

J. F. WEITZEL.
METALLIC WINDOW AND SASH FRAME.
APPLICATION FILED DEC. 16, 1909.

964,590.

Patented July 19, 1910.

2 SHEETS—SHEET 1.

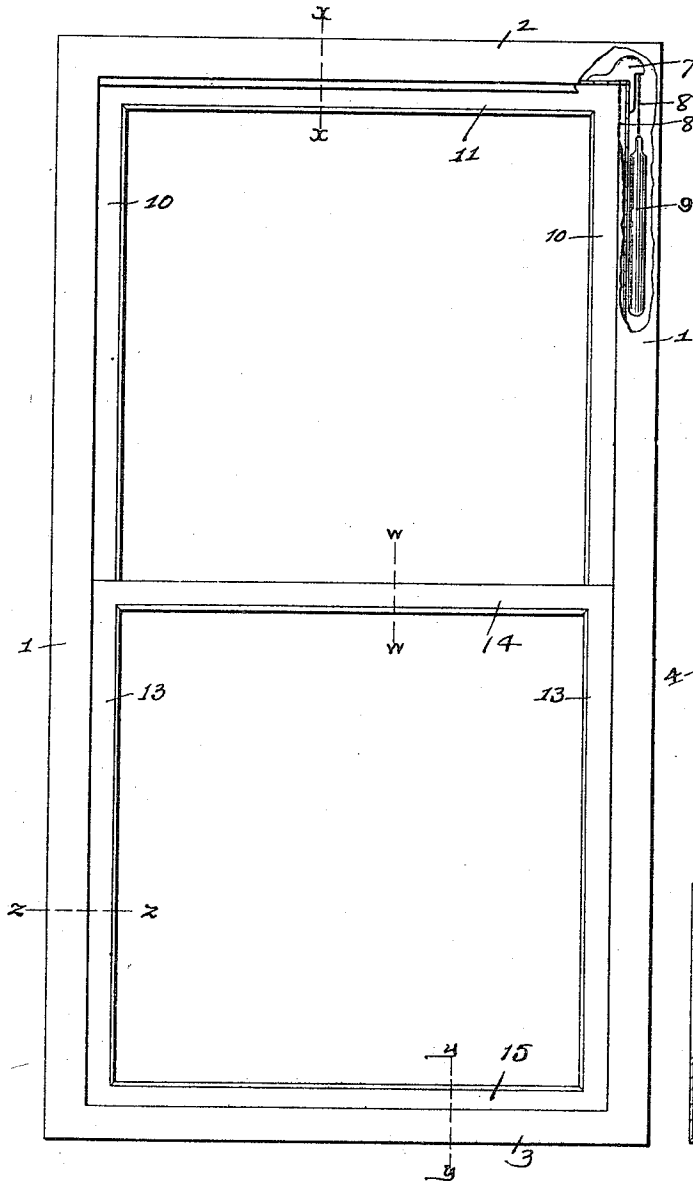


Fig. 1.

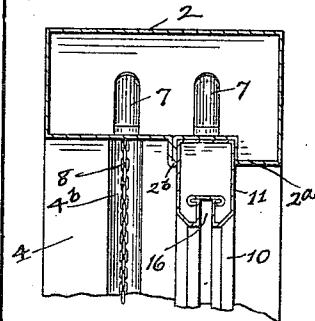


Fig. 2.

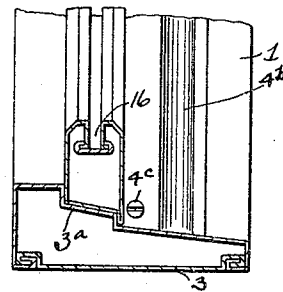


Fig. 3.

Witnesses
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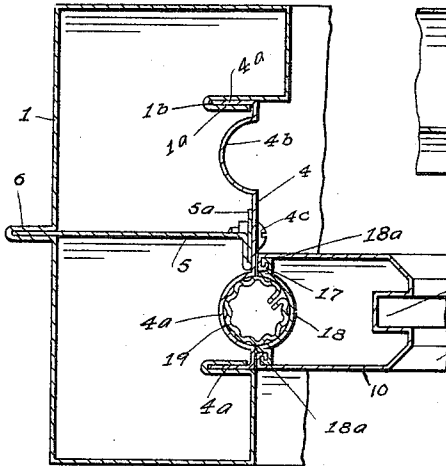


Fig. 6.

