July 21, 1931. O. M. OTTE 1,815,580

FASTENING MEANS FOR DOORS

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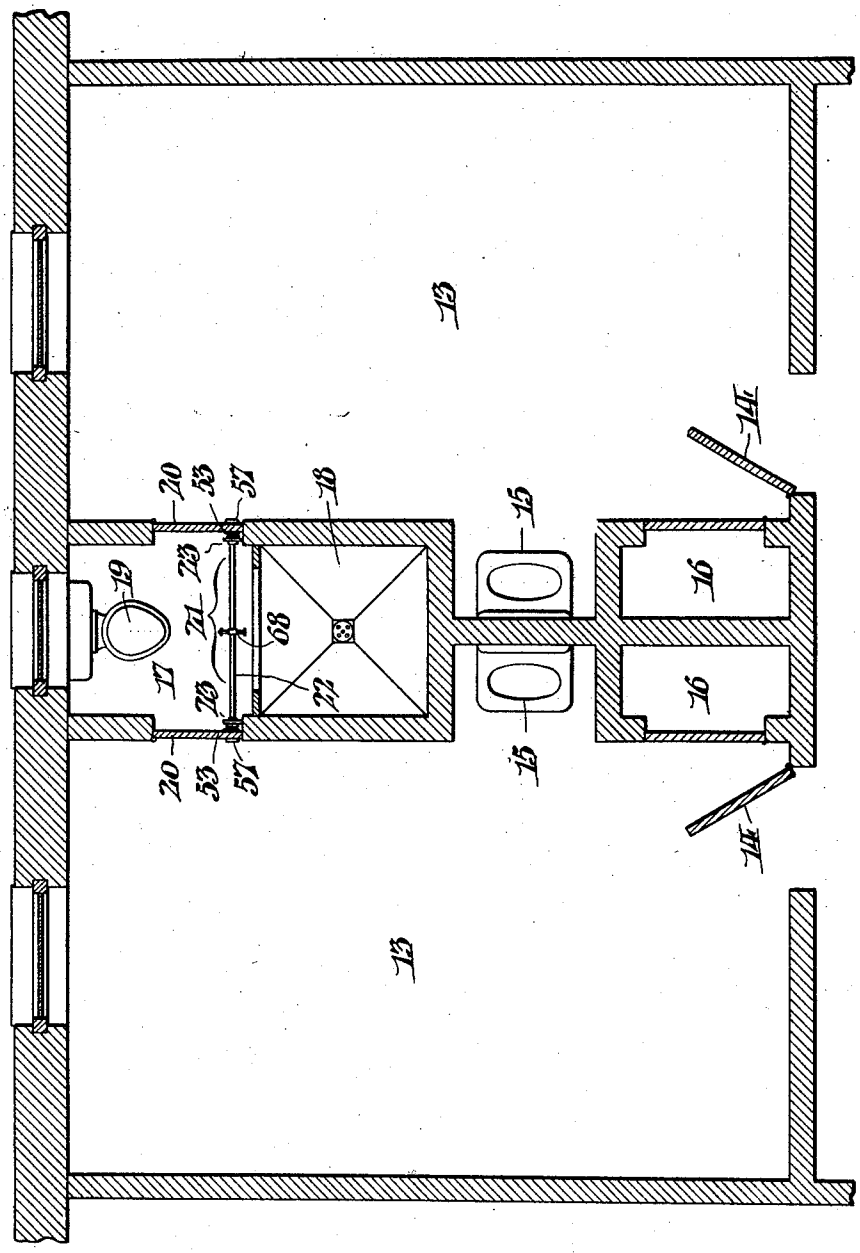


FIG. I.

