



**No. 627,952.**

**Patented June 27, 1899.**

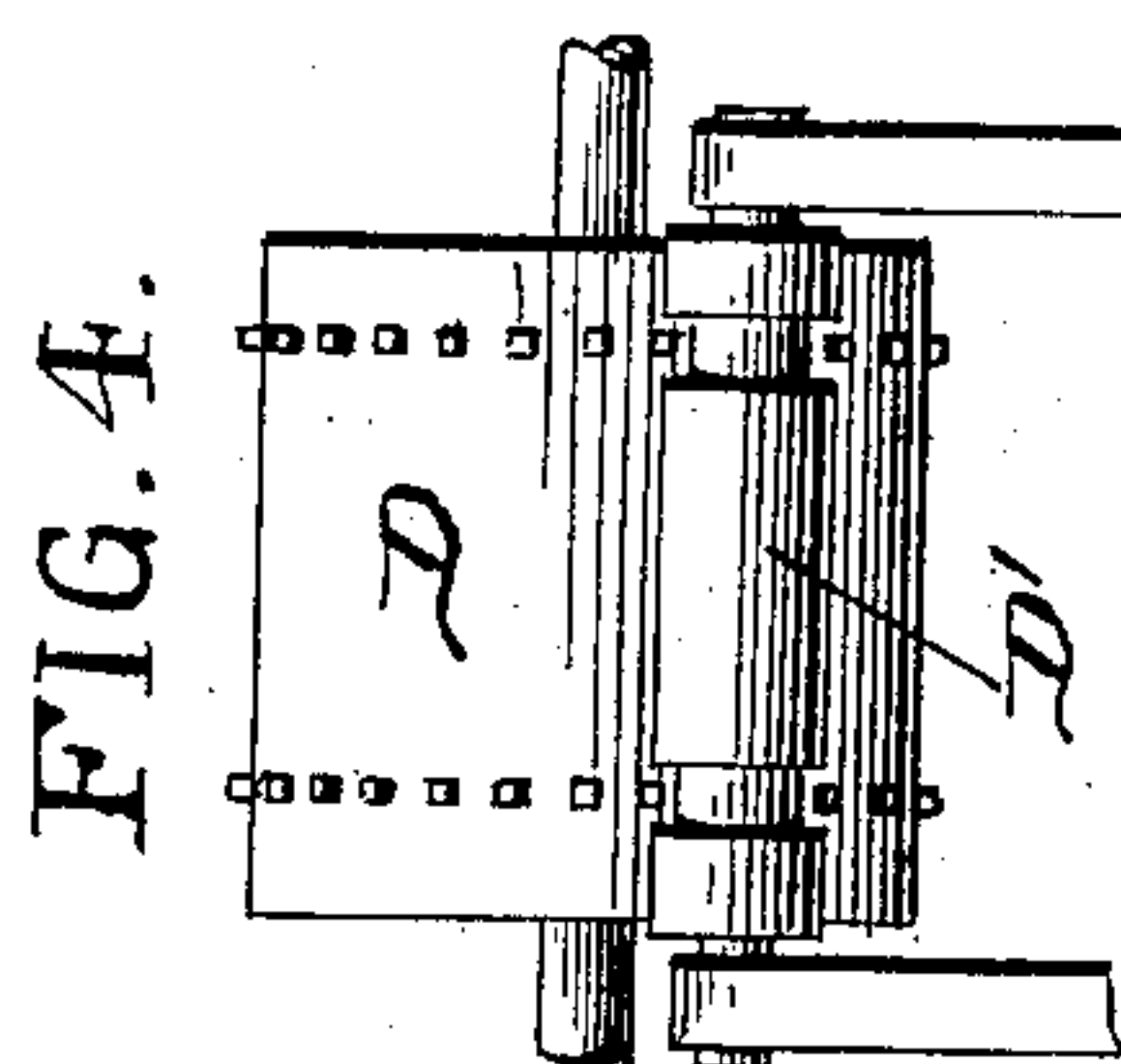
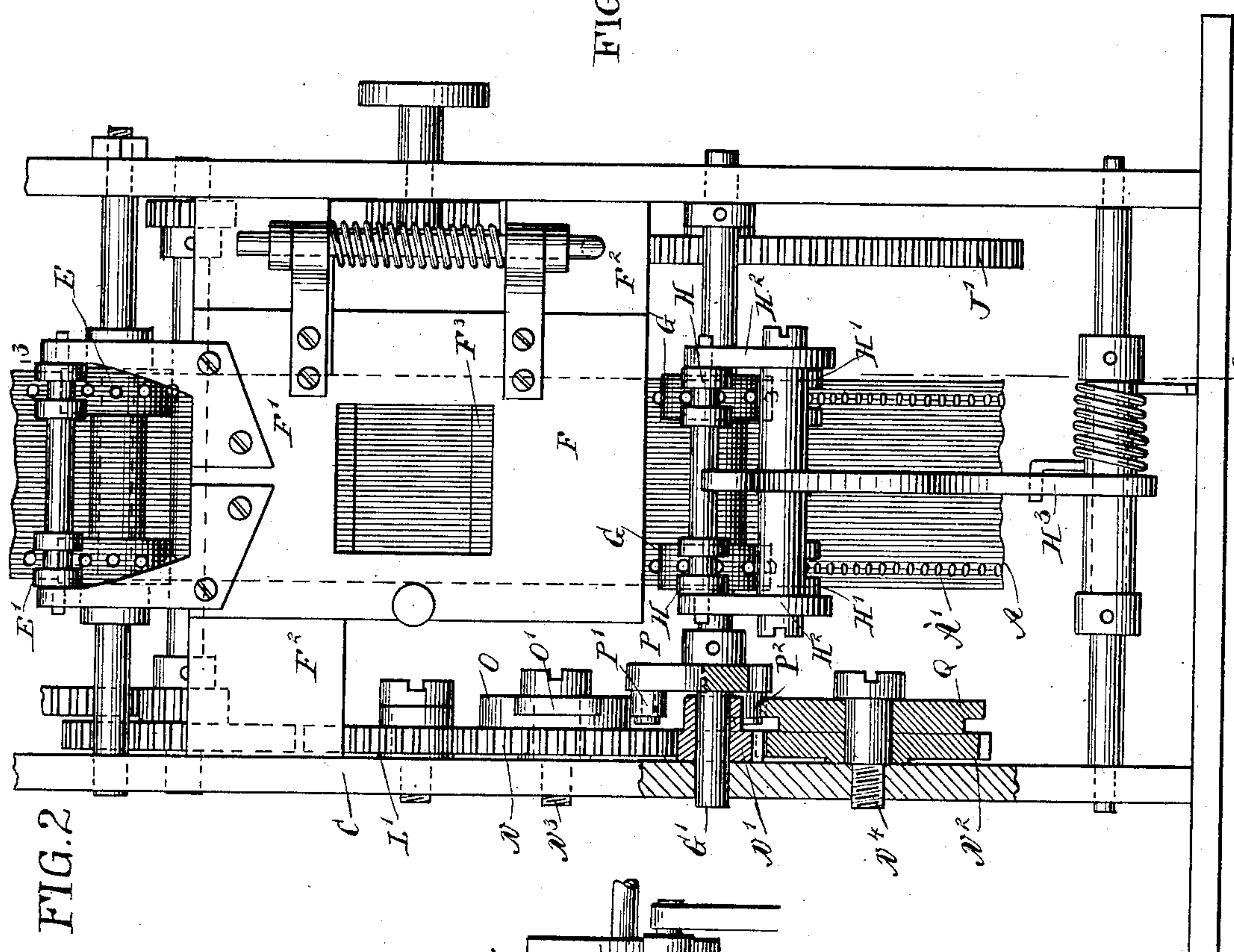
