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Mascioletti

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[45] **Aug. 14, 1973**

[54] **STRUCTURE FOR THE ASSEMBLY OF FIXTURES FOR DOORS, WINDOWS AND THE LIKE**

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[52] **U.S. Cl.** **52/731,** 52/235, 52/588

[51] **Int. Cl.** **E04c 3/04,** E06b 1/14

[58] **Field of Search** 52/235, 588, 731; 138/166

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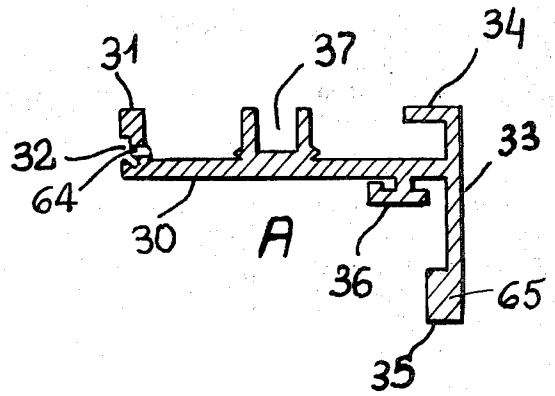
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Primary Examiner—Frank L. Abbott
Assistant Examiner—Leslie A. Braun
Attorney—Fernanda M. Fiordalisi

[57] **ABSTRACT**

An improved metal structure for fixtures for doors, windows and the like, comprises a basic unit which consists of a rectilinear section having 1) at one end an extension in the perpendicular direction provided with a seat, preferably of trapezoidal configuration, which has a lateral hole adapted to receive a packing, 2) at the other end a cross-member the ends of which are constituted of a short section folded inwardly and provided with a block designed to provide the support for the glass, 3) a short angulate tooth and 4) on the opposite side of the tooth a U-shaped seat designed to serve as support for other structural elements. This unit may be associated with a C-shaped section provided with a clamp, forming an element, adapted to serve as support for the glass or two units may be associated, forming a T-shaped element, or a Z-shaped element. In combination with complementary elements, a variety of configurations is obtained which may be utilized as single and double glass fasteners and glass holding means, basement windows, shutters.

