

Jan. 15, 1924.

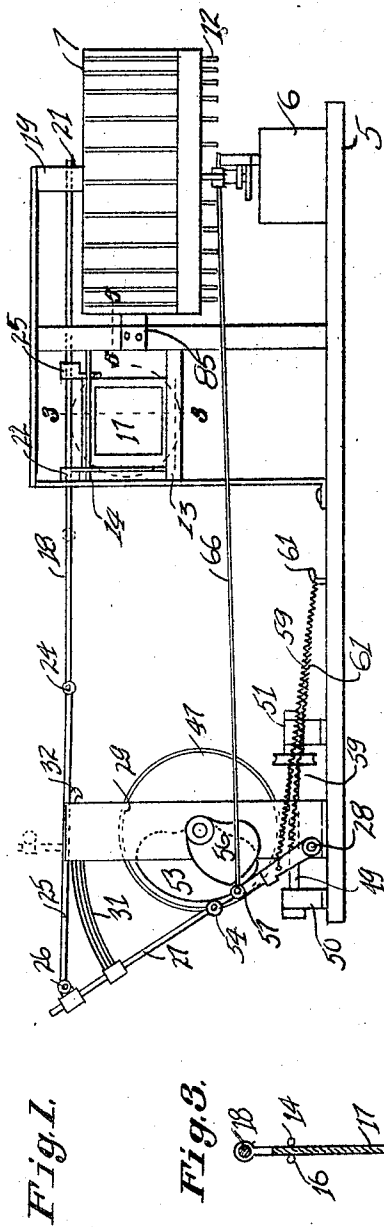
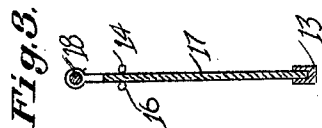
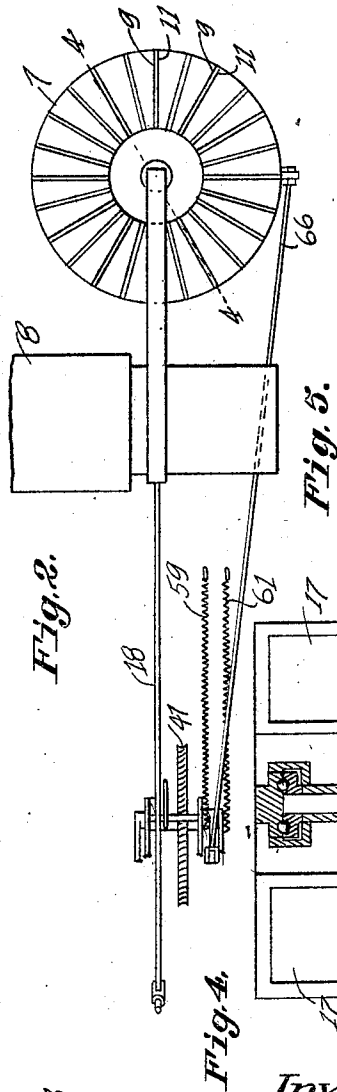
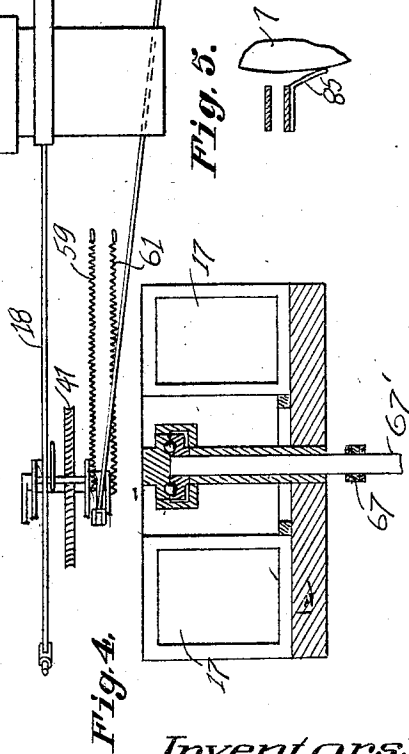
1,481,201

C. N. HEADDING ET AL

STEREOPTICON LANTERN SLIDE FEED DEVICE

Filed Jan. 13, 1922

3 Sheets-Sheet 1



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Fig. 6.

