

July 21, 1953

A. J. KOLL

2,645,827

WINDOW FOR PANELS

Filed Sept. 13, 1949

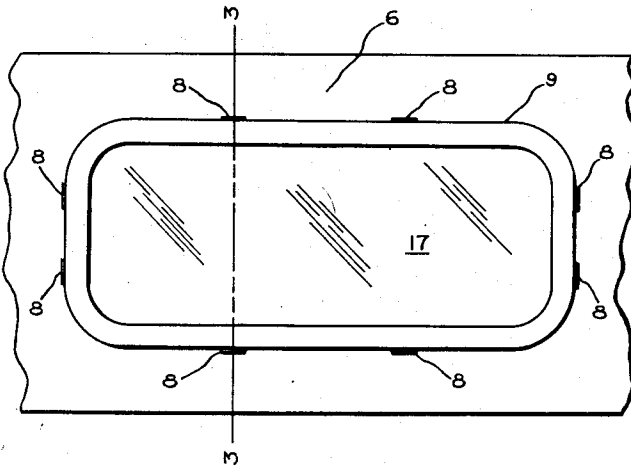


FIG. 1

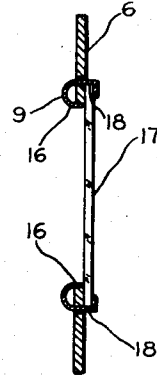


FIG. 3

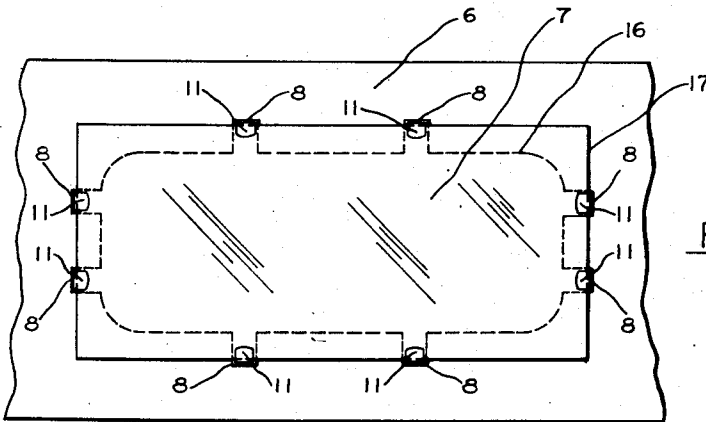


FIG. 2

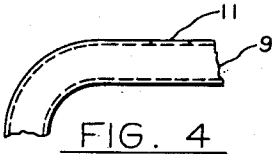


FIG. 4

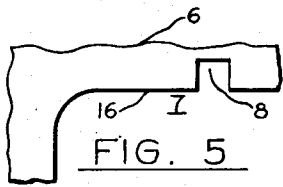


FIG. 5

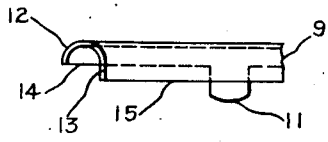


FIG. 6

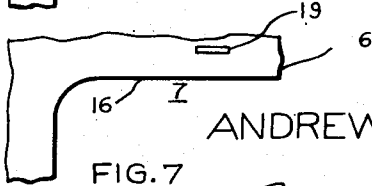


FIG. 7

Inventor
ANDREW J. KOLL

By *Robert J. Peck*

Attorney

UNITED STATES PATENT OFFICE

2,645,827

WINDOW FOR PANELS

Andrew J. Koll, Baltimore, Md., assignor to Bendix Aviation Corporation, Baltimore, Md., a corporation of Delaware

Application September 13, 1949, Serial No. 115,544

6 Claims. (Cl. 20-56.4)

1

This invention relates to a novel arrangement of a window for a panel that is both ornamental in appearance and inexpensive to manufacture.

There are many applications requiring the use of a window in a panel, a typical example being recording instruments, wherein low-cost of manufacture must be accompanied by desirable appearance, ruggedness of assembly, and ease of replacement. Heretofore, numerous different arrangements have been proposed but none have entirely satisfied the requirements set forth above. The invention set forth herein discloses an arrangement wherein a transparent member cooperates with a frame to provide a window for a panel, the transparent member and frame being assembled in inter-locking relationship whereby both are securely locked to the panel, resulting in an ornamental, rugged, and low-cost assembly.

