Feb. 16, 1954 R. F. BARTER 2,669,279

METHOD AND APPARATUS FOR MAKING SLIDES

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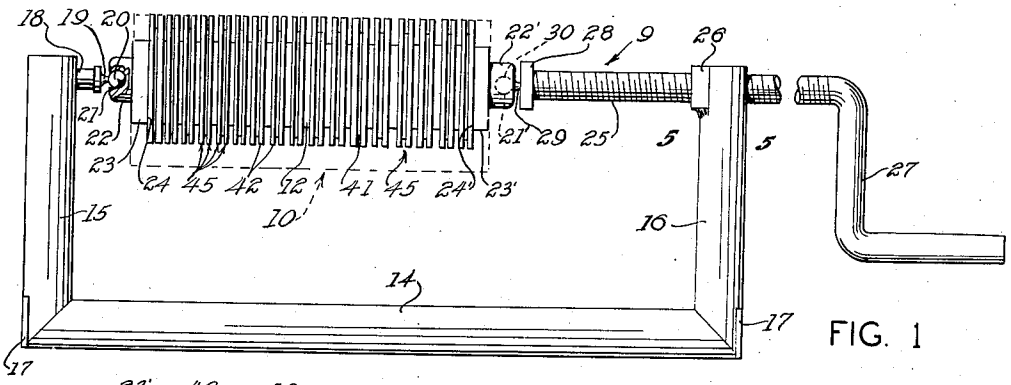


FIG. 1

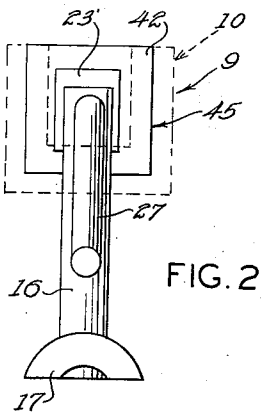
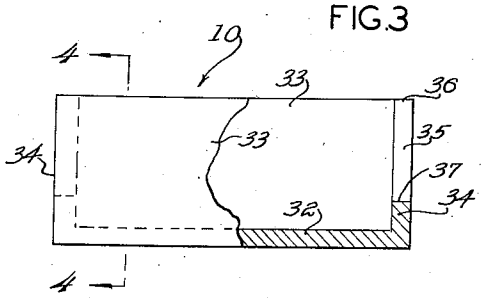


FIG. 2

FIG. 3



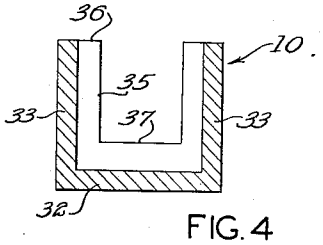


FIG. 4

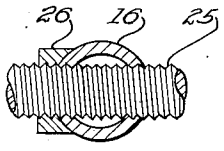


FIG. 5

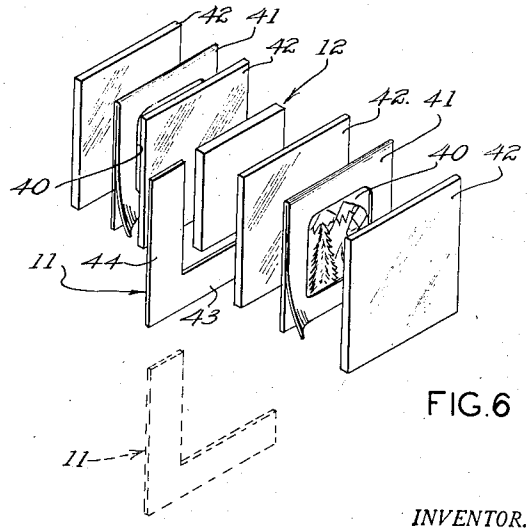


FIG. 6

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METHOD AND APPARATUS FOR MAKING SLIDES

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4 Claims. (Cl. 154—1.6)

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This invention relates to improvements in method and apparatus for making stereopticon slides from transparencies, the primary object of the invention being to provide means whereby slides of superior form and construction are obtainable more easily, quickly and inexpensively by persons having no special skill.

Another important object of the invention is to provide simple and efficient apparatus of the character indicated above which procures initial accuracy in the assembling of the slide components, including glass plates, film, or transparency and mask, and maintains such accurate assembly in the clamping of the components together, and while the components are rotated to conveniently position the different edges thereof for application of suitable cement thereto for fusing the edges and securing the components together to complete the slide, the said apparatus being adaptable to the making of only one or a plurality of slides at a time.

A further important object of the invention is to provide an easier, quicker and more efficient method of making the slides which results in slides of uniformly accurate construction.

