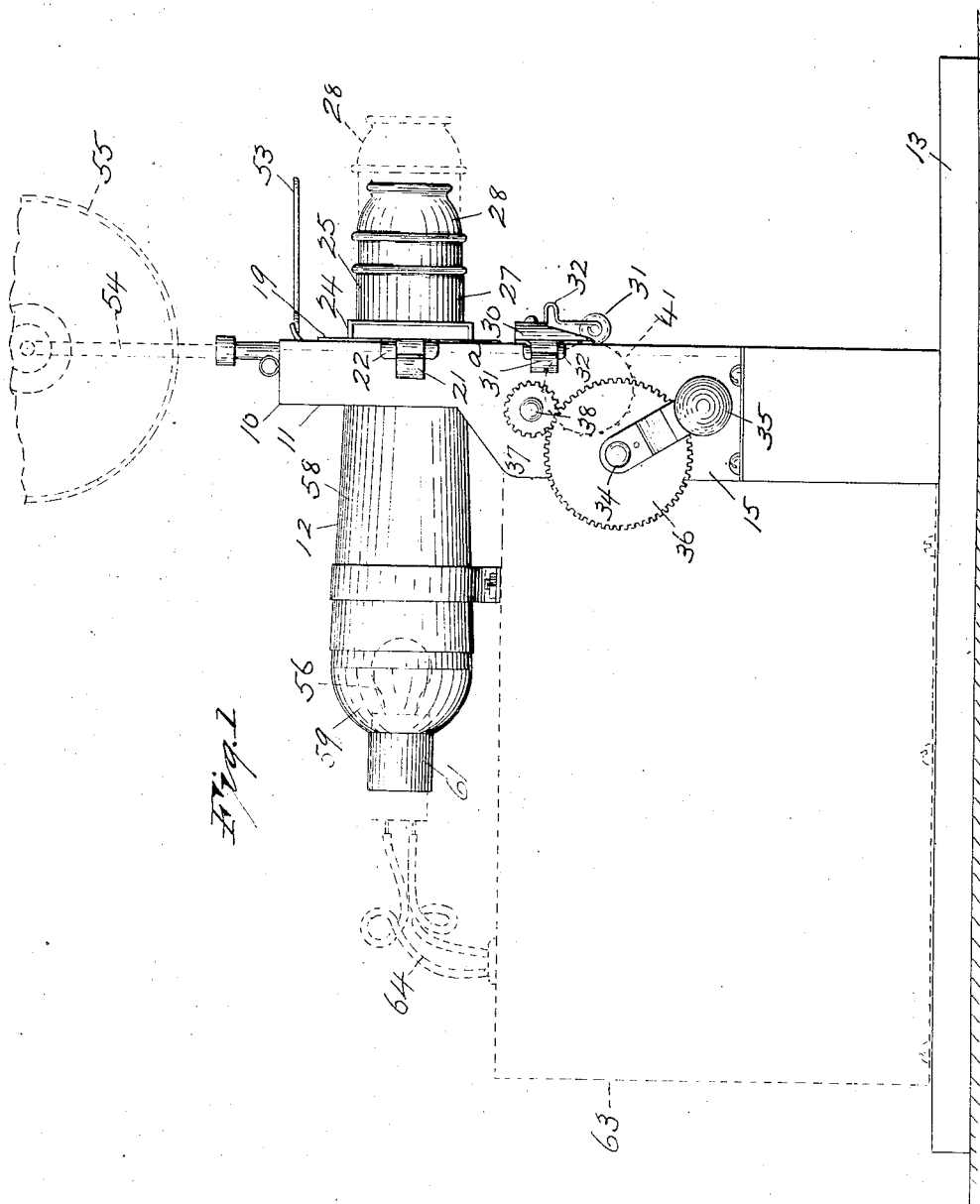


F. E. BALDWIN.
KINETOSCOPE.
APPLICATION FILED OCT. 6, 1911.

1,191,145.

Patented July 18, 1916.
3 SHEETS—SHEET 1.



