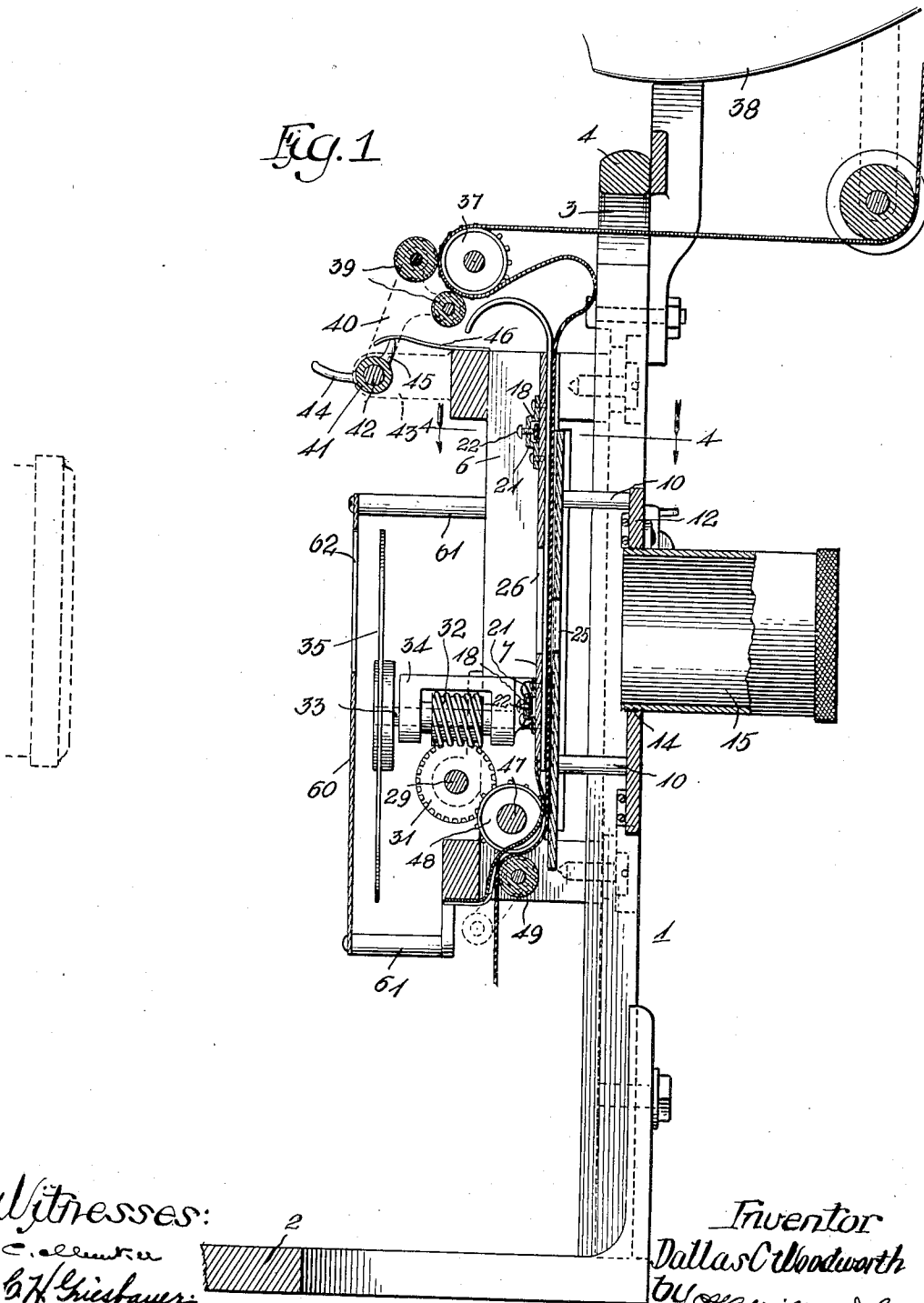


917,697.

Fig. 1.