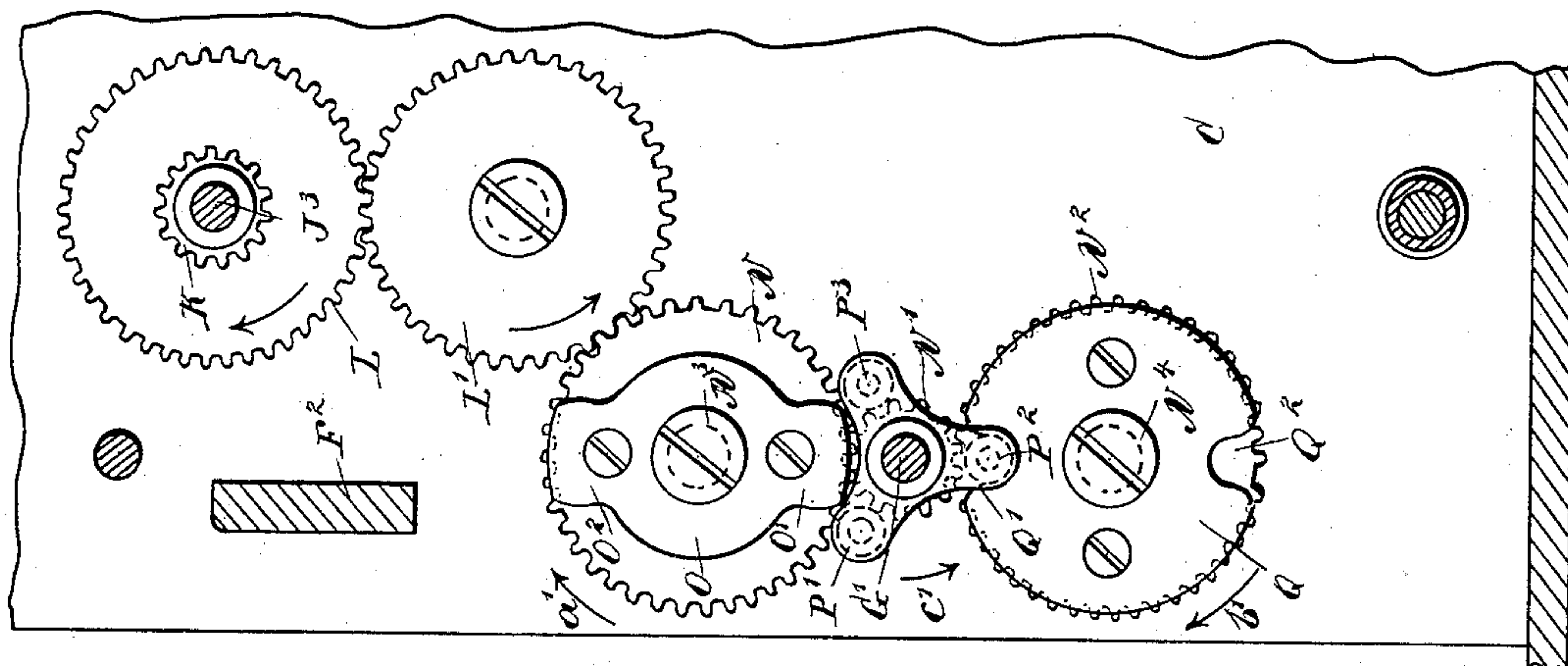
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# MECHANISM FOR MOVING FILMS OR WEBS INTERMITTINGLY.

