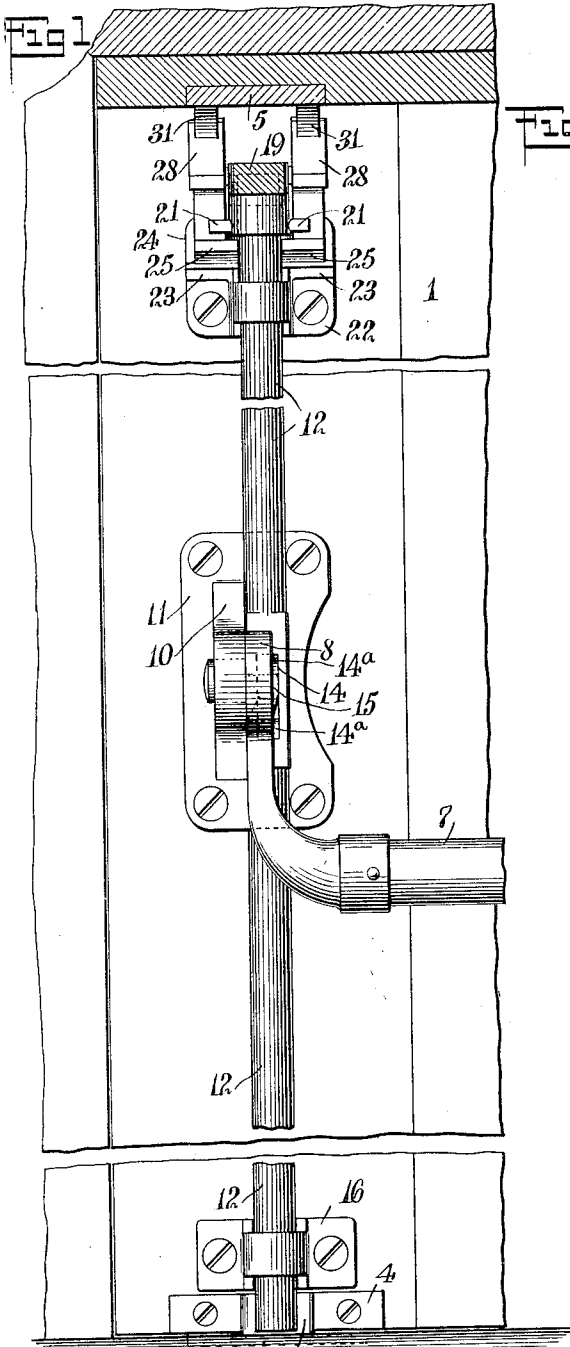


R. S. GOLD.
PANIC BOLT MECHANISM.
APPLICATION FILED JULY 3, 1914.

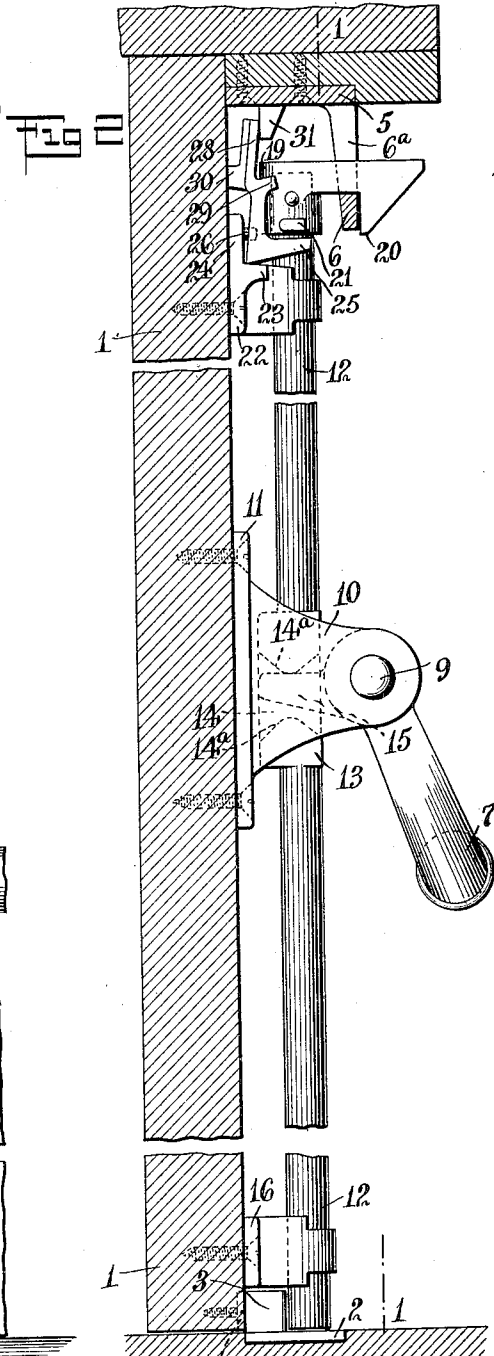
Patented Mar. 2, 1915.

