

D. D. O'BRIEN.
SLIDE CARRYING DEVICE FOR MAGIC LANTERNS.

No. 568,695.

Patented Sept. 29, 1896.

Fig. 1.

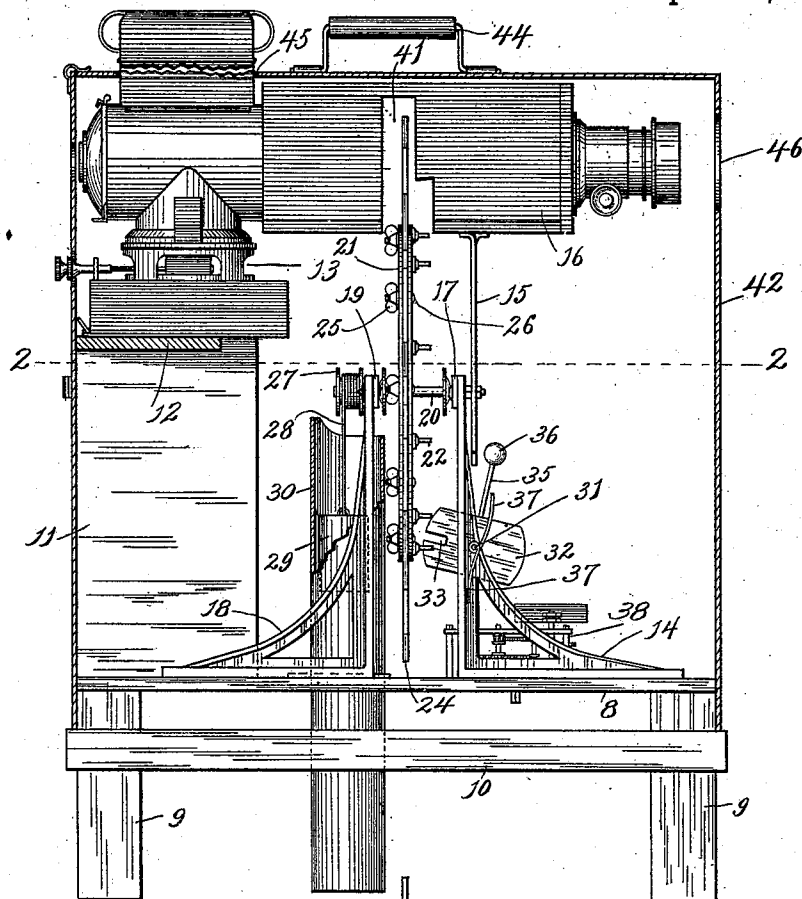
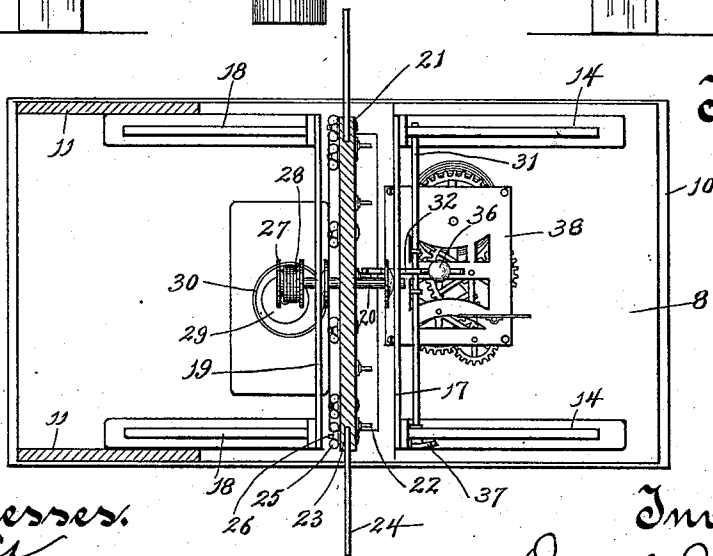


Fig. 2.



Witnesses.

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Fig. 3.