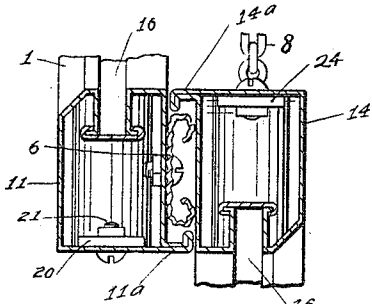


Fig. 7.

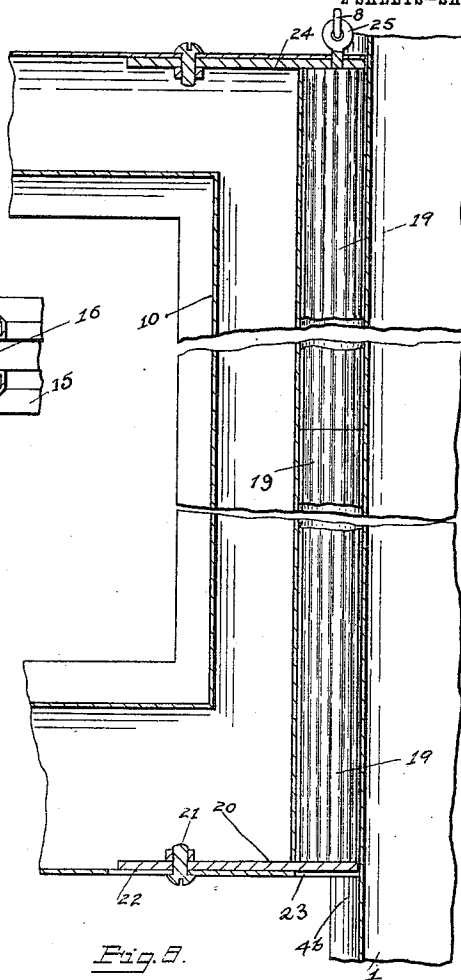


Fig. 8.

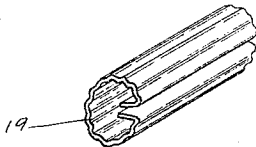


Fig. 4.

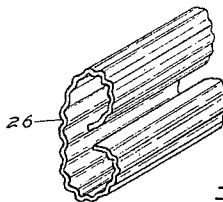


Fig. 5.

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UNITED STATES PATENT OFFICE.

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METALLIC WINDOW AND SASH FRAME.

964,590.

Specification of Letters Patent.

Patented July 19, 1910.

Application filed December 16, 1909. Serial No. 533,399.

To all whom it may concern:

Be it known that I, JACOB F. WEITZEL, a citizen of the United States, residing at Columbus, in the county of Franklin and State of Ohio, have invented certain new and useful Improvements in Metallic Window and Sash Frames, of which the following is a specification.

My invention relates to the improvement of metallic window frames and sash and the objects of my invention are to provide a window frame and sash of this class of economic and durable construction; to so construct the parts of my device as to insure a comparatively close connection at all times between the sash frames and the window frame and sash and at the same time admit of the sash being moved readily within the window ways; to provide in connection with the window frame construction, superior means for gaining access to the weights; to so construct my improved window frame and sash as to render the same fire and weather proof and to otherwise produce a substantially metallic window frame and sash construction having desirable rigidity and simplicity of construction. These objects I accomplish in the manner illustrated in the accompanying drawings, in which—

Figure 1 is an inner face view of my improved window frame and sash, Fig. 2 is an enlarged transverse section on line $x-x$ of Fig. 1, Fig. 3 is a similar sectional view on line $y-y$ of Fig. 1, Fig. 4 is a detail view in perspective of a portion of one of the vertical packing or filling members which I employ in the manner hereinafter described, Fig. 5 is a detail view in perspective of a portion of one of the resilient packing or bearing members which I employ between the meeting bars of the sash, Fig. 6 is an enlarged sectional view on line $z-z$ of Fig. 1, Fig. 7 is an enlarged sectional view on line $w-w$ of Fig. 1, and, Fig. 8 is a vertical section through one side of a window sash and a portion of the window frame.

Similar numerals refer to similar parts throughout the several views.

In carrying out my invention, I construct an oblong window frame of suitable dimensions of sheet metal, said frame comprising the vertical side members 1 and top and bottom cross members 2 and 3 rigidly connected with said side members. Each of the vertical side frame members, is in the nature

of an oblong hollow casing preferably formed of a single piece of sheet metal, the inner side of said casing being formed throughout its length with a vertical opening which is produced by turning the opposing edge portions of the metallic plate or sheet frame, which side frame member is formed inward. Said inwardly bent members have their terminal portions bent parallel with their bodies as indicated at 1^a to form narrow vertical recesses 1^b . The opening between the in-turned and doubled members 1^b , is adapted to be filled by a facing or filling plate 4, the opposite vertical marginal portions of which are turned inward to form tongues 4^a which are adapted to fit snugly and be held vertically in the recesses 1^b . Each of the members 4 has formed therein throughout its height and on each side of the center of its width, an inwardly curved and substantially semi-circular vertical recess or way 4^b . While the side or tongue members 4^a of the plate 4, may be held in connection with the recesses 1^b by friction, I provide additional means for securing the plate 4 in its position which consists of a screw 4^c which connects the central portion of the plate 4 in its lower portion with the partition flange 5^a .

