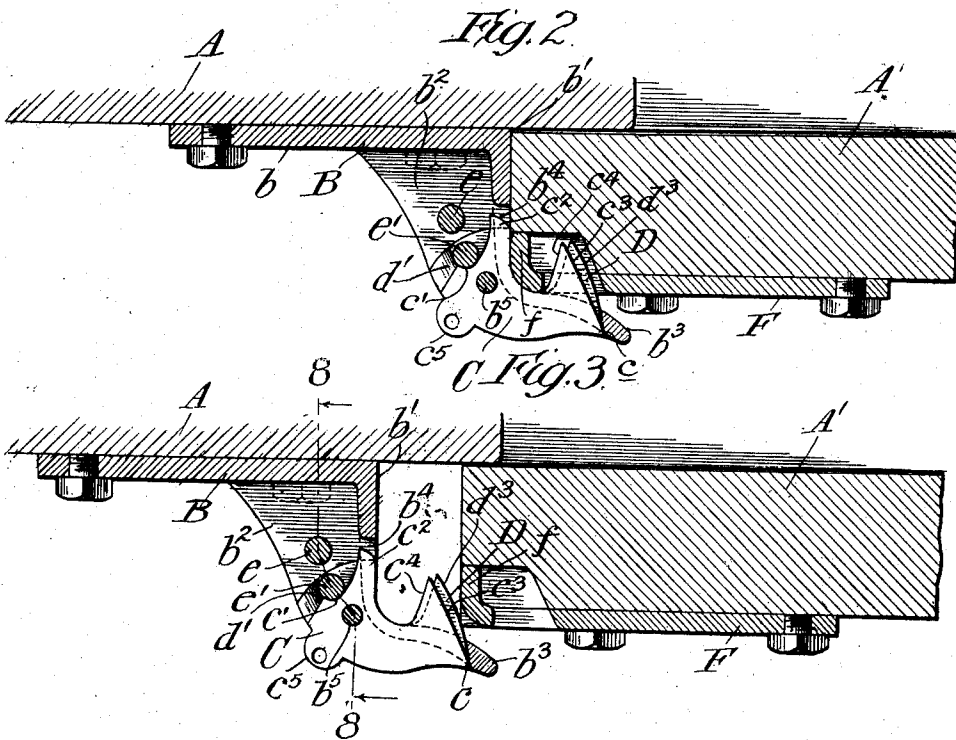
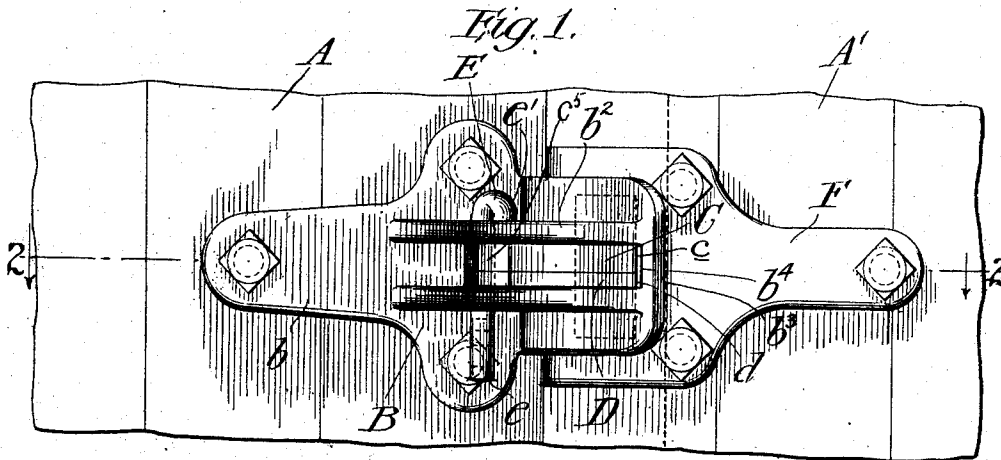


C. EYTALIS.
DOOR FASTENER.
APPLICATION FILED FEB. 15, 1908.

971,498.

Patented Sept. 27, 1910.

