

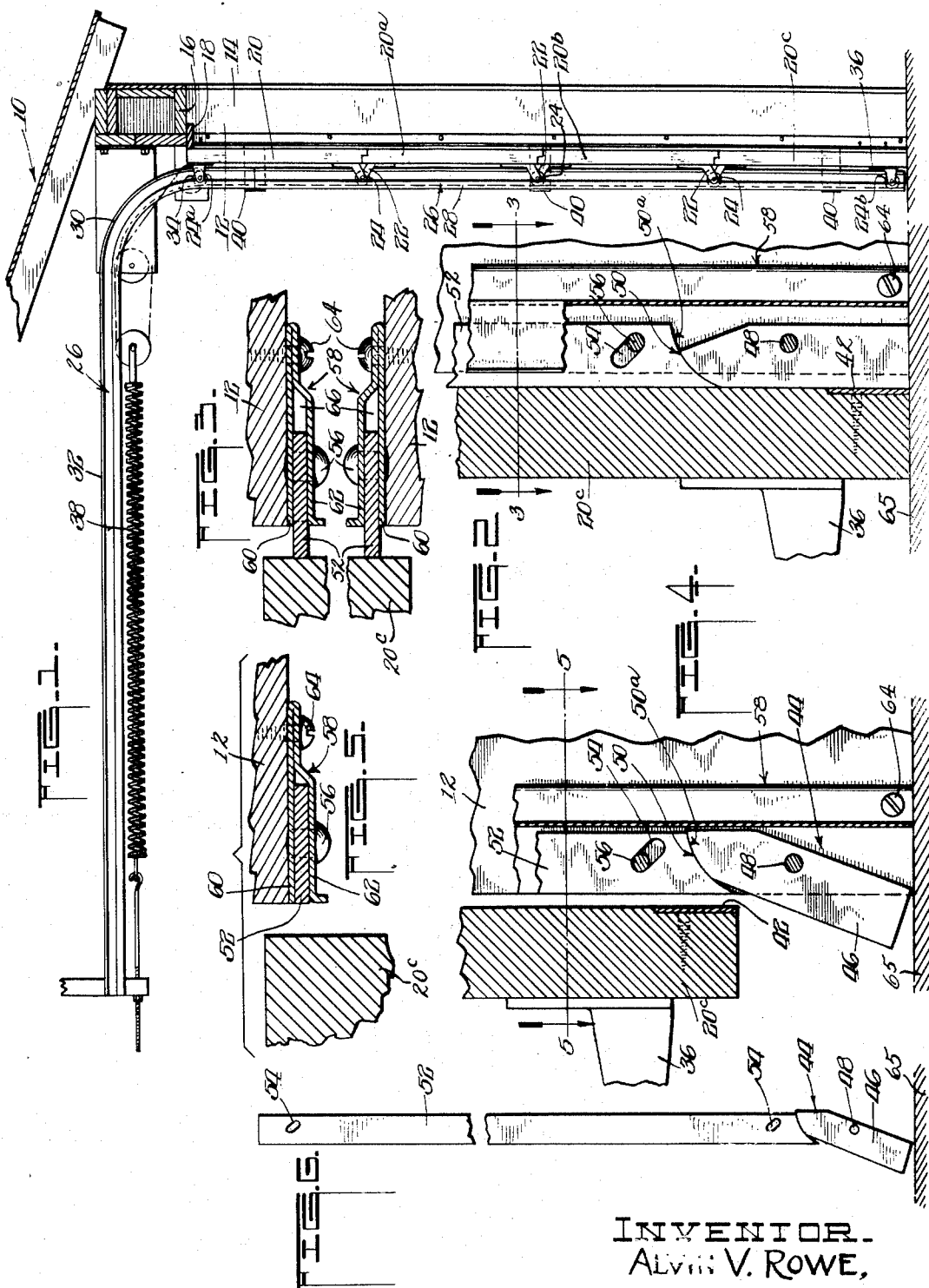
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A. V. ROWE

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DOOR CONSTRUCTION

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ATTY'S

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DOOR CONSTRUCTION

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7 Claims. (Cl. 20—20)

This invention relates generally to door constructions of the overhead type, wherein a plurality of connected door sections or panels may be shifted between a substantially vertical door closing position and a substantially horizontal overhead position.

It is one of the primary objects of my present invention to provide a door structure which is extremely simple in construction, requires a minimum number of constituent parts and which may be very economically manufactured.

Another object of my invention is to provide, in combination with a shiftable door device, new and improved means for automatically sealing the device when it occupies its closed position.

More specifically, my invention contemplates the provision of means for automatically engaging the outer or front side of a door section as said section reaches its closing position, said means providing a seal for said section.

Still another object of my invention is to provide means shiftable toward and away from the outer surface of the shiftable door member and adapted to sealingly engage the outer surface of the member.

A further object of my invention is to provide a simple and improved door sealing means as above set forth, which serves automatically to urge a door member away from the door jamb, and at the same time provides a seal between said parts.

