

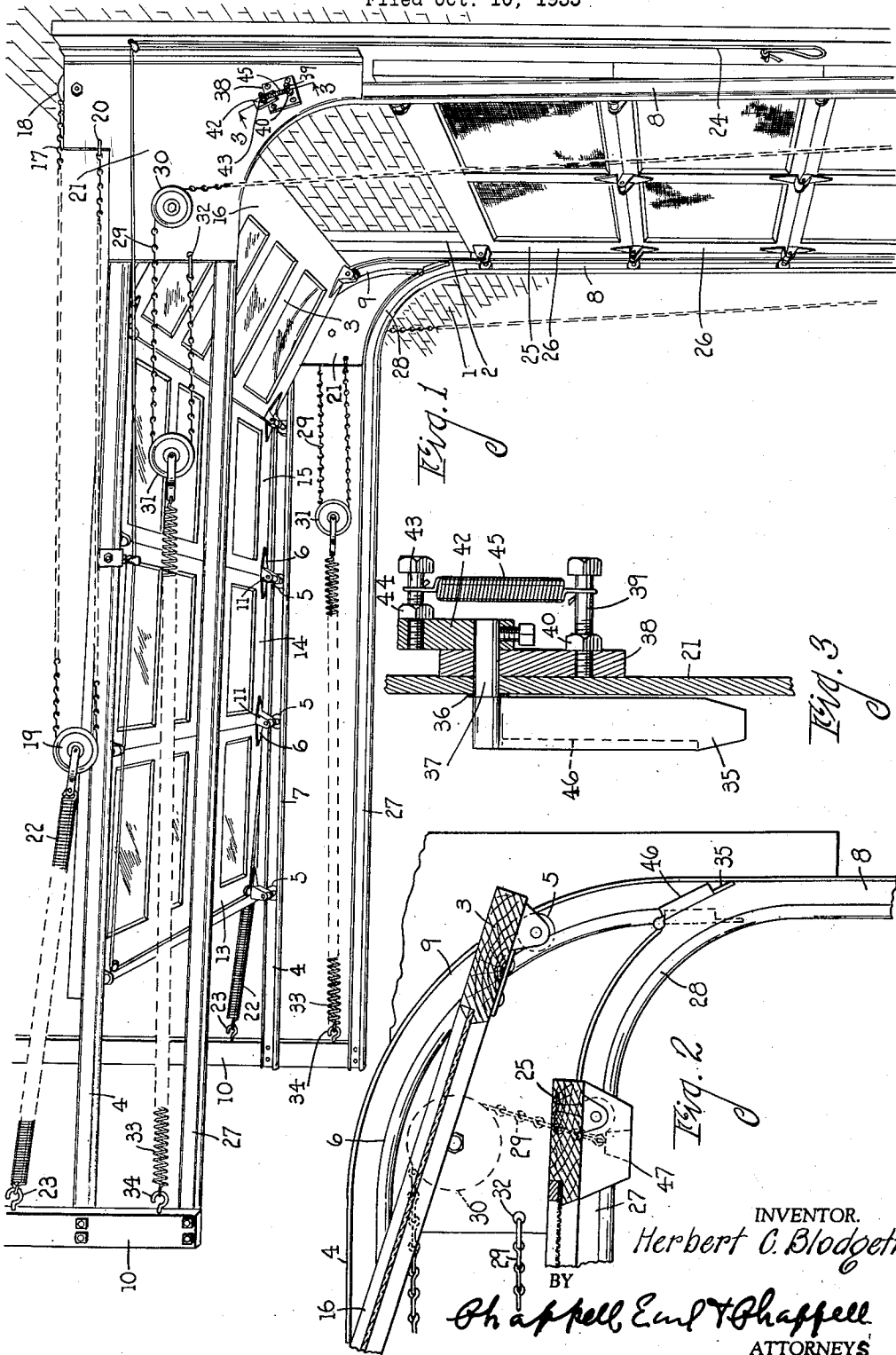
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VERTICALLY SLIDING DOOR CONSTRUCTION

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## VERTICALLY SLIDING DOOR CONSTRUCTION

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The main objects of my invention are:

First, to provide a vertically sliding door construction in which a principal door and an auxiliary door, for example, a screen door, are adapted to be selectively moved into place against the jamb of a doorway to close the same.

Second, to provide framework comprising tracks and switching elements to suitably direct one or another of a plurality of doors selectively from closing position into a horizontal inoperative position.

