June 30, 1970 L. SPRINGER ET AL 3,517,660

FIREPLACE SCREEN

Filed Jan. 28, 1969 2 Sheets-Sheet 1

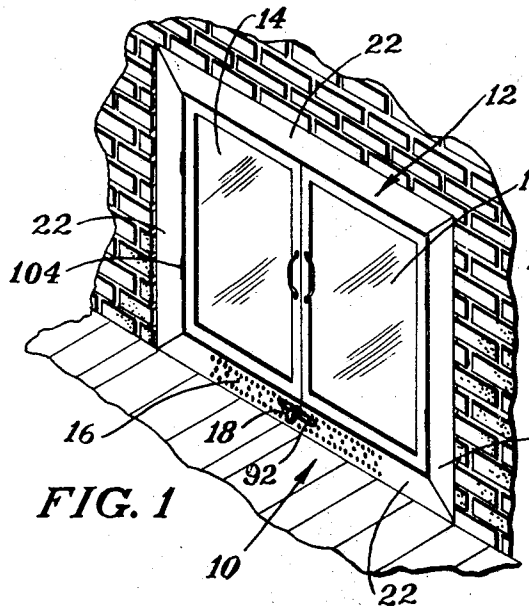


FIG. 1

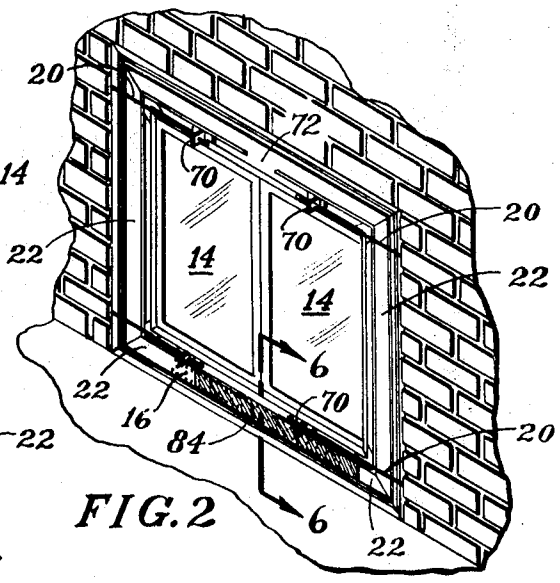


FIG. 2