3 SHEETS—SHEET 1.

1,130,266.



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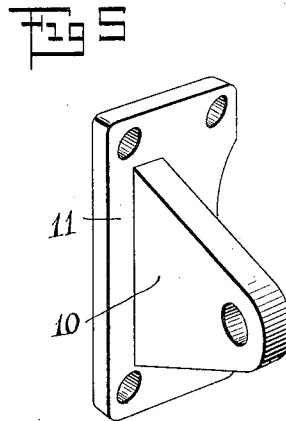
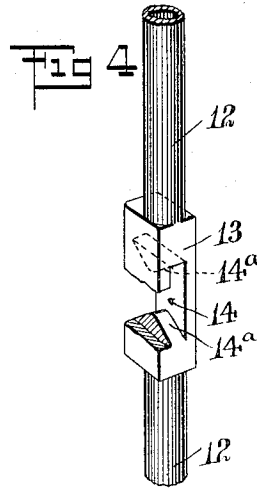
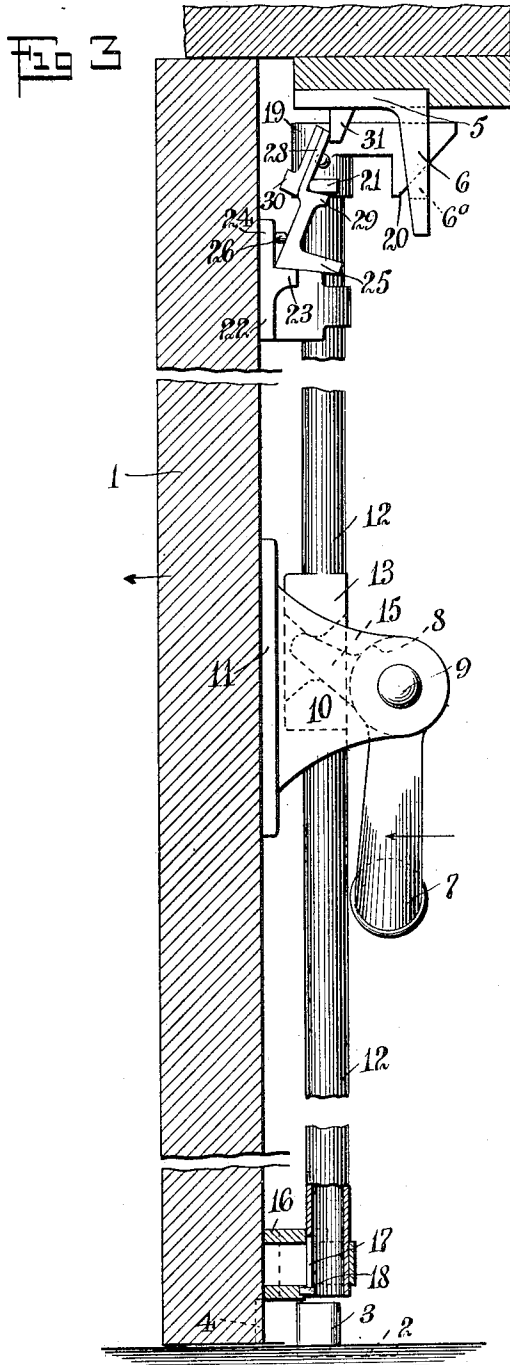
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3 SHEETS—SHEET 2.



