Jan. 29, 1935. E. H. McCLOUD 1,989,657

DOOR

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FIG. 1.

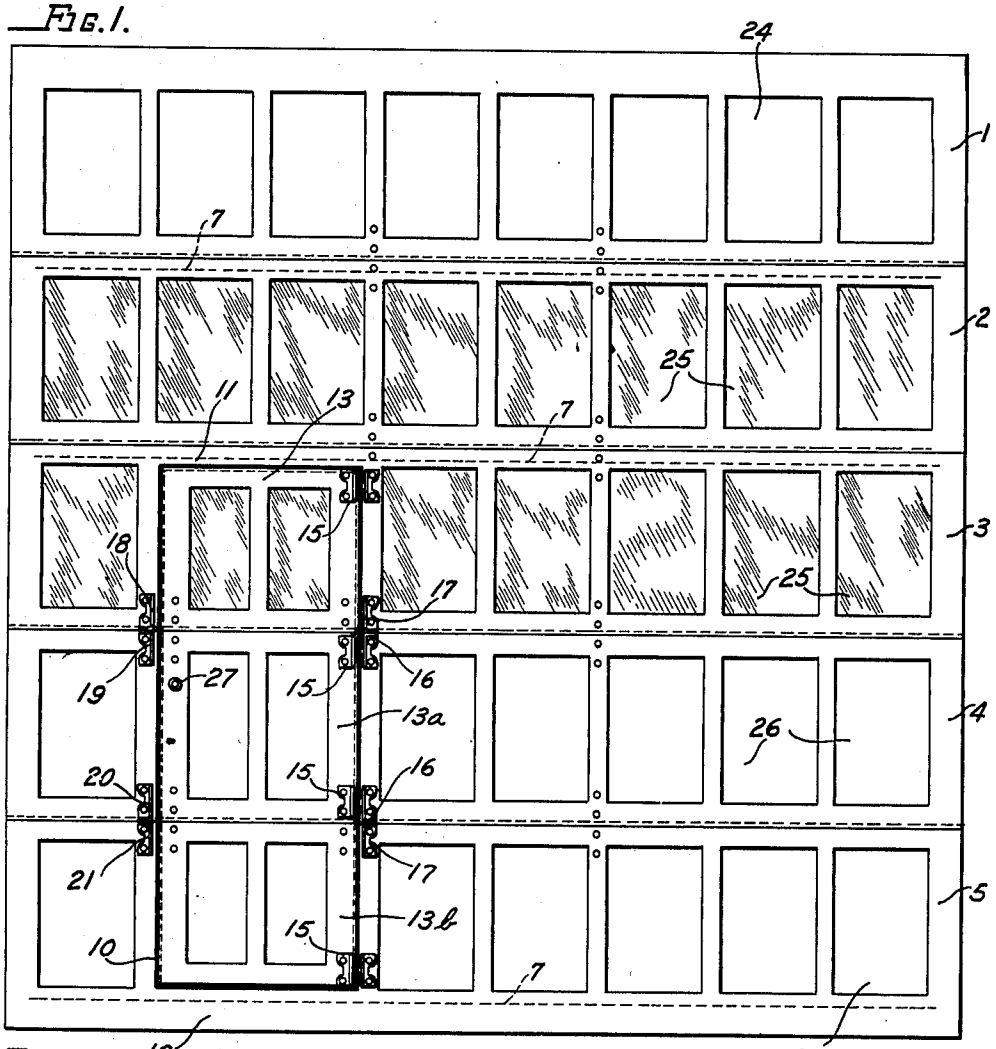


FIG. 8.

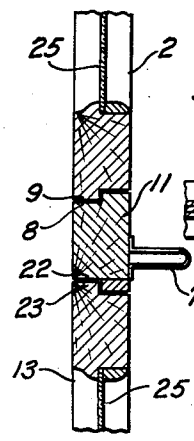


FIG. 5.

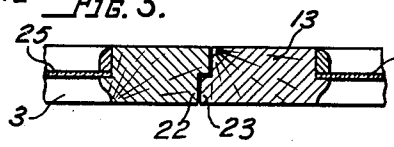


FIG. 6.

