

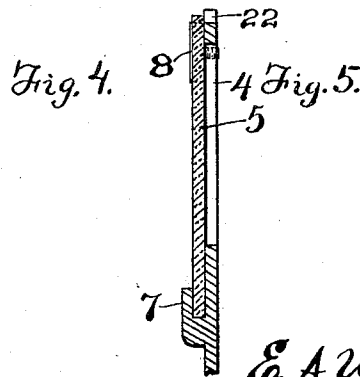
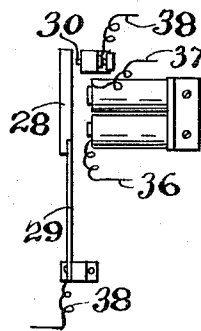
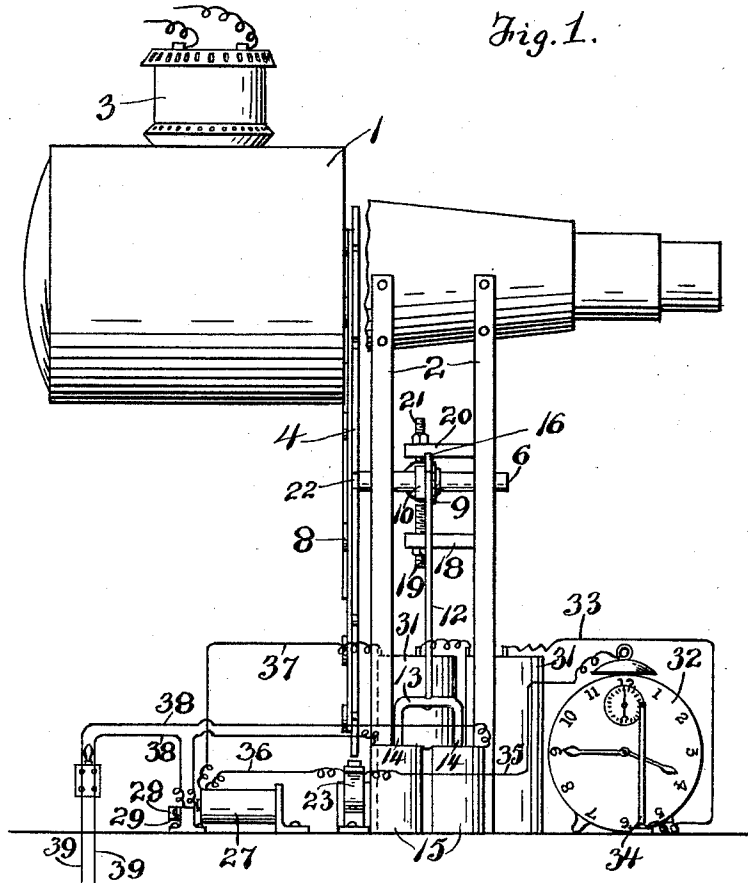
E. A. UNGREN & A. R. FORSTER.
STEREOPTICON.

APPLICATION FILED NOV. 21, 1910.

1,006,318.

Patented Oct. 17, 1911.

