S. O. KASTNER.

LANTERN SLIDE SHIFTING DEVICE.

APPLICATION FILED FEB. 25, 1914.

1,159,681.

Patented Nov. 9, 1915.

2 SHEETS—SHEET 1.

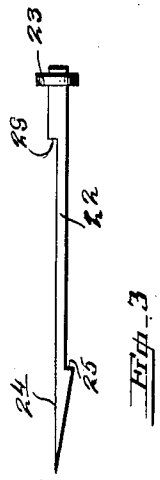


Fig. 3

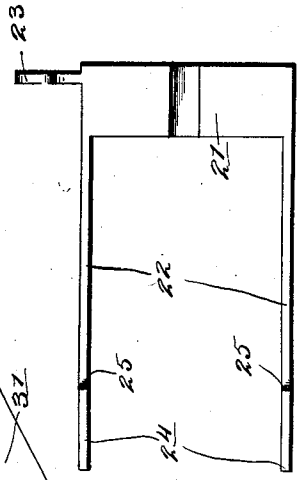


Fig. 4

Fig. 1

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2 SHEETS—SHEET 2.

Fig. 2.

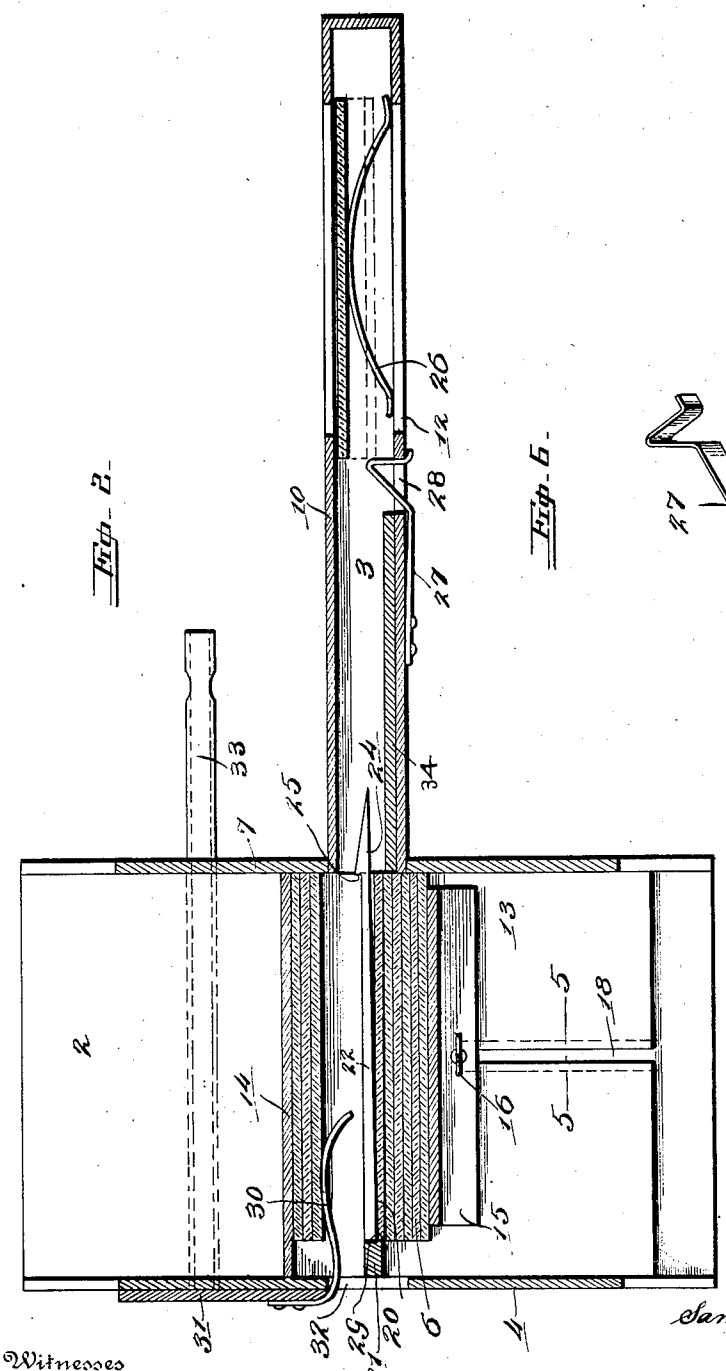
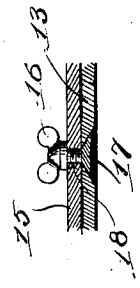


Fig. 6.