WITNESSES
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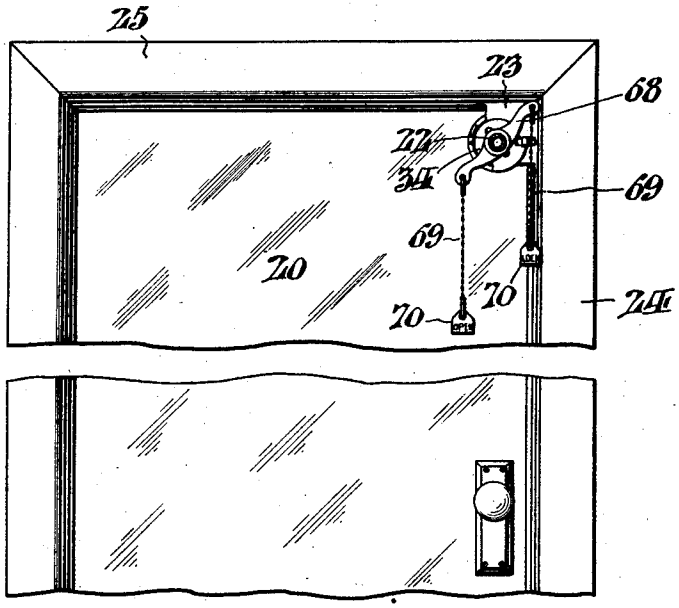
INVENTOR:
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FASTENING MEANS FOR DOORS

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FIG. II.



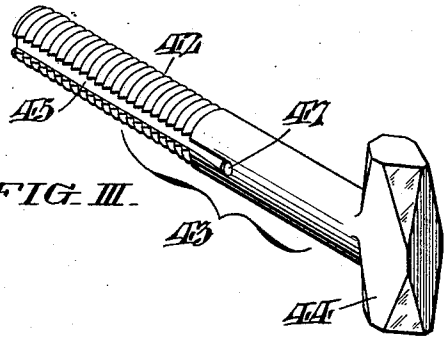


FIG. III.

FIG. V.

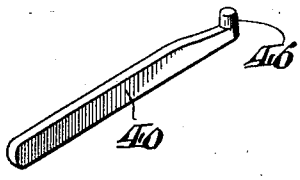
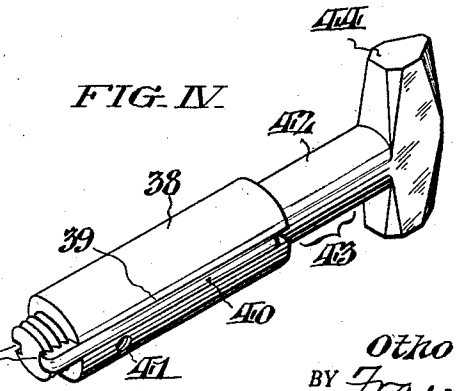


FIG. IV.



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FASTENING MEANS FOR DOORS

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FIG. VI.

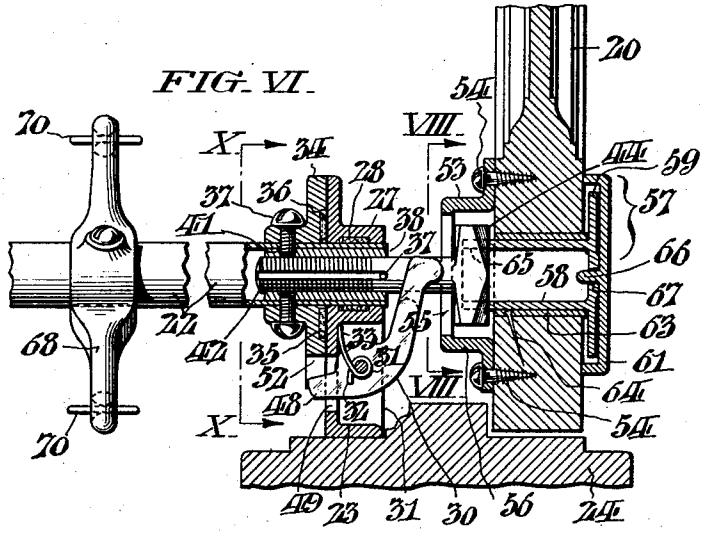


FIG. VII.