2 SHEETS-SHEET 1.



Witnesses

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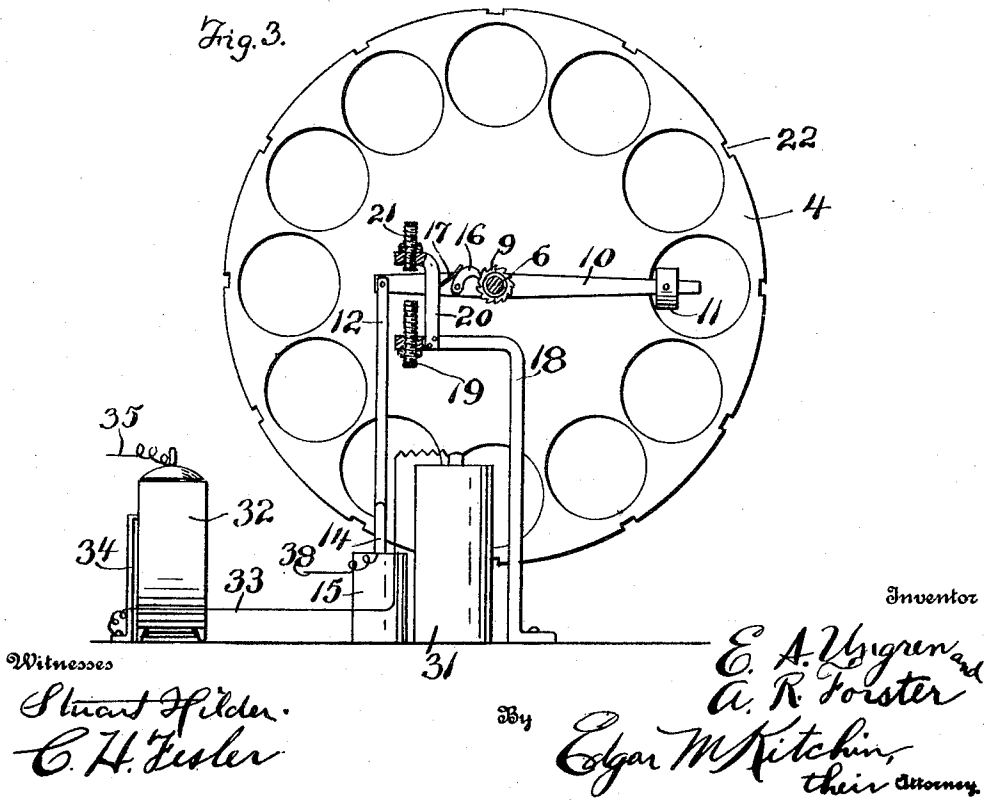
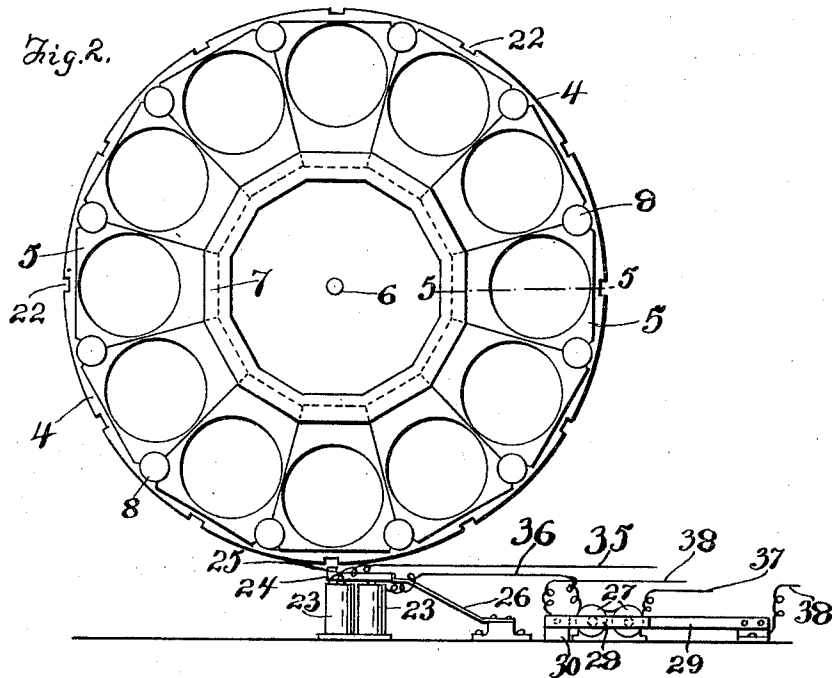
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2 SHEETS—SHEET 2.



UNITED STATES PATENT OFFICE.

EINAR A. UNGREN AND ARMSTRONG R. FORSTER, OF PINE BLUFF, ARKANSAS.

STEREOPTICON.

1,006,318.

Specification of Letters Patent.

Patented Oct. 17, 1911.

Application filed November 21, 1910. Serial No. 593,561.

To all whom it may concern:

Be it known that we, EINAR A. UNGREN and ARMSTRONG R. FORSTER, citizens of the United States, residing at Pine Bluff, in the county of Jefferson and State of Arkansas, have invented certain new and useful Improvements in Stereopticons; and we do hereby declare the following to be a full, clear, and exact description of the invention, such as will enable others skilled in the art to which it appertains to make and use the same.

This invention relates to improvements in stereopticons of the type adapted to project successive pictures from plates sustained by a time controlled carrier.

Among the objects in view is the electrical actuation of the operating parts and the time controlled electrical governing of such actuation.

With this and other objects in view, as will in part hereinafter become obvious and in part be stated, the invention comprises certain novel constructions, combinations and arrangements of parts, as herein specified and claimed.

