June 28, 1938. J. LUETHKE 2,122,151

METALLIC WINDOW FRAME

Filed March 8, 1937

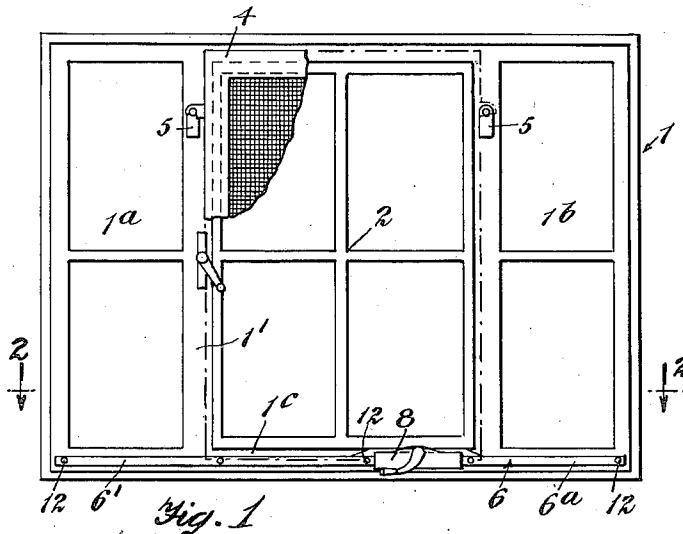


Fig. 1

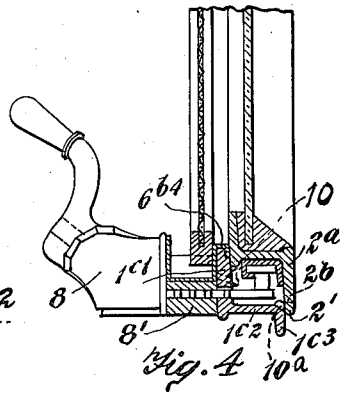


Fig. 4

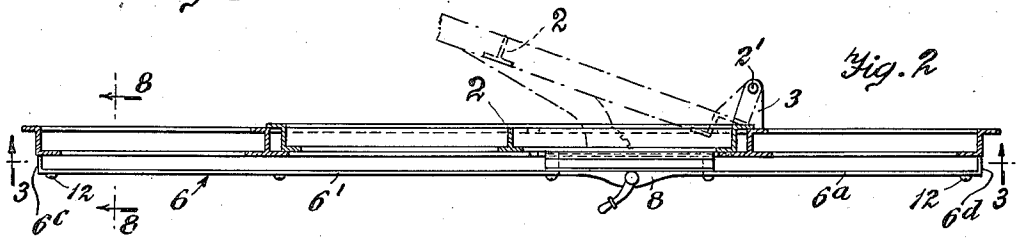


Fig. 2

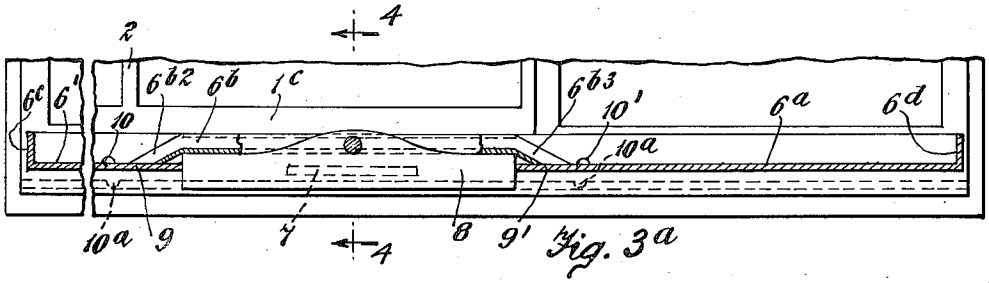


Fig. 3a

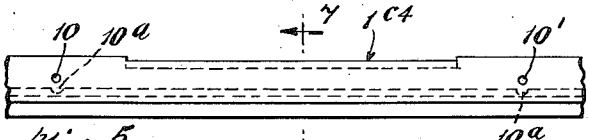


Fig. 5

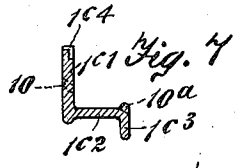


Fig. 7

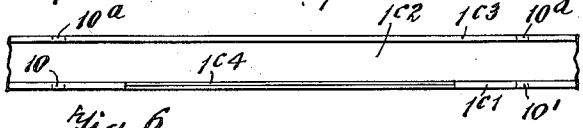


Fig. 6

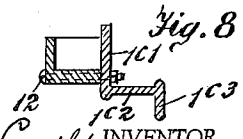


Fig. 8

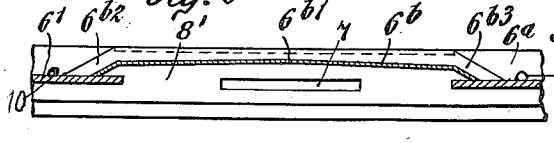


Fig. 3

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Patented June 28, 1938 2,122,151

# UNITED STATES PATENT OFFICE

2,122,151

## METALLIC WINDOW FRAME

John Luethke, Guttenberg, N. J.

