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PATENTED APR. 9, 1907.

E. J. RECTOR.
MOVING PICTURE MACHINE.

APPLICATION FILED JULY 20, 1906.

3 SHEETS—SHEET 2.

Fig. 3.

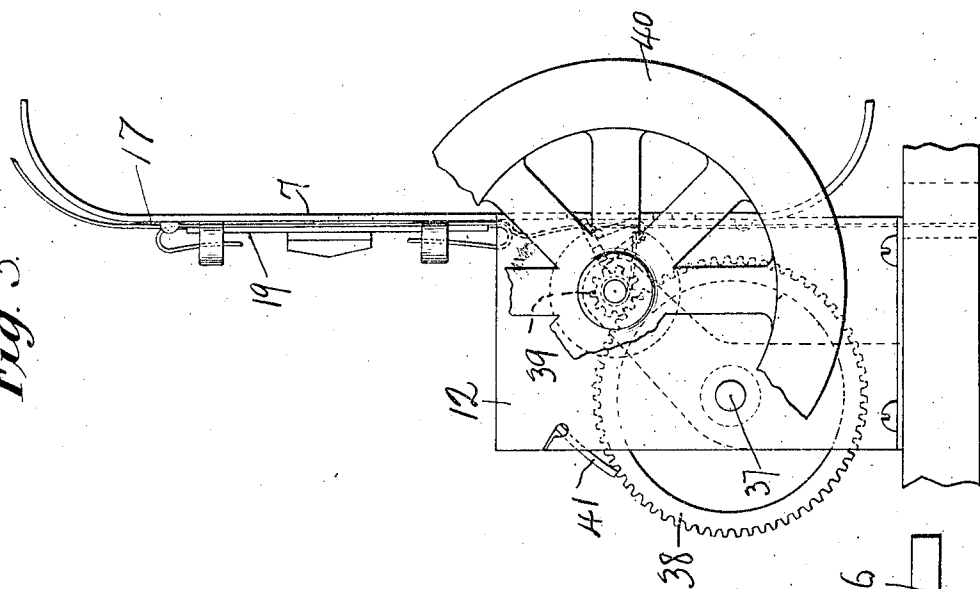
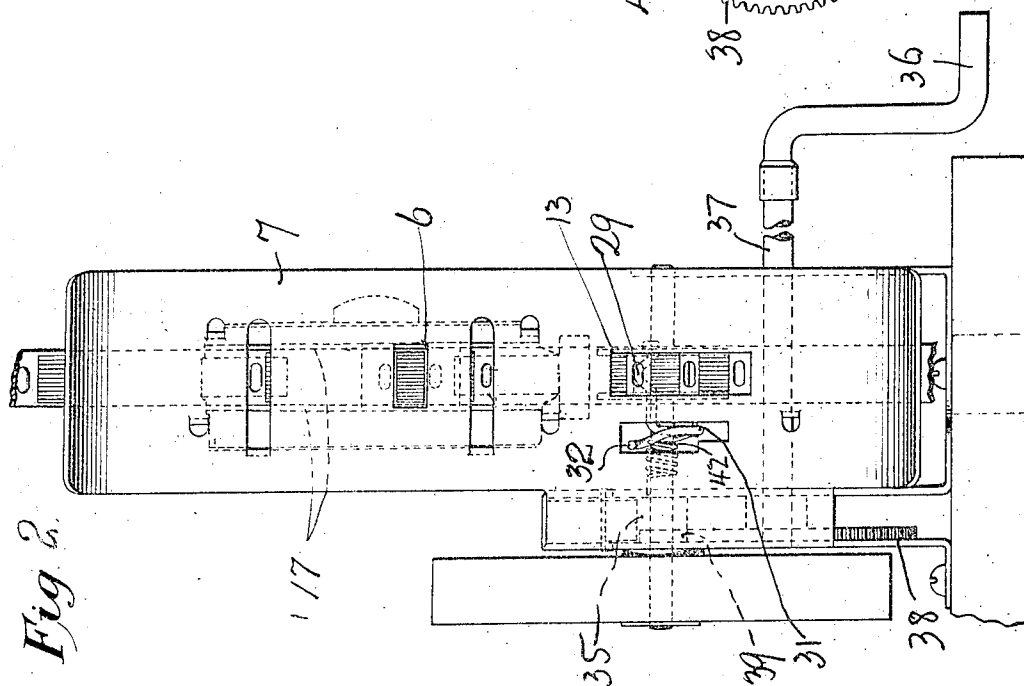


