

SECTIONAL DOOR STRUCTURE

FIELD OF THE INVENTION

[0001] The present invention relates to a sectional door structure, and more particularly, to a sectional door structure in which the speed of the opening/closing action can be easily adjusted or set.

BACKGROUND OF THE INVENTION

[0002] FIG. 1, FIG. 2, FIG. 3 and FIG. 4 show a conventional sectional door. When the door is to be opened, actuating rods 1A of a pair of power-driven telescopic rods 1 are extended to push an upper door body 2 forward, rollers 3A on both sides of a lower door body 3 are moved upward within guide grooves 4A of door posts 4. Because the upper door body 2 and the lower door body 3 are pivotally connected, the upper door body 2 and the lower door body 3 are folded at an angle θ_N to open the door. On the contrary, when the actuating rods 1A of the power-driven telescopic rods are retracted, the upper door body and the lower door body are unfolded each other reversely until the door is closed. Generally speaking, the opening/closing of the sectional door will be done at a higher speed each time under the condition that the actuating rods 1A of the power-driven telescopic rods 1 are driven at a constant speed in accordance with safety. As shown in FIG. 2, since the distal end of the power-driven telescopic rod 1 is pivoted to a pivot bracket 5, only one point (force-applying) is supported by a pivot. The force-applying angle α_1 of the actuating rod 1A relative to the inner surface of the upper door body 2 is determined when the sectional door is installed. When the opening/closing action of the door has safety concerns or is not smooth and when it is necessary to adjust the force-applying angle α_1 of the power-driven telescopic rod 1, it will take a lot of man-hours and labor for the modification of the power-driven telescopic rod 1. In other words, most of the sectional doors are designed according to the conditions of the installation site and are customized products. Due to the difference in the length and width/volume of the upper and lower doors 2, 3 or due to the weight difference caused by materials, it is difficult to determine the correct force-applying angle α_1 of the power-driven telescopic rod 1 by experience or graphical analysis. It is inevitable to determine the force-applying angle wrongly. Although the error can be found in the actual test after installation, it is time-consuming and laborious to modify the project. If the ideal

force-applying angle α_1 can be adjusted at the installation site, it will improve the construction efficiency of the sectional door installation project.

SUMMARY OF THE INVENTION

[0003] The primary object of the present invention is to provide a sectional door structure, comprising a door frame, an upper door body, a lower door body, at least one guide rail, at least one support member, and at least one power-driven telescopic rod.

[0004] The door frame includes a pair of door posts and a cross beam connected to upper ends of the pair of door posts. The pair of door posts have a pair of guide grooves on opposing sides thereof.

[0005] The upper door body has an upper side pivotally connected to the cross beam and at least one pivot member on a lower end of an inner surface of the upper door body.

[0006] The lower door body has an upper side pivotally connected to a lower side of the upper door body, left and right sides, and a pair of rollers that are disposed on lower sections of the left and right sides and fitted in the pair of guide grooves.

[0007] The guide rail is located above the pivot member and corresponds in number to the pivot member. The guide rail includes a fixed seat connected to the door frame and a horizontal slide rail on one side of the fixed seat.

[0008] The support member corresponds in number to the guide rail. The support member includes a support plate. The support plate has at least one pivot hole and a guide portion at one end thereof. The guide portion matches the slide rail for the guide portion to be moved forward and backward on the slide rail relative to the inner surface of the upper door body. After the guide portion is moved to a determined position, the guide portion is locked.

[0009] The power-driven telescopic rod corresponds in number to the pivot member. The power-driven telescopic rod includes a cylindrical arm and a power-driven actuating rod in the cylindrical arm. The actuating rod has a telescopic end that is pivotally connected to the pivot member. The cylindrical arm has a distal end that is pivotally connected to the pivot hole of the support plate.

