

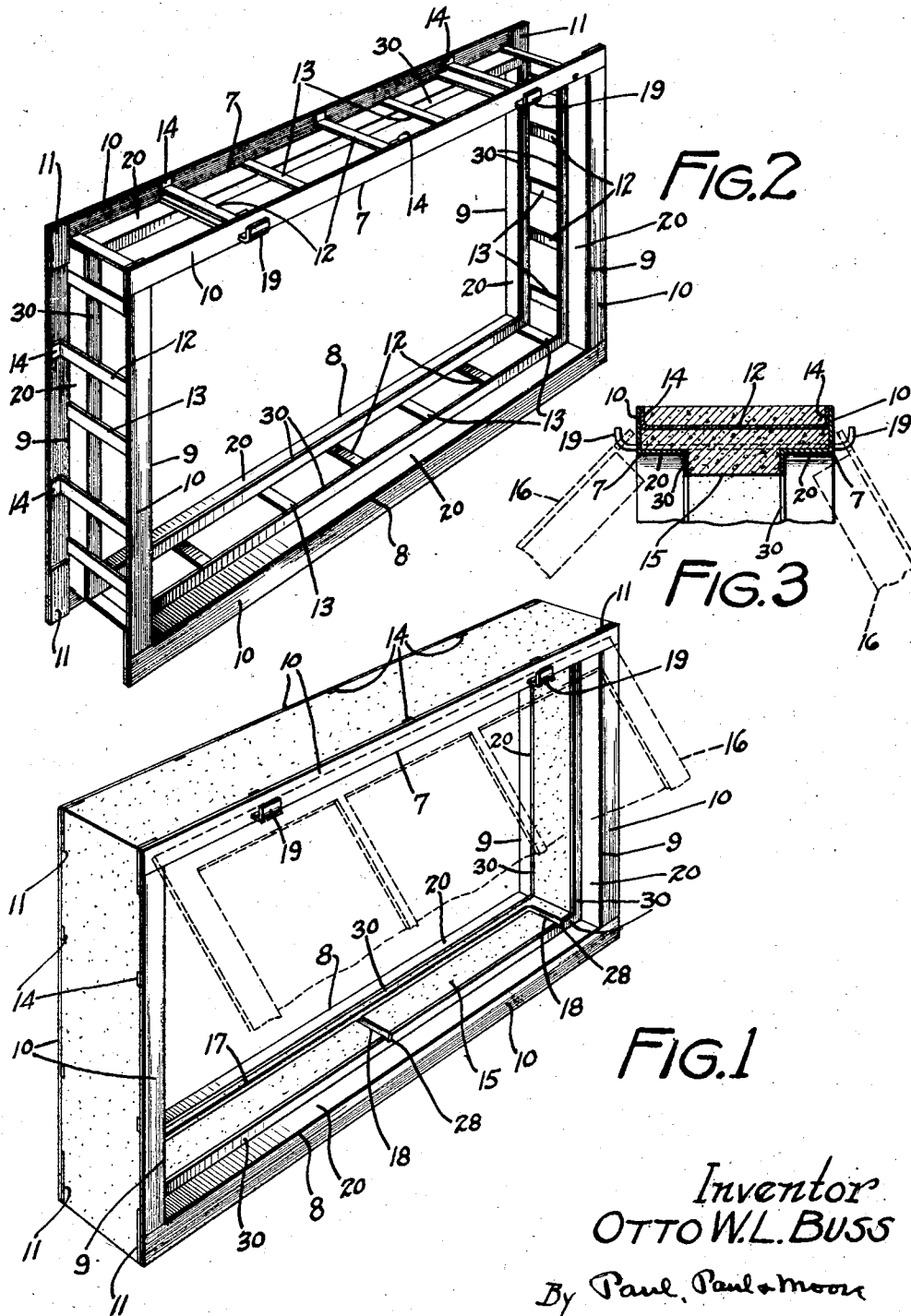
Aug. 30, 1927.