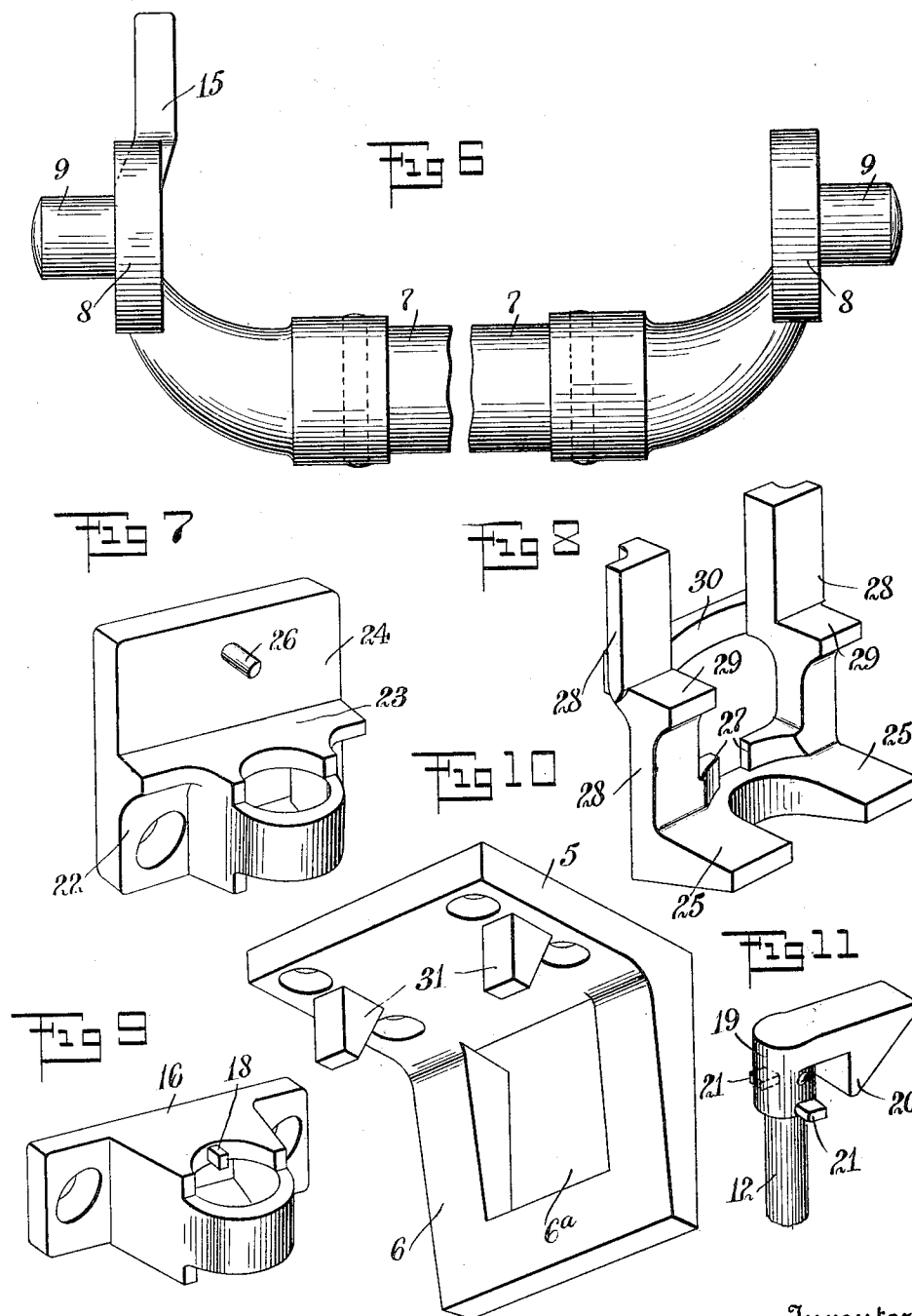
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3 SHEETS-SHEET 3.



