

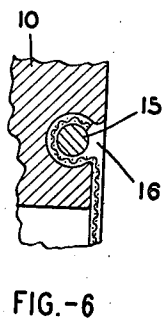
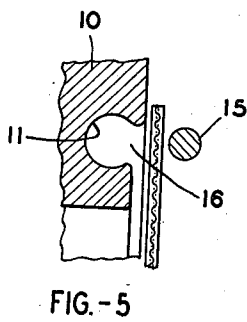
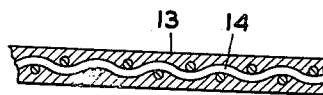
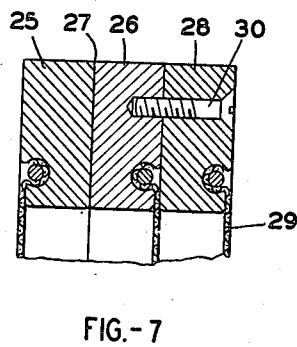
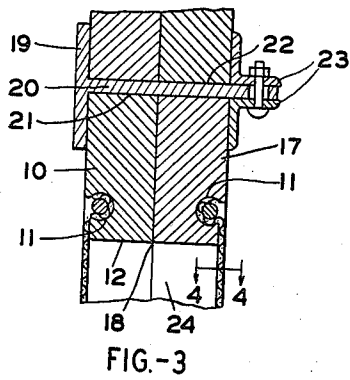
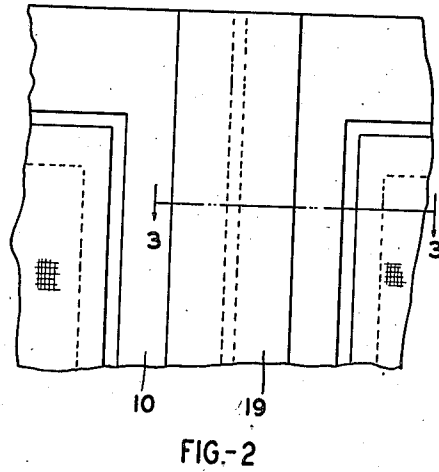
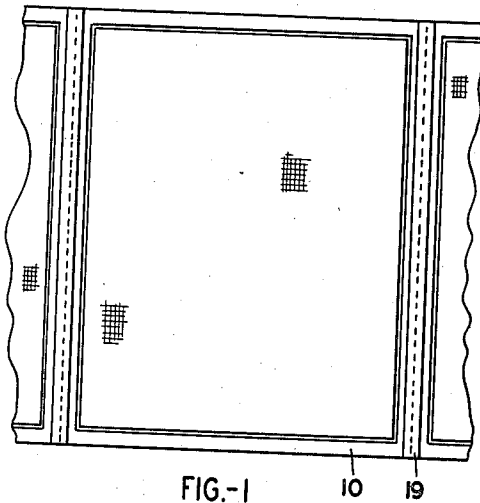
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2,318,944

WALL UNIT

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WALL UNIT

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2 Claims. (Cl. 160—130)

The invention relates to a novel and improved wall unit. It is particularly applicable to such a unit for use as a wall or window element for a building, or for a room thereof, where there is likelihood of an explosion, as in munition factories or other buildings where explosives are made or handled.

An object of our invention is to provide an improved wall assembly, of sturdy construction yet light weight, having a dead air chamber between adjacent, spaced components.

A further object is to provide a unit of this nature having spaced, parallel panels of shatterproof material, which may be more or less transparent, if desirable.

A further object is to provide a unit of this nature having in combination therewith an additional structural element consisting of a panel of fine mesh screen or other material which may be impervious to flame bursts of short duration.

Further objects and advantages will be apparent from a consideration of the following description in conjunction with the attached drawing, in which

Fig. 1 shows a fragmentary front elevation of a wall unit constructed in accordance with our invention.

Fig. 2 is a somewhat enlarged view of a portion of Fig. 1.

Fig. 3 is a section taken on the line 3—3 of Fig. 2.

Fig. 4 is an enlarged sectional view of the panel portion on the dotted line 4—4, of Fig. 3.

Fig. 5 is a view in section, and partly broken away, of the position of the parts preparatory to a preliminary fabrication step.

Fig. 6 is a view of the parts shown in Fig. 5 after said preliminary fabrication step.

Fig. 7 is a section showing the disposition of frame and panel members in a somewhat modified embodiment of our invention.

Before the present invention is described in detail, it is to be understood that such invention is not limited to the details of construction and/or the specific arrangement of parts herein illustrated and/or described, as the invention obviously may take other forms. It also is to be understood that the phraseology or terminology herein employed is for the purpose of description and not of limitation.

