

Oct. 13, 1942.

J. T. MILLER

2,298,406

WINDOW CONSTRUCTION

Filed Feb. 7, 1940

2 Sheets-Sheet 1

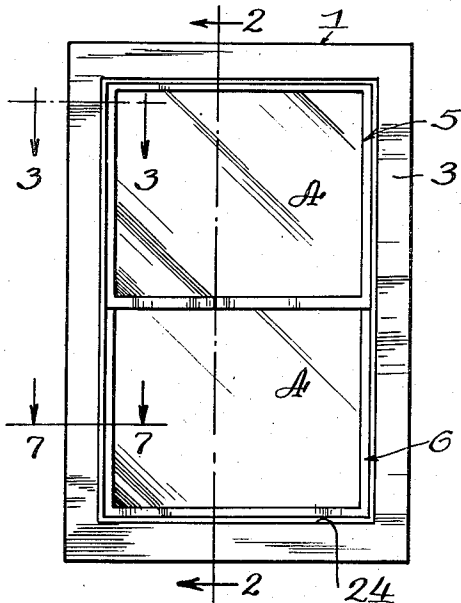


Fig. 1

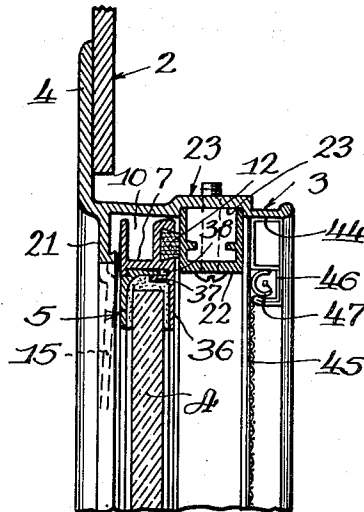


Fig. 2

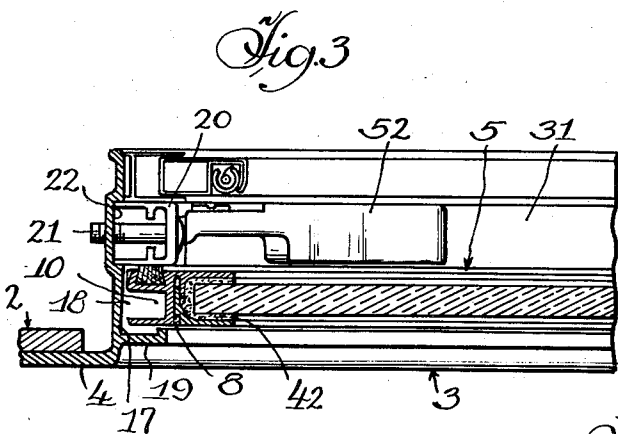
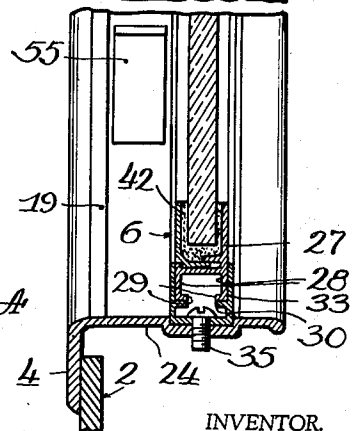
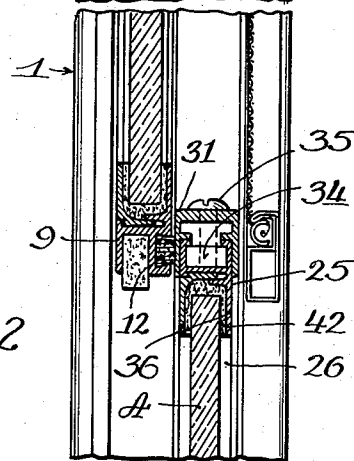


Fig. 3



INVENTOR.

BY James I. Miller,

Parkinson & Lane
ATTORNEYS.

Witness:
Chas. L. Korsch

Oct. 13, 1942.