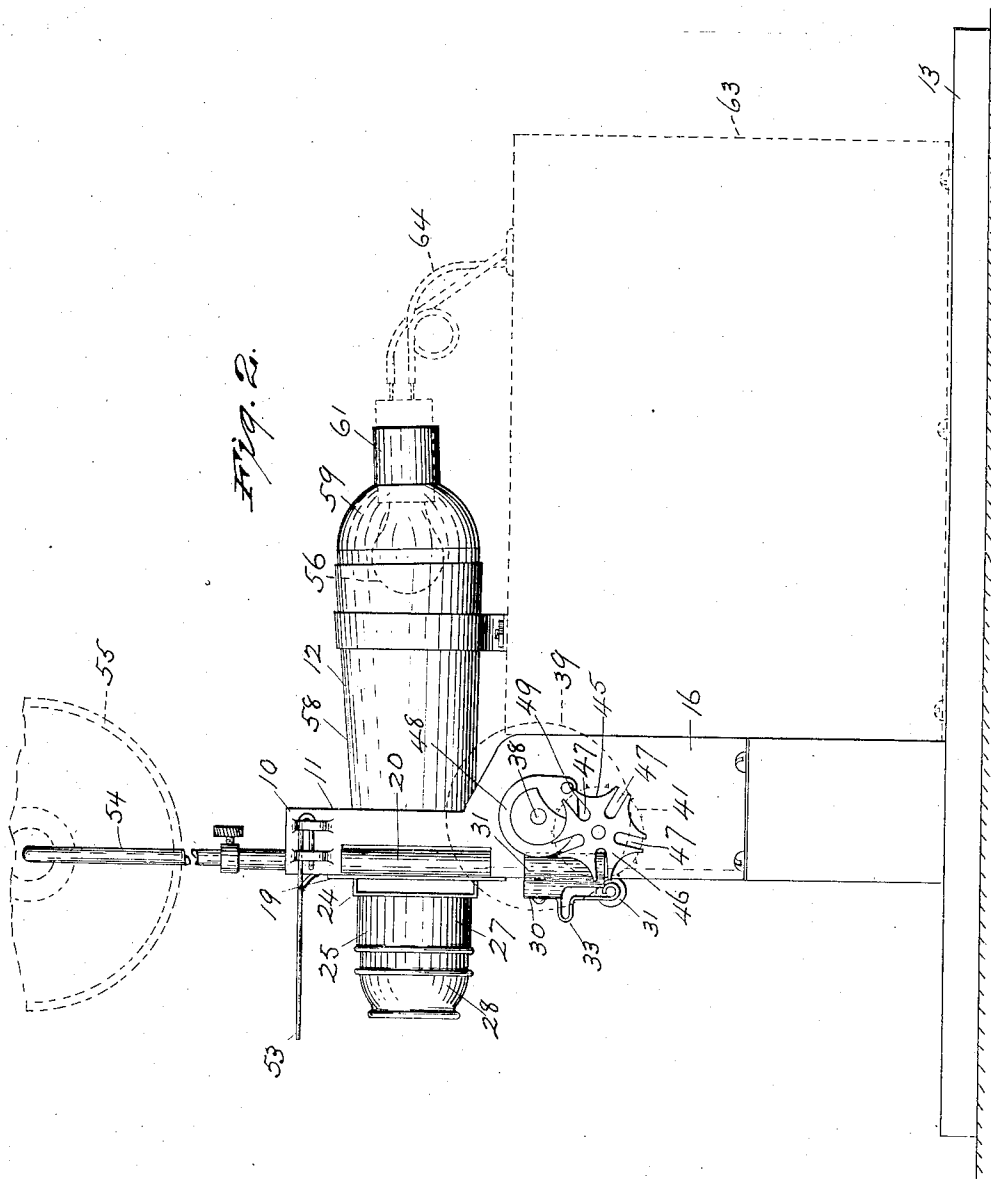
Witnesses:
Charles C. Allen
E. M. Jerke

Inventor
Frederic E. Baldwin
By His Attorney
H. T. Griswell

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3 SHEETS—SHEET 2.