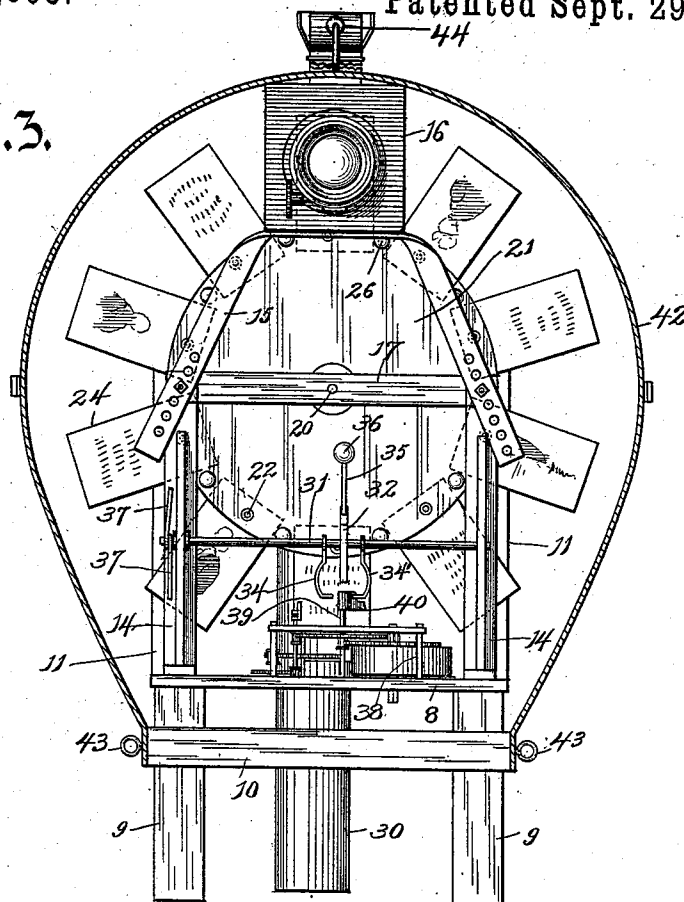


Fig. 5.

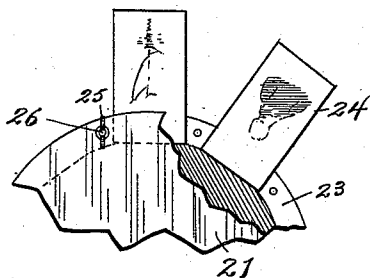
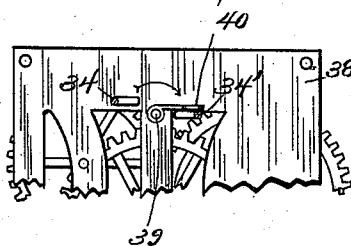


Fig. 4.



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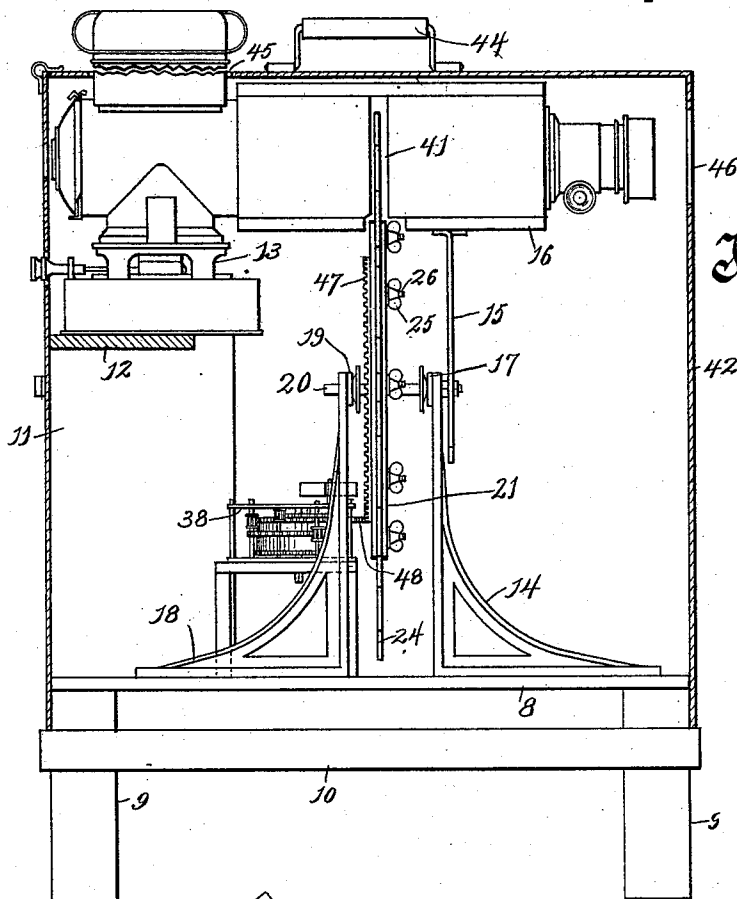


Fig. 6.

