

April 16, 1963

J. M. ADAMS ETAL

3,085,664

FRAME MEMBER

Filed May 20, 1959

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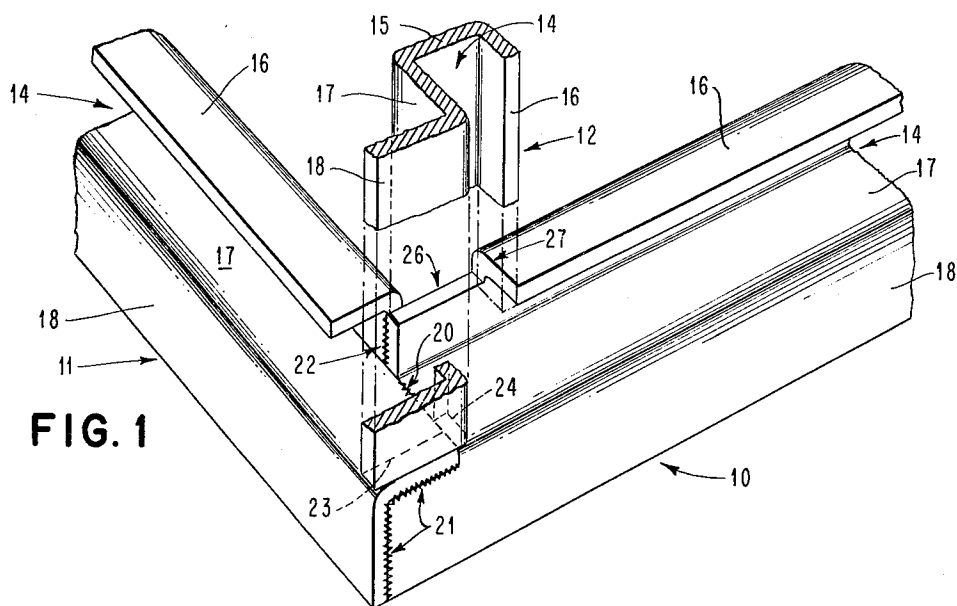
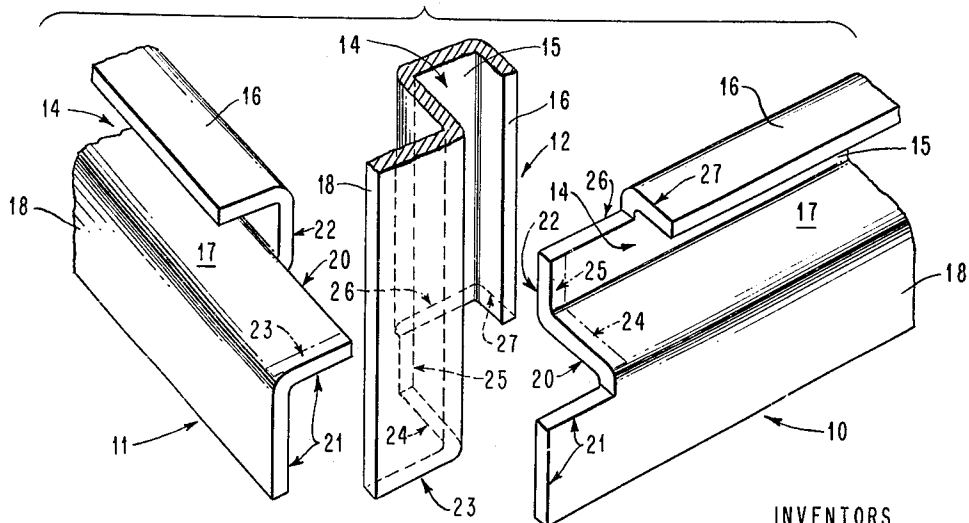


