

P. B. DEUTSCHMAN & A. J. KRUSE.
 PICTURE PROJECTING APPARATUS.
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963,876.

Patented July 12, 1910.

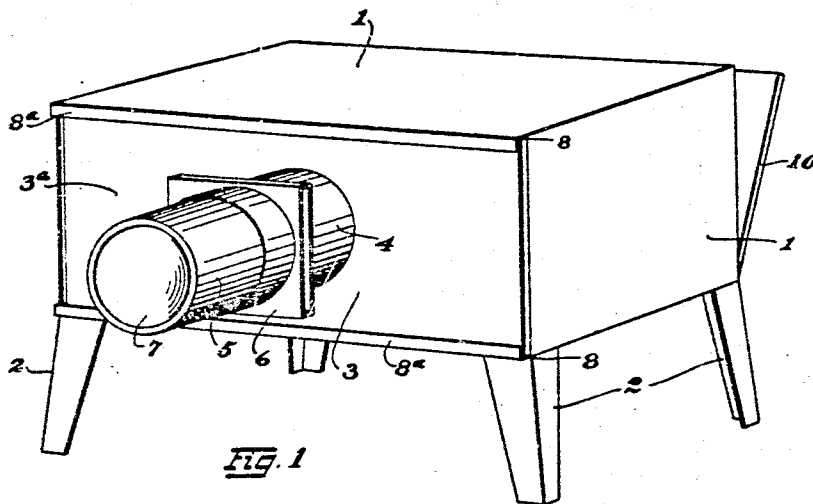


FIG. 1

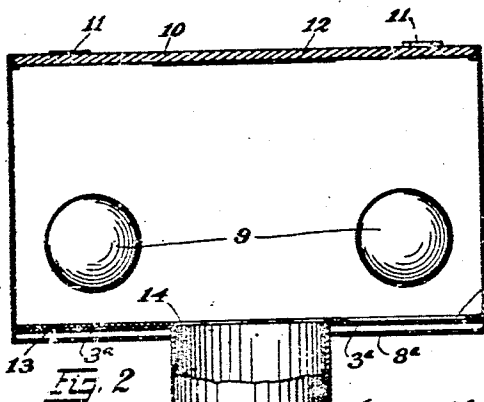


FIG. 2

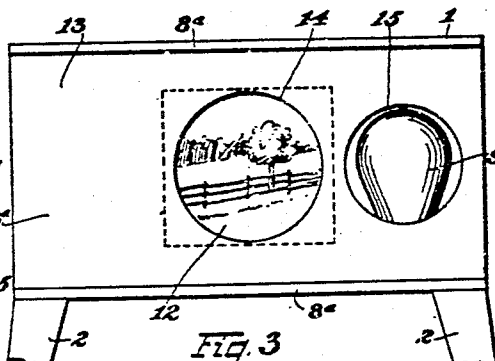


FIG. 3

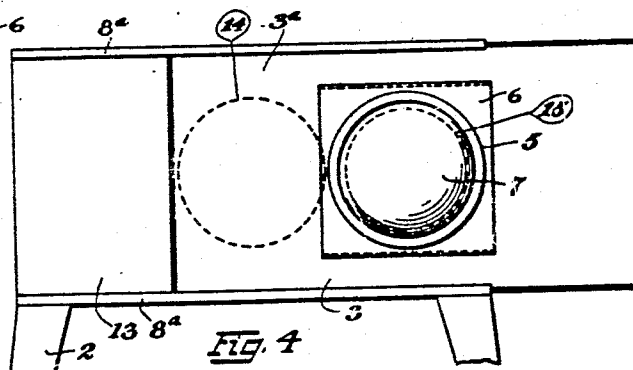


FIG. 4

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UNITED STATES PATENT OFFICE.

PAUL R. DEUTSCHMAN AND ALFRED J. KRUSE, OF CLEVELAND, OHIO.

PICTURE-PROJECTING APPARATUS.

963,876.

Specification of Letters Patent. Patented July 12, 1910.

Application filed September 18, 1909. Serial No. 518,399.

To all whom it may concern:

Be it known that we, PAUL R. DEUTSCHMAN and ALFRED J. KRUSE, citizens of the United States, residing at Cleveland, in the county of Cuyahoga and State of Ohio, have invented certain new and useful Improvements in Picture-Projecting Apparatus, of which the following is a specification.

Our invention relates to improvements in picture-projecting apparatus, the primary or paramount object of the invention being to provide a generally improved device of this class of simple, cheap, and efficient construction, adapted to be employed both for projection from transparent material,—such for instance, as lantern-slides,—and for the projection of images from opaque material,—such as postal cards, photographs, lithographs, drawings, maps, and the like, in their true form and color.

With the above mentioned objects in view, the invention consists in the novel construction, arrangement, and combination of parts, hereinafter described, illustrated in one of its embodiments in the accompanying drawings, and particularly pointed out in the appended claims.