3 SHEETS—SHEET 1.



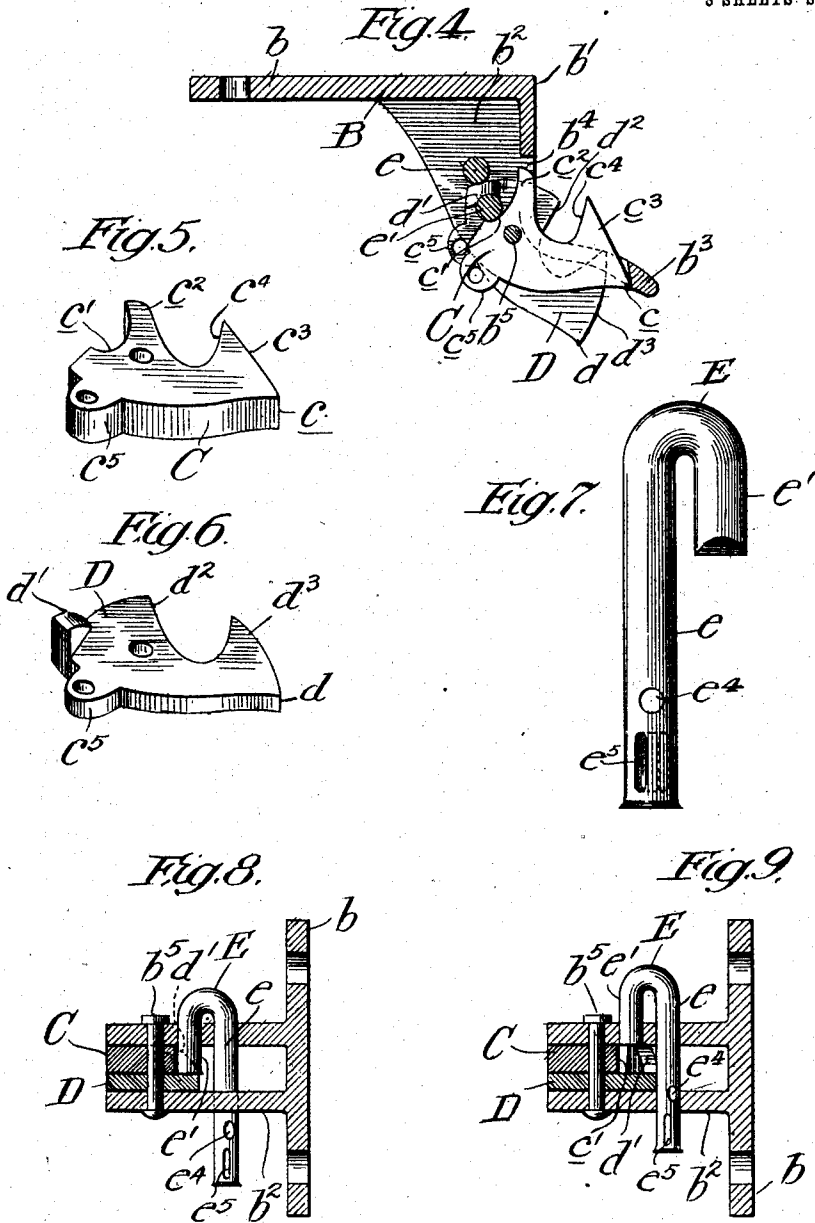
Witnesses
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R. A. White.

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3 SHEETS-SHEET 2.