FIG. 1

FIG. 2



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FIG. 3

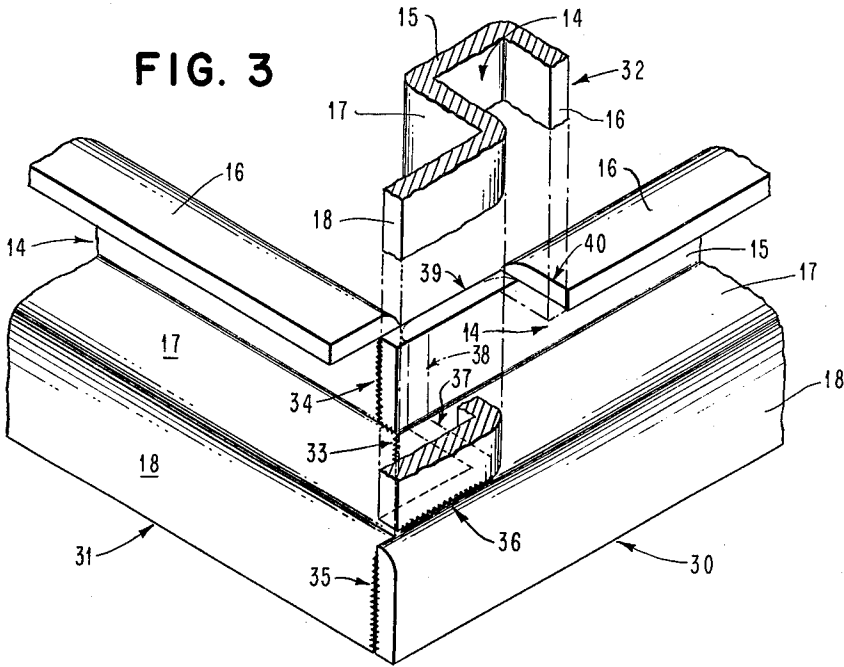
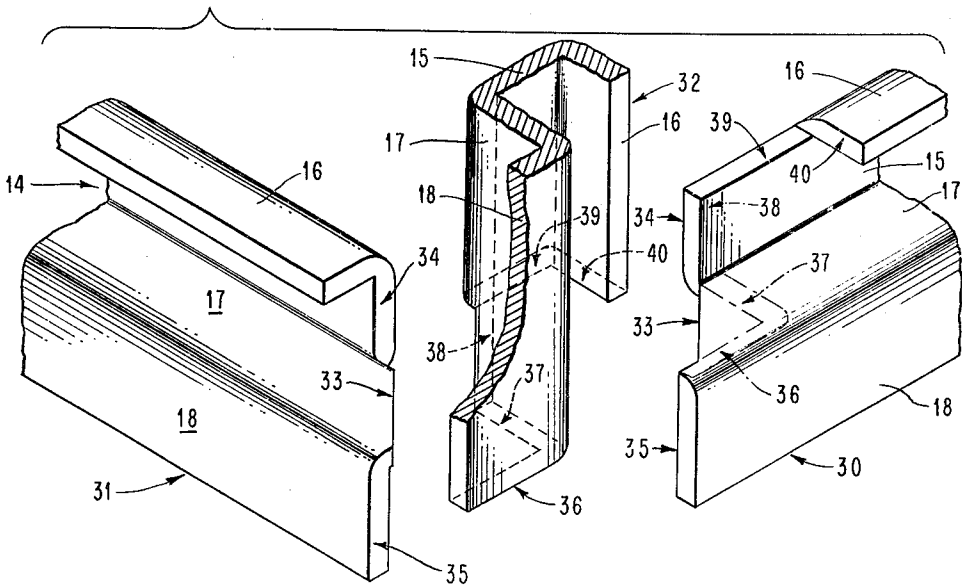