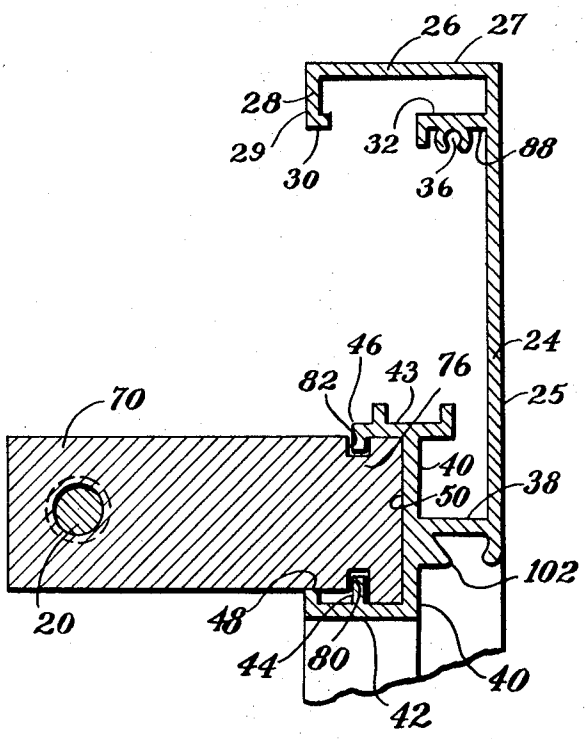


FIG. 5

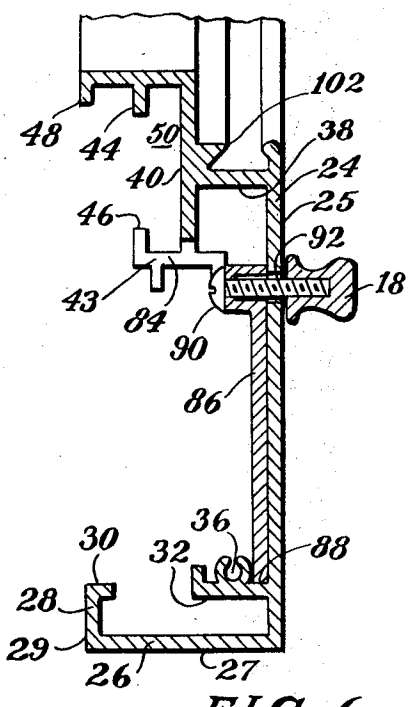


FIG. 6

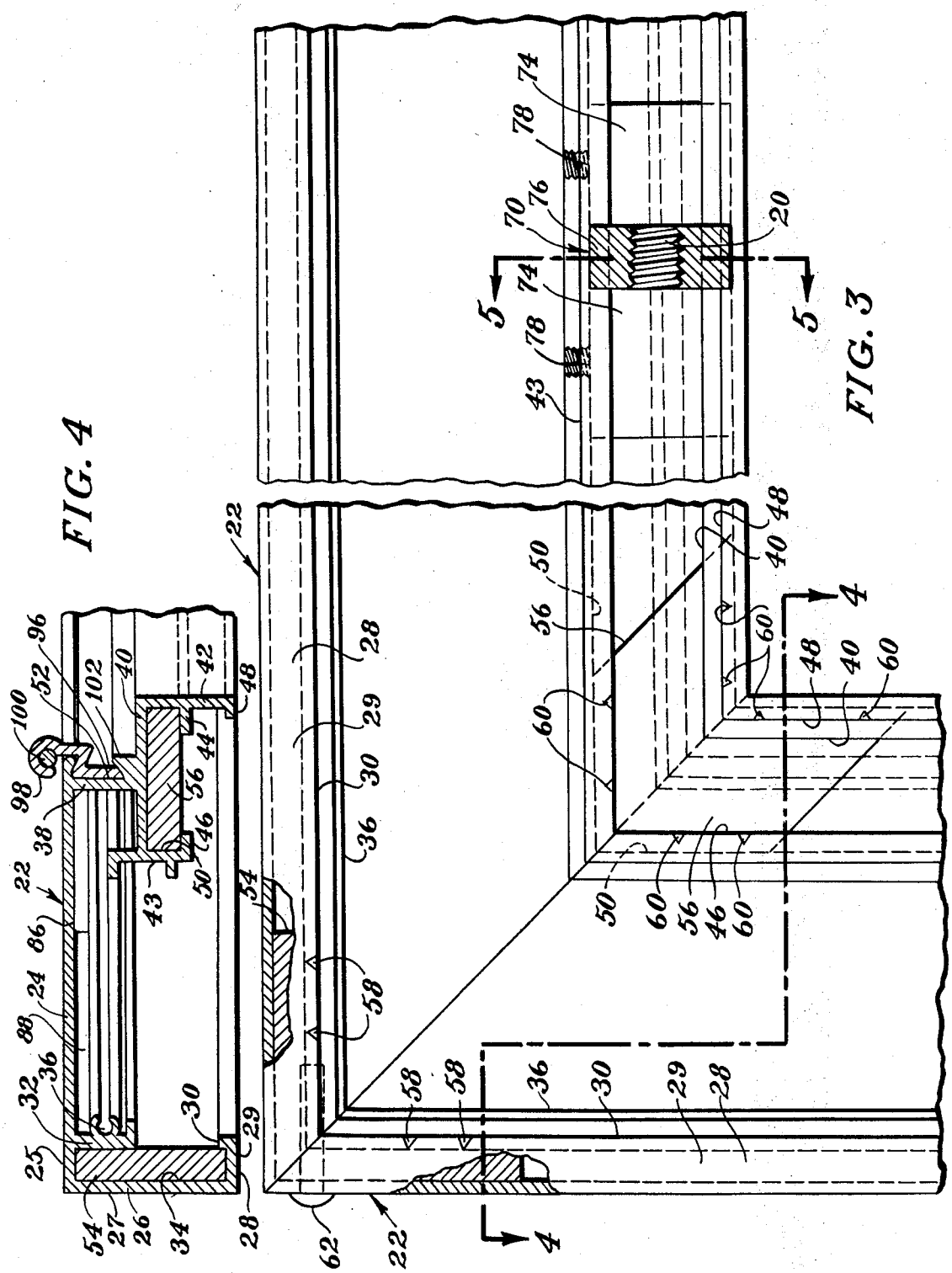
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FIREPLACE SCREEN

