

July 2, 1968

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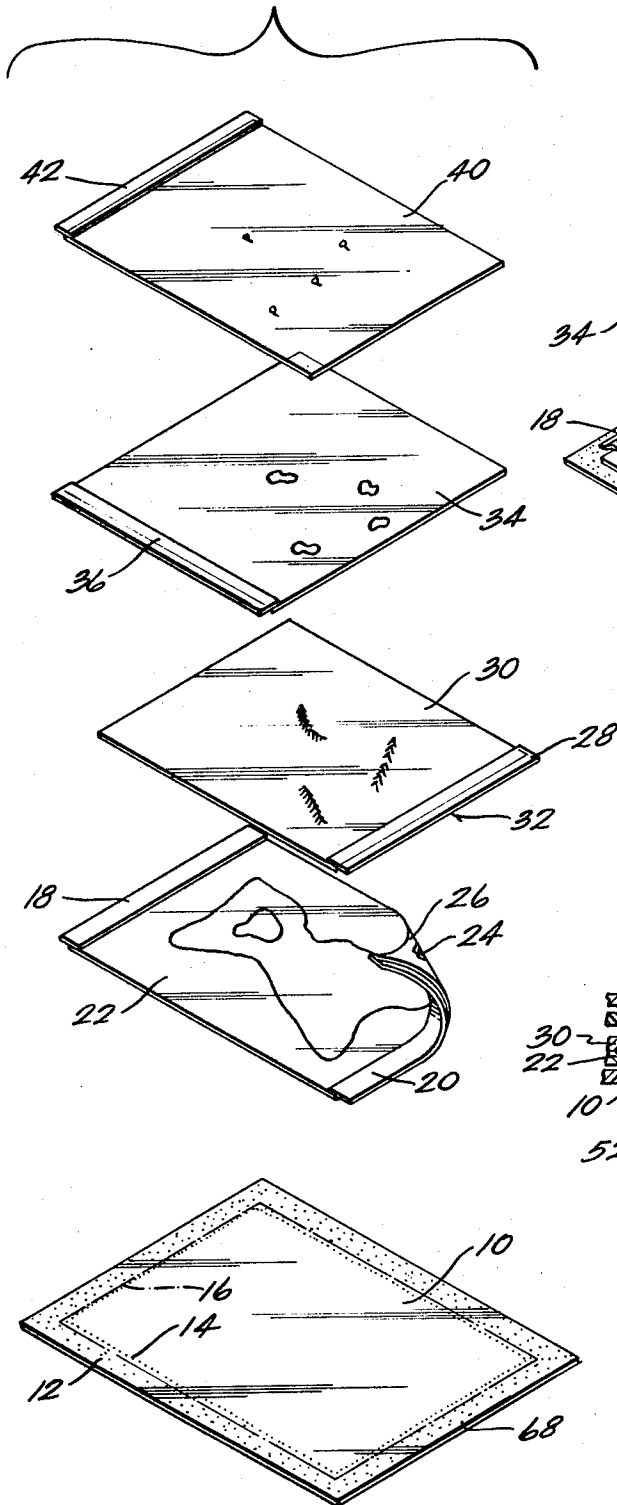
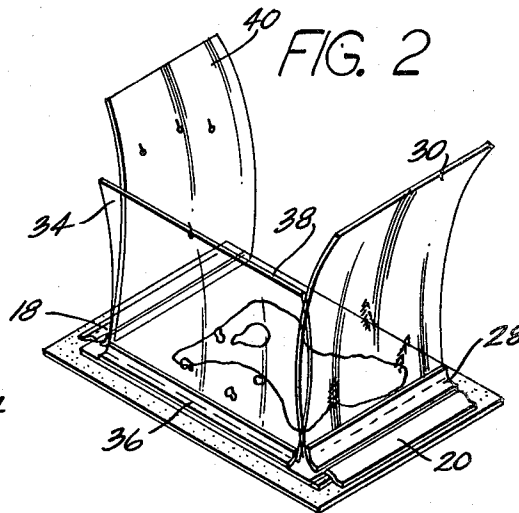
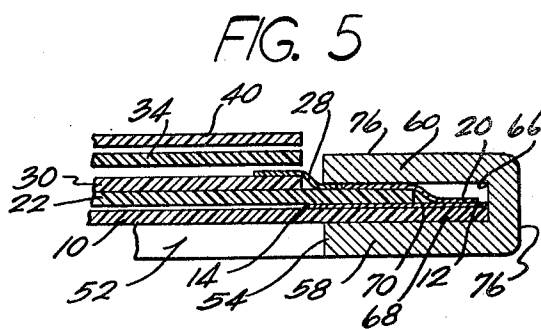
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TRANSPARENCY MOUNT AND METHOD OF MANUFACTURE THEREOF