Witnesses:
Charles C. Abbe
E. M. Jerke

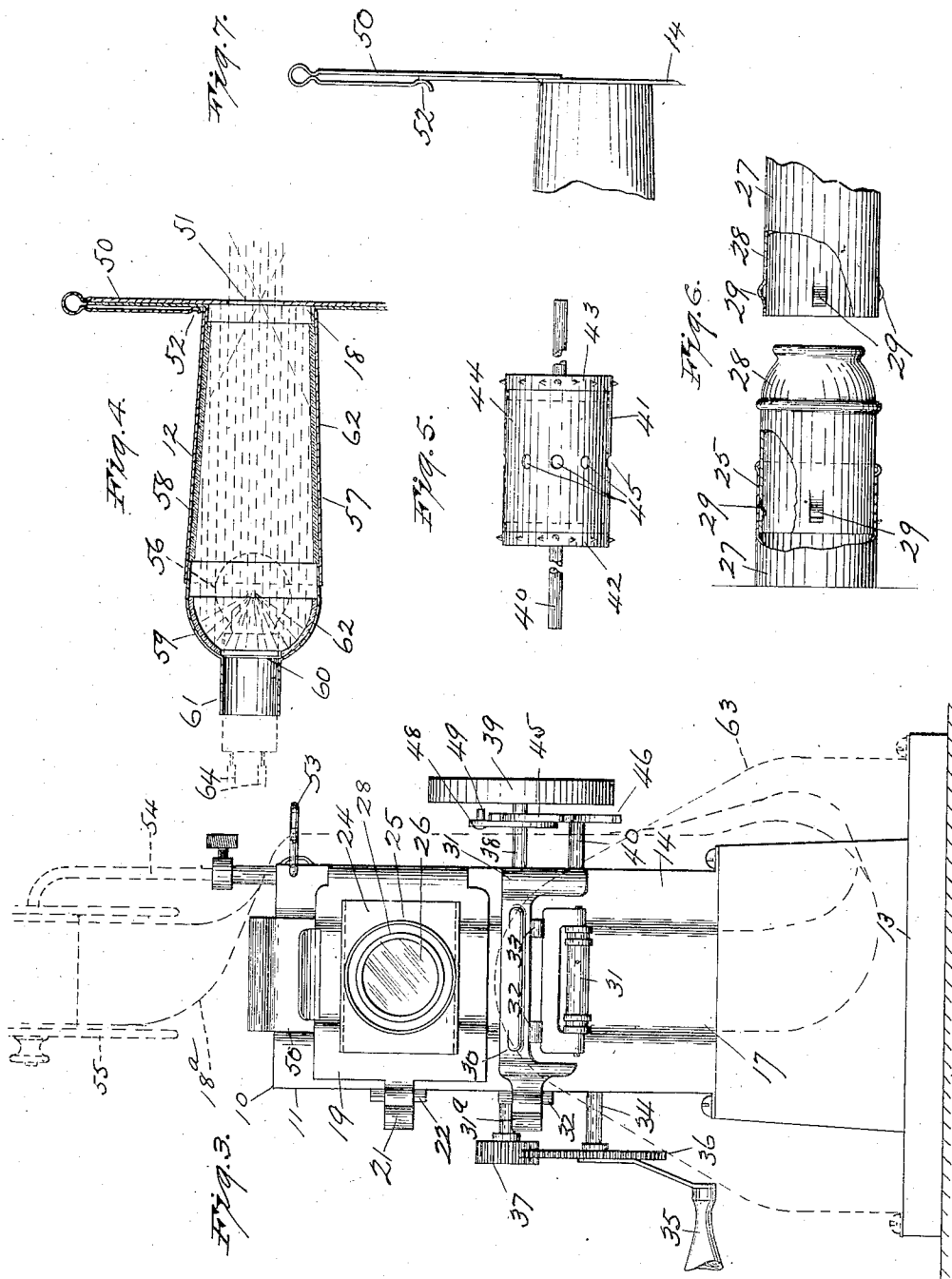
Inventor
Frederic E. Baldwin
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H. J. Russell

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UNITED STATES PATENT OFFICE.

