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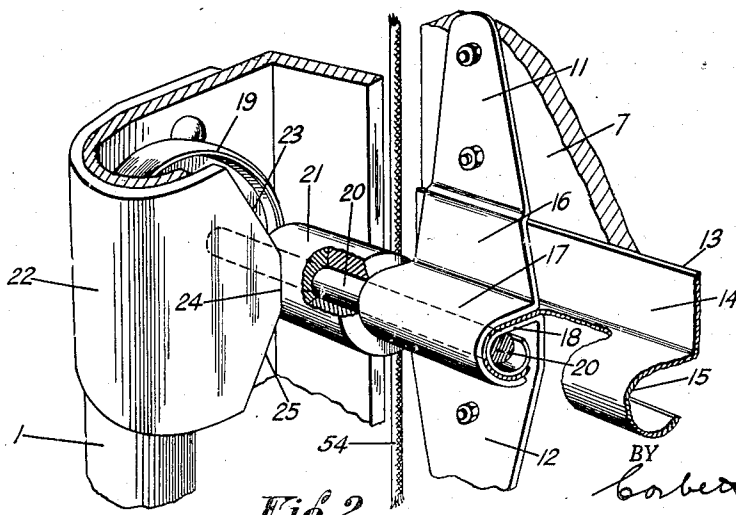
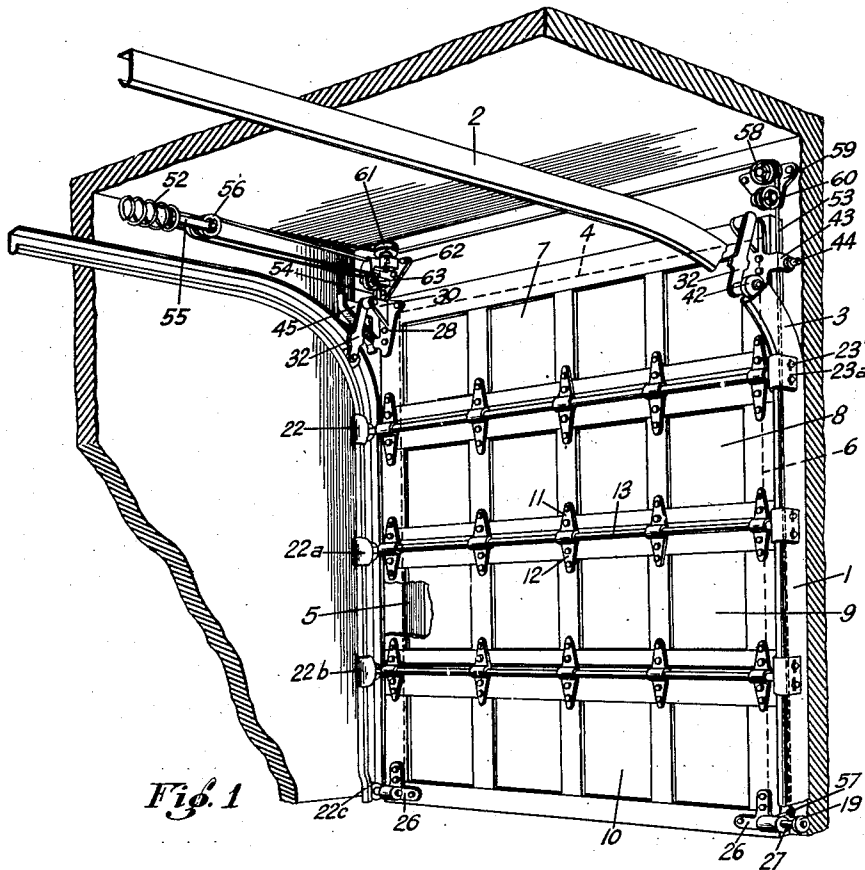
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CLOSURE

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CLOSURE

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My invention relates to closures. It has to do, more particularly, with flexible devices for closing an opening such as that type of closure which is commonly known as an overhead door.

5 However, there are certain features of this invention which are not necessarily limited to use in this connection.

One of the objects of my invention is to provide a closure of the type indicated having inclined plane devices associated with the trackways, on which the closure operates, for forcing the closure against the jambs of the opening and for keeping it firmly in contact therewith.