Witnesses
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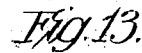
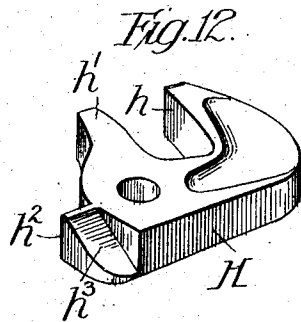
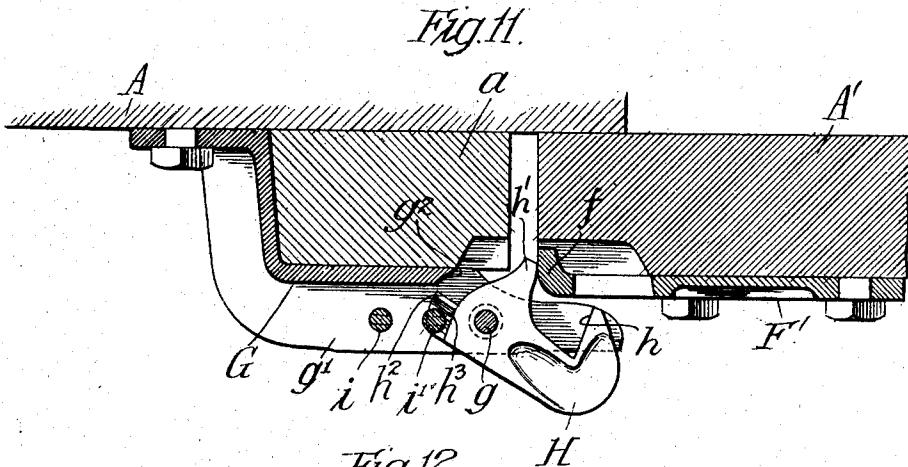
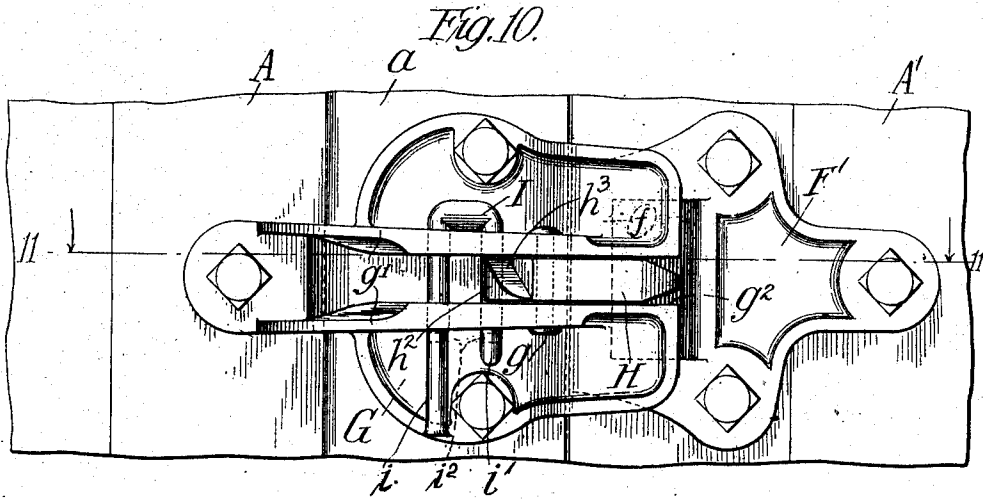
Inventor
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3 SHEETS—SHEET 3.



Witnesses
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UNITED STATES PATENT OFFICE.

CHARLES EYTALIS, OF CHICAGO, ILLINOIS, ASSIGNOR OF ONE-SIXTH TO EUGENE BAREN, ONE-SIXTH TO ROBERT WEINBERG, AND ONE-SIXTH TO JOSEPH BUTKUS, OF CHICAGO, ILLINOIS.

DOOR-FASTENER.

971,498.

Specification of Letters Patent. Patented Sept. 27, 1910.

Application filed February 15, 1908. Serial No. 415,994.

To all whom it may concern:

Be it known that I, CHARLES EYTALIS, a subject of the Czar of Russia, and residing at Chicago, in the county of Cook and State of Illinois, have invented a new and useful Improvement in Door-Fasteners, of which the following is a complete specification.

Heretofore locks have been employed for sliding doors or windows in which the locking member or latch hook is thrown to locking position by the closing of the door or window, but in those constructions in which the locking member is itself locked against movement when in its closed or locking position, if it should be carelessly or otherwise thrown to locking position while the door or window is open, it must be manually released before the door or window can be closed.

The object of this invention is to provide a lock or latch for sliding doors or windows in which the locking member, if open, is adapted to be thrown to locking position by the closing of the door, and if closed or in locking position, to be automatically thrown out of such position by the closing of the door and then thrown into locking position as the door reaches its limit of movement.

It is also an object of the invention to provide a lock in which the locking member is secured in locking position by a movable bolt or other suitable member which may be manually operated to release the locking member, and which is also provided with means for automatically operating it by the closing of the door.

A further object of the invention is to provide a device in which the latch hook is normally held in open position by the weight of the locking bolt, and which cannot be turned to locking position until sufficient power is applied to it to overcome the weight of the bolt.

The invention consists of the matters hereinafter described in the specification and more fully pointed out and defined in the appended claims.