A still further object of my invention is to provide an improved door sealing construction, which is particularly adaptable for use with door structures of the overhead type, wherein a plurality of hingedly connected door sections or panels are shifted between vertical and horizontal positions, and to this end I propose to provide a vertically disposed bar at each door jamb, said bars being shiftable toward the door sections when occupying their vertical door closing position, thereby providing an effective seal between the door jambs and the door sections.

The foregoing and numerous other objects and advantages will be more apparent from the following detailed description when considered in connection with the accompanying drawing, wherein—

Figure 1 is a side elevational view of my improved door sealing device shown in operative association with the door jamb of a building, said building being shown fragmentarily and the view being taken in substantial vertical cross-

section of said building across the door opening thereof;

Figure 2 is an enlarged elevational view of the lower portion of the door sealing device shown in Figure 1, said device being shown in sealing relation with respect to the lowermost door section, and a portion of the bar guiding device being broken away to more clearly disclose the functional and structural characteristics of said bar and the lever mechanism for operating same;

Figure 3 is a vertical transverse sectional view taken substantially along the line 3—3 of Figure 2 and showing both sealing bars.

Figure 4 is an enlarged view similar to Figure 2 disclosing the sealing bar in its unsealing position with the lowermost door section in an elevated position;

Figure 5 is a vertical transverse sectional view taken substantially along the line 5—5 of Figure 4; and

Figure 6 is an elevational view of the sealing bar and the actuating mechanism therefor detached from their respective mountings.

Referring now to the drawing more in detail wherein like numerals have been employed to designate similar parts throughout the various figures, it will be seen that for the purpose of illustrating one practical application of my invention, and not by way of limitation, I have disclosed the same in operative association with a building designated generally by the numeral 10 in Figure 1. This building structure, which is similar in many respects to conventional types of garages, includes the usual door jambs 12 positioned on opposite sides of a door opening 14. The upper portion of the opening 14 is traversed by a suitable overhead structure 16 and a sealing strip 18, the inner edge of which is adapted to be adjacently positioned with respect to the outer surface of the uppermost of a plurality of door sections or panels 20, 20a, 20b, and 20c.

These door sections or panels are connected at each end by hinges 22. Positioned axially of these hinges are rollers 24, which are directed within companion guide rails 26. These companion guide rails 26 include an upright vertical section 28, a curved section 30 and a substantially horizontal section 32. Brackets 34 carried at the upper end of the upper door section 20 support rollers 24a, which are also directed by their companion guide rails, and brackets 36 carried by the lower door section 20c also support rollers 24b. In accordance with the usual practice, one of these guide rail structures 26 is positioned on each side of the door opening, and the rollers carried

by the door sections at opposite ends thereof are shiftable within said guide rails. A suitable counterbalanced spring 38 is connected with the door sections so as to facilitate the raising thereof. It should be noted that each guide rail section 28 is positioned in parallelism with the inner surface of the door jambs and is secured in a fixed position by means of suitable brackets 40, Figure 1.

From the foregoing it will be apparent that through the agency of the rollers carried by the door sections and the guide rails 32, said sections may be shifted between the substantially vertical door closing position shown in Figure 1 to a substantially horizontal overhead open position. Attention is directed to the fact that the vertical section 28 of the guide rail structure 26 is so spaced from the adjacent door jambs 12 that as the door sections are shifted from their horizontal overhead position to the vertical position, a space, preferably about one-quarter of an inch, is presented between the outer surfaces of the door sections and the inner adjacent surfaces of the door jambs. This is clearly shown in Figure 4 wherein the lowermost door section 20c occupies an elevated position. As this door member 20c approaches the limit of its downward movement, an abutment plate 42 carried thereby moves into engagement with an actuating or lever mechanism designated generally by the numeral 44. This mechanism 44 includes a lever 46, which is pivotally supported upon a suitable stud 48. The upper extremity of this lever 46 has an arcuate surface 50, which operatively engages a companion arcuate surface 50a formed at the lower extremity of a vertically disposed door sealing bar 52.

This bar 52 is provided at spaced intervals with slots 54, and extending through each of these slots is a supporting pin 56. A channel or guiding device 58 serves as a guiding means for each of the bars 52, as clearly shown in Figures 3 to 5 inclusive. In the present embodiment I have disclosed this channel or guiding device 58 comprised of a single piece of flat stock folded over upon itself so as to present two oppositely disposed strip sections 60 and 62. Screws 64 serve to secure the guiding device 58 in position upon its companion door jamb 12, and it will be seen that the space 66 presented between the strip sections 60 and 62 is of sufficient width to permit of a sliding movement of the sealing bar toward and away from the hingedly connected door sections. The bars 52 in the present embodiment are of sufficient weight so that the force of gravity normally retains said bars in position shown in Figures 4 and 5. In this position the outer edges of the bars are located in substantially the same plane as the inner surfaces of the door jambs, and hence a space is presented between the bars and the outer surfaces of the door sections.

