Sept. 27, 1960 D. A. RECCHIONE 2,954,081

METAL SLAT ROLLING DOOR HAVING WINDOW THEREIN

Filed Oct. 24, 1958 2 Sheets-Sheet 1

Fig. 1.

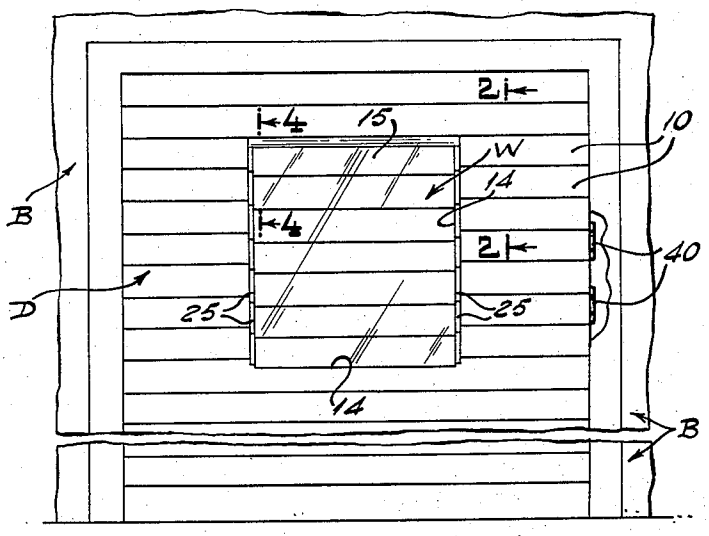


Fig. 3.

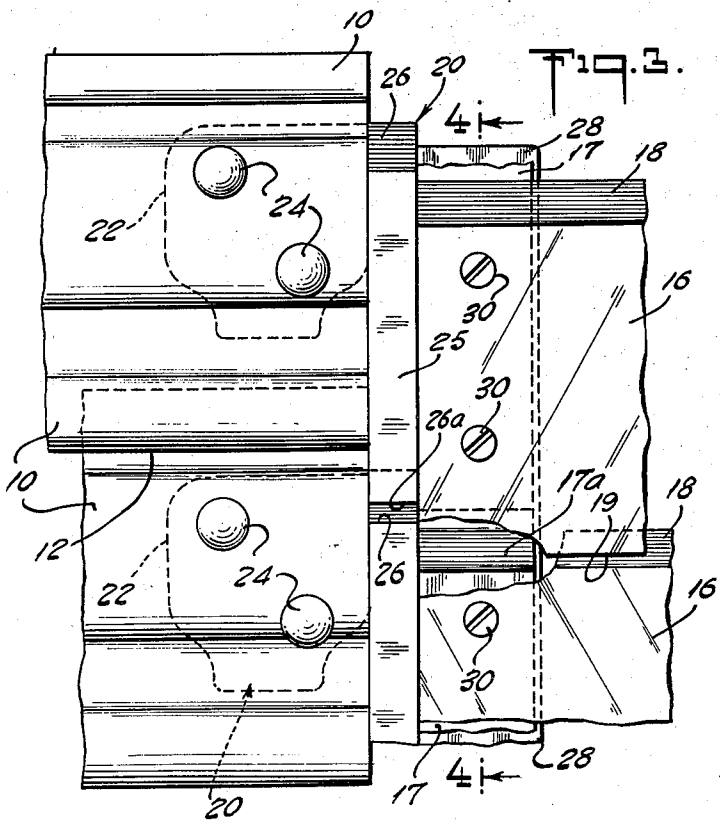
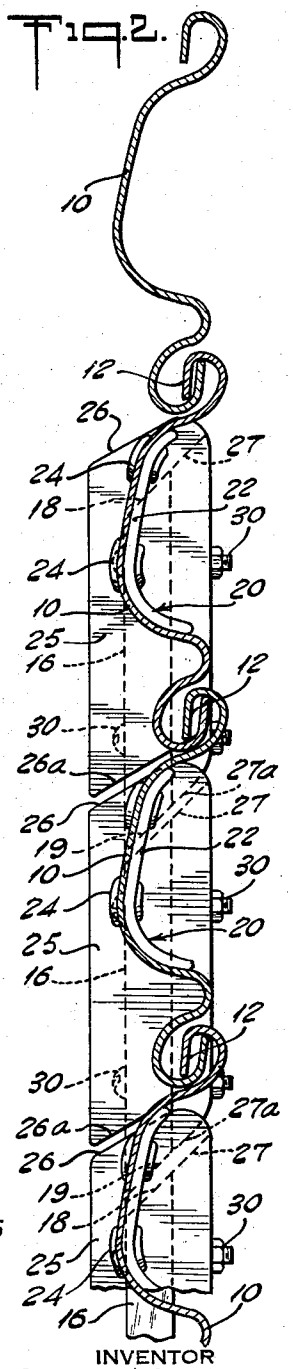