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UNITED STATES PATENT OFFICE.

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PANIC-BOLT MECHANISM.

1,130,266.

Specification of Letters Patent.

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To all whom it may concern:

Be it known that I, RUSSELL S. GOLD, a citizen of the United States, residing at New Britain, Hartford county, Connecticut, have
5 invented certain new and useful Improvements in Panic-Bolt Mechanism, of which the following is a full, clear, and exact description.

This invention relates to panic bolt mechanism and is designed primarily to provide a
10 panic bolt of very simple construction which operates on the gravity principle and which, in addition to numerous structural advantages, is provided with an automatic latching
15 and retaining device, all of which will be seen from the detailed specification following.

In the accompanying drawings forming part of this specification, Figure 1 is a fragmentary view in front elevation of a door
20 equipped with the panic bolt mechanism of the present invention, the view being a section on the line 1—1 of Fig. 2. Fig. 2 is a view in edge elevation of the parts shown in Fig. 1, the door being closed and latched.
25 Fig. 3 is a similar view, but with the bolt retracted from locked position and with the door partially open, the panic bolt being held in retracted position by the automatic
30 latching means. Figs. 4 to 11 inclusive illustrate enlarged details of the bolt mechanism.

Referring to the drawings by numerals, 1 designates the usual swinging door, upon the inner face of which the panic bolt mechanism
35 is mounted. Seated in the floor adjacent the edge of the door in closed position, is a flush plate 2, having an upwardly projecting stop member 3 arranged to engage the inner face
40 of the door when the latter is in fully closed position. The door is preferably provided at this point with a strike plate shown at 4. The door casing at the inner side of the
45 door has secured thereto and depending therefrom, an angular bracket plate comprising the base portion 5 extending horizontally and secured to the face of the door casing, and the vertical depending latch plate
50 6 having a latch aperture 6^a therein designed to receive and hold a hooked bolt end. Extending transversely of the door is an operating bar 7 having its ends intumed at 8 and provided with short stub shafts or pivot
55 pins 9, which journal into outwardly extending arms 10 of bracket plates 11 secured to the door by appropriate means.

Extending vertically of the door adjacent its swinging edge is a gravity actuated bar or rod 12, preferably in the form of heavy metal tubing. Intermediate its ends this bar is provided with an enlarged central
60 portion 13 having a recess 14 therethrough providing spaced and oppositely disposed V-shaped abutment surfaces 14^a. This recessed portion is designed to receive an actuating arm carried by and operated from the
65 cross bar 7, as will be hereinafter pointed out. The bar 12 is guided for vertical movement and is positioned to extend across the face of the outermost bracket plate 11 with its enlarged portion 13 positioned over said
70 bracket plate. The intumed end 8 of the cross bar which coöperates with this specific bracket plate, is provided with an actuating arm 15 shaped to extend into the slotted
75 portion 14 of the bar 12, and to engage the opposite parallel faces of the abutments 14^a. The normal position of this actuating arm and cross bar with reference to the gravity bar is indicated in Figs. 1 and 2 of the
80 drawings, from which it will be seen that the cross bar is normally held outwardly by the weight of the gravity bar. This gravity bar provides the "bolt" portion of the panic bolt mechanism. It is guided
85 for vertical movement by a plurality of brackets, two being shown in the drawings. One of these brackets, in the present instance the lower bracket, shown at 16, is provided with the guiding bore through
90 which the lower end of the bar 12 extends. The gravity bar at this point is provided with a vertically extending slot 17 (Fig. 3) and the bracket 16 is provided with a pin 18 extending into the slot and
95 preventing turning movement of the gravity bar while permitting vertical movement. The upper end of the gravity bar has secured thereto a head 19 having a transverse hooked portion 20 projecting therefrom.
100 The lugs 21 are also carried by the body 19 of the head in line with the bar 12, these lugs extending transversely outwardly from the sides of the head and bar.

