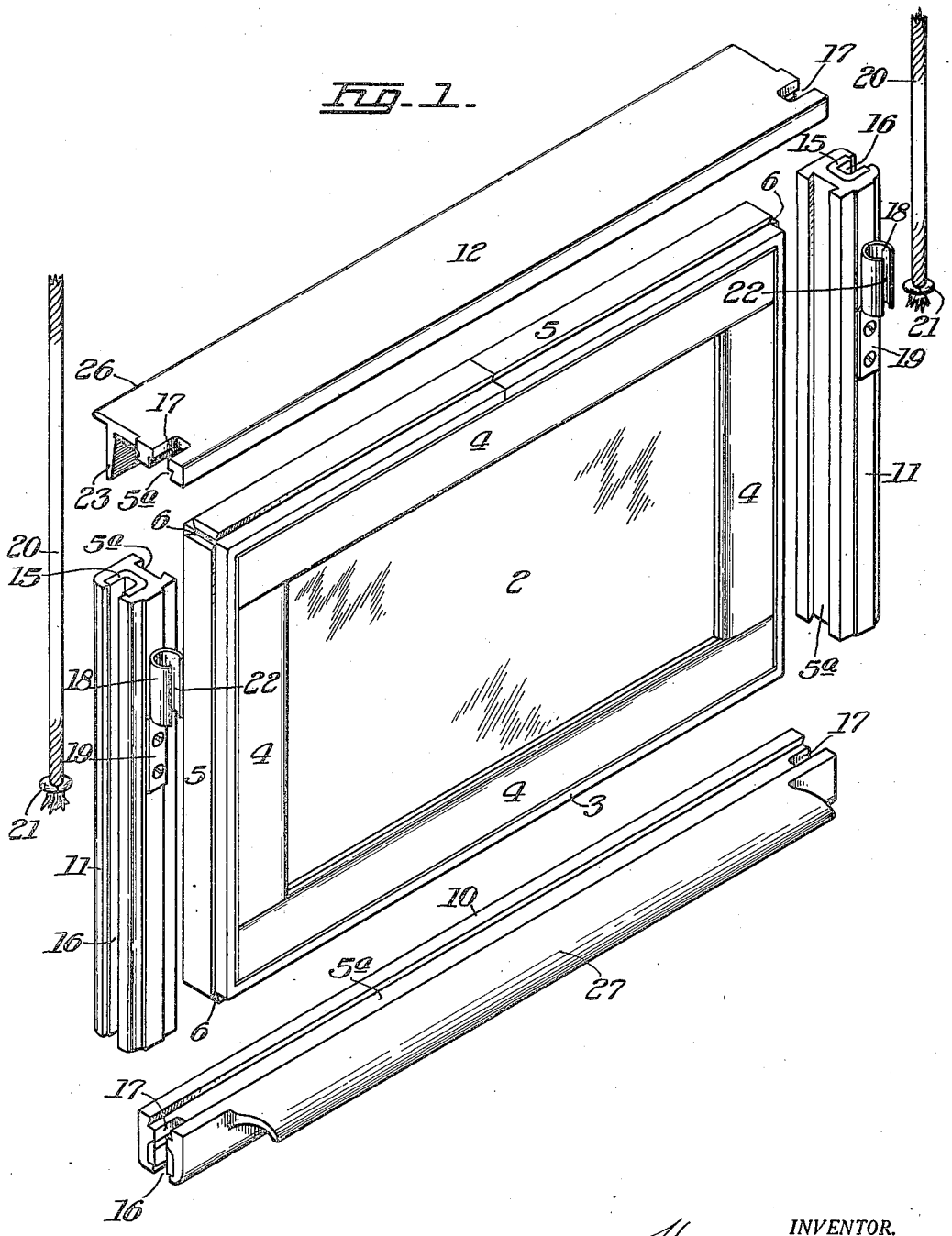
Oct. 4, 1938. H. J. SHARP 2,131,980

WINDOW SASH AND HOUSING

Filed March 29, 1937 2 Sheets-Sheet 1

Fig. 1.