J. T. MILLER

2,298,406

WINDOW CONSTRUCTION

Filed Feb. 7, 1940

2 Sheets-Sheet 2

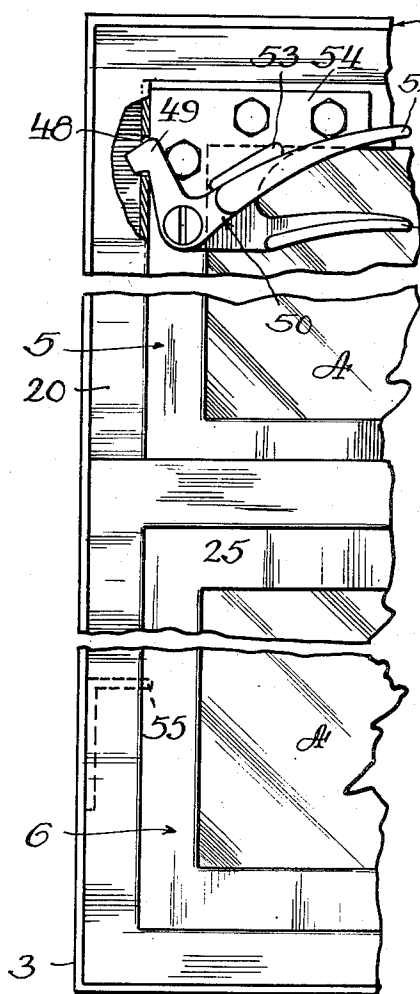


Fig. 4

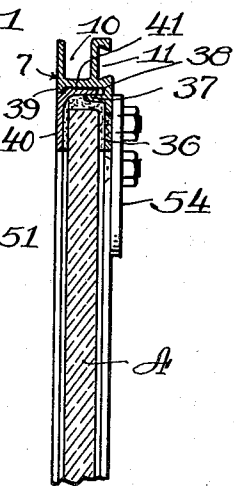


Fig. 5

Fig. 6

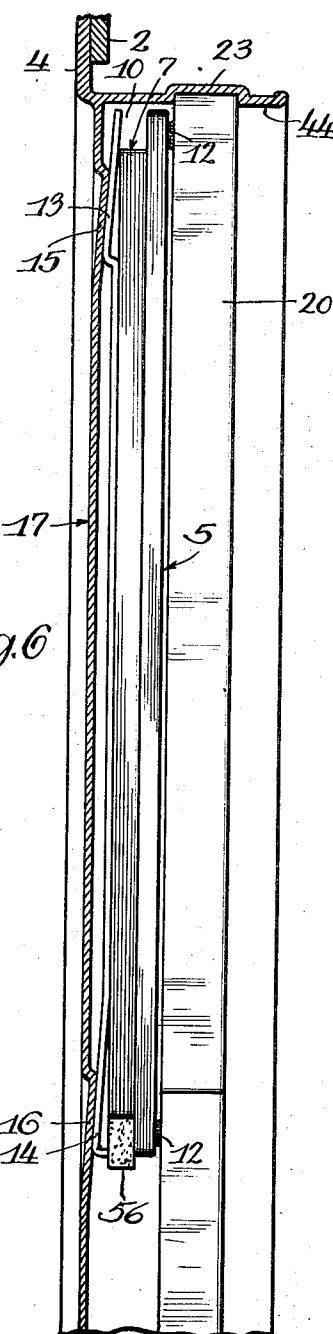
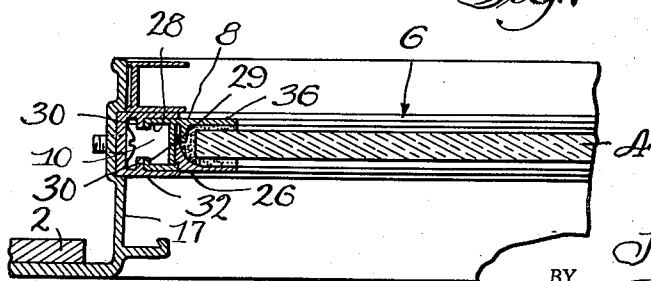


Fig. 7



Witness:
Chas. R. Koush

BY

INVENTOR.
James I. Miller
BY
Parkinson & Lane
ATTORNEYS.

UNITED STATES PATENT OFFICE

2,298,406

WINDOW CONSTRUCTION

James T. Miller, Niles, Mich., assignor to The
Kawneer Company, Niles, Mich., a corporation
of Michigan

Application February 7, 1940, Serial No. 317,719

3 Claims. (Cl. 189—72)

The present invention relates to window constructions and more particularly to a novel window unit having a double lift slidable sash that may be readily raised or lowered and when in closed position, makes for a weather and watertight seal, thus admirably adapting the window for marine use.

The novel window is of non-ferrous metals with the frame sections and the sash members formed of extruded sections and preferably mitered and welded together to provide a substantially rigid construction.

Another novel feature of the present invention resides in the manner of sealing the window when the slidable sash is in closed position, thereby making the structure watertight. This is accomplished by a camming action between the slidable sash and the side jambs of the window frame when this sash member is in closed position, resulting in a weathertight sealing contact between the sash members and frame. In the disclosed embodiment, this camming action is accomplished by complementary cams or embossments on the side jambs of the window frame and the side rails of the slidable sash.