Third, to provide a structure accommodating a plurality of retractable doors, which is characterized by the simplicity and economy of parts thereof.

Objects relating to details and economies of my invention will appear from the description to follow. The invention is defined and pointed out in the claims.

A structure which is a preferred embodiment of my invention is illustrated in the accompanying drawing, in which:

Fig. 1 indicates a perspective view of the hinged door structure in operative position against the wall of a building.

Fig. 2 is a side elevation illustrating the position of a plurality of doors in my structure, showing their relation to the guide tracks therefor, and a switching element in said tracks, parts being broken away.

Fig. 3 is an enlarged sectional view taken on the line 3—3 of Fig. 1 and illustrating details of the switching device.

By the invention hereinafter described, I have provided an upwardly opening or vertically sliding door structure in which a paneled or sectional hinged door is slidable into vertical closing position in upstanding tracks and in which an auxiliary screen door is also slidable into closing position in the same upstanding tracks. The desirability of having both a panel door and a screen door as a closure, for instance for a garage, shop, factory or the like, is recognized and my construction is intended primarily for such use.

However, it will be apparent that it may be adapted for use in any connection where a pair of doors, one solid and the other having screened sections, is to be desired. It is obvious that the feature of a screen door which is available at will in a garage is advantageous due to the danger arising from carbon monoxide gas in the exhaust of an automobile in an entirely closed garage, and for other reasons, such as variations in weather conditions, a plurality of doors is desirable. My improved construction provides

such a plurality of doors characterized further by the admitted advantages residing in an upwardly acting hinged door construction. This result is obtained without adding materially to the complication of parts, inasmuch as both doors operate in the single vertical operating track required for the principal paneled door.

In the drawing, the reference numeral 1 indicates the building or garage to which my double door structure is applied, having the usual door jambs 2. The solid panel or sectional door 3 is shown in its elevated position in a pair of elevated horizontally disposed guide tracks 4. Guide elements in the form of rollers 5 are mounted on said door adjacent the panel hinges 6 thereof to travel in said tracks, being retained therein by an upstanding flange 7 on each of the tracks. A pair of vertical tracks 8 are disposed at a slight angle to the jambs 2, and the main or solid door 3 is capable of being lowered into said vertical tracks to provide a closure for the doorway. As indicated, curved track sections 9 join horizontal tracks 4 with vertical tracks 8, the cross section of track sections 9 and vertical tracks 8 being identical to the cross section of tracks 4. Tracks 4 are supported at their extreme ends on vertical hangers 10 secured to the ceiling or other supports by bolts or other suitable means. The rollers 5 on the main paneled door 3 are spaced at graduated distances from the door to compensate for the angle between vertical tracks 8 and the door jambs, being mounted in brackets 11 of graduated heights for the outer hinges 6 of the various sections 13, 14, 15 and 16 comprising the main door. Spring means are provided to counterbalance the weight of door 3 in order to facilitate the lifting thereof into its upper horizontal, open or inoperative position, comprising chains 17 suitably attached to lower section 16 of door 3 and passing over pulleys 18 and 19, being anchored at 20 to brackets 21 secured to the jambs 2. Pulleys 18 are mounted for rotation on brackets 21 and pulleys 19 have secured thereto tension springs 22 which are anchored to hooks 23 fastened on hangers 10. I guide ropes or chains 24 by which the operator may pull the elevated door into closing position. As will be obvious, springs 22 are preferably of a degree of tension to substantially counterbalance the weight of door 3.

The reference numeral 25 indicates a screen door frame provided with sections 26 of appropriate screen material. The sections of door 25 are hinged together in the same manner as the sections of door 3, having similar brackets 11

mounting rollers 5 which are at graduated distances from the door 25 in the same manner as are the rollers 5 on door 3, for the purpose of compensating for the angle between tracks 8 and jambs 2 and to maintain the door flush with the jambs.

The horizontal auxiliary supporting tracks 27 are secured at their free ends to hangers 10 similarly to the mounting of horizontal tracks 4 and are preferably of the same cross section as tracks 4. The tracks 27 are connected to tracks 8 by the curved track sections 28 which are of the same cross section as the other track members.

A spring urged screen door retracting means is made in the chains 29 passing over pulleys 30, 31 and anchored to bracket 21 at 32, the pulleys 31 being yieldably connected by the springs 33 which are anchored by hooks 34 to the hangers 10. Springs 33 are tensioned to approximately counterbalance the weight of the lighter auxiliary screen door 25. As indicated in Fig. 2, chains 29 are secured by a suitable flanged member 47 to the bottom panel of screen door 25. A suitable provision is made for securing chains 17 to door 3.