INVENTOR.
Henry J. Sharp
BY C. M. Clarke
ATTORNEY

Oct. 4, 1938. H. J. SHARP 2,131,980

WINDOW SASH AND HOUSING

Filed March 29, 1937 2 Sheets-Sheet 2

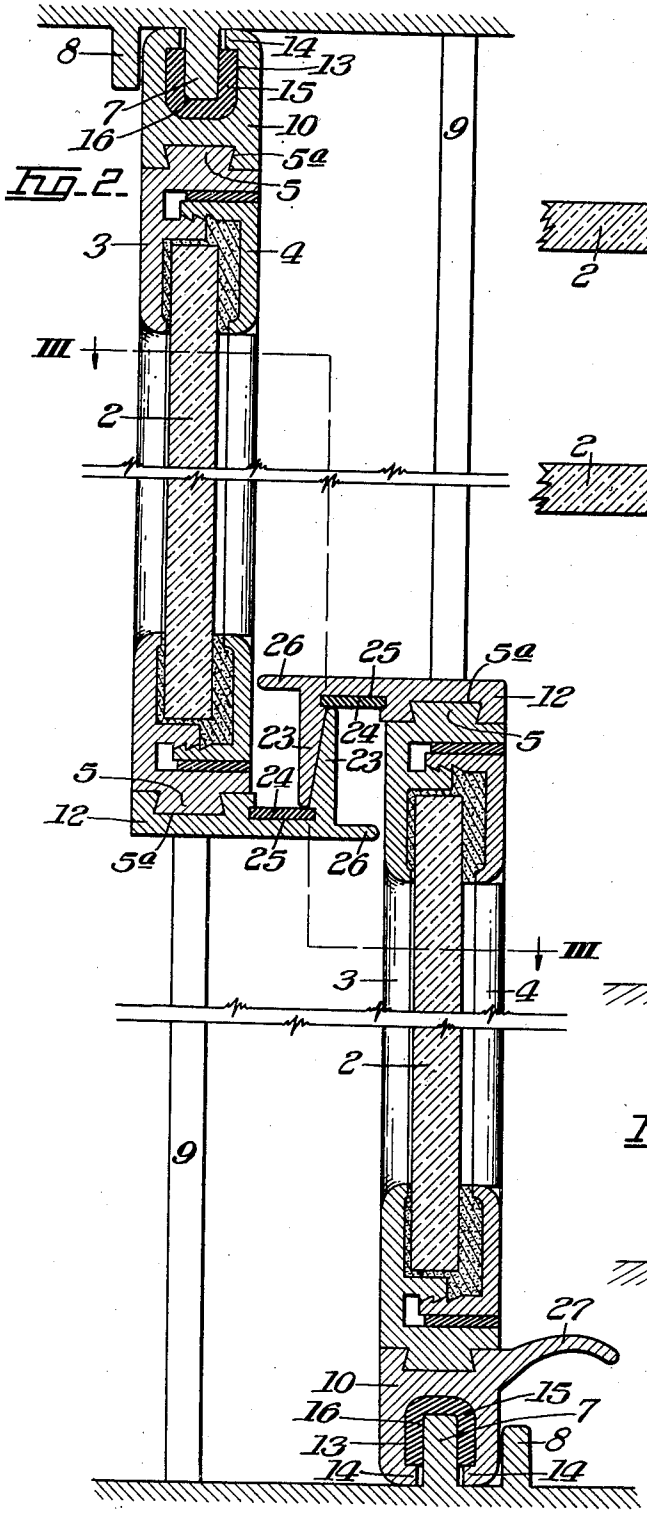


Fig. 2.