10 Another object of my invention is to provide a hinged structure for connecting the different sections of the closure, such hinged structure comprising a means which will result in rigidity of the closure along the joints between the panels or sections and such hinged structure having a minimum amount of friction and being easily lubricated.

Another object of my invention is to provide a counter-balancing means for a closure of the type indicated which is extremely simple and which will occupy a minimum amount of space.

Another object of my invention is to provide a counter-balancing means for a closure of the type indicated, such counter-balancing means also serving to reduce the momentum of the closure as it nears the end of its upper travel and to exert a cushioning or braking effect on said closure.

Another object of my invention is to provide a closing and opening means or guide for the upper section of a closure of the type indicated which will cause a quick and positive movement of the upper section of the closure from vertical position towards horizontal position and, vice versa, thereby permitting the door to be installed where there is a small amount of headroom above the doorway.

Still another object of my invention is to provide a closure of the type indicated having a closing and opening means or guide for the upper section of the closure which will cause a quick and positive movement of the upper section of the closure from vertical position to horizontal position and which is of such a design that it will not interfere with the lifting cables.

For illustrative purposes I have shown my invention as taking the form of a sectional door, slidable between vertical closed position and horizontal open position. These sections are preferably mainly guided between the positions indicated by means of rollers carried by the

door on each side at a point where the sections are joined together and operating in tracks upon opposite sides of the doorway. Each of these tracks comprises a vertical portion, a horizontal portion, and a substantially arcuate portion.

My invention also preferably contemplates the provision of a counter-balancing means mounted at one side of the doorway, above the horizontal portion of the trackway, and operably connected to the door by means of a novel arrangement of a plurality of sheaves on which are adapted to operate a pair of cables which are connected to the door at its bottom corners.

My invention also comprises a means for hingedly connecting the door sections together and a means associated therewith for stiffening my sectional door structure. This connecting means takes the form of a plurality of pairs of hinge straps which are pivoted together by means of a stiffening element extending across the entire width of the door.

My invention further comprises a plurality of adjustable inclined plane devices associated with the trackways and cooperating with sleeves mounted on the roller shafts to force the door firmly into contact with the jambs of the doorway when closed and to keep the door in such position. A means is also provided for causing a quick and positive movement of the upper section of the door from vertical position towards a horizontal position, and vice versa, and this means is of such a structure as to permit the mounting of the lifting cable between the edge of the door and the inner side of the trackway without interference therewith.

I have shown one form which my invention may take, in the accompanying drawings, wherein similar characters of reference designate corresponding parts and wherein:

Figure 1 is a perspective view, partly broken away, of a door structure to which my invention has been applied.

Figure 2 is an enlarged perspective view of one of the inclined plane devices and rollers, with the sleeve mounted adjacent thereto, showing how these parts cooperate in forcing the door against the jambs.

Figure 3 is a side elevation, partly broken away, of the door structure and door operating mechanism.

Figure 4 is a detail showing how the counter-balancing means exerts a braking effect on the door when it nears complete open position.

Figure 5 is a detail partly in section showing

the inner portion of the trackway and a part of the door.

Figure 6 is a perspective view, partly broken away, of the mechanism for swinging the upper section of the door from vertical position towards a horizontal position and vice versa.

Figure 7 is a horizontal section taken through the upper portion of the trackway of Figure 3, showing how the lifting cable is arranged with relation to the guiding mechanism for the upper section of the door in order to prevent interference between such cable and such mechanism.

In the drawings, my invention is shown as comprising a track located at each side of the doorway, each track embodying a vertical portion 1, a horizontal portion 2 and an intermediate arcuate portion 3. It will be noted that the doorway is provided with a lintel 4 and door jambs 5 and 6. It will also be noted that the horizontal portion of the tracks is disposed entirely above the plane of the top of the doorway and it will be subsequently seen that the upper section of my door, both in opening and closing, is caused to move with a swinging movement as well as a sliding movement, for a purpose that will be hereinafter explained.

My door preferably comprises a plurality of panels or sections which may vary in number but which, for illustrative purposes, are shown as four in number. These sections may be designated 7, 8, 9, and 10. Adjacent sections of the door are connected together by a novel form of hinge structure.

