July 10, 1934. C. D. CHASE 1,965,687

PROJECTING APPARATUS

Filed Nov. 23, 1931

Fig. 1

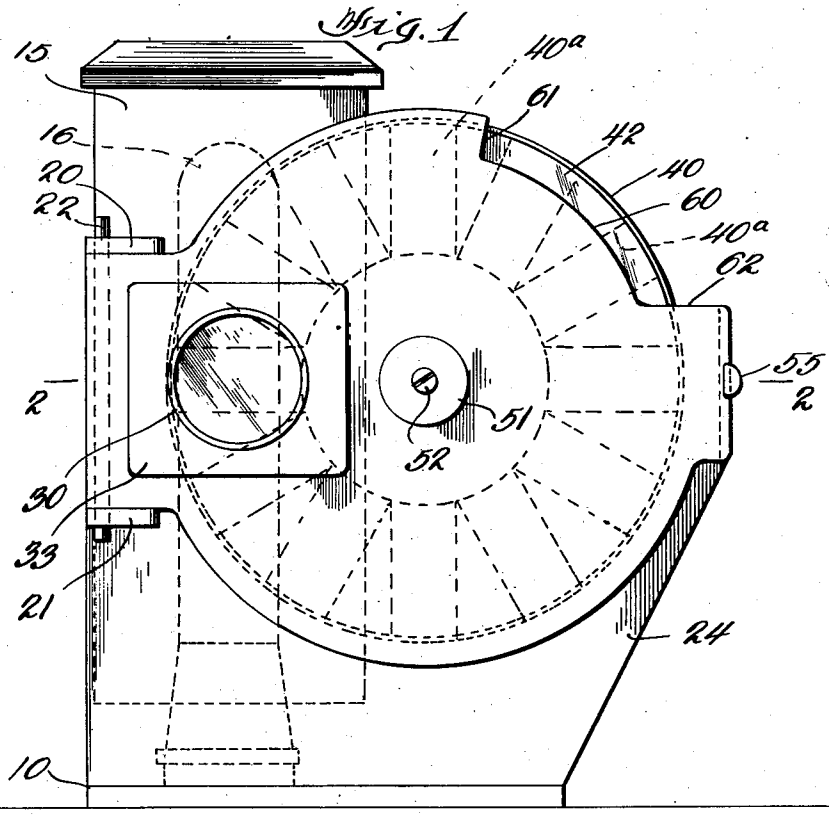
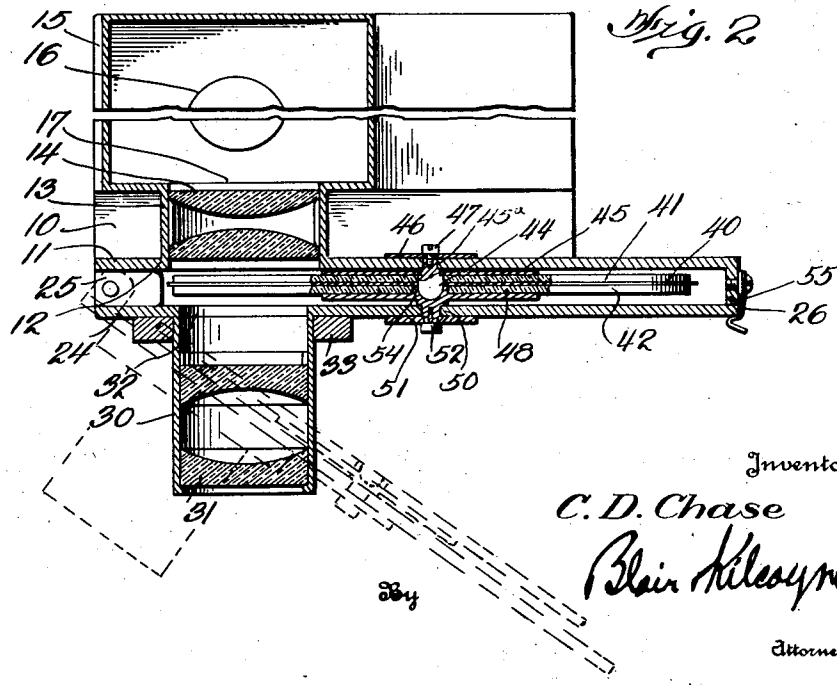