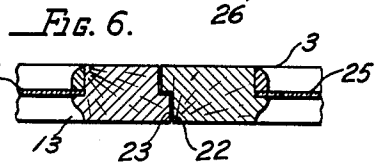
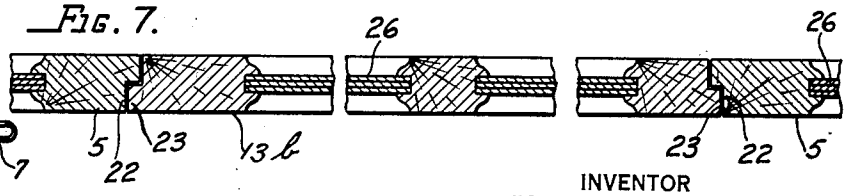


FIG. 7.



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DOOR

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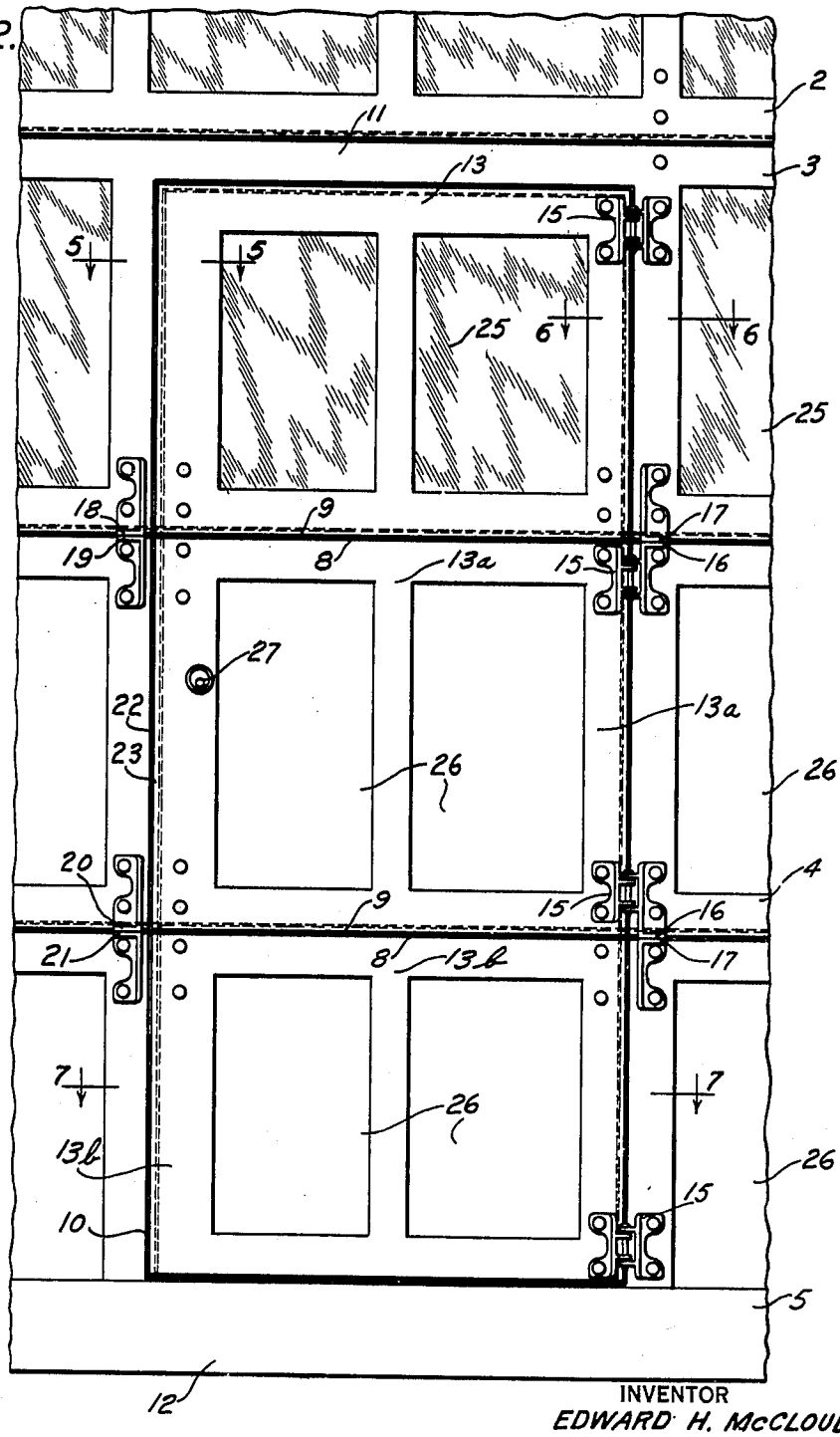
FIG. 2.



