May 30, 1967 C. W. PRATT 3,321,885

SCREEN FRAME AND CORNER CONSTRUCTION

Filed June 21, 1965 2 Sheets-Sheet 1

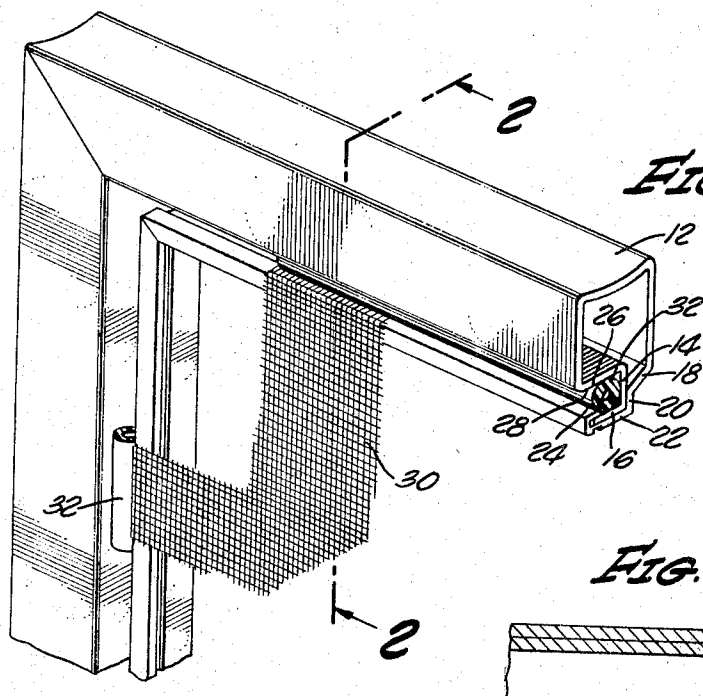


FIG. 1.

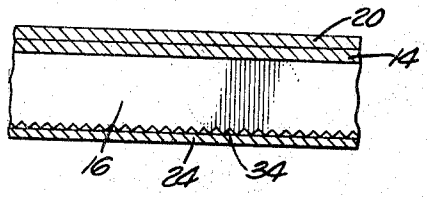
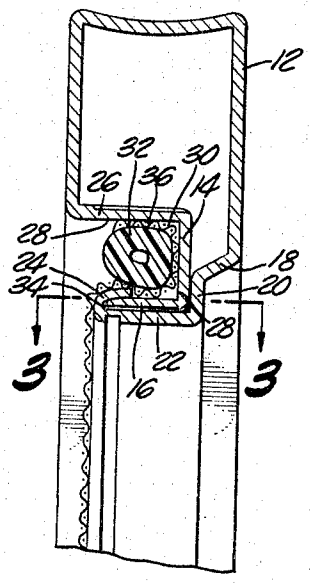


FIG. 3.

FIG. 2.



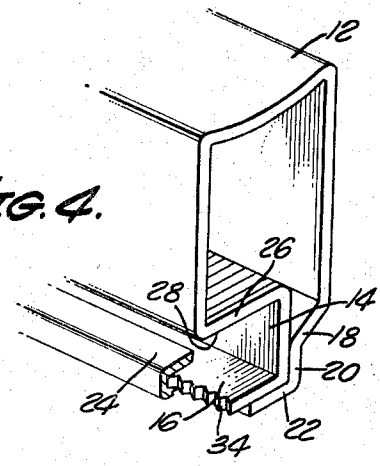


FIG. 4.

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SCREEN FRAME AND CORNER CONSTRUCTION