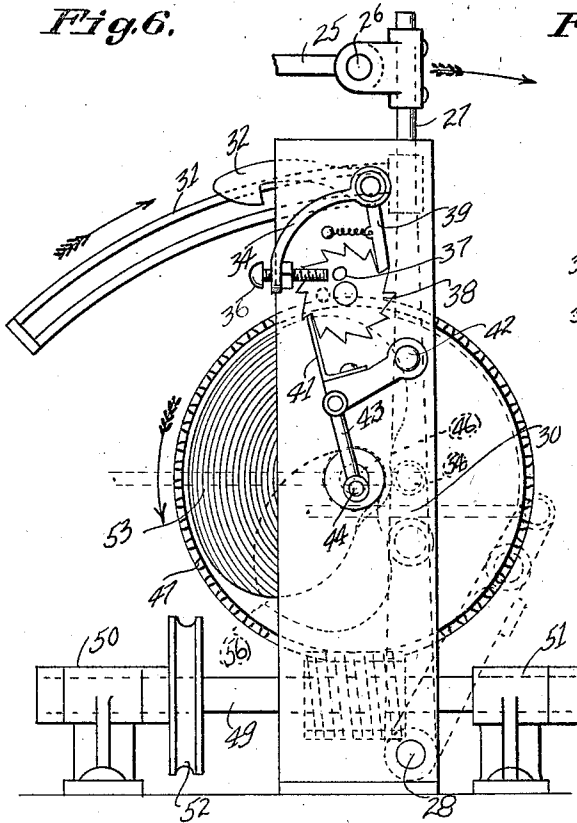


Fig. 7.

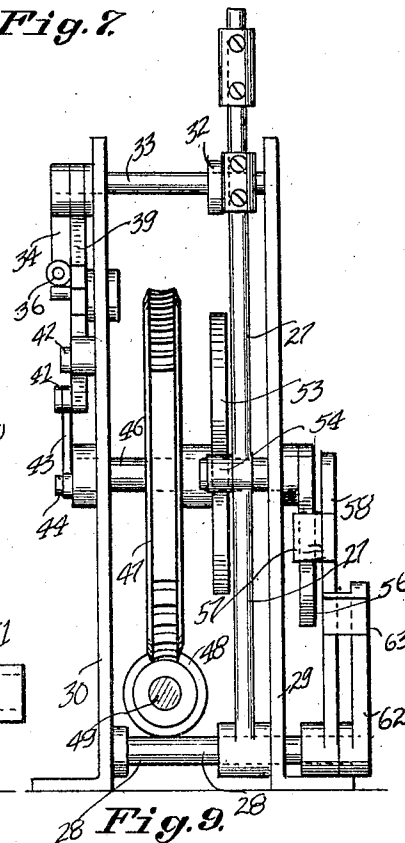


Fig. 8.

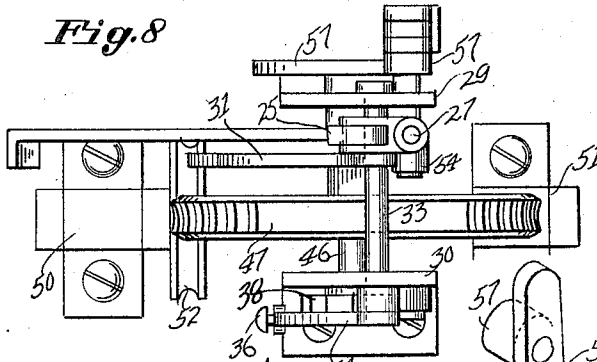


Fig. 10.

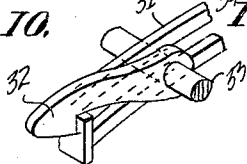
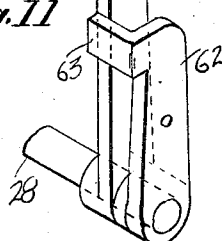
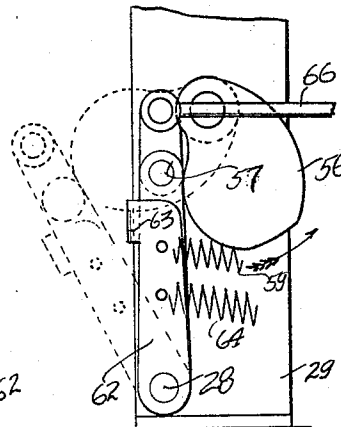


Fig. 11.