At the junction point of track sections 9 and 28 and upstanding tracks 8, I pivotally mount switch members 35 mounted on the brackets, spaced from the brackets by washers 36 and having lateral pivot pins 37 thereon. The pins 37 project through brackets 21 and plates 38 which are suitably attached to brackets 21. Threaded into the plates 38 to abut against brackets 21 are bolts 39 provided with lock nuts 40 to maintain the bolts in fixed relation to plates 38. Rigid with respect to the projecting ends of the pins 37, I secure extension members 42, said members each having mounted at an upper extremity thereof, as indicated in Fig. 3, a bolt 43, lock nut 44 maintaining the relation of the bolt with respect to member 42. I dispose a coil spring 45 under tension between the bolts 39 and 43.

By the above means, the switch members 35 are adapted to abut against either side or flange of tracks 8 to prevent the doors 3 and 25 from being withdrawn into improper horizontal elevated supporting tracks. Due to the snap action of the switches 35, they may be operated by the doors themselves, and a flange 46 is provided on each switch 35 to prevent sideward displacement of the rollers 5 while passing the switch. In Fig. 2, the position of the switch shown in full lines indicates that the screen door 25 has been retracted from the operating tracks 8. If it is desired to lower the solid paneled door 3, the ropes 24 are pulled, whereupon the solid door will be lowered, the advance guide rollers 5 thereof striking the switch members 35 to displace them into the position illustrated by dotted lines in Fig. 2. In this position of the switches, the door 3 may later be elevated back into its horizontal supporting tracks 4, switches 35 preventing the rollers on the door 3 from entering the track sections 28 and tracks 27 which are occupied by the screen door 25. It will be apparent that the side walls of the tracks 8 adjacent the switches 35 provide limit stops for the spring actuated oscillating movement of the switches when the movement is initiated by a door.

The foregoing description is believed to point out the operation of my door construction with sufficient clearness and to indicate the practical advantages inherent therein which may be summarized by stating that a double door arrangement having all-season utility is provided with

very little added structure to complicate the same or increase the cost of production and installation of the same, inasmuch as both hinged upwardly retractable doors are received in operative closing relation in the same pair of tracks 8. The structure is unfailing in its operation due to the utter simplicity of the design thereof. The switches 35 are of the simplest type, yet embody the essence of reliability.

I have illustrated and described my improvements in an embodiment which I have found very practical. I have not attempted to illustrate or describe other embodiments or adaptations as it is believed this disclosure will enable those skilled in the art to embody or adapt my improvements as may be desired.

Having thus described my invention, what I claim as new and desire to secure by Letters Patent is:

1. In a sliding door structure, the combination with an upwardly slidable and horizontally retractable hinged section door having rollers, a horizontal elevated supporting track, and a vertical operating track, of an auxiliary hinged section door having rollers, a horizontal auxiliary supporting track therefor below said first mentioned supporting track, said supporting tracks being connected to said operating track by curved track sections, said doors being movable into closing position in said operating track, a spring urged switch disposed in said operating track at the point of junction therewith of said track sections, said doors being capable of being selectively retracted into the respective horizontal supporting tracks therefor, and means for selectively operating said doors.

2. In a sliding door structure, the combination with an upwardly slidable and horizontally retractable hinged section door having rollers, a horizontal elevated supporting track, and a vertical operating track, of an auxiliary hinged section door having rollers, a horizontal auxiliary supporting track therefor joined to said vertical track, said supporting tracks being connected to said operating track by curved track sections, said doors being movable into closing position in said operating track, a switch disposed in said operating track at the point of junction therewith of said track sections, said doors being capable of being selectively retracted into the respective horizontal supporting tracks therefor, and means for selectively operating said doors.

3. In a door construction, a vertical operating track, a pair of horizontal elevated supporting tracks, a pair of hinged section doors associated with said tracks and selectively movable into said vertical operating track to close a doorway or retractable into one or another of said supporting tracks, and a spring urged switch controlling access of said doors to said supporting tracks, said switch being actuated by said doors.

4. In a door construction, an operating track, a pair of supporting tracks, a pair of doors associated with said tracks and selectively movable into said operating track to close a doorway or retractable into one or another of said supporting tracks, and a switch controlling access of said doors to said supporting tracks, said switch being actuated by said doors.