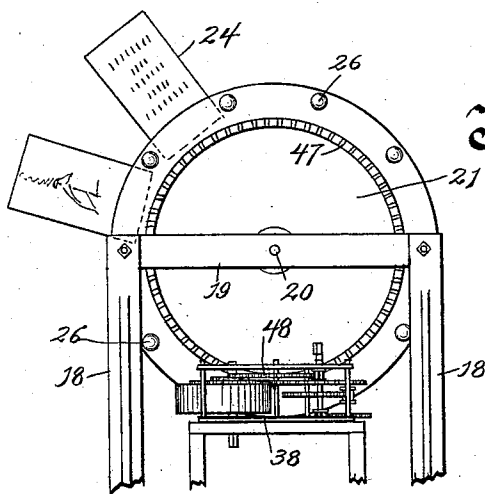


Fig. 7.

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UNITED STATES PATENT OFFICE.

DANIEL D. O'BRIEN, OF WAUKESHA, WISCONSIN.

SLIDE-CARRYING DEVICE FOR MAGIC LANTERNS.

SPECIFICATION forming part of Letters Patent No. 568,695, dated September 29, 1896.

Application filed January 9, 1896. Serial No. 574,842. (No model.)

To all whom it may concern:

Be it known that I, DANIEL D. O'BRIEN, of Waukesha, in the county of Waukesha and State of Wisconsin, have invented a new and useful Improvement in Slide-Carrying Devices for Magic Lanterns, of which the following is a description, reference being had to the accompanying drawings, which are a part of this specification.

My invention has relation to improvements in slide-carrying devices for magic lanterns.

The object of the invention is to provide an improved construction wherein the slides are presented to proper position automatically without the necessity of manual manipulation by the operator.

With the above primary object in view the invention consists of the devices and parts, or their equivalents, as hereinafter more fully set forth.

In the accompanying drawings, Figure 1 is an elevation of the complete device in conjunction with a magic lantern, the cover or casing and other parts being in section. Fig. 2 is a horizontal section on the line 2-2 of Fig. 1. Fig. 3 is an end view, the end of the casing being in section. Fig. 4 is a detail fragmentary view of the clock mechanism. Fig. 5 is a detail fragmentary view of the slide-carrying device. Fig. 6 is a similar view to Fig. 1 of a modified form; and Fig. 7 is a detail of Fig. 6, showing the slide-carrying device and the clock mechanism in connection therewith.

Referring to the drawings, the numeral 8 indicates a flooring which is supported by suitable legs 9, said legs being strengthened by means of a rectangular frame 10. Extending up from the flooring are side boards 11, which are connected at their tops by means of a transverse board 12, which serves as a support for the rear lamp portion 13 of a magic lantern. Angle-brackets 14 are also secured to the flooring 8, and the upper ends of the vertical members of these brackets have secured adjustably thereto the inclined portions of a support 15. The horizontal portion of this support passes beneath the case 16 of the magic lantern and serves to support the same. The upper ends of the vertical members of the angle-brackets 14 are connected by a transverse bar 17. Other angle-brack-

ets 18 are also secured to the flooring 8, and the upper ends of the vertical members of these brackets are likewise connected by a transverse bar 19. A shaft 20 has its opposite ends journaled in the transverse bars 17 and 19. On this shaft is mounted the slide-carrying device 21, which is advisably of disk form, and is provided on one side, near its outer edge or periphery, with a series of laterally-extending annularly-arranged projections or pins 22. The outer edge of the slide-carrying device is divided or bifurcated, as indicated at 23, in order to adapt the device to receive image-slides 24, said slides projecting radially. These slides are held in place by means of thumb-nuts 25, turning on the threaded ends of bolts 26 on each side of the slide.