1 Claim, 26 Drawing Figures



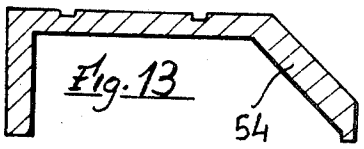


Fig. 13

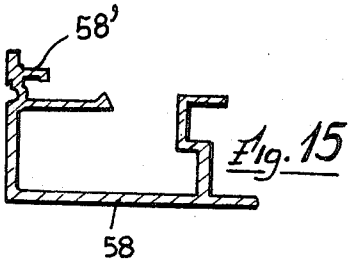


Fig. 15

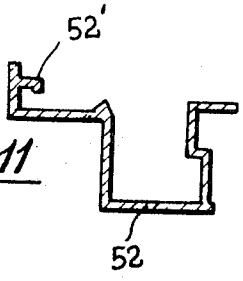


Fig. 11

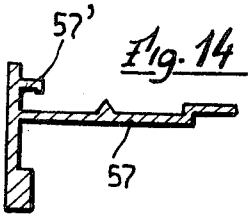


Fig. 14

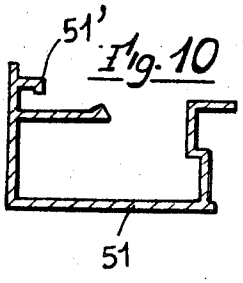


Fig. 10

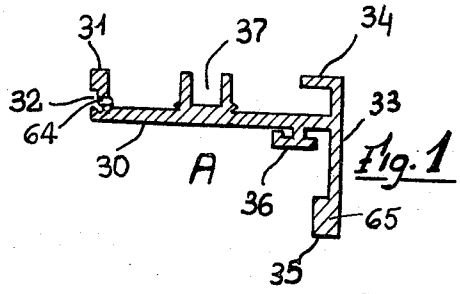


Fig. 1

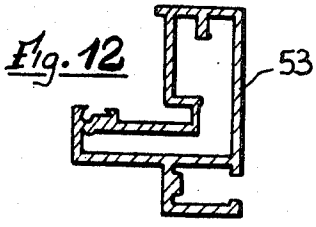


Fig. 12

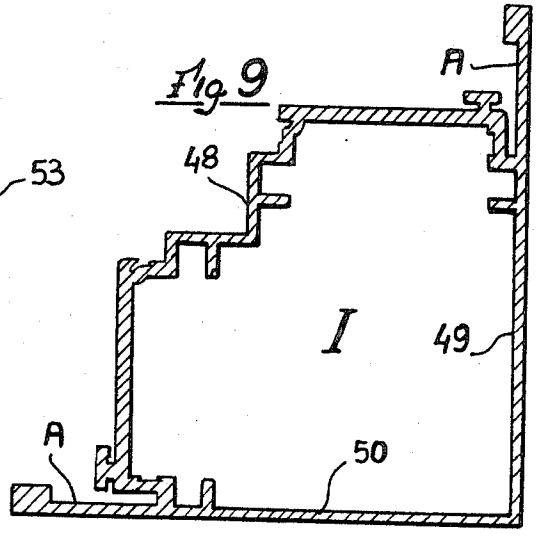


Fig. 9

Fig. 24

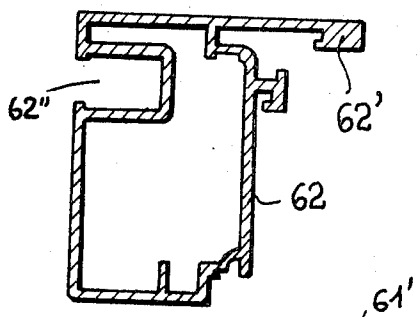


Fig. 25

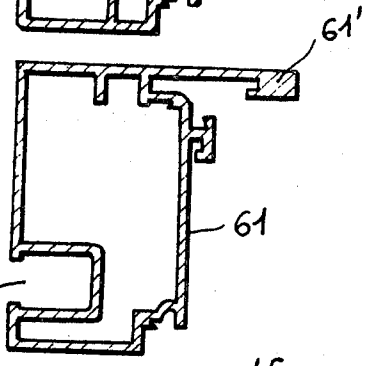


Fig. 5

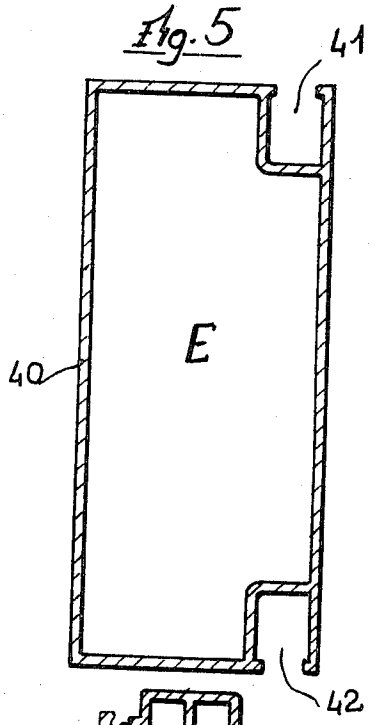


Fig. 8

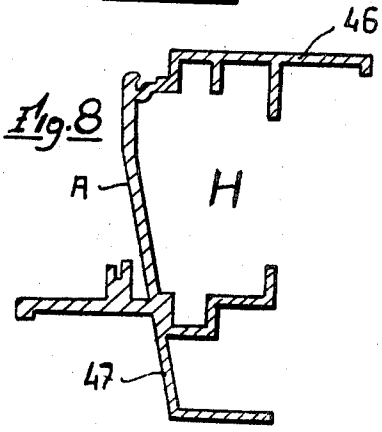


Fig. 2

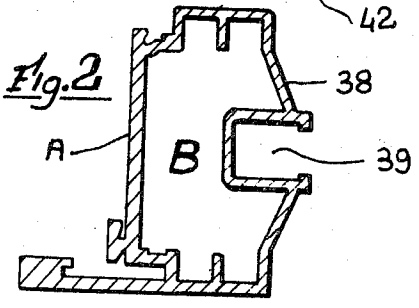
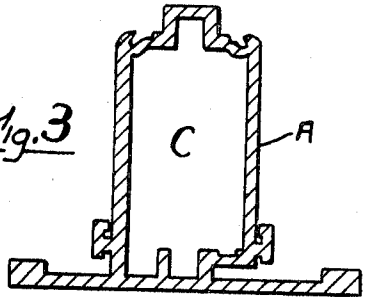


