H. H. SCHROYER,

METAL WINDOW SASH.

APPLICATION FILED DEC. 17, 1913.

1,248,928.

Patented Dec. 4, 1917.

2 SHEETS—SHEET 1.

Fig. 1

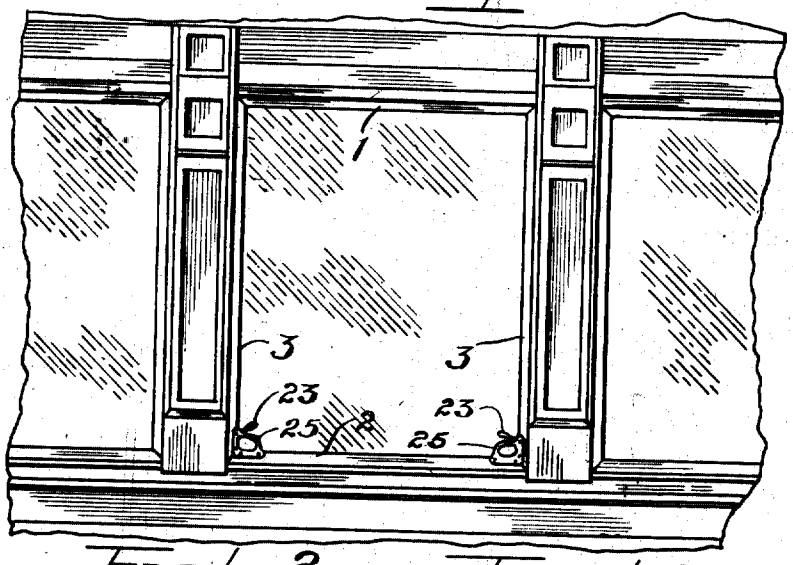


Fig. 2

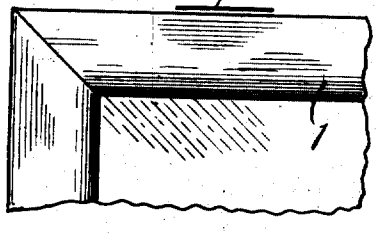
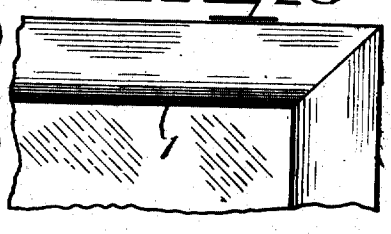
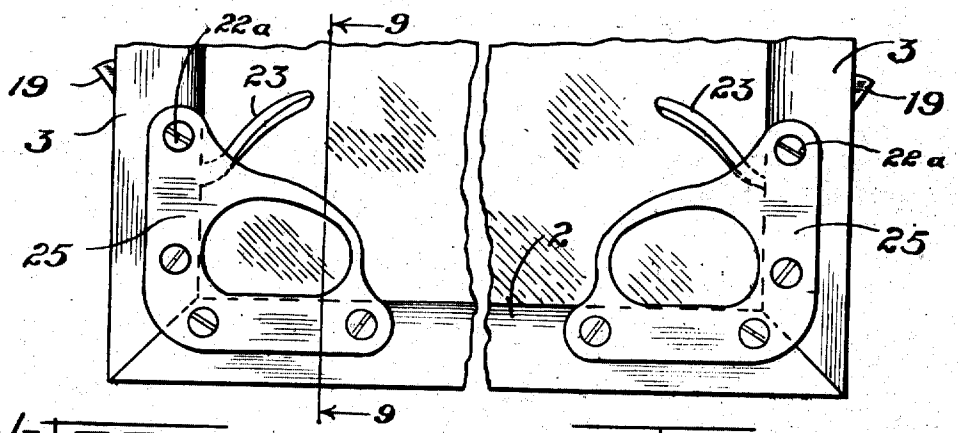


Fig. 3





Witnesses

Victor Siljander.

Charles W. Hills

Inventor

Harry H. Schroyer

Charles W. Hills

Atty

H. H. SCHROYER.

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2 SHEETS—SHEET 2.

