

H. O. CARLETON & E. W. NELSON.

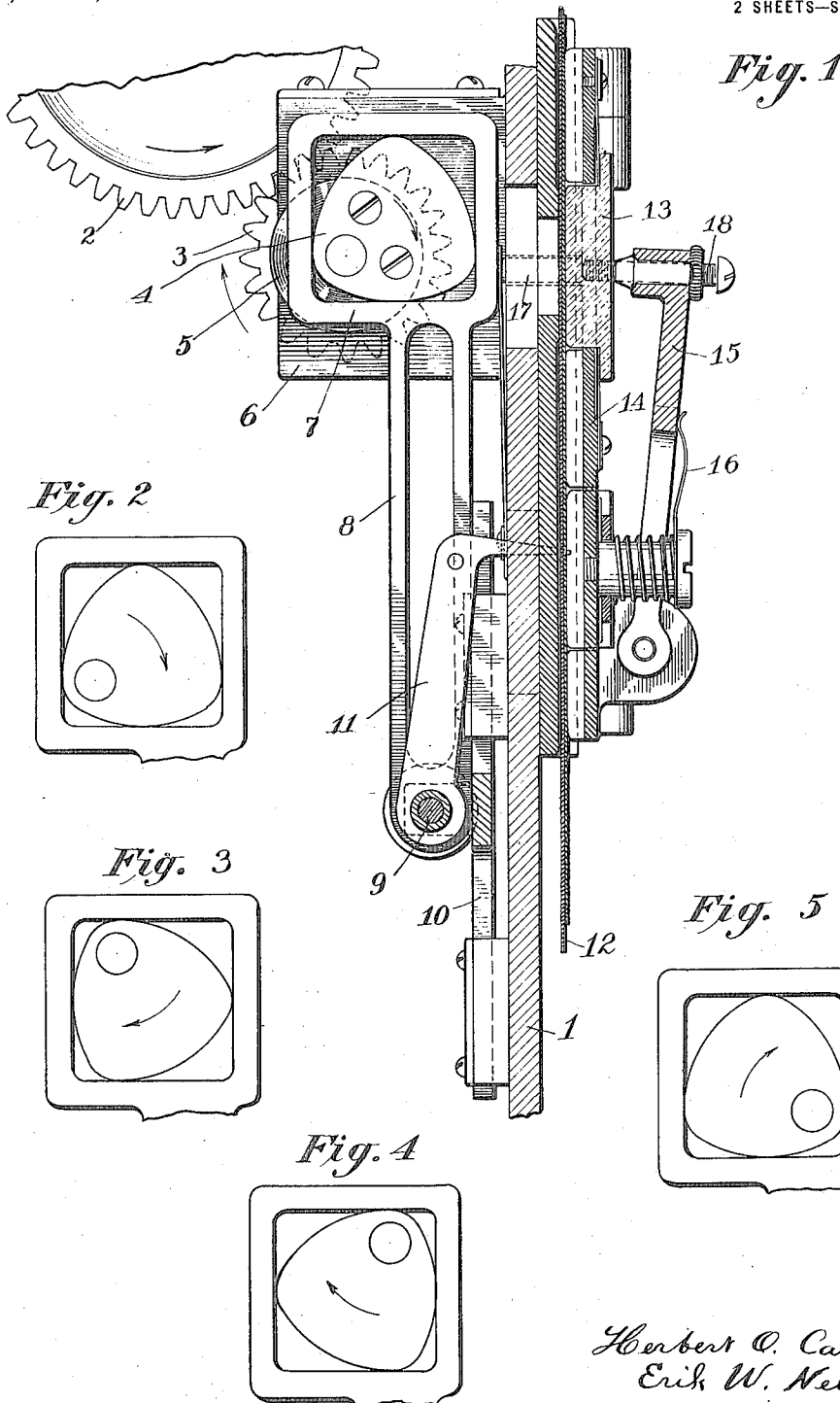
CAM MOVEMENT.

APPLICATION FILED OCT. 23, 1913.

1,152,600.

Patented Sept. 7, 1915.

