Dec. 19, 1939. R. I. MYERS ET AL 2,183,619

DOOR AND WINDOW FRAME STRUCTURE

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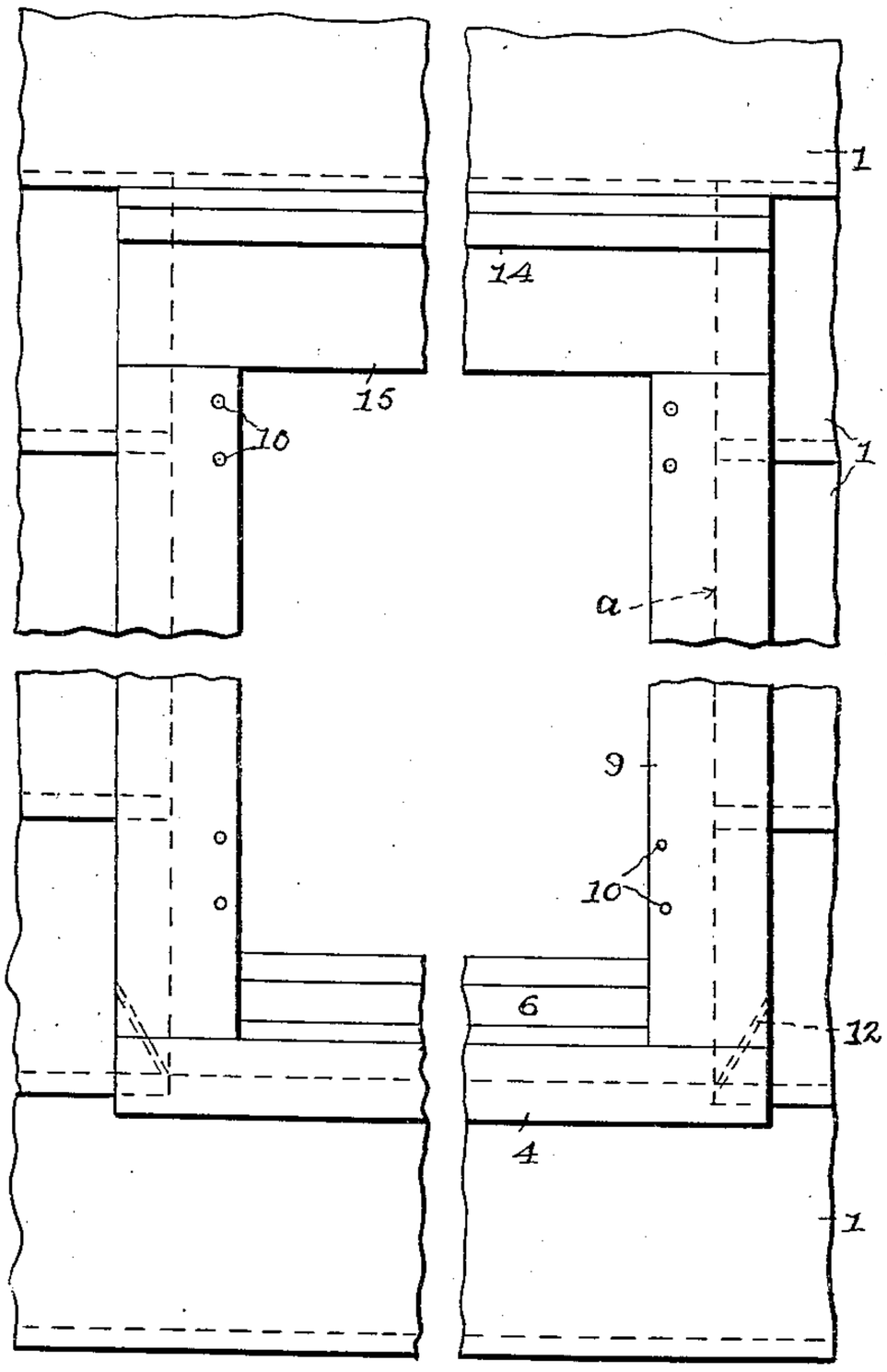

Fig. 1.