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DOOR

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FIG. 4. FIG. 3.

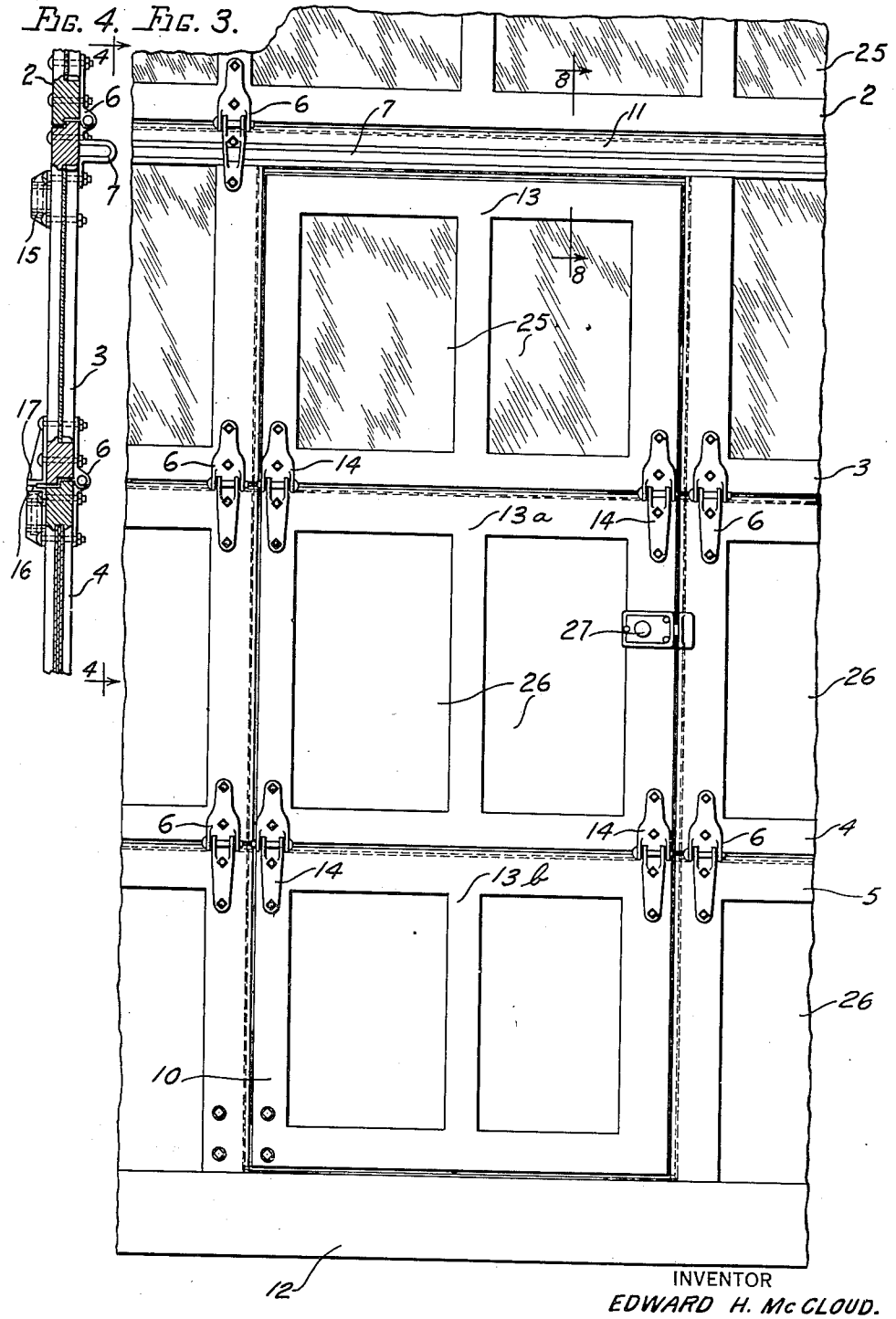

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FIG. 9.