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3 Sheets-Sheet 3



UNITED STATES PATENT OFFICE.

CLAY NORRIS HEADING AND FRANCIS MITCHEL KENT, OF CHEHALIS, WASHINGTON.

STEREOPTICON LANTERN-SLIDE-FEED DEVICE.

Application filed January 13, 1922. Serial No. 523,920.

To all whom it may concern:

Be it known that we, CLAY NORRIS HEADING and FRANCIS MITCHEL KENT, citizens of the United States, residing at Chehalis, in the county of Lewis and State of Washington, have invented new and useful Improvements in Stereopticon Lantern-Slide-Feed Devices, of which the following is a specification.

This invention relates to improvements in stereopticon lantern slide feed devices.

The principal object of this invention is to produce means for automatically changing the lantern slides into and out of the optical system of a stereopticon machine.

Another object of this invention is to produce a device of this character which is entirely automatic and which may be run continuously as for unattended advertising displays.

A further object of this invention is to produce a device of this character which may be used in connection with stereopticons now upon the market without materially altering the construction of the same.

Another object is to produce a machine which is simple in construction and one which will not easily become dis-arranged.

Other objects and advantages will be apparent during the course of the following description.

In the accompanying drawings forming a part of this specification, and in which like numerals are employed to designate like parts throughout the same,

Fig. 1 is a side elevation of my device,

Fig. 2 is a top plan view,

Fig. 3 is a cross-section taken on the line 3—3 of Figure 1,

Fig. 4 is a cross-section taken on the line 4—4 of Figure 2,

Fig. 5 is a fragmentary detail view of a slide replacing contact.

Fig. 6 is an enlarged detail view of the driving mechanism,

Fig. 7 is an end elevation of the driving mechanism,

Fig. 8 is a top plan view of the driving mechanism,

Fig. 9 is a fragmentary detail view showing the operation of the magazine changing cam.

Fig. 10 is a fragmentary perspective view of the latch mechanism,

Fig. 11 is a fragmentary perspective view of the magazine changing lever,

Fig. 12 is an enlarged detail view of the magazine operating mechanism,

Fig. 13 is a view similar to 12, but with a mechanism in a released position,

Fig. 14 is a fragmentary detail view taken on the line 14—14 of Figure 12,

Fig. 15 is a fragmentary perspective view of the magazine engaging member, and

Fig. 16 is a perspective view of a stop member.

In the accompanying drawings wherein for the purpose of illustration is shown a preferred embodiment of our invention, the numerals refer to corresponding parts in the several views.

In the changing of stereopticon views, it is necessary to move one slide out of the optical system of the stereopticon machine and to then move into the optical path a new slide, and it is to accomplish this without manual effort that we have devised this invention.

We propose to accomplish this feature by employing continuously driven cams, which will move the slide into the optical system, hold the same there for a given period of time, then move the slide out of the optical system and move a new slide back into the optical system, repeating this cycle at given intervals.

This, we accomplish by employing a base 5, upon which is mounted a stand 6, carrying operating mechanism to be hereinafter described, and the magazine 7, which magazine is mounted adjacent the stereopticon herein designated as a whole by the numeral 8. The magazine 7 is circular in form and is provided with a series of upstanding partitions 9 and 11 between which the lantern slides are adapted to be retained. The magazine is also provided on its under surface with a series of pins 12, which serve as a medium for rotating the magazine, as will be later described.

A track 13 is provided, as is best shown in Figure 3. This track has parallel guides 14 and 16 mounted there-above, which serve to steady the slide as shown at 17. The numeral 18 designates a rod which is adapted to slide above the guides 14 and 16 and has its free end movable in a support 19, as shown at 21. This rod carries pushers 22 and 23, the pusher 22 extending down and entering the track 13 while the pusher 23 merely engages the upper portion of the slide 17. This rod 18 is pivoted as at 24 to

a link 25, which is in turn pivoted as at 26 to a rocking arm 27, which rocking arm is rigidly secured to a shaft 28 journaled in uprights 29 and 30.