In the drawings: Figure 1 is a front elevation of a lock embodying my invention. Fig. 2 is a section taken on line 2—2 of Fig. 1. Fig. 3 is a similar section but showing the door open. Fig. 4 is a horizontal section showing the latch hook in locking position and the bolt actuator retracted, with the

bolt in released position. Fig. 5 is a perspective view of the locking hook. Fig. 6 is a perspective view of the bolt actuator. Fig. 7 is a perspective view of the locking bolt. Fig. 8 is a section taken on line 8—8 of Fig. 3. Fig. 9 is a section similar to that of Fig. 8 but showing the catch and actuator open and the bolt retracted to released position. Fig. 10 is a front elevation of a modified form of the device. Fig. 11 is a section taken on line 11—11 of Fig. 10, but showing the latch hook in open position. Fig. 12 is a perspective view of the latch hook shown in Fig. 10. Fig. 13 is a fragmentary side elevation of the bolt.

As shown in said drawings: A indicates the wall of a car or other structure on which the lock is to be used and A' indicates a sliding door. Rigidly engaged on the side of the car is the latch hook supporting member or bracket B, which, as shown, comprises an attaching plate *b*, having its inner end *b'* a short distance from the door opening, and against which the forward edge of the door abuts when closed. An arm *b*² extends from the end *b'* of said plate to a point approximately flush with the door opening, as shown more clearly in Figs. 2 and 3, and is curved outwardly a sufficient distance from the wall to permit the edge of the door to pass between the same and the wall. The outer end *b*³ of said arm is also curved outwardly to form a deflector or guide adapted to force the door against the wall when being closed. Said arm is provided with a rearwardly opening recess which opens at the front of the arm through a longitudinal slot *b*⁴ and in which are pivotally engaged, on a pivot pin *b*⁵, the latch hook C and the bolt actuator D. Said hook and actuator extend forwardly a sufficient distance so that when in closed position, as shown in Figs. 1 to 3 inclusive, their forward ends *c* and *d* abut against the forward end of the slot and prevent further inward movement. The rear end of the actuator is curved and is provided on its upper face with an incline or cam *d'* which extends upwardly and rearwardly to the outer edge of the actuator.

The locking bolt E comprises a rod or bar bent to form a long and a short leg indicated by *e* and *e'*, and the former of which extends downwardly through a suitable aperture in the arm *b*² at the rear of the

actuator and latch hook, as shown more clearly in Figs. 2 and 3. The short leg e' of said bolt extends downwardly into the recess in the arm b^2 and rests upon the rear end of the actuator D, at the forward end of the cam d' , when the actuator is in closed position, as shown in Figs. 2 and 3. A notch c' is provided in the rear end of the latch hook C into which the lower end of the leg e' projects when the hook is in closed position. When the forward end of the actuator is forced outwardly, as shown in Figs. 4 and 9, the cam d' is forced beneath the leg e' and raises the same sufficiently to withdraw it from the notch and to permit the rear end of the hook to pass beneath it when the hook is thrown to open position. The inner edges c^2 and d^2 of the rear end of said hook and actuator are flush with the corresponding face or edge of the arm b^2 when said hook and actuator are in their closed positions, as shown in Figs. 2 and 3, but when open said edges project forwardly from the arm into position to be contacted by the door when the latter is being closed. The forward end of the actuator D is provided with a cam surface d^3 , which, when the actuator is in closed position, projects from the inner face of said arm into the path of the door, and the hook C is likewise provided with a cam c^3 , which does not extend forwardly as far as the cam d^3 but extends inwardly into the path of the door and at the rear of which is a hook c^4 adapted to hold the door in closed position. Rigidly engaged on the door A' in alignment with said arm is a plate F, the forward end f of which is curved inwardly to provide a contact surface for the cam surfaces c^3 and d^3 . Back of said inturned end the plate is provided with a transverse slot through which the hook c^4 and the cam d^3 project when the door is closed and thereby prevent the door from being opened. If preferred and as shown the latch hook and actuator are provided on their backs with ears c^5 having registering apertures there-through in which a padlock may be engaged to prevent the actuator from being moved.

