May 21, 1963 G. GOYKE 3,090,145

SLIDE FRAME

Filed Sept. 19, 1961

Fig. 1

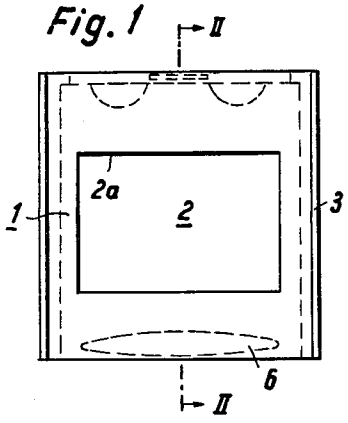


Fig. 2



Fig. 3

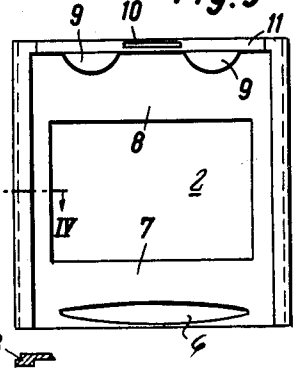


Fig. 4

Fig. 5

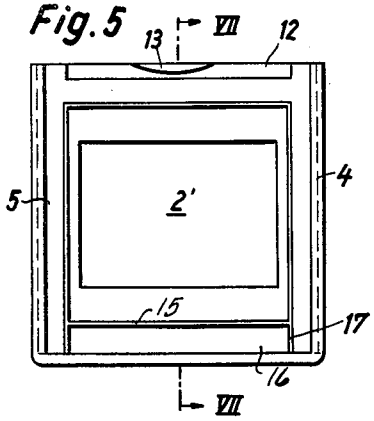


Fig. 6

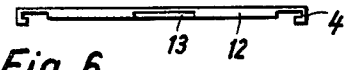


Fig. 7

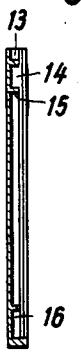


Fig. 8

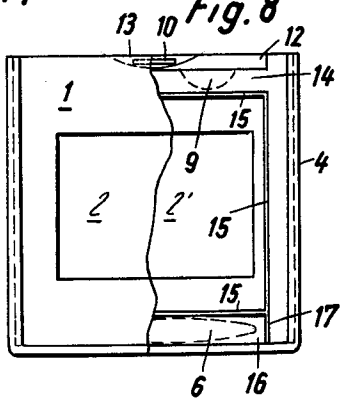


Fig. 10

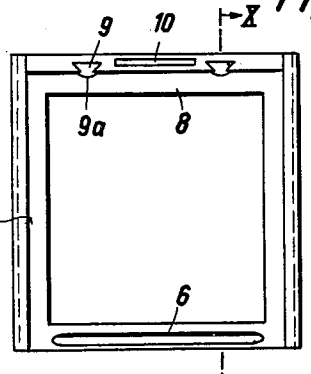


Fig. 9

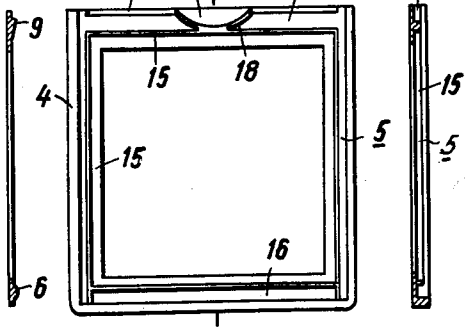


Fig. 11

Fig. 12

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SLIDE FRAME

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My invention relates to a slide frame composed of two parts namely a frame body adapted to hold a slide and a protective pane for example consisting of glass and a sliding cover which is guided and held by guide ledges or the like of the frame body, said two parts being held together by locking means when the slide frame is assembled.

Two-part slide frames are known which carry on the inside surface of the sliding cover near its upper edge hemispherical projecting parts which lock into corresponding pan-like depressions of the frame body, when the sliding cover is completely pushed in. On the outer side of the cover is located between such depressions a recess for a finger-nail to operate i.e. to withdraw the sliding cover, when desired. Such opening is, however, made difficult because, due to the arrangmeent of the recess on the outer surface of the cover, during withdrawal of the cover a pressure component is exerted perpendicularly to the surface of the cover so that said projecting parts of the sliding cover are pressed still further into the respective depressions.

