

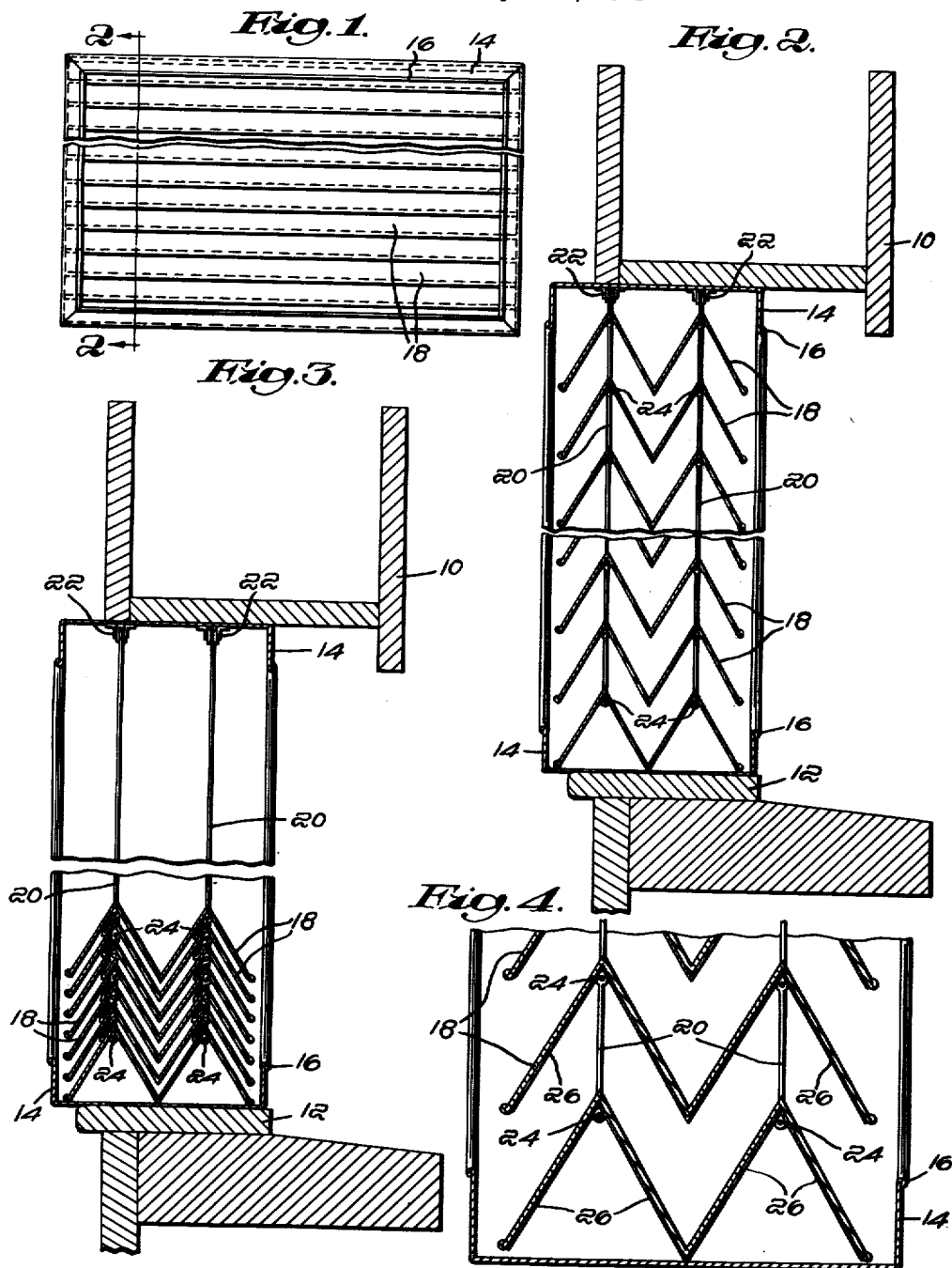
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2,325,003

VENETIAN BLIND

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VENETIAN BLIND

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3 Claims. (Cl. 160—173)

This invention consists in an improved Venetian or louver blind which, in addition to the usual function of such blinds, is adapted to be employed in black-out conditions where it is desired to provide ventilation with the cutting off of light and also to provide protection against flying bomb splinters.