This hinge structure comprises hinge straps 11 and 12 which are pivoted together by means of a stiffening member 13 which extends across the entire width of the door. The hinge straps 11 and 12 are preferably bolted to the adjacent sections of the door or they may be secured in any other suitable manner. The stiffening member 13 is bolted or secured in some other manner to the upper section of the pair of sections which this hinge structure connects.

This stiffening member 13 is preferably made up of sheet metal and comprises a vertical portion 14 by which the member 13 can be secured to the door section. The member 13 is provided with a projecting portion 15 which is substantially of hook-like formation (Figure 2). The hinge strap 11 which is connected to the upper section of the pair is provided with a slightly and upwardly bent portion 16 which fits over the portion 14 of the stiffening member. Strap 11 is further provided with a projecting portion 17 which is of substantially hook-like formation and is adapted to fit over the outside of the hooked portion 15 of the member 13 and to closely contact therewith. The hinge strap 12 which is bolted to the lower section of the pair is provided with an outwardly extending, substantially hook-shaped portion 18 which is adapted to fit on the inside of the portion 15 of the member 13 and to lie in close contact therewith. Thus it will be seen that each pair of hinge straps is pivoted together by means of the stiffening member 13 which extends for the entire width of the door.

The hinge structure just described constitutes an important feature of my invention. Since the hinge structures are supported in the tracks through the medium of stub shafts and rollers which are mounted on the hinge members, in a manner to be later described, they act as reinforcing members which prevent the deflection of the door or any parts thereof when opened or closed. Furthermore, this hinge structure is such

that it will have a minimum amount of friction and may be easily lubricated.

Each of the stiffening members 13 has rollers 19 mounted in each end thereof. These rollers are mounted on the members 13 by means of stub shafts 20 which are inserted in the hook-like portion 18 of the hinge strap 12, it being understood that the rollers are suitably mounted on the opposite ends of these stub shafts. These shafts are preferably rotatably and slidably mounted in these hinge straps for a purpose readily understood. The rollers 19 may be of any suitable type but are preferably of the roller or ball-bearing type.

Adjacent each of the rollers 19 and rotatably mounted on the stub shafts 20 are sleeves 21. However, it will be noted from the drawings that the sleeves 21 which are mounted on the stub shafts 20, adjacent the connection of the sections 7 and 8, are of greater outside diameter than the sleeves 21a which are mounted on the stub shafts 20, adjacent the connection of the sections 8 and 9. It will also be seen that the sleeves 21a which are mounted on the stub shafts 20, adjacent the connections of the sections 8 and 9 are of greater outside diameter than the sleeves 21b which are mounted adjacent the connection of the sections 9 and 10. Furthermore, it will be understood that, when a door composed of a greater number of sections is used, the sleeves mounted adjacent each connection of the adjacent sections will gradually decrease in outside diameter towards the bottom of the door structure. The purpose of these different sized sleeves and cooperating inclined plane devices is to ensure that the door, when closed, will be held firmly against the jambs and yet will open readily.

On each trackway I have provided a plurality of inclined plane devices 22, 22a and 22b. These devices are preferably adjustably mounted, by means of bolts 23' and slots 23a, on the tracks, but may be formed as an integral part thereof. They are mounted on the rear portion of the track and at one side thereof so that they will not interfere with the rollers 19. These inclined plane devices are preferably of the form illustrated in the drawings and consist of a beveled upper portion 23, a substantially vertical portion 24 and a beveled lower portion 25. As shown in the drawings, the upper inclined plane device 22 extends outwardly a shorter distance than does the next lower inclined plane device 22a and that, towards the bottom of the door, the distance which the different inclined plane devices project from the track gradually increases. It will be understood that each of these inclined plane devices is made to project a suitable distance so that it will cooperate with the corresponding sleeve adjacent thereto when the door is closed, in forcing all parts of the door securely against the door jambs. It will also be seen that the inclined plane devices can be adjusted on the tracks to the proper position with relation to the sleeves. Furthermore, it will be understood that, by having the outer diameter of the sleeves gradually decrease towards the bottom of the door, and by having the distance which the inclined plane devices project from the tracks gradually increase towards the bottom of the door, there will be no interference between the different inclined plane devices and sleeves, either in the opening or the closing operation of the door.