Abutting against the inner face of each of the plates 4 between the ways 4^b , is the inner flanged edge or marginal portion 5^a of a vertical strengthening or partition plate 5 which is of greater width than the width of the side frame member 1 and which has its outer extending portion projected into a vertical way or recess formed on the outer side of the frame member 1, by producing a vertical fold extension 6 in the material of which said member 1 is formed. The employment of the partition plates 5, separates the side window frame members into two compartments, as shown more clearly in Fig. 6 of the drawing.

The horizontal top window frame member 2 is the nature of a hollow horizontal boxing formed of sheet metal and the lower face thereof, is provided at the outer side of the frame, with a short downwardly extending projection 2^a between the inner side of which and a downward projection 2^b of the frame member 2, is formed a horizontal channel which is adapted to receive the upper portion of the upper sash frame. Supported upon the floor or lower horizontal member of the hollow frame member 2, are

two pulley brackets 7, the latter having pivoted therein the usual weight chain pulleys over which the sash weight chains 8 run, said chains suspending the weights, one of which is indicated at 9 within the hollow side frame members 1 on opposite sides of the partitions 5.

The bottom member 3 of the window frame is also in the nature of a horizontal boxing or casing of sheet metal, which meets and communicates with the lower portions of the side members 1. The upper side of the member 3 has formed therein the usual or desirable seat 3^a for the lower portion of the lower sash, said seat being in the nature of an inclined step which extends between the side members of the window frame.

The upper window sash comprises the usual vertical side members 10 and upper and lower cross bar members 11 and 12, while the similarly formed lower or inner sash frame comprises the vertical side frame members 13 and connected upper and lower cross frame members 14 and 15. In the construction of each of these sash frame members, I form the hollow body thereof of a piece of sheet metal bent to the oblong form in cross section shown. In the corresponding inner faces of each of the sash frame members, I provide a glass receiving recess 16 the recesses of the vertical sash frame members communicating at their ends with the corresponding recesses of the cross sash members. The construction of the top cross frame member 11 is such that when the upper sash is in its elevated position, its upper portion fits snugly within the recess which is formed between the projections 2^a and 2^b of the window frame member 2.

In the construction of each of the side frame members 10 and 13 of the sash, the outer side of the vertical frame member is left open throughout its length, the outer edge portions of the opposing sides of said frame member having intumed hook flanges 17 which engage hook projections 18^a of vertical filling or closure plates 18. Each of these plates 18 is curved inwardly or concaved to form in conjunction with the curved recesses 4^a of the adjoining portions of the window frame, a substantially tubular way between the sash and window frame.

19 represent substantially tubular packing or bearing bodies, each of which consists of a piece of sheet metal having a crimped surface and bent to form the greater portion of a tube. These crimped bearing or packing members are formed in sections of suitable lengths and are arranged as shown in the drawing, within the substantially tubular spaces which are formed between the semi-circular recesses 4^a and 18 of the side members of the window frame and the vertical members of the sash frame. Said sections, however, are normally retained in connection

with the sash frame during the sliding movement of the sash by means of a bar or plate 20, one of which is supported horizontally in the bottom of the lower sash frame member 15 and one of which is likewise supported in the bottom of the lower member of the upper sash frame 11. Connected with each of the plates 20 is a downwardly extending screw or bolt 21 which passes through a slotted opening 22 in the bottom of the sash member on which the plate 20 bears, thus permitting of the plate 20 to be moved horizontally to close or uncloze an opening 23 which is formed in the bottom of the sash vertically beneath the packing sections 19. In the top of one of the vertical members of each of the sash frames, I secure a reinforcing bar 24 having projecting therefrom through the top of the sash an eye-piece 25 for the connection of the corresponding weight chains 8.