Fig. 3



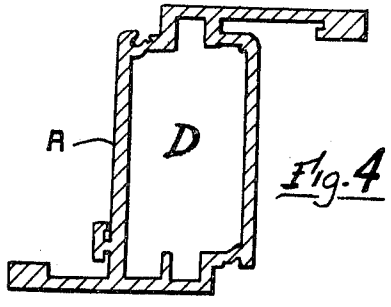


Fig. 4

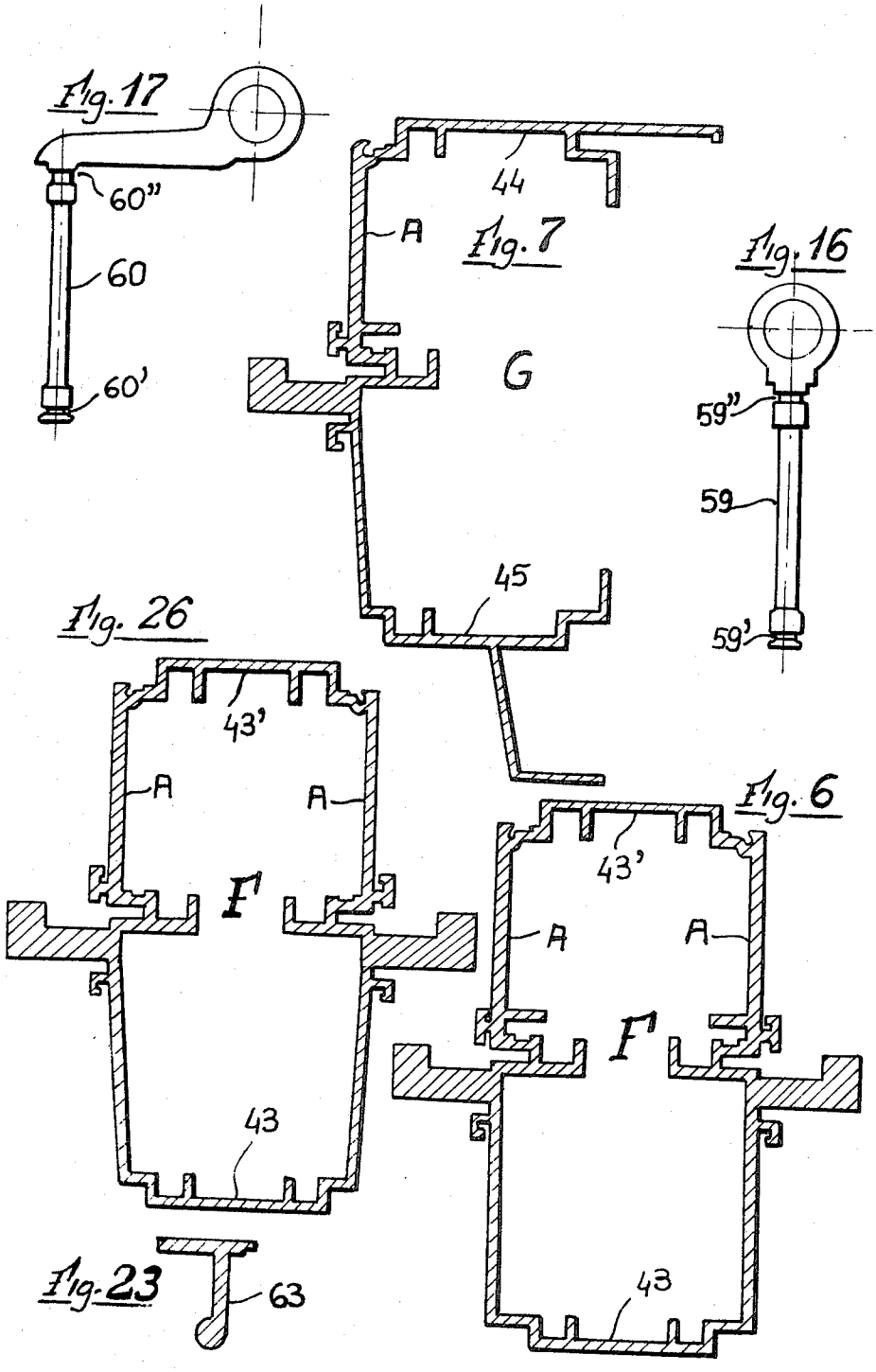

Fig. 17
60"
60
60'
44
A
Fig. 7
G
Fig. 16
59"
59
