April 3, 1962 T. S. BRISKIN ETAL 3,027,666

SLIDE CENTERING MEANS AND MAGAZINE

Original Filed March 21, 1955 2 Sheets-Sheet 1

FIG. 1

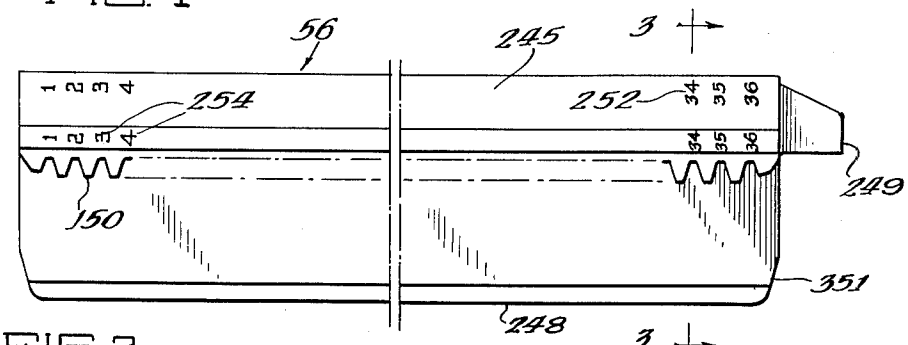


FIG. 2

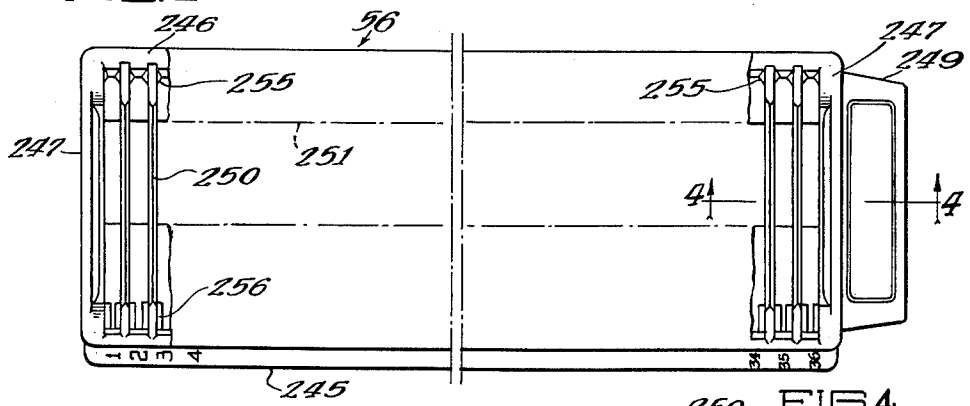


FIG. 3

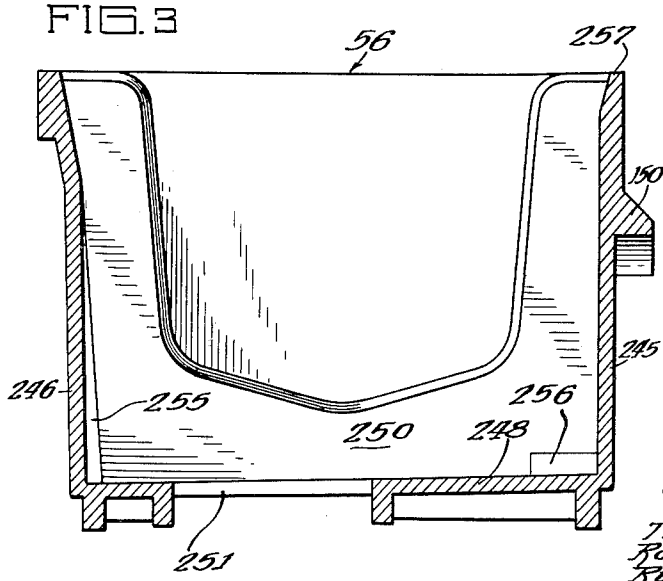
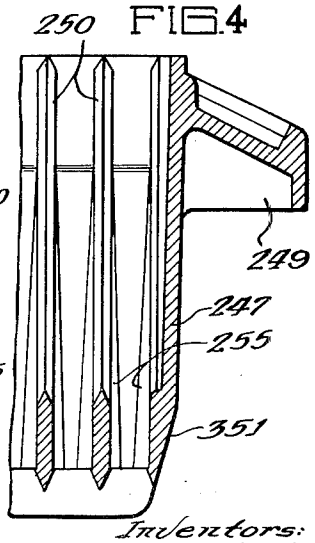