The upper end of the gravity bar 12 is guided through a suitable bore formed in a
105 bracket 22, somewhat similar in construction to the bracket 16 at the lower portion of the gravity bar, but which is provided above its bored portion with a transversely
110 extending shelf 23 and with a vertically

extending back or wall 24. The shelf 23 is used as a means for supporting a gravity actuated latching member positioned on said shelf between the wall 24 of the bracket and the upper end of the gravity bar. This latching part is in the form of an L-shaped body, its lower and shorter arm 25 being cut away to permit the passage of the gravity bar therethrough, the latching part resting on the shelf 23 at the point of its angle and being retained against lateral displacement therefrom by the pin 26 projecting from the wall 24 of the bracket and extending between the lugs 27 at the base of the latch member. The lugs 21 carried by the head of the gravity bar, rest above the base 25 of the latch bar and they with the head of the bar, serve to maintain it in position on the shelf 23. Space is provided for the head of the bar by cutting away the vertical sides of the latch member, forming spaced arms 28 between which the bolt head may extend, these arms intermediate their length being provided with shoulders 29 designed to receive the lugs 21 of the bar head in one position of said head to support the bar head therefrom. These bars 28 are perfectly rigidly interconnected by a transverse spanning portion 30. The upper extremities of the arms 28 will be positioned on the door in line with abutment means in the form of spaced fingers 31 depending from the casing carried bracket plate 5 and designed to be engaged by said arms and moved to release the head 19, as will be seen later. This latching member being L-shaped and having its longer arm extending vertically will naturally by gravity tend to swing forwardly. With the door in closed position this will be prevented by reason of the engagement of the fingers 31 with the upper ends of the spaced arms 28 (see Fig. 2). With the door in closed position it will be noted that the hooked portion 20 of the bar head extends through the aperture 6^a of the latch plate and drops downwardly thereover, the lugs 21 being preferably free from engagement with the latching member and the lower end of the bar 12, which forms the second bolt member, being positioned back of the abutment 3. Assuming now, that the door is closed and in this position, and assuming also that pressure is exerted against the cross bar 7 from the interior of the door, this will, by reason of the arm 15, move the bar 12 upwardly, its lower end clearing the abutment 3, and the hook 20 at its upper end being moved upwardly clear of the recessed edge of the plate 6. This will position the lugs 21 in line with the shoulders 29 of the latching member so that when the door is moved outwardly the lug 20 will be retracted through the aperture 6^a and, the pressure of fingers 31 being removed, the latch member will drop