FREDERIC E. BALDWIN, OF NEW YORK, N. Y., ASSIGNOR TO PALMER MOTION PICTURE COMPANY, A CORPORATION OF NEW YORK.

KINETOSCOPE.

1,191,145.

Specification of Letters Patent.

Patented July 18, 1916.

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To all whom it may concern:

Be it known that I, FREDERIC E. BALDWIN, a citizen of the United States, and a resident of New York, county and State of New York, have invented a certain new and useful Improvement in Kinetoscopes, of which the following is a full, clear, and exact specification.

This invention relates more particularly to a class of machines or devices adapted to be used for consecutively projecting a series of pictures produced upon a picture film.

My invention has for its object primarily to provide a simple, inexpensive, and efficient kinetoscope designed to be operated by children as well as adults whereby the pictures produced upon a transparent film may be exhibited in the home for amusement and instruction of the members and friends of a family.

Another object of the invention is to provide a form of kinetoscope in which a light produced from a suitable source of electricity may be employed in conjunction with the machine for projecting the pictures of the film, thus permitting the machine to be used at convenient places and avoid the danger liable to arise from the use of a light produced by ignited acetylene, oil, or other explosive liquids or gases as is incident to a number of forms of kinetoscopes.

A further object of the invention is to provide a form of reflector adapted to intensify the light directed upon the pictures of the film, and which will permit the employment of an electric light of limited candle power for projecting the pictures, thereby enabling the use of dry cell batteries to produce a light if desired, or permitting the machine to be connected to other sources of electric supply.

With these and other objects in view, the invention will be hereinafter more particularly described with reference to the accompanying drawings, which form a part of this specification and will then be pointed out in the claims at the end of the description.

In the drawings, Figure 1 is an elevation of one side of one form of kinetoscope embodying my invention. Fig. 2 is an elevation of the opposite side thereof. Fig. 3 is a front elevation of the kinetoscope. Fig. 4 is a section of a form of reflector employed in the kinetoscope. Fig. 5 is a detail view of a sprocket drum used in the kinetoscope. Fig.

6 is a detail view, partly in section and partly fragmentary, of the telescopic frame of the lens, and Fig. 7 is a side view of a slide used in the kinetoscope.

The kinetoscope 10 has a vertically disposed frame 11 and a reflector 12, which may be supported upon a suitable base-plate, as 13. The frame 11 is composed of a front-plate 14, and side-plates 15 and 16 which are preferably disposed at an angle with respect to said front-plate. In the front surface of the plate 14 is a vertical groove 17, and through the upper part of said plate centrally of the groove is an opening 18, Fig. 4, through which the light from the reflector 12 is directed upon the pictures of a film 18^a as indicated by dotted lines, for projection upon a screen.

A door 19 has one of its edges hinged, as at 20, to one side of the frame 11 so that it may be swung to and fro in front of the opening 18 of the front-plate 14, and to allow said door to be held in locked engagement when closed before the opening upon its opposite edge is a clip or finger 21 which is adapted to engage a catch 22 provided upon the side-plate 15 of the frame. Through the door 19 is an opening which is in register with the opening 18 of the front-plate 14, and upon the peripheral edge of said opening is provided a projecting part 24 in which is held a telescopic frame 25 which carries one or more lenses, as 26. The telescopic frame 25 consists of two tubular members or parts 27 and 28. One end of the part 27 is held rigidly in the projecting part 24, and in its opposite end is slidably held the part 28. By this arrangement the part 28 may be adjusted so as to properly focus the pictures from the film upon a screen, and to firmly hold the tubular part 28 within the part 27 when adjusted adjacent to one end of said part 28 is provided one or a plurality of friction-clips, as 29, which are adapted to engage the inner surface of the tubular part 27.