The lowermost portion of the track is curved inwardly as shown at 22c in the drawings. This

curved portion cooperates with the lowermost roller 19 itself, in forcing the lower end of the door against the jambs of the doorway. The lowermost rollers 19 are mounted on the section 5 10 by means of brackets 26 which are bolted to said section at each lower corner. These brackets have stub shafts 27 mounted thereon in any suitable manner and the lowermost rollers 19 are mounted on said shafts.

10 On each upper corner of the upper section 7, I have mounted a novel form of guiding means for this upper section of the door and this mechanism will cause it to quickly swing out of its sliding path when the door is being opened 15 toward a horizontal position. When the door is being closed this mechanism will cause the upper section to quickly swing into a vertical position and when it reaches closed position, will hold the upper part of the door tightly against the 20 lintel of the doorway.

This mechanism comprises a bracket 28 which is bolted to the upper corner of the upper section by means of bolts 29. The bracket 28 has an outwardly extending portion 30 in which is 25 formed an opening 31. An arm, 32 is mounted on the bracket by means of a pin 33 which extends through the opening 31 in the outwardly extending portion 30 and through a sleeve 34 formed on one end of said arm. Near the other 30 end of the arm 32 and on each edge thereof lugs 35 and 36 are formed, the lug 36 acting as a stop to limit the extent of the movement of the arm 32 as will be readily understood. At the extreme lower end of the arm 32, an opening 37 is formed. 35 This opening is adapted to receive a stub shaft 38 which has an enlarged portion 39 and a threaded end portion 40 which is adapted to receive a nut 41 for securing the stub shaft 38 to the arm. On the outer end of the stub shaft 40 38, a roller 42 is rotatably mounted, and this roller is adapted to operate in the trackway. Each bracket 28 is further provided with an L shaped arm 43 which has a pin 44 projecting therefrom, as shown in Figure 7. Thus, the 45 elevating cable may be placed between the edge of the door and the inner side of the track without causing any interference. Furthermore, by placing the cable on the inner side of the track, much space is saved, as will be readily seen.

50 A bracket 45 is mounted on each side of the doorway near the top of the door. Each of these brackets may be mounted on a suitable support by means of bolts which fit into slots 46 formed therein, such mounting rendering it possible to 55 vertically adjust the bracket. Each bracket 45 is in reality an inclined plane device and comprises an upper inclined flange 47, said flange having substantially vertical portions 48 and 49. A lower inclined flanged portion 50 is also formed 60 on each bracket and this flanged portion has a substantially vertical portion 51. The flanges 47 and 50 form an inclined trackway in which each pin 44 is adapted to operate in a manner which will be readily understood. It will be understood 65 that the bracket 45 and the mechanism upon which the roller 42 is mounted cooperate in causing the upper section of the door to swing out of its sliding path and to quickly swing towards a horizontal position during the opening 70 of the door. Furthermore, when the door is being closed this mechanism will cause the upper section of the door to quickly swing into vertical position and will prevent lateral movement of the upper section of the door while it is in closed 75 position.

I have also provided suitable means for counter-balancing the door and for raising it. This means consists of a tension spring 52 which is operably connected to the lower corners of the door by means of the cables 53 and 54. The 5 tension spring 52 is mounted at one side of the door above the horizontal portion 2 of the trackway in any suitable manner. One end of this tension spring is provided with a bracket member 55 in which are rotatably mounted a pair of 10 sheaves 56.

The cables 53 and 54 are connected to the right and left lower corners, respectively, of the lower section 10 (Figure 1) by means of an arm 15 57 which extends outwardly from the bracket member 26 as shown in Figure 4. The cable 53 which is connected to the lower corner of section 10, and at the right side thereof, passes up over a sheave 58 which is mounted on a bracket 59 above the door. A second sheave 60 is idly 20 mounted on this bracket for a purpose which will be understood hereinafter. After the cable 53 passes over the idly mounted sheave 58, it passes to the other side of the door and around a sheave 61 which is idly mounted on a bracket 25 62 and then around one of the sheaves 56 back to the bracket 62 where it is dead ended. The other cable 54 at the left hand side of the door passes up over another sheave 63 which is also 30 idly mounted on the bracket 62, and then around one of the sheaves 56 back to the bracket 62, where it is also dead ended.

It will be understood that enough tension may be provided in the spring 52 in order that it 35 will counterbalance the weight of the door structure and this tension may be adjustable. Furthermore, it will be understood that the novel arrangement of the sheaves and the cable makes it possible to use only one spring for raising the door, thereby saving a great amount of space 40 while maintaining full efficiency.