5 A segment 31 is attached to the rocking arm 27 as is best shown in Figures 1 and 6, while a catch 32 is secured on a shaft 33 and has its free end in line with the free end of the segment 31. A bell crank 34 is rigidly
10 secured to the shaft 33 and carries an adjusting screw 36 on its free end, which adjusting screw is adapted to lie within the path of a pin 37 carried upon a ratchet wheel 38 rotatably secured to the upright 30.

15 The numeral 39 designates a spring-pawl adapted to prevent retrograde movement of the ratchet 38, which ratchet is rotated through contact with a member 41 pivoted at 42 and actuated by a link 43, the link in
20 turn being connected with an eccentric pin 44 mounted upon the end of the shaft 46. This shaft is journaled in the uprights 29 and 30 and carries a gear 47 which meshes with a continuously rotating worm gear 48
25 mounted upon the shaft 49, which is journaled in the bearings 50 and 51, which are in turn mounted upon the base 5.

30 As shown to advantage in Fig. 8 a pulley 52 is rigidly secured to the shaft 49 and serves as a medium for rotating the same. Power may, however, be applied in any other convenient manner.

35 It will be observed that the shaft 46 carries a cam 53 which is mounted between the uprights 29 and 30 and is adapted to contact with a roller 54 carried upon the rocking arm 27. A cam 56 is also mounted upon the shaft 46, but at a point outside of the uprights and in close proximity thereto. This
40 cam is adapted to contact a roller 57 mounted upon the lever 58, which lever is freely rotatable on the shaft 28. A spring 59 is connected to this lever and has its opposite end connected to the base 5, as shown at 61.

45 A stop-lever 62 is rigidly secured to the shaft 28 and has a stop 63, which contacts the lever 58, as best shown in Figure 11.

50 The numeral 64 designates a spring secured to this stop-lever and is likewise attached to the base as at 61, while a link 66 is connected to the lever 58 and extends to a point adjacent the periphery of the magazine, as is best shown in Figures 1 and 2. The numeral 67 refers to a rocking arm
55 mounted upon the magazine pivot 67' and adapted to pivot thereabout.

60 This lever carries at its free end a stud 68, upon which is mounted a rocker 69 having stops 71 and 72 formed thereon. These stops are adapted to contact opposite sides of the lever 67 when the same is rocked through the medium of its connection, as shown at 73, to the rod 66.

65 A catch 74 is mounted upon the rocker 69 and is provided with a slotted portion 76,

which is adapted to engage pins 12 carried upon the bottom of the magazine 7.

70 In order to prevent retrograde movement of the magazine, we provide a pivoted stop 77, which is mounted upon a pin 78 and has an arm 79 extending therefrom, which is adapted to contact pins 81 and 82, while a spring 83 is coiled about the base of the stop 77 so as to hold the arm 79 against the
75 pin 82.

A lug 84 is formed upon the upper part of the stop, as illustrated to advantage in Figure 16.

Our device operates as follows:—

80 Presuming that the device has been attached to a lantern and that the magazine has been filled with slides, the power will be applied, which will cause the shaft 49 to rotate, transmitting motion through the worm gear to the shaft 46. This will cause
85 the cams 53 and 56 to rotate, but as the segment 31 is being held in the position shown in Figure 1, the cams 53 and 56 will not contact with their respective rollers until the device has made twelve complete
90 revolutions or until the link 42 has transmitted twelve impulses to the ratchet 38, thus bringing the pin 37 into contact with the adjustable stop 36, which will raise the bell crank 34 and lift the latch 32. This
95 action will allow the springs 59 and 64 to function, with the result that the rods 18 and 66 will move toward the right of the drawing in Figure 1. The movement of the rod
100 18 will move the slide into its respective compartment in the magazine, and the rod 18 will stay in this position for a limited time, during which the magazine will move a given distance.