Fig. 5.



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UNITED STATES PATENT OFFICE.

SAMUEL O. KASTNER, OF CLUTIER, IOWA.

LANTERN-SLIDE-SHIFTING DEVICE.

1,159,681. Specification of Letters Patent. Patented Nov. 9, 1915.

Application filed February 25, 1914. Serial No. 821,060.

To all whom it may concern:

Be it known that I, SAMUEL O. KASTNER, citizen of the United States, residing at Clutier, in the county of Tama and State of Iowa, have invented certain new and useful Improvements in Lantern-Slide-Shifting Devices, of which the following is a specification.

This invention is an improvement in slide carriers for use with moving picture projecting apparatus and similar devices, and has for its object the practically instantaneous movement of a picture slide from a position between the light and the lens and the immediate replacement of said slide by a new slide with but one operation or movement on the part of the operator.

As a further object, the invention aims to provide a slide carrier of such novel and peculiar construction and arrangement as to provide for the disposition of the slides, one at a time, in proper order and in proper place with respect to the projecting apparatus in connection with which the device or carrier is used.

The above and additional objects are accomplished by such means as are illustrated in their preferred embodiment in the accompanying drawings, described in the following specification and then more particularly pointed out in the claims which are appended hereto and form a part of this application.

In describing my invention in detail reference will be had to the accompanying drawings wherein like characters denote like or corresponding parts throughout the several views, and in which:—

Figure 1 is a perspective view of a slide carrier constructed in accordance with the present invention; Fig. 2 is a longitudinal sectional view; Fig. 3 is a top plan view of the slide shifting device; Fig. 4 is a side elevation of the said device; Fig. 5 is a section on the line 5—5 of Fig. 2; and Fig. 6 is a detail perspective view of a suitable spring employed in connection with the present invention.

The device when in use, is disposed in such relation to the moving picture machine or apparatus in connection with which it is employed as to position the picture slide acted upon between the light and the lens of the said machine.

In referring to the drawings by numerals, 1 designates as an entirety, the frame of the device, said frame comprising a base plate 2 having an elongated lateral extension 3 formed integrally therewith or attached thereto and lying in the same horizontal plane. Sides 4 extend upwardly from the base 2 of the device, said sides being arranged in spaced relation to form thereby a tray or receptacle within which the picture slides, designated 6 in the drawings, are arranged. As indicated in Fig. 1, the sides are cut away as at 7 and connected at their top by a top plate 8, said plate being also provided with a lateral extension 9, said extension being parallel with the extension 3 but upon the same horizontal plane as the said top. Sides 10 connect the respective extensions 3 and 9, as does also an end plate 11, this construction or arrangement effecting a slide container within which the slides are ordinally arranged, and a slide way into which they are carried to a position between the light and lens of the picture projecting apparatus in connection with which the device is used. The sides 10 of the slide way are provided with registering openings 12 over which the slides 6 are arranged when it is desired that the said slides or the pictures represented thereon be portrayed upon the screen therefor.

A slide carrier 13 is arranged to fit the container, said carrier having a right angled extension 14 at one end against which the slides 6 are positioned when properly arranged. A movable or adjustable carrier section 15 is mounted upon the carrier 13 and, in the application of the invention, is adjusted into a position whereby to engage the last of the slides to be shifted or acted upon, said member 15 being maintained in its adjusted position through the manipulation of a thumb screw 16 carrying a beveled edge enlargement 17 operating within a correspondingly beveled slot 18 of the carrier.