In the construction shown in Figs. 10 to 13 inclusive, the bolt actuator is omitted but the bolt is adapted to prevent the latch hook from turning to closed position by reason of any ordinary jar to which the device may be subjected. However when the door is closed it throws the latch hook to closed position as before described and at the same time throws the bolt to locking position behind the latch hook. In this construction the bracket G may be similar to the bracket B, but as shown it is adapted to overlap the door stop a against which the forward edge of the door abuts when closed. Pivoted on a pin g passing through parallel ribs g' on said bracket, which cor-

respond to the arm b^2 in the construction shown in Figs. 1 to 9 inclusive, is the latch hook H, which as shown is provided with a hook h adapted to engage in the plate F' as before described. Said latch hook is provided on its inner face, near its rear end, with an arm h' , the forward face of which is adapted to be contacted by the door when being closed and the rear of which abuts against the rear end of the slot g^2 in said bracket and limits the inward movement of the latch hook. On the rear end of said latch hook is a rearward projection h^2 , on which is a downwardly inclined cam surface h^3 . The locking bolt I is similar in construction to the locking bolt E, with the exception that the short leg i' thereof is of sufficient length to pass through both ribs g' , and together with the leg i is provided with an aperture i^2 beneath said ribs for the seal. When the latch hook is in closed position the leg i' engages behind the projection h^2 and prevents the latch hook from opening as shown in Fig. 10, and when the latch hook is in open position, the lower end of said leg, which is beveled at i^3 to correspond with the cam surface h^3 , rests on said cam surface as shown in Fig. 11. The weight of the locking bolt is such that when resting on said cam surface it acts to hold the latch hook against any tendency to close due to jar or vibration.

The operation is as follows: In the construction shown in Figs. 1 to 9 inclusive, when the door is closed, the locking bolt E is at the inner limit of its movement, with the end of the short leg e' inserted in the notch c' in the rear end of the latch hook C. When in this position the hook c^4 of the latch hook engages in the slot in the plate F and the door cannot be opened until the bolt is withdrawn sufficiently to remove the leg e' from the notch c' and release the latch hook. When however the leg e' is withdrawn the forward ends of the latch hook and actuator are free to swing outwardly thereby releasing the door. If the latch hook and actuator remain in such position until the door is again closed, the door contacts with the faces or edges c^2 and d^2 and swings the latch hook and actuator to closed position and the bolt falls to locking position. If however, for any reason the latch hook and actuator have turned to closed position while the door is open, as shown in Fig. 3, as the door closes, the inturned end f of the plate F first contacts with the cam surface d^3 and forces the forward end of the actuator outwardly and the rear end thereof inwardly, causing the cam d' to raise the bolt and withdraw the leg e' from the notch c' . The end f then contacts with the cam c^3 and forces the forward end of the latch hook outwardly, to permit the door to close. As the door reaches its closed

position it swings the latch hook and actuator inwardly and causes the bolt to fall as before described.

The lower end of the leg *e* may be upset to prevent the bolt from being removed from the bracket, and is provided beneath the bracket with apertures *e*⁴ and *e*⁵ adapted to receive a seal or lock to prevent the bolt from being retracted when in locking position. The outward movement of the actuator is limited by the leg *e* which forms a stop against which the rear outer corner of the actuator abuts when the actuator is fully retracted, and the movement of the latch hook is likewise limited by the cam *d'*.

In the construction shown in Figs. 10 to 13 inclusive, the latch hook is thrown to locking position by the closing of the door as before described. As said latch hook swings to closed position the bolt is raised by the cam *h*³ and as the projection *h*² passes from beneath the leg *i'* the bolt falls and locks the latch hook in closed position. The weight of the bolt is sufficient to hold the catch open when the leg *i'* is resting on said cam, and the latch hook cannot close until sufficient force is applied to it to overcome the weight of the bolt. When it is desired to release the latch hook the bolt is raised sufficiently to permit the projection *h*² to pass beneath the leg *i'*.

Obviously a device constructed in accordance with my invention affords a very quick acting and effective lock for sliding doors or the like.

I claim as my invention:

1. In a device of the class described the combination with a latch hook, of means pivotally supporting the same, locking means for said latch hook, and a pivotally supported automatic actuator for said locking means.

2. In a device of the class described the combination with a pivoted catch, of a locking bolt therefor, and means for automatically moving said bolt from locking position.

3. The combination with a member, of a catch pivoted therein, a bolt adapted to lock said catch in closed position, and an actuator having a cam thereon adapted to move the bolt from locking position.