Application March 8, 1937, Serial No. 129,612

5 Claims. (Cl. 189—69)

This invention relates to improvements in metallic window frames and particularly to metallic window frames pivoted adjacent to one edge to swing outwardly and provided, inside the room at the sill, with operating mechanism to cause pivotal swinging of the sash.

One of the objects of the present invention is to provide for a window frame or casement having a trough construction adapted to catch and guide water caused by condensation on the inner side of the window and to lead such water to the outer side of the window.

Another object of my invention is to provide a trough construction which may be initially applied to the window frame so as to enable initial installation in a building without the operating mechanism and a subsequent installation of said operating mechanism.

Another object of my invention is to enable the use of my improved trough in association or combination with varying types of operating devices.

With these and other objects in view, the invention comprises the combination of members and arrangement of parts so combined as to coact and co-operate with each other in the performance of the functions and the accomplishment of the results herein contemplated, and comprises in one of its adaptations the species or preferred form illustrated in the accompanying drawing, in which:—

Fig. 1 is a view in elevation of the inside of a window frame or casement embodying my invention;

Fig. 2 is a section on the line 2—2 of Fig. 1, looking in the direction of the arrows;

Fig. 3 is an enlarged fragmentary section on the line 3—3 of Fig. 2 showing fragmentary portions of my condensation trough arranged before the operating device is installed;

Fig. 3a is a similar fragmentary view in section showing the condensation trough after the operating device has been installed;

Fig. 4 is a section on the line 4—4 of Fig. 3a, looking in the direction of the arrows;

Fig. 5 is a fragmentary view plan of a portion of the window-sill rail showing a cut-out portion for the insertion of my bridge;

Fig. 6 is a view in plan of the sill rail shown in Fig. 5;

Fig. 7 is a section on the line 7—7 of Fig. 5, looking in the direction of the arrows, and

Fig. 8 is a section on the line 8—8 of Fig. 2, looking in the direction of the arrows.

Referring now to the drawing which illustrates a preferred embodiment of my invention, 1 indicates a window frame or casement, which, in the embodiment shown comprises stationary side sashes or frames $1^a$ and $1^b$ and an intermediate frame 1' in which is fitted a movable sash 2 pivoted at 2' on brackets 3. The frame 1' for the movable sash 2 is also preferably provided with a screen 4 hung in brackets 5 on the inner surface of the window frame and adapted to completely cover the opening and to fit against the edges of the opening including the sill rail $1^c$. In accordance with my invention I provide the sill rail $1^c$ with a trough element 6 comprising a left-hand end section 6' and a right-hand end section $6^a$ extending from opposite ends of said sill surface toward the lever opening 7 in the said sill for the passage of the operating lever of sash operating mechanism 8, and an intermediate bridge section $6^b$. The end sections 6' and $6^a$ are closed at their outer ends $6^c$ and $6^d$ and the bottom thereof, is oppositely pitched to guide any water reaching the end sections toward the said operating mechanism and these open ends spaced, as aforesaid, and positioned at opposite sides of the opening 7 and bridged by the intermediate bridge member $6^b$ so as to leave a seat 8' for the insertion beneath the bridge of the operating device 8. The bottom of the bridge $6^b$ is preferably pitched in opposite directions from the middle portion $6^{b'}$ so as to guide or shed water in opposite directions to the contiguous ends of the end members 6', $6^a$. The slight downward pitching of the end members and the upward pitching of the bridge members $6^b$ forms low pockets 9, 9' at opposite sides of the bridge members and I provide at these low portions, holes or apertures 10, 10' extending through the sill member so as to guide any water of condensation through the vertical flange $1^{c'}$ of said sill member and on to the horizontal flange $1^{c2}$ of said sill member and this water is subsequently led through other apertures $10^a$ extending through the top portion of the outer vertical flange $1^{c3}$. These apertures $10^a$ comprise notches which cooperate with similar registering notches $2^b$ in the lower edge 2' of the vertical flange $2^a$ of the movable sash 2.

In conventional sashes of the character described, the height of the sill flange is very limited and it is not desirable to increase the height thereof, materially, and furthermore, this invention is principally intended to be utilized upon conventional constructions of metallic window frames now made by various manufacturers. Therefore, in accordance with my invention, I preferably provide for window frames or casements which are already in use, end sections of

substantially L shaped conformation and which are attached to the sill member $1^c$ of the window frame by ordinary screws 12 or the like, and this L member is formed of relatively thick and rigid material while the bridge member $6^b$ is formed of relatively thin material having its ends $6^{b2}$ and $6^{b3}$ fastened to the adjacent ends of the end members 6′ and $6^a$. The end members may be made of gray iron or steel or of any other suitable material and the bridge member may be made of thin steel welded at its opposite ends to the ends of the end members or it may be made of brass, bronze or copper and brazed or soldered at its end to such end member. In the preferred form of my invention illustrated, the bridge member is provided with a hook portion $6^{b4}$ and the vertical sill flange is preferably cut away at $1^{c4}$ to permit the hook portion to be hooked over and seated on the top of said vertical flange of the rail member $1^c$ thus assisting in reinforcing the construction and securely locking the bridge member in proper position.