(Application filed Jan. 27, 1898.)

(No Model.)

**2 Sheets—Sheet 2.**



WITNESSES:

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# UNITED STATES PATENT OFFICE.

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## MECHANISM FOR MOVING FILMS OR WEBS INTERMITTINGLY.

SPECIFICATION forming part of Letters Patent No. 627,952, dated June 27, 1899.

Application filed January 27, 1898. Serial No. 668,149. (No model.)

*To all whom it may concern:*

Be it known that we, AUGUST CHRONIK and LOUIS CHRONIK, of the city of New York, borough of Manhattan, in the county of New York and State of New York, have invented a new and Improved Mechanism for Moving Films or Webs Intermittently, of which the following is a full, clear, and exact description.

10 The invention relates to apparatus for exhibiting or making a series of photographic pictures, showing successively the different attitudes assumed by a person or other moving object.

15 The object of the invention is to provide a new and improved mechanism for moving a film or web intermittingly in apparatus above referred to and arranged to give to the film or picture-carrying surface a rapid intermittent positive motion without danger of slipping or not moving the pictures the desired distance.

25 The invention consists of novel features and parts and combinations of the same, as will be described hereinafter, and pointed out in the claims.

Reference is to be had to the accompanying drawings, forming a part of this specification, in which similar characters of reference indicate corresponding parts in all the figures.

30 Figure 1 is a sectional side elevation of the improvement. Fig. 2 is a front elevation of the same with parts in section. Fig. 3 is a sectional side elevation of the improvement on the line 3 3 of Fig. 2, and Fig. 4 is a front elevation of the feed-drum and its recessed pulley.

40 The film or other picture-carrying surface A, of any approved construction, is adapted to receive an intermittent rotary motion by the mechanical movement hereinafter more fully described in detail, said film forming a part of an apparatus for graphically displaying pictures showing successively the different attitudes assumed by a person or other moving object. The film A is provided at its side edges with equidistant-spaced apertures A', and the film unwinds from a roll B, carried by the framework C of the machine, the said film after leaving the roll passing under a feed-drum D in the form of sprocket-wheels, the teeth of which mesh with the apertures

in the side edges of the film, so that the latter is positively moved or unwound from the roll B when the drum D is set in motion. 55

