C. D. UPDEGRAFF & M. R. CASLOW.

SLIDING DOOR.

APPLICATION FILED SEPT. 13, 1915.

1,183,504.

Patented May 16, 1916.

2 SHEETS—SHEET 1.

Fig. 1.

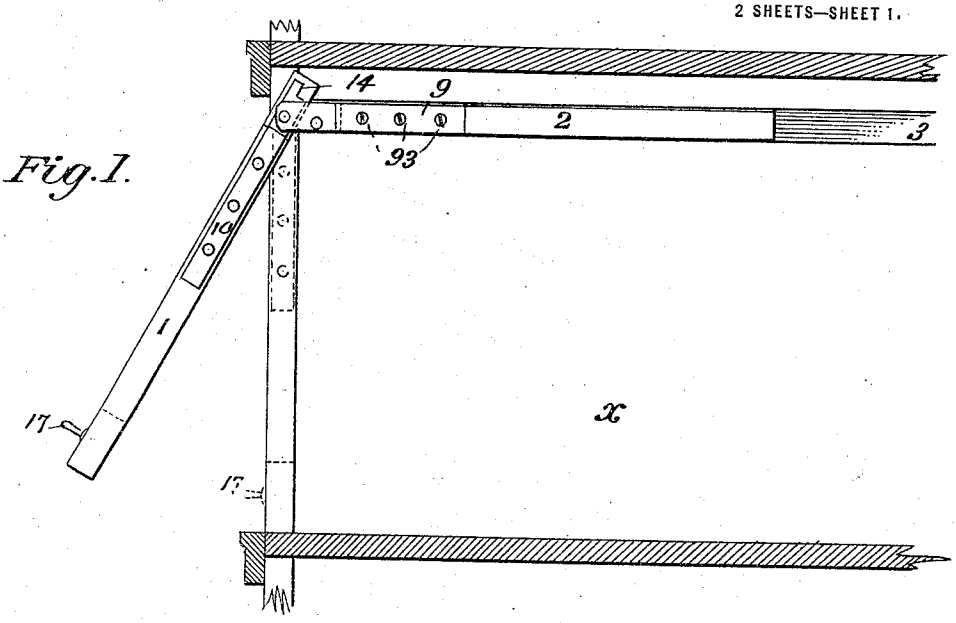


Fig. 2.

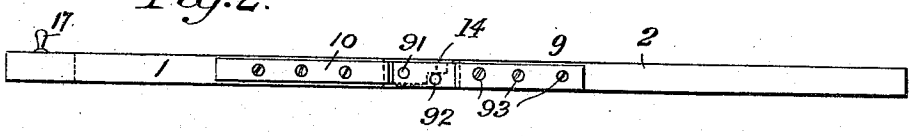


Fig. 3.

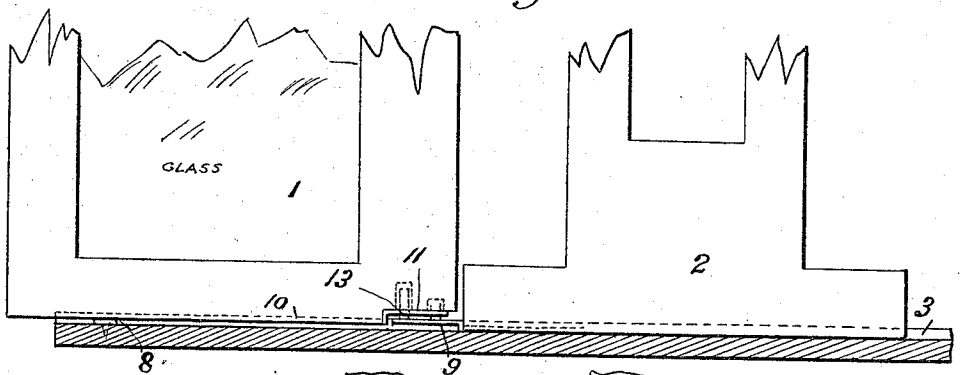
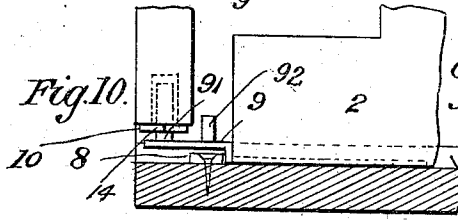


Fig. 10.