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2 Sheets-Sheet 1

FIG. 1



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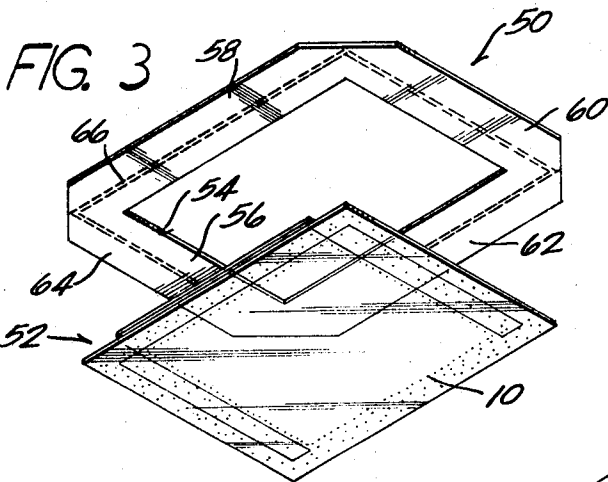
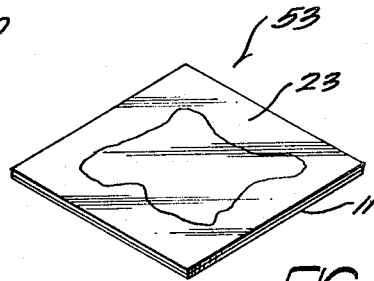
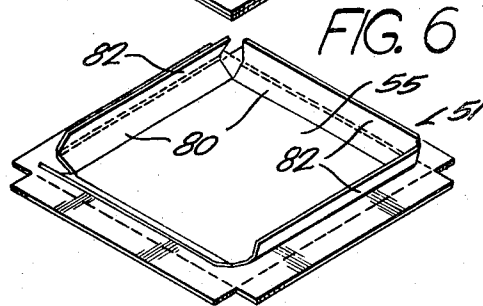
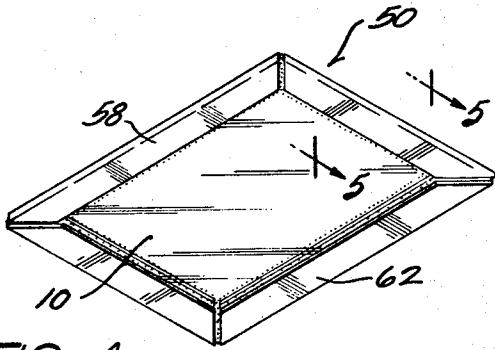
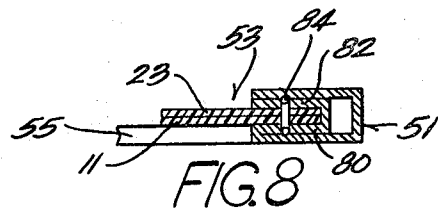
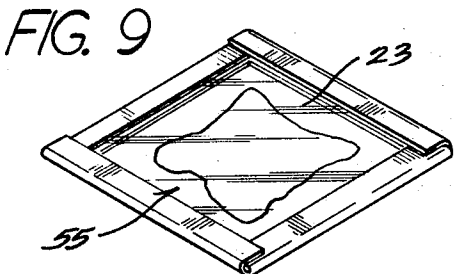
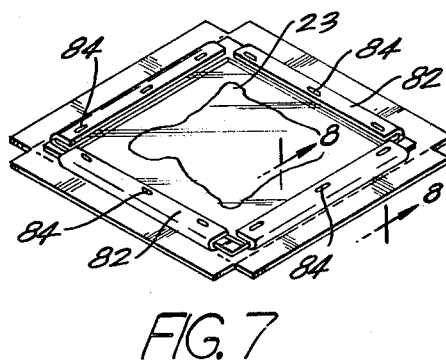
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TRANSPARENCY MOUNT AND METHOD OF MANUFACTURE THEREOF