FIG. 4



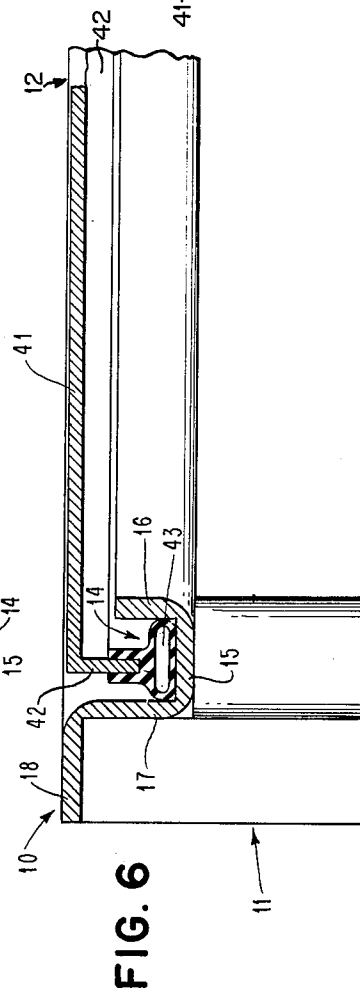
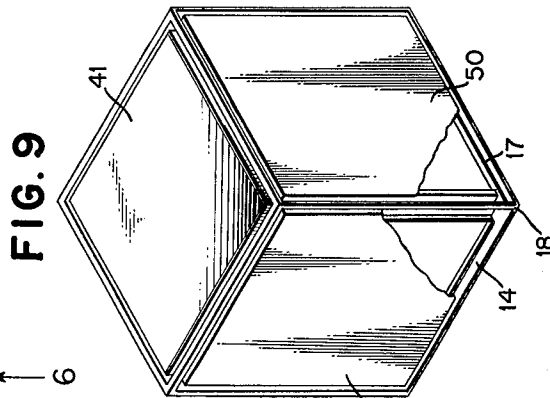
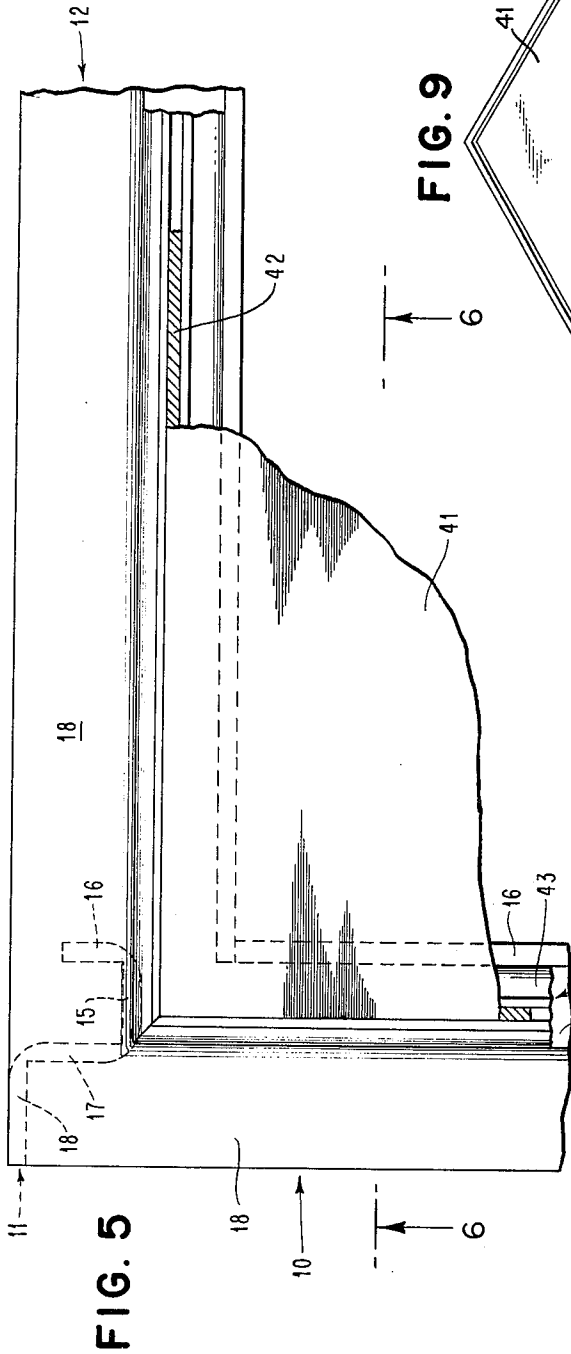
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