Fig. 4

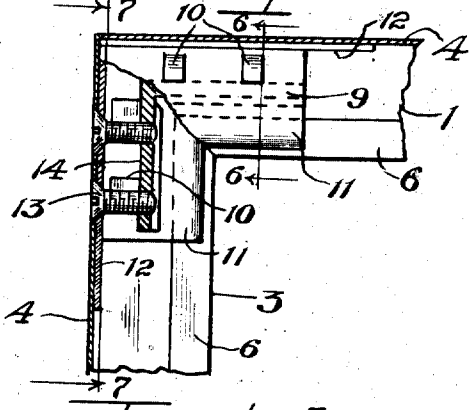


Fig. 6

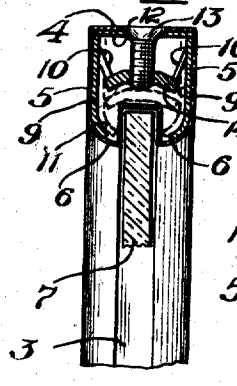


Fig. 7

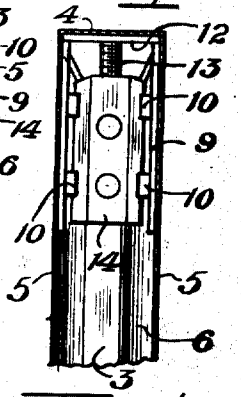


Fig. 5

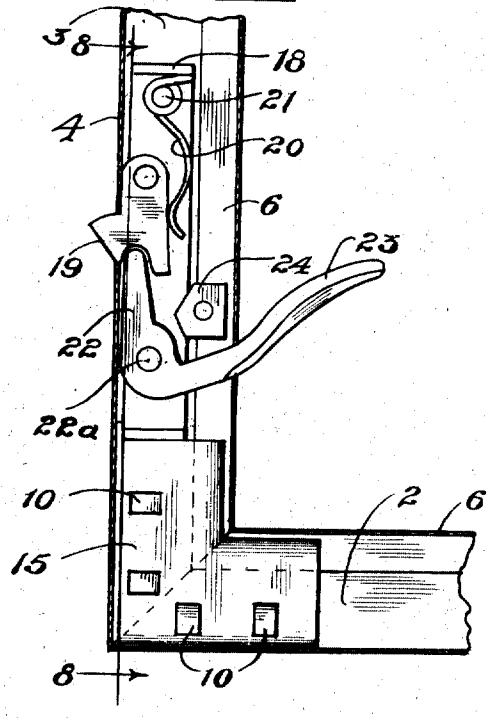


Fig. 8

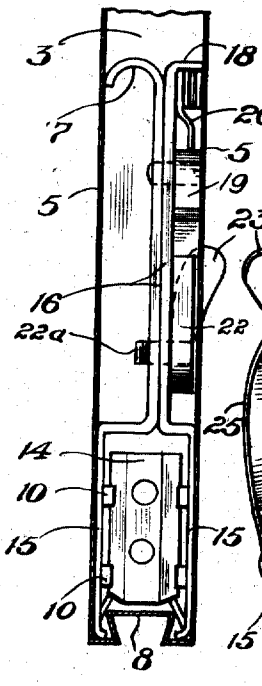
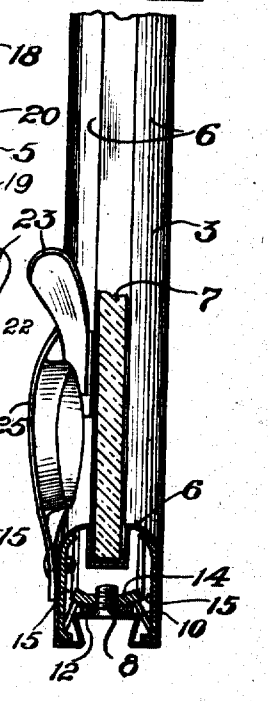


Fig. 9



Witnesses

Victor Siljander

Charles W. Hills

Atty

Inventor

Harry H. Schroyer

Charles W. Hills

Atty

UNITED STATES PATENT OFFICE.

HARRY H. SCHROYER, OF CHICAGO, ILLINOIS, ASSIGNOR TO ACME SUPPLY COMPANY, OF CHICAGO, ILLINOIS, A CORPORATION OF ILLINOIS.

METAL WINDOW-SASH.

1,248,928. Specification of Letters Patent. Patented Dec. 4, 1917

Application filed December 17, 1913. Serial No. 807,191.

To all whom it may concern:

Be it known that I, HARRY H. SCHROYER, a citizen of the United States, and a resident of the city of Chicago, in the county of Cook and State of Illinois, have invented certain new and useful Improvements in Metal Window-Sashes; and I do hereby declare that the following is a full, clear, and exact description of the same, reference being had to the accompanying drawings, and to the numerals of reference marked thereon, which form a part of this specification.

With the extensive introduction of steel passenger cars, manufacturers have sought inexpensive means of building the various parts of the cars to suit the purpose. Of course passenger cars are each provided with a large number of windows, and the window sashes themselves are necessarily an important adjunct of the car.

This invention relates to a metallic window sash which may be easily assembled and taken apart and one in which the means for supporting the light of glass in place form an integral part of the stiles and rails.