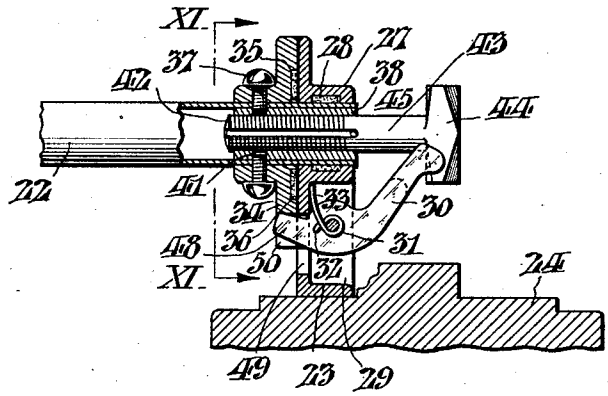


FIG. VIII.

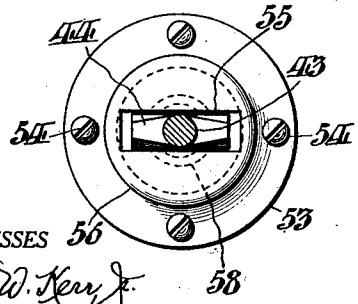
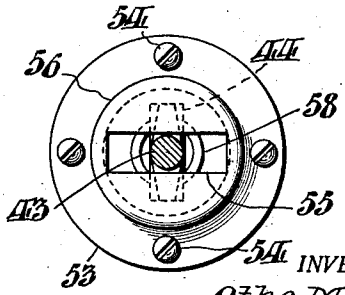


FIG. IX.



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FASTENING MEANS FOR DOORS

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FIG. X.

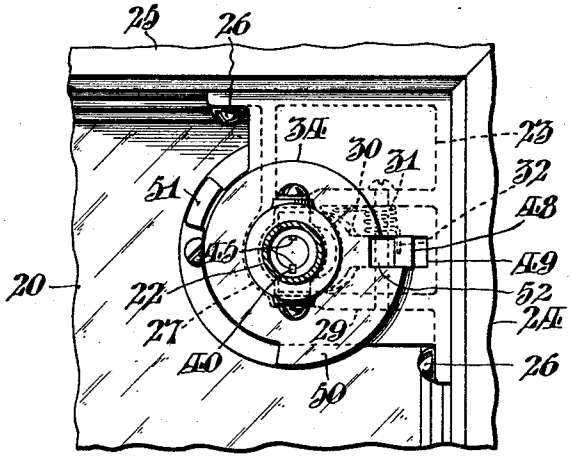


FIG. XI.

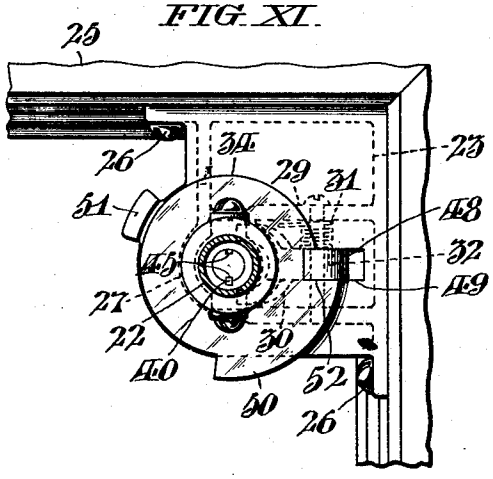
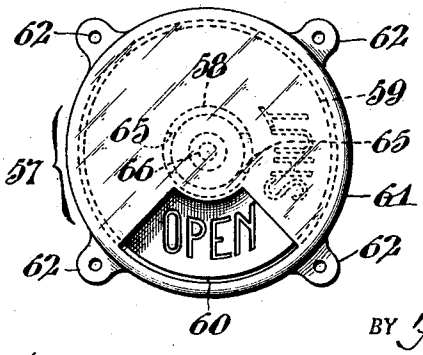


FIG. XII.



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Patented July 21, 1931

1,815,580

UNITED STATES PATENT OFFICE

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FASTENING MEANS FOR DOORS

Application filed December 9, 1926. Serial No. 153,511.