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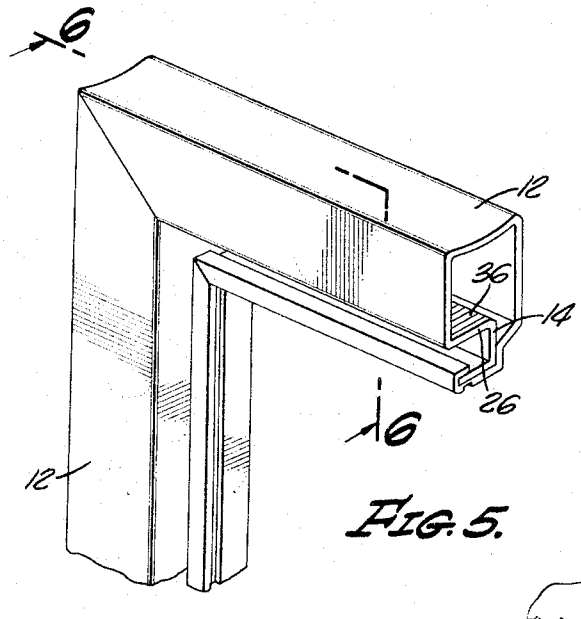
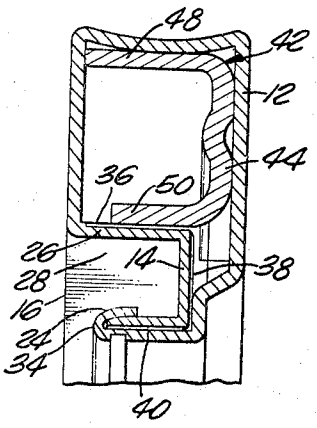


FIG. 5.

FIG. 9.



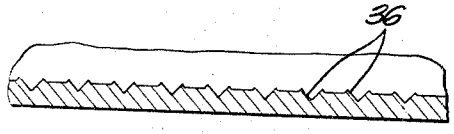


FIG. 8.

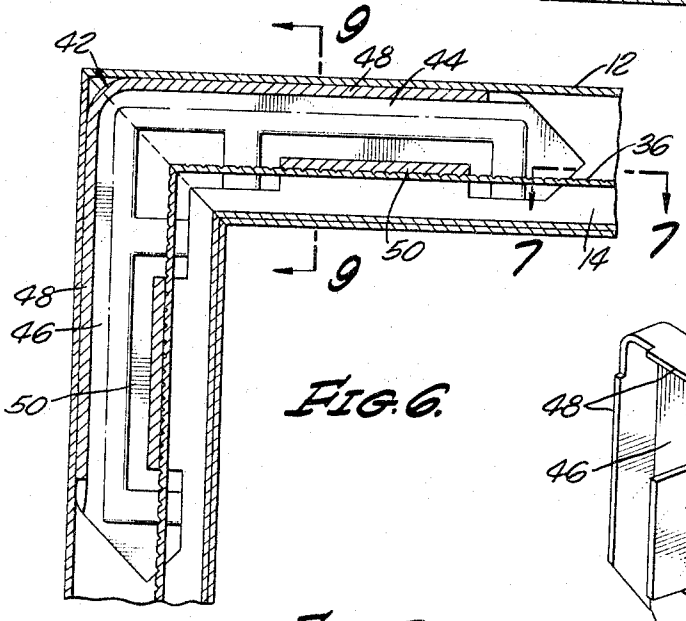


FIG. 6.

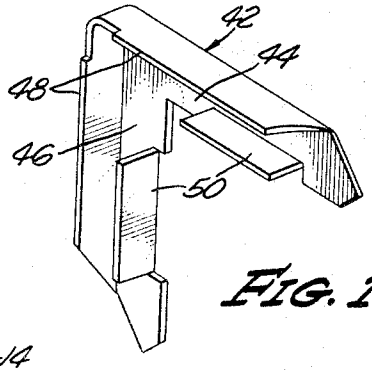
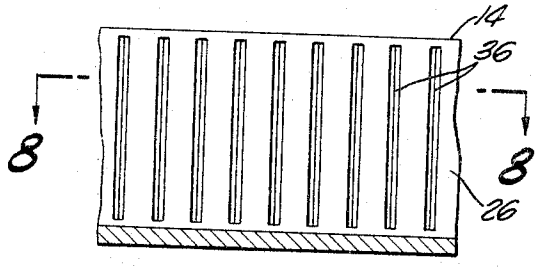


FIG. 10.

FIG. 7.



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SCREEN FRAME AND CORNER CONSTRUCTION

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3 Claims. (Cl. 52—657)

This invention relates to a screen frame and corner construction and is particularly adaptable for use in sheet metal screen frames which are formed by rolling.