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2 SHEETS—SHEET 2.

Fig. 4.

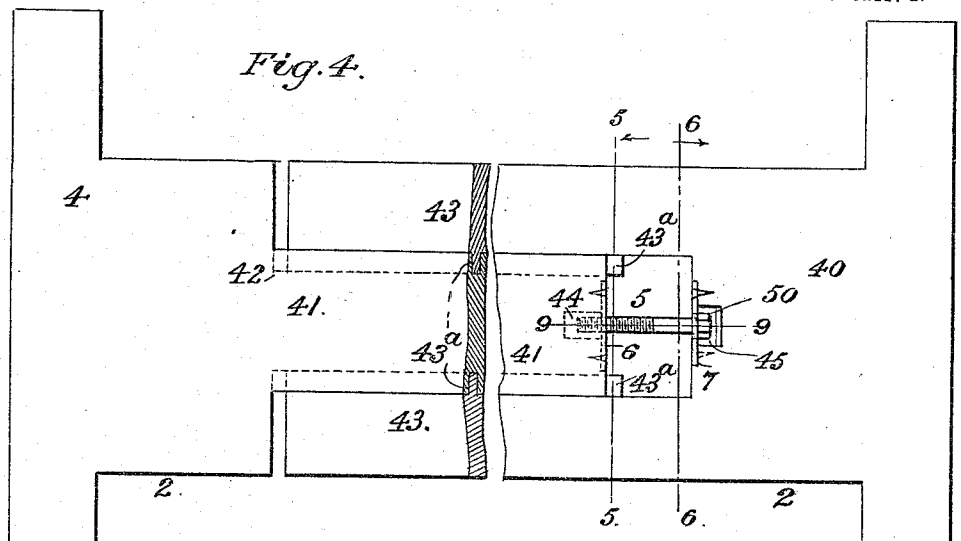


Fig. 5.

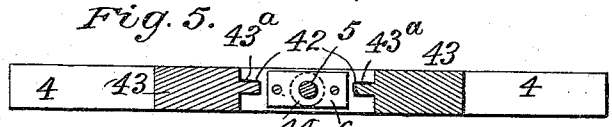
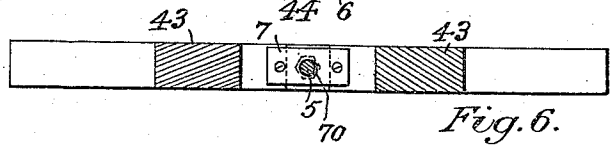


Fig. 6.



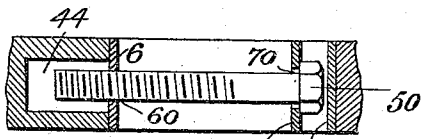
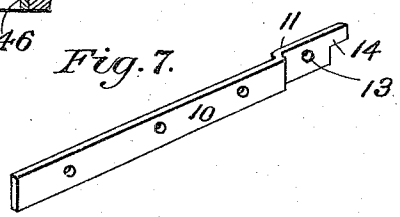


Fig. 9.

Fig. 7.



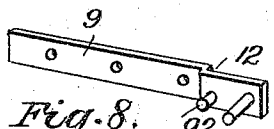


Fig. 8.

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SLIDING DOOR.

1,183,504. Specification of Letters Patent. Patented May 16, 1916.

Application filed September 13, 1915. Serial No. 50,429.

To all whom it may concern:

Be it known that we, CHARLES D. UPDEGRAFF and MOSES R. CASLOW, residing at Portland, in the county of Multnomah and State of Oregon, have invented certain new and useful Improvements in Sliding Doors, of which the following is a specification.

Our invention, which generically has reference to improvements in sliding doors, is more especially directed to that class of doors used on book or show cases, in which is embodied a hinged, usually glass, door, and a "sub-door" that forms the stop member when the hinged door section is pulled out and from which the said glass door section is pendently hung when at the down or closure position.

Our invention primarily has for its object to provide an improved door construction of the general character stated, of a simple and inexpensive nature in which the parts are especially designed whereby to permit of readily fitting them to the operative position and whereby the entire structure may be, as a whole, quickly removed from the casing, as conditions may require.