Fig. 2.



INVENTOR
DOMINIC A. RECCHIONE
BY Howard Reuben
ATTORNEY

Sept. 27, 1960 D. A. RECCHIONE 2,954,081

METAL SLAT ROLLING DOOR HAVING WINDOW THEREIN

Filed Oct. 24, 1958 2 Sheets-Sheet 2

Fig. 4.

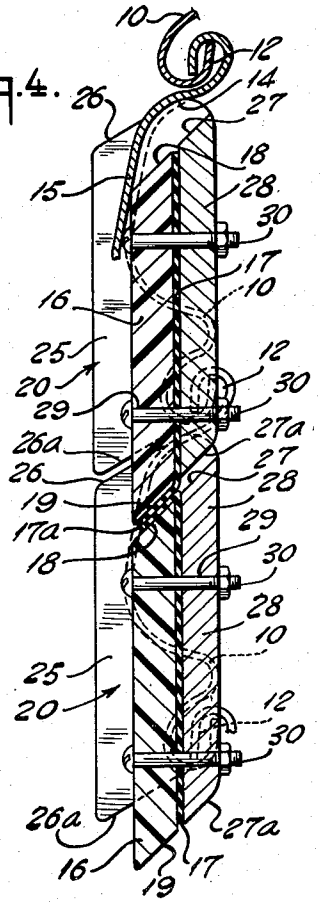


Fig. 5.

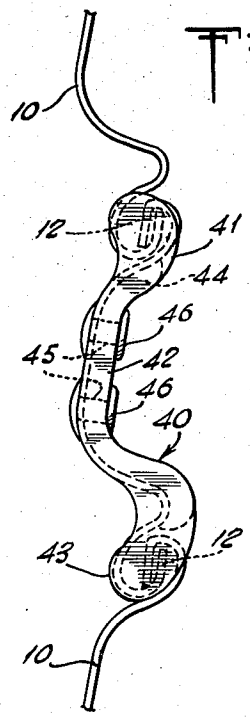


Fig. 6.

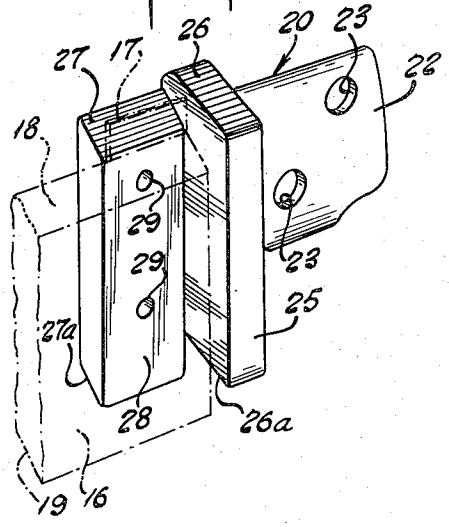
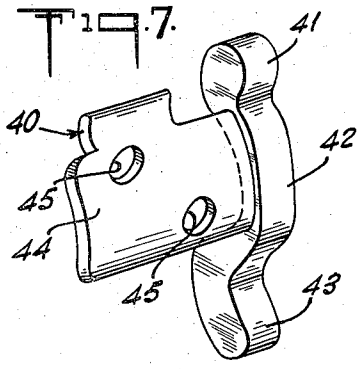


Fig. 7.