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2 Sheets-Sheet 2



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TRANSPARENCY MOUNT AND METHOD OF MANUFACTURE THEREOF

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ABSTRACT OF THE DISCLOSURE

One or more overlay sheets are marginally connected by flexible hinge strips directly to a plastic carrier sheet in face contact therewith. The hinged connections are preferably, though not necessarily, made along different margins of the carrier sheet. A prefabricated frame is marginally connected to both top and bottom faces of the subassembly and conceals the anchorage portions of hinge strips of the overlay sheets, the overlay sheets being thereupon hingedly movable into and out of the frame.

This invention relates to a transparency mount and method of manufacture thereof.

In almost all instances, more than one transparency sheet is involved. Routinely, a plurality of sheets bearing images required to be mounted in absolute registry and in a manner which permits them to be unfolded so that only one image is projected, and then successively folded into superposed and registered position to supply additional information on the screen. This type of equipment is used with overhead projectors.

According to the present invention, the transparency sheet upon which an image appears preferably has that image printed upon it instead of reproduced photographically upon it. The printing operation is very much less expensive than the photographic reproduction but is subject to the possible objection that the ink is more susceptible to damage by abrasion. The present invention eliminates any likelihood of abrasion and protects the printed image or images in use.

According to the present invention, all of the image bearing sheets, whether one or more, are physically attached at one margin to a corresponding marginal portion of a heavy sheet of clear acetate. Preferably different margins are used for the second and consecutive image-bearing overlay sheets so that the second and subsequent overlay sheets can be folded outwardly in different directions. The first overlay sheet remains attached at all sides to the outer sheet of clear acetate but preferably has its image-bearing surface on its under face to be protected between the mounting sheet of clear acetate and the overlay sheet which carries such image. Moreover, in the preferred practice of the invention, tape intervenes between the first overlay sheet and the mounting sheet, thereby spacing the printed under surface of the first overlay sheet from the mounting sheet.

If more than four printed overlay sheets are required, the first four sheets will ordinarily be connected with the four margins of the mounting sheet and a fifth overlay sheet will then be attached over the first and the sixth over the second, etc.

When all image-bearing overlay sheets are secured to the heavy mounting sheet with their images in registry, preferably through the use of adhesive tape, then a cardboard frame folded from a single piece of material is attached to enclose the margins of the assembly. The tape used is thin, strong and flexible to serve as a hinge, as hereinafter explained. Mylar is an example of appropriate material for the tape. Because the opening in the frame may be slightly larger than the image-bearing portions of the transparencies, it is preferred that the mounting

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sheet have a printed opaque border which frames the transparencies independently of the cardboard frame and cuts off light transmission through the tape.

The mounting of the frame to the prefabricated assembly of the mounting or carrier sheet and the transparencies or overlays can be done either by forming the frame with molded flanges to which the assembly may be stapled or, as is preferable, it may be done through the use of a heat sealing operation using a thermoplastic adhesive such as pyroxylin, with which parts may be coated.

One of the advantages in the manner in which the frame is formed consists of the fact that all exposed parts of the frame come from the same face of the blank from which the frame is made. Consequently, if it be desired to print information, or color, on all exposed surfaces of the frame, this may be accomplished in a single printing operation.

In any event, the frame performs not only the usual function of a frame in mounting the parts for handling but, because of its thickness, it protects the delicate overlay transparencies during storage. This is in addition to the fact that in the preferred assemblies in which printer's ink rather than photographic images are used, all such printer's ink will be sandwiched between plies of transparent material and thereby protected against damage from scuffing.

In the drawings:

FIG. 1 is a view in perspective illustrating successive steps in the assembly of the separately illustrated component parts preliminary to framing.

FIG. 2 shows the assembly completed and illustrates in perspective how the several overlay transparencies are marginally hinged at different sides of the mounting or carrier sheet.

FIG. 3 is a view in perspective showing the step of attaching the frame blank to a prefabricated assembly.

FIG. 4 is a view in perspective showing the under surface of the completed mount.

FIG. 5 is an enlarged detail view taken in section on the line 5—5 of FIG. 4.

