

R. H. WALLER.
 PICTURE PROJECTING APPARATUS.
 APPLICATION FILED MAR. 17, 1915.

Patented July 4, 1916.
 2 SHEETS—SHEET 1.

1,189,758.

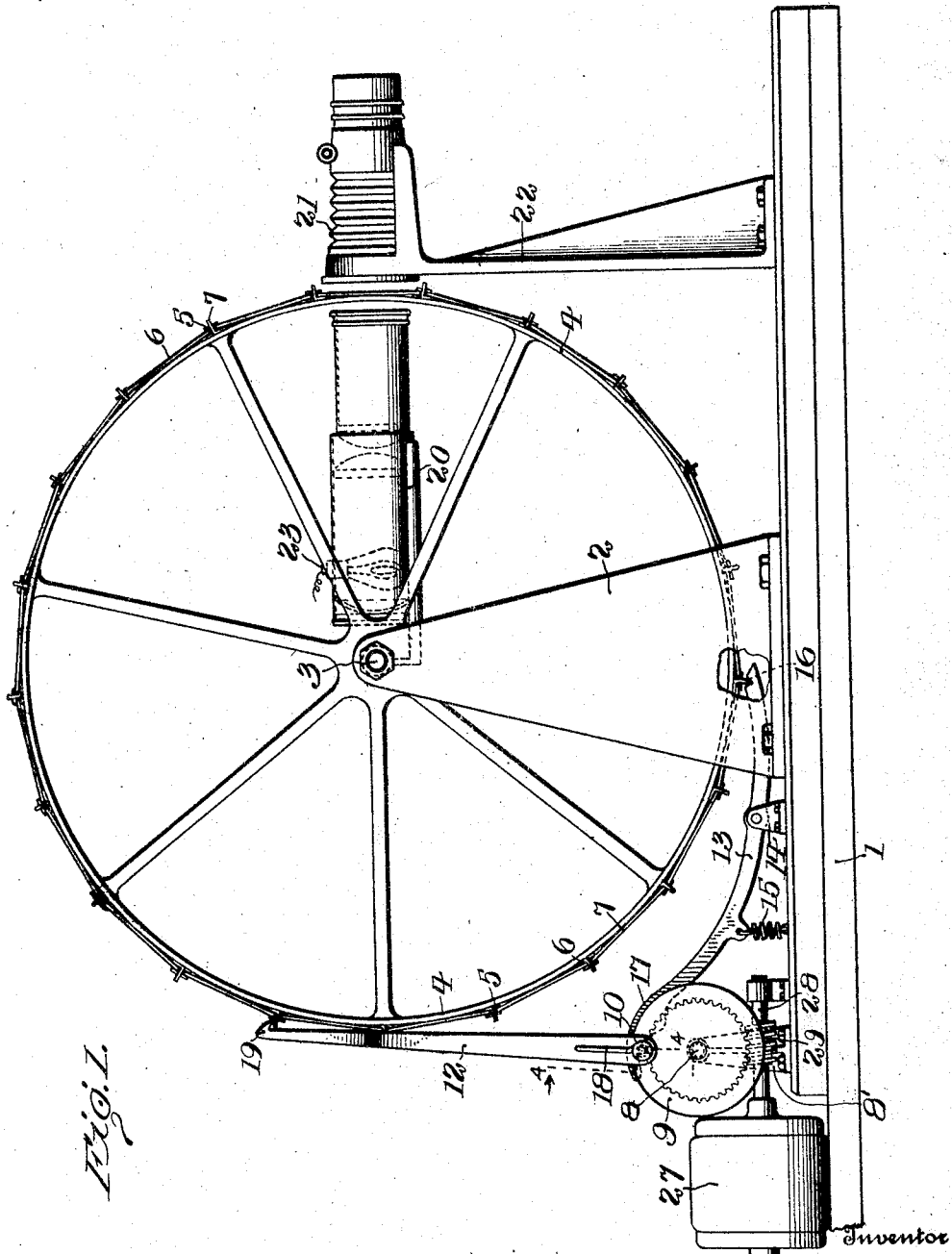


Fig. 1.

Witnesses

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Fig. 2.