DOMINIC A. RECCHIONE
INVENTOR

BY Howard S. Beach

ATTORNEY

United States Patent Office

2,954,081

Patented Sept. 27, 1960

2,954,081

METAL SLAT ROLLING DOOR HAVING WINDOW THEREIN

Dominic A. Recchione, 25—37 85th St., Jackson Heights, N.Y.

Filed Oct. 24, 1958, Ser. No. 769,375

2 Claims. (Cl. 160—219)

This invention relates to improvements in metal slat rolling doors, and more particularly to such rolling doors having transparent or translucent window portions therein.

Metal slat rolling doors to which the improvements in accordance with the present invention are applied are generally well known and comprise a plurality of horizontally disposed slats, of corrugated or other suitable form, and provided with substantially semi-cylindrical interengaging edge portions to facilitate rolling of the door from a closed to an open position, and vice versa.

When it is desired to make a portion of the rolling door transparent, problems occur as to now to articulate the one or more sections of the transparent window while maintaining such sections in fixed relationship to the slats of the rolling door and while maintaining weather-tightness. Furthermore, prior attempts to solve such problems by overlapping of transparent surfaces have resulted in a rubbing together of adjacent ones of such surfaces, thus tending to destroy the desired transparency along these rubbing surfaces.

It is accordingly an object of the invention to provide a multi-section window in a metal slat rolling door in which the individual sections articulate in cooperation with the slats of the door, while being fully transparent substantially throughout the window portion.

Another object of the invention is to provide a metal slat rolling door with a window of sufficient dimensions for admission of light as well as for observation through the door from either side.

A further object of the invention is to provide a quiet operating rolling door in which adjacent surfaces of the sections of the transparent window portion do not rub against each other, but still substantially keep out rain, snow and the weather in general.

Still another object of the invention is to provide, in connection with a transparentt section in a hinged metal slat rolling door, a weather-tight joint between the door and all four sides of the transparent section.

Another object of the invention is to provide end means for retaining parallel slats of a rolling door in lateral relationship with respect to each other while permitting free articulation of the slats while rolling the door up or down.

Other objects and many of the attendant advantages of this invention will be readily appreciated as the same becomes better understood by reference to the following detailed description, when considered in connection with the accompanying drawings, wherein:

Fig. 1 is a front elevation view showing a metal slat rolling door from the outside thereof, and having an improved window therein according to the invention;

Fig. 2 is a vertical section taken along line 2—2 of Fig. 1;

Fig. 3 is a detail front elevation view of the connection between the window sections and slats;

Fig. 4 is a cross section taken along lines 4—4 of both Figs. 2 and 3;

Fig. 5 is a fragmentary end view of the rolling door

slats, showing the end means for retaining the metal slats in lateral mutual relationship;

Fig. 6 is a perspective view of the connection clip member for connecting the window sections to the metal slats; and

Fig. 7 is a perspective view illustrating the end member of Fig. 5.

According to the invention, metal slats of a rolling door are provided with an opening in which are positioned a plurality of relatively thick transparent or translucent window sections of substantially parallelogram cross section. The upper and lower surfaces of adjacent transparent sections are parallel to each other, and according to a preferred embodiment, are prevented from rubbing against one another by a resilient pad near the outer edges of the window sections. Novel clips are provided to join the individual window sections to the metal slats, and these clips provide a weathertight joint in cooperation with the aforementioned resilient pad. Another feature of the invention relates to end retaining means provided at the outer ends of alternate ones of the metal slats which means laterally covers the overlapping joints between the slats to prevent lateral displacement of the slats with respect to one another and to help protect the overlapping joints of mutually adjacent metal slats.