This invention relates to fastening means for doors and generally to mechanism operative to secure oppositely disposed or parallel doors in the closed position. More particularly the present improvements are directed to a novel means for fastening and controlling doors that afford access from adjoining bedrooms to a common bathroom.

The primary object of the present improvements is to furnish a novel form of mechanism—for the purpose above referred to—which simultaneously fastens or unfastens opposed doors and concurrently operates like indicator devices exterior of said doors, so that guests in adjoining rooms are notified when an intervening bath-room, for example, is engaged or vacant.

With the stated and other objects in view which will be later on readily comprehended, my invention essentially consists in the novel features of construction, combinations and arrangements of parts hereinafter fully described, illustrated by the accompanying drawings, and defined as to subject matter and scope in the subjoined claims.

In the drawings:

Fig. I is a sectional plan view of a bath-room with adjoining bed-rooms, or other apartments, illustrating the application of my novel combination fastening-indicating means to the doors of said bath-room.

Fig. II is a broken elevation, on a larger scale, of one of the bath-room doors as viewed from the inside of said bath-room.

Fig. III is a perspective view of a latch-bar hereinafter fully described.

Fig. IV is a perspective view of the latch-bar with a co-operative securing means providing for longitudinal adjustments of said latch-bar to accommodate different widths of door jambs.

Fig. V is a detached perspective view of a key element, shown in assembled position in the preceding illustration.

Fig. VI is a broken plan section, to a larger scale, illustrative of one end assemblage of my novel door fastening and indicating means, in conjunction with a fragmentary portion of the door and its jamb.

Fig. VII is a similar view to the preceding illustration, with the door removed to better disclose the action of means effective to prevent turning of the latch-bar when either of the opposed bath-room doors is in the open position.

Fig. VIII is a view taken on the plane indicated by the arrowed lines VIII—VIII in Fig. VI, with the latch-bar in unlatched location.

Fig. IX is a similar view but showing the latch-bar in latched position incident to a partial turn.

Fig. X is a sectional view taken on the plane indicated by the arrowed lines X—X in Fig. VI.

Fig. XI is a similar view taken as indicated by the lines XI—XI in Fig. VII; and,

Fig. XII is an elevational view of the indicator device hereinafter described.

Like indicating characters designate the same or corresponding parts in all the views.

In the typical embodiment of my invention illustrated in the drawings and primarily referring to Fig. I, more particularly, 13, 13 are adjacent bed-rooms having entrant doors 14, 14—which are each equipped with the usual washstand 15 and clothes closet 16. Intermediate the bed-rooms 13, is a common compartment—or wash room—17 enclosing a conventional shower stall 18 and toilet 19; access to the compartment or wash room 17 being had by way of outwardly swinging doors 20, 20, each of which is provided exteriorly—relative to said room—with a dead latch or bolt, not shown. All of the foregoing parts are referred to solely as necessary preface, before describing the application of my present improvement to the opposed wash room doors 20, 20, whereby the occupant of either room 13, 13 may know when said wash room 17 is "engaged" or "vacant"; or, when using the wash room, may lock both doors 20, 20 and thereby prevent embarrassing intrusion by another person from either of the rooms 13, 13.

My novel mechanism is comprehensively designated by the numeral 21 in Fig. I, and, in view of the fact that the several elements or parts thereof at each end of the common operating shaft or lock-bar 22—are comple-

mental (or right-and-left counterparts)—the following description is mainly limited to an explanation of the mechanism associated with one of the doors 20, only, in order to avoid unnecessary repetitive description.

Referring now, generally, to all the views and more specifically to Figs. VI, VII, X and XI, it will be observed that the operating shaft 22 is—preferably—tubular and of a length somewhat shorter than the distance intermediate the closed doors 20. This operating shaft 22 is journaled—at each of its ends—in a bracket 23, conveniently secured to the door jamb 24 and lintel 25 by screws 26—for example. Each bracket 23 is formed with an embossment 27 affording journal bearing for the shaft end with interposition of suitable packing such as felt 28, as well as with spaced members 29 between which is pivoted a forked lever or yoke dog 30 under the influence of a recoil spring 31. One end of the spring 31 engages in an aperture 32 of the forked lever 30, while the other end 33 abuts the bracket wall—in an obvious manner—to normally hold the aforesaid fork lever in the position best shown by Fig. VII.