Witnesses:

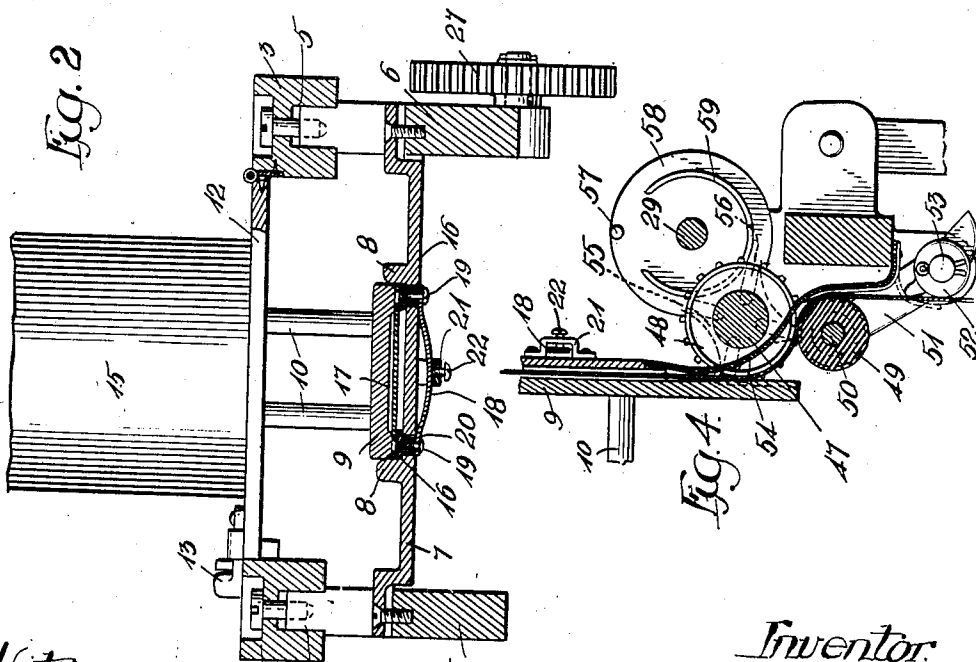
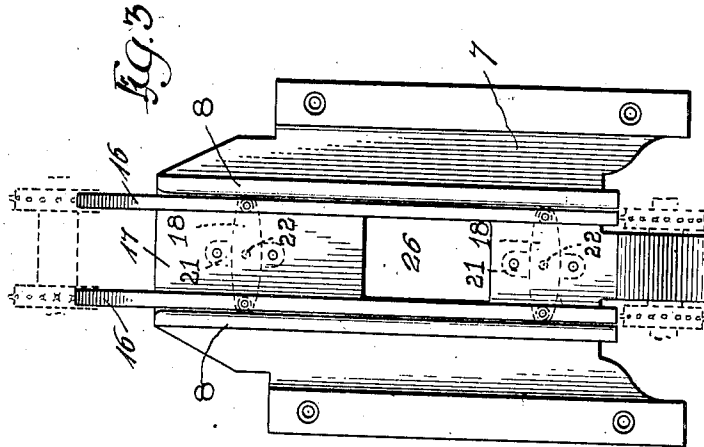
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D. C. WOODWORTH.
MOVING PICTURE MACHINE.
APPLICATION FILED JAN. 9, 1908.

917,697.

Patented Apr. 6, 1909.
2 SHEETS—SHEET 2.



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UNITED STATES PATENT OFFICE.

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MOVING-PICTURE MACHINE.

No. 917,697.

Specification of Letters Patent.

Patented April 6, 1909.

Application filed January 9, 1908. Serial No. 410,002.

To all whom it may concern:

Be it known that I, DALLAS C. WOODWORTH, a citizen of the United States, residing at Chicago, in the county of Cook and State of Illinois, have invented certain new and useful Improvements in Moving-Picture Machines; and I do 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 moving picture machines.

The object of the invention is to provide a machine of this character having an improved film-holding mechanism whereby the film is held and comes in contact with the machine only along its edges, thereby obviating all danger of injury to the picture surface of the film.

Another object is to provide an improved construction and arrangement of door for supporting the objective lens and picture gage whereby said door and the parts supported thereby are swung outwardly.