59'
45
Fig. 26
43'
A
A
F
43
Fig. 23
63
Fig. 6
43'
A
A
F
43

Fig. 18

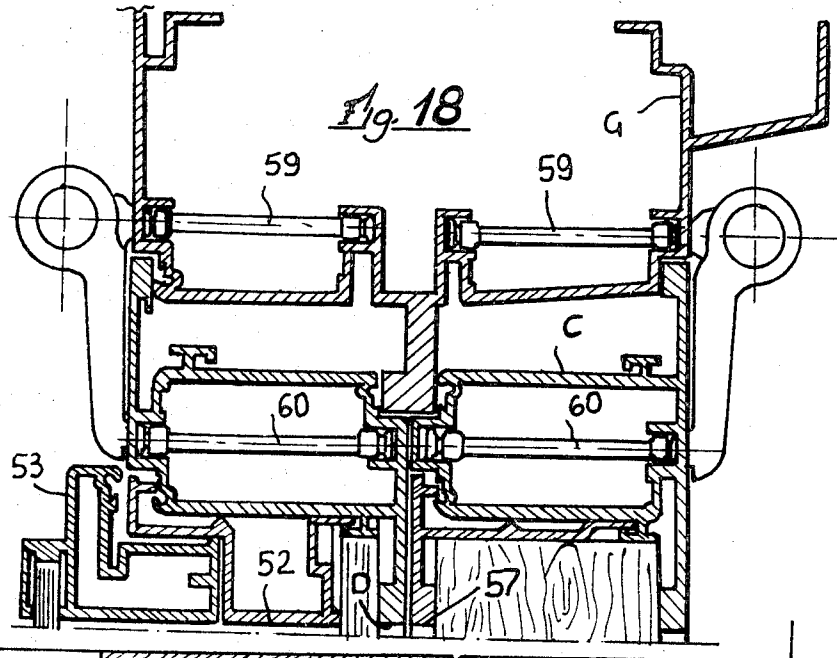
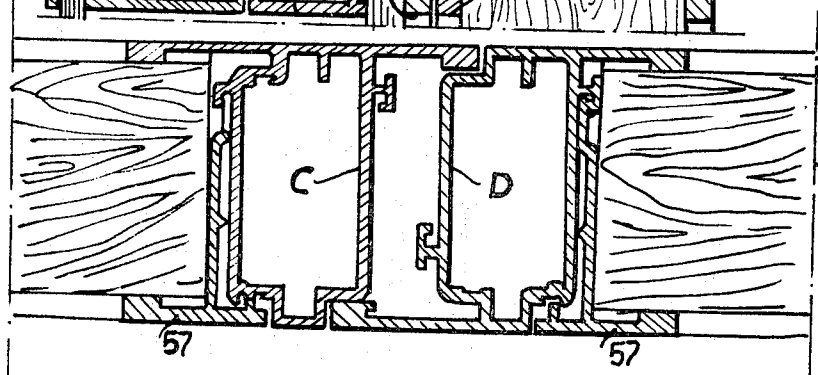