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FIREPLACE SCREEN

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Int. Cl. F24c 15/36
U.S. Cl. 126—139 10 Claims

ABSTRACT OF THE DISCLOSURE

The frame of a fireplace screen is fabricated from a plurality of extruded sections secured together with suitable fastening means.

BACKGROUND OF THE INVENTION

This invention relates generally to fireplace screen and more particularly to a low cost, easily assembled fireplace screen, the frame of which is fabricated from extruded sections.

Fireplace screens of the type to be described hereinafter have been made from panel members that are secured together in order to form a frame on which doors are hung. The prior art structure is unnecessarily expensive due to the fact that precision machining and assembling is required. Relatively highly skilled labor must be used to cut the frame sections to their proper length and to assemble the frame sections. Should a mistake be made in machining any one of the frame sections a relatively costly piece of material must be discarded.

By way of contrast, the present invention is low in cost as compared to the prior art and may be assembled by unskilled labor. The frame of the present invention is comprised of a plurality of extruded members each of which has integral channels for receiving interlocking fastening means. Threaded fasteners are required only to hold adjacent sections together at mitered intersections.

Accordingly, it is a primary object of the present invention to provide an improved fireplace screen.

It is another important object of this invention to provide a fireplace screen that is relatively low in cost and simple to manufacture.

A particular object of this invention is to provide a fireplace screen, as described above, wherein a multisection extruded frame is provided.

These and other features, objects and advantages of the invention will, in part, be pointed out with particularity and will, in part, become obvious from the following more detailed description of the invention taken in conjunction with the accompanying drawing which forms an integral part thereof.

BRIEF DESCRIPTION OF THE DRAWING

In the various figures of the drawing like reference characters designate like parts.

FIG. 1 is a front elevational view, in perspective, illustrating the glass door fireplace screen comprising this invention;

FIG. 2 is a rear elevational view of the structure shown in FIG. 1;

FIG. 3 is a fragmentary, rear eleveational view on an enlarged scale and partly in section, illustrating a typical corner assembly of the structure shown in FIG. 1;

FIG. 4 is a fragmentary, sectional, plan view taken along line 4—4 of FIG. 3;

FIG. 5 is a fragmentary, sectional, elevational view taken along line 5—5 of FIG. 3; and

FIG. 6 is a fragmentary, sectional, elevational view, similar to FIG. 5 and taken along line 6—6 of FIG. 2.

Referring now to FIGS. 1 and 2 of the drawing, there is shown an improved fireplace screen, generally designated by the reference character **10**. The screen is comprised of a frame member **12** on which are hingedly mounted a pair of outwardly opening doors **14**. The lower section of the frame is perforated as shown by reference character **16** and includes an outwardly extending knob **18** which provides damper control means which will be described more fully hereinafter.

As may best be seen in FIG. 2, the fireplace screen **10** is secured to the walls by laterally extending threaded members **20** in a manner that will be explained more fully hereinafter. The threaded members **20** are accessible from the front when the doors **14** are open. When the threaded members are moved axially (laterally) the free ends thereof will engage rigid wall surfaces in order to secure the fireplace screen in place. The frame **12** is comprised of a plurality of extruded sections **22**, each of which has a mitered end, and fastener means for securing adjacent frame sections to each other.