It is an object of this invention to construct a metallic window sash in which the respective stiles and rails are each formed from a unitary sheet of metal, the ends of said members being cut preferably, though not necessarily so, at an angle of forty five degrees.

It is also an object of this invention to construct a metallic window sash in which each of the respective stile and rail members are separable from one another, but may be easily assembled and connected together by means of corner pieces which extend within the abutting ends of the members.

It is also an object of this invention to construct a metallic window sash comprising tubular separable metallic stile and rail members with clamping means releasably mounted within the interior thereof to hold the same together in assembled relation.

It is also an important object of my invention to construct a knock-down metallic window sash wherein the glass may be inserted or removed by detaching one of the stile or rail members, and with mechanism releasably connected within the corners of the respective abutting rail and stile members to hold the same together.

It is furthermore an object of my invention to construct a metallic window sash comprising separable rail and stile members having attaching mechanism for said members comprising corner clamps insertable in each of the respective members at their ends and wedging means connected with said members to actuate said clamping means.

It is finally an object of this invention to construct a durable, light, and easily assembled metallic window sash having connecting mechanisms contained within the respective stile and rail members and with locking means for maintaining the assembled sash in certain positions in the window frame.

The invention (in a preferred form) is illustrated in the drawings and hereinafter more fully described.

In the drawings:

Figure 1 is a fragmentary view of the interior of a car illustrating a window frame with a sash embodying the principles of my invention mounted therein.

Fig. 2 is a fragmentary interior enlarged view of one side of the sash.

Fig. 3 is a similar interior view of the other side of said sash.

Fig. 4 is a fragmentary detail section partly in elevation taken through one of the upper corners of the sash.

Fig. 5 is a sectional detail view taken through one of the lower corners of the sash.

Fig. 6 is a section on line 6—6 of Fig. 4.

Fig. 7 is a section on line 7—7 of Fig. 4.

Fig. 8 is a section on line 8—8 of Fig. 5.

Fig. 9 is a section on line 9—9 of Fig. 2, and with parts shown in elevation.

As shown in the drawings:

The metallic sash embraces a top rail 1, a bottom rail 2, and stiles 3, each of which is tubular and formed from a unitary sheet of metal, though, of course, not necessarily so. The ends of said tubular members are cut at an angle of 45 degrees, thus giving a symmetrical appearance to the assembled device, as well as permitting interchangeability of the members to a certain extent.

The top rail 1, and each of the stiles 3, are provided with a straight outer wall 4, and parallel side walls 5, which curve inwardly, forming beads 6, having a groove therebetween, for the reception of a light of glass 7, therein. The bottom rail 2, of the sash is identical in construction with the top rail and stiles, with the exception that in place of the straight outer wall 4, said bottom

rail is struck inwardly, as shown at 8, to form a groove, with convergent walls for the purpose of receiving a packing or weather element therein.

The attaching means for connecting said respective top rails and stiles together, comprises sheet metal corner pieces or clamps 9, which are struck inwardly at a plurality of points near the outer edge thereof, affording inwardly projecting tongues 10, and are curved, as indicated by the reference numeral 11, along their inner edges to fit closely within the stiles and rails in contact with the beads 6.

A reinforcing plate 12, is secured on the outer wall 4, for a short distance within the ends of each of said respective top rail, and stile members and extending through apertures in said walls and reinforcing plates are screws 13, which thread into right angled wedge plates 14. Said wedge plates are beveled along their margins to contact with the inturned tongues 10, of the corner pieces to force the latter outwardly in tight engagement with the respective sash members when said wedge members are drawn up by means of said screws.

The construction and operation of the connecting members for the lower rail and the stiles of the sash are almost identical with those already described, but with a few differences herein pointed out. Instead of the sheet metal clamping pieces 9, similarly shaped and constructed corner clamping pieces 15, are provided, which have integral upwardly extending connected legs 16, projecting within the stiles 3, one of said legs being curved outwardly, as indicated at 17, to bear against one of the side walls of the stiles, and the other leg being angled as indicated by 18, to bear against the opposite wall of the stile.

The corner pieces 15, are struck inwardly to provide the inturned tongues 10, similarly to the construction described with reference to the top rail, and likewise wedge plates 14, and reinforcing plates 12, with adjusting screws 13, are provided. In the latter case, however, the reinforcing plates are mounted upon the metal portion 8, forming the bottom of the groove.