The shaft 20 is provided upon one end with a drum 27, upon which is wound a rope or equivalent 28, to the free end of which is secured a weight 29, said weight working in a circular guideway or tube 30.

Journaled in opposite medial points of the vertical members of the angle-brackets 14 are the ends of a transverse rock-shaft 31, which shaft carries centrally thereon a dog or detent 32. The edge of the inner end of this dog or detent is slitted inwardly, as indicated at 33. Depending from the shaft 20 are arms 34, 34', which have their lower ends bent inwardly at right angles. It will be noticed that these arms are slanted or inclined in opposite directions, that is to say, the arm 34 slants toward the wheel, while the arm 34' slants away from the wheel. This is clearly shown in the detail view Fig. 4, and the purpose of this construction will be referred to hereinafter.

Extending up centrally from the upper edge of the dog or detent 32 is an arm 35, which arm at its upper end carries a weight 36. At one extremity of the shaft 20 are carried arms 37, 37'. The ends of these arms are adapted to contact with the vertical member of the angle-bracket 14 adjacent and thereby limit the extent of the movement of the rock-shaft in opposite directions.

The means for actuating the detent preferably consists of clock mechanism, which is indicated in the drawings by the numeral 38. This mechanism may be of any well-known and usual form and is arranged to drive a

vertical shaft 39, which shaft carries at its upper end a projecting lug 40, which lug is so positioned as to be adapted to contact alternately with the angular extensions of the arms 34 34', said arms, as previously stated, being set at opposite inclines, so that when one is contacted with by the lug 40 and the shaft 20 turned to the extent permitted by the arms 37 the other arm will be in position to be engaged by the lug on the continued rotation of the vertical shaft 39.

It will be noticed that the pins 22 are not all the same distance from the axis of rotation, every alternate pin being arranged nearer said axis. The case 16 of the magic lantern is provided with a transverse slit 41, adapted to admit of the passage therethrough of the slides 24 upon the actuation of the slide-carrying device. Within the case and located to the front and rear of this slit are the usual lenses, (not shown,) the inner for illuminating and the outer for magnifying. The entire device is preferably protected by a cover or casing 42, which may be secured to the rectangular frame 10 by means of thumb-screws 43. The sides of this casing are bulged out laterally, as clearly shown in Fig. 3, so as not to interfere with the rotation of the disk-carrying device. The top of the cover is provided with a suitable handle 44, and also with an opening 45 to admit of the passage therethrough of the lamp-chimney. The front of the cover is also provided with a circular opening 46, which is in line with the end of the projecting tube of the lantern.

In operation the clock or equivalent mechanism is wound up, so as to cause the vertical shaft 39 and its projecting lug to rotate. As the lug is thus rotated it successively engages the angularly-bent ends of the arms 34 34'. When the arm 34' is engaged, the shaft 20 is rocked inwardly to the extent permitted by one of the arms 37 and the inner end of the dog or detent 32 thrown downwardly, so that the slot 33 thereof is, before the dog or detent reaches the limit of its down movement, in position to allow a projecting pin 22 to pass through said slot. The moment the slot is brought to such position the weight 29, acting upon the lower end of the rope 28, will exert a force on the shaft sufficient to carry the pin through the slot of the dog or detent, and thus rotate the slide-carrying device. When the shaft 20 is rocked in the manner just described, the weighted arm 35 will tend to hold the dog or detent to the position to which it has been thrown until the shaft is again actuated. Now as the slide-carrying device continues to rotate the next pin thereof will not be in alinement with the slot of the dog or detent, said slot being carried below the line of the pin, and consequently said pin will strike against the dog or detent and the slide-carrying device will be held temporarily with one of the slides in proper position in the slit or opening of the lantern-case between the two lenses. The slide will thus be held

until the lug 40 has traveled around far enough to contact with the arm 34. The moment this contact occurs the shaft 20 is rocked in an opposite direction to that first explained, so as to throw the inner end of the dog or detent upwardly, so that the slot thereof will, before the limit of movement, be in alinement with the next pin of the slide-carrying device, and so on throughout the operation.