Fig. 19



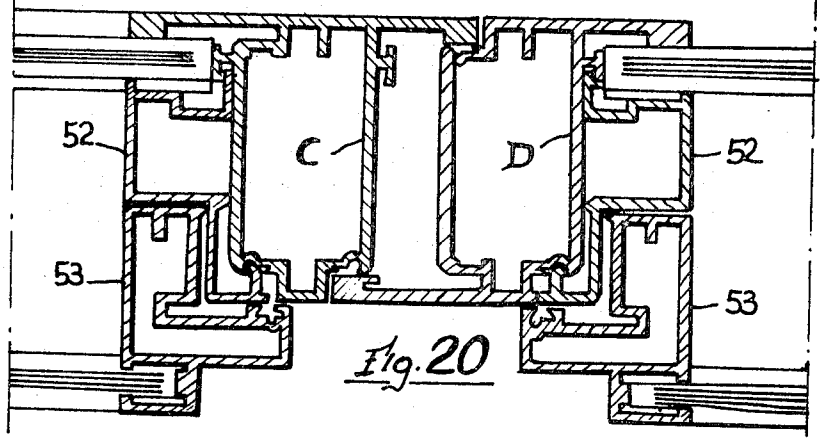


Fig. 20

Fig. 21

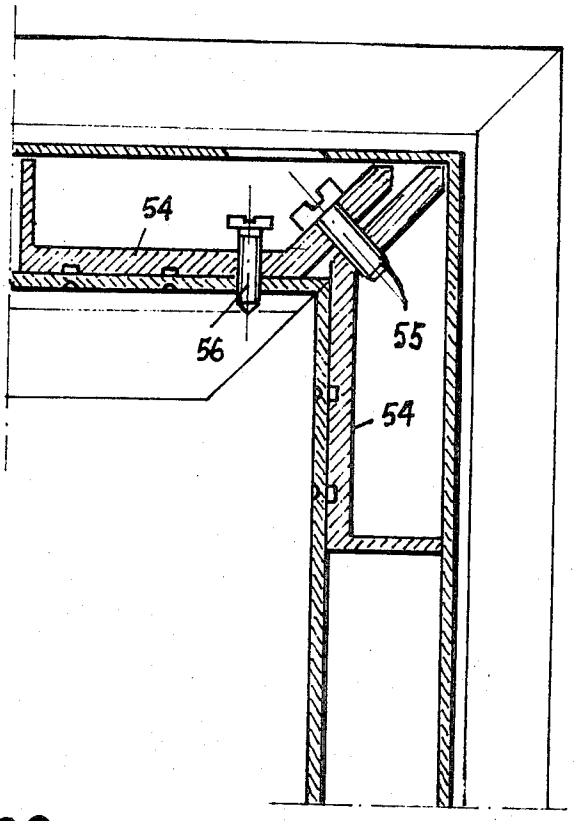
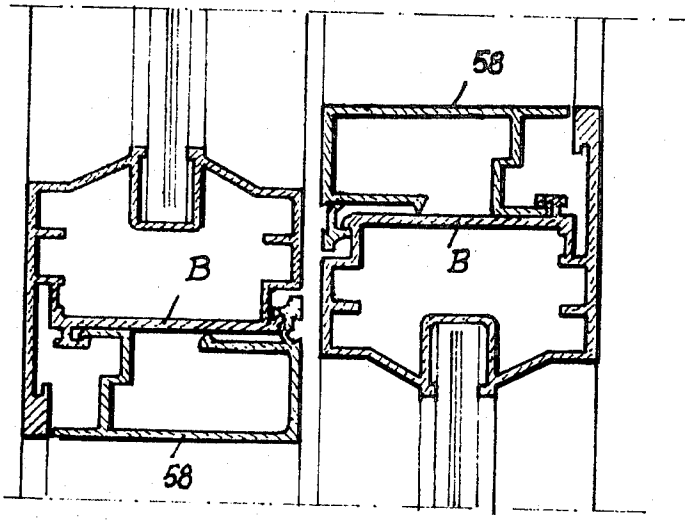


Fig. 22



STRUCTURE FOR THE ASSEMBLY OF FIXTURES FOR DOORS, WINDOWS AND THE LIKE

This invention relates to an improvement in metal structures, particularly of the type used in building consturctions for the preparation of fixtures and the like.