Adjacent to the lower edge of the door is a gate 30, one edge of which is hinged, at 31, to the frame 11, and upon its opposite edge is a clip or finger 31^a which is adapted to engage a catch 32 provided upon the side-plate 15 so that said gate may be locked before the front-plate 14 similarly to the door 19. The gate 30 is substantially of the form of an inverted U-shaped plate, and between the

arms of the U is a roller 31 which is resiliently held to the gate by two curved springs 32 and 33 which normally serve to force said roller toward the frame 11 and in contact with a sprocket drum, as will be hereinafter more fully described.

In the side plates 15 and 16 of the frame 11 is journaled a drive shaft 34 one end of which extends some distance from the side plate 15, and upon the projecting end of said drive shaft is a crank handle 35 by which the machine is manually operated. In proximity to the crank handle 35 and upon the drive shaft 34 is a large gear wheel 36 which is in mesh with a pinion 37 held upon one end of a second shaft 38 also journaled in the side plates 15 and 16 of the frame. The opposite end of the shaft 38 extends beyond the side plate 16, and upon said end is a drive wheel 39. Journaled in the side plates 15 and 16 and in proximity to the second shaft 38 is a third shaft 40. Upon the third shaft 40 and between the side plates of the frame is a sprocket drum 41 having a portion of its face projecting through an opening in the lower part of the front plate 14 of said frame whereby the roller 31 of the gate 30 may cooperate with said sprocket drum so as to properly feed the picture film through the machine. The sprocket drum 41 has the usual spaced end wheels, as 42 and 43, upon the edge of each of which are provided spaced teeth or téats adapted to engage the apertures of the picture film whereby it is fed through the kinetoscope. Between the end wheels 42 and 43 is a sleeve 44 having its ends secured to the end wheels so as to permit the drum to be made in separate parts and to afford opportunity for lightness of construction, in the center of which are a plurality of spaced openings 45.

As a means to impart an intermittent rotation to the third shaft 40 as well as to the sprocket drum 41 so that the film may be intermittently moved during the consecutive exposures of the pictures, I employ a Geneva movement 45 which is preferably of the usual form consisting of a star wheel 46 having a slot 47 provided in each point thereof. The star wheel 46 is held upon the end of the third shaft 40 which extends some distance beyond the side plate 16 of the frame, and upon the second shaft 38 is a disk 48. The disk 48 is substantially circular in shape and projecting from one of its faces is a pin 49 which is adapted to be guided into each of the slots 47 of the star wheel 46 when the disk is revolved so that said star wheel will be intermittently rotated when the machine is operated.

In the groove 17 of the front plate 14 is a slide 50 in which is a window 51, Fig. 4. The slide 50 is adapted to be adjusted so that the window 51 will normally be in register with the opening 18 of the front plate

14 and in register with the passage through the telescopic frame 25 in order that the pictures of the film may be accurately framed previous to being focused by the lens 26. The slide 50 is held against displacement when in an adjusted position by a flange or spring catch 52 provided upon the upper end thereof, and which is adapted to permit the front plate 14 of the frame to be frictionally gripped between the flange and said slide.

Upon the upper part of the frame 11 is a film guide 53, and upon a rod 54 extending above said frame is a reel 55 which may be of the usual form for winding the picture film thereupon. The picture film 18^a may be in the usual form of a strip of desired length, or its ends may be connected so as to form an endless band. In applying a picture film to the kinetoscope it is trained over the reel 55 and guided in the vertical groove 17 of the front plate 14 after the door 19 and gate 30 have been swung open. The film is then arranged on the sprocket drum 41, and after the door 19 and gate 30 are closed upon the frame 11 the film is disposed through the guide 53 and the machine may be operated by the crank handle 35.