Our invention obviates the necessity of providing special or supplementary hangings and fixtures and makes available equipment of pleasing and ornamental appearance, but having additional properties not hitherto found in Venetian blinds in respect to cutting off or largely preventing the passage of both light and sound.

With the foregoing objects in view, an important feature of our invention consists in slats having single or double V-shaped cross section and so disposed with respect to each other that no ray of light coming from any direction can pass through or between the slats in a straight line path. We have discovered that by so shaping and locating the slats that all light and sound must be reflected two or more times and that by rendering absorbent the hidden surfaces of the slats we are able to trap so nearly all the light and sound reaching the blind that no illumination is noticeable from the exterior and the sounds from the exterior are considerably diminished.

The slats for Venetian or louver blinds have hitherto been made of wood or sheet metal, but in accordance with an important feature of our invention we propose to make them of plastic material which has the advantages of light weight and strength and may be manufactured rapidly and economically by extruding the desired cross section and then cutting to length. Slats of plastic material may also be worked easily and are quiet in use.

We have discovered that by providing only the inner or concealed surfaces of the slats with a light or sound-absorbing coating we are able to prevent the passage of any substantial amount of light or sound without in any way impairing the appearance of the blind as a whole, that is, the visible outer surfaces of the slats may have any desired ornamental or usual finish while light and sound are absorbed by multiple reflection from the inwardly directed absorbent faces of the slats.

The blind of our invention is not limited strictly to slats of single or double V-shaped cross section, but includes within its scope slats modified in cross section to present rounded vertices or U-shaped or semi-circular cross section. More-

over, while an important field of use is in shutting out light for black-out purposes, for hotel or office use we contemplate the use of slats of translucent material which would supply a soft and diffused light within the room.

These and other features of the invention will be best understood and appreciated from the following description of a preferred embodiment thereof selected for purposes of illumination and shown in the accompanying drawing wherein—

Fig. 1 is a front elevation, partially broken away, showing one embodiment of our improved blind,

Fig. 2 is a sectional view taken on line 2—2 of Fig. 1,

Fig. 3 is a like view showing the blind in collapsed position, and

Fig. 4 is a fragmentary view in cross-section on a larger scale than that of Fig. 2, showing the absorbent layer on inner faces of the slats.

In the drawing, 10 and 12 indicate the top and bottom portions of a window opening within which the blind is located. We also preferably provide a frame 14 for housing the blind within the window opening. This frame 14 is conveniently and economically made of sheet metal bent to U-shape and having the free edge thereof turned over to provide a bead 16. The frame is mounted in the window opening as illustrated in the drawing and the two vertical sections thereof provide two opposed channels for receiving the lateral ends of the blind.

Our novel blind comprises a plurality of slats 18 each of single or double V-shape in cross section, the double V shape being illustrated in the drawing as having four walls disposed at equal acute angles with each other. The slats are supported in vertical alignment within the frame 14 by cables 20 extending vertically through the V apexes of slats. The cables have relatively long portions (Fig. 3) extending over sheaves 22 supported in the top end of the frame 14, the depending portion of the cables extending through the slats and being provided with cross pins 24 or like abutments for supporting the slats in predetermined spaced relation when the blind is raised (Fig. 2). When the blind is lowered the slats collapse into nesting stacked relation within the bottom portion of the frame 14 (Fig. 3) and the ends of the slats remain projected into the vertical side portions of the frame 14 at all times (Fig. 1). When all or a portion of the blind is raised, the cables and spacing abutments support the slats in nesting relation with adjacent slats relatively spaced to provide

air passages therebetween and with the inverted V's of each slat located within the reentrant V recesses or valleys of the slat thereabove, as illustrated in Fig. 2.

The object of the invention is to provide ventilation and at the same time provide a protective screen and prevent the passage of light rays outwardly and largely eliminate the passage of sound waves inwardly. It will be apparent from the drawing that the nesting of the slats is such that no light rays can pass through the blind in a straight line path and it is furthermore apparent that any light rays or sound waves directed at the blind will be obstructed by the opposing surfaces of the slats and be reflected a plurality of times from one to the other, and the slats are so constructed that these light rays and sound waves are substantially absorbed during their reflected passage into the blind.