forwardly by gravity from the position shown in Fig. 2 to that shown in Fig. 3, bringing the shoulders 29 beneath the lugs 21, so that the weight of the bar will rest on this latching member. This gravity latching member will therefore hold the bar with its upper and lower latching ends in free or retracted position and is held in such position until the door is again closed, whereupon the head will be automatically released as follows: When the door closes, the fingers 31 first engage the upper extremities of the arms 28, moving said arms from beneath the lugs 21 and permitting the bar 12 to drop by gravity. By the time the lugs 21 will have been free the hooked end 20 of the bar head will have been positioned through and beyond the aperture in latching plate 6, so that when the bar drops the hooked end 20 will drop over the edge of the plate, locking the door closed. It will of course be understood that the lower end of the bar which in the open position of the door clears the abutment 3, will, when the door is closed as above described, be brought beyond the inner edge of the abutment 3 and when the bar is released by the means just described will drop down against this abutment, thereby locking the door closed at the bottom while the hook 20 and plate 6 lock the door at the top. The fact that I provided means for guiding the gravity bar for vertical movement alone and for preventing any rotary movement will insure that the hooked end 20 of the plate of the bar will always be positioned in the line of the aperture 6^a. It will be noted that by means of the rigid latch bar construction described the gravity bolt-bar need only move in one direction for unlatching action and that therefore the use of reversing connections is dispensed with.

The specific construction disclosed and described is an extremely simple one and is productive of substantial economies in production as well as certainty of operation.

I have herein described one specific embodiment of my invention but desire it understood that the same is susceptible of structural modification within the spirit of the invention and the scope of the appended claims.

What I claim is:

1. A panic bolt mechanism for doors including a gravity actuated bar carried by and extending substantially vertically of the door and having bolt members connected therewith and located at points adjacent the top and bottom edges of the door, said bar being movable substantially vertically of the door, stationary abutments adjacent the top and bottom edges of the door respectively and in the path of door-opening movement of said bolt members when the door is closed and said bar is in its

gravity actuated position, a manually operated actuating member movable toward and from the door and arranged to move said bar to position said bolt members to clear said abutments whereby the door may be moved to open position, with means arranged, when the bar is so moved, to hold the same in such clearing position until the door is again closed, and with abutment means stationary relative to the door and cooperating with the aforesaid holding means, when the door closes, to release said bar.

2. A panic bolt mechanism for doors comprising a gravity-actuated rigid bar structure carried by and extending substantially vertically of the door to points adjacent its top and bottom edges, respectively, and movable substantially vertically of the door, a stationary abutment adjacent the bottom edge of the door, a second stationary abutment adjacent the upper edge of the door, both of said abutments being positioned in the path of door-opening movement of said bar structure when the door is closed and said structure is in its gravity-actuated position, and a cross bar carried by the door to move toward and from the same with operative connection to said bar structure whereby movement of said cross bar relative to said door moves said bar structure to clear said abutments, whereby the door may be moved to open position, and means carried by the door arranged to cooperate with said bar structure, when so moved, to hold the same in such clearing position until the door is closed.

3. A panic bolt mechanism for doors comprising a gravity-actuated rigid bar structure carried by and extending substantially vertically of the door to points adjacent its top and bottom edges respectively, and movable substantially vertically of the door, a stationary abutment adjacent the bottom edge of the door, a second stationary abutment adjacent the upper edge of the door, one of said abutments providing a latching plate, and said bar structure adjacent thereto being provided with a cooperating laterally extending hooked member, both of said abutments being positioned in the path of door-opening movement of said bar structure when the door is closed and said structure is in the gravity-actuated position, and a bar hingedly carried by and extending transversely of the door for movement toward and from the same, with operative connections between said transverse bar and said bar structure whereby the swinging movement of said transverse bar toward said door moves said bar structure vertically of the door to clear said abutments, whereby the door may be moved to open position, and gravity-operated means carried by the door and cooperating

with said bar structure, when so moved, to hold the same in abutment-clearing position until the door is closed, with abutment means stationary relative to the door and cooperating with said gravity member to release said bar structure when the door reaches closed position.

4. A panic bolt mechanism for doors including a gravity-actuated latching bar carried by and movable substantially vertically of the door, a relatively stationary latching abutment positioned in the path of door-opening movement of said bar when the door is closed and said bar is in its gravity-actuated position, manually operable means for moving said bar structure to clear said abutment whereby the door may be moved to open position, and means carried by the door and automatically cooperating with said bar when so moved, to retain said bar in abutment clearing position while the door remains open, with an abutment means stationary relative to the door and cooperating with said bar-retaining means, when the door is closed, to release said bar whereby it may move by gravity into locked position relative to its abutment.