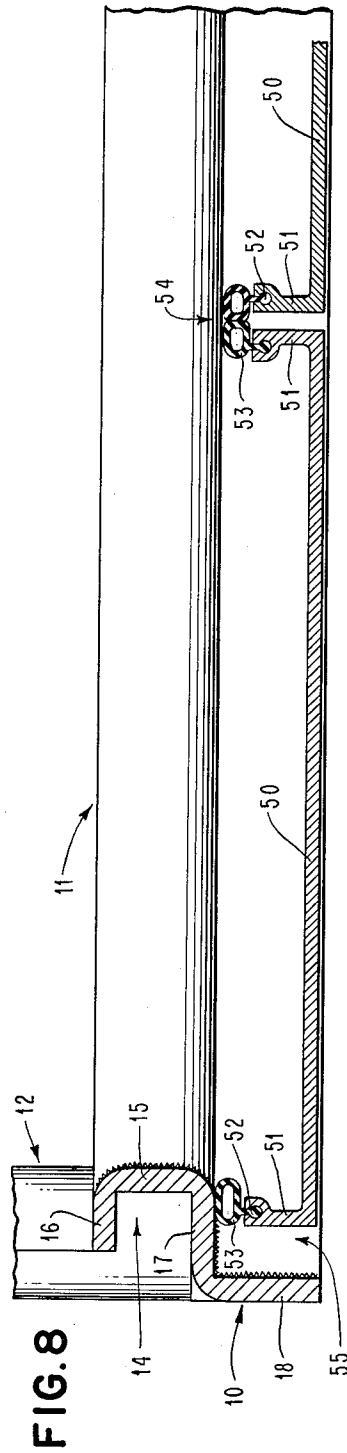
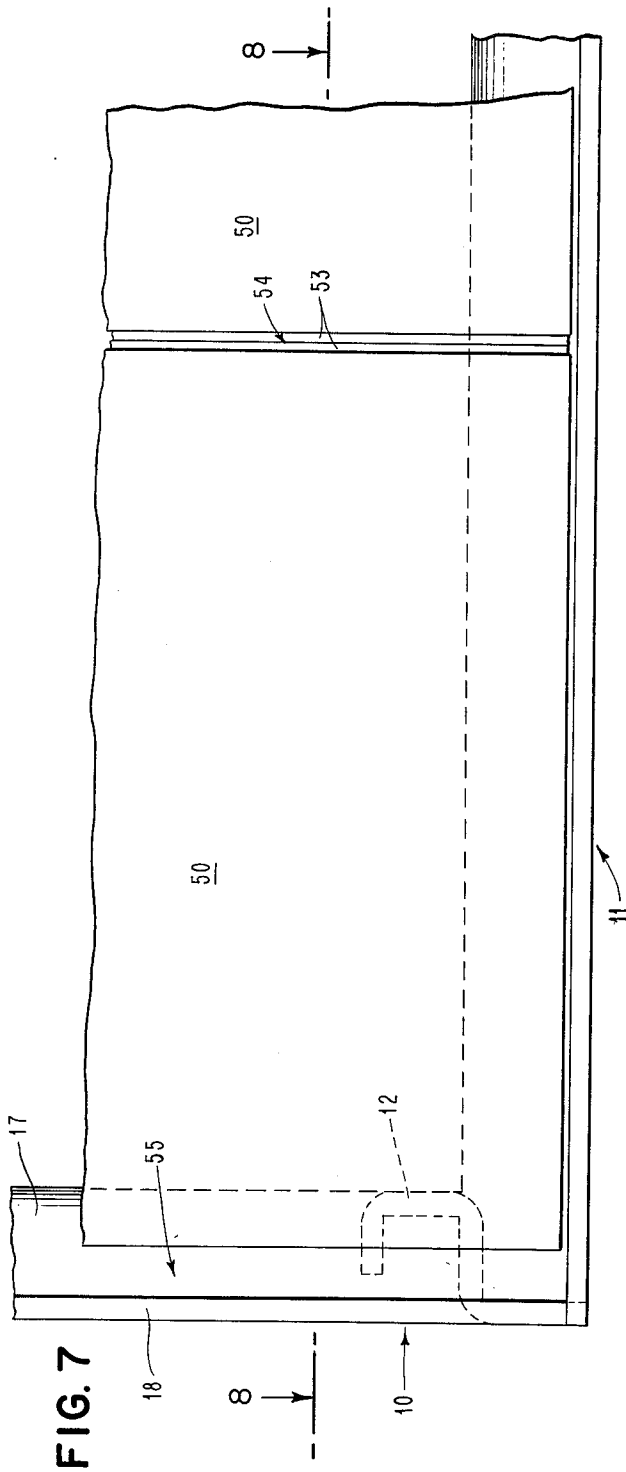
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3,085,664

