

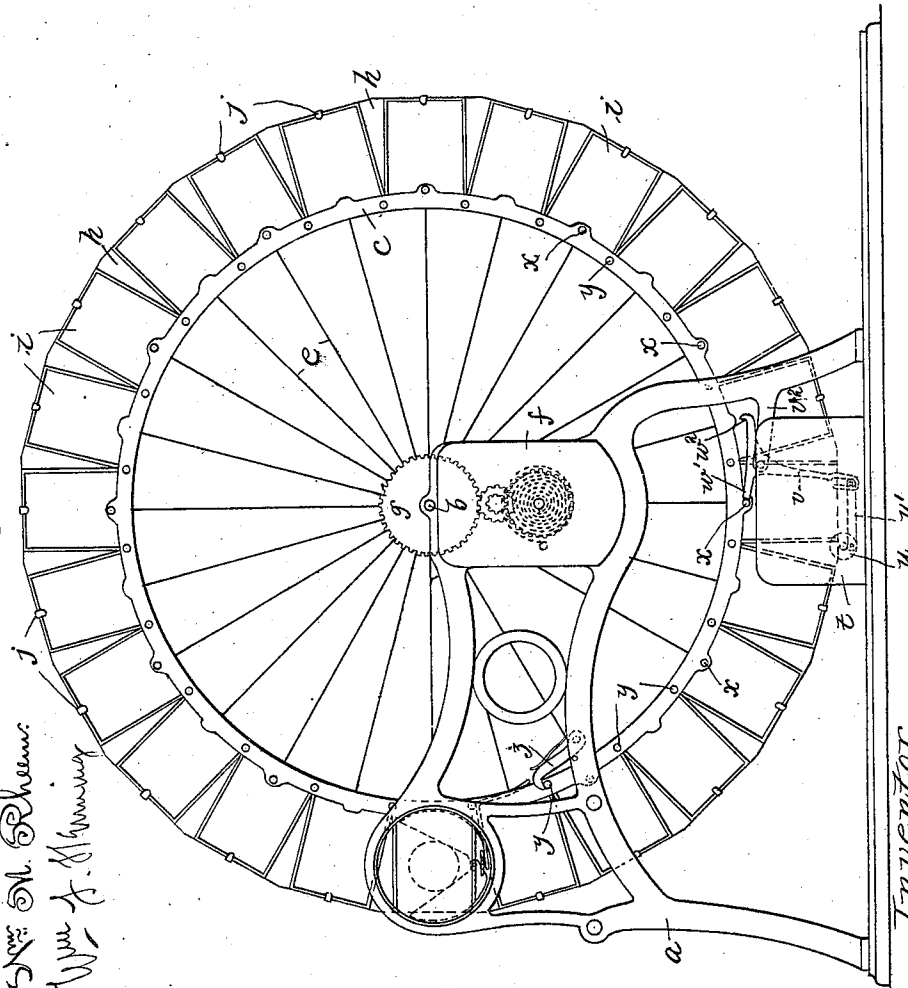
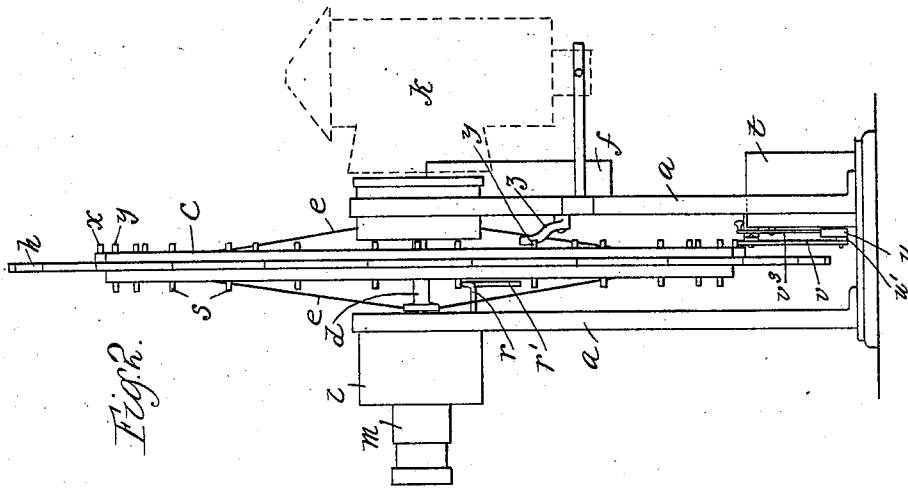
(No Model.)