With other objects in view that will hereinafter appear, our invention embodies the peculiar construction and novel arrangement of the parts that constitute the complete sliding door structure, all of which will be hereinafter fully explained, specifically pointed out in the appended claims and illustrated in the accompanying drawings, in which:

Figure 1 is a vertical section of a portion of a store or book case, with our improved sliding door applied, the latter being shown in side elevation, and the hinged door section being shown as partly raised in full lines, and closed in dotted lines. Fig. 2 is a side elevation of the hinged and sub-door members in horizontal alinement. Fig. 3 is a top plan view of one side of the hinged and sub-door members, positioned as in Fig. 2, the adjacent wall of the casing being in horizontal section. Fig. 4 is a plan view of the adjustable "sub-door" structure hereinafter specifically referred to. Figs. 5 and 6 are cross sections thereof on the lines 5—5 and 6—6 on Fig. 4, Figs. 7 and 8 are detail perspective views of one set of the hinged members that join the swinging and "sub-door" members, and Fig. 9 is a detail section taken on the line 9—9 on Fig. 4. Fig. 10 is a fragmentary top plan view similar to Fig. 3 but showing the hinged door section in closed position.

In the practical arrangement, our improved sliding door works on the horizontal plane directly under the casing shelf or counter and the said door includes an outer or hinged member and an inner or "sub-door" portion, having such lateral adjustments whereby it can be readily slid into horizontal guideways therefor in the casing for being moved back under the shelf, as the outer or hinged door section is raised and slid back under the shelf, the said adjustments also providing for setting the said "sub-door" for engaging stops at the front end of the casing for holding the said "sub-door" from being pulled out from under the shelf as the hinged door is pulled out and swung down to close over the casing compartment.

The outer or swinging member 1, usually a glass door, is hinged to an inner framing 2, which we term a "sub-door", and which is horizontally slidable under the shelf, its opposite ends engaging grooves or rabbets 3—3 in the opposite walls of the casing compartment *x*. The "sub-door" 2 the peculiar construction of which forms an essential feature of our invention, is composed of two sections 4—40, that slidably engage each other, the section 4 having a tongue like member 41 provided with edge grooves 42, for fitting within the bifurcated ends 43—43 of the section 40 said ends 43—43 having tongues 43^a—43^a for engaging the edge grooves 42, as is clearly shown in Figs. 5 and 6. The tongue member 41 has a clearance socket 44 for receiving the end of an expansive bolt 5 that engages a screw tap 60 in a steel plate 6 secured to the end of member 41. The bolt head 50 projects into a recess 45 cut in the section 40 and its shank passes through an aperture 70 in a steel plate 7 screwed onto the said section 40 over the recess 45, as is best shown in Fig. 4.

46 is a steel buffer plate for engaging the bolt head 50.

8—8 designate steel stop plates secured on at the forward end of each of the grooves or rabbets 3 and the said plates are of less thickness than the depth of the grooves 3 the reason for which will presently appear.

The glass or hinge door is connected to the "sub-door" by hinge joints, the construction of which is best shown in Figs. 1 and 3 and each of the said hinge joints consists of a steel plate 9, one of which is screwed

onto the opposite front edges of the "sub-door" by countersunk screws 93—93. The projected ends of the said plates 9 are offset to form stop shoulders for engaging the stop plates 8 at the outer ends of the casing grooves 3—3. Each of the hinge plates or members 9 has an inwardly projected hinge pintle 91 and a stop lug 92.

10—10 denote the hinge plates secured to the upper end of the hinge door 1 whose opposite side edges are offset as at 11—11 to accommodate the offset ends 12 of the hinge members 10, each of which is also provided with a pivot aperture 13 for receiving their respective pintles 91 on the hinge plates 9, said plates 10 also having notched portions 14 for closing down onto the stop lugs 92 when the door is swung up into horizontal alinement with the "sub-door", as is clearly shown in Fig. 2.

By referring to Fig. 3 of the drawings, it will be seen that the offsets of the plates 10—10 are considerably more than the offsets on the plates 9, such difference in the offsets being provided to allow sufficient lateral movement of the plates 9—9, so that when the "sub-door" sections are contracted, by a proper adjustment of the expansive bolt, the said "sub-door" is narrowed sufficiently to allow for pulling the stop shoulders of the hinge plates 9 out of engagement with the stop plates 8 and thereby admit of pulling the "sub-door" entirely out of the grooves 3—3 and from under the casing shelf, it being obvious that when the "sub-door" is shoved back into the grooves 3—3 to the operative position, the said "sub-door" can be readily expanded to bring the shouldered ends of the plates 9 in line for again engaging the stops 8—8.