With these and other objects in view, the invention consists of certain novel features of construction, combination and arrangement of parts as will be described and particularly pointed out in the appended claims.

In the accompanying drawings, Figure 1 is an enlarged vertical sectional view; Fig. 2 is a horizontal sectional view through the supporting frame, the door and the film-holding and guiding devices; Fig. 3 is a front view of the face plate showing the film channel and opening through which the light passes, and also showing the film guide strips; and Fig. 4 is an enlarged detail sectional view showing the means for intermittently drawing the film through the machine.

Referring more particularly to the drawings, 1 denotes the frame of the machine which is here shown and preferably consists of a base or foot section, 2, to which are bolted or otherwise secured supporting standards, 3, said standards being connected at their upper end by a curved cross bar, 4, which forms a handle by means of which the machine may be carried. In the standards, 3, are formed vertically disposed guide channels, 5, in which is slidably mounted a frame, 6, in which are arranged the operating devices of the machine.

To the side pieces of the frame, 6, is secured a face plate, 7, on the forward side of

which are formed vertically disposed guide flanges, 8, which provide a channel through which the film is adapted to move. The film is held in the guide channel by means of a gage bar or plate, 9, which is supported in position by horizontally disposed bars, 10, which are secured to said plate at one end and at their opposite ends are secured to a door, 12, which is hingedly mounted on one of the upright standards, 3, and adapted to swing outwardly thereon and to carry the gage plate out of engagement with the film when desired. The door, 12, closes against a suitable stop formed on the opposite standard, 3, and is held in closed position by means of a suitable catch, 13. In the door, 12, is formed an opening, 14, in which is arranged the objective lens holder, 15, said holder being also moved outwardly when the door is opened.

In the channel formed by the flanges, 8, are arranged tension bars or strips, 16. Said strips are disposed between the film and the face plate and are adapted to press the edge of the film against the gage plate, 9, said plate being provided with a longitudinally disposed recess or channel, 17, so that the film will not engage the same except at its opposite edges. The tension strips, 16, are held in yielding engagement with the edges of the film by means of tension springs, 18, which are arranged on the rear side of the face plate adjacent to the upper and lower edges thereof, as shown. The outer ends of the springs, 18, are connected to the strips, 16, by means of screws or other fastening devices, 19, which are passed through spacing blocks, 20, and screwed into the strips, 16. The spacing blocks, 20, are arranged in apertures formed in the face plate to receive the same. Across each of the springs, 18, midway between their ends, is arranged a bail, 21, the opposite ends of which are secured to the rear side of the face plate in any suitable manner. In the bails, 21, are arranged tension screws, 22, the inner ends of which are adapted to be screwed into engagement with the springs, 18, and provide means whereby the tension of the same is regulated.

On one side of the frame, 6, are arranged operating gears, 27, on the shaft, 29, of one of which is fixedly mounted a worm gear, 31, which is adapted to engage a worm, 32, on a transversely disposed shaft, 33, journaled in a suitable bearing bracket, 34, secured to

the frame, 6. On the rear end of the shaft, 33, is fixedly mounted a shutter, 35, which is preferably in the form of a thin segmental plate and is adapted to be revolved by the train of gears, 27, through the medium of the worm gears, 31 and 32.

In the upper end of the frame are mounted toothed film feeding wheels, 37, around which the film passes from the reel 38, which is mounted on the upper end of the machine. The film is provided along its opposite edges with a series of apertures with which the teeth on the wheel, 37, engage, thus forming a positive connection between the wheels and the film. The film is held in engagement with the wheels, 37, by means of grooved rollers, 39, which are revolvably mounted in an arm, 40, formed on a sleeve, 41, which is pivoted on a stub shaft, 42, journaled in a bearing bracket, 43, formed on the upper portion of the frame, 6. The sleeve, 41, is provided with a finger piece, 44, by means of which the arm, 40, is operated to engage the grooved rollers with the wheels 37. The sleeve, 41, is also provided with a radially projecting lug, 45, with which is engaged a flat holding spring, 46.