Referring now to the drawings, wherein like reference characters denote like or corresponding parts throughout the several views, there is shown in Fig. 1 a portion of a building, or building wall, designated as B, a metal slat rolling door, designated as D, operatively supported in a door opening in the wall or building B, and the improved window, designated as W, located in the door.

The metal slat rolling door itself may be of the usual construction, and is shown as a typical example comprising a plurality of metal slats **10** which extend horizontally and in parallel relation to each other. For purposes of articulation, mutually adjacent edges of the slats are rolled to provide substantially semi-cylindrical portions which engage in mutual interfitting relationship and form the pivotal connections **12** between the successive slats.

An opening **14** is provided in the door as by cutting away or leaving a space between portions of a number of the slats, the number depending upon the size of window desired. The width of the window may also be of any dimensions desired.

The window W comprises a plurality of transparent sections **16**, which may be of glass, but are preferably formed of methyl methacrylate or other transparent plastic for withstanding shock or strain and for ease of machining. The novel shape of the sections **16**, in addition to other advantages, makes the amount of machining necessary on the sections very little, thus reducing the cost of manufacture.

The window sections **16** are of substantial thickness in comparison to the metal slats, as best seen in Fig. 4, and the opposing surfaces **18**, **19** of each two sections are substantially parallel to each other and spaced apart from each other by rubber strip **17** which extends along a portion of the back side of each of the window sections **16**, between the window section and clip member **20**, and then folds back on itself in a loop at **17***a* (Fig. 4) when the window sections are in an adjacent, unrolled position, thus preventing mutual rubbing together of the opposing faces **18** and **19** of adjacent window sections. The strip **17** at loop **17***a* is extendible, i.e. can be straightened out, when the door is rolled up. The upper and lower faces **18**, **19** of the window sections are sloped downwardly toward the outside, as an added protection against rain, snow, wind, etc., when the door is closed.

Each window section **16** is fastened at its outer extremities to a respective one of the metal slats **10** by means of a novel clip member **20**.

The clip members 20 (Figs. 3, 6), of which there is one at each lateral end of each window section 16, comprises a flange portion 22 underlying a slat member 10, substantially conforming to the contour thereof, and secured thereto as by rivets 24 through apertures 23 formed in flange portion 22. Each clip member 20 further includes a flat body portion 25 abutting the adjacent end of a corresponding window section 16, and a flange portion 28 underlying the window section, and secured thereto as by a pair of bolts 30 through aligned apertures 29 in the window section 16 and flange portion 28 of clip 20.

The clip members 20 are formed so that their wall portions 25 protrude forwardly between flange portions 22 and 28, thus providing at each side of the window opening 14 added weather protection between the window sections 16 and the door slats 10. Upper and lower faces 26, 26*a* of the wall portion 25 are substantially parallel and slope downwardly toward the outside of the door, but at an angle less steep than the downward slope of upper and lower faces 18, 19 of the window sections 16. Thus, the shape and slope of the faces 26, 26*a* of each clip member 20 causes the clip wall 25 to cover over the end opening at the window 14 of the respective lower articulating joint 12 of the respective slat 10 to which that climp member 20 is attached (Figs. 2 and 4). The upper and lower faces 27, 27*a* of each flange portion 28 of the clip members 20 are also parallel, and slope downwardly at approximately the same angle as the respective faces 18 and 19 so as to be flush therewith, thus forming, with the door in closed position, alternate surfaces to those of 18, 19, against which the resilient strip 17 can fold back on itself instead of at 17*a*.

In order to provide a weather-tight joint without affecting the rolling of the door, the upper portion of the window opening 14 is provided with an apron 15 (Fig. 4). This apron is made up of a slat somewhat similar to that of slats 10, but has the lower portion thereof modified in form to overlap the uppermost one of window sections 16.