From the foregoing taken in connection with the drawings, the complete construction, and the advantages of our invention will be readily apparent, it being understood, that when it is desired to slide the glass or hinged door out of sight, the said door by grasping the knob 17, is swung up to the horizontal plane in alinement with the "sub-door" and pushed back with the "sub-door" under shelf until its knob 17 engages the casing front.

What we claim is:

1. A closure means of the character described, comprising in combination: an open front casing having horizontal guide grooves on their opposite side walls near their upper end; a frame horizontally slidable in the said grooves, a door hinged to the outer or front end of the frame and adapted when swung up in alinement with the frame to slidably engage the grooves in the casing sides, stops located in the outer ends of the guide grooves for limiting the outer movement of the sliding frame, and means for laterally expanding and contracting the slidable frame, to adapt the said frame for engaging or clearing the aforesaid stops, according to the adjustment thereof.

2. In a closure means of the character described, the combination with an open front casing having oppositely disposed horizontal grooves near the upper ends of the sides thereof, and stops located in the front ends of the said grooves; of a frame slidable in the said horizontal grooves, a drop door, hinge connections that join the door and the front edge of the frame, said connections including hinge plates secured to and projected from the opposite front edges of the frame, and having offsets that form shoulders for engaging the stops in the grooves when the frame is pulled out to its forward position, said plates each having a lateral pivot pintle and a lateral stop lug, said connections also including plates secured to the opposite upper edge of the drop door, said plates having apertures for engaging the pintles in the coöperating hinge plates and a notched portion for engaging the stop lugs in the said other cooperating hinge plates.

3. In a closure means of the character stated, the combination with a casing having horizontal guide grooves in the opposide side walls thereof; of a frame horizontally slidable in the said guide grooves, a drop door, and hinge connections that join the upper edge of the door and the front end of the frame, said hinge connections comprising a pair of plates projected from the opposite sides of the slidable frame, said plates having lateral inwardly projected pintles and stop lugs, another pair of plates mounted on the opposite sides of the upper end of the drop door, said plates having apertures for receiving the respective pintles on the opposing hinge plates and notched ends for engaging the stop lugs on the said other plates when the drop door is swung up in horizontal alinement with the slidable frame.

4. In a door structure of the character described, the combination with a casing having horizontal guide grooves in the opposite side walls that extend to the front edge of the casing, and stop plates in the said front ends, said plates being of less thickness than the depth of the grooves; of a frame slidably mounted in the grooves, a drop door, hinge connections that join the upper edge of the drop door and the front end of the slidable frame, said connections including a pair of plates projected from the opposite sides of the front end of the slidable frame, said plates having offsets that form shoulders for engaging the stops in the grooves, each of said plates also having an elongated pintle and a stop lug, other plates attached to the upper end of the drop door that coact with

the plates on the slidable frame, the extended ends of the said other plates having offsets, deeper than the offsets on the opposing plates, and each provided with an aperture for the pintles, the said other plates also having notched ends for closing down onto the lugs on the pintle carrying plates, and means for expanding and contracting the slidable frame, whereby to adapt the stop shoulders on the hinge plates thereon, to engage the said stops in the guide grooves, or clear the said stop as the adjustment of the frame may provide.

5. In a closure means of the character stated, the combination with a casing having a pair of horizontal and oppositely disposed guide grooves, that extend to the front of the said casing, a stop plate located in each groove near the front end thereof, said plates being of less thickness than the depth of the grooves; of a laterally adjustable frame slidably mounted in the said grooves, a drop door, hinge connections that join the said door and the frame and that provide for swinging the drop door in horizontal alinement with the slidable frame for pushing the said door back into the casing grooves, and for dropping the door over the casing when the slide frame is pulled forward, said frame having stop shoulders for engaging the stop plates in the said guide grooves, said frame comprising two telescopic sections and an expansion screw device that coöperates with the said sections for spreading or closing in the said frame sections whereby to adapt the frame so its shoulders either engage or clear the stop plates in the guides, according to the adjustments thereof.

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