In order to hold the film in mesh with the sprockets of the sprocket-wheels of the drum D, we provide recessed pulleys D', engaging the film at the opposite sides of the sprocket-wheels, the sprockets of the wheels of said drum passing into the annular recesses of the pulleys D'. (See Fig. 4.) The film after leaving the feed-drum D passes in a like manner between guide sprocket-wheels E and recessed pulleys E', to then extend downward and pass 65 between the apertured door F' and the fixed open frame F<sup>2</sup> of a guiding device F, which latter is also provided with a vertically-adjustable slide F<sup>3</sup>, having an opening registering with the door-opening, at the front of which opening pass successively the pictures, each picture occupying the space at the opening during the period of rest of the film, and as this space is in alinement with the lenses and light of the apparatus it is evident that the picture while extending in the opening of the slide is in an illuminated field for exhibiting or other purposes. Each picture is retained in the illuminated field for exposure for a predetermined time. 80

The film A after leaving the guiding device F passes over the drum G, composed of two sprocket-wheels engaging with their sprockets the apertures on the side edges of the film, and as this drum has an intermittent rotary motion it draws the film downward through the guiding device F a predetermined distance, so that the pictures are retained successively in the illuminated field of the slide F<sup>3</sup>. The film is held in contact with the drum G by two sets of grooved pulleys H H' to prevent the film from moving accidentally out of mesh with the sprockets engaging the openings in the film at that time. 85

The pulleys H H' are journaled in a frame H<sup>2</sup>, fulcrumed on a spring-pressed lever H<sup>3</sup>, which when depressed permits of readily placing a film in position on the intermittently-rotating drum G. The film after leaving the drum G passes between a drum I and pulleys I', and then to the winding-up roll, (not shown,) also positively driven in unison with the sprocket-wheels K<sup>2</sup> and the drum I. 95

In order to impart a continuous rotary mo- 100



tion to the drums D and I and an intermittent motion to the drum G, we provide a main driving-shaft J with a gear-wheel J', connected by a train of gear-wheels J<sup>2</sup> with a shaft J<sup>3</sup>, carrying a pinion K in mesh with a gear-wheel K', meshing with a gear-wheel K<sup>2</sup>, secured on the shaft of the feed-drum D. The train of gear-wheels J<sup>2</sup> consists of a gear-wheel J<sup>4</sup>, secured on a shaft J<sup>5</sup>, journaled in suitable bearings in the framework C of the machine, the said gear-wheel J<sup>4</sup> being in mesh with the gear-wheel J' above mentioned. On the shaft J<sup>5</sup> is secured a gear-wheel J<sup>6</sup> in mesh with the pinion K previously mentioned, so that when the shaft J is rotated by suitable means the gear-wheel J' rotates the gear-wheel J<sup>4</sup> to turn the shaft J<sup>5</sup>, which by the gear-wheel J<sup>6</sup>, meshing with the pinion K<sup>3</sup>, causes a rotary motion of the shaft J<sup>3</sup>. The shaft J<sup>3</sup> is also provided with a gear-wheel L in mesh with a gear-wheel L', meshing with a gear-wheel N in mesh with a gear-wheel N'. Both gear-wheels N and N<sup>2</sup> are mounted to turn loosely on studs N<sup>3</sup> and N<sup>4</sup>, attached to the frame C of the machine. The gear-wheel J' also meshes with a gear-wheel I<sup>2</sup> on the drum I, so that when the shaft J is rotated a continuous rotary motion is given to the drums D and I and the gear-wheels N N' N<sup>2</sup>.

On the gear-wheel N is secured a wheel O, having two arms O' and O<sup>2</sup>, adapted to successively engage the friction-rollers P' P<sup>2</sup> P<sup>3</sup>, journaled on the arms of a three-armed wheel P, secured to the shaft G' of the drum G and intermediate of the gear-wheels N and N<sup>2</sup>. The friction-rollers of the three-armed wheel P are also arranged to be successively engaged by recesses Q' Q<sup>2</sup>, formed diametrically opposite each other in the peripheral surface of a wheel Q, secured to the face of the gear-wheel N<sup>2</sup>, and hence rotating with the same.