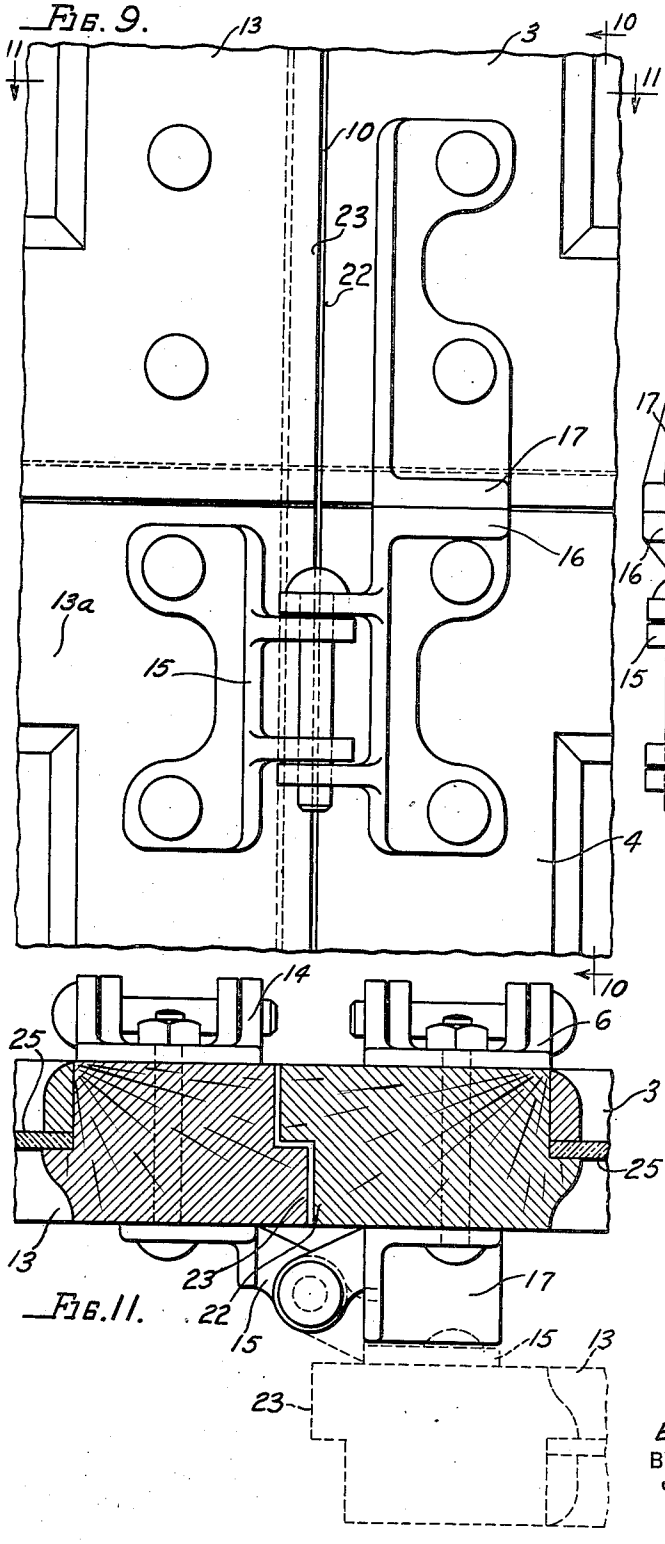
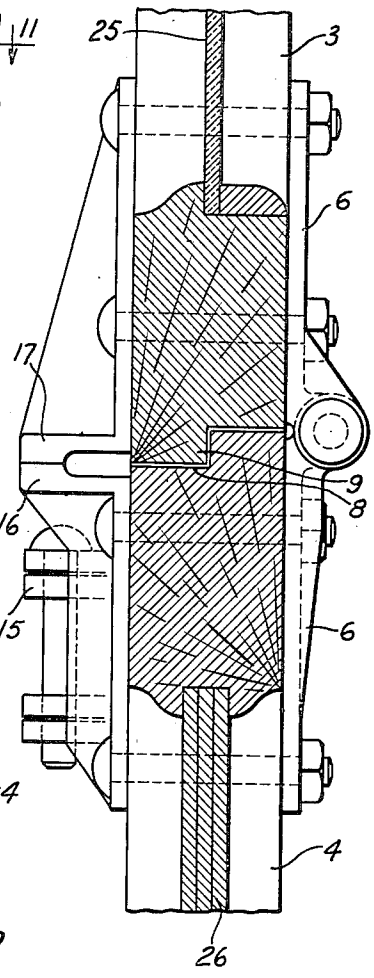