2 Sheets—Sheet 1.

W. L. VELEY.
AUTOMATIC STEREOPTICON.

No. 577,469.

Patented Feb. 23, 1897.



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J. F. Hanning

Inventor
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By David H. Fletcher Atty.

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Fig. 3.

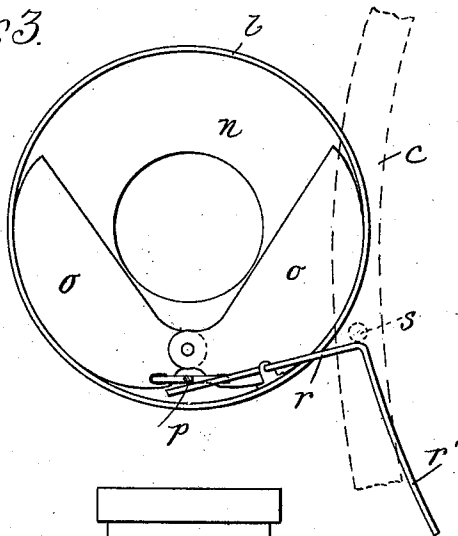


Fig. 4.

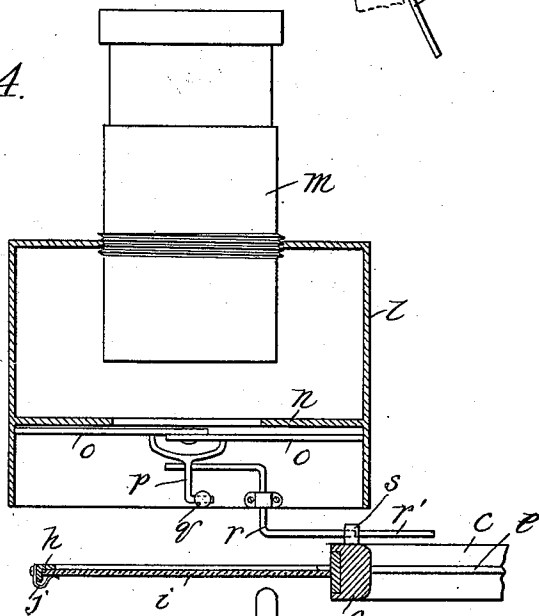


Fig. 5.

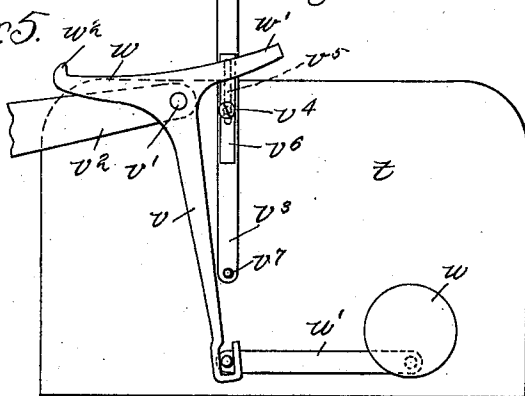
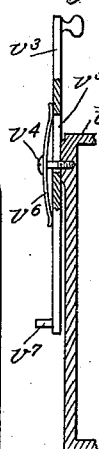


Fig. 6.



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UNITED STATES PATENT OFFICE.

WILLIS L. VELEY, OF CHICAGO, ILLINOIS, ASSIGNOR OF ONE-HALF TO
GROVE L. BROWNELL, OF SAME PLACE.

AUTOMATIC STEREOPTICON.

SPECIFICATION forming part of Letters Patent No. 577,469, dated February 23, 1897.

Application filed February 24, 1896. Serial No. 580,496. (No model.)

To all whom it may concern:

Be it known that I, WILLIS L. VELEY, of Chicago, in the county of Cook and State of Illinois, have invented a new, useful, and Improved Automatic Stereopticon, of which the following is a full, clear, and exact description, reference being had to the accompanying drawings, forming a part of this specification, in which corresponding letters of reference in the different figures indicate like parts.

The object of my invention is to so construct a device for use in connection with a magic lantern or stereopticon that the "slides" or plates upon which the image appears may be automatically presented in successive order between the lantern and the lens at such intervals of time, either fixed or varying, as may be determined by the will of the operator.