[0010] The guide portion of the support member is selectively positioned on the slide rail of the guide rail, which determines the force-applying angle of the actuating rod of the power-driven telescopic rod acting on the pivot member on the inner surface of the upper door body. When the actuating rod of the power-driven telescopic rod is extended to a change

length from an initial length, the rollers of the lower door body are moved upward within the guide grooves. Because the upper side of the upper door body is pivotally connected to the cross beam, the upper door body and the lower door body are folded at an angle. When the actuating rod is extended to an end length, the upper door body and the lower door body are fully folded to open the door. On the contrary, when the actuating rod of the power-driven telescopic rod is retracted from the end length, the upper door body and the lower door body are unfolded each other reversely until the door is closed. If the user wants to slow down the opening/closing speed of the upper door body and the lower door body, the guide portion on the slide rail is unlocked to slide the guide portion away from the inner surface of the upper door body. After the adjustment position of the guide portion is determined, the guide portion is locked again. When the force-applying angle of the actuating rod of the power-driven telescopic rod relative to the pivot member on the inner surface of the upper door body increases, under the condition that the actuating rod of the power-driven telescopic rod is extended/retracted at the same speed and the upper door body and the lower door body are folded at the same angle, the actuating rod requires a longer telescopic length for extension and retraction, so as to slow down the action of opening/closing the door each time. That is, the stability of the opening/closing process can be improved by slowing down the opening/closing speed. By sliding or adjusting the locking position of the guide portion of the support member on the slide rail of the guide rail, the opening/closing action of the upper door body and the lower door body can be easily adjusted or set in accordance with the requirements of stability or safety.

[0011] Preferably, the at least one pivot member includes two pivot members located on the lower end of the inner surface of the upper door body close to left and right sides of the upper door body. The at least one guide rail includes two guide rails. The fixed seats of the guide rails are connected to the upper ends of the inner surfaces of the pair of door posts of the door frame. The at least one support member includes two support members. The guide portions of the support members are locked on the slide rails of the guide rails, respectively. The at least one power-driven telescopic rod includes a pair of power-driven telescopic rods each located between the corresponding pivot member and the corresponding support member. The actuating rod is pivotally connected to the corresponding pivot member. The distal end of the cylindrical arm is selectively pivoted to the pivot hole of the support plate. The actuating rods of the pair of power-driven telescopic rods exert forces evenly at the lower ends of the left and right sides of the upper door body, so that the opening/closing action of the upper door body and the lower door body can obtain a balanced pushing/pulling force from the pair of power-driven telescopic rods.

[0012] Preferably, the slide rail of the guide rail has a $\sqsubset$ -shaped chute. The $\sqsubset$ -shaped chute has at least one locking hole on an inner wall thereof. The guide portion of the support member is in the form of a slide plate corresponding in shape to the $\sqsubset$ -shaped chute. The guide portion has a plurality of spaced through holes corresponding in height to the at least one locking hole. The number of the through holes is greater than that of the at least one locking hole. After the guide portion is moved to the determined position in the $\sqsubset$ -shaped chute, at least one screw passes through one of the through holes and the corresponding locking hole and is locked by a nut, such that the guide portion is locked on the slide rail. When the screw is unlocked and moved out of the through hole, the guide portion is allowed to move in the $\sqsubset$ -shaped chute. The screw is inserted through another one of the through holes and the corresponding locking hole and locked again. Thus, the locking position of the guide portion on the slide rail can be adjusted with ease.

[0013] Preferably, the at least one pivot hole of the support plate of the support member includes a plurality of pivot holes. The plurality of pivot holes are arranged at equal intervals in a fan shape from a center point closest to the guide portion. When the distal end of the cylindrical arm of the power-driven telescopic rod is selectively pivoted to the pivot hole, it can be moved in the pivot hole to slightly adjust the force-applying angle of the actuating rod relative to the inner surface of the upper door body. When the distal end of the cylindrical arm is pivoted from the pivot hole to another pivot hole, the force-applying angle of the actuating rod relative to the inner surface of the upper door body is changed. A pivot shaft is provided on the distal end of the cylindrical arm of the power-driven telescopic rod. A screw section is formed on one end of the pivot shaft. The screw section passes through a selected one of the pivot holes and is screwed with a nut. By allowing the screw section to be displaced in the pivot hole, the threaded section can be loosened and locked by the nut before and after displacement to slightly adjust the force-applying angle. The center point is formed with a round hole through which the screw section of the pivot shaft is inserted, such that the distal end of the cylindrical arm is pivoted on the round hole through the pivot shaft. When the guide portion of the support member is moved forward on the slide rail toward the inner surface of the upper door body to the maximum and locked, the minimum force-applying angle of the actuating rod relative to the inner surface of the upper door body is adjusted.

[0014] Alternatively, the slide rail of the guide rail has a $\sqsubset$ -shaped chute. The $\sqsubset$ -shaped chute has at least one locking hole on an inner wall thereof. The guide portion of the support member is in the form of a slide plate corresponding in shape to the $\sqsubset$ -shaped chute.