In order to retain the metal slats in lateral relationship to each other without interfering with their articulation at joints 12, an end retaining clip 40 is provided at each of the lateral ends of alternate ones of slats 10 (Figs. 1, 5, 7). Each end retaining clip 40 is secured to its respective slat 10 as by rivets 46 through apertures 45 in a flange portion 44 of the end retaining clip, the contacting surface of flange portion 44 substantially conforming to the contour of slat 10. The forward and rearwardly facing surfaces of an S-shaped terminal wall portion 42 are adapted to slide within a suitable guide channel (not shown), and bulging out portions 41, 43 at the upper and lower ends, respectively, of the S-shaped portion 42 serve to overlap and cover the lateral ends of articulating joints 12 at the respective upper and lower edges of the particular slat 10 to which the end clip 40 is attached.

It will be obvious to those skilled in the art, upon a study of this disclosure, that this invention permits of various modifications and alterations with respect to the individual components disclosed, and hence can be embodied in equipment other than as particularly illustrated and described herein, without departing from the essential features of the invention and within the spirit and scope of the claims annexed hereto.

What is claimed is:

1. A metal slat rolling door including a plurality of slats having their adjacent edges rolled and inter-engaged to form articulated joints for pivotal movement of the slats on parallel axes, several of said slats each comprising a pair of slat sections having aligned spaced ends which together with slats above and below said pairs of slats provide a rectangular opening of said rolling door, a plurality of window sections positioned in said opening, each window section being fixedly attached to a respective pair of slat sections, the upper and lower faces of adjacent window sections being substantially planar spacedly parallel and offset with respect to the upper and lower rolled edges of said respective slat sections attached thereto, each of said window sections having a substantially parallelogram-shaped cross section, clip members removably connecting the ends of each window section with the corresponding ends of said pairs of slat sections, each of said clip members comprising a first flange portion adapted for fastening to underlie one of said slat members, a second flange portion conforming to the parallelogram contour of one of said window sections for flush fastening therewith, a flat body portion intermediate said first and second flange portions projecting forwardly therefrom and laterally abutting a corresponding end of a window section, and resilient means preventing rubbing contact of said respective faces of adjacent window sections during articulation of said door, said resilient means comprising a pair of flexible strips each of greater length than the length of said rectangular window opening in the direction of movement of the door, each said strip being fastened between one end of each said window section and said second flange portion of each respective clip members, each said flexible strip intermediate adjacent ones of said window sections in the closed position of said door defining a loop portion clampingly received between mutually adjacent faces of said window sections, and each said loop portion being extensible to accommodate the articulated movement of said window sections upon movement of the door toward an open position.

2. A metal slat rolling door including a plurality of slats having their adjacent edges rolled and interengaged forming articulated joints for pivotal movement of the slat on parallel axes, several of said slats each comprising a pair of slat sections having aligned spaced ends which together with slats above and below said pairs of slats provide a rectangular opening in said rolling door, a plurality of transparent window sections positioned in said opening, each window section being fixedly attached to a respective pair of slat sections, the upper and lower faces of adjacent window sections being substantially planar and being spacedly parallel and offset with respect to the upper and lower rolled edges of the respective slat sections attached thereto, clip members removably connecting the ends of each window section with the corresponding ends of said pairs of slat sections, the cross sectional shape of each of said window sections being substantially a parallelogram and the adjacent and mutually overlapping spacedly parallel edges of said window sections being polished and mutually bevelled so as to be transparent, and resilient means mounted between said upper and lower faces near said clip members to prevent rubbing contact of said respective faces of said window sections during articulation of said door, said resilient means comprising a pair of flexible strips each of greater length than the length of said window opening in the direction of movement of the door, each said strip being fastened between one end of each of said window sections and each said respective clip member, each said strip intermediate the adjacent ones of said window sections in the closed position of said door defining a loop portion clampingly received between mutually adjacent faces of said window section, and each said loop portion being extensible to accommodate the articulated movement of said window sections upon movement of the door toward an open position.

References Cited in the file of this patent

UNITED STATES PATENTS

682,328	Kinnear	Sept. 10, 1901
2,585,627	Cornell et al.	Feb. 12, 1952
2,858,883	Rapin	Nov. 4, 1958

FOREIGN PATENTS

200,949	Germany	Aug. 3, 1908