Rolled sheet metal screen frames conventionally are formed from relatively light sheet metal, usually of an alloy of aluminum. They ordinarily comprise a rolled tubular body having an adjacent spline groove formed from the same piece of metal stock as the body with the longitudinal edges of the stock crimped together to hold the frame body in its proper shape. Pieces of the frame are measured and cut with their ends at an angle of 45 degrees so that they can be fitted with complementary pieces to provide a rectangular frame structure, the pieces being held together by "corners" in the form of relatively rigid corner brackets each of whose two legs is pressed into an adjacent piece of the frame with a relatively tight friction fit to hold them together.

The primary object of crimping or similarly securing the edges of the sheet from which the frame is made is to impart to the tubular frame members strength and rigidity comparable to that of a tube without a seam. This permits the formation of the tubular members in a speedy and efficient manner without sacrificing the strength of a tube without a seam.

Also because of the necessary or preferred lightness of the metal of the frame, it can become twisted while it is being manipulated during the manufacture of a window screen or screen door, or even after the window screen or screen door has been installed and may be subjected to a twisting or racking action during mounting and dismounting, or in the case of a door during its normal use. This twisting or racking action results in relative movement of the longitudinal edges of the metal where they are crimped together to form the screen frame body and the spline groove.

It is an object of the invention to provide a screen frame body which will withstand twisting or racking without relative movement of the crimped longitudinal edges of the metal and in general to strengthen the screen frame structure.

More specifically, it is an object of the invention to provide a rolled screen frame having a body portion and a spline groove made of a single strip of metal with its longitudinal edges crimped together wherein adjoining faces of the longitudinal edge portions and portions adjacent thereto have one or more of said adjoining faces provided with serrations to prevent relative movement of one longiutdinal portion relative to the other.

Another object of the invention is to provide a screen frame structure wherein the main body portion is hollow to receive a closely fitting corner or corner bracket and wherein either one or more interior wall portions of the screen frame body or a contacting portion of the corner bracket is provided with serrations to more firmly anchor the bracket in the screen frame body.

The above and other objects will more fully appear from the following description in connection with the accompanying drawings, in which:

FIG. 1 is a detail in perspective of a corner of a window or door screen embodying the invention;

FIG. 2 is an enlarged sectional view taken approximately on the line 2—2 of FIG. 1;

FIG. 3 is a sectional view taken approximately on the line 3—3 of FIG. 2;

FIG. 4 is an enlarged transverse sectional detail shown in perspective;

FIG. 5 is a sectional detail of a corner of a screen or door frame in perspective showing the frame before the screen is applied thereto;

FIG. 6 is a sectional view taken approximately on the line 6—6 of FIG. 5;

FIG. 7 is an enlarged sectional detail taken approximately on the line 7—7 of FIG. 6;

FIG. 8 is a sectional detail taken approximately on the line 8—8 of FIG. 7;

FIG. 9 is an enlarged sectional view taken approximately on the line 9—9 of FIG. 6;

FIG. 10 is a perspective view of a corner bracket.

In FIG. 1 there is shown a screen frame portion comprising a tubular body 12 which is rolled from sheet metal such as an aluminum alloy. Formed from the same strip of metal and extending from the body portion is a longitudinal portion 14 of the metal strip, preferably lying perpendicularly to the body portion and continuing to its edge in a portion 16 which lies at right angles to the portion 14. The other longitudinal edge portion of the metal and portions adjacent thereto extend from the body portion 12 in a diagonal direction as at 18, merging with a perpendicular portion 20 which lies against the perpendicular portion 14 of the other longitudinal portion 14 mentioned above. From the perpendicular portion 20, the longitudinal edge portion extends horizontally as at 22 and is then crimped over the edge of the longitudinal portion 16 as shown at 24. The longitudinal portion 14, 16 is extended from a wall 26 of the main body 12 to provide a generally U-shaped spline groove 28 adapted to receive the edge of a piece of wire screen 30 which is held in the groove by a spline 32 of plastic or other material known in the trade.

The edge of the longitudinal portion 16, as shown in FIGS. 3 and 4, is provided with teeth or serrations 34 about which lies the crimped portion 24 of the complementary longitudinal portion.