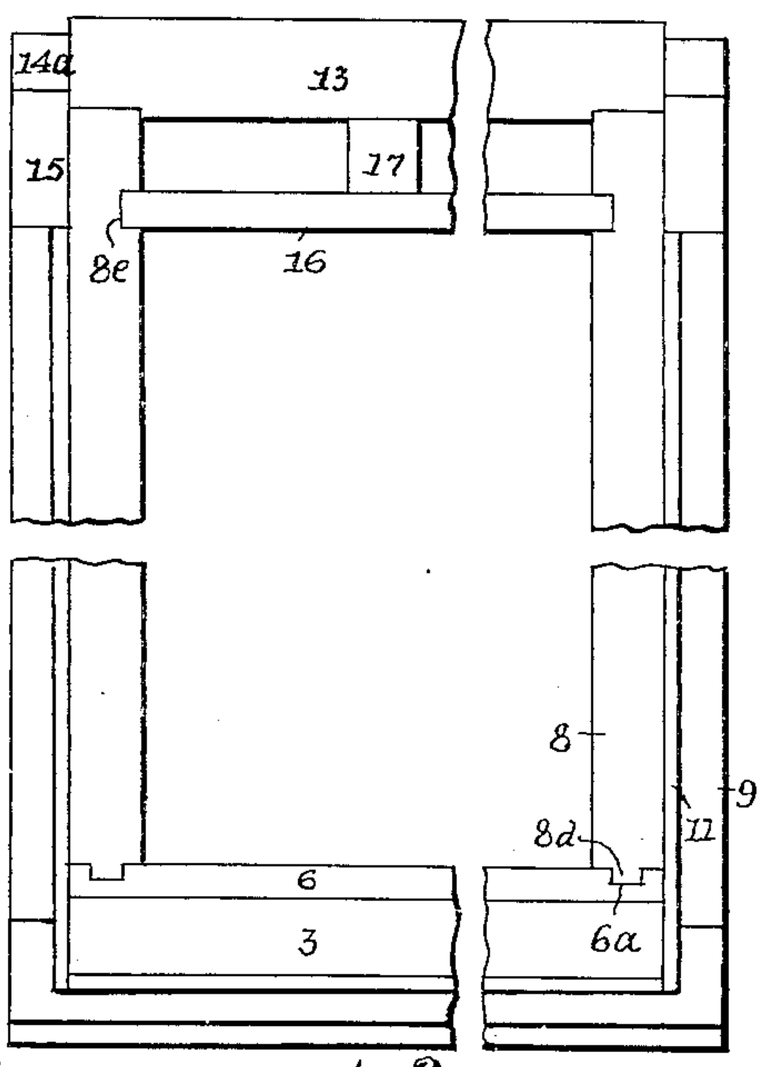

Fig. 2.

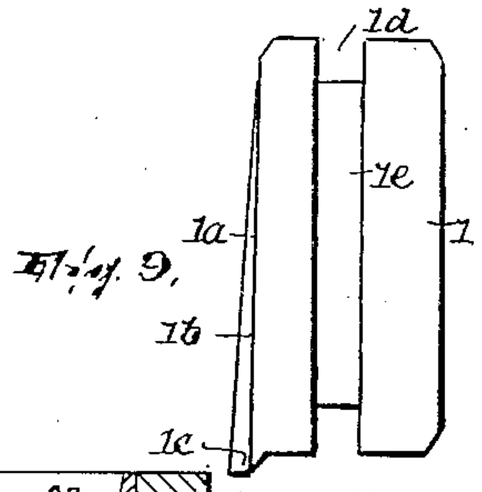

Fig. 9.