The purpose of the upwardly extending legs 16, within the stiles of the sash are to provide a support on which suitable sash locking mechanism may be mounted. For this purpose a locking dog or pawl 19, is pivoted on said connected legs and is adapted to swing outwardly through an aperture in the end wall 4, of the stile, under the impulse of a spring 20, one end of which bears against the dog, and the other of which is wound about a pin 21, and bears against the angled portion 18, of one of the legs 16. The mechanism for retracting the dog to permit raising or lowering of the sash, embraces a lever or crank pivoted on a removable pintle 22^a, and having one arm 22, projecting into a recess in said dog 19, and another arm or finger piece 23, projecting outwardly through an aperture in one of the beads 6. A stop 24, is secured on the interior of the stile to limit the retractive movement of said actuating lever for the dog. A lift or L-plate 25, is secured to the stiles and bottom rail of the sash adjacent said lever 23, so that the fingers of an operator may be inserted through in the lift and the thumb used to operate the finger lever 23, to raise or lower the sash.

The operation is as follows:

Referring first to Figs. 4, 6, and 7, when it is desired to assemble the sash, the corner pieces or clamps 9, are first inserted in one of the sash members, for instance the stiles 3. The angled wedge plate 14, is then inserted and held loosely in position by the screws 13. The top rail 1, is then slipped over the corner pieces 9, and the screws 13, are threaded through the proper apertures in the top rail into said corner wedge plates 14. The position of the parts at this stage of the operation is shown in dotted lines in Fig. 6.

The bottom rail and stile members are likewise quickly assembled in the same manner and with the leg portions 16, of the corner pieces being first slipped in place within the stiles with the actuating lever 22, disconnected therefrom. Said lever is inserted through the aperture in the bead of the stile after the leg members are in place, and is then pivotally secured to said leg members by the threaded pintle 22^a, which is inserted through an aperture in one of the side walls 5, of the stile.

When the parts have all been connected to one another they are set up in tight relation by tightening all of the screws 13. The tightening of the screws 13, serves to draw the wedge members 14, downwardly against the inturned tongues 10, and said corner pieces are thus forced outwardly under considerable pressure into contact with the side walls of the respective sash members to maintain the same rigidly connected.

I am aware that various details of construction may be varied through a wide range without departing from the principles of this invention. I therefore do not purpose limiting the patent granted except within the scope of the appended claims.

I claim as my invention:

1. In a device of the class described, separable rail and stile members, corner clamping pieces adapted to extend into the abutting ends of said members, and wedging means mounted within said corner pieces to force the same apart into tight engagement with the respective abutting rail and stile members, to hold the same together.

2. In a device of the class described, tubular metal detachable stiles and rails, corner clamps adapted to fit against the side walls of said stiles and rails at the ends thereof, and adjustable wedging means adapted to be forced against said clamps to press the same outwardly away from one another in tight engagement with the respective stiles and rails to maintain the same connected together.

3. A knock-down metallic sash, comprising separable rail and stile members, and interfitting wedging means joining said rail and stile members at the corners of the sash to frictionally hold said members in assembled relation.

4. In a device of the class described, detachable stile and rail members, corner plates insertible in the abutting ends thereof, projections on said corner plates, and a wedge member connected to the respective abutting rail and stile members, said wedge member being movable to force said corner plates into wedging relation with the sash members to hold the same rigidly together.

5. In a sash of the class described, separable rail and stile members, corner plates insertable in the corners of the sash, right angle wedge members extending longitudinally into the ends of the respective sash members, and means connecting said wedge members to the respective sash members, said wedge members being movable to force said corner plates into tight engagement with said sash members to hold the same together.

6. In a device of the class described, stile and rail members, a corner plate insertable in said members at the abutting ends thereof, integral arms on said plate extending upwardly within said stile member, a sash locking mechanism mounted on said arms, and a wedge member connected to said members and adapted to be wedged into engagement with said corner plate to afford a tight connection between said members.

7. In a device of the class described, the combination with the rail and stile members of a sash connected to form a mitered corner joint, of reinforcing members mounted within said members at said joint, a plate secured upon the face of both the rail and stile members and bridging the mitered joint therebetween, said plate affording a window lift, and means connecting said plate through said rail and stile members to the reinforcement on the interior thereof.

8. In a device of the class described, the combination with the rail and stile members of a sash connected to form a mitered corner joint, of reinforcing members mounted within said members at said joint, means operating to wedge said reinforcing members in said respective rail and stile members to hold the same closely connected together, a plate secured upon the face of both the rail and stile members and bridging the mitered joint therebetween, said plate affording a window lift, and means connecting said plate through said rail and stile members to the reinforcement members on the interior thereof.

In testimony whereof I have hereunto subscribed my name in the presence of two subscribing witnesses.

HARRY H. SCHROYER.

Witnesses:
CHARLES W. HILLS, Jr.,
FRANK K. HUDSON.