To best understand the present invention, reference may be had to FIGS. 3 and 4 wherein a typical corner assembly of two adjacent sections **22** is illustrated. The four sections **22** are identical, as extrusions, so that only one need be described. Each extruded frame section **22** is comprised of a first wall **24** that defines a front surface **25** of the fireplace screen **10**. A second wall **26** extends integrally with and rearwardly from the outer end of the first wall **24**. The second wall **26** defines the outer peripheral surface **27** of the fireplace screen **10**. A third wall **28**, defining a rear surface **29** of the fireplace screen **10**, extends inwardly from the end of the second wall **26** that is opposite to the first wall **24**. The third wall **28** is parallel to and spaced from the first wall **24** and includes, at its innermost end, a first forwardly directed lip **30**. The first wall **24** has, integral therewith, a fourth wall **32** that is in spaced, parallel relationship with the second wall **26**. The fourth wall **32** is in the same plane as the lip **30** and extends in the opposite direction, that is, rearwardly. Walls **24**, **26**, **28** and **32** together with the first lip **30** define a first channel **34**. The fourth wall **32** is also provided with an integral, second channel **36**, the function of which will be described hereinafter.

A fifth wall **38** is formed integrally with the first wall **24** in spaced parallel relationship with the second and fourth walls, **26** and **32**, respectively; the fifth wall being formed proximate the inner edge of the extruded section **22**. A sixth wall **40** is formed integral with the fifth wall **38** and is spacedly parallel to the first wall **24**. The fifth and sixth walls **38** and **40**, respectively, define a T-shaped arrangement. Seventh and eighth walls **42** and **43** are integral with and extend rearwardly of the sixth wall **40** and are provided with second and third lips **44** and **46**, respectively. The lips **44** and **46** extend toward each other in a common plane and are parallel to the sixth wall **40**. The seventh wall **42** terminates in a fourth lip **48** that extends in the same direction as, is parallel to, and is spaced from, the second lip **44**. The sixth, seventh and eighth walls **40**, **42**, and **44** together with the second and third lips **44** and **46** define a third channel **50**. It will be further noted that the fifth wall is provided with a first integral dovetail groove **52**.

Adjacent extruded sections **22** are assembled by utilizing the first, second and third channels, **34**, **36** and **50**, respectively. A first L-shaped retaining member **54** is inserted into two adjacent, contiguous first channels **34** that are formed proximate the outer edge of the frame sections **22**. The inner edge of the frame sections **22** are secured to each other by inserting a chevron-shaped retaining member **56** into adjacent, contiguous third channels **50**. The first lip **30** may be peened at various places,

as shown by the reference character **58**, in order to secure the L-shaped retaining member **54** and the second lip **46** may be peened as shown at **60** in order to secure the chevron-shaped retaining member **56** in place.

The four frame sections **22** are further secured to each other by means of screws **62** which are inserted into mating threads formed in the second channel **36**. To facilitate machining, the second channel **36** is tubular so that it may be tapped directly without first having to drill a suitable pilot hole.

FIG. 5 illustrates means for supporting a bracket **70** in which the threaded members **20**, mentioned above, are supported. The upper frame section **22** is cut away, as shown by reference character **72**, in order to permit insertion of a portion of the bracket **70** into the third channel **50**. The bracket **70** is comprised of a base section **74** and a rearwardly extending arm **76** integral therewith. The combination of the base section **74** and a rearwardly extending arm **76** define a T with the base section **74** slidably mounted in the third channel **50**. The base section **74** is secured in position by any suitable fastening means, a set screw **78** extending through the sixth wall **40** being shown by way of example. It will be seen in FIG. 5 that the arm **76** is provided with inwardly directed grooves **80** and **82** in which the second and third lips **44** and **46**, respectively, are disposed. One edge of the arm **76** rests on the fourth lip **48**.