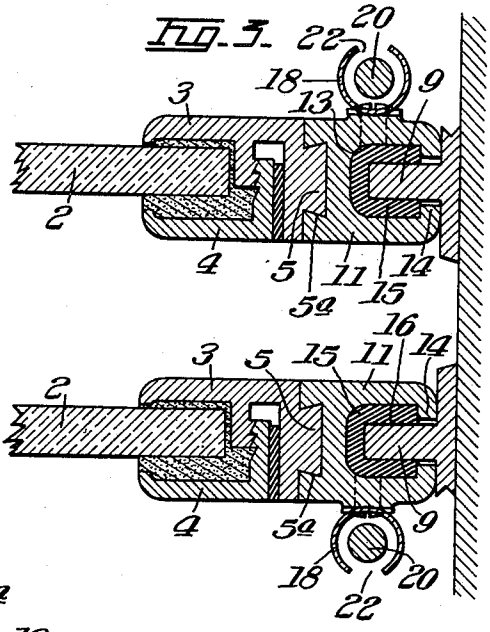


Fig. 3.

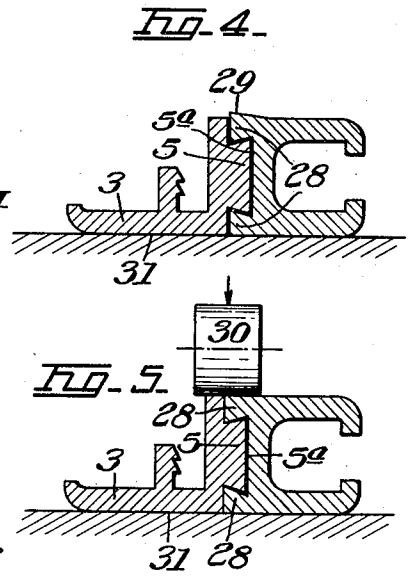


Fig. 4.

Fig. 5.

INVENTOR.
Henry J. Sharp
BY
C. M. Clarke
ATTORNEY.

Patented Oct. 4, 1938

2,131,980

UNITED STATES PATENT OFFICE

2,131,980

WINDOW SASH AND HOUSING

Henry J. Sharp, Pittsburgh, Pa., assignor of fifty-one one-hundredths to William W. Martin, Pittsburgh, Pa.

Application March 29, 1937, Serial No. 133,486

16 Claims. (Cl. 189—76)

This invention is an improvement in combination metal sash frame and housing therefor for operative mounting in the window opening of a building.

It is designed to provide a completely operative equipment for sliding engagement with the inner surrounding stationary framing and in cooperation with interengaging slide members thereof, balancing suspending means, etc. and is constructed as hereinafter described and shown by the accompanying drawings, in which:

Fig. 1 is a perspective exploded or disassembled view showing the sash frame, housing elements, and lifting cords spaced therefrom;

Fig. 2 is a vertical sectional view, partly broken away, showing a pair of upper and lower sashes and housings, in closed position;

Fig. 3 is a cross section of one side only on the broken line III—III of Fig. 2;

Fig. 4 is a similar view of one sash and side housing only, illustrating one step of assembling such members;

Fig. 5 is a similar view illustrating the step of firmly connecting the sash frame with the housing.

In my companion application filed herewith Ser. No. 133,485, I have shown and described my improved window sash in detail, consisting of the usual light 2 confined within a mounting frame between separable front and back members 3 and 4 adapted to make interlocking connection with each other. One of said frame members as 3 is provided entirely around its top, bottom and side edges with a continuous laterally extending dovetail extension rib 5. The dovetail is cut away at the four several corners as at 6 for clearance of the outer housing members, providing projecting key elements, in application thereof.

The housing members and each housing frame of both upper and lower sashes are substantially the same, except as to the lower and upper meeting rail portions of each respectively, and an additional lifting rib extension at the bottom of the lower member.

The top and bottom portions of the enclosing window opening framing are provided with a weather sealing rib 7 and an inner and outer flanking rib 8, when desired, although the latter is not absolutely necessary.

For interengagement with the side edge portions of both upper and lower sash frame housings, the surrounding aperture framing is provided with vertical ribs 9 extending from any suitable mounting, for guiding and weather strip action, like ribs 7.