It is an object of the invention to provide a new and novel arrangement of a window for a panel that is ornamental in appearance, easy to assemble and dis-assemble, devoid of superfluous or extra parts and is adapted for low-cost manufacture.

Other objects and advantages will readily be seen upon an inspection of the drawings annexed hereto when taken in conjunction with the detailed description to follow.

In the drawings:

Fig. 1 is a front or outer view of a panel embodying the novel window arrangement, and showing the outer appearance of the assembled window.

Fig. 2 is a rear or inner view of the arrangement shown in Fig. 1 and shows the inner appearance of the assembled window.

Fig. 3 is a view in section, taken along the line 3-3 of Fig. 1.

Figure 4 is a partial plan view of the window frame.

Figure 5 is a partial plan view of the panel showing one form of the arrangements for receiving the tongue of the frame shown in Figures 4 and 6.

Figure 6 is a partial view in elevation of the frame shown in Figure 4.

Figure 7 is a partial plan view of the panel showing an alternative arrangement to that shown in Figure 5 for receiving the tongue of the frame shown in Figures 4 and 6.

Now referring to the drawings, there is shown a portion of a panel 6 having therein a substantially oblong opening 7. The panel 6 could be a part of the casing or housing of a recording instrument, and the opening 7, in such an instance, would be provided to permit observation or inspection of the data recorded on a chart or paper roll contained within such an instrument. Ordinarily, it is desirable to provide a window for the opening 7 when the panel 6 is a part of the casing or housing of a recording instrument. Of course,

2

it is to be understood that the panel 6 could be part of the casing or housing of any particular device or article of manufacture wherein it is desirable to have an opening provided with a window for inspection or observation of the interior of the particular article of manufacture.

In order to provide a window for the opening 7, the panel 6 is provided with a plurality of notches 8 at spaced points about the periphery of the opening 7, and forming a part of the opening 7. Cooperating with the notches 8 is a frame 9 having a plurality of tongues 11 projecting through the notches 8, there being one tongue for each notch.

The frame 9 is in the form of a channel member having a substantially U-shaped cross-sectional configuration, whereby a pair of legs 12 and 13 are provided, each of the legs having substantially flat edges 14 and 15, respectively. When the frame 9 is placed upon the panel 6 with the tongues 11 projecting through the notches 8, the edge 14 engages the outer face of the panel 6. The curved upper portion of the frame 9 overlies the outer face of the panel 6 and the leg 13 serves to cover the peripheral edge 16 of the opening 7.

Cooperating with the frame 9 is a transparent member 17 which is so dimensioned as to rest within the confines of the tongues 11 projecting through the notches 8; that is, the openings defined by notches 8 surround the periphery of member 17 and the member 17, in turn, overlies the opening 7, surrounding same about its periphery. The transparent member 17 may be of glass or any suitable transparent material such as the common commercially available transparent plastics. The outer face of the transparent member 17 surrounding the opening 7 engages the inner face of the panel 6 surrounding the opening 7. Thus, we see that the transparent member 17 is so dimensioned as to provide a window or transparent cover for the opening 7 in the panel 6.

With the transparent member in place, resting within the confines of the tongues 11, the assembly of the window is completed by means of the simple operation of bending the tongues over the edge 18 of the transparent member 17 whereby the ends of the tongues 11 will engage the edges 18 and the inner face of the member 17. Thus, it is seen that the frame 9 and the transparent member 17 are assembled in inter-locking relationship which serves to lock the two parts securely to the panel 6. The combination of the edge 14 of the frame 9 resting on the outer face of the panel 6, together with the tongue 11 engaging the edge 18 and inner face of the transparent member 17, provides a clamping action resulting in the frame 9 and transparent member 17 being assembled rigidly together and to the panel 6.

3

It is not necessary that the transparent member be held to close dimensional tolerances in as much as any normal variations from unit to unit in the manufacturing operations can be compensated for by slight variations in the degree of bending of the tongues 11. The frame 9 may be of metal of a suitable gage to readily permit bending of the tongues 11 as required above. If the transparent member 17 is slightly under-size, the tongues 11 can be so bent as to take up the dimensional deficiency of the transparent member 17. If the transparent member 17 is slightly over-size, the tongues 11 can still be bent around the member 17 so as to secure it in place. The arrangement described above is advantageous if the transparent member 17 is made of glass, for it is well-known that extreme accuracy of dimensions is difficult to achieve, and therefore costly, in the case of glass.