FIG. 4



Inventors:
Theodore S. Briskin
Robert L. Moore
Rudolph A. Rom
By: Zabel, Baker, York, Jones, and Dittmar Attorneys

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FIG. 5

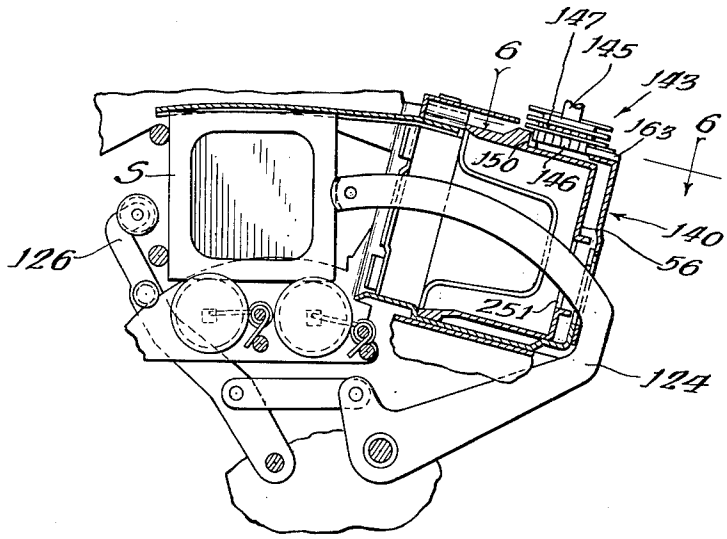
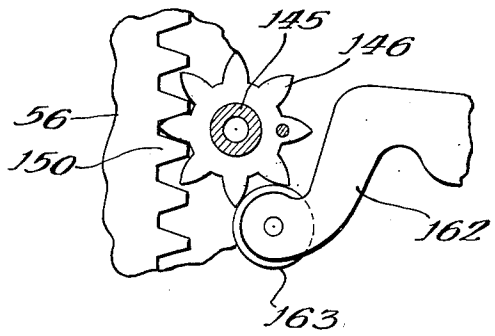


FIG. 6



Inventors:
Theodore S. Briskin
Robert L. Moore
Rudolph A. Rom
By: Zahrl, Baker, York, Jones & Dithmar
Attorneys

United States Patent Office 3,027,666 Patented Apr. 3, 1962

3,027,666

SLIDE CENTERING MEANS AND MAGAZINE

Theodore S. Briskin, Chicago, Robert L. Moore, La Grange Highlands, and Rudolph A. Rom, Stickney, Ill., assignors, by mesne assignments, to Revere Camera Company, a corporation of Delaware

Original application Mar. 21, 1955, Ser. No. 495,474, now Patent No. 2,968,993, dated Jan. 24, 1961. Divided and this application May 13, 1960, Ser. No. 29,059

4 Claims. (Cl. 40—79)

This invention relates to slide centering means for a slide projector and in particular to an improved magazine, and is a division of our copending application, Serial No. 495,474 filed March 21, 1955, now Patent Number 2,968,993, granted Jan. 24, 1961.

It is an object of this invention to provide, in combination with a compartmented slide magazine, improved means for centering each slide with respect to the slide displacing mechanism of a slide projector.

A further object is to provide slide centering means in which the slide is not jarred out of position by the advance of the magazine.

Another object is to provide a magazine having an improved arrangement of bosses for centering a slide located in a compartment of said magazine along two of its four edges.

A still further object is to provide a slide magazine which is adapted for use in a tilted position.

Other objects, features and advantages will become apparent as the description proceeds.