A further object is to provide a satisfactory automatic means for shading the screen upon which the picture or image is thrown during the time consumed in changing one plate for another. Moreover, I desire to provide novel means for enabling the length of time of the exposure to be varied.

To these ends my invention consists in the respective combination of elements hereinafter more particularly described, and definitely pointed out in the claims.

In the drawings, Figure 1 is a front view of a device embodying the features of my invention. Fig. 2 is a side view thereof. Fig. 3 is a detail view of my improved automatic shutter. Fig. 4 is a plan view in detail, partly in section, showing the lens, the shutter, means for operating the latter, and the relative position of the plate or image in connection with the lens. Fig. 5 is an enlarged view in detail of the escapement mechanism and stop for regulating the movement of the wheel or disk, and Fig. 6 is a transverse sectional view thereof.

Referring to the drawings, *a* represents a rigid frame in which is mounted in suitable bearings, as shown at *b*, Fig. 1, a disk or wheel, preferably in the form of a bicycle-wheel, having a rim *c*, which is connected with the hub *d* by means of the usual spokes *e*.

Mounted upon the frame *a* is a case *f*, Figs. 1 and 2, within which is inclosed a coiled

spring, as indicated in dotted lines in Fig. 1, which is arranged to drive a shaft connected with a train of gears, the last of which engages with a gear-wheel *g*, Fig. 1, attached to the hub *d*. The coiled spring described is wound in the usual way, and when under tension serves, through the train of gears, to rotate the wheel.

Rigidly attached in any well-known way to the periphery of the rim *c* of the wheel is an extension consisting of a series of connected plates *h*, forming a web in the plane of the disk or wheel and constituting a series of frames having openings therein adapted to receive and support the usual glass lantern-slides *i*, such as are used with the ordinary stereopticon. A face view of the slides and frame is shown in Fig. 1, while a plan view more clearly showing the construction of the frame and the manner of inserting the glass is represented in Fig. 4. Spring-clasps *j* enable the glass plates to be readily inserted within and removed from the frame.

Supported by the frame upon one side of the wheel in alinement with the middle of the glass slides *i* I place a lantern or electric light *k*, (indicated in dotted lines in Fig. 2,) and upon the opposite side of the wheel I place an enlarged tube *l*, to which is attached a lens-tube *m*. A diaphragm *n*, Figs. 3 and 4, is placed in the tube *l*, which is provided with a central light-opening.

Pivotally attached to the diaphragm are shutter-wings *o o*. (Shown in Figs. 3 and 4 and indicated in dotted lines in Fig. 1.) A forked arm *p* is pivotally attached to a stud *q*, Fig. 4, while the forked ends engage with the slots in the shutter *o*, as shown. A bent lever-arm *r*, having a depending portion *r'*, is pivotally mounted within the tube *l*, one end being adapted to engage with the arm *p*, so as to lift the same in the manner and for the purpose hereinafter set forth. A series of studs or pins *s*, attached to the rim *c* at equal distances from each other, serve to engage the arm *r* and the extension *r'* when the wheel is revolved, thereby closing the shutter-wings *o* and holding them closed until the extension *r'* is released from engagement with the pin *s*. This action occurs with the shifting of each view.

Having now described the wheel and the mechanism for presenting the views to the lens, I will describe my improved means for automatically controlling the action of the wheel whereby it is caused to present each picture in turn before the lens and hold it there for a given interval.

Arranged within a case *t*, Figs. 1, 2, 5, and 6, is a clock-train in operative connection with a shaft upon which is mounted a wheel or disk *u*, (better shown in Fig. 5,) to a pin upon which is attached a pitman *u'*, having a pin upon the opposite end adapted to engage with a hook upon the lower end of a lever-arm *v*, which is supported at *v'* to a rigid supporting-arm *v*², attached to the framework. Horizontal cross-arms *w w'* are formed upon and by preference made integral with the arm *v*. A detent *w*² is formed upon one of said arms for the purpose hereinafter stated. A series of studs or pins *x*, Figs. 1 and 2, are arranged to project laterally from the rim *c*, and the cross-head of the lever is so adjusted that either the end of the arm *w'* or the detent *w*² will engage with one of said pins and thus stop the wheel, according to the position of said lever. As the clock-train causes the wheel *u* to rotate, the lever is slowly vibrated and acts as an escapement, its movement serving to release a given pin in engagement with the arm *w'*, and when released by the further vibration of the lever the same pin is in turn engaged by the detent *w*² and held until the wheel *u* is rotated sufficiently to release it, when the next pin in succession is engaged by the arm *w'*, and so on indefinitely. In order to prevent a back movement of the wheel, I arrange a second series of pins *y* upon the rim *c*, which pins are adapted to be engaged by a spring-actuated pawl *z*, Figs. 1 and 2, with each release of the escapement-lever.