Longitudinal displacement of the operating shaft 22, relative to the bracket 23, is prevented by means of a stop collar 34 having a concentric recess 35 adapted to accommodate suitable packing—such as a felt washer 36—intermediate said collar and the bracket 23. Incidentally, the packings 28, 36 serve as lubricant retainers or absorbers, in addition to preventing metallic contact between the relatively movable parts: or, said packings may be omitted when the parts are made of antifrictional material and accurately adjusted so as to avoid any possibility of "binding". Screw studs 37 securely attach the stop collar 34 to the operating shaft 22.

Snugly fitting each end of the operating shaft 22 is an internally screw-threaded tube or sleeve 38, which is longitudinally split at 39—Fig. IV—for reception of a key 40, for a purpose later on explained. This sleeve 38 is also provided at diametrically opposed points with screw threaded holes 41, into which the inner ends of the studs 37 engage; whereby the parts 34, 22 and 38 are rendered relatively immovable, except as hereinafter explained. Threadedly engaging the sleeve 38 is the shank 42 of the latch-device 43 which is fashioned with a head piece 44, preferably disposed at right angles thereto; or, in other words, the latch-device 43 is of T-formation, with the head piece 44 conveniently—although not essentially—polygonal in cross section, as best illustrated in Figs. III and IV. The shank 42 of the latch-device 43 is provided with longitudinal grooves 45, that are diametrically opposed, into either of which the key 40—hereinbefore referred to—is adapted to co-operatively seat in locking the sleeve 38 to said shank at the requisite adjustment. Attention is directed to the provision of the key 40 with a relatively angled toe or pin 46, at one end, for insertion in a hole 47 at the outer end of each longitudinal groove 45; whereby said key is effectively held against longitudinal displacement when the associated parts are assembled and adjusted.

Referring again to the forked lever or yoke dog 30, it is to be noted that the heel portion 48 thereof projects laterally through an opening 49, in the bracket 23, into the path of a segmental enlargement 50 of the associated stop collar 34; and that the bracket 23 is formed with an offset 51 in the path of movement of said enlargement, as best disclosed in Figs. X and XI. Furthermore, it will be observed that the stop collar 34 is radially notched at 52 for semi-reception of the heel portion 48, of the forked lever 30, when the associated door 20 is in the open position; whereas the forked end of said lever receives one limb or portion of the latch-device head 44, as clearly illustrated in Figs. XI and VII, respectively. Thus it will be readily understood that when the door 20 is in the open position, the operating shaft 22, stop collar 34 and latch-device 43, are all simultaneously and automatically fastened to the bracket 23 against any illicit or rotative movement under recoil action of the spring 31. This feature I deem of importance, as it not only prevents the mechanism from being accidentally or maliciously put out of commission, but it also serves as an effective safeguard against the wash-room 17 being closed to either of the rooms 13 unless said wash-room is occupied or in use.

In combination with the mechanism above described I employ a cupped keeper 53 for attachment to the door 20, as by screws 54, said keeper having a lateral opening 55 for free entry and withdrawal of the latch-device head 44 in securing and releasing the door 20, as hereinafter explained. Incidentally, as will be best understood from Fig. VI, the latch-device head 44 is beveled along its longitudinal angular edges to facilitate turning in the cupped portion 56 of the keeper 53.

Associated with the keeper 53 and actuable by the latch head 44 is an indicater device comprehensively designated by the numeral 57. This indicator device 57 comprises a tabular actuator 58 having a discous portion or flange 59 appropriately marked with the legens "Open" and "Shut"—Fig. XII; said legends being moved into registry with a sight aperture 60 in the indicator closure casing 61, that is provided (for example) with apertured lugs 62, whereby it is attached to the door 20, as by screws—not shown. Journal bearing, in the door 20, is afforded the tubular actuator 58 by means of a sleeve 63, secured therein through the medium of an ob-

liquely driven nail or spike 64—Fig. VI. Obviously, the actuator 58 is made an easy working fit in the bearing sleeve 63, and it is provided at its end remote from the flange 59 with opposed cut-outs 65, into which the latch-device head 44 enters when the door 20 is closed, as clearly shown in Figs. VI, VIII and IX. Proper centering of the casing 61 relative to the discous portion or flange 59 is ensured through the medium of a co-axial "tit" 66 in the former entering a correspondingly dimensioned hole 67 in the latter, as clearly shown in Fig. VI.