With reference now to the drawings in which like reference numerals designate like parts:

FIG. 1 is a side view of a preferred embodiment of our invention;

FIG. 2 is a top view thereof;

FIG. 3 is a vertical section taken along the line 3—3 of FIG. 1;

FIG. 4 is an enlarged longitudinal section taken along line 4—4 of FIG. 2;

FIG. 5 is an elevation, partly in section, showing the relationship of the magazine to the slide displacing means; and

FIG. 6 is an enlarged detailed view taken along line 6 of FIG. 5 showing the compartment centering mechanism.

A slide magazine **56** is shown in FIGS. 1–4. It comprises a partitioned tray which will be described with reference to the upright position in which it is shown in FIGS. 1–4, this position corresponding to slide storage position. When the magazine is to be inserted into the slide projector tunnel **140**, it is rotated toward one side through about 75°, as shown in FIG. 5, this being the operating position.

The magazine comprises a front wall **245** which becomes the uppermost wall in operating position, a rear wall **246**, and walls **247**, and a bottom wall **248**. A handle **249** may be provided on one of the end walls. The magazine is provided with a plurality of transverse partitions **250**, thus providing a separate compartment for each slide. The rack **150** is formed on the front wall **245**, so that when oriented in its operating position, it will cooperate with the index pinion **146**, as shown in FIG. 6. A longitudinal slot **251** is formed in the bottom **248** to accommodate an injector arm **124** in the manner shown in FIG. 5. A series of indicia **252**, designating each compartment, is formed on the front wall **245** in a position in which the separate indicia may be exposed through a suitable opening (not shown) in the casing of the projector thus indicating the particular slide which is positioned for projection. A second set of indicia **254** may be provided on the diagonally disposed back of the rack **150**

so that the compartments may be identified when the magazine is oriented in storage position, as shown in FIG. 2.

Means are provided to maintain each slide centered in its respective compartment, such means comprises centering bosses **255** and **256**, each of which provide 45° surfaces which are effective to center that edge of a slide which is adjacent the slot **251**, so that the edge will be properly engaged by the concave edge **125** of the injector arm **124**. The centering bosses **255** are formed at the intersection of the rear wall **246** and the partitions **250**. Thus, when the magazine is in its operative position, the slide will rest on the 45° surfaces provided by the bosses **255**, and be centered in the compartment, irrespective of variation of the thickness of the slide. In other words, some transparencies are mounted in glass, and are therefore thicker than those mounted in cardboard. The centering bosses **256** are formed at the intersection of the bottom wall **248** and the partitions **250**, at a point adjacent to the front wall **245**. The centering bosses **256** tend to center the edge which are adjacent slot **251**, when the magazine is in its storage position. However, when in operative position, the centering bosses **256** are effective since there is a small gravitational component which urges the slide against the bosses **256**. Thus, by virtue of this combination of bosses, the particular edge concerned is maintained in desired registry as the tray is rotated by the operator from its storage position up to its operative position. As shown in FIG. 3, the front and rear walls **245**, **246** have a slight taper, and the centering bosses **255** are also tapered, with the result that a slide may be easily dropped into its compartment and its lower edge will become centered.

The slide projector includes a tilted tunnel assembly **140** in which the magazine **56** is slidably mounted and maintained in the tilted position shown in FIG. 5. The slide S is displaced from its magazine position into the projecting position shown by an injector arm **124** and returned by the ejector arm **126**. The injector arm **124** when extended projects through the slot **251** of the magazine into one of the compartments; when retracted it completely clears the magazine.

The tunnel assembly **140** includes an index pinion assembly **143** which is rotatably mounted thereon. The index pinion assembly, as shown in FIG. 5 comprises a shaft **145**, and an index pinion **146** secured thereto at its lower end. As shown in FIG. 6, the rack **150** of magazine **56** is engaged by the index pinion **146** so that the magazine can be advanced forwardly or backwardly by rotation of the shaft **145**, or the whole index assembly **143**. A suitable slide selector knob (not shown) may be connected to the upper end of the shaft **145**, thereby permitting manual advance of the magazine, or it may be advanced by pawl means cooperating with ratchet **147**, so that the slides in successive compartments will be successively brought into registry with the injector arm **124**. Detent means are provided to locate the magazine so that each slide will register with the injector and ejector arms **124** and **126**. The detent means, shown in FIG. 6, include a detent lever **162** pivotally mounted on the tunnel assembly **140**, the forward end of which carries a wheel **163** which cooperates with the teeth of the index pinion **146**. A suitable spring (not shown) biases the wheel **163** against the pinion **143**.