In the operation of my door structure, assuming that the door is in closed position, the spring 52 will be in extended position. It will 45 merely be necessary to start the door on its upward movement and after the door reaches a certain position, the spring 52 will exert enough counterbalancing effect to keep the door moving upwardly until it completely clears the doorway. When the door reaches the position shown in 50 Figure 4 it will have considerable momentum caused by the force exerted thereon by the spring 52 for raising the door. However, when it reaches this position the connection of the cables to the door will be in rear of the sheaves 55 60 and 63 and the cables will extend around these sheaves and towards a point in rear thereof. Thus any tendency of continued movement of the door towards the rear would exert a force 60 on the spring 52 and would cause a braking action on this movement.

At the beginning of the upward movement, the sleeves 21 adjacent the rollers 19 will be disengaged from their respective inclined plane 65 devices and the rollers will operate in the trackways. Furthermore, it will be seen that at the beginning of this upward movement, the pin 44 will contact with the flange 47 and will cause the upper sections of the door to swing towards a 70 horizontal position. During this swinging movement the roller 42 will operate in the trackway and when the upper section reaches substantially horizontal position, the stop 36 will contact with the bracket 28 and will therefore 75

support the upper section of the door in such position.

During the closing movement of the door, and as it nears closed position, the sleeves 21 will be engaged by their respective inclined plane devices and the lowermost roller 19 will engage the curved portion 22c of the trackway, thereby forcing the door against the jambs and causing it to remain in such position and preventing lateral movement thereof. Furthermore, when the door nears closed position, the pin 44 mounted on the top section will contact with the flange 47 and this will force the upper section quickly into vertical position. When the upper section of the door reaches vertical position, the pin 44 will be disposed in the vertical channel formed by the vertical portion 51 of the flange 50 and the vertical portion 48 of the flange 47. By this means, the upper end of the door will be forced tightly against the lintel and will be held in close contact therewith.

It will be apparent from the above description that I have provided a door structure which, when closed, will be held firmly in contact with the lintels and jambs of the doorway. Nevertheless, the structure is such that, though the door is wedged firmly against the lintels and jambs, it may be moved to an open position without undue resistance resulting from this wedging action. In addition, my hinge connection between the sections is such that the friction in the swinging of the sections upon their hinges is reduced to a minimum, while, at the same time, these hinges may be readily lubricated. Furthermore, it will be noted that the counter-balancing means is of such a nature and so mounted that adequate counterbalancing may be effected regardless of the weight of the door and this may be accomplished with a minimum of space for the mounting of the counterbalancing device.

It will be understood that my invention is not limited to application to the type of closure shown and that I have shown it applied to a closure commonly known as an overhead door for illustrative purposes only. There are certain features of this device which are applicable to many other forms of closures.

Having thus described my invention, what I claim is:

1. A device for closing an opening comprising a closure element composed of a plurality of sections, trackways, means for guiding said closure element by said trackways, elevating cables, means for swinging the upper section of said closure element from vertical position towards horizontal position and from horizontal position towards vertical position, said last-named means comprising a grooved member disposed adjacent the closure element, a pin on said upper section cooperating with said grooved member, said pin being mounted on said upper section in such a manner as to permit the lifting cable to be disposed on the inner side of the trackway.

2. A device for closing an opening comprising a closure element composed of a plurality of sections, trackways, means for guiding said closure element by said trackways, means for deflecting the upper edge of the top section of said closure element to and from the lintel of said opening, said last-named means comprising a grooved member disposed adjacent the top portion of the closure element, a pin cooperating with said grooved member, means for mounting

said pin on said upper section in such a manner as to permit the lifting cable to be disposed between the inner side of said grooved member and the upper edge of the closure element.

3. A device for closing an opening, a plurality of sections, a plurality of hinge members for connecting adjacent sections together, each of said hinge members comprising a stiffener element secured to one of said sections and having a portion projecting outwardly therefrom, said outwardly projecting portion being of hook-like formation, said stiffener element extending across the entire width of said sections, hinge straps secured to the section to which said stiffener element is secured and having hook-like portions adapted to fit over the hook-like portion of said stiffener element, and hinge straps secured to the adjacent section and having portions formed thereon adapted to fit within the hook-like portion of said stiffener element.