Means such as a double-armed rocker 68, Figs. I, II and VI, is securely clamped on the operating shaft 22 and fitted with drop chains 69, having attached indicator plates 70; one of which is suitably marked "Open" and the other "Lock"; whereby the user—only—of the wash-room 17 is enabled to control closure and opening of either of the opposed doors 20, in an obvious manner.

Having detailed the structural phases of my novel locking mechanism, the operation will be apparent, as whenever an occupant of either of the bed-rooms 13, 13 who enters the wash-room 17, should desire to secure the doors 20, 20 against opening, it is only necessary to see that both of said doors are shut and then to pull down upon the chain 69, marked "Lock." By drawing upon the chain 69 marked "Lock," the operating shaft 22 is given a partial (quarter) turn to the right which moves the latch-device head 44 from the position shown in Fig. VIII, to that illustrated by Fig. IX. Concurrently—with the operation just described—the associated indicator disc 59 will be correspondingly turned and the legend "Shut" of the devices 57 in both rooms 13 simultaneously swung into registry with the sight apertures 60, whereby the occupant or others in either of said rooms is notified that the wash-room 17 is engaged. Attention is particularly directed to the fact that closure of the doors 20, releases the forked levers 30 from the position shown in Fig. VII to that of Fig. VI, and thereby permits turning of the operating shaft 22 which is otherwise secured at all times against such movement by the forked levers 30, as hereinbefore set forth. Pull upon the chain 69 marked "Open" obviously effects a reversal of the operative cycle just described, whereupon both doors 20 are released for normal opening and closure.

From the foregoing it will be self-evident that my novel fastening mechanism fully justifies all the objects and advantages set forth in the opening statement of invention; and, while I have disclosed one practical embodiment thereof, it is equally apparent the same is susceptible of diverse changes without departing from the spirit and scope of said invention. Accordingly, the right is hereby reserved to make all such changes as fairly lie within the scope of reasonable interpretation accorded the appended claims.

Having thus described my invention, I claim:

1. Fastening mechanism for a series of associated doors comprising a common rotary actuator with headed termini adapted to co-operate with keepers on the respective doors and simultaneously secure all of said doors in closed position, and means co-acting with said termini to prevent movement of the actuator should any or all of the doors be open.

2. Fastening mechanism for opposed doors, comprising a common semi-rotatable actuator with T-headed terminal devices adapted to engage cupped-keepers on and securely fasten both doors simultaneously, and means co-active with the T-heads and actuator to prevent movement of the latter should either or both of the doors be open.

3. Fastening mechanism for opposed doors comprising a common actuator with T-headed terminal devices adapted to engage cupped-keepers on and securely fasten both doors simultaneously, said terminal devices being longitudinally adjustable relative to the actuator to accommodate door jambs of different widths, and means arresting movement of the actuator should either or both of the doors be open.

4. Fastening mechanism for parallel doors movable in reverse directions comprising a common actuator having T-headed terminal devices adapted to engage cupped-keepers on and simultaneously secure both doors when closed, and means jointly co-operative with the terminal devices and actuator to prevent movement of the latter should either or both of said doors be open.

5. Fastening mechanism for parallel doors movable in reverse directions comprising a common actuator having T-headed terminal devices adapted to engage cupped-keepers on and simultaneously secure both doors when closed, said devices being independently adjustable in the actuator and restrained against relative rotative movement, forked levers normally engaging the terminal devices and notched collars on the actuator to prevent turning thereof should either or both of said doors be open.