2 SHEETS—SHEET 1.



Witnesses:
R. Clark
A. Rozinsky

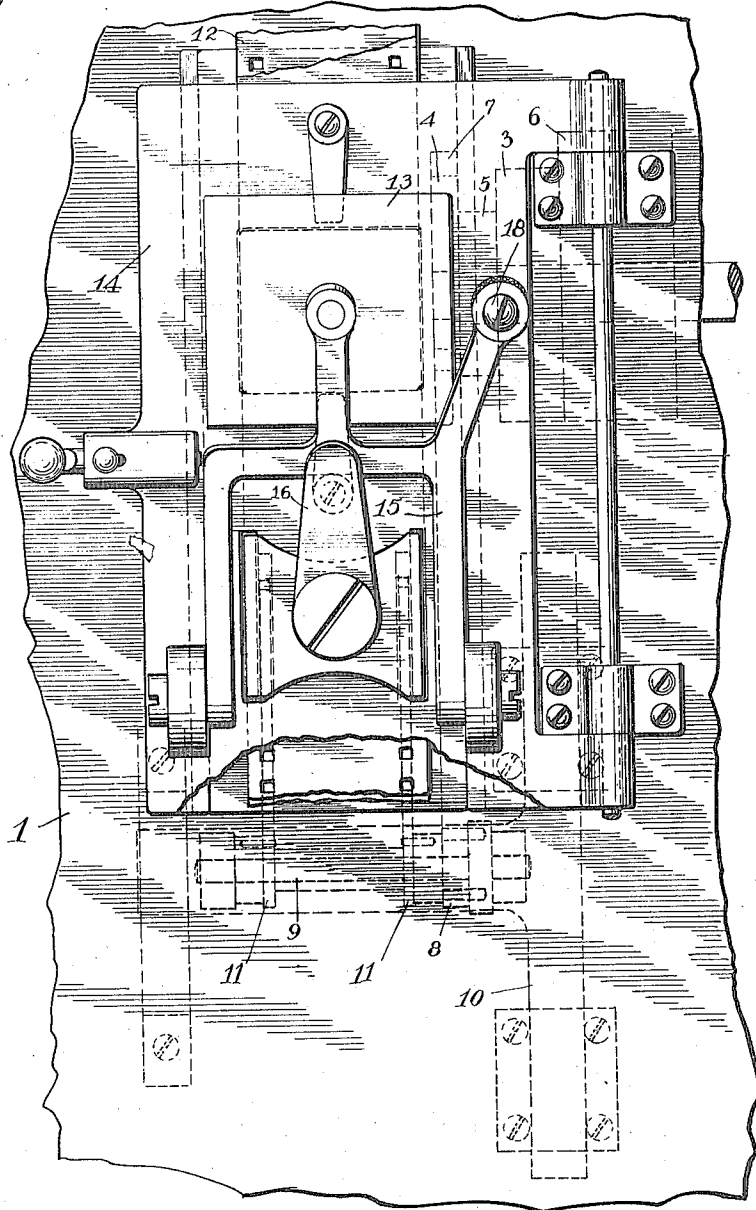
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Erik W. Nelson
Inventors
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Fig. 6



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UNITED STATES PATENT OFFICE.

HERBERT O. CARLETON, OF NEW YORK, AND ERIK W. NELSON, OF NEW ROCHELLE,
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CAM-MOVEMENT.

1,152,600.

Specification of Letters Patent.

Patented Sept. 7, 1915.

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To all whom it may concern:

Be it known that we, HERBERT O. CARLETON, a citizen of the United States, and resident of the city of New York, borough of Brooklyn, county of Kings, and State of New York, and ERIK W. NELSON, a citizen of the United States, and resident of New Rochelle, Westchester county, and State of New York, have invented certain new and useful Improvements in Cam-Movements, of which the following is a specification.

This invention relates to a cam movement adapted for various uses where it is desired to translate a rotary movement into straight line movements in different directions.

The object of the invention is to provide a simple construction for a cam movement for accomplishing the above purpose in a positive and efficient manner.