In case it should be desirable to exhibit some pictures longer than others it may be readily accomplished by disengaging the pitman *u'* from its connection with the arm *v*, which may be done by lifting it out of the notch therein, when, in lieu of the pitman, a hand-lever *v*³, Figs. 2, 5, and 6, may be employed. Said hand-lever is pivoted to the case *t* by means of a screw *v*⁴, which passes through an elongated slot *v*⁵ in the lever. A spring *v*⁶, which is under tension, serves to produce a sufficient degree of friction to support the lever when lifted up, as shown. A pin *v*⁷ upon the lower end of the hand-lever is adapted to engage with the notch in the lower end of the arm *v* when the pitman *u'* is disengaged therefrom. By making the substitution described the escapement mechanism may be actuated at will.

Having described in detail the construction of my improved device, I will now briefly explain its operation.

The pictures being placed in their respective frames, the clockwork wound, and the light made ready, the escapement releases one of

the pins *x* and a picture is brought before the lens. After having been exhibited a sufficient time to enable the escapement to be again released the operation is repeated. In the meantime, during the change, one of the pins *s* is brought into contact with the bent lever *r*, which suddenly causes the wings *o* of the shutter to be closed, thereby cutting off all light from the lens and screen. The extension *r'* remains in contact with the pin until the next picture is in position before the lens, when the shutter is suddenly opened and the next picture is distinctly shown upon the screen.

By substituting the hand-lever for the pitman *u'* any one or more pictures may be retained upon the screen for an indefinite time at the will of the operator. Otherwise they are shifted regularly and entirely by automatic action.

By placing the slides in the frames as shown the operator is enabled to determine at a glance whether his slides are in the order in which he desires to have them or not, thus avoiding the mistakes and errors common to the old method.

A sufficient number of views may be provided in one frame or wheel to consume an entire evening, and, if desired, those shown may be removed while the wheel is in use and others substituted.

My improved automatic device greatly simplifies the work of exhibiting stereopticon-pictures, inasmuch as it dispenses with the two operators heretofore employed by the old method—viz., one to change the slides and the other to manipulate the light.

In case no lecture is given with the exhibit it is only necessary to wind the clockwork and start the mechanism, when it will operate automatically as long as the power is exerted.

Having thus described my invention, I claim—

1. The combination with a lens and source of light of a wheel provided with a series of lantern-slide frames upon or near its periphery, said frames being arranged to intervene in their path of rotation between said light and lens, means for rotating said wheel, an escapement mechanism in operative proximity to said wheel for alternately engaging and releasing the same, a shutter for cutting off the light from the lens, and means for automatically closing said shutter during the movement of the wheel for the purpose of shifting said slides, substantially as described.

2. An automatic stereopticon in which the lantern-slides are mounted upon the periphery of a wheel arranged to be rotated in a vertical plane between the lantern and lens, clock mechanism for alternately starting and stopping the same as each view is brought into registration with the lens, shutter-wings pivotally mounted between the lens and light, a lever in operative connection with said shut-

ter-wings for actuating the same, and a series of pins upon said wheel for engaging and releasing said lever as the wheel is rotated, substantially as described.

5 3. The combination in a stereopticon of a source of light, a lens, a wheel for supporting the lantern-slides upon its periphery, means for automatically rotating the same step by step, shutter-wings o o, a series of
10 pins upon the periphery of said wheel, and a pivoted lever operatively intervening be-

tween said pins and shutter-wings, substantially as set forth.

In testimony whereof I have signed this specification, in the presence of two subscrib- 15
ing witnesses, this 20th day of February, 1896.

WILLIS L. VELEY.

Witnesses:

D. H. FLETCHER,

DEWITT W. CHAMBERLIN.