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1 Claim. (Cl. 189—34)

This invention relates to a machine frame member and more particularly to a metal member the configuration of which forms a flush framing for cover and door openings.

In the past, frames for devices such as business machines have had to sacrifice appearance for strength. Most machine frames are made of angle iron or square tubing which resulted in the covers being fastened to the frames by visible bolts or latches. Also in most instances the covers in order to form a machine pleasing to the eye had to cover the frames thus adding bulk to the machine.

It is therefore the principle object of the invention to provide a frame member that forms a framing for covers and the like without sacrificing strength.

A further object of the invention is to provide a frame member which when assembled in a prescribed manner provides means to complete an air tight joint between cover and frame.

Another object of the invention is to provide a frame member the configuration of which permits the covers of a machine to be easily positioned within the frame thus reducing the bulk.

The frame member of the invention is so formed that when assembled into a six sided frame such as a cube or rectangle, there are two faces that present an angle iron with a depressed flange, two faces that form a flat border with a depressed channel and a top and bottom that combine both features. The depressed angle iron permits the use of a flat cover with inturned flanged edges that are provided with rubber gaskets. The flanges and gaskets are such that when the cover is in place the outer edge of the frame member and the surface of the cover are flush. The framed channel provides a similar condition for a flanged door and in addition the base of the channel and the gasket form an air and dust tight seal.

The foregoing and other objects, features and advantages of the invention will be apparent from the following more particular description of preferred embodiments of the invention, as illustrated in the accompanying drawings.

In the drawings:

FIG. 1 is an isometric view of the preferred form for a corner of the frame with a portion thereof in phantom to more clearly show the invention.

FIG. 2 is an exploded showing of FIG. 1 partially broken away.

FIG. 3 is an isometric view showing a modified form of corner weld partially in phantom.

FIG. 4 is an exploded view of FIG. 3 partially broken away.

FIG. 5 is a plan view of the frame with a cover panel in place.

FIG. 6 is a cross section taken along line 6—6 at FIG. 7.

FIG. 7 is an elevation view of a corner of the frame with a door panel in place.

FIG. 8 is a cross section taken along line 8—8 of FIG. 5.

FIG. 9 is an isometric view of the invention in use.

Referring to FIGS. 1 and 2 wherein the preferred form

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of the invention is shown the members 10, 11 and 12 are all of the same configuration, i.e., a hollow square tube with one side cut and that side rotated through 180° to form a Z with a tail. For the purpose of simplifying the specification and claims the shape will be referred to hereinafter as a Z. The members are so shaped and dimensioned that the configuration is such that a channel 14 is formed of a web 15 having side walls or flanges 16 and 17 as shown in FIG. 1 that are substantially perpendicular with respect to the web. Formed on the side-wall 17 is a flange 18 that extends perpendicularly from wall 17 and is substantially parallel to the web 15. This flange greatly stiffens the member. The wall 16 is formed narrower than the wall 17 for a purpose to be explained hereinafter.

As shown in FIGS. 1 and 2 the members 10, 11 and 12 are cut and welded along lines 20—27 inclusive to form a strong rigid corner for a box or machine frame. Members 10 and 11 are joined to form a horizontal frame by butt welding the walls 17 at 20 and welding the flange 18 of member 10 to the flange 18 and wall 17 of member 11 along line 21. The face of web 15 of member 10 is welded to the cutaway end of web 15 of member 11 along line 22.

The member 12 is secured to the corner of the horizontal frame formed of members 10 and 11 by butt welding flange 18 of member 12 to wall 17 member 11 along line 23. The bottom edge of wall 17 of member 12 is butt welded to the wall 17 of member 10 along line 24. The back edge of wall 17 of member 12 is cutaway along line 25 to accommodate the front end of web 15 of member 10 to which it is welded. The base of web 15 of member 12 is butt welded along area 26 to the web of member 10 and the two walls 16 of member 10 and 12 are welded along line 27. This forms a frame in which channel 14 is continuous in the front surface as shown in FIGS. 7 and 8.

In FIGS. 3 and 4 are shown members 30, 31 and 32 that are welded together in a modified manner to form a corner similar to that above. In this instance the walls 17 of the members 30 and 31 are mitered in place of square cut and the two members are welded along lines 33, 34 and 35 to form a horizontal frame. At line 33 the members are butt welded and at lines 34 and 35 the faces of web 15 and flange 18 of member 30 are welded to the ends of the same parts of member 31. The bottom end of member 32 is welded to the face of wall 17 of member 30 in the areas 36 and 37. The cutaway edge of wall 17 is welded to the face of web 15 of member 30 along area 38. The lower edge of web 15 of member 32 is butt welded along area 39 formed by the cutaway edge of wall 16 of member 30 and the lower face of wall 16 is welded along line 40 to the cutaway end of wall 16 of member 30. Here again the channel 14 is completed by members 30 and 32 and will provide, as will be described, a dust free seal with a door or doors of sheet metal or the like.