As the abutment plate 42 of the lowermost section 20c is moved into engagement with the projecting portion of the lever 46, said lever is urged in a counterclockwise direction, Figure 4, thereby causing the bar 52 to be urged upwardly and inwardly toward the door sections 20, 20a, 20b, and 20c. As the door section 20c reaches the limit of its downward movement and abuts the floor 65 of the building, as clearly shown in Figure 2, the bars 52 will have been moved through the operation of the actuating or lever mechanism 44 into sealing engagement with said door sections. In this position the bars 52 provide an effective seal between the door jambs and the door sec-

tions. When the door sections are again shifted upwardly and the abutment plate 42 moves away from the lever 46, the weight of the bars 52 is sufficient to cause the lever 46 to be automatically urged in a clockwise direction to the position shown in Figure 4. Contemporaneously with the shifting of the levers 46, the bars 52 laterally shift away from the door sections, thereby providing sufficient clearance to permit of the convenient upward shifting of said sections.

From the foregoing it will be apparent that my invention contemplates the provision of a door sealing device of improved practical construction. By employing my improved sealing device, the constituent parts, which are supported solely by the door jambs, no additional weight is carried by the door sections, and hence said sections may be shifted with a minimum amount of manual effort. The shiftable or operating parts are few in number and are of extremely simple design. Therefore, all of said parts may be economically produced by the practice of conventional shop methods. The above described structure may be very conveniently installed in any building, such as a garage by merely mounting the guide rails in proper position with respect to the door jambs and then mounting the door sealing mechanism, comprising the bars 52, the actuating lever 46, and the guiding devices 58, on each of the door jambs. In other words, the installation may be made without modifying the building structure, and said installation may be made with a minimum amount of skill and effort. Thus, it may be said that my improved door construction enables the installation of overhead type doors equipped with very efficiently and automatically operable sealing means at a very low cost. One of the advantages presented by the present invention resides in the fact that sufficient clearance for sliding the door sections in the vertical section of the guide rails is presented, thereby precluding any jamming or sticking of said sections.

It will also be noted that my invention provides a new and effective means for sealing a door member which is slidable over a door frame, namely, the door jambs and the associated door structure. In other words, the bars 52 provide means for sealing a door member or a plurality thereof with respect to the door frame, such as the door jambs 12.

Obviously, the invention is not limited to the specific structural arrangement disclosed in the drawing, but is capable of other modifications and changes without departing from the spirit and scope of the appended claims.

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

1. In a door structure, a door frame, a door member slidable over said frame, means for guiding said door member in its sliding movements, means shiftable into engagement with said door member for sealing the same with respect to said frame, and a lever mechanism operable in response to the shifting of said door member for actuating said shiftable sealing means.

2. In a door structure, a door frame, a door member slidable over said frame, means for guiding said door member in its sliding movements, means shiftable into engagement with said door member for sealing the same with respect to said frame, and means including a lever mechanism operable in response to the shifting of said door

member for actuating said shiftable sealing means.

3. In a door structure, a door frame, a door member slidable over said frame, means for guiding said member in its sliding movements, a shiftable bar supported in a substantially vertical position adjacent the door frame, said bar being laterally shiftable for effecting a seal between the door member and said frame, and a lever mechanism operated by the shiftable door member for automatically actuating said shiftable bar.

4. In a door structure, a door frame, a door member slidable over said frame, means for guiding said member in its sliding movements, a shiftable bar supported in a substantially vertical position adjacent the door frame, said bar being laterally shiftable for effecting a seal between the door member and said frame, and a lever mechanism positioned adjacent the lower portion of said bar for effecting the automatic actuation thereof.

5. In a door structure, a door frame, a door member slidable over said frame, means for guiding said door member in its sliding movements, sealing means including a vertically disposed member shiftable toward and away from said door member to provide a seal in said door member and said frame, the weight of said sealing member serving to effect the automatic shifting thereof in a direction away from the door member, and means for shifting said sealing means into engagement with the door member.

6. In an overhead door construction, a door

frame, a plurality of hingedly connected door panels adapted to be shifted between open overhead position and a substantially vertical door closing position, means for guiding said panels during the sliding movements thereof, door sealing means including a vertically disposed laterally slidable sealing bar positioned along each side of the hinged panels, said bar having an edge for engaging the outer surface of all of the door panels simultaneously when shifted laterally, the weight of said bar cooperating to effect the shifting thereof away from said panels, and means for automatically effecting the shifting of said bars into engagement with said panels when said panels approach their door closing position.

7. In an overhead door construction, a door frame, a plurality of hingedly connected door panels adapted to be shifted between open overhead position and a substantially vertical door closing position, means for guiding said panels during the sliding movements thereof, door sealing means including vertically and horizontally slidable means positioned along each side of the hinged panels, said vertically and horizontally slidable means having an edge for engaging the outer surface of the door panels when in closed position, the weight of said sealing means cooperating to effect the shifting thereof away from said panels, and means for automatically effecting the shifting of said vertically and horizontally slidable means into engagement with said panels when said panels approach their door closing position.

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