FIG. 11.

FIG. 10.



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Patented Jan. 29, 1935 1,989,657

UNITED STATES PATENT OFFICE

1,989,657

DOOR

Edward H. McCloud, Columbus, Ohio, assignor to The Kinnear Mfg. Company, Columbus, Ohio, a corporation of Ohio

Application April 28, 1932, Serial No. 607,976

21 Claims. (Cl. 20—20)

This invention relates to improvements in sectional doors of the overhead type, and has for its object to provide, in connection with such doors, means for ingress and egress in the form of a small pass door or wicket door. This pass door or wicket door is so constructed, in connection with the sections of the overhead door, that it will not interfere with the operation of the sectional door and may be used for the passage of individuals while the overhead door is in closed position.

It is particularly the object of this invention to provide a pass door, in connection with an overhead sectional door, that is easily operated and will securely close the passageway therein and prevent the leaking of water and air through the doorway, and to provide in connection with the sectional door, braces adjacent the pass or wicket door to prevent any unnecessary swinging movement of the door due to weakness caused by the insertion of the wicket or pass door.

These and other advantages will appear from the following description taken in connection with the drawings.

Referring to the drawings:

Figure 1 is an outside view of a sectional door of the overhead type, with a pass door inserted therein.

Figure 2 is an outside view of a part of a sectional door with the pass door connected therewith.

Figure 3 is an enlarged view of that part of the sectional door immediately surrounding the pass door, with the pass door in closed position.

Figure 4 is a section on the line 4—4 of Figure 3.

Figure 5 is a section on the line 5—5 of Figure 2.

Figure 6 is a section on the line 6—6 of Figure 2.

Figure 7 is a section on the line 7—7 of Figure 2.

Figure 8 is a section on the line 8—8 of Figure 3.

Figure 9 is an enlarged view showing one of the hinges connecting the pass door to one of the overhead door sections and the braces used in connection with the overhead door sections.

Figure 10 is a section on the line 10—10 of Figure 9.

Figure 11 is a section on the line 11—11 of Figure 9.

In Figure 1 there is shown a sectional door of the overhead type. In this figure the door is shown as composed of five sections, indicated by the numerals 1, 2, 3, 4 and 5, beginning from the upper section and ending with the lower section. This figure shows the outside of the door.

These sections are hinged to one another by means of hinges 6. Certain of the sections have extending longitudinally thereof, across from one side to the other, a metallic stiffener 7 used to prevent the buckling or swinging of the door between the sides. Each section except the top section has on its top edge a notch 8 adapted to receive a correspondingly shaped tongue 9 on the lower edge of an adjacent section. These tongues and notches tend to prevent the passage of water from without, through the door, into the garage or building to which the door is applied. This notch and tongue structure also tends to prevent the passage of air through the crack between the door sections.

In the door as a whole there is provided an opening 10, which extends across the section 4 and section 3, with the exception of the top rail 11, and across section 5, with the exception of the bottom rail 12. These rails are retained in sections 3 and 5, to give greater strength and rigidity to the parts of the section door immediately around the pass door.

This pass door has three sections, an upper section 13, an intermediate section 13*a* and a lower section 13*b*. These sections are united to one another by means of hinges 14, as shown in Figure 3. The pass door is attached to one side of the opening therefor and to the door sections by means of hinges 15. These hinges are adjacent the hinges 14, and one strap of each hinge is attached to the door by means of the same rivets, screws or bolts that hold one strap of the hinge 15.