1,640,595

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FIREPROOF SASH FRAME

Filed Nov. 16, 1925

2 Sheets-Sheet 1



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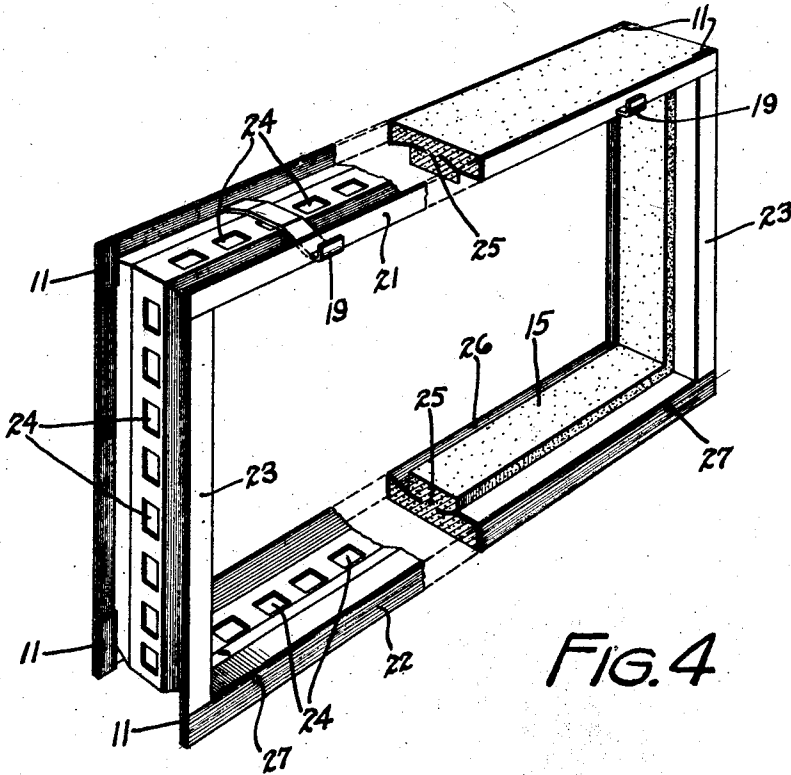


FIG. 4

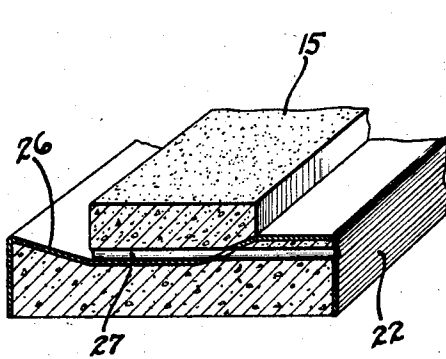


FIG. 5

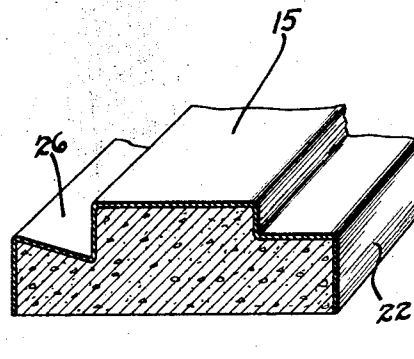


FIG. 6

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FIREPROOF SASH FRAME.

Application filed November 16, 1925. Serial No. 69,389.

This invention relates to new and useful improvements in sash frames, generally, but more particularly relates to improvements in such frames adapted to be mounted in masonry or concrete walls such, for instance, as building foundations.

An object of the invention is to provide a fire-proof sash frame constructed of concrete or masonry and having a reinforcing means interposed therein.

A further and more specific object of the invention is to provide a reinforced concrete sash frame having a metallic skeleton frame interposed therein, and the marginal edges of the metal frame substantially concealing the opposed edges of the masonry and also providing a seat for the sash.

The particular object of the invention, therefore, is to provide an improved fire-proof sash frame.