Each housing is substantially the same, as stated, in that it consists of a terminal horizontal bar 10, vertical side bars 11, 11, and an opposite horizontal bar 12, each having dovetail sliding and clinching connection with one of the several dovetails 5 by dovetail sockets 5a. Side bars 11 extend only for the full length of side dovetails 5, to their terminals at cut out corners 6, while horizontal bars 10 and 12 extend across their ends and terminate coextensive and flush with the outer edges of bars 11. Excepting the meeting rail bars 12 only, each of bars 10 and 11 is provided with a U-shaped opening 13 and inwardly turned retaining lips 14 for reception of an inserted U-shaped sliding strip 15 having a middle groove 16 engaging ribs 7 and 9. Strip 15 is of any suitable sliding, lubricating and packing material as felt or the like, for weather and sound proof functioning.

A further material advantage of the strip 15 is that it prevents metal to metal contact, avoiding abrasion or galling due to friction, with continuous quiet and easy operation.

The ends of bars 10 and 12 are cut out as at 17 in register with and forming continuations of the side grooves of bars 11, and of proper width to slidably engage the side ribs 9.

The overlapping ends of bars 10 and 12 are securely connected with the abutting ends of bars 11 in any suitable manner, as by welding, thus firmly enclosing the sash frame all around. Otherwise, the fixed attachment to the sash frame is sufficient.

Each sash frame housing is provided on one of its sides, preferably front and back, with a pair of oppositely located sash cord sockets 18. These as shown are conveniently formed of sheet metal blanks shaped to provide a partly cylindrical bifurcated shell and a securing extension 19, held to the face of each side bar 11, as by screws.

The sash cord 20 provided with a terminal abutment 21 is inserted through the clearance opening 22 with the abutment engaging the lower edges of the socket wings, and these may then be pressed inwardly to prevent disengagement. In a companion application filed herewith, Ser. No. 133,487, I show related construction of the embracing window opening framing in which the sash weights, pulleys, etc. used with the cords 20 are disclosed in their operative relationship.

Each meeting rail bar 12 is shown as continuously flat and extended towards its companion housing and provided with a wedge shaped flange or rib 23 for sealing engagement with a similar one of the companion housing, as in Fig. 2. A

sealing strip 24 of suitable material as felt or rubber, is inserted in a receiving socket 25 extending for the full length of each bar along its inner face.

Such socket is undercut at each opposite edge for secure holding of the strip 24, as shown. Each bar 12 is also shown as having an extension 26 projecting beyond its sealing flange 23 and practically closing the space between the pair of flanges and the opposite housing when the flanges are in engagement.

By means thereof I thus substantially prevent entrance of foreign matter, dust, rain, snow, or air currents around these junction elements when the windows are closed, or when the flanges are separated.

The lower sash housing is provided with a lifting bar or finger grasping grip 27 extending inwardly towards the interior of the building, and forming an integral extension of bar 10.

The several members of the sash frame housing, as of the sash frame also, are preferably made of extruded sections of a suitable sufficiently malleable material, as aluminum.

In assembling the several housing members around the sash frame in the manner described it is desirable that they be permanently secured together after being slidably joined by the interengaging dovetails 5 and the receiving sockets therefor 5a. These as shown are provided between opposite embracing extensions 28 of bars 10, 11 and 12, each having female inclined faces generally conforming to those of the dovetail 5.

For the purpose of freely fitting slide engagement sufficient clearance is provided by proper extrusion die design, and one of the extensions 28 extends slightly beyond its final desired registering plane with the edge of the sash frame member, as at 29. In securing the two members together in final fixedly connected form, the opposite extensions 28 are subjected to inward pressure, as by action of a pressing roller 30 at one side and a resisting anvil surface 31 at the other; see Fig. 5. In such compression the dovetail is firmly secured and embraced, particularly at the acute angle groove junctions between the parts.

What I claim is:

1. In combination, a metal sash frame having surrounding outwardly projecting connecting portions and an enclosing housing therefor consisting of side and end bars each having interengaging connecting portions slidably connecting the housing with the sash frame and having corner junction with each other.