In FIGS. 5 and 6 such a frame and cover combination is shown. The flange 18 forms a frame for an aperture in which is fitted a cover 41. The cover is formed with inturned flanges 42 around the outer edges which are adapted to fit the channel 14. A strip 43 of rubber or the like formed as shown in FIG. 6 has a slot 44 therein adapted to engage and be fastened by cement or other well known means to the flange 42. The strip being hollow spreads out and forms an air tight seal with the web 15 and walls 16 and 17 of the frame. It will be noted that the cover 41 and the flange 18 are flush thus forming a smooth flat surface. The cover may be held in the frame by any well known means (not shown) such as spring clips and the like.

As shown in FIGS. 7 and 8 the walls 17 and flanges

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18 of the frame members 10 and 11 form a framed platform or sill for a series of doors 50 formed with inturned flanges 51. Each flange is provided with a longitudinal round slot 52 into which is forced a hollow strip 53 of rubber or other resilient material formed as shown. 5 These strips act as buffers and seal the separate doors along their abutting lengths at 54. They also form an air tight seal where they contact the wall 17. The strips are so dimensioned that when the doors are closed the outer surface is flush with the edge of the flanges 18. 10 The doors are so spaced that a gap or slot 55 is formed between the edge of the door 50 and flange 18 thus permitting the door to be opened by grasping the flange 51. This does away with the need of any handles or hardware to spoil the flush clean appearance of the doors. 15 The doors may be held in the frame by any well known (not shown) form of spring clip or the like.

From the foregoing it is apparent that a frame work formed of the Z shaped members provides a strong light and clean appearing frame with which simple flat doors and covers can be assembled to form a simple air tight structure. To prevent confusion and to more clearly define the invention, the flange 18 which is one phase of the invention, forms a frame or border for the opening formed by the machine frame will be referred to as a 20 border in the claims.

While the invention has been particularly shown or described with reference to preferred embodiments thereof, it will be understood by those skilled in the art that various changes in form and details may be made therein without departing from the spirit and scope of the invention. 30

What is claimed is:

A frame for a machine comprising:

- a plurality of members each having a cross section including a channel formed by a bottom surface and first and second side walls extending at right angles from said bottom surface, and a flange extending at right angles from said first wall in a direction away from said second wall, said flange and first side wall forming a sill; 35
- a first group of four of said members being secured together to form a rectangular side of said frame wherein the first side walls of the members of said first group lie in the same plane and the flanges of the members of said first group extend outward from said plane in same direction to form a continuous rectangular sill along the outer periphery of said rectangle; 40

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- a first cover having inturned edges adapted to engage said sill of said first group to form a dustproof seal, the top surface of said first cover being flush with the extended edge of the flanges of the members of said first group;
- a second group of four of said members being secured together in the same manner as said first group forming an opposing side of said frame with the flanges of each member of said second group extending away from said first group;
- a first pair of said members each having their ends secured to corresponding corners of said first and second groups, said corners being selected to be adjacent corners in said first and second groups thereby forming another rectangular side of said frame including said first pair of members and the member of each of said first and second groups located between said adjacent corners, said first pair of members being arranged so that the flanges of the four members of said last-mentioned side are all located in the same plane forming a rectangular border, and the channels of the four members of said last-mentioned side form a continuous rectangular channel on the inside of said rectangular border;
- a second cover having inturned edges adapted to engage said rectangular channel to form a dustproof seal, the top surface of said second cover being flush with said border;
- a second pair of said members each having their ends secured to the other corresponding corners of said first and second groups in the same manner as said first pair, thereby forming another side of said frame opposite the side including said first pair of members;
- a third cover for covering a side of said frame including one member from each of said first and second pairs, and first and second groups, said third cover adapted to engage the two sills presented by said last-mentioned members of said first and second pairs, and said third cover adapted to engage the two channels presented by said last-mentioned members of said first and second groups to form a dustproof seal. 45

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