Fig. 2.

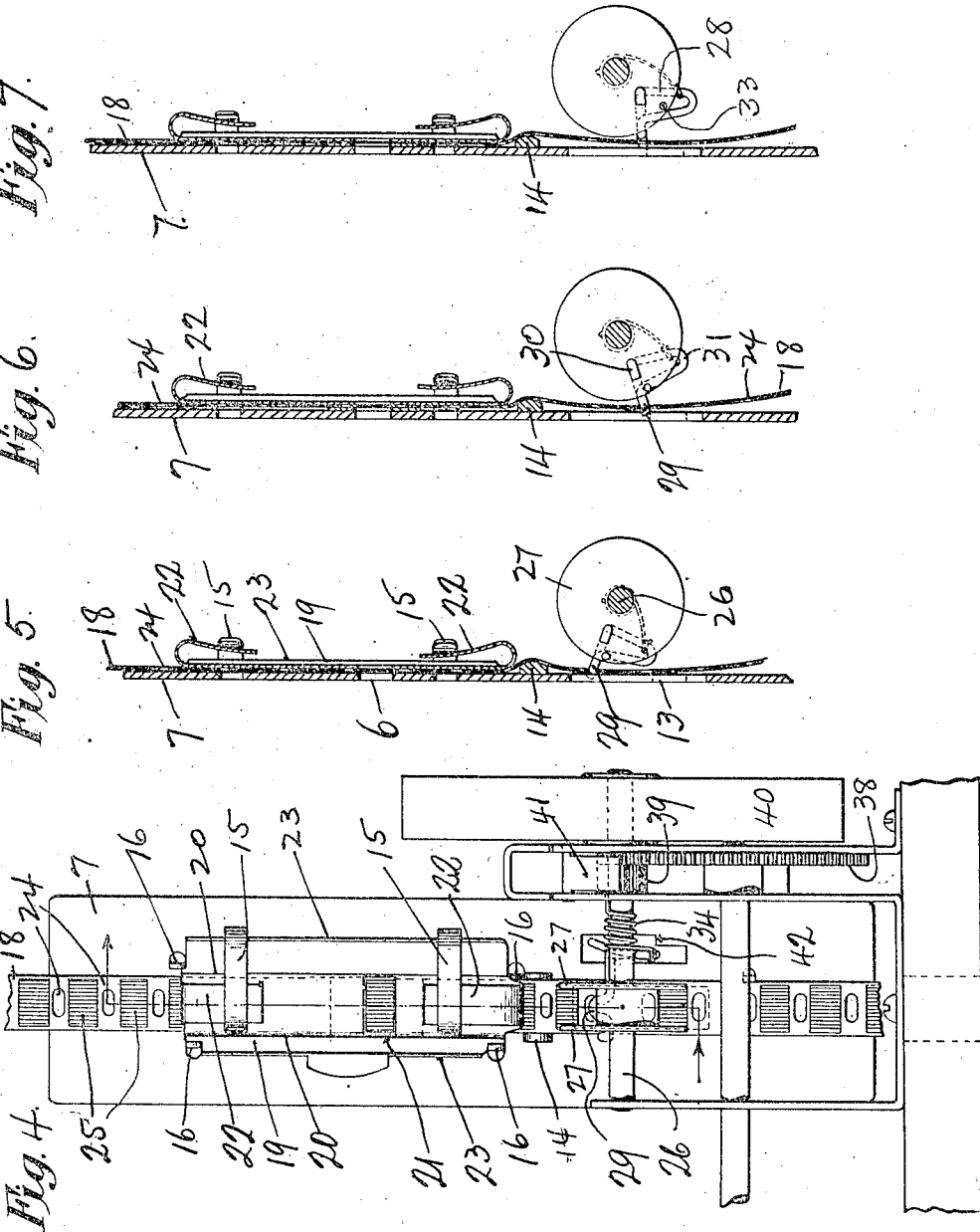


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UNITED STATES PATENT OFFICE.

ENOCH J. RECTOR, OF NEW YORK, N. Y., ASSIGNOR TO NEW YORK VITAK COMPANY, A CORPORATION OF NEW YORK.

MOVING-PICTURE MACHINE.

No. 849,499.

Specification of Letters Patent.

Patented April 9, 1907.

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To all whom it may concern:

Be it known that I, ENOCH J. RECTOR, a citizen of the United States, and a resident of New York city, in the county of New York and State of New York, have invented a certain new and useful Improvement in Moving-Picture Machines, of which the following is a specification.

The present invention relates to machines for exhibiting pictures of an object or scene taken successively and from the same viewpoint, one object of the invention being to simplify and improve the mechanism.

Another object is to lengthen the time of exposure and to shorten the time required to shift from one picture to another.

Another object is to avoid the disagreeable "flicker" hitherto present in projecting-machines.

Other objects will appear hereinafter.

The invention consists of features of construction, arrangements, and combinations of devices hereinafter described, and more particularly pointed out in the appended claims.

The invention is embodied in the apparatus illustrated in the accompanying drawings, forming part hereof, in which—

Figure 1 is a side elevation. Fig. 2 is an elevation from the left in Fig. 1, showing on a larger scale the upright guide-plate and parts for moving the film. Fig. 3 is a side elevation from the left of Fig. 2. Fig. 4 is an elevation from the right in Fig. 1, showing the film-moving mechanism. Figs. 5, 6, and 7 are views illustrative of the action of the film-moving mechanism.

In the drawings the reference-numeral 1 marks a suitable base as a board on which the parts are mounted in manners appropriate to each.