Referring to the drawings,—Figure 1 is a view in side elevation of a stereopticon embodying the features of the present invention, parts being broken out for purposes of illustration. Fig. 2 is a view in elevation of the slide holder and adjacent parts looking from the rear of the holder. Fig. 3 is a similar view looking from the opposite side of the holder, and parts being seen in section. Fig. 4 is a detail, outline plan of the relay detached. Fig. 5 is a fragmentary section, taken on the plane indicated by line 5—5 of Fig. 2.

Referring to the drawing by numerals, 1 indicates the body of any ordinary stereopticon mounted on a suitable frame 2 and provided with a Nernst lamp, or other suitable illuminating device 3.

A slide holder or carrier 4, preferably of disk form, adapted to carry a series of slides 5, each for facility of application formed in edge contour as the frustum of a cone, is fixed to an operating shaft 6 journaled in the frame 2. The disk constituting the holder 4 is, of course, apertured for allowing the projection of light through the slides 5, and is formed adjacent the inner ends of the slides with an offset flanged member 7 producing a series of pockets into which the inner ends of the slides 5 extend,

the slides being in contact edge to edge and being held in position by detachable pins or bolts 8, 8 threaded into the disk 4 and disposed between outer portions of the slides and extending in notches therein. The slides are thus susceptible of being readily removed and replaced by the removal of the pins 8 and the withdrawal of the slides from the pockets formed by the member 7.

Fixed to the shaft 6 is an operating ratchet wheel 9 having one tooth for each slide 5. An operating lever 10 is journaled intermediate its ends on shaft 6, and at its outer or free end is provided with a counter-balance weight 11. To the opposite end of the lever 10 is pivotally connected an actuating link 12 which extends downwardly to and engages a cross bar 13 connecting the cores 14 of the pair of windings of solenoid 15. An actuating pawl 16 is pivoted to lever 10 and engaged by spring 17 carried by said lever and pressed by said spring into operating engagement with the ratchet wheel 9. A standard 18 is fixed adjacent the disk or holder 4, and has one end bent to extend beneath lever 10 and provided with an adjusting bolt 19 extending upwardly toward and beneath the lever. An upstanding arm 20 is fixed to and rises from the upper portion of standard 18 and extends to a point above lever 10, and is provided with an adjusting bolt 21 extending downwardly toward lever 10. The bolts 21 and 19 are adapted to be positioned for limiting the extent of swing of lever 10 for allowing just sufficient movement thereof at each actuation for causing the holder 4 to be rotated a distance equal to the width of a slide.

Holder 4 is formed in its periphery with a series of notches 22 spaced apart equidistant, and each preferably disposed approximately centrally of the width of a slide. Arranged beneath the holder 4 is an electromagnet comprising windings 23 and an armature 24, which armature serves normally as a lock for the holder 4, said armature being formed with an upward extension 25 adapted, when the armature is not under the magnetic influence of windings 23 to fit within the aperture 22 which happens to be lowermost in holder 4, the armature 24 being sustained by a spring 26 for retaining such position of the armature, so as to normally retain the holder locked against rota-

tion, but adapted to be released and left free to rotate when the magnet is energized and the armature 24 thus drawn downwardly against the pressure of spring 26.

5 A relay is disposed adjacent the windings 23 and comprises windings 27 adapted to influence an armature 28 carried by a spring 29, said armature being adapted, when energized, to engage a binding post 30, but
10 when not energized to be held out of contact with said post by the action of spring 29.

A suitable source of current is provided, preferably a battery of primary cells 31, and the coils 23 and 27 are arranged in series
15 therewith, a timing mechanism 32 being also arranged in series with the coils, a conductor 33 extending from one of the cells 31 to a contact post 34 having a wipe arm extending for instance in the path of movement of
20 the second hand of the clock which is illustrated as constituting a form of timing means 32, a conductor 35 being electrically connected to the frame of the clock 32 and extending to one of the coils 23, the said
25 coils being, of course, connected in series, and a conductor 36 extending from the other coil to one of the coils 27, the said coils being, of course, connected in series and a conductor 37 extending from the other coil 27
30 to the other cell 31 of the battery, the said cells being connected in series. Obviously, various forms of timing mechanism may be provided and when a clockwork is utilized it is not necessary to depend upon the action
35 of the hand, but a wipe contact may be made with any suitable part of the moving mechanism of the timing device. Conductors 38, 38, are connected to the opposite sides of the windings of solenoid 15 and extend from
40 line wires 39, or other suitable source of electrical energy, one of said conductors 38 being connected with and adapted to be interrupted by the armature 28 and coöperating parts.