Further objects are to provide a construction of maximum simplicity, efficiency, economy and ease of assembly and operation, and such further objects, advantages and capabilities as will later more fully appear and are inherently possessed thereby.

The invention further resides in the construction, combination and arrangement of parts illustrated in the accompanying drawings, and while I have shown therein a preferred embodiment, it is to be understood that the same is susceptible of modification and change, and comprehends other details, arrangements of parts, features and constructions without departing from the spirit of the invention.

In the drawings:

Fig. 1 is a view in side elevation showing the exterior of the novel window construction.

Fig. 2 is an enlarged view in vertical cross section taken in a plane represented by line 2—2.

Fig. 3 is a fragmentary enlarged view in horizontal cross section taken on the line 3—3 of Fig. 1.

Fig. 4 is a fragmentary enlarged view in elevation of the inside of the window, parts being broken away to more clearly show the catch or latch mechanism.

Fig. 5 is a fragmentary view in vertical cross section through the upper sash rail.

Fig. 6 is a fragmentary enlarged view in horizontal cross section through the window frame and side jambs, with the sliding sash shown in end elevation and in closed position.

Fig. 7 is a fragmentary view in horizontal cross section taken on the line 7—7 of Fig. 1.

Referring more particularly to the disclosure in the embodiment selected to illustrate the invention, the novel window construction 1 is shown as mounted in a ship in which the numeral 2 refers to the hull or metal plate of the ship structure, although it is to be understood that the window is admirably adapted for mounting in buildings or other structures where a weather-tight seal is desired. The window 1 is provided with a metal frame 3 secured in an opening in the hull or metal plate of the ship by means of an external flange or metal trim 4. This frame is preferably of extruded construction and welded at the corners so as to provide a rigid assembly. Any suitable securing means such as welding, bolts or the like may be employed for anchoring the frame in the opening in the hull.

Within the frame 3 are mounted sash members 5 and 6, the upper sash member 5 being slidable within the frame, while the sash 6 is preferably retained stationary. As more clearly shown in Figs. 2 and 3, the upper sash is provided with a top rail 7, side rails 8 and bottom rail 9, each formed with an outwardly opening channel 10 and an offset, inwardly or laterally opening groove 11 adapted to receive a weather strip 12 of felt laminae or the like to completely seal this sash against the adjoining frame sections when this sash is in closed position. To facilitate and augment the sealing effect, the exterior face of the side rails of the upper sash are embossed adjacent their upper and lower ends to provide tapered cam surfaces 13 and 14 adapted to abut and ride over complementary tapered cam surfaces or embossments 15 and 16 on the inner faces of the opposite side jambs 17 of the frame 3.

These side jambs are so formed as to provide opposed vertically extending channels or guide-ways 18 between the exterior flange or trim 19 and a parting strip or channel member 20 secured in any suitable manner as by means of machine screws, bolts or the like 21 in the upper portion of a depressed recess or groove 22 of the side jambs. Similarly arranged exterior flange or trim 19 and parting strip 20 are associated with the upper or head jamb 23. The side jambs 17, head jamb 23 and sill 24 are preferably of extruded construction, although they may be of cold rolled sections, and preferably of identical contour, receiving not only the upper slidable sash but also a lower sash 6 mounted in a fixed or stationary position but adapted to be readily assembled and disassembled, as required. The upper and lower sash members are also preferably assembled and disassembled, as required. The ability of a somewhat similar construction so as to permit a universal use or standardization of the sash either as a sliding or fixed member.

In the disclosed embodiment of lower sash 6, the top rail 25, side rails 26 and bottom rail 27

are of identical construction, each being provided or formed with spaced outwardly projecting flanges or legs 28 having inturned projections 29 adapted to be received within the inwardly opening channel and abutting against spaced ledges or shoulders 30 provided in the similarly shaped channel sections 31, 32 and 33. The side sections 32 and bottom section 33 are received within the recesses or grooves 22 in the side jambs and sill of the frame. The upper channel section or meeting rail 31 is shown as detachably secured to the side sections by means of a tapping block 34 inserted at the opposite ends of this upper section and to which block these sections are attached by means of machine screws, bolts or the like 35. The bottom section and side sections are preferably secured in the recesses or grooves 22 by similar machine screws, bolts or the like and their abutting ends may be connected by welding or the like.