The top plate 8 and extension 9 thereof is provided with an elongated opening 19 into which a shifting element or device is fitted, the said device, designated as an entirety by the numeral 20 comprising a head portion 21 and a pair of parallel spaced arms 22 extending longitudinally one from each end of the said body. The lower of the arms, in the assembled position of the device, rest upon the base 2 and extension 3, while the upper arm operates in a plane slightly beneath the plane of the top plate 8. An extension in the nature of a handle 23 extends through

the slot 19 and engages the respective sides of the said slot, said handle being movable throughout the length of the slot to actuate the shifter for the purpose of positioning the slide 6 in a manner to be hereinafter fully described, over the openings 12 aforesaid.

Each arm 22, at its free end, is provided with an enlargement 24, one face of which is beveled to slidingly engage, during the actuation of the shifter, the slide previously acted upon. A shoulder 25 is formed upon each arm by the enlargement 24 thereof, the said shoulder, being automatically forced into engagement with the slide to be replaced by the tension of a leaf spring 26 positioned within the slide way adjacent one of the openings 12 thereof. A spring is provided for engagement with each arm. A second leaf spring 27 is secured exteriorly of the guide way and extends thereinto at an angle through an opening 28 in one side of the said way, the said spring or the angular portion thereof, being in the path of the shifter and in such position as to provide a stop or abutment for the slide acted upon to prevent withdrawal of the said slide when positioned over the openings 12 during a replacement operation. As a means whereby the slide acted upon may be moved by the shifter, I form a shoulder 29 upon the said shifter adjacent its inner or body end, said shoulder being adapted to engage the slide to be shifted whereby to move same from the container into the guide way and into position over the openings 12. Such movement of the shifter is effected through sliding movement of the handle 23.

A leaf spring 30 carried by a laterally sliding frame 31 extends into the interior of the container through an opening 32 in one of the sides thereof, the said spring being engageable with the slides as they are removed or replaced to automatically force the carrier 13 into a position whereby the next or succeeding slide is positioned in engagement with the shoulder 29 of the shifter. An arm 33 is integral with the frame 31, said arm fitting a beveled edge groove of the base 2, the said formation of the groove serving as a support whereby the extension is maintained in place.

If desired, a strip, designated 34′, may be fastened to one of the side walls 10 of the guide way whereby to serve as an abutment for the slide within the carrier. Said plate 34′ is of a size and thickness whereby to in no way interfere with the slide acted upon. Said stop plate is illustrated to advantage in Fig. 2.

The operation of the device is as follows:—The slides 6 are first ordinally arranged upon the carrier 13 and in place against the extension 14 thereof, the said slides being maintained in such relation by the adjustment of the section or member 15 until in engagement with the last of the slides to be acted upon, this adjustment being made possible by the provision of the thumb screw 16 aforesaid. The shifter 20 is then inserted into the container through the opening 19 in the top thereof, said shifter being positioned between the extension 14 and the first of the slides to be acted upon. The frame 31 is next adjusted until the spring 30 thereof engages the extension 14 whereby to maintain or force the first of the slides acted upon into engagement with the shoulder 29 of the shifter. If desired, a spring 34 may be provided to maintain the frame with the spring 30 thereof in operative position. When thus arranged, the shifter is slid longitudinally of the guide way through manipulation of a handle 23, and, as the first of the slides is in engagement with the shoulder 29, it is apparent that the said slide is moved or shifted bodily with the shifter 20 until engaged by the spring 26, which engagement will force the said slide in proper place between the openings 12 in the sides 10 of the guide way. Upon the first operation, the shifter is returned to its normal position without contacting a slide, as in the first operation, there is no slide to be replaced or removed from between the light and lense of the picture projecting machine. Upon the second operation, the next or second slide, being automatically forced into engagement with the shoulder 29 by the tension of the spring 30, is shifted or bodily moved until in engagement with the spring 26, in which position, the shifter is moved or rocked by the tension of the said spring until the head 24 thereof causes the shoulder 25 to engage the first slide acted upon, whereupon a reverse bodily movement of the shifter will cause the said first slide to be withdrawn from its position over the openings in the guide way and, as the second slide is in engagement with the spring 27, the said slide is held against withdrawal as the shifter recedes. The spring 26 will position the second slide to replace the first slide as the shifter is withdrawn from engagement therewith. The first slide, as it is withdrawn, is in engagement with one of the side walls 10 of the guide way and, as it is completely withdrawn, engages the spring 30, the latter thereby serving as a guide means whereby the slide is forced into engagement with the extension 14 of the carrier and away from the shifter, the said slide being finally positioned with the spring 30 in engagement therewith. The above operation is duplicated to ordinally position the slides over the openings 12, with but a single operation, namely, forward and backward movement of the shifter, being necessary to the proper operation of the device.