Fig. 2



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PROJECTING APPARATUS

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17 Claims. (Cl. 88—27)

This invention relates to projecting apparatus for projecting pictures or views arranged on a rotary carrier of the general character described in my copending application, Serial No. 545,344, filed June 18, 1931. In the aforesaid application, there is disclosed projecting apparatus for projecting still pictures or views arranged on a suitable carrier, such as a disc film or transparency, with means for mounting the disc film to intersect the line of light from a light source, and in which means are also provided for determining the amount of movement of the disc film or carrier necessary to bring the next adjacent view into proper position for projection.

The present invention has for one of its objects the provision of projecting apparatus of the character above set forth characterized by an improved and novel disc film or carrier mounting. A further object is to provide in projecting apparatus a mounting for a disc film by which the film, during projection and rotation, is restrained against flexing or bending, thus to eliminate distortion of the projected view. A further object is to provide an improved disc film mounting by which the film may be inserted in projecting relation and removed therefrom with readiness and facility. A further object is to provide simple, durable, and efficient projecting apparatus for use with rotary carriers for picture views.

Other objects will be in part obvious from the annexed drawing and in part hereinafter indicated in connection therewith by the following analysis of this invention.

In the drawing—

Fig. 1 is a front elevation of my improved projecting apparatus; and

Fig. 2 is a partial section along line 2—2 of Fig. 1.

Referring now to the drawing, reference character 10 designates a base plate to which is rigidly secured an upright 11 provided intermediate its top and bottom with a light opening 12. A condenser tube 13 carrying condensing lens 14 is secured by suitable securing means to said upright 11 and about the light opening 12 therein. One end of said condenser tube 13 carries a lamp housing 15 having arranged therein a lamp 16 or equivalent source of light, it being understood that said lamp housing 16 is provided with a light opening 17 through which light from the lamp 16 passes through the condensing lens 14. The lamp 16 may be connected by suitable leads (not shown) to any source of current, such as a house socket or the like.

The said upright 11 extends transversely of the base plate 10 and carries spaced hinge leaves 20, 21 which extend horizontally therefrom. A pivot pin 22 extends through said leaves 20, 21 and forms a fulcrum for a panel or upright 24 provided with leaves 25 which engage with the said leaves 20, 21 and through which the pivot pin 22 passes. Panel 24 is thus arranged in spaced parallelism with upright 11 in its normal position, the other side edge of said upright 11 being provided with a flange 26 against which panel 24 may engage.

Carried by said panel 24 is a lens tube 30 provided conventional lens 31, the said tube being arranged coaxially with the condenser tube 13. By means of aperture 32 in the panel 24, light from said light source passes through said condenser and lens tubes 13, 30, respectively. The lens tube 30 is preferably secured to a lens block 33 which in turn is secured by desired means to the panel 24.

Spaced horizontally from the axis of the condenser and lens tubes, I provide a mounting for a rotary disc film, generally designated at 40 and carrying a plurality of picture views 40*a* to be projected. Said mounting includes two transparent plates 41, 42, both preferably circular and of glass, of which the plate 41 is carried by upright 11 and the plate 42 is carried by panel 24, the disc film 40 being adapted to be frictionally held and gripped compressably between said plates when the panel 24 is moved to its closed position shown in Fig. 2.

Said glass plates are mounted so as to be freely rotatable, and their mountings are generally described as follows. The glass plate 41 is provided with a central aperture through which extends a projecting stud 44 which carries a large washer 45 to which the glass plate 41 may be secured, preferably by cementing. The stud 44 has a reduced end 45*a* which extends through a suitable aperture in upright 11, and an outer washer 46 is secured thereto by means of a screw 47 engaging in a threaded bore in the reduced portion 45*a*. Thus the plate 41 may freely rotate about the fixed axis of the stud 44.