2 designates an acetylene-gas lamp whose burner 3 is at the focus of a reflector 4, and 5 marks a casing for preventing stray light, such casing being provided with a condensing-lens (not shown) to focus the light on the opening 6 in the upright guide-plate 7. Focusing-lenses (not shown) are mounted in the telescoping tubes 8 9. The lamp 2 and the casing 5 are supported by the standards 10 and 11, respectively.

The plate 7 forms or may form part of the sheet-metal framing 12, in which certain operating parts are mounted, said framing

12 being bent up from one piece of metal. 55
The upright 7, in addition to the opening 6, is provided with an opening 13 below the opening 6, and between said openings 6 and 13 said upright is provided with a film-deflector 14 for a purpose presently to appear. 60
Tongues 15 are also formed from or are attached to the plate 7, and said plate 7 is also formed with lugs 16 and with ribs 17 for the film 18 to run upon, the lugs being for a purpose presently to appear. In front of 65
the film 18 is a thin metal guide-plate 19, which is formed with ribs 20 and with an opening 21, which registers with the light-opening 6 aforesaid. The ends of the plate 19 are bent around at 22 to form springs that 70
coact with the spring-tongues 15 aforesaid to hold the plate 19 in place in a yielding manner, with the film 18 held between the ribs 17 and 20, the lugs 16, which coact with the edges of the plate 19, serving to prevent accidental displacement of the said plate 19, 75
while permitting of its ready removal as and when desired. Stiffness may be imparted to the plate 19 by means of the side flanges 23 thereon. The plate 19 lies wholly above the 80
deflector 14. The top and bottom of the upright 7 are bent or curved back toward the lamp 2 for the purpose of providing proper paths for the film 18, which passes 85
under the casing 5 and under the lamp 2 and in the form of an endless ribbon about guides stuck in the holes of a block 23^x, fast on the base-plate 1.