In order to mount the glass A firmly in the sash members each sash rail is formed with an exterior flange 36, a shoulder 37 and a slot or groove 38 which is shown as undercut in order to provide an overhanging lip 39. A stop or retaining member for the opposite side of the glass comprises a glass retaining flange 40, a shoulder 41 with its upper or inner surface formed to provide a cam face, and a projection or lip adapted to be received beneath the overhanging lip 39 and retain the stop in its adjusted position. The rounded or cammed inner or rear surface of the shoulder 37 and the cammed upper or outer surface of the shoulder 41 provide cam surfaces to receive and direct the stop or retaining member into its locked position in the slot or groove 38. In the assembly of the glass, each pane A is set in putty or other suitable plastic 42 as shown in Figs. 2, 3, 5 and 7. The stop or retaining member is then forced into the slot or groove 38 by a slight tilting or camming action and the projection or lip 39 is locked within the undercut slot and under the shoulder 37. Additional putty or other waterproof plastic material is then forced into the space between the flange 40 and the pane of glass, after which the sash is completely glazed.

The frame 3 is so contoured as to provide an inner trim 44 adapted to receive a screen 45 having a suitable frame 46 channelled to receive an interlocking arcuate member 47 for tensionally securing the ends of the screen. In order to retain the upper sash 5 in its raised and intermediate lowered position, the invention comprehends spaced openings 48 in the opposed parting strips or channel members 20 adapted to receive a catch 49 of a latch member 50. As shown in Fig. 4, this latch member has a fixed hand grip 51 and a spring pressed handle or grasping portion 52 which is pivotally mounted and normally held in raised position by the pressure of the spring against a fixed abutment 53, in which position the catch 49 will seat in one of the openings 48. Preferably one of the latch members is mounted upon each side rail with this latch mechanism or hardware secured by means of an angular plate 54 and machine screws, bolts or the like to the meeting ends of the side rails 8 and top rail 7 of the upper sash. In order to limit the lowered position of the upper sash, the invention contemplates mounting a stop member 55 in the opposite side channels 17 against which a bumper 56, carried in the lower sash rail and constructed preferably of rubber or the like, will engage.

It will be appreciated that the novel invention comprises a unitary window construction that may be completely assembled at the factory and readily mounted in a window opening, and when so mounted, provides a watertight assembly particularly well adapted for marine use.

Having thus disclosed the invention, I claim:

1. A unitary metal window construction comprising a frame, a stationary sash, a slidable sash and vertical channels in which said last named sash is adapted to move, including outwardly facing members forming certain of the inside faces of said channels, compressible weathering means for sealing the slidable sash when in its closed position including compressible material on the inside portions of said slidable sash adapted to engage said outwardly facing members, and complementary upwardly and inwardly inclined cam means located on the opposite sides of said channels from said members and on the adjacent opposite ends of said slidable sash, said cam means on said channels and said sash adapted to engage each other when the sash is in closed position and direct the sash and said weathering means into a watertight sealing contact with said members, said weathering means being adapted also to engage said stationary sash.

2. A unitary metal window construction comprising a frame, a stationary sash, a slidable sash and vertical channels in which said last named sash is adapted to move, including outwardly facing members forming certain of the inside faces of said channels, compressible weathering means for sealing the slidable sash when in its closed position including compressible material on the inside portions of said slidable sash adapted to engage said outwardly facing members, and complementary upwardly and inwardly inclined embossments located on the opposite sides of said channels from said members and on the adjacent opposite ends of said slidable sash, said embossments on said channels and said sash adapted to engage each other when the sash is in closed position and direct the sash and said weathering means into a watertight sealing contact with said members, said weathering means being adapted also to engage said stationary sash.

3. A unitary metal window construction comprising a frame, a stationary sash, a slidable sash and vertical channels in which said last named sash is adapted to move, including outwardly facing members forming certain of the inside faces of said channels, compressible weathering means for sealing the slidable sash when in its closed position including compressible material on the inside portions of said slidable sash adapted to engage said outwardly facing members, and complementary upwardly and inwardly inclined cam means located on the opposite sides of said channels from said members and on the adjacent opposite ends of said slidable sash, said cam means on said channels and said sash adapted to engage each other when the sash is in closed position and direct the sash and said weathering means into a watertight sealing contact with said members, said weathering means being adapted also to engage said stationary sash, said outwardly facing members being removably mounted in said frame, and additional members forming part of said stationary sash, said additional members being interchangeable with at least some of said outwardly facing members.

JAMES T. MILLER.

CERTIFICATE OF CORRECTION.

3

Patent No. 2,298,406.

October 13, 1942.

JAMES T. MILLER

It is hereby certified that error appears in the printed specification of the above numbered patent requiring correction as follows: Page 1, first column, line 45, after "line 2-2" and before the period insert --of Fig. 1--; and second column, line 55, strike out "assembled and disassembled, as required. The"; and that the said Letters Patent should be read with this correction therein that the same may conform to the record of the case in the Patent Office.

Signed and sealed this 10th day of November, A. D. 1942.

(Seal)

Henry Van Arsdale,
Acting Commissioner of Patents.