105 The cam 53 will then again contact the roller 54 and will return the rod 18 to its normal position moving a new slide into position in front of the projector. As soon as the return movement has taken place the latch 32 will again function and hold these parts
110 in that position. During this period, the following action will have taken place: When the rod 66 moves forward, due to the action of the spring 64, the latch 74 will engage the pin 12 which is adjacent its slot
115 76 and will move to the position shown in Figure 12. The rod 66 will now be returned to its normal position through the action of the cam 56 bearing against the roller 57. This return movement will cause the latch
120 74 to move from the position shown in Figure 12 out of contact with the pin 12 and thus allow the rod 66 to return to its normal position as shown in Figure 13. At the
125 same time, the pin 12, in passing the lug 84, will cause the same to rotate upon its pivot 78 so as to allow the passage of the pin and immediately spring into its normal position, to prevent retrograde movement as before mentioned.

It is understood that the magazine-changing movement takes place during the time that the slide-changing mechanism is in its position to receive a new slide. Should a slide be only partly returned to its compartment, it will be pushed entirely therein by a wiper 85, the action of which is well-known and needs no further description.

From the foregoing description taken in connection with the accompanying drawing, it will be manifest that we have devised a stereopticon lantern feed slide device, which is comparatively simple in construction, economical to manufacture and which will automatically change lantern slides into and out of the optical system of a stereopticon machine in a minimum amount of time.

It is to be understood that the form of our invention herewith shown and described is to be taken as a preferred example of the same, and that various changes in the shape, size and arrangement of parts may be resorted to without departing from the spirit of the invention or the scope of the subjoined claims.

Having thus described our invention, we claim:—

1. In a projecting mechanism, the combination of a projector, gearing mounted adjacent said projector, cams rotated by said gearing, a rocker arm actuated by one of said cams, means for holding said rocker arm out of the path of movement of said cam, means for moving said rocker arm into the path of said cam at pre-determined intervals, a slide-holding magazine adjacent said projector, and means associated with said rocker arm for moving slides into and out of said magazine.

2. In a projecting mechanism, the combination of a projector, gearing mounted adjacent said projector, cams rotated by said gearing, a rocker arm actuated by one of said cams, means for holding said rocker arm out of the path of movement of said cam, means for moving said rocker arm into the path of said cam at pre-determined intervals, a slide-holding magazine adjacent said projector, means associated with said rocker arm for moving slides into and out of said magazine, and means associated with one of said cams for intermittently rotating said magazine.

3. In a projecting mechanism, the combination of a projector, gearing mounted adjacent said projector, cams rotated by said

gearing, a rocker arm pivoted adjacent said gearing, and adapted to be moved by one of said cams, a segment secured to said rocker arm, a latch adapted to engage said segment for the purpose of holding said rocker arm out of engagement with said cam, means for moving said latch out of engagement with said segment at predetermined intervals, a slide holding magazine mounted adjacent said projector, and means for moving slides into and out of said magazine through the movement of said rocker arm.

4. In a projecting mechanism, the combination of a projector, a slide holding magazine mounted adjacent said projector, means for moving slides into and out of said magazine, said means comprising a reciprocating lever, a rocker arm pivoted to said lever, a cam adapted to actuate said rocker arm, a segment secured to said rocker arm, a latch adapted to engage said segment for the purpose of temporarily holding said rocker arm out of the path of said cam and ratchet means for intermittently releasing said latch, substantially as and for the purpose described.

5. In a projecting mechanism, the combination of a projector, gearing mounted adjacent said projector and adapted to be continuously rotated, cams secured thereto, a rocker arm adapted to be moved by one of said cams, a lever adapted to be moved by the other of said cams, said cams being offset with respect to each other for the purpose of timing the movement of said rocker arm with respect to said lever, a segment secured to said rocker arm, a pivoted latch adapted to engage said segment for the purpose of holding said rocker arm out of the path of said cam, a rotatable slide holding magazine mounted adjacent said projector, said magazine being capable of maintaining a series of slides radially disposed in a vertical position therein, a reciprocating rod pivoted to said rocker arm and adapted to move the slides into and out of said magazine, and means for intermittently rotating said magazine a predetermined distance during each reciprocation of said reciprocating rod.

In testimony whereof we affix our signatures.

CLAY NORRIS HEADDING.
FRANCIS MITCHEL KENT.