To permit preferably an electric lamp, as indicated by dotted lines at 56, to be used in conjunction with the kinetoscope for projecting the pictures of the film so as to avoid the use of a light produced by ignited acetylene, or other explosive gases or liquids, I provide the light reflector 12. The reflector 12 is composed of a tapered tubular reflector 58 the small end of which is fastened in the opening 18 of the front plate 14 of the frame 11, and upon the opposite end of said tubular reflector is a reflector 59 of a concave or paraboliform shape. The reflectors 58 and 59 may be made integrally, or separately and detachably held together, as illustrated. Centrally of the concave reflector 59 is an opening 60, and upon the exterior surface of said reflector at the opening therein is a short tube or boss 61 adapted to removably hold the plug of an electric lamp. The tapered tubular reflector 58 and the concave reflector 59 may be made of metal having the interior surface thereof plated with highly polished nickel or silver, or mirrored glass may be used instead of the plating, as shown at 62. Obviously by using this form of reflector the rays of light from an electric lamp will be reflected by the concave reflector 59 to the reflector 58 from which said rays will be intensified and deflected through the opening 18 of the front plate 16 and through the window 51 of the slide 50 upon the pictures of a film. Thus an electric lamp of limited candle power, for instance, such as may be produced from dry-cell batteries which may be carried in any suitable form of casing, as 63, may be used, or the wires 64 of the lamp may be

connected to any other source of electric supply.

In the foregoing description I have embodied the preferred form of my invention, but I do not wish to be understood as limiting myself thereto, as I am aware that modifications may be made therein without departing from the principle or sacrificing any of the advantages of this invention, therefore I reserve to myself the right to make such changes as fairly fall within the scope thereof.

Having thus described my invention, I claim as new and desire to secure by Letters Patent:—

1. In a kinetoscope, the combination of a cylindrical member with open ends, and its interior surface serving as a reflector, said member having one of its ends disposed concentrically with the lens and its opposite end projecting in the optical axis therefrom, and a concave member having a cylindrical extension removably inserted telescopically in the cylindrical member, and having a lamp therein, and the interior surface of the concave member serving as a reflector, substantially as and for the purpose set forth.

2. In a kinetoscope of the character described, the combination of a reflector having a lamp therein, comprising a tubular member with two normally open ends, the interior surface thereof serving as a reflector, and a concave member for removably supporting the lamp with a cylindrical extension upon its open end removably inserted telescopically in one of the ends of the tubular member for closing one end so that the rays of the light may be concentrated and projected through the tubular member and from its open end, substantially as and for the purposes stated.

3. In a kinetoscope, the combination of a cylindrical member its interior surface serving as a reflector and having normally open ends, with a concave reflector for closing one end of the cylindrical member having a lamp centrally and removably disposed therein, said concave member having at its perimeter a tubular extension removably inserted telescopically in the end of the tubular member, substantially as and for the purposes set forth.

4. In a kinetoscope, the combination of a

tubular member with an interior surface serving as a reflector and having open ends, a concave member removably closing one end and having an interior surface serving as a reflector and having a cylindrical extension upon its perimeter adapted to be removably inserted telescopically in one of the open ends of the tubular member, and having at its central portion a second cylindrical extension of less diameter than the perimeter, and an electric lamp with a plug removably inserted telescopically within the second cylindrical extension, substantially as and for the purpose stated.

5. In a kinetoscope, the combination with a front plate having an aperture for projection of light and a vertical groove midway between the sides thereof; of a grooved member in front of said opening a door on the front of the plate and provided with an opening to register with said aperture, means to move a film over the opening and including a toothed roller, a gate on the front plate and a spring pressed roller carried thereby and coacting with the toothed roller to receive the film therebetween, means to rotate the toothed roller, a reflector having a suitable source of light behind the plate aperture, and a guide vertically slidable in the groove and adjustably supported therein to rest on the reflector.

6. In a kinetoscope having a front wall with an opening over which a film is adapted to be moved, and a door having an opening; a tube having one end held in the opening of the door, a second tube slidably adjustable in the first tube and carrying a lens, a slide movably held in the front wall and having an opening, said slide having a spring flange adapted to support the slide to the front wall, a substantially cylindrical member having open ends and an interior reflecting surface, said member being adapted to support said slide through the medium of said flange, a concave member slidably fitted on said aforesaid member and having an interior reflecting surface, and a source of light in the end of said concave member.

This specification signed and witnessed this fifth day of October, A. D. 1911.

FREDERIC E. BALDWIN.

Witnesses:

ROBT. B. ABBOTT,
E. M. JERKE.