6. Fastening mechanism for parallel doors movable in reverse directions comprising a common actuator having terminal T-headed bolts adapted to engage cupped-keepers on and simultaneously secure said doors only when both are closed, radially notched stop collars on the actuator, and co-active fork-levers engaging the T-headed bolts and stop collars to prevent rotative movement of the actuator should either or both of said doors be open.

7. Fastening mechanism for parallel doors swingable in reverse directions comprising a common tubular shaft journaled independ-

ently of the doors, terminal T-headed bolts having screw shanks taking into correspondingly threaded sleeves, said sleeves being removably engaged in the open ends of the tubular shaft with capacity for individual adjustment, cupped-keepers on the doors, and latching members co-acting with the bolt heads and associated stop collars on the tubular shaft to permit movement of the latter only during the door securing and releasing operations.

8. Fastening mechanism for parallel doors movable in reverse directions comprising a common tubular shaft journalled independently of the doors, terminal bolts having T-heads and screw shanks threadedly engaging split sleeves fitted into the shaft ends, keys splining the bolts and sleeves against movement relative to the tubular shaft after longitudinal adjustment, cupped-keepers on the doors, and spring influenced latching members co-acting with the T-heads and stop collars on the tubular shaft to permit movement of the latter only during the door securing and releasing operations and only when both doors are closed.

9. Fastening mechanism for parallel doors movable in reverse directions comprising a common tubular actuator shaft journaled independently of the doors, terminal T-headed bolts having screw shanks taking into split sleeves fitting the shaft ends, keys splining the bolts and sleeves against rotative and relative movement when longitudinally adjusted, cupped-keepers on the doors, and spring influenced fork levers jointly engaging the T-headed bolts and slotted stop collars on the actuator shaft to prevent movement of the latter should either or both of the doors be open.

10. Fastening mechanism for parallel doors movable in reverse directions comprising a common actuator shaft journaled in bearings on the opposed door frames, T-headed bolts having screw shanks taking into split sleeves fitting the shaft ends, keys splining the bolts and sleeves against rotative and relative movement after individual adjustment, cupped-keepers on the doors, stop collars with segmental enlargements on the actuator shaft, and spring influenced fork levers pivotally carried by the shaft bearings and normally engaging the bolt heads and stop collars to prevent turning of the actuator shaft should either or both of the doors be open.

11. Fastening mechanism for parallel doors movable in reverse directions comprising a common actuator shaft journaled in bearings on the opposed door frames, T-headed bolts having screw shanks taking into split sleeves fitting the shaft ends, keys splining the bolts and sleeves against rotative and relative movement after individual adjustment, cupped-keepers on the doors, stop collars on the actuator shaft each having a segmental enlargement and adjoining notch, and spring influenced fork levers normally engaging the bolt heads and collar notches to prevent rotation of the actuator shaft should either or both of the doors be open.

12. Fastening mechanism for parallel doors movable in reverse directions comprising a common actuator shaft journaled in bearings on the opposed door frames, T-headed bolts having screw shanks taking into split sleeves fitting the shaft ends, keys splining the bolts and sleeves against rotative and relative movement after individual adjustment, cupped-keepers on the doors, stop collars on the actuator shaft each having a segmental enlargement and adjoining notch, spring influenced fork levers normally engaging the bolt heads with their heel portions in the collar notches abutting one end of the segmental enlargement to prevent rotation of the actuator shaft should either or both of the doors be open, and an offset on each bearing aforesaid for engagement by the other end of the segmental enlargement to limit rotation of the actuator shaft.

13. In combination with parallel doors swingable in reverse directions, fastening mechanism comprising brackets fitting the intersection of the door lintels and jambs, a common actuator shaft with stop collars journaled between said brackets, said shaft having adjustable T-headed terminal ends, a keeper on each door, spring influenced fork levers normally engaging the bolt heads and brackets to prevent rotation of the actuator shaft, and rocker means whereby the fastening mechanism may be actuated only when both doors aforesaid are closed.

In testimony whereof, I have hereunto signed my name at Philadelphia, Pennsylvania, this 4th day of December, 1926.

OTHO M. OTTE.