It is well known that there exist in the building field various types of metallic structures used for the preparation of fixtures: each fixture involves, however, the use of a determined type of structure, thus giving rise in the practical industrial application to inconveniences on account of the structural differences occurring between the several elements which, when used in one single unit, require painstaking adjustment. This fact interferes with the achievement of satisfactory results because it is difficult to achieve accuracy and requires more skilled labor. Particularly in the parts being in contact of the two closing elements, in which there are fitted rubber or plastic packings, tightness is not at all guaranteed, because they do not regularly position themselves in the wing part. In the central packings even a slight difference in the projection is such as to prevent the hermetic closing of the fixture; in the structural shape types in which the glass insertion takes place from the upper part, there occurs the inconvenience caused by the scarcely easy adjustment of the closing shutter, because it is not possible to center the fixture by means of the glass. In some structural shape types the glass fastening element is inserted from the wing side where the glass is resting, thus provoking inconveniences among which the impossibility of working at 45° angles because of the fastening from the wing side, the drawback of not ensuring an adequate final aesthetic appearance of the fixture, as well as the difficulty of connecting the metallic structure with the fixture: also in the structural shapes in which there is provided the trip front insertion of the glass fastening element, there occurs the inconvenience that the insertion is only possible on a surface in smooth condition and with the aid of steel springs.

It is the specific object of this invention to provide an improvement in metal structures of the type and applications stated or equivalent uses, and such as to ensure the elimination of all the above-outlined and other well known inconveniences. The invention resides in a determined number of elements which may be associated with each other in a plurality such as to develop the full range of fixtures, such as doors, windows, single or double, rolling and dumping both horizontally and vertically to movable walls, windows, kiosks, glasshouses for argicultural purposes, industrial type fixtures and other similar applications: the aforesaid structural shape elements ensure with the aid of some simple complementary elements to accomplish other original applications. It is possible e.g. by the use of two appropriate elements to build a double glass window and with more shutters with the possibilty of inserting an insect-proof net or a third glass sheet; whilst with the use of one single element, it is possible to build a window, eliminating the application of related glass fastener. The fixtures prepared with the use of the aforementioned elements ensure a hermetic seal, thereby avoiding the projections of the shutters from the fixtures.

Said advantageous industrial results are attained according to the present invention, substantially because the improvement according to this invention consists in developing a range of metal elements which in general are obtained by extrusion. The characteristic basic

structure is associated with other structures relative to which it is placed in a position, so that the resulting elements offer the possibility of being used individually or in a plurality with the aid of simple cooperating elements. In this manner all the parts are fitted together in a simple and perfect manner.

These and further more specific features of the improvement according to this invention will be better understood from the following detailed description of a preferred but non-limiting embodiment form of the invention taken in conjunction with the accompanying drawings, in which:

FIG. 1 shows in a cross-section the element constituting the basic structural shape of the structure,

FIG. 2 represents in a cross-section the basic element associated with a glass-holding shape,

FIG. 3 shows the basic element associated in two equal specimens, overturned so as to form a T-shaped structure,

FIG. 4 represents the basic element associated in two equal specimens, overturned and in reversed position so as to build a Z-shape structure,

FIG. 5 shows an element, particularly utilizable for window basements,

FIG. 6 represents the basic element associated, in two equal overturned specimens, with a quadrangular shape, particularly utilizable for a continuous facade,

FIG. 7 shows the basic element associated with another shape and adapted to serve as a guide for controlling the sliding motion of latches and the like,

FIG. 8 represents the basic element associated with an open shape and particularly utilizable to provide a flush surface with the wall,

FIG. 9 represents a structure being entirely utilizable in the wall corners,

FIG. 10 shows a structure being entirely utilizable as single glass fastener,

FIG. 11 represents a structure being entirely utilizable as double glass fastener,

FIG. 12 shows a complementary structure, utilizable as a glass holding support,

FIG. 13 represents a complementary structure, acting as a square for the angular junctions,

FIG. 14 shows a complementary structure, utilizable for the application of the movable wall fastener,

FIG. 15 represents a complementary structure, utilizable for the adaptation and the application of the fastener to other metallic structures being generally of a rectangular configu

FIG. 16 shows one of the hinges used for the articulation of movable shutters,

FIG. 17 represents the other hinge, used for the same purpose.