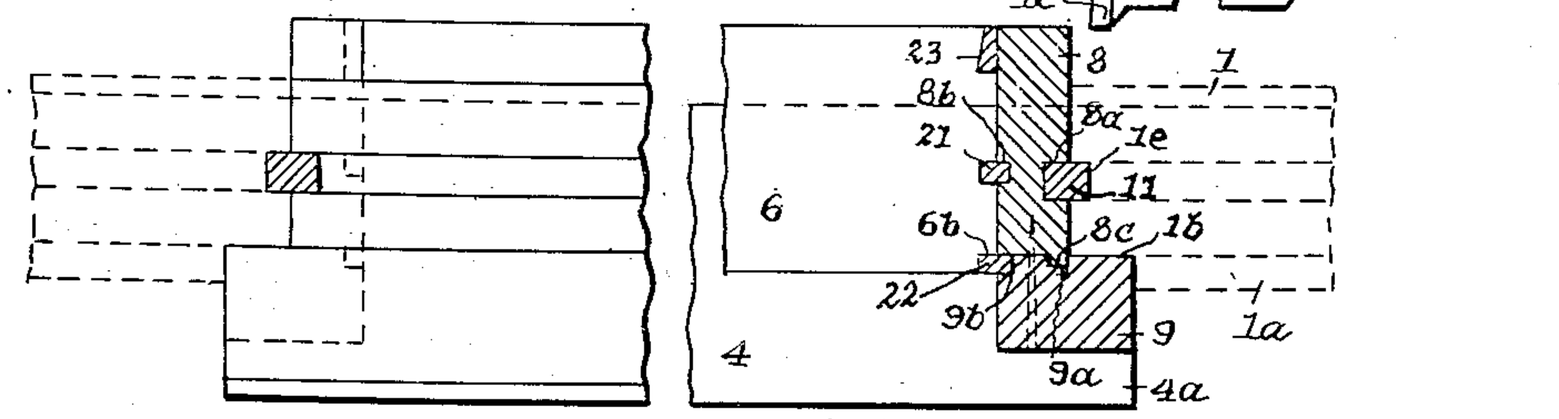

Fig. 3.

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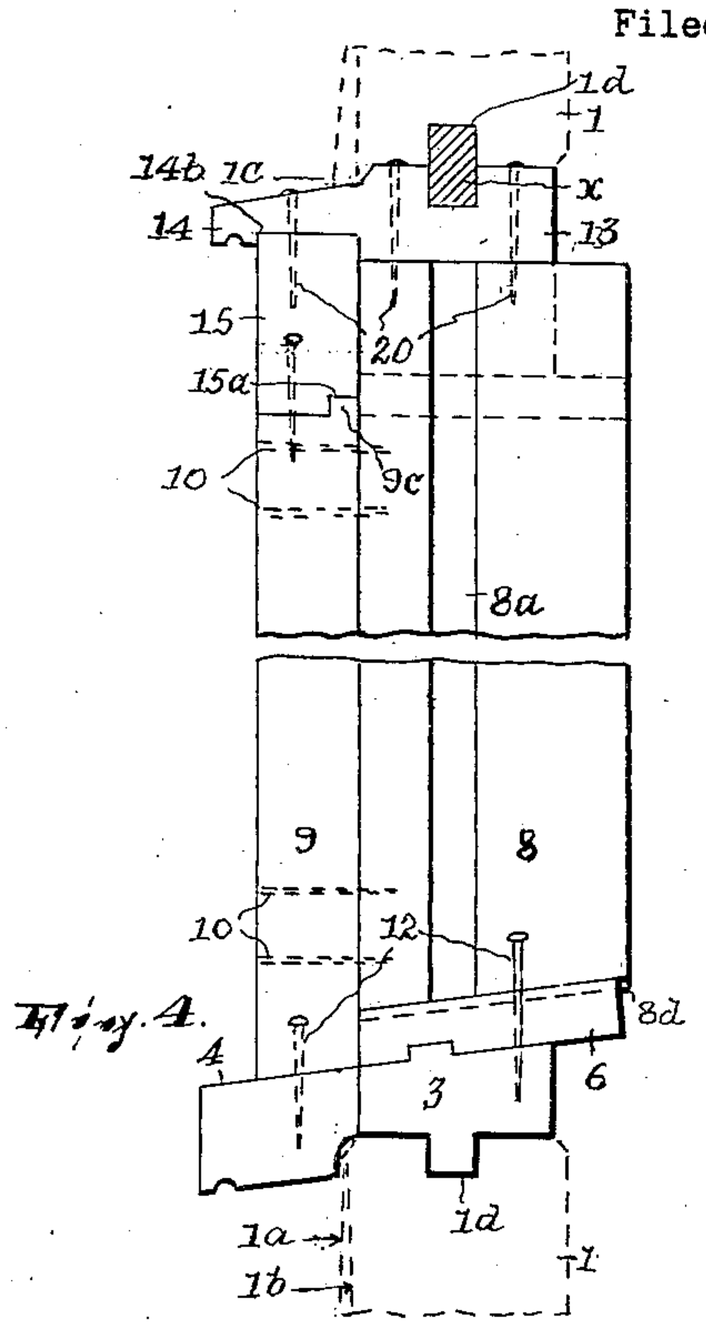