4. In a device of the class described the combination with a slotted member, of a latch hook pivoted therein, a bolt adapted to hold said hook in locking position, and a cam adapted to move said bolt and permit the latch hook to pass the same.

5. In a door fastener the combination with a bracket, of a latch hook pivotally mounted in the bracket, a bolt slidably mounted in the bracket and adapted to lock the hook in closed position, and means operated by the closing of the door adapted to operate said bolt and release the hook.

6. In a lock the combination with a

bracket, of a latch hook pivoted therein, a sliding bolt in said bracket adapted to hold the catch in closed position, and an actuator pivoted in said bracket and having a cam thereon adapted to operate the bolt.

7. In a lock the combination with a bracket of a latch hook and an actuator pivoted therein on a common pivot, an upwardly inclined cam on said actuator, a locking bolt slidably engaged in the bracket and adapted to be operated by said cam, and means adapted to operate said actuator.

8. In a device of the class described the combination with a slotted bracket, of a latch hook pivoted therein and adapted when in closed position to project from the inner face of the bracket, a movable bolt adapted to lock said latch hook in such position and an actuator provided with a cam and adapted when operated to move said bolt and release the latch hook.

9. In a device of the class described the combination with a slotted bracket, of a latch hook pivoted therein, means for locking said latch hook in closed position, an actuator adapted to release the latch hook and means for limiting the movement of said actuator.

10. In a device of the class described the combination with a bracket adapted to be engaged to a wall, of a latch hook pivoted therein and adapted to project from the inner face of the bracket, a bolt adapted to lock said latch hook in closed position, a bolt actuator pivoted in said bracket and projecting from the inner face thereof, and a plate adapted to pass between the bracket and the wall and operate the actuator.

11. In a device of the class described the combination with a bracket, of a latch hook pivoted therein, an apertured plate adapted to be engaged by said latch hook, means adapted to lock said latch hook in position to engage the plate, and a pivotally supported actuator for said locking means.

12. In a device of the class described the combination with a bracket, of a U shaped bolt slidably engaged therein, a latch hook pivoted in said bracket and adapted to be locked in closed position by one leg of said bolt and means pivoted adjacent said latch hook and adapted to move the bolt and release the latch hook.

13. In a device of the class described the combination with a bracket, of a latch hook pivoted therein, a bolt slidably engaged in said bracket and having a long and a short leg, the latter of which is adapted to lock the latch hook in closed position and an actuator for said bolt adapted to be limited in its movement in one direction by said long leg.

14. The combination with a bracket, of a latch hook pivoted therein, a bolt adapted to lock said latch hook in closed position,

and a cam adapted to throw the bolt to locking position when the latch hook is being closed.

5 15. The combination with a bracket, of a U shaped bolt therein having apertured legs for the reception of a seal, a catch pivoted in said bracket and a cam adapted to operate said bolt.

10 16. The combination with a bracket, of a catch pivoted therein, a cam on said catch, a bolt adapted to lock said catch in closed position and when the catch is open to rest on said cam and prevent the catch from closing.

15 17. The combination with a bracket, of a latch hook pivoted thereon, and adapted for either end thereof to be projected beyond the inner face of said bracket, a locking bolt movably supported in said bracket, and a
20 cam adapted to operate said bolt.

18. The combination with a slotted bracket, of a latch hook pivoted therein, a locking bolt slidably mounted in said bracket and having a cam on its forward
25 end adapted to swing the actuator and move the bolt.

19. The combination with a bracket, of a

pair of hooked members pivoted therein, and a locking bolt slidably mounted in said bracket and adapted to lock one of said 30 members and be released by the other.

20. The combination with a bracket having a pivot pin therein, of a pair of hooked members pivoted on said pin, a bolt adapted to lock one of said members, and means on 35 the other member adapted to actuate the bolt and release the first named member.

21. The combination with a bracket, of a pivot pin therein, a pair of hook members pivoted intermediate their ends on said pin, 40 said members being adapted to have either end projected from the inner face of the bracket dependent on the position of the member, a locking bolt slidably mounted in the bracket and adapted to lock one of said 45 members, and means on the other member adapted to release said bolt.

In testimony whereof I have hereunto subscribed my name in the presence of two witnesses.

CHARLES EYTALIS.

Witnesses:

W. W. WITHEMBURY,
PIERRE E. MONTBLANC.