In reduction to practice, I have found

that the form of my invention, illustrated in the drawings and referred to in the above description, as the preferred embodiment, is the most efficient and practical; yet realizing that the conditions concurrent with the adoption of my device will necessarily vary, I desire to emphasize the fact that various minor changes in details of construction, proportion and arrangement of parts may be resorted to, when required, without sacrificing any of the advantages of my invention, as defined in the appended claims.

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

1. In a lantern slide shifting device, a movable carrier for holding the slide both before and after exhibition, a shifter movable in one direction to place a slide in position for exhibition and movable in the opposite direction to return an exhibited slide into the carrier, and means engaging the retracted slide to advance the carrier.

2. In a lantern slide shifting device, a support, a laterally movable carrier for holding the slides both before and after exhibition, a longitudinally movable shifter operable to place the slides acted on for exhibition and to return the exhibited slide into the carrier, and means operating automatically to advance the carrier.

3. In a lantern slide shifting device, a movable carrier for holding the slides both before and after exhibition, a shifter movable in one direction to place a slide in position for exhibition and movable in the opposite direction to return an exhibited slide into the carrier, and means operating automatically to position the retracted slide properly within the carrier and to position the unexhibited slides successively in position to be shifted.

4. In a lantern slide shifting device, a support, an extension connected therewith and provided with an exposure opening, a movable slide carrier, a slide shifter movable from its normal position within the carrier into and out of said extension, and means for moving the carrier when the shifter is actuating to remove a slide from the extension into the carrier.

5. In a lantern slide shifting device, a movable carrier for holding the slides before and after exhibition, a shifter movable in one direction to place a slide in position for exhibition and movable in the opposite direction to return an exhibited slide into the carrier, and spring means engaging the retracted slide to advance the carrier and position the unexhibited slides successively for movement by the shifter.

6. In a lantern slide shifting device, a base plate, an elongated extension connected therewith and provided with an exposure opening, a slide carrier movable laterally of the extension, a slide shifter movable lengthwise of the extension, and means for moving the carrier when the shifter is actuated to remove a slide from the extension into the carrier.

7. In a lantern slide shifting device, a supporting plate, an extension connected therewith and provided with an exposure opening, a slide carrier movable laterally of the extension, a slide shifter movable lengthwise of the extension, and spring means operating to move the carrier when the shifter is actuated to remove the slide from the extension into the carrier.

8. In a lantern slide shifting device, a supporting plate, an extension connected therewith and provided with an exposure opening, a slide carrier movable longitudinally of the supporting plate and laterally of the extension, a slide shifter movable laterally of the supporting plate and lengthwise the extension, means adjustable upon the carrier to hold the slides acted upon in operative position, and means operating to move the carrier when the shifter is actuated to first remove a slide from the extension into the carrier and in the same operation remove the slide from the shifter, as and for the purpose set forth.

9. In a lantern slide shifting device, a movable carrier for holding the slides both before and after exhibition, a shifter movable in one direction to place the slide in position for exhibition and movable in the opposite direction to return an exhibited slide into the carrier, adjustable means engaging the slide to act as a support therefor, spring means engaging the retracted slide to advance the carrier and successively move the unexhibited slides into a position to be acted on by said shifter, and means movable transversely of the carrier to render the device inoperative.

In testimony whereof I affix my signature in presence of two witnesses.

SAM O. KASTNER.

Witnesses:
J. C. MARSAU,
V. A. MOELBE.