Other important objects and advantageous features of the invention will be apparent from the following description and the accompanying drawings, wherein, for purposes of illustration only, a specific embodiment of apparatus is set forth in detail, and certain steps in the method are graphically shown.

In the drawings, wherein like numerals designate like parts throughout the several views:

Figure 1 is a side elevation of the press component of the apparatus, showing a plurality of slide assemblies clamped therein, and showing in dotted lines, in association therewith, before withdrawal, the slide assembly carrier;

Figure 2 is a right-hand end elevation of Figure 1;

Figure 3 is a side elevation, partly broken away, of the carrier;

Figure 4 is a transverse vertical section taken on the line 4—4 of Figure 3;

Figure 5 is an enlarged fragmentary horizontal section taken on the line 5—5 of Figure 1; and

Figure 6 is an exploded group perspective view of a plurality of slide assemblies, one of the discarded separators being shown in dotted lines.

Referring in detail to the drawings, the illustrated apparatus comprises the press 9, the carrier 10, the relatively thin, L-shaped separators 11, and the relatively thick spacers 12.

The press 9 can be formed efficiently of a frame

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of rigid tubing or pipe providing a horizontal base portion 14, a left-hand upright 15, and a right-hand upright 16. Pieces 17 like half-washers can be welded or otherwise secured to the outer sides of the lower ends of the uprights to provide feet for supporting the frame in an upright position on a supporting surface.

The left-hand upright 15 has at its upper end an inwardly projecting boss 18 providing a mounting for a bearing in the form of a shank 19 terminating in a ball 20. The ball 20 is swivelly confined in a socket 21 in a boss 22 on the outward side of a clamping plate 23. The clamping plate 23 is rectangular and smaller than, but of the same proportions, as the slides to be made up, and has a plane, polished clamping face 24.

The upper end of the right-hand upright 16 is traversed by a horizontal clamping screw 25 extending parallel to the base portion 14 and axially aligned with the bearing ball 20 on the left-hand upright 15. The screw 25 is threaded through a nut 26 welded or otherwise suitably secured to the inner side of the upright 16, as indicated in Figure 5. The outer end of the screw 25 has a crank handle 27 and its inward end has an enlargement 28 serving as a mounting for a bearing including an axial shank 29 terminating in a ball 30. The ball 30 is swivelly confined in a socket 21' in the boss 22' of a clamping plate 23' similar to the clamping plate 23, and similarly having a plane, polished clamping face 24'.

The carrier 10 comprises a longitudinally elongated box having a bottom wall 32, side walls 33, and end walls 34, the dimensions and spacings of the walls corresponding to the dimensions of the slides and the number of such slides to be carried at one time. The end walls 34 are formed with similar rectangular openings 35 opening through their upper edges 36 for conformably receiving the clamping plates 23 and 23'. The bottom edges 37 of the openings 35 are so located that when the carrier 10 is in inoperative relation to the clamping plates, the carrier bottom wall supportably engages the lower edges of the slide components with the carrier side walls 33 engaging the side edges of the slide components. When pushed down evenly into the carrier the slide components have their upper edges uniformly level, whereby perfect registration of the components is assured. The longitudinal spacing of the carrier end walls 34 is so calculated that the desired plurality of slide assemblies together with the appropriate number of separators 11 and spacers 12 are accommodated in the carrier.

The method of the present invention contem-

plates assembling one or more slides, each assembly consisting of a film or transparency **40**, a rectangular mask **41** having portions on opposite sides of the transparency **40**, and two glass plates **42**, one on each side of the masked transparency. Where a plurality of slide assemblies is involved, their components are placed upright in the carrier **10**, with a cardboard or other suitable material, L-shaped separator **11** positioned between each assembly, with one arm **43** positioned horizontally in line with the lower edges of the components and the other arm **44** vertically in line with a side edge of the components, as shown in Figure 6. A spacer **12** of the same size and dimensions as the press clamping plates **23**, **23'**, but substantially thicker than the separators **11**, is placed between adjacent assemblies. The dimensions of the separator arms **43** and **44** are such that the spacers **12** are forced to occupy a correctly vertical and laterally centered position with respect to the glass plates **42** which they separate.