Fig. 4.

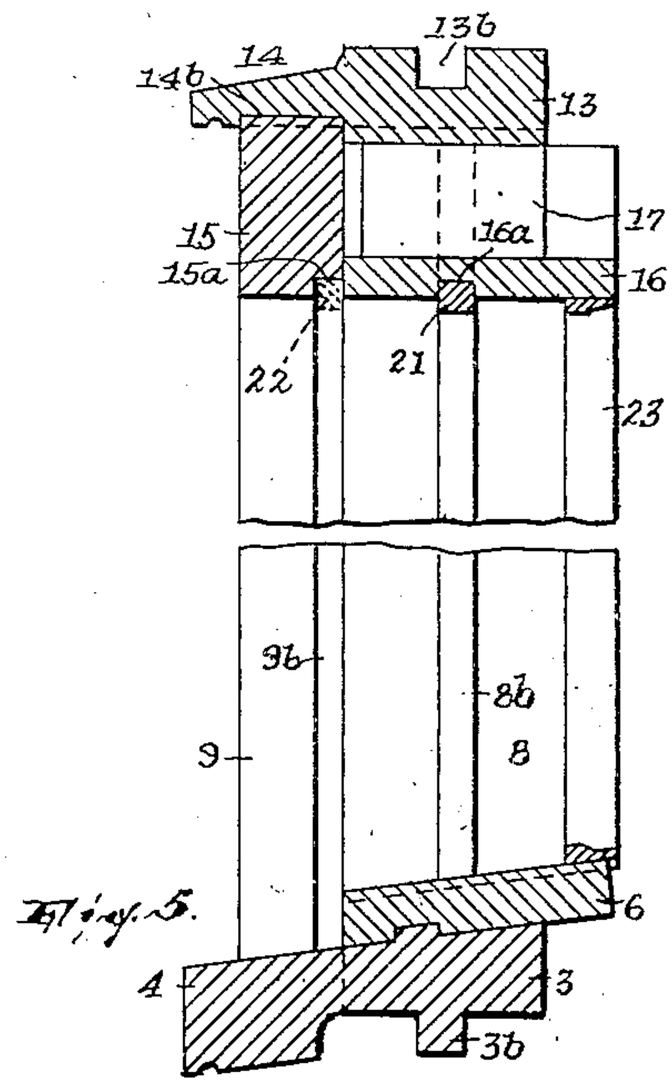

Fig. 5.