In carrying out the invention we employ an eccentric curved face cam and a cam frame of peculiar construction whereby, when the cam is rotated, four-direction straight line movements and a rectilinear movement will be imparted to the cam frame.

As an illustration of one of the many uses to which this cam movement may be put we have shown the same as applied to a motion picture machine for feeding the film. In this connection part of the movement is utilized for the feeding and a part of the movement for operating mechanism for alternately holding and releasing the film, all of which to be explained more fully hereinafter in connection with the description of the invention as an illustration in the accompanying drawings.

In the drawings like parts in the several views have been given the same reference numerals.

Figure 1 is a sectional side elevation of a cam movement and mechanism operated thereby. Figs. 2, 3, 4 and 5 represent successive positions of the cam and frame during one complete revolution. Fig. 6 is a front view taken from the right of Fig. 1.

A suitable support for the cam and associated parts is indicated at 1. The motive power for rotating the cam is indicated by the gear 2, which meshes with the gear 3 upon which the cam 4 is mounted. The gear 3 may be provided with a hub 5 which

extends through an extension 6 from the support 1, the cam 4 being attached to one face of the hub 5. A cam frame 7 is positioned about the cam 4. This frame is formed of four rectangular faces each engaging the cam 4. The cam 4 is formed with three faces each formed on circular arcs, joined by smaller arcs, thus forming a triangular curved face cam. The cam is mounted to rotate about the center of one of these arcs. An extension 8 from the cam frame 7 is pivotally attached at 9 to a guide 10, so that as the cam is rotated the lower end of this extension will have a vertical, rectilinear, reciprocating motion and, at the same time, an oscillating motion will be imparted thereto. A pair of fingers 11 may be attached to the pivot pin 9, which is attached to the lower end of the extension 8 of the cam frame. The upper ends of the fingers 11 are formed so as to engage the usual openings in the film 12. It will thus be seen that as the cam 4 is rotated in the direction indicated by the arrows, the frame will first assume the position shown in Figs. 1 and 2 and, during the next quarter turn, will be moved downwardly in a straight line into the position shown in Fig. 3. From this position the upper end of the cam frame will be moved, during the next quarter turn, to the left to the position shown in Fig. 4, the extension 8 moving about the center of the pivot pin 9. During the next quarter turn the frame is moved from the position shown in Fig. 4 upwardly in a straight line in the position shown in Fig. 5, and, during the next quarter turn, will be moved to the right to the position shown in Figs. 1 and 2, the extension 8 moving about the center of the pin 9. It will be seen that the successive movements cause the fingers 11 to move the film 12 downward during the first period of the motion, then moving the fingers 11 out of engagement with the film during the second period of the motion, then moving the fingers upward during the third period of the motion and then to the right during the fourth period of the motion again into engagement with the film, when the operation is repeated.

Another operation is performed by the cam movement when used in connection with a motion picture machine. A colored glass 13 is loosely mounted in a frame 14

and normally held tightly against the film 12 by means of a hinged member 15 and its spring 16. A sliding pin 17 is mounted in and extends through the support 1 in position to be engaged at its inner end by the cam frame 7 when the same is moved to the position shown in Fig. 1 and the pin 17 is thus moved outwardly and engages a portion or extension 18 from the member 15 and moves the same outwardly, releasing the pressure on the glass 13 and the film 12 while the same is being advanced or moved downwardly by the fingers 11, as already described.

15 What we claim is:—

A cam movement comprising an eccentric curved face cam and a cam frame operated thereby, said cam being formed with three faces each formed on circular arcs and said 20 cam frame being formed with four rectan-

gular faces each engaging said cam, whereby a four-direction straight line movement is imparted to said cam frame as the cam is rotated, said cam frame being also provided with an integrally formed extension, 25 a rectilinear guide having a projection, said extension being pivotally attached to said projection, whereby a reciprocating and oscillating motion is imparted thereto and the extension caused to move toward and 30 away from said guide.

Signed at New York city, in the county and State of New York, this 18th day of October, 1913.

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Witnesses:

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