In order to eliminate this disadvantage, it has been suggested to arrange said recess for the finger-nail at the lower transversal portion of the frame body together with the locking means. This locking means i.e. a locking catch is arranged directly on the lower edge of the sliding cover so that it can engage the lower of installation ledges which surround the gate of the frame body and form a depository for the protective pane and the slide. This slide frame, however, has also considerable disadvantages. When the cover is being pushed in, the locking means arranged on the forward-situated lower edge of the sliding cover impair the forward sliding movement, this necessitating the arrangement of bevelled running surfaces on said lower ledge as well as on the upper installation ledge. Nevertheless a considerable wear on the protruding locking element arises which is particularly caused during the gliding on the sharp edge of the protective pane resting between the installation edges. The scraped off particles are taken along and penetrate into the gap between said pane and the installation ledge and they disturb the projection picture when subsequently entering between the pane and the slide. In addition, this slide frame quite frequently jams during the withdrawal of the cover because in many cases the sharp edged locking elements on the sliding cover snap into the gap between the protective pane and the lower installation ledge thereby blocking any movement of the cover in either direction. In such case, the lower edge of the sliding cover must again be raised to disengage the locking element. Furthermore at the place where the recess for the finger-nail is located, a permanent opening will remain resulting in an incomplete closing of the assembled slide frame.

A still further disadvantage of this slide frame is that during the pushing-in of the sliding cover a blocking thereof often occurs when the upper edge of the gate in the cover bumps against the protecting upper edge of the protective pane. In practice, such obstructions during the pushing-in and pushing out of the cover are extremely disturbing and often lead, when hasty or violent movements are used, to cracking of the thin protective pane and to damage to the inserted slide.

The object of my invention is to eliminate the said and other disadvantages and to provide a slide frame which

can be safely and reliably closed and opened and which securely and tightly holds the slide protecting the same from damage by dust and the like.

To this effect my new slide frame incorporates in combination the following elements: Four installation ledges surrounding the gate of the frame body and forming a depository for the slide and a protective pane mostly made of glass; a convex, substantially dome-like step arranged on the lower transverse portion of the sliding cover adapted to cooperate with the lower installation ledge of the frame body; two locking members located on the sliding cover distanced from its upper edge and adapted to cooperate with a reinforcing ledge at the upper edge of the frame body; a groove in the cover intermediate said locking members for engagement by a finger-nail to operate the sliding cover; a recess in said reinforcing ledge permitting a finger-nail to enter said groove; the depression between said reinforcing ledge and the upper installation ledge being sufficiently wide to receive the said locking members when the slide frame is closed.

My new slide frame has the following advantages: When the sliding cover is pushed into the frame body the said convex step raises the forward portion of the cover over the protective pane and at the end of the push-in movement slides freely over the lower installation ledge and snaps behind the same thereby securing the cover in the frame body, by said snapping action assisting the positioning of said locking members into operative position relative to said reinforcing ledge. Since the said convex step is lower than the said locking members the pushing-in of the cover is not hindered and the step while passing over the installation ledges raises the lower portion of the cover preventing the same to contact the protective pane. Thus the said locking members never come into contact with said pane and they are easily unlocked by a finger-nail inserted into said groove. When assembled i.e. closed the slide frame is tightly closed.

The said and other objects of my invention will be more fully understood from the following specification when read with the accompanying drawing in which two embodiments are illustrated. In the drawing

FIG. 1 is a frontal view of the outer surface of the sliding cover plate for the frame plate of one embodiment of my device,

FIG. 2 shows a section along line II—II of FIG. 1,

FIG. 3 is a frontal view of the inner surface of said cover plate,

FIG. 4 is a sectional view taken along line IV—IV in FIG. 3,

FIG. 5 is a frontal view of the inner surface of said frame plate of my device,

FIG. 6 is a top view of the upper edge of the frame plate shown in FIG. 5,

FIG. 7 is a sectional view taken along lines VII—VII in FIG. 5,

FIG. 8 is a frontal view of the assembled mounting device, in the right half of this figure the sliding cover being cut off to show the inside surface of the frame body,

FIG. 9 is a frontal view of the inside surface of the sliding cover plate of another embodiment of my device,

FIG. 10 is a sectional view thereof taken along line X—X in FIG. 9,

FIG. 11 is a frontal view of the inside surface of the frame plate of such other embodiment, and

FIG. 12 is a sectional view thereof taken along line XII—XII in FIG. 11.

The same reference numerals indicate the same or equivalent elements in all figures of the drawing.

The sliding cover plate 1 is provided with a window 2 and with lateral guide ledges 3, which engage guide flanges 4 of the frame plate 5. The frame plate 5 is also provided with a window 2^1 which coincides with the window

2 of the cover plate 1 when the device is assembled i.e. closed. An elongated convex substantially dome-shaped step 6 is arranged on the inner surface of the lower transverse portion 7 of the cover plate 1 near its lower edge and its length conforms approximately to the width of the window 2. On the inner surface of the upper transverse portion 8 of the cover plate 1 are located two nose-like or wedge shaped locking bodies 9 and between the same a flat slot 10 adapted to be engaged by a finger-nail. The upper edge of the cover plate 1 may be slightly reinforced by a ledge 11 so that said groove 10 can still be made sufficiently deep.