The plate 42 is similarly secured as by means of cementing or the like to a large washer 48 having a reduced portion 50 passing through panel 24 and held thereon by an outer washer 51 maintained in securing relation by screw 52. The central portion of the washer 48 is recessed as at 54 to provide a seat for the stud 44 forming part of the mounting of the glass plate 41.

By reference to Fig. 2, it will be seen that when the panel 24 is swung to its open, dotted-line

position the disc film 40, which is provided with a usual centering hole, may be centered upon stud 44, in which position it will flatly contact glass plate 41. To complete the mounting step, the panel 24 is moved to its closed position shown in Fig. 2, whereupon plate 42 engages the other surface of the film disc as permitted by the seating of stud 44 in the recess 54, with sufficient compression as to frictionally hold the film disc flat. The free mounting of the plates 41, 42 permits the free rotation of the film disc, together with said glass plates, by manual or other means, the diameter of the plates being preferably slightly less than that of the disc.

The flange 26 of upright 11 may carry a latch 55 or equivalent securing means, which frictionally holds the upright and panel 24 in closed relation. To dismount the film 40, it is only necessary to unlatch the holding member 55 and swing the panel 24 and associated parts about its pivot 22 and away from the upright 11, whereupon the film 40 may, with facility, be removed from the centering stud 44.

In order to provide simple means of turning, during projection, the disc film about its center (stud 44) in order to bring a next view into the line of light from the light source, I may cut away the panel 24 and upright 11 in such manner that an arcuate portion of the film 40 is exposed therethrough. By reference to Fig. 1, upright 11 and panel 24 are cut along an arc 60 of lesser radius than that of the film 40 and plates 41, 42, with the said arcuate portion 60 terminating in abrupt finger stops 61, 62. The stops 61, 62 are so arranged that movement of the film throughout the arc as defined by the arcuate portion 60 brings into position the next succeeding view carried on the disc film 40, with the finger stop 61 defining the portion of the film to be gripped initially and the stop 62 engaging the fingers when the disc has been sufficiently rotated.

Without further analysis the foregoing will so fully reveal the gist of this invention that others can be applying current knowledge readily adapt it for various applications without omitting certain features that, from the standpoint of the prior art, fairly constitute essential characteristics of the generic or specific aspects of this invention, and therefore such adaptations should and are intended to be comprehended within the meaning and range of equivalency of the following claims.

I claim:

1. In apparatus of the character described, the combination of a light source, lens mechanisms associated therewith adapted to project a line of light from the light source, a rotatable disc film operatively arranged to intersect the aforesaid line of light, a mounting comprising a centering stud on which the film is arranged, an element rotatable on the axis of said stud, and a second rotating element movable to position in which it may rotate on said axis, said elements being adapted to hold the film therebetween.

2. In apparatus of the character described, the combination of an upright member, condensing mechanism and a light source operatively positioned on one side thereof, a panel member flexibly connected to the other side of the upright member, a lens mechanism carried by said panel member, a disc film, and complementary means carried by said members and operative to frictionally engage both faces of the disc film thereby to provide a mounting therefor.

3. In apparatus of the character described, the combination of an upright member, condensing mechanism and a light source operatively related at one side thereof, a panel member flexibly connected to the other side of the upright member, a lens mechanism carried by said panel member, the panel member having a normal position in which the condensing and lens mechanisms are coaxially arranged, a disc film, and complemental means carried by said members forming a mounting for said disc film and holding said film firmly against flexure therebetween when in operative position.

4. In apparatus of the character described, the combination of an upright member, condensing mechanism and a light source operatively related at one side thereof, a panel member flexibly connected to the other side of the upright member, a lens mechanism carried by said panel member, a disc film, and complemental means carried by said members and forming a mounting for said disc film, said means having separable centering devices cooperating with the center of the film and being operative to compress the film therebetween throughout substantially its operative area.

5. In apparatus of the character described, the combination of an upright member, condensing mechanism and a light source operatively related at one side thereof, a panel member flexibly connected to the other side of the upright member and relatively movable away from said first member, a lens mechanism carried by said panel member, the panel member having a normal position in which the condensing and lens mechanisms are coaxially arranged, a disc film, and complementary means for said film carried by said members.