FIG. 6 illustrates the damper control arrangement mentioned above. Cutout **84** is provided in the sixth and eighth walls **40** and **43**, respectively, to permit a damper slide **86** to be mounted in a second groove **88** defined by the space between the second channel **36** and the rearward surface of the first wall **24**. A screw **90** extends through the upper, thickened portion of the damper slide **86** and extends through an elongated opening **92** formed in the first wall **24**. The knob **18** is threadably secured to the screw **90** and serves as means for laterally moving the damper slide **86** within the limits provided by the elongated opening **92**. The damper slide **86** is also perforated so that when it is moved laterally the effective size of the perforations will be changed.

Referring once again to FIG. 4, it will be seen that a Z-shaped hinge bracket **96** is positioned in the dovetail groove **52**. At its outer end, the Z-shaped bracket **96** is provided with a partially tubular free end **98** in order to receive a hinge pin **100**. The Z-shaped hinge bracket **96** is secured rigidly in the dovetail groove **52**, for example, by peening a lip **102** in the manner described hereinabove. The doors **14** are provided with complimentary hinge brackets **104** so as to facilitate the movement thereof.

From the foregoing it will be appreciated that the construction of the present invention is very inexpensive. The cost of the extrusion die may be amortized over many feet of extruded frame section. Assembly is accomplished in the simplest manner, merely by inserting L-shaped and chevron-shaped retaining members into contiguous channels formed by the extrusion. Drilling operations are required only for the screws used to further secure frame sections to each other and this is simplified by tapping into a tubular portion of the extrusion, thus eliminating the need for predrilling. While it has not been particularly emphasized, it should be clear that because of its ease of assembly the present invention lends itself to "knocked-down" shipment.

Having disclosed the best embodiment of the invention presently contemplated, it is to be understood that various changes and modifications may be made by those skilled in the art without departing from the spirit of the invention.

What we claim as new and desire to secure by Letters Patent is:

1. An annular frame (**12**) for a fireplace screen (**10**) comprising:

(I) a plurality of extruded frame sections (**22**) defining top, bottom and opposite side members, each said frame section comprising:

(A) a first wall (**24**) defining a front surface (**25**) of said screen;

(B) a second wall (**26**) integral with said first wall (**24**) at the outer end thereof and extending rearwardly in a direction substantially perpendicular to the plane of said first wall (**24**), said second wall (**26**) defining an outer peripheral surface (**27**) of said screen;

(C) a third wall (**28**) integral with said second wall (**26**) at the end thereof opposite said first wall (**24**), said third wall (**28**) extending inwardly in a plane substantially parallel to and spaced from said first wall (**24**), said third wall (**28**) defining a rear surface (**29**) of said screen;

(D) a first lip (**30**) integral with the end of said third wall (**28**) opposite to said second wall (**26**), said first lip (**30**) extending substantially parallel to said wall (**26**) and in a direction towards said first wall (**24**);

(E) a fourth wall (**32**) integral with and extending rearwardly from said first wall (**24**) in spaced, substantially parallel relationship with said second wall (**26**) and in substantially the same plane as said first lip (**30**),

(a) said first, second, third and fourth walls (**24, 26, 28, 32**) and said first lip (**30**) defining, in combination a first channel (**34**);

(F) a second channel (**36**) integral with said fourth wall (**32**), said second channel having a longitudinal axis in a plane substantially parallel to the plane of said fourth wall (**32**);

(G) a fifth wall (**38**) formed interally with said first wall (**24**) proximate the ends thereof opposite said second wall (**26**), said fifth wall (**38**) being substantially perpendicular to said first wall (**24**) and extending therefrom in a rearward direction;

(H) a sixth wall (**40**) integral with the end of said fifth wall (**38**) opposite to said first wall (**24**) and substantially perpendicular to the plane of said fifth wall (**38**), said sixth wall (**40**) extending in opposite directions from said fifth wall (**38**) in a plane substantially parallel to the plane of said first wall (**24**);