5. In a sliding door structure, the combination of a channeled main track comprising a vertical section and a horizontal section, a hinged panel main door provided with guide rollers traveling in said main track, a channeled auxiliary door

track disposed horizontally below the horizontal portion of the main track, the bottom flange of said auxiliary track joining the rear flange of the main track, a sectional auxiliary door provided with rollers coacting with said auxiliary track and adapted to enter the vertical portion of said main track, a switch pivotally mounted at the juncture of said main and auxiliary tracks and adapted to swing against the rear flange of the main track when in one position and against the front flange of the main track when in another position, said switch having a flange on its outer side complementing the flange of the main track when the switch is in main door guiding position, and means for yieldingly holding said switch in both its switching positions, the guide rollers at the lower ends of said doors constituting means engaging said switch for automatically shifting it on the selective lowering of the doors.

6. In a sliding door structure, the combination of a channeled main track comprising a vertical section and a horizontal section, a hinged panel main door provided with guide rollers traveling in said main track, a channeled auxiliary door track disposed horizontally below the horizontal portion of the main track, the bottom flange of said auxiliary track joining the rear flange of the main track, a sectional auxiliary door provided with rollers coacting with said auxiliary track and adapted to enter the vertical portion of said main track, and a switch pivotally mounted at the juncture of said main and auxiliary tracks and adapted to swing against the rear flange of the main track when in one position and against the front flange of the main track when in another position, said switch having a flange on its outer side complementing the flange of the main track when the switch is in main door guiding position.

7. In a door structure in which the door is movable between a vertical active position relative to the frame and a horizontal inactive position, the combination of a main track comprising a vertical section and a horizontal section, a main door traveling in said main track, an auxiliary door track disposed horizontally below the horizontal portion of the main track, an auxiliary door coacting with said auxiliary track and adapted to enter the vertical portion of said main track, a switch at the juncture of said main and auxiliary tracks, and means for yieldingly holding said switch in both its switching positions, the said doors constituting means engaging said switch for automatically shifting it on the selective lowering of the doors.

8. In a door structure in which the door is movable between a vertical active position relative to the frame and a horizontal inactive position, the combination of a main track comprising a vertical section and a horizontal section, a main door traveling in said main track, an auxiliary door track disposed horizontally below the horizontal portion of the main track, an auxiliary door coacting with said auxiliary track and adapted to enter the vertical portion of said

main track, and a switch at the juncture of said main and auxiliary tracks.

9. In a sliding door structure, the combination of a door jamb, a main track comprising a vertical section disposed in operative relation to said door jamb and a horizontal section joined to the top thereof, an auxiliary track disposed below the horizontal portion of said main track and joined to the upper end of the vertical section of said main track, a main sectional door provided with guide rollers traveling in said main track, an auxiliary door provided with guide rollers traveling in said auxiliary track section and the vertical section of said main track, a pivoted switch disposed to close the entrance to said auxiliary track when in one position and to close the entrance to the horizontal portion of the main track when in another position, and a spring means acting to hold said switch in either of its track closing positions, said switch being automatically actuated by the closing of a door to a position to guide the return of the door by which it has been actuated on the opening movement thereof.

10. In a sliding door structure, the combination of a door jamb, a main track comprising a vertical section disposed in operative relation to said door jamb and a horizontal section joined to the top thereof, an auxiliary track disposed below the horizontal portion of said main track and joined to the upper end of the vertical section of said main track, a main sectional door provided with guide rollers traveling in said main track, an auxiliary door provided with guide rollers traveling in said auxiliary track section and the vertical section of said main track, and a switch disposed to close the entrance to said auxiliary track when in one position and to close the entrance to the horizontal portion of the main track when in another position.

11. In a sliding door structure, the combination of a track assembly comprising a vertical door closing section and a main door retracted section and an auxiliary door retracted section, said main and auxiliary door retracted sections being joined to the top of said closing section, main and auxiliary doors retractable onto their respective retracted sections, and a switch means operatively associated with said door closing track section and said main and auxiliary retracted sections and operated by closing movement thereof to provide a guide for the closed door on its upward movement into its retracted track section.

12. In a sliding door structure, the combination of a track assembly comprising a vertical door closing section and a main door retracted section and an auxiliary door retracted section, said main and auxiliary door retracted sections being joined to the top of said closing section, main and auxiliary doors retractable onto their respective retracted sections, and a switch means operatively associated with said door closing track section and said main and auxiliary retracted sections.

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