Since the detent means **162**, **163** engages the index pinion **146**, instead of the rack **150** directly, the magazine **56** will not be jarred by the operation of the detent means. Therefore, the slides S will not be displaced to the left, as viewed in FIG. 5, out of engagement with the bosses **255**.

Thus, the detent means **162**, **163** and the bosses **255** and **256** cooperate to maintain each slide centered with

respect to the slide displacing mechanism, 124, and the arrangement is such that the operation of one does not render the other ineffective.

Furthermore, by providing bosses which engage two different edges of the slide, in combination with the tilted orientation the whole plane of the slide may be maintained in a centered position in its compartment.

Although preferred embodiments of the present invention have been described herein, it will be understood that various modifications and changes may be made in the construction shown without departing from the scope of the invention as pointed out in the appended claims.

We claim:

1. A magazine for a slide projector comprising a tray having a bottom wall, side walls, and end walls, transverse partitions located within said tray to divide the interior of the same into separate slide containing compartments, a first set of locating bosses formed at the intersection of said transverse partitions and one side wall, and a second set of locating bosses formed at the intersection of said partitions and said bottom wall, whereby, when said magazine is oriented in a tilted position about a longitudinal axis, said bosses will cause a slide, located within one of said compartments to become centered in said compartment.

2. A magazine for a slide projector comprising a tray having a bottom wall, first and second side walls, and end walls, transverse partitions located within said tray to divide the interior of the same into separate slide containing compartments, a slot formed in said bottom wall, a first set of locating bosses formed at the intersection of said transverse partitions and said first side wall, and a second set of locating bosses formed at the intersection of said partitions and said bottom wall, said first and second set of bosses, respectively, being located at opposite sides of said slot so that the edge of a slide adjacent said slot will be maintained in a centered position, whereby, when said magazine is oriented in a tilted position about a longitudinal axis, with said first side wall being disposed downwardly, and said bottom wall inclined upwardly, said slide will rest against both sets of bosses with a different edge engaged by each set of bosses so that the plane of the slide will be centered in its compartment.

3. A slide projector comprising means providing an optical axis, magazine locating means spaced from said axis, a magazine slidably mounted in said locating means and maintained by said locating means in a tilted position, said magazine being provided with a bottom wall, side walls, and end walls, said bottom wall being provided with a longitudinally extending slot, and the interior of said magazine being provided with partitions to divide said

interior into a plurality of slide containing compartments, slide displacing means comprising a member having a slide engaging portion, means for mounting said member so that said slide engaging portion can be extended into said slot and through one of said compartments so as to displace a slide from said compartment into said optical axis, slide centering means located in said compartment along the lower side wall and said bottom wall to maintain a slide in registry with the end of said slide engaging portion, and means including an index pinion and a detent cooperating therewith for advancing said magazine within said locating means to bring the slides contained in successive compartments into registry with the end of said slide engaging portion.

4. A slide projector comprising means providing an optical axis, magazine locating means spaced from said axis, a magazine slidably mounted in said locating means, and maintained by said locating means in a tilted position as contrasted with an upright storage position, said magazine, when oriented in said storage position being provided with a bottom wall, first and second side walls, and end walls, said bottom wall being provided with a longitudinally extending slot, and the interior of said magazine being provided with transverse partitions to divide said interior into a plurality of slide containing compartments, slide displacing means comprising a member having a slide engaging portion, means for operating said member so that said slide engaging portion extends into said slot and through one of said compartments so as to displace a slide from said compartment into said optical axis, a first set of locating bosses formed at the intersection of said transverse partitions and said first side wall, and a second set of locating bosses formed at the intersection of said partitions and said bottom wall at a point adjacent said second side wall, whereby, when said magazine is oriented in said tilted position about a longitudinal axis, with said first side wall being disposed downwardly, said bosses will cause a slide, located within one of said compartments, to become centered in said compartment so that the edge of said slide adjacent said slot will be maintained in registry with the end of said slide engaging portion, and means for advancing said magazine within said locating means to bring the slides contained in successive compartments into registry with the end of said slide engaging portion.

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