4. A device for closing an opening comprising a plurality of sections, hinge structures for connecting adjacent sections together, each of said hinge structures comprising a stiffener element secured to one of said sections adjacent the edge thereof, said stiffener element having a flat portion lying along the surface of said section and an outwardly extending portion which has a curled outer edge, said stiffener element extending substantially across the entire width of said section, a plurality of hinge straps of narrow width secured to the section to which said stiffener element is secured and in spaced relation along said stiffener element, said hinge straps having curled outer ends which fit over the curled portion of said stiffener element, and a plurality of hinge straps of narrow width secured to the other of the adjacent sections in spaced relation and having curled outer ends which fit within the curled portion of said stiffener element.

5. A device for closing an opening comprising a plurality of sections, hinge structures for connecting adjacent sections together, each of said hinge structures comprising a stiffener element secured to one of said sections adjacent the edge thereof, said stiffener element extending substantially across the entire width of said section and having an outwardly projecting portion with a curled outer edge, a plurality of hinge straps of narrow width secured to the section to which said stiffener element is secured and in spaced relation along said stiffener element, said hinge straps having curled outer ends which fit over the curled portion of said stiffener element, and a plurality of hinge straps of narrow width secured to the other of the adjacent sections in spaced relation and having curled outer ends which fit within the curled portion of said stiffener element.

6. A device for closing an opening comprising a plurality of sections, hinge structures for connecting adjacent sections together, each of said hinge structures comprising a plurality of narrow spaced hinge straps on one of the adjacent sections having portions which interlock with a plurality of cooperating portions on a plurality of narrow spaced hinge straps on the other of the adjacent sections, and a stiffener element secured to one of said sections and extending substantially across the entire width of the door and having a portion thereof passing through the said interlocking portions of said hinge straps.

7. A device for closing an opening comprising a plurality of sections, hinge structures for connecting adjacent sections together, each of said

hinge structures comprising a plurality of narrow spaced hinge straps on one of the adjacent sections having portions which interlock with a plurality of cooperating portions on a plurality of narrow spaced hinge straps on the other of the adjacent sections, a stiffener element secured to one of said sections adjacent the edge thereof and extending substantially across the entire width of the door and having a portion thereof passing through the said interlocking portions of said hinge straps and roller members on the ends of said stiffener member adapted to cooperate with trackways to aid in guiding said closure device.

8. A device for closing an opening comprising a plurality of sections, hinge structures for connecting adjacent sections together, each of said hinge structures comprising a stiffener element secured to one of said sections adjacent the edge thereof, said stiffener element extending substantially across the entire width of said section and having an outwardly projecting portion with a curled outer edge, a plurality of hinge straps of narrow width secured to the section to which said stiffener element is secured and in spaced relation along said stiffener element, said hinge straps having curled outer ends, and a plurality of hinge straps of narrow width secured to the other of the adjacent sections in spaced relation and having curled outer ends, the curled portions of the hinge straps secured on the other section fitting within the curled portion of said stiffener element.

9. A device for closing an opening comprising a plurality of sections, hinge structures for connecting adjacent sections together, each of said hinge structures comprising a stiffener element secured to one of said sections adjacent the edge thereof and extending transversely of said section, said stiffener element having an outwardly projecting portion with a curled outer edge, a plurality of hinge straps of narrow width secured to the section to which said stiffener element is secured and in spaced relation along said stiffener element, said hinge straps having curled outer ends, and a plurality of hinge straps of narrow width secured to the other of the adjacent sections in spaced relation and having curled outer ends, the curled outer ends of both sets of said hinge straps interlocking with the curled outer portion of said stiffener element.

10. A device for closing an opening comprising a plurality of sections, hinge structures for connecting adjacent sections together, each of said hinge structures comprising a stiffener element secured to one of said sections adjacent the edge thereof, said stiffener element extending transversely of said section and having an outwardly projecting portion with a curled outer edge, a plurality of hinge straps of narrow width secured to the other of the adjacent sections and being disposed in spaced relation, said hinge straps having curled outer ends, the curled outer ends of said hinge straps interlocking with the curled outer edge of said stiffener element.