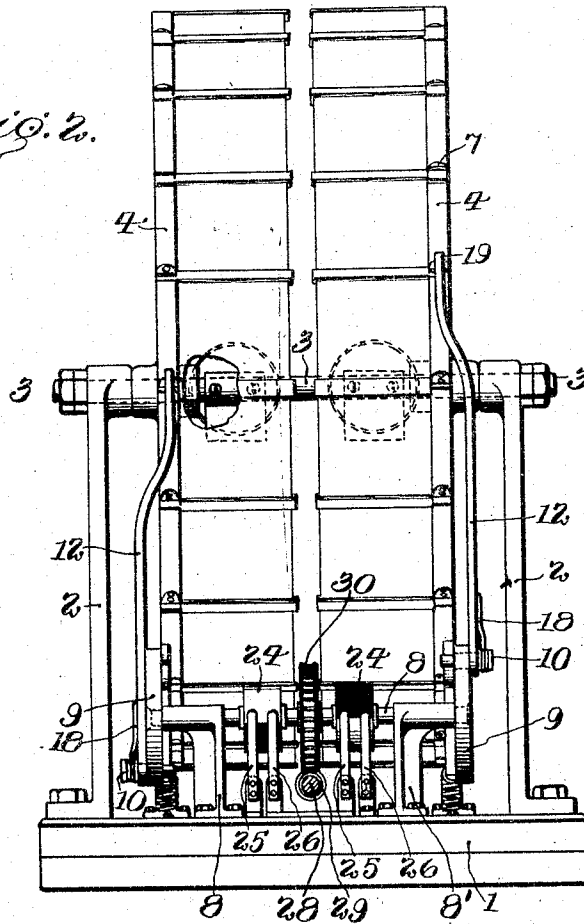
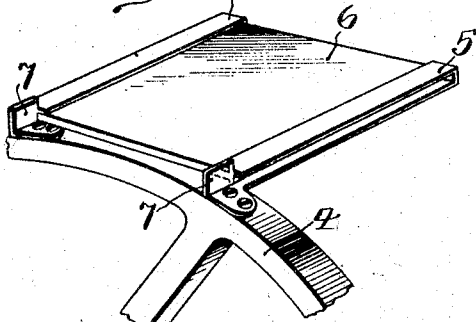


Fig. 3.



Witnesses

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Fig. 5.

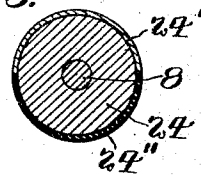
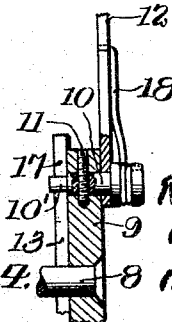


Fig. 4.

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ROBERT HENRY WALLER, OF NASHVILLE, TENNESSEE.

PICTURE-PROJECTING APPARATUS.

1,189,758.

Specification of Letters Patent.

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To all whom it may concern:

Be it known that I, ROBERT HENRY WALLER, a citizen of the United States, residing at Nashville, Davidson county, and State of Tennessee, have invented and discovered certain new and useful Improvements in Picture-Projecting Apparatus, of which the following is a specification.

The invention has for its object the automatic control and actuation of a slide carrier relative to a projector, and the control of the projector coöperatively with the actuation of the slide carrier for successively projecting images from slides sustained by the carrier without projecting any portions thereof during movement of the carrier.

With these and further objects in view, as will in part hereinafter become apparent and in part be stated, the invention comprises certain novel construction, combination and arrangement of parts, as will be subsequently specified and thereafter pointed out in the claims.

In the accompanying drawing, Figure 1 is a view in side elevation of an apparatus embodying the features of the invention, Fig. 2 an edge view thereof. Fig. 3 a fragmentary perspective view, on an enlarged scale, of one of the slide holders and contiguous parts, Fig. 4 a fragmentary enlarged sectional perspective, the section being taken on the line 4-4 of Fig. 1, and Fig. 5 a transverse axial section through one of the commutators.

Referring to the drawing by numerals, 1 indicates the base, from which upstand side frames 2, 2, the upper ends of which are rigidly connected by a shaft 3. A carrier wheel 4 is journaled on shaft 3 adjacent to each bracket 2, and since the two carrier wheels and their coöperative parts are duplicates of each other, one will be described in detail and the description and reference numerals will apply equally to the other. Each wheel 4 is provided with axially extending brackets 5, 5, fixed to the periphery of the wheel, each bracket being formed at each side with a longitudinal groove so that the facing edges of any two brackets 5 provide a retainer for a slide 6 at the inner end, that is, the end engaging wheel 4. Each bracket 5 is formed with a radially extending plate or tab 7 adapted to be engaged by an actuator hereinafter described. Brackets 8', 8' are fixed to the base and upstand therefrom, and each is formed with a hori-