One strap of the hinge 15 has thereon a brace element 16, which cooperates with a brace element 17 to prevent the bending of the door from the outside toward the inside of the building to which the door is attached. As shown in Figure 1, these brace elements are attached to the parts 3, 4 and 5, adjacent the line between the sections, so that when the door is closed and the sections are in alignment with each other, these braces abut and prevent the buckling of the door in a direction opposite to that in which the door bends during the act of opening and closing. This brace 17 is attached to the door sections by means of the rivets or bolts which hold one strap to one of the hinges 6. These numerals 16 and 17 are used to designate brace elements used in connection with the hinges 15.

On the side of the pass door opposite the hinges

15 are braces 18 and 19 on sections 3 and 4, and braces 20 and 21 on the sections 4 and 5. These braces serve the same purpose that braces 16 and 17 do. By means of the hinges 6 and the braces 16, 17, 18, 19, 20 and 21 the door when in a vertical position is held substantially rigid. Any gust of air or any pressure on the outside of the sectional door is overcome by means of these braces so that though there is provided in the sectional door this pass or wicket door the strength and rigidity of the sectional door are not materially affected thereby.

In order that the pass door may securely close the passageway through the sectional door there is provided, around the periphery of the door, in the walls thereof provided in the sectional door, a groove 22, into which a tongue 23 on the pass door fits. This construction is shown in Figure 8.

Each door section is composed of a plurality of panels. Section 1 has wooden panels 24. Sections 2 and 3 have glass panels 25, while sections 4 and 5 have wooden panels 26. These panels are shown in Figure 7 to be of three ply, giving greater strength and rigidity to the part of the door near the ground or bottom of the doorway. There is provided, in connection with the pass door, a lock 27, which engages a cooperating latch member found in one section of the sectional door.

This sectional door is adapted to be used in connection with garages and other similar buildings. The operation and support of such a door are well known and form no part of the present invention. The present invention relates solely to the formation of a pass door in connection with a sectional door of the overhead type, and means for strengthening the sectional door around the pass door so that the sectional door is not weakened by the formation therein of a pass door. It also pertains to the connection of parts of the pass door so they will articulate with the sections of the main or overhead door.

I desire to comprehend within my invention such modifications as may be embraced within my claims and the scope of my invention.

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

1. In an articulate door mechanism, a door composed of sections connected together by hinges, a passageway through certain of said sections, a pass door composed of sections for closing the passageway, and braces on adjacent edges of said sections on each side of the passageway cooperating with and engaged by the hinges to hold the sections in alignment when the door is in a vertical position, said braces forming parts of hinges for the pass door.

2. In an articulate door mechanism, a main door composed of sections connected together by hinges, a passageway through certain of said sections for a pass door, a pass door composed of sections in alignment with the sections of the main door, hinges for attaching the pass door to the main door, and braces forming parts of the last-named hinges to maintain the sections in alignment.

3. In an articulate door mechanism, a main door composed of sections connected together by hinges, a passageway through certain of said sections for a pass door, a pass door composed of sections adapted to align with the sections of the main door, hinges for attaching the pass door to the main door, and a brace on each edge of each section of the main door adjacent the passageway to prevent the sagging of the main door sections in one direction.

4. In an articulate door mechanism, a main door composed of sections connected together by hinges, a passageway through certain of said sections for a pass door, a pass door composed of sections adapted to align with the sections of the main door, hinges for attaching the pass door to the main door, one part of each of certain of said hinges being formed into a brace, and a brace cooperating with each of the first-named braces to prevent the main door sagging.

5. In an articulate door structure, a main door composed of sections, hinges connecting adjacent edges of said sections together, a second door composed of sections adapted to align with the sections of the main door, hinges connecting adjacent edges of the sections of the second door, hinges connecting the second door to the main door so that the sections may be in alignment, and braces forming parts of the last-named hinges to hold the main door against sagging.

6. In an articulate door structure, a main door composed of sections, hinges connecting adjacent edges of said sections together, a second door composed of sections adapted to align with the sections of the main door, hinges connecting adjacent edges of the sections of the second door, hinges connecting the second door to the main door so that the sections may be in alignment, and braces forming parts of the last-named hinges and attached to the first-named hinges to hold the main door against sagging.