The guide portion has at least one slot corresponding in height to the at least one locking hole. After the guide portion is moved to the determined position in the $\sqsubset$ -shaped chute, at least one screw passes through the slot and the corresponding locking hole and is locked by a nut, such that the guide portion is locked on the slide rail, and the force-applying angle of the power-driven telescopic rod relative to the inner surface of the upper door body is determined. When the screw is unlocked, the guide portion is allowed to move in the $\sqsubset$ -shaped chute. The screw is adjusted and locked again. Thus, the locking position of the guide portion on the slide rail can be adjusted with ease to change and the force-applying angle of the power-driven telescopic rod relative to the inner surface of the upper door body.

BRIEF DESCRIPTION OF THE DRAWINGS

- [0015] FIG. 1 is a perspective view of a conventional sectional door structure;
- [0016] FIG. 2 is a side sectional view of the conventional sectional door structure;
- [0017] FIG. 3 is a schematic view of the conventional sectional door structure, illustrating the folding process of the upper and lower door bodies;
- [0018] FIG. 4 is a schematic view of the conventional sectional door structure, illustrating that the upper and lower door bodies are fully folded to open the door;
- [0019] FIG. 5 is a perspective view of the present invention;
- [0020] FIG. 6 is an enlarged view of circle A of FIG. 5;
- [0021] FIG. 7 is an enlarged view of circle B of FIG. 5;
- [0022] FIG. 8 is an exploded view of the guide rail, the support member and the power-driven telescopic rod of the present invention;
- [0023] FIG. 9 is a side schematic view of the present invention when the door is closed;
- [0024] FIG. 10 is a side schematic view of the present invention, illustrating the folding process of the upper and lower door bodies;
- [0025] FIG. 11 is a side schematic view of the present invention, illustrating that the upper and lower door bodies are fully folded to open the door;

[0026] FIG. 12 is a side schematic view of the present invention, illustrating that the force-applying angle of the power-driven telescopic rod is changed;

[0027] FIG. 13 is a side schematic view of the present invention, illustrating the folding process of the upper and lower door bodies after the force-applying angle of the power-driven telescopic rod is changed;

[0028] FIG. 14 is a side schematic view of the present invention, illustrating that the force-applying angle of the power-driven telescopic rod is slightly adjusted;

[0029] FIG. 15 is a side schematic view of the present invention, illustrating that the power-driven telescopic rod is pivotally connected to another pivot hole;

[0030] FIG. 16 is an exploded view of another implementation of the support member of the present invention;

[0031] FIG. 17 is a side schematic view of the present invention, illustrating that another implementation of the support member is locked at a determined position; and

[0032] FIG. 18 is a side schematic view of the present invention, illustrating that the locking position of another implementation of the support member is adjusted.

DETAILED DESCRIPTION OF THE PREFERRED EMBODIMENTS

[0033] Embodiments of the present invention will now be described, by way of example only, with reference to the accompanying drawings.

[0034] As shown in FIG. 5 through FIG. 9, the present invention discloses a sectional door structure, comprising a door frame 10, an upper door body 20, a lower door body 30, at least one guide rail 40, at least one support member 50, and at least one power-driven telescopic rod 60.

[0035] The door frame 10 includes a pair of door posts 11 and a cross beam 12 connected to the upper ends of the pair of door posts 11. The pair of door posts 11 have a pair of guide grooves 110 on opposing sides thereof.

[0036] The upper door body 20 has an upper side pivotally connected to the cross beam 12 and at least one pivot member 21 on a lower end of an inner surface of the upper door body 20.

[0037] The lower door body 30 has an upper side pivotally connected to a lower side of the upper door body 20, left and right sides, and a pair of rollers 53 that are disposed on the lower sections of the left and right sides and fitted in the pair of guide grooves 110.

[0038] The guide rail 40 is located above the pivot member 21 and corresponds in number to the pivot member 21. The guide rail 40 includes a fixed seat 41 connected to the door frame 10 and a horizontal slide rail 42 on one side of the fixed seat 41.

[0039] The support member 50 corresponds in number to the guide rail 40. The support member 50 includes a support plate 51. The support plate 51 has at least one pivot hole 52C and a guide portion 53 at one end thereof. The guide portion 53 matches the slide rail 42 for the guide portion 53 to be moved forward and backward on the slide rail 42 relative to the inner surface of the upper door body 20. After the guide portion 53 is moved to a determined position, the guide portion 53 is locked.

