* carrying a housing *d* in which is pivotally mounted a hooked latch member *e* adapted to pass through an opening *b'* in the top bar of the lower door section *b*, and engage beneath this top bar to lock the sections *a* and *b* in relation to each other. The latch member *e* is acted upon by a spring *e'*.

Carried by or formed integrally with the latch member *e* is an actuating or controlling arm *f* having a keeper *g* provided with spaced arms *g'* and g^2 adapted to receive the bolt of a supplemental lock mechanism by which the arm *f* and latch member *e* may be locked against movement or permitted to have free movement, according to whether it be desired to permit the opening of the doors even from the shaft side thereof. The keeper arms g'—g^2 project at an angle from the arm *f*, as shown more particularly in Fig. 3 of the drawings.

Carried by the door section *a* is a lock mechanism *h* which may be of any desired tumbler construction, although an ordinary paracentric lock is illustrated in the drawings. This lock may have either a single or a double cylinder construction so as to permit it to be key actuated from either or both the shaft and the floor side of the door. The bolt *h'* of this lock is adapted to pass between and into engaging relation with the keeper arms *g'* and g^2 when it is projected, and to be withdrawn out of such engaging relation with said keeper arms when it is desired to permit the free operation of the latch member *e*. The bolt *h'* is of a dead, or night, lock construction, and the lock mechanism *h* is spaced away from the end of the arm *f* sufficiently to avoid interference with said arm as it is oscillating in engaging or disengaging the latch member *e* from its keeper *b'*.

The latch member *e* and the arm *f* carried thereby and extending substantially at right angles thereto, are carried by a spindle *i* having diametrically opposite openings *i'* therein to receive a spanner key. These openings *i'* being upon the floor side of the door, as shown more particularly in Fig. 2, so that a person entrusted with this key, and with the key of the lock mechanism *h* may not only disengage the bolt *h'* from the arms *g'* and g^2 of the keeper *g*, but may also disengage the latch member from its keeper *b'* from the floor side of the door. This provision of the key-actuated latch member will also permit the testing of the lock *h* from the floor side of the door.

It will be observed that when the bolt *h'* is projected into engaging relation with the arms g'—g^2 of the keeper *g*, the release of the latch member *e* to permit the opening of the doors or their movement in opposite directions, one away from the other, is prevented

except by a person having a key which will actuate the lock *h*. Hence with the construction described, when the occupant of a loft desires to prevent the unauthorized entrance to his premises, it is merely necessary for him to move the bolt *h'* by its key-controlled mechanism into engaging relation with the arms *g'*—*g*² of the keeper *g* after the doors have been properly closed and latched.

By the construction described, if the latch key is not properly engaged with its keeper *b'*, the lock *h* cannot be actuated since one of the arms as *g*² will be in the path of movement of the bolt *h'*.

When the parts are in the position shown in Figs. 1 and 2, the doors cannot be opened by anyone not having the key for the lock *h*, except by the breakage of said lock, even though an elevator car may be at the landing protected by the door. As a consequence, it is possible, with the use of a locking mechanism as herein described, for an occupant of one floor or loft in a large building to prevent access to said floor by means of the elevator, except during such hours as he may desire.

The employment of a lock embodying the invention makes thefts from unoccupied lofts difficult, since even with the connivance of an elevator operator, or by the improper use of an elevator, access cannot be had from the elevator shaft to a loft, the doors of which are equipped with said lock, thus preventing the movement of merchandise in bulk from the floor to the car. Of course, as with all locks, entrance may be had by the use of force, but nevertheless the use of a lock as herein described will be an added safeguard.

When the loft is occupied and it is desired to permit free access thereto, the lock *h* is actuated to disengage the bolt *h'* from the keeper *g*, thus permitting the latch member to be actuated from the elevator car.

It is not my intention to limit the invention to the precise arrangement of parts shown in the drawings, the invention being illustrated as applied to a common arrangement of latch member which, however, may be changed to met different conditions of use, and changes in the details of construction of the elevator door sections.

Having described the invention, what I claim as new and desire to have protected by Letters Patent, is:—

1. A center lock for counterbalanced elevator doors embodying therein the combination with a pair of oppositely and vertically movable door sections, of a manually operative latch member pivotally mounted upon the shaft side of one of said sections, an arm carried by, and extending at an angle to, said latch member, a keeper upon said arm having spaced keeper arms projecting at an angle to said arm, and a key controlled lock having a bolt adapted to pass between said keeper arms to prevent movement of said latch member when it is engaged with its co-operating keeper, or to be withdrawn from between said arms to permit the engagement of said latch member with, or its disengagement from, its co-operating keeper.

2. A center lock for counterbalanced elevator doors embodying therein the combination with a pair of oppositely and vertically movable door sections, of a manually operative latch member, an arm carried by, and extending at an angle to, said latch member, a spindle carrying said latch member and said arm, whereby they are pivotally mounted upon the shaft side of a door section, said spindle projecting through said door section, the portion thereof exposed upon the floor side of said section, having diametrically opposite recesses therein adapted to receive a spanner key, to permit the actuation of the latch member from the floor of a building, a keeper upon said arm, and a key controlled lock having a bolt adapted to engage the keeper upon said arm to prevent movement of said latch member when it is engaged with its co-operating keeper, or to be disengaged from said keeper to permit the engagement of said latch member with, or its disengagement from, its co-operating keeper.

3. A center lock for counterbalanced elevator doors embodying therein the combination with a pair of oppositely and vertically movable door sections, of a manually operative latch member, an arm carried by, and extending at an angle to, said latch member, a spindle carrying said latch member and said arm, whereby they are pivotally mounted upon the shaft side of a door section, said spindle projecting through said door section, the portion thereof exposed upon the floor side of said section, having diametrically opposite recesses therein adapted to receive a spanner key, to permit the actuation of the latch member from the floor of a building, a keeper upon said arm having spaced keeper arms projecting at an angle to said arm, and a key controlled lock having a bolt adapted to pass between said keeper arms to prevent movement of said latch member when it is engaged with its co-operating keeper, or to be withdrawn from between said arms to permit the engagement of said latch member with, or its disengagement from, its co-operating keeper.

In witness whereof I have hereunto affixed my signature, this 4th day of December, 1924.

CHARLES W. PEELLE.