11. A device for closing an opening comprising a plurality of sections, hinge structures for connecting adjacent sections together, each of said hinge structures comprising a stiffener element secured to one of said sections adjacent the edge thereof, said stiffener element extending transversely of said section, a plurality of hinge straps of narrow width secured to the section to which said stiffener element is secured and being disposed in spaced relation therealong, and a plurality of hinge straps of narrow width secured

to the other of the adjacent sections in spaced relation, the outer ends of said hinge straps being so formed that they will receive the stiffener element which connects the hinge straps on one section to the hinge straps on the other section.

12. A door for closing an opening comprising a closure element adjustable between open position and closed position where the edges thereof abut a frame around the opening, trackways for guiding said door between open and closed positions, rollers mounted on said door travelling in said trackways, means for forcing said door firmly against the frame around the opening as it moves into closed position, said means comprising a plurality of inclined plane elements disposed along said trackways and being of progressively increasing height, a plurality of members independently movable with respect to said rollers carried by said closure element and being of progressively decreasing size and adapted to cooperate with said inclined plane elements to force said closure element firmly against the frame as it is moved into closed position along said trackways, said inclined plane elements being adjustable along said trackways.

13. In a closure structure, a door, trackways along which the entire door is adapted to move between open position and closed position where the edges thereof contact with a frame around the opening, means attached to said door and adapted to operate in said trackways to aid in guiding said door between open and closed positions, a plurality of inclined plane devices disposed along said trackways, said inclined plane devices being adjustable along said trackways, and means on said door independently movable with respect to said rollers and adapted to cooperate with said inclined plane devices to force said door firmly against the frame as it moves into closed position.

14. In combination, a door, a guiding track therefor, a roller engaging the track supported by the door, an independently rotatable sleeve associated with the roller and the door, and means associated with the track for engaging said sleeve to position the door, said last mentioned means being mounted on the exterior of said track and adjustable with respect to said track and said sleeve.

15. In combination, a door comprising a plurality of sections, hinges for said door sections having a common pintle pin, rollers on the ends of said pintle pin and sleeves on said pintle pin adjacent said rollers and independently movable with respect to said rollers, trackways for engaging the rollers on either side of the door, and adjustable spaced cams mounted on said trackways adapted to engage said sleeves for positioning the door into a tight closure position.

16. In combination, a door comprising a plurality of sections, hinges for said door sections having a common pintle pin, rollers and sleeves independently movable with respect to each other and mounted on the ends of said pintle pin, trackways for engaging the rollers on either side of the door, and adjustable spaced cams mounted on said trackways adapted to engage said sleeves for positioning the door into a tight closure position, said sleeves being of different diameters.

17. In combination, a door comprising a plurality of sections, hinges for said door sections having a common pintle pin, rollers and sleeves independently movable with respect to each other and mounted on the ends of said pintle pin, trackways for engaging the rollers on either side

of the door, spaced cams mounted on said trackways adapted to engage said sleeves for positioning the door into a tight closure position, said sleeves being of different diameters, and means 5 for adjusting the position of said cams on said tracks exteriorly thereof.

18. In combination, a door having a plurality of hinged sections, rollers mounted on the sides of said door, a track for said rollers, sleeves rotatably mounted on the sides of said door and 10 independently movable with respect to said door and rollers, said sleeves being of progressively increasing diameter, cam members mounted on said tracks adapted to engage said sleeves, and 15 means for vertically adjusting from the exterior of said tracks the vertical position of said cam members.

19. A device for closing an opening comprising a closure element composed of a plurality of sections, trackways having vertical and horizontal portions connected by a curved portion adjacent the upper end of the opening to be closed, means 20 for guiding said closure element by said track-

ways, elevating cables, means for swinging the upper section of said closure element from vertical position towards horizontal position and vice versa, said last-named means comprising a member having a cam groove therein extending 5 upwardly and rearwardly from the vertical portion of said trackways and also comprising a pin member adapted to engage and ride in said cam groove during the opening and closing movements of said closure element, one of said mem- 10 bers being mounted upon said upper closure section for movement therewith and the other of said members being fixedly mounted adjacent the top of the opening to be closed and in position to effect said engagement of said members 15 in the opening and closing movements of said closure element, said members being so mounted relative to each other, to said closure element and to said trackways as to permit the elevating cable to be disposed on the inner side of the track- 20 way.

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