7. In an articulate door structure, a main door composed of sections, a set of hinges for connecting said sections one to another, a second door composed of sections, a set of hinges for connecting the sections of said second door, hinges for connecting the two doors, and means for attaching the hinges to the sections so that each of the last-named hinges is connected to a hinge of each of the sets of hinges.

8. In an articulate door structure, a pair of doors, each composed of sections, hinges for connecting the sections of one door to one another, hinges for connecting the sections of the other door to one another, and hinges for connecting the doors together so that the sections may be aligned, each of said last-named hinges being connected to one of each of the other hinges.

9. In an articulate door structure, a pair of doors, each composed of sections, hinges for connecting the sections of one door to one another, hinges for connecting the sections of the other door to one another, hinges for connecting the doors together so that the sections may be aligned, each of said last-named hinges being connected to one of each of the other hinges, a stop on each of the hinges connecting the doors, and a stop cooperating with each of the hinge stops to prevent the doors from sagging.

10. In an articulate door structure, a main door composed of sections pivoted together, said main door having an opening therein extending partly across a plurality of said sections, a groove around the opening at one side of the door, a second door composed of sections pivoted together for said opening having a peripheral tongue adapted to fit in said groove, means for pivotally supporting said second door on the main door for closing the opening, and means on the main door sections tending to keep the sections in alignment.

11. In an articulate door structure, a main door composed of sections pivoted together, said main door having an opening therein extending partly across a plurality of said sections, a groove around the opening at one side of the door, a second door composed of sections pivoted together for said opening having a peripheral tongue adapted to fit in said groove, means for pivotally supporting said second door on the main door for closing the opening, and braces on adjacent edges of the main door sections tending to keep the sections in alignment.

12. In an articulate door structure, a main door composed of sections pivoted together, said main door having an opening therein extending partly across a plurality of said sections, said door having a groove around the opening, a second door composed of sections pivoted together and adapted to fit in the groove to close the opening, means to fasten the second door to the main door so that it will articulate therewith, and braces extending from adjacent edges of the sections to prevent the bending of the doors.

13. In combination, a door comprising hinged longitudinally extending transverse sections, and a pass door formed therein comprising vertically hinged sections of the transverse sections.

14. In combination, a door comprising hinged longitudinally extending transverse sections, a pass door formed therein comprising vertically hinged sections of the transverse sections, and interlocking shoulders on the transverse edges of the transverse sections.

15. In combination, a door comprising hinged longitudinally extending transverse sections, a pass door formed therein comprising vertically hinged sections of the transverse sections, and means to prevent inward movement of the sections.

16. In combination, a door comprising hinged longitudinally extending transverse sections, a pass door formed therein comprising vertically hinged sections of the transverse sections, and means to prevent inward movement of the sections at the hinged junction.

17. In combination in a door, of four door sections so arranged that the upper two sections are hinged transversely on the lower two sections, and the right-hand upper and lower sections are hinged vertically to the left-hand upper and lower sections.

18. In combination in a door, of four door sections so arranged that the upper two sections are hinged transversely on the lower two sections, and the right-hand upper and lower sections are hinged vertically to the left-hand upper and lower sections, and means on the transverse hinge adapted to engage means on the vertical hinge to prevent inward movement of said sections under external pressure.

19. In combination, a door having transverse sections hinged to one another, a portion of said sections hinged on a vertical axis to swing transversely of the transverse sections, and means on the portion of the transverse sections swinging on a vertical axis to cause them to move together as a unit to form a pass door.

20. In combination, a door having transverse sections hinged to one another, a portion of said sections hinged on a vertical axis to swing transversely of the transverse sections, means on the portion of the transverse sections swinging on a vertical axis to cause them to move together as a unit to form a pass door, and means to prevent all of said sections from moving inwardly under external pressure.

21. In a sectional door in combination with a wall having a doorway therein, a door composed of a plurality of sections, said door being adapted to close the doorway by fitting against the inside of the wall and having an opening through a plurality of the sections, a door for the opening having sections corresponding to the sections of the first-named door, hinges on the inside of the first-named door for connecting the sections thereof together, and means to fasten the hinges to said first-named door, said means comprising brace elements on the outside of the first-named door to prevent said door from bending inward, said brace elements also forming parts of hinges for supporting the second-named door on the first-named door.

EDWARD H. McCLOUD.