Now when the several parts are in the position shown in Fig. 1 and the gear-wheel N, with its two-armed wheel O, is rotated in the direction of the arrow a', and with it the gear-wheel N<sup>2</sup> in the direction of the arrow b' and the gear-wheel N' in the direction of the arrow c', then the arm O' finally comes in contact with the friction-roller P' at the time the recess Q' of the wheel Q approaches the friction-roller P<sup>2</sup>, so that said arm O' turns the wheel P in the direction of the arrow c' and finally leaves the friction-roller P<sup>2</sup> at the time the recess Q' is in its uppermost position. Upon further rotation of the wheel Q the wall of the recess acts on the friction-roller to keep on turning the wheel P until the recess finally leaves the friction-roller P<sup>2</sup>. Now during this movement the wheel O has turned the wheel P one-sixth of a full revolution to cause another one-sixth of a revolution to complete a turn, which is one-third of a full revolution of the wheel P, and then the friction-roller P<sup>3</sup> stands against the peripheral surface of the wheel O between the arms O' and O<sup>2</sup>, and the other friction-rollers P' P<sup>2</sup> stand in frictional

contact with the peripheral surface of the wheel Q, so that the wheel P is securely locked against rotation by both wheels O and Q during the period of rest, which is during a one-half revolution of either the wheel O or Q. As the wheel P is secured on the shaft G', it is evident that the drum G is intermittently rotated to feed the film A a predetermined distance to bring the next following picture into the illuminated field at the slide F<sup>3</sup>. During a further rotation of the wheels O and Q the other arm O<sup>2</sup> will engage the friction-roller P<sup>3</sup>, while the friction-roller P' is engaged by the recess Q<sup>2</sup> to give another turn to the wheel P in the manner described and to then lock the wheel P again in place after the arms O<sup>2</sup> and recess Q<sup>2</sup> have passed, so as to hold the wheel P at rest for the time being. It is evident that during the period of rest the film portion fed forward by the feed-drum D bulges between the latter and the sprocket-wheels E and the pulleys E' until the period of rest of the drum G has ceased and the latter again feeds the film forward to take up the slack in the film between the drum D and the sprocket-wheels E.

Now by the arrangement described it is evident that the film is moved intermittently through the guiding device F in a positive manner and without danger of being disturbed during the period of rest, as the wheel P, secured on the drum-shaft G', is firmly locked against rotation by both wheels O and Q. The intermittent movement described permits of intermittently rotating the shaft G' at a very high rate of speed, so as to intermittently feed the film A forward without requiring any attention on the part of the operator, and hence by the use of this movement proper successive photographic pictures can be exhibited or taken by the use of the corresponding additional apparatus without danger of the film slipping or not moving the desired predetermined distance.

Having thus fully described our invention, we claim as new and desire to secure by Letters Patent—

1. A mechanism for moving a web or film intermittently, comprising a drum-wheel having projecting elements and two actuating devices therefor, each having locking-faces and driving elements for engagement with said projecting elements of the drum-wheel in the locked position being out of the path of travel of the driving elements of one actuating device and in the path of travel of the driving elements of the other actuating device.

2. A mechanism for moving a web or film intermittently, comprising a driving and locking wheel having in its periphery driving elements and locking-faces between them, a drum-wheel having a plurality of projecting elements, one of which in the locked position engages one of said locking-faces and is out of the path of travel of said driving elements, and a second driving-wheel having a plural-



ity of driving elements arranged to engage one of said projecting elements of the drum-wheel, to partly turn the latter and thereby bring another projecting element thereof into the path of one of the driving elements of the first-named driving-wheel, so that the latter will complete the motion of the drum-wheel and then bring the drum-wheel into a locked position, substantially as shown and described.

3. A mechanism for moving a film or web intermittently, comprising a drum provided with means for positively feeding the film or picture-carrying surface passing over the drum, a three-armed wheel on said drum, and two driving-wheels rotating in unison, one of the driving-wheels having two arms alternately engaging the arms and the peripheral surface of the drum-wheel to start the latter on its turn, and assist in locking the drum-wheel during its period of rest, the other or second driving-wheel having recesses successively meshing with the arms of the drum-wheel, to complete the turn of the drum-wheel, and to then also assist in locking the drum-wheel against rotation during the period of rest, substantially as shown and described.

4. A mechanism for moving a film or web intermittently, comprising a drum provided with means for positively feeding the film or picture-carrying surface passing over the drum, a three-armed wheel on said drum, two driving-wheels rotating in unison, one of the driving-wheels having two arms alternately engaging the arms and the peripheral surface of the drum-wheel to start the latter on its turn and assist in locking the drum-wheel during its period of rest, the other or second driving-wheel having recesses successively meshing with the arms of the drum-wheel, to complete the turn of the drum-wheel, and to then also assist in locking the drum-wheel against rotation during the period of rest, gear-wheels on the said driving-wheels and one in mesh with a driver, and an intermediate gear-wheel in mesh with both driving gear-wheels and mounted to rotate loosely on the drum-shaft, substantially as shown and described.

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