[0040] The power-driven telescopic rod 60 may be in the form of a hydraulic cylinder or an electric screw. The power-driven telescopic rod 60 corresponds in number to the pivot member 21. The power-driven telescopic rod 60 includes a cylindrical arm 61 and a power-driven actuating rod 62 in the cylindrical arm 61. The actuating rod 62 has a telescopic end that is pivotally connected to the pivot member 21. The cylindrical arm 61 has a distal end that is pivotally connected to the pivot hole 52C of the support plate 51.

[0041] As shown in FIG. 9, the guide portion 53 of the support member 50 is selectively positioned on the slide rail 42 of the guide rail 40, which determines the force-applying angle β_1 of the actuating rod 62 of the power-driven telescopic rod 60 acting on the pivot member 21 on the inner surface of the upper door body 20, that is, the angle between the power-driven telescopic rod 60 and the inner surface of the upper door body 20. As shown in FIG. 9 and FIG. 10, when the actuating rod 62 of the power-driven telescopic rod 60 is extended to a change length L_{aN} from an initial length L_{a1} , the rollers 31 of the lower door body 30 are moved upward within the guide grooves 110. Because the upper side of the upper door body 20 is pivotally connected to the cross beam 12, the upper door body 20 and the lower door body 30 are folded at an angle θ_N . As shown in FIG. 11, when the actuating rod 62 is extended to an end length L_{a2} , the upper door body 20 and the lower door body 30 are fully folded to open the door. On the contrary, when the actuating rod 62 of the power-driven telescopic rod 60 is retracted from the end length L_{a2} , the upper door body 20 and the lower door body 30 are unfolded each other in a direction opposite to the FIG. 10 until

the door is closed, as shown in FIG. 9. As shown in FIG. 9 and FIG. 12, if the user wants to slow down the opening/closing speed of the upper door body 20 and the lower door body 30, the guide portion 53 on the slide rail 42 is unlocked to slide the guide portion 53 away from the inner surface of the upper door body 20. After the adjustment position of the guide portion 53 is determined, the guide portion 53 is locked again. When the force-applying angle β_2 (i.e. $\beta_2 > \beta_1$) of the actuating rod 62 of the power-driven telescopic rod 60 relative to the pivot member 21 on the inner surface of the upper door body 20 increases, under the condition that the actuating rod 62 of the power-driven telescopic rod 60 is extended/retracted at the same speed, as shown in FIGS. 9, 10, 12, and 13, and the upper door body 20 and the lower door body 30 are folded at the same angle θ_N , the actuating rod 62 requires a longer telescopic length ($L_{bN} - L_{b1} > L_{aN} - L_{a1}$) for extension and retraction, so as to slow down the action of opening/closing the door each time. That is, the stability of the opening/closing process can be improved by slowing down the opening/closing speed. For on-site installation of sectional doors, by adjusting the locking position of the guide portion 53 of the support member 50 on the slide rail 42 of the guide rail 40, the opening/closing action of the upper door body 20 and the lower door body 30 can be easily adjusted or set in accordance with the requirements of stability or safety.

[0042] According to the above embodiment, preferably, as shown in FIGS. 5, 6, 7, and 8, the at least one pivot member 21 includes two pivot members 21 located on the lower end of the inner surface of the upper door body 20 close to left and right sides of the upper door body 20. The at least one guide rail 40 includes two guide rails 40. The fixed seats 41 of the guide rails 40 are connected to the upper ends of the inner surfaces of the pair of door posts 11 of the door frame 10. The at least one support member 50 includes two support members 50. The guide portions 53 of the support members 50 are locked on the slide rails 42 of the guide rails 40, respectively. The at least one power-driven telescopic rod 60 includes a pair of power-driven telescopic rods 60 each located between the corresponding pivot member 21 and the corresponding support member 50. The actuating rod 62 is pivotally connected to the corresponding pivot member 21. The distal end of the cylindrical arm 61 is selectively pivoted to the pivot hole 52C of the support plate 51. The actuating rods 62 of the pair of power-driven telescopic rods 60 exert forces evenly at the lower ends of the left and right sides of the upper door body 20, so that the opening/closing action of the upper door body 20 and the lower door body 30 can obtain a balanced pushing/pulling force from the pair of power-driven telescopic rods 60.