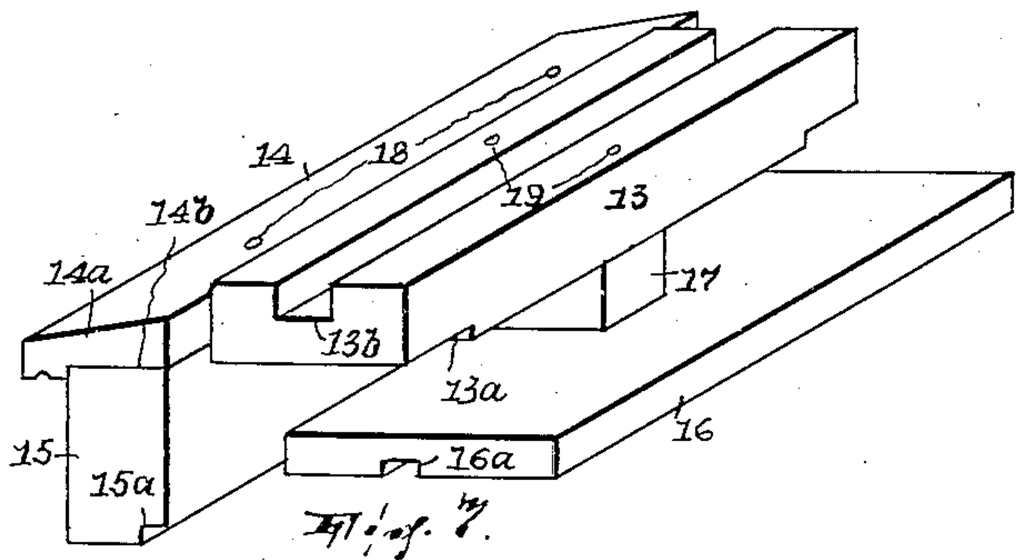

Fig. 7.

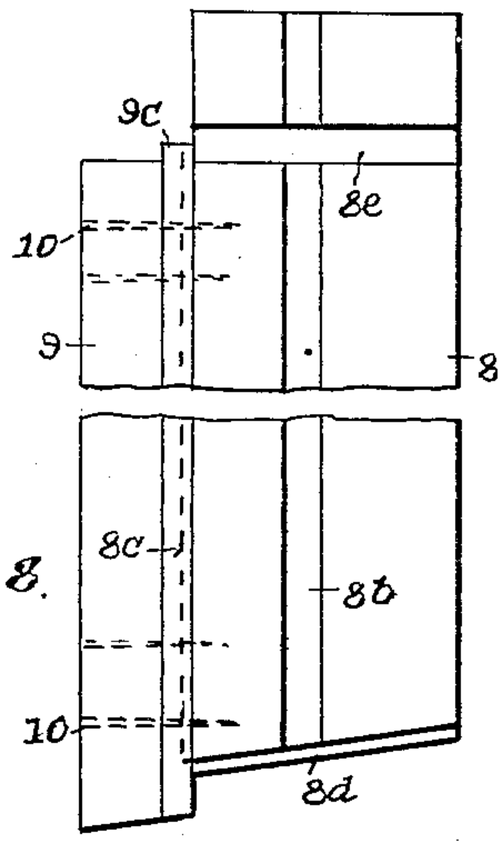

Fig. 8.

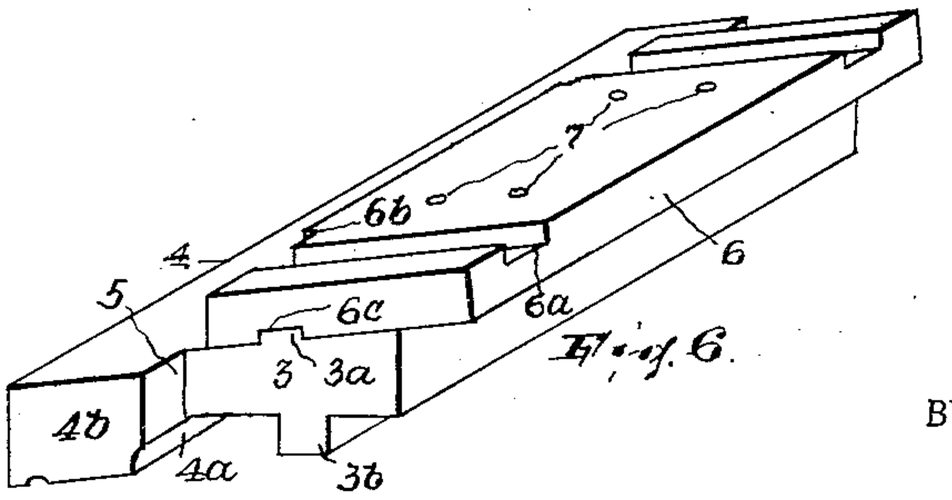

Fig. 6.