2. In combination, a metal sash frame having surrounding outwardly projecting key members and an enclosing housing therefor consisting of side and end bars each having interengaging key sockets slidably connecting the housing with the sash frame and having corner junction with each other.

3. In combination, a metal sash frame having surrounding outwardly projecting key members and an enclosing housing therefor consisting of side and end bars each having interengaging key sockets in normally fixed slidable connection therewith and having corner junction with each other.

4. In combination, a metal sash frame having surrounding connecting portions, an enclosing housing therefor consisting of side bars having interengaging connecting portions and outer guide engaging grooves, and top and bottom bars.

5. In combination, a metal sash frame having surrounding connecting portions, an enclosing housing therefor consisting of side bars having interengaging connecting portions and outer guide engaging grooves provided with slidable linings, and top and bottom bars.

6. In combination, a metal sash frame having surrounding connecting portions, an enclosing housing therefor consisting of side bars having interengaging connecting portions and outer guide engaging grooves, and top and bottom bars connected with the top and bottom of the sash frame and in abutting engagement with the side bars whereby the sash frame is in operative relation to the side bars.

7. In combination, a metal sash frame having surrounding connecting portions, an enclosing housing therefor consisting of side bars having interengaging connecting portions and outer guide engaging grooves, and top and bottom bars connected with the top and bottom of the sash frame and with the side bars and having clearance openings registering with the side bar grooves.

8. In combination, a metal sash frame having surrounding connecting portions, an enclosing housing therefor consisting of side bars having interengaging connecting portions and outer guide engaging grooves, a top bar engaging the sash frame extending across the upper ends of the side bars, and a bottom bar engaging the sash frame extending across the lower ends of the side bars.

9. In combination, a metal sash frame having surrounding connecting portions, an enclosing housing therefor consisting of side bars having interengaging connecting portions and outer guide engaging grooves, a top bar engaging the sash frame extending across the upper ends of the side bars having registering grooves, and a bottom bar engaging the sash frame extending across the lower ends of the side bars having registering grooves.

10. In combination, a metal sash frame having surrounding connecting portions, an enclosing housing therefor consisting of side bars having interengaging connecting portions and outer guide engaging grooves, a top bar engaging the sash frame extending across the upper ends of the side bars and having a meeting rail flange, and a bottom bar engaging the sash frame extending across the lower ends of the side bars.

11. In combination, a metal sash frame having surrounding connecting portions, an enclosing housing therefor consisting of side bars having interengaging connecting portions and outer guide engaging grooves, a top bar engaging the sash frame extending across the upper ends of the side bars, and a bottom bar engaging the sash frame extending across the lower ends of the side bars and having clearance openings registering with the side bar grooves.

12. In combination, a metal sash frame having surrounding connecting portions, an enclosing housing therefor consisting of side bars having interengaging connecting portions and outer guide engaging grooves, and top and bottom bars connected with the ends of the side bars.

13. A housing for a sash frame composed of extruded metal section side bars having guide engaging grooves, an upper extruded metal section bar overlapping and secured to the upper ends of the side bars having endmost grooves registering therewith, and a lower extruded metal section bar underlapping and secured to the lower ends of the side bars having endmost grooves registering therewith.

14. A housing for a sash frame composed of ex-

truded metal section side bars having guide engaging grooves, an upper extruded metal section bar overlapping and secured to the upper ends of the side bars having endmost grooves registering therewith, and a lower extruded metal section bar underlapping and secured to the lower ends of the side bars having endmost grooves registering therewith, each of said bars having fixed connection means for attachment to the edge portions of an enclosed sash frame.

15. A housing frame member for a sash frame made of an extruded metal section provided with an inner rib engaging groove and an outer guide bar groove provided with an inserted U-shaped sliding strip.

16. In combination with a sash frame having an outer dovetail rib, an enclosing housing therefor of extruded metal sections, one or more of said sections having an inner dovetail groove with its sides in compressed engagement with the dovetail rib of the sash.

HENRY J. SHARP.