[0043] According to the above embodiment, preferably, as shown in FIGS. 5, 6, 8, and 9, the slide rail 42 of the guide rail 40 has a $\sqsubset$ -shaped chute 420. The $\sqsubset$ -shaped chute 420 has at least one locking hole 421 on an inner wall thereof. The guide portion 53 of the support member 50 is in the form of a slide plate corresponding in shape to the $\sqsubset$ -shaped chute 420. The guide portion 53 has a plurality of spaced through holes 530 corresponding in height to the at least one locking hole 421. The number of the through holes 530 is greater than that of the at least one locking hole 421. After the guide portion 53 is moved to the determined position in the $\sqsubset$ -shaped chute 420, at least one screw 54 passes through one of the through holes 530 and the corresponding locking hole 421 and is locked by a nut 55, such that the guide portion 53 is locked on the slide rail 42. As shown in FIGS. 8, 9 and 12, when the screw 54 is unlocked and moved out of the through hole 530, the guide portion 53 is allowed to move in the $\sqsubset$ -shaped chute 420. The screw 54 is inserted through another one of the through holes 530 and the corresponding locking hole 421 and locked again. Thus, the locking position of the guide portion 53 on the slide rail 42 can be adjusted with ease.

[0044] According to the above embodiment, preferably, as shown in FIGS. 5, 6, 8, and 9, the at least one pivot hole of the support plate 51 of the support member 50 includes a plurality of pivot holes 52A, 52B, 52C. The plurality of pivot holes 52A, 52B, 52C are arranged at equal intervals in a fan shape from a center point P closest to the guide portion 53. As shown in FIG. 12 and FIG. 14, when the distal end of the cylindrical arm 61 of the power-driven telescopic rod 60 is selectively pivoted to the pivot hole 52C, it can be moved in the pivot hole 52C to slightly adjust the force-applying angle β_3 (from β_2 to β_3) of the actuating rod 62 relative to the inner surface of the upper door body 20. As shown in FIG. 12 and FIG. 15, when the distal end of the cylindrical arm 61 is pivoted from the pivot hole 52C to another pivot hole 52B, the force-applying angle β_4 (from β_2 to β_4) of the actuating rod 62 relative to the inner surface of the upper door body 20 is changed. As shown in FIG. 8 and FIG. 12, a pivot shaft 63 is provided on the distal end of the cylindrical arm 61 of the power-driven telescopic rod 60. A screw section 630 is formed on one end of the pivot shaft 63. The screw section 630 passes through a selected one of the pivot holes 52C and is screwed with a nut 64. By allowing the screw section 630 to be displaced in the pivot hole 52C, the threaded section 630 (which does not exit the pivot hole 52C) can be loosened and locked by the nut 64 before and after displacement, as shown in FIG. 14, to slightly adjust the force-applying angle β_3 . As shown in FIG. 8 and FIG. 9, the center point P is formed with a round hole 56 through which the screw section 630 of the pivot shaft 63 is inserted, such that the distal end of the cylindrical arm 61 is pivoted on the round hole 56 through the pivot shaft

63. When the guide portion 53 of the support member 50 is moved forward on the slide rail 42 toward the inner surface of the upper door body 20 to the maximum and locked, the minimum force-applying angle (not shown) of the actuating rod 62 relative to the inner surface of the upper door body 20 is adjusted.

[0045] According to the above embodiment, preferably, as shown in FIG. 16 and FIG. 17, the slide rail 42 of the guide rail 40 has a $\sqsubset$ -shaped chute 420. The $\sqsubset$ -shaped chute 420 has at least one locking hole 421 on an inner wall thereof. The guide portion 53 of the support member 50 is in the form of a slide plate corresponding in shape to the $\sqsubset$ -shaped chute 420. The guide portion 53 has at least one slot 57 corresponding in height to the at least one locking hole 421. After the guide portion 53 is moved to the determined position in the $\sqsubset$ -shaped chute 420, at least one screw 54 passes through the slot 57 and the corresponding locking hole 421 and is locked by a nut 55, such that the guide portion 53 is locked on the slide rail 42, and the force-applying angle r_1 of the power-driven telescopic rod 60 relative to the inner surface of the upper door body 20 is determined. As shown in FIGS. 16, 17 and 19, when the screw 54 is unlocked, the guide portion 53 is allowed to move in the $\sqsubset$ -shaped chute 420. The screw 54 is adjusted and locked again. Thus, the locking position of the guide portion 53 on the slide rail 42 can be adjusted with ease to change and the force-applying angle r_2 (from r_1 to r_2) of the power-driven telescopic rod 60 relative to the inner surface of the upper door body 20.