FIG. 6 is a perspective view diagrammatically illustrating the mounting of a prefabricated assembly in a different style of frame.

FIG. 7 is a view in which the connection of the prefabricated assembly to the frame shown in FIG. 6 has been completed.

FIG. 8 is an enlarged detail view taken in section on the line 8—8 of FIG. 7.

FIG. 9 is a view in perspective showing the completed frame.

By some means such as the strips 18 and 20 of tape coated with a pressure-sensitive adhesive and applied to the carrier sheet 10 as shown in FIG. 5, a primary transparency or image-bearing overlay sheet 22 is fixed, face down, to the carrier sheet 10. As shown in FIG. 1, the printed image 24 on the transparency 22 is on its lower face 26 where it is protected between the sheet 22 and the carrier sheet 10. In the event that only one transparency is to be mounted, the assembly of the transparency 22 on the carrier sheet 10 as above described may represent the entire subassembly which is to be framed.

As aforesaid, however, there would usually be more than one transparency and it is necessary that these be mounted with their images in absolute registry. To this end, another coated tape 28 may be placed on the end margin 32 of overlay 30 as shown in FIG. 5 and the end margin of an overlay 30 may be attached to primary transparency 22 by means of tape 28. It will be understood that overlay 30 has a design and is so mounted that its pattern is in registry with that of the primary

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transparency 22. The tape 28 occurs only at the end 32 of transparency 30 and it serves a hinge to permit the transparency 30 to be fulcrumed upwardly as shown in FIG. 2. The other three margins of the overlay transparency 30 are free of the frame and therefore the transparency 30 may be elevated as shown in FIG. 2 and folded outwardly of the frame so that no part thereafter will be projected.

The next overlay or transparency 34 will likewise have a pattern and will have its side margin rather than its end attached to the side of the primary transparency 22 by means of tape 36. The other margins will be free so that this transparency may also be folded out of the way as indicated at FIG. 2.

Similarly, a third printed overlay transparency 40 may be attached to the primary transparency 22 as by means of a tape 42 applied at the end remote from the end shown in FIG. 5. In this case, only the remote end of the transparency overlay 40 is attached, and the other margins will be free to permit the overlay to be raised out of the way as shown in FIG. 2. It will, of course, be understood that the overlays need not be attached to the margins of the primary transparency in the particular consecutive sequence above indicated. It is sufficient that their images be registered where the overlays are superimposed and that they can be independently hinged aside by folding them outwardly about the margins of the frame.

As shown in FIGS. 3 and 5, the frame 50 is now applied to the subassembly 52 completed as shown in FIG. 2. The frame blank 50 comprises a single sheet of cardboard or the like having a central opening at 54 about which there is a marginal frame area 56 to which the flanges 58, 60, 62 and 64 are connected by hinge lines represented by double-scoring at 66.

The frame area 56 is applied over the margins 68 of the carrier sheet 10 and of the primary transparency 22, the hinge-forming tape of the first outwardly foldable overlay transparency 30 also being included as shown in FIG. 5. The flanges 58, 60, 62 and 64 are then folded around the subassembly to underlie the carrier sheet 10. The frame elements or the surfaces of the subassembly will previously have been coated with some thermoplastic adhesive such as pyroxylin. Heat will now be applied to make the assembly permanent as illustrated in FIG. 4. The pictorial representation produced by the transparencies individually or collectively will be framed or delineated by the opaque ink coat 12 so that the various tapes or other mounting means will not be visible. The frame will be substantially rigid for handling purposes and the photographic or printed images on the transparencies will all be protected by the transparencies themselves.

As already noted, the surface 76 which was outermost on the frame blank will now be continuous about the top and sides and bottom of the completed frame so that any decoration or legends imprinted thereon in a single operation will be exposed in the completed frame. The various transparency overlays 30, 34 or 40 will each have its hinge extended beneath the frame at one margin only and the other margins will be free to be folded outwardly in the manner shown in FIG. 2.

FIGS. 6 to 9 show alternative expedients for assembling the transparencies and frame, it being understood that the several features disclosed only in FIGS. 1 to 5 can be used interchangeably in the construction illustrated in FIGS. 6 to 9 and the individual features of FIGS. 6 to 9 may be used if desired in the construction of FIGS. 1 to 5.