In FIG. 5 there is shown a structure similar to that in FIGS. 1 through 4, in which the frame body wall 26 is provided with serrations 36 which extend preferably throughout the length of the body portion 12. Similarly, the perpendicular longitudinal portion 14 is provided with serrations 38, and serrations 40 are formed along the horizontally extending part 16 which extends from the perpendicular longitudinal portion 14 of one of the longitudinal edge portions of the material of the frame. FIGS. 1 through 4 do not show the serrations 36, 38 and 40 but it is to be understood that they can be used with or without the serrations 34 although it is preferred that they all be utilized in order to provide a more rigid frame construction, the function of the serrations 36 to be described below.

In FIG. 10 there is illustrated a "corner" or corner bracket 42 having arms 44 and 46 disposed at right angles to each other. Each arm 46 and 44 includes an outer flange 48 and an inner flange 50. Each of the arms is adapted to be received in one each of a pair of the screen frame body members 12 with a close friction fit. In order to more firmly anchor the corner bracket in the respective screen frame body members, the serrations 36 are provided.

It will be understood that the spline groove 28 is defined by the longitudinal portions 14, 16 and 26 of one longitudinal edge portion of the strip of metal from which the screen frame is formed, and that the serrations 36, 38 and 40 thereof are all hidden from view so that they will not detract from the appearance of the screen frame construction. Furthermore, since said serrations 36, 38 and 40 are all on one face of the longitudinal portion of the metal strip, said serrations can if desired, all be

formed in a single operation before the portions 14 and 16 are bent angularly to the portion 26

It will be seen from the above that the use of the serrations 34, 36, 38 and 40 provides an interlocking arrangement for the rolled screen frame section with its crimped seam and also the corner bracket with screen frame body portions in which it is inserted. These several serrations can be used in any desired combinations thereof in order to produce a strong frame structure, but of course where all of the described serrations are utilized, the strength of the screen frame will be that much greater. The serrations 34, 38 and 40 coact with the crimped seam formed by the rolled-over portion 24 to prevent relative movement between said rolled-over portion and the longitudinal edge portion 16 which is the opposite side of the strip from which the screen frame is formed so that if any twisting or racking of the frame occurs during handling or in use, the two components of the crimped seam will be held against longitudinal movement one with respect to the other. The serrations 36 cooperate with the corner bracket 42 primarily to prevent the arms of the corner bracket from being withdrawn to any degree from the connected and angularly disposed screen frame sections. The result is an extremely rigid screen frame construction which can be formed from relatively thin sheet material, such as an aluminum alloy.

Where I have used the term "serrations," it should be understood that their specific form is not critical and that any shape of serration or comparable gripping means can be utilized.

It will of course be understood that various changes can be made in the form, details and arrangement of the parts, without departing from the spirit of the invention.

I claim:

1. In a metal screen frame or the like, a rolled tubular body having a seam comprising first and second longitudinal portions crimped together, one of said longitudinal portions having serrations therealong engaging the second longitudinal portion where said portions are crimped, the first of said longitudinal portions being U-shaped transversely of and offset from said hollow tubular body to provide a spline groove having exposed wall faces and hidden wall faces, a first hidden wall face defining part of the interior of the tubular body and having serrations to engage a screen frame corner connector, a second hidden wall face at an angle to said first hidden wall face and having serrations, said second longitudinal portion being crimped against the serrations of said second hidden wall face.

2. The structure in claim 1, and said first and second hidden wall faces being on the same side of said first longitudinal portion.

3. In a metal screen frame or the like, a rolled tubular body having a seam comprising first and second longitudinal portions crimped together, one of said longitudinal portions having serrations along an edge thereof, the first of said longitudinal portions being U-shaped transversely of and offset from said hollow tubular body to provide a spline groove having exposed wall faces and hidden wall faces, said hidden wall faces having serrations thereon, a first hidden wall face defining part of the interior of the tubular body for cooperation with a screen frame corner connector, and the other hidden wall faces engaging the second longitudinal portion where the portions are crimped together to prevent longitudinal movement of said one longitudinal portion relative to the other.

References Cited

UNITED STATES PATENTS

2,703,159	3/1955	Van Fleet	52—657
2,810,460	10/1957	Winnan	52—657

FOREIGN PATENTS

593,376	10/1947	*Great Britain.*

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