[0046] Although particular embodiments of the present invention have been described in detail for purposes of illustration, various modifications and enhancements may be made without departing from the spirit and scope of the present invention. Accordingly, the present invention is not to be limited except as by the appended claims.

WHAT IS CLAIMED IS:

1. A sectional door structure, comprising:

a door frame, including a pair of door posts and a cross beam connected to upper ends of the pair of door posts, the pair of door posts having a pair of guide grooves on opposing sides thereof;

an upper door body, having an upper side pivotally connected to the cross beam and at least one pivot member on a lower end of an inner surface of the upper door body;

a lower door body, having an upper side pivotally connected to a lower side of the upper door body, left and right sides, and a pair of rollers that are disposed on lower sections of the left and right sides and fitted in the pair of guide grooves;

at least one guide rail, located above the pivot member and corresponding in number to the pivot member, the guide rail including a fixed seat connected to the door frame and a horizontal slide rail on one side of the fixed seat;

at least one support member, corresponding in number to the guide rail, the support member including a support plate, the support plate having at least one pivot hole and a guide portion at one end thereof, the guide portion matching the slide rail for the guide portion to be moved forward and backward on the slide rail relative to the inner surface of the upper door body, wherein after the guide portion is moved to a determined position, the guide portion is locked;

at least one power-driven telescopic rod, corresponding in number to the pivot member, the power-driven telescopic rod including a cylindrical arm and a power-driven actuating rod in the cylindrical arm, the actuating rod having a telescopic end that is pivotally connected to the pivot member, the cylindrical arm having a distal end that is pivotally connected to the pivot hole of the support plate.

2. The sectional door structure as claimed in claim 1, wherein the at least one pivot member includes two pivot members located on the lower end of the inner surface of the upper door body close to left and right sides of the upper door body, the at least one guide rail includes two guide rails, the fixed seats of the guide rails are connected to upper ends of inner surfaces of the pair of door posts of the door frame, the at least one support member includes two support members, the guide portions of the support members are locked on the slide rails of the guide rails respectively, the at least one power-driven telescopic rod includes a pair of power-driven telescopic rods each located between the corresponding pivot member and the

corresponding support member, the actuating rod is pivotally connected to the corresponding pivot member, and the distal end of the cylindrical arm is selectively pivoted to the pivot hole of the support plate.

3. The sectional door structure as claimed in claim 1, wherein the slide rail of the guide rail has a $\sqsubset$ -shaped chute, the $\sqsubset$ -shaped chute has at least one locking hole on an inner wall thereof, the guide portion of the support member is in the form of a slide plate corresponding in shape to the $\sqsubset$ -shaped chute, the guide portion has a plurality of spaced through holes corresponding in height to the at least one locking hole, the number of the through holes is greater than that of the at least one locking hole, after the guide portion is moved to the determined position in the $\sqsubset$ -shaped chute, and at least one screw passes through one of the through holes and the corresponding locking hole and is locked, such that the guide portion is locked on the slide rail.

4. The sectional door structure as claimed in claim 1, wherein the at least one pivot hole of the support plate of the support member includes a plurality of pivot holes, and the plurality of pivot holes are arranged at equal intervals in a fan shape from a center point closest to the guide portion.

5. The sectional door structure as claimed in claim 4, wherein a pivot shaft is provided on the distal end of the cylindrical arm of the power-driven telescopic rod, a screw section is formed on one end of the pivot shaft, and the screw section passes through a selected one of the pivot holes and is screwed with a nut.

6. The sectional door structure as claimed in claim 5, wherein the center point is formed with a round hole through which the screw section of the pivot shaft is inserted.

7. The sectional door structure as claimed in claim 1, wherein the slide rail of the guide rail has a $\sqsubset$ -shaped chute, the $\sqsubset$ -shaped chute has at least one locking hole on an inner wall thereof, the guide portion of the support member is in the form of a slide plate corresponding in shape to the $\sqsubset$ -shaped chute, the guide portion has at least one slot corresponding in height to the at least one locking hole, after the guide portion is moved to the determined position in the $\sqsubset$ -shaped chute, and at least one screw passes through the slot and the corresponding locking hole and is locked, such that the guide portion is locked on the slide rail.