It will be seen that the invention provides simple means for obtaining the automatic feed of the slides, and the accomplishment of this result secures important advantages, principally in dispensing with the necessity of an operator to adjust the slides by hand. The advantages will be especially apparent where the lantern is used for displaying advertising-cards, devices, or images to attract the attention of pedestrians at night. In such case it is only necessary to wind up the clock or other mechanism, and the device will thereafter for a certain time take care of itself without any attention whatever.

While I have shown and described herein clock mechanism, yet I do not wish to be understood as thereby restricting myself to that particular means of power, as it is obvious that any other suitable mechanism may be employed for actuating the detent. The mechanism shown on Sheets 1 and 2 of the drawings is also such that the slide-carrying device is intermittingly actuated, so as to bring a slide to view and hold the same, properly focused, for a short period of time. I also do not wish to be understood as restricting myself to this intermittent feature, as I consider a slowly-moving slide-carrying device within the spirit and scope of my invention. I therefore, in Figs. 6 and 7 of the drawings, illustrate means for securing a slow continuous movement of the slide-carrying device. In these views the lateral projections on one side of the slide-carrying device consist of an annular rack 47, with which a large wheel 48 of the clock mechanism 38 is adapted to mesh and to impart a slow but continuous movement of the slide-carrying device. In this form, therefore, the projecting pins 22 and the mechanism adapted to coact therewith are dispensed with.

What I claim as my invention, and desire to secure by Letters Patent, is—

1. The combination, of a slide-carrying device having projections extending laterally from one face thereof, means for rotating the slide-carrying device, a shaft arranged transversely to the face of the carrying device, and adapted to rock a limited distance in either direction, arms extending from said shaft, a dog or detent mounted upon the transverse shaft, and extending therefrom toward the face of the slide-carrying device, and having its inner edge provided with a slot, and a rotatable upright shaft provided at its end with a projecting lug, said lug, as the upright shaft rotates, adapted to engage successively

with the projecting arms, whereby the transverse shaft is rocked, said shaft, when rocked in either direction, adapted to allow one projection of the slide-carrying device to pass through the slot of the dog or detent before said dog or detent completes its movement, and the next projection, when the dog or detent has completed its movement, and the slot brought out of alinement, to strike against the dog or detent and to be arrested thereby.

2. The combination, of a slide-carrying device having projections extending laterally from one face thereof, means for rotating the slide-carrying device, a shaft arranged transversely of the face of the carrying device, and adapted to rock a limited distance in either direction, arms extending from said shaft, and bent laterally in opposite directions, and having their lower ends bent inwardly at right angles, a dog or detent mounted upon the rock-shaft and extending therefrom toward the face of the slide-carrying device, and having its inner edge provided with a slot, and a rotatable upright shaft provided at its end with a projecting lug, said lug, as the upright shaft rotates, adapted to engage successively with the angularly-bent lower ends of the projecting arms.

3. The combination, of a slide-carrying device having projections extending laterally from one face thereof, means for rotating the slide-carrying device, a shaft arranged transversely of the face of the carrying device, and adapted to rock a limited distance in either direction, arms extending from said

shaft, a dog or detent mounted upon the rock-shaft, and extending therefrom toward the face of the slide-carrying device, and having its inner edge provided with a slot, an arm extending upwardly from the dog or detent, said arm having a weighted upper end, and a rotatable shaft provided at its end with a projecting lug, said lug, as the upright shaft rotates, adapted to engage successively with the angularly-bent lower ends of the projecting arms.

4. The combination, of a slide-carrying device having projections extending from one face thereof, means for rotating the slide-carrying device, a rock-shaft arranged transversely of the face of the carrying device, stop-arms extending in opposite directions from this shaft, and adapted to limit the rocking movement of said shaft in either direction, other arms projecting from the rock-shaft, a dog or detent mounted upon the rock-shaft, and extending therefrom toward the face of the slide-carrying device, and having its inner edge provided with a slot, and a rotatable upright shaft provided at its end with a projecting lug, said lug, as the upright shaft rotates, adapted to engage successively with the arms projecting from the rock-shaft.

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

DANIEL D. O'BRIEN.

Witnesses:

JOHN D. ROBERTS,

ED. D. WALSH.