Other objects of the invention will appear from the following description and the accompanying drawings and will be pointed out in the annexed claims.

In the accompanying drawings there has been disclosed a structure designed to carry out the various objects of the invention, but it is to be understood that the invention is not confined to the exact features shown, as various changes may be made within the scope of the claims which follow.

In the accompanying drawings forming part of this specification,

Figure 1 is a perspective view of the assembled sash frame;

Figure 2 is a perspective view showing the preferred construction of the skeleton frame forming the reinforcing means of the sash frame;

Figure 3 is a cross sectional view of a portion of the completed frames showing the preferred manner of mounting the sash-supporting hooks or hinges therein;

Figure 4 is a perspective view of a modified construction;

Figure 5 is an enlarged cross sectional view of a portion of the frame shown in Figure 4; and

Figure 6 illustrates another modification.

The novel sash frame featured in this invention is preferably constructed of concrete or other suitable masonry and has a metallic skeleton frame interposed therein to provide a reinforcing means therefor.

This skeleton reinforcing frame is shown

in Figure 2 and comprises the opposed horizontal frame members 7 and 8 and the upright end members 9. These members are preferably of angled cross section and may be formed of sheet metal, and suitably secured together at their ends by such means as plates 11. The plates 11 are preferably electrically spot-welded to the members 7, 8 and 9 or, if desired, they may be riveted thereto, thereby providing two rectangular frame sections. These two frame sections are spaced apart in parallel relation and are tied together by means of ties or straps 12 and 13 preferably arranged in staggered relation as shown in Figure 2. The outer ties 12 are terminally provided with right angled extensions 14 adapted to engage the inner faces of the outer flanges 10 of the frame sections to provide means for suitably securing them thereto by such means as welding or riveting. The inner ties 13 are similarly secured to the outside faces of the intermediate webs 20 of the frame members 7, 8 and 9. The above described structure thereby provides a very substantial and rugged skeleton frame around which the concrete is molded to form the frame shown in Figure 1. Inwardly projecting flanges 30 are also provided on the frame members 7, 8 and 9 to provide the abutment seat for the sash as shown in Figures 1, 2 and 3.

In constructing the frame, the mold in which the concrete is poured to form the frame is preferably constructed in such a manner as to provide an inwardly extending portion 15 which is preferably centrally located in the frame and is interposed between the inwardly projecting flanges 30 to provide a backing therefor as shown in Figure 3. It will also be noted by reference to Figure 3 that the outer flanges 10 of the metallic frame members 7, 8 and 9 are exposed in the completed sash frame, thereby protecting the corners of the concrete against possible injury, and also providing a recess or seat to receive the sash 16.

A longitudinal groove 17 may be provided in the face of the raised portion 15 at the bottom of the sash frame as shown in Figure 1. Transverse grooves 18 lead from the groove 17 to the outer edge of the portion 15, thereby providing means for draining the water to the outside of the sash frame, and thus preventing it from entering the building through the joint between the sash

and the sash frame. Notches 28 are cut in the edges of the lower flange 30 in alinement with the grooves 18, as shown in Figure 1.

Sash-supporting hooks 19 are preferably provided in the upper portion of the sash frame adapted to support the sash as shown particularly in Figures 1 and 3. These hooks may be formed of strap iron extending through the entire frame as shown in Figures 2 and 3 or, if desired, each hook may be independently constructed and have its inner end secured to the frame member 7, after which they will be securely held in place as a result of being embedded in the concrete as shown in Figure 3. The above described sash frame thus provides a fire-proof structure of very sturdy and rugged construction. Its general form is also similar to that of the standard wooden frames now used for similar purposes, and it may therefore be interchangeably used with such frames. The skeleton reinforcing frame shown in Figure 2 provides a very substantial foundation upon which to support the concrete or masonry. The construction of this frame is also such that it may be manufactured at a minimum cost, which, considered with the cost of molding the concrete around the skeleton frame, will not be prohibitive, thereby providing a sash frame well adapted for use in the erection of building structures.