The slats are formed from plastic material extruded in the single or double V shape described whereby conveniently providing with great economy a strong and resilient product well adapted to perform the functions described. The slats are furthermore rendered mechanically absorbent by applying relatively heavy coatings of black paint or varnish to their concealed surfaces to provide a flat or matte finish. Furthermore, the slats are preferably rendered particularly absorbent to light and sound by providing a layer of felt or nap flannel on the inwardly facing surfaces thereof. These surfaces are normally hidden from view and are therefore particularly adapted to support thereon the material for trapping light and sound waves.

As a suitable plastic material for the slats we employ cellulose acetate, vinyl acetate, polystyrene or any other similar compound. A plastic having fire-resisting properties suitable for our purposes is disclosed in U. S. Pat. No. 2,036,588, Lovell, dated April 7, 1936. These plastic materials may be secured in any desired color and any desired degree of opaqueness or translucence depending upon the purpose for which they are to be used.

While we have illustrated only slats of double V-shaped or W-shaped cross section it has been explained that the exact cross section of the slat is of secondary importance only and that channel shaped, U-shaped, or semi-circular cross sections may be employed within the scope of the invention. It will also be apparent that the slats of the blind may be arranged to collapse in hoisted position rather than in the released position, as shown in Fig. 3 or that the individual slats may be angularly adjusted or that the blind as a whole may be used in horizontal rather than vertical position if so desired. It is also contemplated that the blind of our invention may be used as an outside protective shutter. In this location it is particularly effective in safeguarding the glass of windows against breakage in that it absorbs

a large fraction of sound waves reaching it thus reducing the residue to a harmless intensity.

Having thus disclosed our invention and described one specific embodiment thereof what we claim as new and desire to secure by Letters Patent is:

1. A black-out ventilating blind comprising a plurality of slats of inverted V-shape in cross section and arranged in nested relation, supporting cables extending through the V-apexes of the slats and permitting collapsing of the slats into stacked relation, and slat engaging abutments carried in spaced relation on the cables for supporting the slats, the abutments being located between the slats and spaced apart distances holding the apex portions of the slats within the reentrant V-recesses of the adjacent slats thereabove when the slats are suspended in vertical position on the cables and abutments.

2. A black-out ventilating blind, comprising a rectangular frame embodying horizontal top and bottom sections and vertical side sections all U-shaped in cross section and having the open side thereof facing inwardly, a plurality of slats disposed horizontally within the frame and having their ends extending into the side sections, each slat being V-shape in cross section and the slats being arranged in nested relation vertically, supporting cables hung from the top section and extending downwardly through the apexes of the slats, and slat-engaging abutments carried in spaced relation on the cables for supporting the slats, the abutments being spaced apart distances holding the apex portions of the slats within the reentrant V-recesses of the adjacent slats thereabove when the slats are supported in vertical position on the cables and abutments, the lowermost slat being permanently disposed within the bottom section and the slats being of a combined dimension filling the space within the frame in said spaced apart relation when the uppermost slat is disposed within the top section and the slats are supported on the cables and abutments.

3. A black-out ventilating blind comprising a plurality of slats of inverted W-shape in cross section arranged in nested relation, and flexible elements coincident with the W-apexes of and connecting the slats and including means for suspending the slats therefrom in relatively spaced relation when the slats are raised from a stacked collapsed position by said elements, said spaced relation being such that the W-apex portions of each slat is within the reentrant W-recesses of the adjacent slat thereabove, the adjacent faces of the slats in the raised position providing zig-zag passages therebetween preventing direct passage of light rays and sound waves through the blind and effecting the trapping of such rays and waves.

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CERTIFICATE OF CORRECTION.

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Patent No. 2,325,003.

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It is hereby certified that error appears in the printed specification of the above numbered patent requiring correction as follows: Page 1., second column, line 55, after the word "provide" insert --zig-zag--; and that the said Letters Patent should be read with this correction therein that the same may conform to the record of the case in the Patent Office.

Signed and sealed this 24th day of August, A. D. 1943.

(Seal)

Henry Van Arsdale,
Acting Commissioner of Patents.