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DOOR AND WINDOW FRAME STRUCTURE

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Application May 10, 1938, Serial No. 206,979

6 Claims. (Cl. 20—11)

This invention relates to rectangular window or door frames for buildings. It contemplates so constructing a frame of this class that its parts may be formed and assembled with expedition, facility and cheapness, and that when it is assembled with the wall of a building it will lap the wall where to prevent leakage of moisture or air such lapping is necessary, as at both sides and the bottom of the frame, and provide for draining off moisture where such is necessary, as at the top of the frame. It further contemplates that the frame shall be so constructed as to be substantial and durable and also provide for the guiding of window sashes where the frame is a window frame. In the preferred form the sill, stiles and head or cap of the frame are each formed of a plurality of longitudinally extending parts, on that account reducing the cost of production; however, in certain aspects of the invention we do not wish to be limited to this condition. As herein shown the frame is especially adapted to the wall of a building formed of superposed timbers.

In the drawings,

Fig. 1 is an outside elevation of a building wall with a frame according to this invention set therein;

Fig. 2 is an inside elevation of the frame;

Fig. 3 is a view of the frame partially in plan and partially in horizontal section through one of the stiles;

Fig. 4 is a side elevation and Fig. 5 a vertical section, between the stiles, of the frame;

Figs. 6 and 7 are isometric views of the sill and head;

Fig. 8 is an inside elevation of one of the stiles; and

Fig. 9 is an end view of one of the timbers of the wall shown in Fig. 1.

In the following description we explain our invention in detail with reference to one example thereof.

The building wall shown includes stacked timbers 1 providing a rectangular opening *a* to receive the frame of this invention, each two adjoining timbers being tongued-and-grooved together and each having its front face 1*a* (Fig. 9) inclined outwardly and downwardly except at its end adjoining the opening where it is rabbeted, all of the faces 1*b* of the several timbers flanking the opening being in the same plane; each timber has a depending frontal flange 1*c* which laps the next subjacent timber. The tongue-and-groove connection between each two adjacent timbers is formed by grooves 1*d* at the top and bottom sides of each timber adapted to receive a spline strip such as *x* (Fig. 4); the timbers which flank the opening have their ends grooved at 1*e* in the same vertical plane as the grooves 1*d*.

The sill.—This comprises a sub-sill and a supersill, each formed of one piece of stock. The sub-sill includes a body part 3 and a frontal and thicker part 4, the top surfaces of both being in the same plane inclined downwardly toward what is to be the outer or weather side of the frame, the thicker part 4 depending below the under and horizontal surface of the body part, as at 4*a*. The body part has longitudinal bottom and top tongues 3*a* and 3*b*. When the frame is positioned in the opening *a* the depending portion 4*a* laps the underlying timber 1 and the tongue 3*b* fits its top groove 1*d* (Fig. 4). The frontal part 4 has its ends projecting at equal distances beyond the ends of the body part, as at 4*b*, thus forming angular recesses 5 at the ends of the sub-sill. The super-sill is a slab 6 of the same length as the body part 3 but of greater width. Near each end it has a transverse top groove 6*a*. It rests on the body part 3 with its inner margin overhanging the latter, its ends being flush with the ends of such body part and its front margin lapping somewhat such body part except for notches 6*b* at the ends of such margin, the longitudinal or outer faces of such notches being set inward somewhat of the plane of the inwardly facing surfaces of the notches 5, as will appear from Fig. 3. It has an underneath groove 6*c* receiving the tongue 3*b*, which forms a water-stop. The two members of the sill may be secured together by nails or equivalent devices 7.