Figure 4 illustrates a modified construction wherein the horizontal reinforcing frame sections 21 and 22 and the upright sections 23 are formed out of sheet metal, and are suitably joined together at the corners by means of the plates 11, in a manner similar to that shown and described with reference to Figure 2. Apertures 24 are provided in the metallic frame sections 21, 22 and 23 to permit the concrete to flow therethrough as shown at 25 in Figure 4, so that the inner raised portion 15 of the sash frame will be securely tied to the outer portion of the frame. The seat 26 for the inner sash is preferably inclined as shown so that any water entering the seat from the outside of the building may flow through suitable drain ducts 27, leading from the inner seat 26 to the exterior of the sash frame (see Figure 5).

Figure 6 illustrates another modified construction wherein the metallic reinforcing frame substantially covers the entire inner surfaces of the sash frame. In the construction here shown, the inner seat 26 is similar to that shown in Figure 5, and suitable ducts (not shown) lead from the seat 26 to the exterior of the frame in a manner similar to that shown and described with reference to Figure 5. It will also be noted in this construction that the raised portion 15 of the frame, which provides the abutment seats for the inner and outer sash, will be en-

tirely covered by the sheet metal reinforcing frame, thereby concealing the concrete or masonry forming the major portion of the sash frame.

Having thus described my invention, what I claim as new and desire to secure by Letters Patent is:

1. A sash frame including a skeleton metal frame adapted to be partially embedded in masonry, the opposed sides of said metal frame providing facings for the sash frame, and longitudinal recesses in said facings adapted to receive a sash.

2. A sash frame including a skeleton reinforcing frame comprising members secured together in spaced parallel relation, and masonry interposed between said sections and supported thereby to provide a fire-proof sash frame.

3. A sash frame comprising a skeleton reinforcing structure adapted to be partially embedded in concrete, said structure comprising rectangular members secured together in spaced parallel relation, inwardly projecting flanges on said members adapted to provide an abutment seat for a sash, and the space between said flanges being filled with concrete.

4. A sash frame comprising a skeleton reinforcing structure adapted to be partially embedded in concrete, said structure comprising opposed spaced members, ties interposed between said members for securing them together, the space between said members being filled with concrete, and said spaced members being of Z-bar cross-section and adapted to provide facings for the sash frame and also to provide abutment seats for a sash.

5. A device of the class described, comprising opposingly related sheet metal frames forming inner and outer facings, said frames connected together transversely, said connections providing openings, and cement filling the space between the frames and connecting through the openings, and forming sash stops, within the frame.

6. A device of the class described comprising opposingly related frames forming its inner and outer faces, said frames connected by tie elements and providing openings, and cement filling the space between the frames and connecting through the openings.

7. A device of the class described comprising opposingly related frames forming its inner and outer facings, said frames connected by tie elements and providing openings, and cement filling the space between the frames and connecting through the openings, and sash supporting hooks traversing both frames embedded in the cement and projecting outwardly beyond the same.

8. A device of the class described comprising opposingly related frames forming

its inner and outer facings, said frames connected by tie elements and providing openings, and cement filling the space between the frames and connecting through the openings, and sash supporting elements traversing both frames, embedded in the cement each bent to provide a hook, projecting beyond each facing.

9. A device of the class described comprising opposingly related frames forming its inner and outer facings, said frames connected by tie elements and sash supporting elements traversing both frames and each bent to provide a hook projecting beyond each facing.

10. A device of the class described comprising opposingly related frames forming

inner and outer facings, said frames connected by transverse tie elements to provide openings therein, and cement filling the space between the frames and connecting through the openings, the outer section of cement being flush with the outer edges, of the frame and the inner section of cement being raised to form sash abutments at the inner and outer side of the frame, the seat for the inner sash being inclined, and a duct establishing communication with the lowermost portion of the seat and the outer portion of the frame.

In witness whereof, I have hereunto set my hand this 13th day of November 1925.

OTTO W. L. BUSS.