6. In apparatus of the character described, the combination of an upright member, condensing mechanism and a light source operatively related at one side thereof, a panel member flexibly connected to the other side of the upright member, a lens mechanism carried by said panel member, a transparent plate carried by each of said members, one of said plates having a centering stud, and a disc film adapted to be arranged on said stud, said plates being operative to frictionally engage the film.

7. In apparatus of the character described, the combination of an upright member, condensing mechanism and a light source operatively related at one side thereof, a panel member flexibly connected to the other side of the upright member, a lens mechanism carried by said panel member, the panel member having a normal position in which the lens and condensing mechanisms are coaxially arranged, a disc film, a transparent plate carried by each of said members, one of said plates having a centering stud, a disc film adapted to be arranged on said stud, and said plates holding the disc film therebetween when the panel member is moved to its aforesaid normal position.

8. In apparatus of the character described, the combination of an upright member, a condensing mechanism and a light source operatively related at one side thereof, a panel member flexibly connected to the other side of said upright member and movable relatively away from said first member, a lens mechanism carried by said panel member, a disc film removably mounted between said members and operative to intersect the line of light from the light source through the condensing and lens mechanisms, complemental means carried by said members and providing a separable mounting for said film, said members

having a cut-out portion giving access to the film thereby to rotate it relatively to the line of light.

9. In apparatus of the character described, the combination of an upright member, a condensing mechanism and a light source operatively related at one side thereof, a panel member flexibly connected to the other side of said upright member and movable relatively away from said first member, a lens mechanism carried by said panel member, a disc film arranged between said members and operative to intersect the line of light from the light source through the condensing and lens mechanisms, complemental means carried by said members and providing a separable mounting for said film, said members being cut away along an arc of predetermined length to provide access to the film thereby to rotate it relatively to the line of light.

10. In apparatus of the character described, the combination of an upright member, a condensing mechanism and a light source operatively related at one side thereof, a panel member flexibly connected to the other side of said upright member and movable relatively away from said first member, a lens mechanism carried by said panel member, a disc film arranged between said members and operative to intersect the line of light from the light source through the condensing and lens mechanism, complemental means carried by said members and providing a separable mounting for said film, said members being cut away along an arc of predetermined length whereby to allow access to the film thereby to rotate it relatively to the line of light, said arc terminating in finger stops.

11. In projecting apparatus including a source of light, a rotatable disc film operatively arranged to intersect the line of light, and complementary means engaging both sides of said film throughout substantially its operative area whereby to maintain said film against flexure, said means being relatively movable whereby to permit ready removal of the film.

12. In projecting apparatus, including a source of light, a rotatable disc film operatively arranged to intersect the line of light, and complementary, relatively movable means frictionally engaging both sides of said film thereby to maintain the same against flexure.

13. In projecting apparatus including a source of light, a rotatable disc film operatively arranged to intersect the line of light, and two transparent relatively movable means rotatable with said film and engaging both sides of the same to maintain the film against flexure and permit ready insertion and removal of the film.

14. In projecting apparatus including a source of light, a rotatable disc film operatively arranged to intersect the line of light, and two relatively movable means frictionally engaging opposite faces of the film whereby to maintain the film against flexure, said means having cooperating centers to engage also with the center of the disc film.

15. In projecting apparatus including a source of light, a rotatable disc film operatively arranged to intersect the line of light, and transparent means engaging said film substantially throughout its operative area whereby to maintain the film against flexure, said means including two relatively movable parts having cooperating centers for engaging with the center of the film and permit ready insertion and removal thereof.

16. In projecting apparatus including a source of light, a rotatable disc film operatively arranged to intersect the line of light, and two rotatable relatively movable elements operative to compressively engage said film therebetween whereby to maintain the film against flexure.

17. In projecting apparatus including a source of light, a rotatable disc film operatively arranged to intersect the line of light, and a mounting for said film comprising an element rotating on a fixed axis and a second element rotating on a movable axis, said elements being relatively movable toward and from each other and adapted to hold the film therebetween.

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