The film 18, as shown in the drawings, is provided with perforations 24, and the successive pictures are located between said perforations (see reference 25)—that is, there are clear spaces with or without holes or perforations therein between the successive pictures on the film. These clear spaces have 95
the important function of keeping the screen illuminated during the whole time the film is passing and avoid the objectionable flicker or alternate light and darkness, the continuous light being far less, or not even, objectionable to the eye than the alternate light 100
and darkness usual with machines of the class to which this invention relates.

In front of the plate 7 is a shaft 26, journaled in the frame 12, and fast on said shaft 105
26 are two disks 27. A wire or rod 28 is journaled in said disks, and between said disks said wire 28 is bent into a U-shaped form or

finger 29, while one end of the wire is bent up, as at 30, to retain the wire in place, and the other end of the wire is bent at about right angles to the plane of the finger 29 to form a second U-shaped member 31, the plane or planes of which are at right angles, or nearly so, to the plane of the finger 29, and that end of the wire projects outward at 32. The disks 27 have a rod 33 secured thereto, and a spring 34, whose ends are fast, respectively, to the U member 31 and to a collar 35, fast on the shaft 26, keeps the finger 29 normally against the said stop 33.

The shaft 26 is driven from the crank 36 by means of the shaft 37, the gear 38, fast on said shaft 37, and the gear 39, fast on the shaft 26. A fly-wheel 40 may be added, being fast on the shaft 26. A pawl or dog 41 coacts with the gear 38 to prevent the finger 29 from being moved in the wrong direction. The crank 36 screws onto the end of the shaft 26 and may be removed at will, or the apparatus may be driven otherwise than as above described.

The operation is as follows: The film, in the form of a ribbon endless in form, is placed between the plates 7 and 19 and over the guides (not shown) and the burner lighted. The light is concentrated on the film at the opening 6 and is projected through the lenses in the tubes 8 and 9. The crank 36 is turned at any desired speed, thus driving the carrier (formed in the instance illustrated by the disks 27 and their shaft 26) at a corresponding speed. The carrier carries the finger 29 around in an orbit, and as said finger 29 approaches the film 18 it engages with that hole in the film 18 which is immediately below the deflector 14, the film 18 at that point being in a plane tangent to the disks above the horizontal through the shaft 26—that is, the film 18 is in a plane such that the tip of the finger 29 strikes the film, which is supported against horizontal motion at two points—viz., at the deflector 14 and at the upright 7 below said deflector—between which supported points the finger strikes the film and bends it toward the plate 7 and slips along the film until it enters a slot 24, whereupon the film begins to move down alongside the plate 7 until the end 32 of the wire 28 is arrested by the fixed stop 42 on the plate 7. The arrest of the end 32 by the stop 42 causes the finger 29 to turn on its axis and to withdraw horizontally from the slot in the film—that is, the finger 29 is arrested simultaneously with the end 32, and that arrests the film, with the succeeding picture in proper position before the opening 6. The stop 42 is so arranged that the finger 29 is wholly withdrawn from the film 18 before the end 32 slips off the stop 42, and on such release of the end 32 the spring 34 returns the finger 29 to its normal position without disturbing the film 18. The act of changing

from one to another picture occupies but small fraction of the time of a revolution of the carrier, and the change, owing to the fact that light continues to fall on the screen, is scarcely, if at all, perceptible to the eye.

What I claim as new, and desire to secure by Letters Patent of the United States, is—

1. A film-mover consisting of a rotary carrier, a spring-finger pivotally connected to said carrier, a stop on said carrier for said finger, and means for momentarily arresting said finger after it has moved the film, whereby the finger is disengaged from said film.