In brief, our wall unit comprises a plurality of frame members juxtaposed in parallel relationship, each frame member carrying a panel of shatterproof, waterproof material, preferably translucent, or more or less transparent, but im-

pervious to air. In its simplest form the wall unit consists of two such juxtaposed panel-carrying frames firmly united either inseparably, as by welding, or separably as by bolts or screws, so as to encompass between the panels a dead air, heat insulating space. The simplicity and novelty of this construction will be apparent from the following detailed description.

A rigid frame member 10 is provided with undercut grooves 11 extending completely around one face thereof, adjacent to and parallel to its inner edges 12. A panel of shatterproof material of the nature described, and preferably consisting of a translucent plastic material 13 having imbedded therein a strengthening mesh 14, is placed in contact with the grooved face of frame 10, with its peripheral edges slightly overlapping the groove, as best seen in Fig. 5. A suitable panel material of physical characteristics satisfactory for our purpose is commercially available under the trade name "Cel-O-Glass." Lengths of malleable wire 15 of copper, lead, or some similar material are then used to anchor the edge portions of the panel material in the undercut grooves, the wire being pressed through the neck 16 and thereafter deformed or expanded laterally so as to be anchored in place while also holding therein the panel edge as seen in Fig. 6.

A completed wall unit preferably comprises at least two such panel carrying frames, united back to back, as shown at 10 and 17 of Fig. 3. The frames 10 and 17 may be welded along the plane of contact 18 so as to form a compact inseparable assembly. In a continuous wall structure such as shown in Fig. 1, however, adjoining units may be clamped in assembled relationship in any suitable manner, such as by means of a T-member 19. The web 20 of the T-bar is inserted between two abutting edge faces 21 and 22 of two adjacent completed units, and suitable means, shown for instance as fitted clips or strips 23, is clamped to embrace the exposed edge of the web flange as seen in Fig. 3.

Frame members such as shown at 10 and 17 may be fabricated from solid metal stock by rolling, drawing, extrusion, or other familiar process, or may be formed from sheet metal by rolling, stamping, or pressing. The wall unit is unusually light, and of simple and economical construction, yet by reason of the dead air space 24 between the panels the heat insulating properties of the unit are exceptionally good. This is especially the case when additional panel-carrying frames are supplied, as shown for instance in Fig. 7.

We may add to or substitute for any one of the Cel-O-Glass panel members of Fig. 7, a panel of a fine mesh wire screen such as used for example on the Davy safety lamp. A screen of this nature is impervious to ordinary tongues of flame unless the screen is subjected to a general and continuous fire of heat sufficient to melt the wires thereof.

While we have described the unit primarily as a wall member it may readily be adapted for use as a window when the panels are constructed of translucent material such as Cel-O-Glass. In air-conditioned buildings its impermeability to gases is of no consequence, and, if desired, a unit may be hinged to open, or may be movably mounted otherwise in any convenient manner.

When an explosion occurs in a room equipped with walls or windows constructed in the manner described, the panel material may yield or rip, depending on the magnitude of the explosion, but it does not splinter or shatter. Injured panels are easily replaceable by stripping out the anchoring wire 15, discarding the injured panel, and inserting a new panel. A unit such as shown in Fig. 7 is especially useful as a structural element in partitions between adjoining rooms when one of the panels is a fire screen as described, since the fire screen offers a barrier to flame, and the other two partitions are shatterproof.

In Fig. 7, frames 25 and 26 are welded at the meeting plane 27 and frame 28 carrying screen 29 is attached to 26 by screws 30 or other fastening means. The purpose of this construction, as well as the back-to-back positioning of frames 10 and 17 of Figs. 1 to 3, is to afford ready access to all anchoring grooves for convenient replacement of panels. If desired, of course, the frames of Fig. 7 may be held together by clamping means such as illustrated in Fig. 2.

What we claim is:

1. A wall unit for buildings, including at least two members, each comprising a rigid open frame, and a panel extending across the opening in said frame and secured to one face thereof, said two members being juxtaposed in parallel relation, back to back and being secured together, with the panel portions on the outer faces, thereby providing an air space between said members, the panel portion of one member comprising a flexible sheet of more or less translucent plastic material having a foraminous screen embedded therein, and the panel portion of another member including wire mesh relatively impervious to flame penetration, the unit as a whole permitting the passage of light, providing insulation against the passage of heat, and being shatterproof under explosion.

2. A wall unit for buildings, including at least two members, each comprising a rigid open frame and a panel extending across the opening in said frame and secured to one face thereof, said two members being juxtaposed in parallel relation and being secured together, back to back, with the panel portions on the outer faces, thereby providing an air space between said members, the panel portion of each member comprising a flexible sheet of more or less translucent plastic material having a foraminous screen embedded therein, the unit as a whole permitting the passage of light, providing insulation against the passage of heat, and being shatterproof under explosion, and a supplemental member secured to said translucent members, and comprising a similar open rigid frame, the opening in which is closed by a wire mesh panel relatively impervious to flame penetration and lying parallel to said first-named panels.