zontally disposed sleeve at its upper end. A shaft 8 is journaled in the sleeves of bracket 8', the shaft 8 carrying at each end an operating disk 9. Each disk 9 is provided with a wrist-pin 10 retained in place by a lock-screw 11, the pin projecting at one side of the disk and being engaged by a carrier actuating pawl 12, and extending at the other side of the disk to serve as a camming-pin 10' for a locking lever 13. The lever 13 is pivoted in the bracket 14 fixed to the base 1, and is pressed by spring 15 in the direction for causing the inner end of the lever to move toward the carrier wheel 4. Said inner end of lever 13 is formed with a notch 16 adapted to receive successively the tabs or radially extending plates 7 and to thereby lock the wheel against rotary movement during such engagement. The outer end of the lever 13 is provided with a cam portion 17 positioned for being engaged and actuated by the pin 10', the action being in a direction for swinging lever 13 upon its pivot and thereby causing the inner end of the lever to be withdrawn from engagement with the respective tab 7. Pawl 12 is pressed by a spring 18 toward the wheel 4, and, at the upper free end of the pawl 12, a hook 19 is formed adapted to successively engage the tabs 7 to rotate the wheel 4 with a step-by-step movement as the hook 19 is successively brought into coöperative engagement with respect to the several tabs 7 incident to the reciprocations imparted to the pawl 12 due to rotation of the disk 9, the throw of the wrist-pin 10 being slightly greater than the distance from one tab 7 to the next so as to enable the hook 19 to engage the successive tabs.

A stereopticon, or like projector, is provided for each wheel 4, and each consists of any appropriate tubular lens carrying element 20 fixed to the shaft 3 within the respective wheel, and coöperating with a tubular section 21 outside of the wheel and axially in-line with the respective section 20, each section 21 being sustained by a bracket 22, fixed to and upstanding from base 1 in advance of the outer end of the section 20 of the projector. An electric light 23 is provided for each projector and is supplied with current (from a source not shown) through a circuit including a commutator 24 and conductor brushes 25 and 26, there being one commutator 24 for each light 23. The conductor section of the com-

mutator 24 of one light circuit is out of line with the conductor section of the other commutator and in line with the insulator section thereof, the two commutators being
5 mounted on shaft 8 so as to rotate exactly together and to thereby supply current to the light 23 of one projector at one time and to light 23' of the other projector at another time, the alternate light being extinguished
10 during the operation of the other.

A motor 27 of any appropriate form, preferably electrical, is provided and has its shaft 28 formed with a worm 29 meshing with a worm gear 30 fixed to shaft 8, where-
15 by the parts are adapted to be driven.

The wrist-pin 10 of one disk 9 is relatively at the diametrically opposite point from the corresponding wrist-pin of the other disk 9, so that when one pawl 12 is ac-
20 tuated to impart a step of rotation to one wheel 4, the other pawl 12 will be moving upward to the tab engaging position and during such upward movement the respective wheel 4 will remain stationary, and it
25 is during this period of stationary condition that the image is projected from the slide.

As best seen in Fig. 5, each commutator disk 24 is insulated for one-half of its periphery as indicated at 24', and the remainder of its periphery is formed of a conductor plate 24'', and the two disks 24 are
30 positioned on shaft 8 with the insulating portions 24' relatively at diametrically opposite sides of the shaft and with the conductor brackets similarly located, so that
35 when either pawl 12 has completed its downward stroke and has thus positioned its respective wheel 4 with a new slide disposed in the line of the projector, the conductor plate 24'' begins to engage the contact
40 brushes 25 and 26 of the circuit of the light 23 of that particular projector cooperating with the respective wheel 4 which has just been positioned, and the brushes 25 and 26 continue to have their circuit closed by
45 plate 24'' during one-half of the rotation of shaft 4, that is, while the pawl 12, corresponding to the respective commutator disk 24 in question, is moving again up to the elevated tab engaging position and the
50 carrier wheel is consequently stationary. In the meantime, the other pawl 12 will have engaged a tab 7 and caused its respective wheel 4 to be moved while the other
55 wheel remains stationary. The commutator disk 24 of the light 23 in the projector for the moving wheel 4 will have presented its insulating surface 24' to its brushes 25 and
60 26 and thus will have broken the circuit of the particular light 23, and such circuit will remain broken while the respective wheel 4 is being moved and while the other wheel remains stationary with its light supplied
65 with current. Thus, it will be seen that in

the continued operation of the machine, one slide of one wheel has its image projected at one time and that image continues to be projected while the other wheel remains in darkness and is being positioned
70 for presenting a new slide to its projector. As soon as the new slide has been presented, the formerly stationary wheel begins to move, the light of its projector is extinguished and current is supplied to the light
75 of the projector of the newly positioned wheel. By this alternate action, an image is constantly projected and it is, of course, clear that the time during which any particular image will be projected may be gov-
80 erned by the speed of the motor 27.