FIGS. 6 to 9 are concerned primarily with a different way of making the frame and mounting the subassembly. Accordingly, the subassembly has been shown in simplified form to include as its only two plies the coextensive carrier ply 11 and the transparency overlay ply 23.

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The frame blank 51 uses material cut from its central opening 55 to form hinged flanges 80 and 82 on each of its four inner margins, these flanges being hinged to each other, and each of the flanges 80 being hinged to the frame proper. The subassembly 53 (regardless of the number of transparencies included) is inserted into the hinged connection between flange 80 and flange 82 in the manner best shown in FIG. 8 and is there anchored by staples 84, these being used instead of the pressure-sensitive adhesively coated tapes above described in connection with FIGS. 1 to 5. Any means such as pressure-sensitive adhesive may now be used to anchor the main frame elements about the flanges which were stapled to the subassembly 53 to complete the organization shown in FIGS. 8 and 9. It will be observed in FIG. 9 that the corners are not mitered but are understood to be optional either to lap the corners or miter them as shown respectively in FIGS. 3 and 9. The mounts completed as herein disclosed have very significant advantages which have already been outlined and they are highly successful in holding the transparencies in registry and in protecting them against injury during storage and use. They also present an unusually neat appearance which is enhanced by the fact that the actual framing is done by the opaque coating 12 rather than by the cardboard frame per se.

I claim:

1. A transparency mount for overhead projectors comprising the subassembly of a plastic carrier ply with at least one overlay ply in flat face contact with the carrier ply, a flexible hinge strip having an anchorage portion adhesively connected with the carrier ply and having another portion adhesively connected with a margin of the overlay ply to accommodate hinge movement between the overlay ply and the carrier ply, and a frame having upper and lower face portions respectively adhesively attached to corresponding face portions of said subassembly, a face portion of the frame covering the anchorage portion of said hinge strip and said frame having an opening through which the overlay ply is hingedly movable while still connected by said strip with said carrier ply.

2. A transparency mount according to claim 1 in which the carrier ply is substantially clear and the overlay ply carries an image on its inner face to lie between the carrier ply and the overlay ply.

3. A transparency mount for overhead projectors comprising the subassembly of a carrier ply with at least one image-bearing overlay ply, and a frame having a central opening and flanges projecting inwardly from its margins, each such flange being folded upon itself and the subassembly having its margins disposed in the folds of said flanges and means for connecting the subassembly margins to the folded flanges of the frame.

4. The combination with a transparent carrier ply, an image-bearing overlay ply having its margins spaced inwardly from all margins of the carrier ply and normally lying in flat face contact with an intermediate area of the carrier ply, hinge means connecting the overlay ply along one of its margins to a surface of the carrier ply which is at one side of the said intermediate area, other margins of the overlay ply being free, and a frame connected with the carrier ply and having a central aperture within which the overlay ply is disposed and through which the overlay ply may be opened outwardly upon its said hinge means.

5. A combination according to claim 4 in which at least one additional overlay ply is within the aperture of said frame and normally superimposed in flat face contact upon the first mentioned overlay ply and has hinge means connecting one of its margins with the carrier ply at a different side of the intermediate area from that at which the first mentioned overlay ply is connected, the second overlay ply having its other margins

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free for movement of said second overlay ply about its own said hinge means through the opening of said frame.

6. A combination according to claim 4 in which the hinge means constitutes a flexible tape in adhesive connection with the said carrier ply and said overlay ply.

7. A combination according to claim 6 in which the frame comprises a blank having an aperture and portions beside the aperture with which side portions of the carrier ply are engaged, said blank having flanges folded over the side portions of the carrier ply and into substantial registry with the frame portions which are beside the said aperture.

8. A transparency mount for overhead projectors comprising the subassembly of a plastic carrier ply with at least one image-bearing overlay ply, the overlay ply having image-forming means on its inner face to lie between the carrier ply and the overlay ply, and a frame having upper and lower face portions in hinged connection about the margins of the subassembly and adhesively attached to corresponding faces of the subassembly, the

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subassembly including additional overlay plies having hinge tapes with marginal portions each extending under a side of the frame, the frame having a central opening and margins from which the tapes project and at which margins hinging action occurs between respective overlay plies and the carrier ply, each such overlay ply having its remaining margins free of the frame so that such additional overlay plies are foldable into and out of the frame.

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