The stiles.—Each stile includes a plate and a post each formed of a single piece of stock. The plates 8 are reverse counterparts of each other and are to stand on the super-sill with their relatively remote side faces flush with the ends of the super-sill, their inner margins nearly flush with the inner margin of such super-sill and their outer margins flush with the outwardly facing surfaces of the notches 6*b* of the super-sill. These have in their said remote sides grooves 8*a* (Fig. 3) in the same vertical plane as the grooves 1*d*—1*e* of the timbers. They also have vertical grooves 8*b* in their adjoining faces (whose purpose will appear). They further have at their outer margins and adjacent their said remote sides tongues 8*c* (Figs. 3 and 8). Their top margins are horizontal but their base margins are inclined outwardly and downwardly and have longitudinal tongues 8*d* to fit the grooves

6*a* of the super-sill. In their adjoining sides and near their top margins are transverse horizontal grooves 8*e*. Each post 9 has greater dimension lengthwise of the frame than the corresponding plate 8 against whose outer face it bears. The adjoining faces of the two posts are flush with the corresponding faces of the plates, wherefore the posts project laterally and will lap the ends of the timbers flanking them as shown in Fig. 3. Each post has a vertical groove 9*a* to receive the tongue 8*c* of the plate. In their adjoining faces and near their inner faces they have rabbets forming with the plates vertical grooves 9*b* whose purpose will appear. The top of each post, otherwise flush with the bottom of the groove 8*e* of the corresponding plate, has a tongue 9*c* adjoining the plate; its depending base end is cut to the same angle as the base end of such plate. The members of each stile are secured together by nails or equivalents 10. A spline strip 11 occupies each groove 8*a* (Fig. 3).

The stiles are assembled with the sill so that the flange 8*d* of each stile fits the corresponding groove 6*a* of the super-sill and the post stands stepped on the sub-sill, fitting the notch 6*b* of the super-sill. If, as usual, the components of the frame are assembled before the frame is fitted to opening *a*, toed-in nails or equivalents 12 (Fig. 4) secure the stiles to the sill.

The head.—This is a composite structure including four parts, a head proper, a depending panel, a horizontal plate and a block spacing the plate and head proper. The head proper is formed of a single piece of stock and with a body portion 13, having a thick slab-like form with underneath notches 13*a* (Fig. 7) at its ends and being of the same length as the super-sill and body part 3, and a forwardly projecting drip-flange portion 14 of the same length as the part 4 of the sub-sill—in other words, having its ends projecting, as at 14*a*, beyond those of the body part 13 the same as the ends of the part 4 project beyond the ends of the sub-sill body part 3. A top longitudinal groove 13*b* is formed in body part 13 in the same plane as the grooves 8*a* and tongue 3*b*; and the flange portion 14 has an underneath groove 14*b*. The panel 15 is a slab of the same thickness as the stile posts and of the same length as the flange portion 14, and it is to be received in the groove 14*b* of the head proper, having a rabbet at 15*a* to receive the tongues 9*c* of said posts, and a certain strip 22, as will appear. The plate 16 is a plain rectangular slab of such length as to fit between the plates 8 of the stiles with its ends fitted into their grooves 8*e*; it has an underneath longitudinal groove 16*a* in the same plane as the grooves 8*b* of the stiles. The block, 17, serves to space the plate 16 from the head proper. The head proper and panel are secured together by nails 18 and the head proper, block and plate by nails 19.

The sill and stiles having been assembled as described, the head is positioned on the stiles as follows: The head proper rests on the plates 8 and the panel 15 on the posts 9 of the stiles, the ends of the head proper and panel being flush with the relatively remote faces of the stile posts and plates, respectively. The ends of the plate 16 are received in the grooves 8*e* of such plates. Nails 20 are then driven through the head into said plates (if, as usual, the frame is pre-assembled when fitted to opening *a*), the posts having their tongues 9*c* received in the rabbet 15*a* of the panel. Before or during the assembling, however, parting strips 21 are fitted to the grooves 8*b* and 16*a*, outer stop strips as 22 are fitted to the grooves 9*b* and 15*a*, and inner strips 23 fitted to the stile plates to guide the sashes, where the frame is a window frame.

As it exists in the opening *a* the frame has its tongue 3*b* engaged in the top groove of the timber below; its spline strips 11 fit the groove 1*e* of the timbers which flank the frame; and the spline strip *x* fits the top groove 13*b* of the frame head.