In constructing the upper bar 14 of the lower sash, I provide the inner and upper side thereof with an angular or L-shaped projection 14^a which extends throughout the length of said frame bar and a downwardly extending member of which is adapted to abut, as shown in Fig. 7 of the drawing, against the adjoining face of the sash frame member 11, when both the sashes are in their closed positions. The member 11 which forms the lower bar of the upper sash frame, is likewise provided on its lower side with a projecting L-shaped flange 11^a, the upturned member of which is adapted to abut against the inner face of the bar 14. In this manner a housing is formed between the sash members 14 and 11 and within this housing when the sash members are together, is provided a transverse resilient packing member 26, which is in the nature of a strip of sheet metal bent to an elongated C-form in cross section with the longer edges thereof turned inward, said metal sheet being crimped throughout its length. At the center of its width this packing strip 26 is secured to the inner face of the outer sash frame member 11, the curled marginal portions of said packing strip having a resilient bearing against the adjoining face of the sash member 14, as shown more clearly in Fig. 7 of the drawing. It will be understood that by providing this resilient packing member between the opposing bars of the sash frames, any vibration of the sash members, which tends to produce an undesirable rattling sound, will be absorbed by the resilient packing and this packing in connection with the heretofore described L-shaped flange projections 14^a and 11^a, preserves such close connection between the sash frame members as to obviate any tendency toward the passage of an undesirable degree of cold air, fire or smoke between said sash members. It will also be readily understood that by the pro-

vision of the substantially tubular packing sections 19 between the recessed portions of the sash frame and the opposing portions of the window frame, a resilient packing is provided between the sash and window frame, which packing will move with the sash when the latter is raised or lowered. Owing to the fact that these packing sections 19 are in the nature substantially of split tubes, the edges of which are normally separated, it is obvious that they will have sufficient resilience or yielding qualities to absorb any vibration of the sash bodies within the side members of the window frames and at the same time operate as a filling between said members, which will resist the entrance of smoke, fire or an undesirable amount of cold air. The packing members 19 are rendered additionally resilient as will be understood, by crimping the same throughout their lengths. In order to facilitate the ready withdrawal of the packing members 19 from their housings between the sash and window frame, I have provided the sliding support 20 which when moved away from the opening 23 will permit of the sections 19 being readily withdrawn.

In window construction of this class, it is exceedingly desirable that access to the weights may be readily gained and by the construction which I have described, it will be understood that this may be easily accomplished by removing the screw or bolt 4^e and pulling the plate 4 out of engagement with the body of the side frame. This operation as will readily be understood, is accomplished after the removal of the sash or after the sash has been swung outward from the frame a sufficient distance to permit of such removal.

From the construction which I have described, it will readily be understood that a fire and weather proof window frame and sash construction is provided, in which a desirable yielding packing is provided between the adjoining members of the sash and between the sash and the frame.

From the foregoing description, it will be seen that simple and efficient means are herein provided for accomplishing the objects of the invention, but while the elements shown and described are well adapted to serve the purposes for which they are intended, it is to be understood that the invention is not limited to the precise construction set forth, but includes within its purview such changes as may be made within the scope of the appended claims.

What I claim, is:

1. In a window frame and sash construction, the combination with a window frame and sash frames slidable therein, the adjoining portions of said window and sash frames having opposing recesses, of a packing contained partially in the sash recess and partially in the window frame recess, said packing consisting of a longitudinally split sheet metal tube, said tube being crimped lengthwise.

2. In a window frame and sash construction, the combination with a window frame and sash frames slidable therein, the adjoining portions of said window and sash frames having opposing recesses, of a packing contained partially in the sash recess and partially in the window frame recess, said packing consisting of a longitudinally split sheet metal tube, said tube being crimped lengthwise and adapted to move vertically with the sash frame.

3. In a window frame and sash construction, the combination with a sheet metal window frame, one side thereof having curved recesses, of sash frames the outer sides of which are formed with curved recesses, said sash frames having openings formed in their lower members beneath said recessed portions, movable closures for said openings, and tubular resilient packing members supported between the recesses of said frame and sashes and upon said movable closures.

4. In a structure of the character described, the combination with a sheet metal window frame and sheet metal sash frames slidable therein, of a substantially C-shaped resilient packing member secured to the meeting bar of one of said sash frames and adapted to contact with the meeting bar of the other sash frame.

5. In a structure of the character described, the combination with a sheet metal window frame and sheet metal sash frames slidable therein, the adjacent faces of said meeting bars of said sash frames being formed respectively with upper and lower projections forming a longitudinal housing between said sash frame members, of a resilient packing strip connected with one of said sash frame members and arranged throughout the length of said housing.

In testimony whereof I affix my signature in presence of two witnesses.

JACOB F. WEITZEL.

Witnesses:

C. C. SHEPHERD,
E. V. GRISWOLD.