5. In a panic bolt mechanism for doors including a gravity-actuated latching bar carried by and movable substantially vertically of the door, said bar having an offset latching member, a relatively stationary abutment carried by the door casing and extending in the path of door-opening movement of said latching member when the door is closed and said bar and its latching member is in gravity-actuated latching position, manually operable means for moving said bar to bring its latching member in position to clear said abutment whereby the door may be moved to open position, gravity latching means carried by the door and automatically cooperating with said latching member, when said bar is so moved, to retain said bar and its latching member in abutment clearing position while the door remains open, with means stationary relative to the door and cooperating with said gravity retaining means upon the closing of the door to release said bar with its latching member whereby the latter may be moved by gravity into locked position relative to its abutment.

6. A panic bolt mechanism for doors including a gravity-actuated latching bar carried by and movable substantially vertically of the door, a stationary abutment positioned in the path of door-opening movement of said bar when the door is closed and said bar is in its gravity-actuated position, manually operable means for moving said bar to clear said abutment whereby the door may be opened, a gravity-actuated tilting latch plate carried by the door and cooperating with said bar, when so moved to

clearing position, to support the same in such position while the door is open, and means stationary relative to the door and cooperating with said tilting plate upon the closing of the door to move the same to release said bar whereby it may move by gravity to locked position relative to its abutment.

7. A panic bolt mechanism for doors including a gravity-actuated latching bar carried by and movable substantially vertically of the door, a stationary abutment positioned in the path of door-opening movement of said bar when the door is closed and said bar is in its gravity-actuated position, manually operable means for moving said bar to clear said abutment whereby the door may be opened, a tilting latch device loosely carried by the door and normally tending to move by gravity to cooperate with and support the bar in abutment clearing position, when said bar is so moved and the door is open, and means stationary relative to the door and positioned to cooperate with said tilting device, when the door is again closed, to move the same to release said bar whereby it may move by gravity to locked position relative to its abutment.

8. A panic bolt mechanism for doors including a gravity-actuated latching bar carried by and movable substantially vertically of the door and having a supporting abutment thereon, a stationary abutment carried by the door casing in the path of door-opening movement of said bar when the door is closed and said bar is in its gravity actuated position, manually operable means for moving said bar to clear said abutment whereby the door may be moved to open position, a tilting latching plate loosely carried by the door and provided with a supporting shoulder, said plate, when said bar is moved to abutment clearing position and said door is opened, being ar-

ranged to tilt by gravity to engage its supporting shoulder with said bar abutment and to retain said bar in abutment clearing position while the door remains open, and a stationary releasing member carried by the door casing and arranged, when the door is again closed, to engage said tilting plate to move the same to release said bar whereby the latter may move by gravity into locking position relative to its abutment.

9. A panic bolt mechanism for doors including a gravity-actuated latching bar carried by and movable substantially vertically of the door and having a supporting abutment thereon, a stationary latching abutment carried by the door casing and positioned in the path of door-opening movement of said bar when the bar is closed and said bar is in its gravity-actuated position, manually operable means for moving said bar to a position to clear said abutment whereby the door may be moved to open position, a substantially L-shaped tilting latch plate, means for loosely supporting said plate on said door, said plate having an offset supporting shoulder thereon and normally tending, when said bar has been moved to abutment clearing position and the door has been opened, to engage said shoulder with said bar abutment and support said bar in abutment clearing position until the door is again closed, and a releasing abutment carried by the door casing and arranged, when the door is closed, to engage said tilting plate and move its supporting shoulder from said bar abutment whereby the bar may move by gravity into locking position relative to its abutment.

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Copies of this patent may be obtained for five cents each, by addressing the "Commissioner of Patents, Washington, D. C."