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

1. The combination with a rotary slide
85 carrier, means for projecting images from slides sustained by the carrier, means for rotating the carrier with a step-by-step movement of a length proportional to the
90 dimensions of the carried slides, an electric light for the projecting means, a circuit for the light for supplying current thereto, and a commutator geared to move in timed relation to the movement of the carrier and
95 controlling the light circuit for cutting off current to the light during movement of the carrier, substantially as set forth.

2. The combination, with rotary slide
100 carriers, means for rotating said carriers alternately with step-by-step movements, a projector for each carrier, and electric light for each projector, a circuit for each electric light, and a commutator controlling each
105 circuit and connected with the carrier rotating means for distributing current alternately to the lights of the projectors incident to a stationary condition of the respective carriers and for breaking the circuit
110 of the respective lights during movement of the respective carriers, substantially as set forth.

3. The combination with a rotatable carrier wheel, brackets disposed parallel with the axis thereof carried by said wheel adapted
115 to hold slides and having projecting portions, a projector disposed to project images from the slides sustained by the brackets, and means operable to engage the projecting portions of the brackets and impart a step-by-step movement to the wheel, substan-
120 tially as set forth.

4. The combination, with a rotary carrier wheel, of axially extending brackets fixed thereto and each comprising a plate grooved
125 longitudinally and terminating at the wheel engaging end with a radially extending tab, the grooves of each two adjacent brackets being adapted to receive a slide therebetween, an actuator adapted to successively
engage said tabs for rotating the carrier, 130

and a projector disposed to project images from the slides sustained by the brackets, substantially as set forth.

5 The combination, with a rotatably mounted carrier, of a pawl for actuating the carrier, a disk for actuating the pawl, pivotally engaged by the pawl, means for rotating the disk, a locking pawl adapted to engage the carrier and lock the same against rotation, and a projection carried by the disk and disposed to engage and actuate the locking pawl for moving said locking pawl out of locking engagement with the carrier as the actuating pawl is arriving at a position for beginning movement of the carrier, substantially as set forth.

6. The combination, with a rotary slide carrier, of a pawl for actuating the carrier, a rotary disk for actuating the pawl pivotally connected thereto, a locking lever disposed to have one end engage and lock the carrier against rotation, the other end portion of the lever being formed with a cam surface, and a projection extending from the disk in such relation to the location of the pivot of the pawl as to engage the cam surface of the locking lever as the pawl is about to begin a carrier-actuating movement for camming the locking lever out of locking engagement with the carrier just prior to the beginning of movement thereof under the actuation of the pawl, substantially as set forth.

7. The combination, with a rotary slide carrier, of a pawl for actuating the carrier, a disk for actuating the pawl, a wrist-pin

connecting with the disk and pivotally engaging the pawl, the wrist-pin having a projecting portion, and a locking lever having a locking end disposed to engage and lock the carrier against movement, the opposite end from the locking end being positioned in the path of movement of the projecting portion of the wrist-pin for being engaged and actuated thereby for releasing the locking engagement of the lever, substantially as set forth.

8. The combination, with a rotary carrier and a projector therefor having an electric light, of an actuating shaft, a commutator carried by the shaft in the circuit of the light and timed to break the circuit during movement of the carrier and to close the circuit while the carrier is stationary, an actuating pawl for moving the carrier, a disk carried by the shaft and pivotally connected to the pawl for actuating the pawl, a locking lever disposed to engage and lock the carrier against movement, and a projection carried by the disk in position for contacting with the locking lever and releasing the engagement of the locking lever with the carrier, substantially as set forth.

In witness whereof, I have hereunto set my hand and seal at Nashville, Tennessee, this 15th day of March, A. D. nineteen hundred and fifteen.

ROBERT HENRY WALLER. [L. S.]

Witnesses:

PERKINS BAXTER,
O. P. ANDERSON.