2. A film-mover consisting of a rotary carrier, a spring-finger pivotally connected with said carrier, a stop on said carrier for said finger, and a fixed arrester for momentarily arresting said finger after it has moved the film.

3. The combination of a rotary carrier, a wire or rod journaled on said carrier and having a U-shaped bend therein and also a projecting end or arm, a stop on said carrier, a spring for holding said bent wire or rod normally against said stop, and means coacting with said end or arm for momentarily arresting said bent part after it has moved the film, whereby said bend is withdrawn from the film.

4. The combination of a rotary carrier, a wire or rod journaled on said carrier and provided with a bend therein and also a projecting arm, a stop on said carrier, a spring for holding said bent wire normally against said stop, and a fixed arrester for momentarily arresting said bent wire to withdraw it from the film.

5. The combination with a film-moving finger having an orbital motion, of means for causing the perforated film to incline toward the path of said finger, and means for causing said finger to move on its own axis to disengage itself from said film.

6. The combination with a rotary carrier, and a film-moving finger mounted thereon to be movable relatively thereto, of means for causing the perforated film to incline toward the path of said finger, and means for causing said finger to move relatively to said carrier and in a direction substantially at right angles to the path of the film at the point of engagement to disengage the finger from said film while the film is at rest.

7. A film-mover consisting of a rotary carrier a finger mounted on and carried wholly by said carrier and adapted to have motion relatively thereto and adapted to engage with the perforated film to move it, and means for causing the said finger to move inwardly of said carrier to disengage it from said film.

8. A film-mover consisting of a rotary carrier, a finger mounted on said carrier to have motion relatively thereto and adapted to engage with the perforated film to move it, and

an arrester for momentarily stopping the orbital motion of said finger and causing it to move inwardly of said carrier to disengage it from said film.

5 9. The combination of a pair of parallel arms, a shaft to which they are fast, a wire or rod journaled on said arms and, between said arms, bent outward, and, outside said arms, having an end projecting outward, a stop between said arms, and a spring for holding said bent wire against said stop, with means coacting with said projecting end to arrest it momentarily.

15 10. The combination of a pair of disks or parallel arms, a rotary shaft to which they are fast, a wire or rod journaled in said arms and, between said arms, bent outward, and, outside of said arms, having an end projecting outward, a stop between said arms, and a spring for holding said bent wire against said stop, with a fixed arrester coacting with said bent end to arrest the same momentarily.

25 11. The combination of a pair of rotary disks, a wire or rod journaled in said disks and, between said disks, bent outward, and, outside said disks, bent into U shape transverse to the axis of rotation of said wire and having an end projecting outward, a stop on said disks for said bent wire, and a spring for holding said wire against said stop normally, with means for momentarily arresting said projecting end to cause the bent film-moving part to withdraw from the film.

35 12. The combination of a pair of rotary disks, wire or rod journaled in said disks and, between said disks, bent outward, and, out

side said disks, bent into U shape transverse to the axis of motion of said wire and having that end projecting outward, a stop on said disks for said bent wire, and a spring for normally holding said wire against said stop, with a fixed arrester coacting with said projecting end to arrest momentarily the bent wire.

13. A vertical plate provided with two openings, one above the other, and with a film-deflector between said openings, combined with a film-moving finger having an orbital motion and arranged to have rotary motion, and means whereby said finger is rotated to cause it to release the film.

14. A vertical plate provided with two openings, one above the other, and with a film-deflector between said openings, two spring arms on said plate, a film-guide plate having spring-arms engaging with the spring-arms first named, lugs on the vertical plate for retaining said guide-plate in place above said deflector, combined with means for moving the film.

15. A vertical plate provided with two openings one above the other and having its ends bent away from one side and provided with a film-deflector between said openings.

Signed at New York, in the county of New York and State of New York, this 6th day of June, A. D. 1906.

ENOCH J. RECTOR.

Witnesses:

A. T. STOUTENBURGH,
R. W. BARKLEY.