45 Thus in operation while the second hand is not in contact with the wipe arm of post 34, the slide holder 4 will be locked in a given position by the engagement of the extension 25 with the respective notch 22, and the stereopticon will project the particular
50 image of the given slide, which image will continue to be projected until contact is made between the second hand of clock 32 and the wipe arm of post 34. Whereupon
55 current is supplied to the coils 23, and armature 24 is thus drawn downwardly to the position for releasing holder 4, substantially instantaneously with which action the armature 28 is actuated by the energized coils
60 27 and closes the circuit of conductors 38, thus energizing the solenoid 15. It is to be noted that by the arrangement illustrated the relaying of the circuit for the solenoid will give the armature 24 an opportunity to
65 move out of the locked position just prior

to the actuation of the cores of said solenoid. The energizing of the solenoid, pulling the cores downwardly will impart a downward thrust to the link 12 and thus swing the lever 10 to the extent permitted by the bolt
70 19, which movement through the action of pawl 16 imparts one step of rotation to shaft 6 with the resultant step of rotation of holder 4, whereby a new slide is brought
75 into proper alinement for having its image projected by the stereopticon 1. Should the second hand make a contact longer than instantaneous the effect will be exactly the same, as the continued energized condition
80 of the operating parts will not effect another operation until the contact has been broken and then reëstablished. When the second hand has moved past the wipe arm and the contact thus broken, the armature
85 24 will be elevated by spring 26 to the locking position, and the weight 11 will lift the link engaged end of lever 10 up to position for the next operation. Thus the slide holder 4 will be caused to rotate with a step
90 by step movement, the length of time between steps being controlled by suitable timing mechanism, and the holder being locked against vibration or accidental dislocation between steps.

The present improved stereopticon is obviously valuable for numerous uses, but is especially well adapted for advertising purposes or other display work where it is desirable to throw upon the canvas successive
95 illustrations.

What we claim is:—

1. In a stereopticon, a slide holder, electrical means for shifting the slide holder, a circuit for said electrical means, an electro-magnet having an armature in said circuit
105 acting as a switch therein, a circuit for said electro-magnet, a lock for locking the slide holder in its various positions, and electrical means for releasing said lock, said electrical releasing means being controlled
110 by the circuit of said electro-magnet.

2. In a stereopticon, a slide holder, electrical means for shifting the slide holder, a circuit for said electrical means, an electro-magnet having an armature in said circuit
115 acting as a switch therein, a circuit for said electro-magnet, an electrically controlled lock for locking the slide holder in its various positions, said lock being controlled by the circuit of said electro-magnet, and
120 timing means for making and breaking the circuit of the electro-magnet.

3. In a stereopticon, a rotary slide holder, electrical means for rotating the slide holder, a circuit for said electrical means, an electro-magnet having an armature in said circuit acting as a switch therein, a circuit for said electro-magnet, an electrically controlled lock for locking the slide holder
125 in its various positions, said lock being controlled

trolled by the circuit of said electro-magnet and timing means for making and breaking the circuit of the electro-magnet.

4. In a stereopticon, a slide holder, electrical means for shifting the same, a circuit for said electrical means, a relay governing said circuit, a primary circuit for the relay, a lock for the slide holder for locking the same in its various positions, and electrical means in the primary circuit for releasing said lock in timed relation to the shifting of the slide holder.

5. In a stereopticon, a slide holder, electrical means for actuating the same, a relay having its armature in the circuit of said electrical means for controlling the same, the relay circuit being independent of the circuit of said electrical means, means for locking the slide holder against movement, and time-controlled electrical means in the relay circuit for controlling said locking means.

6. In a stereopticon, a rotary slide holder formed with notches corresponding to the slides carried by the holder, an electro-magnet having an armature adapted at times to engage the respective notches of the holder, a spring for maintaining such engagement of the armature, the armature being adapted to be magnetically actuated against the pressure of the spring when the magnet is energized, electrical means for rotating the slide holder having a circuit independent of the circuit of the magnet, and a time-controlled relay in the circuit of said magnet and adapted to control the circuit of the electrical means for rotating the slide holder.

In testimony whereof we have affixed our signatures in presence of two witnesses.

EINAR A. UNGREN.

ARMSTRONG R. FORSTER.

Witnesses:

W. A. FORSTER,

JO NICHOLS.

Copies of this patent may be obtained for five cents each, by addressing the "Commissioner of Patents, Washington, D. C."