FIG. 18 shows an example of fastener mounting which is used to prepare a double glass door with the use of the complementary structure given in FIG. 7,

FIG. 19 shows the preparation of an overopening with side restrained joints,

FIG. 20 represents the preparation of a fixture with four glasses,

FIG. 21 shows the preparation of an angular junction with the use of the complementary structure-FIG. 13,

FIG. 22 represents the preparation of a latch window,

FIGS. 24, 25 and 26 represent the same structures as FIGS. 3, 4 and 6 with some changes adapted to ensure new combinations, and

FIG. 23 represents a complementary structure, utilizable as carillon, latch or the like, for the closing of shutters, windows and the like.

Referring now particularly to the Figures on the drawings, the improved metal structure according to this invention includes in its assembly a basic structural shape — FIG. 1 — which, suitably adapted in some cases, associates with other particular shapes so as to build other elements, which, when combined with each other, and, in turn, combined with complementary elements, ensure the preparation of any type of fixture required by the field applications; such basic structural shape, which will be shortly called A, is constituted, viewed in cross-section, of a rectilinear section **30** to which an extension piece **31,** is connected first sideways and then perpendicularly. There is provided a seat **32,** being prefarably of a trapezoidal configuration, and having a lateral hole, **64** adapted to receive a packing or gasket; the other end of the section **30** is crossed by a perpendicular section **33** and the ends **34** and **35** of which are constituted of a short section folded inward and a block, **65** designed to provide the support for the glass the head of which is resting against the small angle **36** integral with the section **30** in the middle of which, but on the side opposite the latter there is provided a U-shaped seat **37,** designed to serve as a support for other elements.