When the frame has been assembled with the wall of the building as thus stated so much thereof as is to the left of the plane of meeting between each post and plate 8 in Fig. 4, for instance, provides a flange extending around the frame and existing at both sides and bottom thereof and lapping the timbers and having those faces thereof which face rearwardly or toward the timbers all in the same plane so that the flange may for its whole extent lie close to the timbers; the corresponding outwardly projecting portion of the head of the frame, as 14, preferably has its top surface inclined outwardly and downwardly to drain away moisture thereon.

Having regard to the desirability of such a flange and also of forming the sill (here actually in two superposed parts 3 and 6) with a relatively inner top face higher than a relatively outer top face thereof, in the appended claims we treat the sill as having an elongated body section (to wit, to the right of the last-mentioned plane) and an elongated frontal section (to the left of said plane) and we also treat the stiles as each including a vertically elongated plate section (being to the right of said plane) to seat on said inner top face and a vertically elongated post section (being to the left of said plane) to seat on said outer top face. In practice, as indicated, and as respects the stiles, their said sections are usually separately formed parts; the sill is also in separately formed parts, to wit, superposed and composing the section of the sill to the right of said plane.

It will be understood that the plate 16 exists to afford support for the top or transverse portions of the strips 21 and 23 at the same elevation as the top or transverse portion of the strip 22 and to impart a finish to the top interior of the frame.

It will also be understood that the rabbets of the timbers receive the laterally projecting portions of the mentioned flange.

Having thus fully described our invention, what we claim is:

1. The hereindescribed frame including a sill having an elongated body section and an elongated frontal section whose top face is below the top face, and whose ends project beyond the ends, of the body section, a stile upstanding from each end of the sill and including an upright plate section seated on and having one broad upright face thereof substantially flush with the corresponding end face of the sill body section and an upright post section having an upright face thereof substantially flush with the corresponding end face of the sill frontal section, said stile post sections having their tops below those of the stile plate sections, and a head including a body section seated on and having its ends substantially flush with said broad faces of the stile plate sections and a panel section depending from said head body section and seated on and having its end faces substantially flush with said faces of the stile post sections, whereby the post sections together with the ends

of the sill frontal section and the ends of the head panel section together form lateral flanges on the frame adapted to lap the building wall in which the frame is positioned.

2. The frame set forth in claim 1 characterized by the sill having a depending longitudinal flange in substantially the same zone as said flanges of the frame.

3. The herein described frame including a sill having an elongated body section and an elongated frontal section, the body section having its top face above that of the frontal section and a frontal notch at each end thereof, a pair of vertical stiles each including a vertically elongated plate section seated on said body section in a plane traversing the latter and a vertically elongated post section depending below the plate section and seated on the frontal section, each post section at the side thereof adjoining the other post section having a vertical rabbet next adjoining the corresponding plate section and coinciding with the adjacent notch, and each rabbet being adapted to receive a sash-guiding strip, and a head bridging the stiles and covering their plate and post sections.

4. The combination, with the sill and vertical stiles resting thereon of a frame of the class described, each stile comprising a plate section arranged in a plane traversing the sill and a post section and having the top of the post section below that of the plate section, of a head bridging the stiles and including a body section and a panel section, said body section being seated on the tops of the plate sections and said panel section being under and depending from the body section and opposed to the tops of the post sections.

5. The combination, with the sill and vertical stiles resting thereon of a frame of the class described, each stile comprising a plate section arranged in a plane traversing the sill and a post section and having the top of the post section below that of the plate section, said plate sections having near their upper ends transverse grooves in the same horizontal plane and facing each other, a head bridging the stiles and including a body section, a plate section and a panel section, said body section being seated on the tops of the stile plate sections and said panel section depending from the body section and seated on the tops of the post sections and the plate of the head having its ends received in said grooves.

6. In a frame of the class described, a pair of stiles, a sill on which the stiles are supported, and a frontal top member bridging the stiles, said member providing a top flange on the frame and each stile providing a frontal laterally projecting flange and the sill a frontal depending flange and all such flanges being in the same zone, in combination with a head seated on and bridging the stiles and having a groove receiving the flange of said member.

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