This reinforcement 11 is only a few tenths of one millimeter thick. The locking bosses 9 abut with their highest side this reinforcement 11 where they fall off sharp-edgely at a right angle to form a catch adapted to engage, when the cover plate 1 is pushed into the frame plate 5, a ledge 12 arranged at the upper edge of the frame plate 5 (FIG. 8). The ledge 12 is provided with a recess 13 permitting a finger-nail to enter the said slot 10 in order to withdraw the cover plate 1 from the frame plate 5.

FIG. 8 shows the cover plate 1 inserted and locked in the frame plate 5. In this position the locking bosses 9 are snapped behind the said ledge 12 and rest in the depression 14 between said rail 12 and the opposite upper installation ledge 15. The installation rails 15 surround the window 2' and form a depository for the slide and a protective pane such as a glass pane. Between the lower installation rail 15 and the lower edge of the frame plate 5 arises a rectangular depression 16 which is laterally limited by extensions 17 of the installation rails 15 and which receives the step 6 when the device is assembled i.e. closed.

The locking bosses 9 are so dimensioned that, when the cover plate 1 is pushed into the frame plate 5, they run already on the front edge of the ledge 12 before the upper edge 2*a* of the window of the cover plate 1 has passed the upper installation rail 15. Thereby the upper transverse portion 8 of the cover plate is slightly raised and the edge 2*a* cannot contact the protective pane resting within the rails 15.

The step 6, which may have the shape of a relatively low dome-like elevation, is so arranged that it touches the lower installation rail 15 when the cover plate 1 is fully pushed into the frame plate 5; this results in a snapping action and the exertion of a certain closing pressure on the cover plate 1. In addition, the step 6 facilitates the attainment of the complete closed position of the cover plate and the snapping of the locking bosses 9 behind the ledge 12.

In the second embodiment illustrated in FIGS. 9 to 12 the reinforcing ledge 12 is interrupted in its middle portion to form an opening permitting a finger-nail to enter said slot 10. The arising recess 13 is laterally closed by curved wall elements 18 which merge into the upper installation rail 15. In this embodiment the depression 14 receiving the locking bosses 9 may be quite narrow and the locking bosses 9 may be reduced in size; in such case each locking boss 9 is advantageously provided with an extension 9*a* which will commence to raise the upper portion 8 of the cover 1 from the frame body 5 when the cover is pushed in.

In both embodiments the slide frame, when the cover is pushed in, is completely closed and, therefore, protected to a great extent against infiltration of dust or the like.

While specific embodiments of my invention have been shown and described in detail to illustrate the application of the principles of my invention it will be well understood that the same may be otherwise embodied without departing from such principles and without avoiding the scope of the appended claims.

What I claim as my invention is:

1. A two-part mounting device for diapositives comprising in combination

(*a*) a substantially rectangular frame plate and a conformingly shaped cover plate adapted to be slidingly pushed over the frame plate into an assembled position with their inner surfaces facing each other;

(*b*) a guide ledge on each of the parallel lateral borders of the frame plate to slidingly guide the cover plate into and out of said assembled position, and a sealing ledge on one of the transverse borders of the frame plate, said ledges projecting from the inner surface of the frame plate forming a U-shaped unit, and said sealing edge abutting in said assembled position the forward edge of the cover plate first entering between said guide ledges;

(*c*) a first and a second window centrally located in the frame plate and in the cover plate, respectively, and registering in said assembled position of said plates;

(*d*) an assembly of four rectangularly arranged contact rails projecting from the inner surface of the frame plate and comprising two lateral rails extending parallel to said guide ledges, a lower rail opposite to and parallel to said sealing edge and an upper rail, said assembly surrounding said first window and dimensioned to accommodate the diapositive and at least one protective glass plate;

(*e*) a reinforcing ledge projecting from the inner surface of the frame plate substantially along the other border thereof;

(*f*) an elongated convex and substantially dome-shaped step projecting from the inner surface of the cover plate near its forward edge and adapted to snap between said sealing ledge and said lower rail in said assembled position;

(*g*) two spaced locking members projecting from the inner surface of the cover plate and adapted to snap in said assembled position between said reinforcing ledge and said upper rail;

(*h*) an elongated slot adapted to receive a finger nail entering the inner surface of the cover plate, said slot located intermediate said locking members and opposite and parallel to said reinforcing ledge;

(*i*) and a recess in said reinforcing ledge giving access to a finger nail to enter said slot and to withdraw the cover plate from said assembled position.

2. A two part mounting device for diapositives according to claim 1 comprising a second reinforcing ledge projecting from the inner surface of the cover plate and containing said slot, said second reinforcing ledge sealingly contacting said first reinforcing ledge in said assembled position.

References Cited in the file of this patent

UNITED STATES PATENTS

2,835,061	Riedel	May 20, 1958
2,931,118	Riedel	Apr. 5, 1960