On a suitably mounted shaft, 47, journaled in the lower end of the frame, 6, are lower toothed feed wheels, 48, the teeth of which are adapted to engage the apertures in the edges of the film adjacent to the lower end of the face plate, 7, said film being held in engagement with the toothed wheels, 48, by means of grooved rollers, 49, which are revolvably mounted on a shaft, 50, carried by an arm, 51, fixed on a sleeve, 52, which is pivoted on a shaft, 53, on the lower end of one of the side bars of the frame, 6. The lower portion of the film where the same passes between the wheels, 48, and the rollers, 50, is protected by a curved shield or guard plate, 54.

On the shaft, 47, adjacent to one end thereof is fixedly mounted an operating wheel, 55, said wheel being in the form of a Maltese cross having notches, 56, with which is adapted to be engaged a pin, 57, which is secured to and projects laterally from an operating disk 58, whereby when said disk is revolved, the motion thereof is imparted through the pin, 57, to the operating wheel, 55, which is intermittently turned by the engagement of said pin with the notches, 56, therein, to the distance of one picture for each revolution of the disk, 58. The arrangement of these parts and the shutter operating worm gears is such that the shutter will be given two revolutions for each movement of the operating wheel, 55. On the disk, 58, is formed a radially projecting segmental flange, 59, which is adapted to engage with the curved outer edge of the arms of the cross-shaped operating wheel, 55.

Arranged at the rear of the shutter is a sheet metal protecting plate, 60, which is supported in position upon the frame, 6, by means of rearwardly-projecting supporting arms or bars, 61. The plate, 60, is provided near its upper edge with a light-opening, 62, through which the light from the lantern is adapted to pass. By providing the plate, 60, and arranging the shutter in rear of the film, or between the same and the light, the film will be protected to a great extent from the heat of the light, and much of the danger of the film becoming ignited is thus eliminated.

By constructing and arranging the door to swing outwardly on the forward side of the supporting frame of the machine, and arranging the picture gage and lens holder on the door so as to be moved therewith, access may be readily had to the film and the threading and arranging of the same thereby greatly facilitated.

Having thus described my invention, what I claim as new and desire to secure by Letters-Patent, is:

1. A moving picture machine comprising supporting standards, a supporting frame slidably mounted in said standards, a face plate arranged in said supporting frame, said plate having vertically disposed guiding flanges forming a channel to receive the film, an outwardly-opening door, a lens holder arranged on the outer side of said door, a gage plate secured to the inner side thereof and adapted to be engaged with the film channel in said face plate when the door is in a closed position, tension bars arranged in said channel and extending throughout the length of the same, fastening devices operatively mounted in said face plate and connected at their inner ends to said tension bars, tension springs arranged on the opposite side of said face plate and connected to the opposite ends of said fastening devices whereby the tension of the springs is applied to said bars, and means to regulate the tension of said springs, substantially as described.

2. A moving picture machine comprising supporting standards, a frame slidably mounted in said standards, a face plate arranged in said supporting frame, said plate having a centrally disposed film guiding channel and an exposure opening, a horizontally-swinging, outwardly-opening door hinged to said standards, a gage plate carried by said door and adapted to hold the film in said channel, tension bars arranged in said channel, fastening devices connected to said bars and projecting through said plate, tension springs arranged on the opposite side of said plate and connected to the adjacent ends of said fastening devices, bails arranged over said springs and connected to said face plate, and adjusting

screws in said bails to engage said springs whereby the tension of the latter may be regulated, substantially as described.

3. A moving picture machine comprising
5 supporting standards, a supporting frame
slidably mounted in said standards, a face
plate arranged in said supporting frame, said
plate having a centrally disposed film guiding
channel and an exposure opening, a hori-
0 zontally-swinging, outwardly-opening door
hinged to said standards, a gage plate car-
ried by said door and adapted to hold the
film in said channel, spring projected ten-

sion bars in said channel to yieldingly hold
the film in engagement with said gage plate, 10
means to regulate the pressure of said bars,
and means to feed said film through said
channel, substantially as described.

In testimony whereof I have hereunto set
my hand in presence of two subscribing wit- 20
nesses.

DALLAS C. WOODWORTH.

Witnesses:

JOHN W. LEEDLE,
CHARLES T. LEONARD.