The basic shape A associates with a section **38** in the middle of which there is formed inwardly a clamp **39,** adapted to serve as support for the glass — FIG. 2 — building an element B: a third element C — FIG. 3 — is constituted of two type A basic shapes associated with each other overturned so as to form a T-shaped configuration or the like, and a fourth element D — FIG. 4 — is likely consituted of two type A shapes, but overturned and reversed in the mutual position so as to form a structure like a Z, said resulting element being utilizable as an intermediate element; a fifth element E — FIG. 5 — is constituted of a structural shape being generally of a quadrangular configuration **40,** provided at the two angles of one of the larger sides with two seats **41-42** and utilizable for basements, whereas a sixth element F — FIGS. **6** and **26** — is consituted of two type A structural shapes associated with each other in an overturned manner and made integral by two shapes **43** and **43'** so as to build a quadrangular body, utilizable for continuous facades. A seventh element G — FIG. 7 — is constituted of the type A basic shape associated with two other shaped parts **44** and **45** in order to form a clamp shape, utilizable for controlling the sliding motion of latches and the like, whereas an eight element H — FIG. **8** — is constituted of the usual modified type A basic structure, associated with two shaped sections **46-47** so as to build a hollow body, particularly utilizable in the restrained parts and the like: a ninth element I — FIG. **9** — is finally constituted of two type A basic structures arranged perpendicularly connected to each other by a shaped section **48** and two rectilinear section **49-50** disposed at right angle to each other so as to form an element utilizable for the delimitation of angles and the like. The aforementioned structures, used individually or in association with each other for the preparation of fixtures of any type whatsoever are helped in some of such applications by a series of complementary elements characterized as follows: two structural shapes **51** — FIG. **10** — and **52** — FIG. **11,** respectively, being of a C-shaped configuration, provided with short side extension pieces and utilizable as single glass fastener and double glass fastener, in that said extension pieces are fitted with an end tooth **51'** and **52',** respectively, adapted to ensure the trip front insertion of the plate and which are introduced either in the seats which in the other differently used elements serve to accomodate the tight seals or in the seats formed by the tooth **36;** a quadrangular shape **53,** provided with a C-shaped expansion on one of the shorter sides and a quadrangular extension piece with seat to receive the packing on one of the larger sides — FIG. **12** — to be used as glass holding means; an angular shape **54** — FIG. **13** — provided at one end with a square-shaped extension piece and pointed at the other end, utilizable for the 90° junction of any structural shape of quadrangular configuration. Manifestly it is of universal application, in that by adapting it to the dimensions of the flange and the point, it permits to avoid the movement of the two coupled sections; as a matter of fact, by placing the point of the shape at the bisectrix of the angle of the junction and by associating this with another similar specimen placed at 90° relative thereto, via the threaded means **55** — FIG. **21** — it is possible to obtain the self-centering of the structural shapes themselves in relation to the sections to be joined which in this manner are locked. The threaded means **56,** which may be screwed on the secured square, preferably from the low to the high of the shutter, permit the balancing of the glass, inasmuch as the latter may be raised as much as necessary by screwing the aforesaid threaded means which is resting on its face. The series of the complementary elements is completed by: a structural shape **57** — FIG. **14** — having a T-shaped configuration with shaped stem and provided on an inner side of the cross-section with a tooth **57'** and utilizable for the application of the movable wall fastener; a structural shape **58** — FIG. **15** — having a C-shaped configuration, provided with shaped side and inner extension pieces as well as a short extension piece **58'** for insertion purposes and utilizable for the completion of the fixture, and comprising a seat to accommodate the packing; two hinges **59** and **60** — FIGS. **16** and **17** — of suitable angular shape and shaped the insertion of which in the spaces arranged in the various elements is provided with the consequent locking without the aid of subsidiary means, but simply by chiselling. The rods of the hinges are provided with suitable channels **59'-59''** and **60'-60''**, respectively. The chisellings carried out on the walls of the seats grip to the channels; two elements **61** and **62,** respectively, of a quadrangular configuration and provided with a side extension piece **61'** and **61''**, respectively, as well as a recessed seat **61''** and **62''**, respectively, are utilizable on the sliding or openable shutters, thus avoiding the use of glass fasteners, because they may be directly inserted in said seat: the aforesaid two elements — FIGS. **24** and **25** — are utilizable also in conjunction with the element E in order to obtain the central cross-section or the socle of window or balcony shutters, which may be closed with the use of the structural shape **63** having an L-shaped configuration — FIG. **23** — which is slidably inserted in the hollow spaces provided, acting as seats formed by the other elements.

The improved structure according to this invention has been described and represented by way of nonlimiting example and for demonstrating its main features, it being understood that, without departing from

the scope of the invention, further changes and modifications as well as additional improvements could be introduced therein.

What I claim is:

1. A metallic structure for assembling fixtures for doors, windows and the like, comprising a first rectilinear member, a second rectilinear member intersecting said first rectilinear member essentially in a T-arrangement, at a point closer to one end of said second rectilinear member than the other whereby said second rectilinear member forms two arms and one arm of said second rectilinear member is longer than the other, a block at the end of said longer arm, a bar projecting at a right angle to said shorter arm from the end thereof, said bar defining with said first rectilinear member a first seat, two parallel bars extending perpendicularly to said first rectilinear member from about the middle portion thereof, said two parallel bars defining a second seat on the same side as said first seat, said second seat opening away from said first rectilinear member and in a direction perpendicular to the direction of said first seat, the opposite end of said first rectilinear member having an extension projecting away from said first rectilinear member in the same direction as said shorter arm, said extension including an end portion at right angle to said first rectilinear member and a connecting portion at an acute angle to said first rectilinear, member, the endmost portion of said first rectilinear member projecting beyond said connecting portion and underlying said end portion whereby a third seat is formed with said extension portion and extending outwardly of said extension portion, said third seat being adapted to receive a packing and being bored, and a T-shaped projection projecting from said first rectilinear member on the same side of said longer arm and in spaced relationship to said longer arm.

* * * * *