With the slide assemblies arranged in the carried **10**, as above described, the carrier **10** is brought upwardly to engage the end wall openings **35** with the clamping plates **23**, **23'**, the clamping plates first having been given the correct spacing from each other by manipulating the press crank handle **27**, so that the contents of the carrier assume a position between the clamping faces **24**, **24'** of the clamping plates. With the carrier **10** held in place, the crank handle **27** is operated to clamp the single slide assembly or the plurality of slide assemblies together, so that adjacent components are in mutually compressive relation with each other and with the spacers **12**. Upon downward withdrawal of the carrier **10**, the spacers **12** being thicker than the separators **11**, the separators fall out of place, and all four edges of the components of the clamped slide assemblies are exposed and readily accessible. The swivel mounting of the clamping plates **23**, **23'** provides for uniform clamping of a plurality of slide assemblies and facilitates positioning thereof for clamping between the clamping plates.

With the slide assemblies clamped as above described, and the separators **11** being out of the way, suitable adhesive or cement can be applied to fuse together the edges of the adjacent slide components. This operation of fusing material is rendered easier and more accurate by rotating the clamped assemblies on the bearing balls **20** and **30**, so as to bring up each edge in turn.

It should be noted that before assembling the components for the slides, the glass plates **42** are cleaned with alcohol or acetone and air dried, and the film or transparency **40** and the mask **41** are cleaned of dust or lint. Preferably, moisture and heat-resistant cement is used, and can be applied directly to the edges of the slide components from the tube. The resultant slides are air and waterproof. After a drying period of about thirty minutes, the clamping screw **25** is turned in a direction to separate the clamping plates **23** and **23'** and the completed slides **45** and release the slides and the spacers **12**.

I claim:

1. In a method of making a plurality of slides each composed of an assembly of components including a masked transparency and glass plates at opposite sides of the transparency, the steps of transiently supporting the components and adjacent assemblies loosely in registry, separating the assemblies by placing spacing means between adjacent assemblies and leaving marginal portions of the assemblies exposed, applying compressive force to opposite ends of the resultant group of assemblies so as to compress the components of each group together and so as to compress the spacing means between adjacent assemblies, removing the transient holding support, and applying fusing cement to the edges of the assemblies.

2. In a method of making a plurality of slides each composed of an assembly of components including a masked transparency and glass plates at opposite sides of the transparency, the steps of transiently supporting the components and adjacent assemblies loosely in registry, separating the assemblies by placing spacing means between adjacent assemblies and leaving marginal portions of the assemblies exposed, applying compressive force to opposite ends of the resultant group of assemblies so as to compress the components of each group together and so as to compress the spacing means between adjacent assemblies, removing the transient holding support, and applying fusing cement to the edges of the assemblies, while rotating the group of assemblies.

3. In apparatus for making a group of slides, a press comprising a base, elements extending laterally from said base and spaced along said base from each other, a first clamping plate swivelly mounted on one of said elements and facing the other element, a clamping screw mounted on said other element in alignment with said first clamping plate, a second clamping plate swivelly mounted on said clamping screw and facing said first clamping plate, and means for operating said clamping screw, said clamping plates being polygonal, a slide carrier comprising a longitudinal wall, sidewalls along opposite sides of said longitudinal wall, and endwalls on opposite ends of said longitudinal wall, the slides being adapted to be positioned on said longitudinal wall between said sidewalls and endwalls so as to be loosely held in registry as a group, said endwalls being formed with polygonal openings extending through an edge thereof conforming in size and shape and adapted to receive said first and second clamping plates whereby the carrier and the group of slides are held in enforced registered condition and in alignment with the clamping plates and are connected to the clamping plates for rotation therewith, operation of said clamping screw in one direction serving to compress the group of registered slides together in said carrier between said first and second clamping plates, said carrier then being removable from the group of clamped plates to expose edges thereof theretofrom enclosed by the carrier.

4. In apparatus for making a plurality of slides, a carrier for removably holding a stack of slides in registry, said carrier comprising a longitudinal wall, sidewalls along opposite sides of said longitudinal wall, and end walls extending between said sidewalls at the ends of the longitudinal wall, said endwalls being formed with non-circular openings extending through an edge thereof, a press having a pair of aligned clamping plates smaller in area than the slides, said plates being non-circular in shape, the openings in the carrier endwalls being substantially of the same size and shape as the clamping plates so that when the clamping plates are positioned in said openings said carrier is aligned

with the clamping plates and is non-rotatably connected to the clamping plates but can be disengaged from the clamping plates by moving the carrier sidewise relative to the plates in a direction to pass the clamping plates out of said openings, said clamping plates being engageable with the end slides of the stack through the openings in the carrier endwalls when seated in the carrier endwall openings and being movable toward each other to compress and clamp the slides together in registry with each other and in alignment with the clamping plates, and means for urging the clamping plates toward each other to compress the slides together sufficiently to support the stack of slides independently of said carrier, said carrier then being removable from the stack and from the clamping plates to expose edges of said slides otherwise enclosed by said carrier.

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