Referring to the drawings, forming a part of this specification, Figure 1, is a perspective view of the improved projecting apparatus the parts being arranged in their opaque-object projecting position. Fig. 2, a horizontal cross-sectional view of the same. Fig. 3, a front elevation with the projecting tube carrying slide removed. Fig. 4, a front elevation of the same with the projecting tube carrying slide in its lantern-slide or transparent material projecting position.

Similar numerals of reference designate like parts throughout all the figures of the drawings.

The improved optical projecting apparatus comprises a casing 1, in the present instance, of rectangular form, and supported at its corners upon supporting legs 2. The casing 1, is provided at its front with a horizontally movable slide 3, carrying a projecting tube 4, and a lens-tube 5, slidably adjusted therein. The projecting tube 4, is provided with the usual slide carrier 6, for receiving the usual transparent optical slide, and the lens-tube 5, is provided with the usual objective-lens 7. The slide 3, is slidably mounted at the front of the casing and, in the present instance, extends the entire width of the front wall thereof and is slid-

ably mounted in recess guide-ways 8, formed by guide-flanges 8^a, at the front of the top and bottom walls of the casing.

The source of illumination, in the present embodiment of the invention comprises the illuminating lamps 9, in the present instance, in the form of incandescent bulbs, said illuminating lamps or bulbs 9, being mounted in the front portion of the casing and on each side of the projecting tube when the latter is in its opaque-object projecting position as shown most clearly in Fig. 2, of the drawings. The opaque-material holder 10, is mounted at the rear of the casing, and in the present instance, is hingedly secured thereto by means of hinges 11. The opaque-material 12, is suitably mounted and carried on the front side of the holder 10, directly at the rear of the projecting tube 4, and to the rear of and intermediate the sources of illumination or lamps 9. When the parts are in this position, the rays of light will be received upon the front or face side of the opaque material or postal card 12, and the image will be projected at right angles thereto and through the projecting tube and lens and enlarged and thrown upon the screen or wall in true form and color.

When it is desired to use the projecting apparatus as a lantern-slide projector, the slide 3, is moved to one side so that the projecting tube and objective-lens are brought directly in front of one of the lamps 9, in which position a transparent slide may be inserted in the slide-carrier 6, in the usual manner for magic lantern projection as shown in Fig. 4, of the drawings. If desired, the front portion of the casing may be provided with a front wall 13, provided with a central opening 14, and a side opening 15, directly in front of one of the lamps 9, as shown, the slide 3, when moved to its opaque-object projecting position bringing the projecting tube directly in front of and in registry with the central opening 14, as shown. When the slide is moved to its lantern-slide projecting position as shown in Fig. 4, of the drawings, the projecting tube 4, is brought in a position to register with the side opening 15, and the side 3^a, of the slide closes the central opening 14, as shown.

From the foregoing description, taken in connection with the accompanying drawings, the operation and advantages of our invention will be readily understood.

Having thus described the invention, what we claim and desire to secure by Letters Patent is,—

1. In an optical projecting apparatus, a casing provided with a source of illumination, and a slide carrying an optical projecting tube adapted to be shifted from a lantern-slide projecting position to an opaque-object projecting position with respect to said source of illumination.
2. In an optical projecting apparatus, a casing provided with a source of illumination at its front and a material holder for opaque material at its rear, and a slide carrying an optical projecting tube adapted to be shifted either to an opaque-object projecting position, or a lantern-slide projecting position with respect to said source of illumination and opaque material.
3. An optical projecting apparatus, comprising a casing provided with a slide carrying a projecting tube and lens, a source of illumination at the rear of said slide and on each side of said projecting tube when the latter is in its opaque-object projecting position, and an opaque material holder at the rear of said projecting tube and source of illumination and adapted to project the image through said projecting tube and lens.
4. An optical projecting apparatus, comprising a casing, illuminating lamps within the front portion of said casing, a slide carrying a picture projecting tube intermediate

said lamps when in its opaque-object projecting position, and an opaque material holder at the rear of and adapted to project the image through said projecting tube, said slide and projecting tube being adapted to be shifted whereby said projecting tube may be brought in front of one of said lamps for lantern-slide projection.

5. An optical projecting apparatus, comprising a casing, a horizontally movable slide provided with a projecting tube and lens normally carried at the center of the front portion of said casing, a source of illumination at the rear of said slide and at each side of said projecting tube and lens, and a holder for carrying opaque image bearing material at the rear of said projecting tube and lens and adapted to receive the rays of light upon the face of said material and project the image of the latter through said tube and lens, said slide being adapted to be shifted laterally to bring said projecting tube and lens directly in front of a source of illumination whereby said reflected rays of light are cut off and a lantern-slide projector is provided.

In testimony whereof we have affixed our signatures, in presence of two witnesses.

PAUL R. DEUTSCHMAN.
ALFRED J. KRUSE.

Witnesses:

O. C. BILLMAN,
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