When the trough members are arranged, as shown in Fig. 3, it will be obvious that any suitable operating mechanism such as the operating element 8, which is provided with a lever-guiding spacing block 8′, may be inserted beneath the bridge and may be fastened in the usual way to the sill member $1^c$ of the window frame 1.

In windows of new construction, the end trough members may be formed integrally with the sill member but in any event, it will be necessary to have two end sections and a bridge member beneath which the operating device 8 may be inserted. Obviously, in new constructions, a window frame manufacturer will be able to position the bridge in precise relationship to form a seat for the operating device 8 which, as hereinabove stated, is preferably inserted after the installation of the window frame in a building. In any event, the trough will be composed of two end sections and a bridge section connecting the same above the operating device and preferably the end sections will be inclined toward each other and the bridge section will be inclined from its central portion to the adjacent ends of the said end sections and holes will be placed adjacent to these connections between the opposite ends of the bridge section and the respective end sections thereof. If desired, holes may also be positioned at other positions along the length of said end sections.

Having described my invention, I claim:

1. A metallic window frame construction having a window opening, a metallic sash having one of its stiles pivoted on a stile of the window frame to swing pivotally in relation to said window opening, said window frame being provided with a sill member having an opening for an operating lever, an operating lever connected with said sash and movable through said opening, a water receiving trough mounted on the inner surface of said sill member and comprising opposite end sections extending toward said lever opening and a bridge member extending upwardly from the ends of said end sections above said lever opening to form a seat for a lever-operating device between the ends of the end sections and beneath said bridge member, and an operating device extending within said seat and having an operative connection with the lever to move the same through said lever opening.

2. A metallic window frame construction having a window opening, a metallic sash having one of its stiles pivoted on a stile of the window frame to swing pivotally outwardly in relation to said window opening, said window frame being provided with a sill member having an opening for an operating lever, an operating lever connected with said sash and movable through said opening, a water receiving trough mounted on the inner surface of said sill member and comprising opposite end sections extending toward said lever opening and a bridge member extending upwardly from the ends of said end sections above said lever opening to form a seat for a lever-operating device between the ends of the end sections and said bridge member, and an operating device extending within said seat and having an operative connection with the lever to move the same through said lever opening, said end members, being composed of relatively thick gray iron and said bridge member being composed of a relatively thin material fastened at opposite ends to said end members.

3. A metallic window frame construction having a window opening, a metallic sash having one of its stiles pivoted on a stile of the window frame to swing pivotally outwardly in relation to said window opening, said window frame being provided with a sill member having an opening for an operating lever, an operating lever connected with said sash and movable through said opening, a water receiving trough mounted on the inner surface of said sill member and comprising opposite end sections extending toward said lever opening and a bridge member extending upwardly from the ends of said end sections above said lever opening to form a seat for a lever-operating device between the ends of the end sections and said bridge member, and an operating device extending within said seat and having an operative connection with the lever to move the same through said lever opening, said end members having a slight inclined pitch downwardly toward each other and said bridge member having pitches from its central portion outwardly toward the adjacent ends of said end members and fastened at its ends to said end members.

4. A metallic window frame construction having a window opening, a metallic sash having one of its stiles pivoted on a stile of the window frame to swing pivotally outwardly in relation to said window opening, said window frame being provided with a sill member having an opening for an operating lever, an operating lever connected with said sash and movable through said opening, a water receiving trough mounted on the inner surface of said sill member and comprising opposite end sections extending toward said lever opening and a bridge member extending upwardly from the ends of said end sections above said lever opening to form a seat for a lever-operating device between the ends of the end sections and said bridge member, and an operating device extending within said seat and having an operative connection with the lever to move the same through said lever opening, said end members being composed of relatively thick gray iron and said bridge member being composed of a relatively thin member soldered at opposite ends to said end members, said thin metal bridge adapted to be hooked over the top of the sill member.

5. A metallic window frame construction having a window opening, a metallic sash having one of its stiles pivoted on a stile of the window frame to swing pivotally outwardly in relation to said window opening, said window frame being provided with a sill member having an opening for an operating lever, an operating lever connected

with said sash and movable through said opening, a water receiving trough mounted on the inner surface of said sill member and comprising opposite end sections extending toward said lever opening and a bridge member extending upwardly from the ends of said end sections above said lever opening to form a seat for a lever-operating device between the ends of the end sections and said bridge member, and an operating device extending within said seat and having an operative connection with the lever to move the same through said lever opening, said end members being composed of relatively thick gray iron and said bridge member being composed of a relatively thin member soldered at opposite ends to said end members, said thin metal bridge adapted to be hooked over the top of the sill member, and said sill member being reduced in height and thickness to form a seat for the hook portion of said bridge member.

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