Obviously the novel arrangement described above is ideally adapted for low-cost manufacturing operations in that the opening 7 can be punched or stamped out of the panel 6, the frame 9 can be formed by means of simple sheet-metal forming operations and the transparent member 17 can be manufactured with rather loose dimensional tolerances. All of these factors contribute to low-cost of manufacture and, of course, the assembly of the various components to form a complete window utilizes substantially a minimum number of assembly operations. Furthermore, the assembled unit is both decorative in appearance and of a rugged construction. The transparent member 17 is tightly and rigidly locked to the panel 6, there being no possibility of any play or movement by the transparent member 17 after assembly, by virtue of the clamping action of tongues 11. As is best shown in Figs. 1 and 3, the frame 9 produces a decorative appearance in that the edges 16 of the opening 7 are substantially covered by the leg 13 of the frame 9.

Whereas the invention in the embodiment described above utilizes a plurality of notches 8 surrounding the opening 7, the same effects could be achieved if the notches 8 were replaced by apertures 19 appropriately positioned and spaced around the opening 7. With either construction, whether it be a notch or an aperture, the openings provided for receiving the tongues 11 substantially underlie the frame 9 so as to enhance the ornamental and decorative appearance of the assembled window.

In view of the above, it is quite apparent that a novel window has been provided for a panel that is decorative and ornamental in appearance, easy to assemble and dis-assemble, devoid of superfluous or extra parts, ideally adapted for low-cost manufacture, and constituting a tightly and rigidly secured assembly.

What is claimed and desired to be secured by United States Letters Patent is:

1. In combination with a panel having a first opening: a transparent member engaging the inner face of said panel surrounding said first opening; a retaining frame overlying the outer face of said panel surrounding said first opening and having at least an edge thereof engaging the outer face of said panel; and a plurality of second openings in said panel substantially underlying said frame and surrounding said transparent member, said frame having a plurality of tongues projecting through said second openings and bent inwardly to engage the edge and inner face of said transparent member.

4

2. The combination defined in claim 1, wherein said second openings comprise a plurality of notches in said panel located at spaced points around the periphery of said first opening and forming a part of said first opening.

3. The combination defined in claim 1, wherein said second openings comprise a plurality of apertures in said panel surrounding said first opening.

4. In combination with a panel having a first opening; a transparent member engaging the inner face of said panel surrounding said first opening; a retaining frame surrounding said first opening overlying the outer face of said panel and overlying the outer face of said transparent member; said frame having at least an edge thereof engaging the outer face of said panel; and a plurality of second openings in said panel substantially underlying said frame and surrounding said transparent member; said frame having a plurality of tongues projecting through said second openings and bent inwardly to engage the edge and inner face of said transparent member.

5. In combination with a panel having a first opening; a transparent member engaging the inner face of said panel surrounding said first opening; a retaining frame overlying the outer face of said panel surrounding said first opening; said frame comprising a channel-shaped member having the edge of one leg engaging the outer face of the said panel; and a plurality of second openings in said panel surrounding said transparent member and located substantially in register with the edge of said one leg of said frame, said one leg of said frame having a plurality of tongues projecting through said second openings and bent inwardly to engage the edge and inner face of said transparent member.

6. In combination with a panel having a first opening: a transparent member engaging the inner face of said panel surrounding said first opening; a retaining frame overlying the outer surface of said panel and outer face of said transparent member and surrounding said first opening; said frame comprising a channel-shaped member having the edge of one leg in juxtaposition with the outer face of said transparent member and the edge of the other leg engaging the outer face of said panel; and a plurality of second openings in said panel surrounding said transparent member and located substantially in register with the edge of said other leg of said frame; said edge of said other leg of said frame having a plurality of tongues projecting through said second openings and bent inwardly to engage the edge and inner face of said transparent member.

ANDREW J. KOLL.

References Cited in the file of this patent

UNITED STATES PATENTS

Number	Name	Date
572,199	Everest	Dec. 1, 1896
602,361	Richards	Apr. 12, 1898
729,148	Fabry	May 26, 1903
799,291	Babst	Sept. 12, 1905
1,511,989	Hammond	Oct. 14, 1924
1,637,589	Roberts	Aug. 2, 1927
1,756,302	Pendery	Apr. 29, 1930
1,815,940	Zoerner	July 28, 1931
2,076,292	Carlson	Apr. 6, 1937

FOREIGN PATENTS

Number	Country	Date
37,765	Denmark	July 21, 1927