(I) a seventh wall (**42**) integral with one end of said sixth wall (**40**) and extending therefrom in a rearward direction and in a plane substantantially perpendicular to said sixth wall (**40**);

(J) an eighth wall (**43**) integral with an extending rearwardly of said sixth wall (**40**) at the end thereof opposite to said seventh wall (**42**), said eighth wall (**43**) being substantially perpendicular to said sixth wall (**40**) and in a plane parallel to and spaced from said seventh wall (**42**);

(K) a second lip (**44**) integral with and substantially perpendicular to said seventh wall (**42**) said second lip (**44**) being substantially parallel to said sixth wall (**40**) and positioned intermediate the extremities of said seventh wall (**42**), said second lip (**44**) extending in a direction toward said second wall (**26**);

(L) a third lip (**46**) intergal with said eighth wall (**43**) proximate the end thereof opposite to said sixth wall (**4**), said third lip (**46**) being substantially parallel to said sixth wall (**40**) and in the same plane as said second lip (**44**), said third lip (**46**) extending in a direction toward said second lip (**44**);

(a) said sixth, seventh and eighth walls (**40,**

42, 43) and said second and third lips (44, 46) defining, in combination, a third channel (50); and

(II) fastening means for securing said sections to each other.

2. The frame in accordance with claim 1, wherein said first channels (34) are contiguous and said fastening means are comprised of a plurality of L-shaped retaining members (54) positioned in the ends of said first channels (34) at the juncture of two adjacent ones of said extruded frame sections.

3. The frame in accordance with claim 2, wherein said first lips (3) are peened in the vicinity (58) of said L-shaped retaining members (54) whereby said L-shaped retaining members (54) are prevented from moving.

4. The frame in accordance with claim 1, wherein said third channels (50) are contiguous and said fastening means comprises a plurality of chevron-shaped retaining members (56) positioned in the ends of said third channels (50) at the juncture of two adjacent ones of said extruded frame sections.

5. The frame in accordance with claim 4, wherein said third lips (46) are peened in the vicinity (60) of said chevron-shaped retaining members (56) whereby said chevron-shaped retaining members (56) are prevented from moving.

6. The frame is accordance with claim 1, wherein said second channels (36) are tubular and said fastening means comprises a plurality of screws (62) threadably secured in said second channels (36).

7. The frame in accordance with claim 1, wherein said fifth wall (38) includes a dovetail groove (52) and there is further included a plurality of Z-shaped hinge brackets (96) positioned in said dovetail grooves in said side members.

8. The frame in accordance with claim 7 wherein said fifth wall (38) is peened (102) to thereby prevent movement of said Z-shaped brackets (96) in said dovetail groove (52).

9. The frame in accordance with claim 1, wherein said bottom one of said extruded frame sections is perforated (16) and there is included a groove (88) immediately adjacent the rearward surface of at least said perforated frame section, there being further included a perforated damper slide (86) slidably mounted in said groove (88), said damper slide (86) being laterally movable from a position in front of said fireplace screen whereby the registry of the perforations in said bottom frame section and in said damper slide (86) may be varied.

10. The frame in accordance with claim 1, wherein there is further included a plurality of T-shaped brackets (70) each having a base portion (74) and an arm portion (76), said base portion (74) being slidably mounted in said third channels (50) of said top and bottom frame sections, each of said arms (76) extending rearwardly and having a threaded opening therein, each of said arms being further provided with first and second grooves (80, 82) adapted to mate with said second and third lips (44, 46) respectively, said arm portion (76) of said T-shaped bracket (70) resting on said fourth lip (48), there being further included a threaded rod (20) extending through said threaded opening in each said arm portion (76) of each said bracket (70), said rods (20) being adapted to engage the inside walls of the fireplace.

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U.S. Cl. X.R.

126—140, 202; 287—189.36