

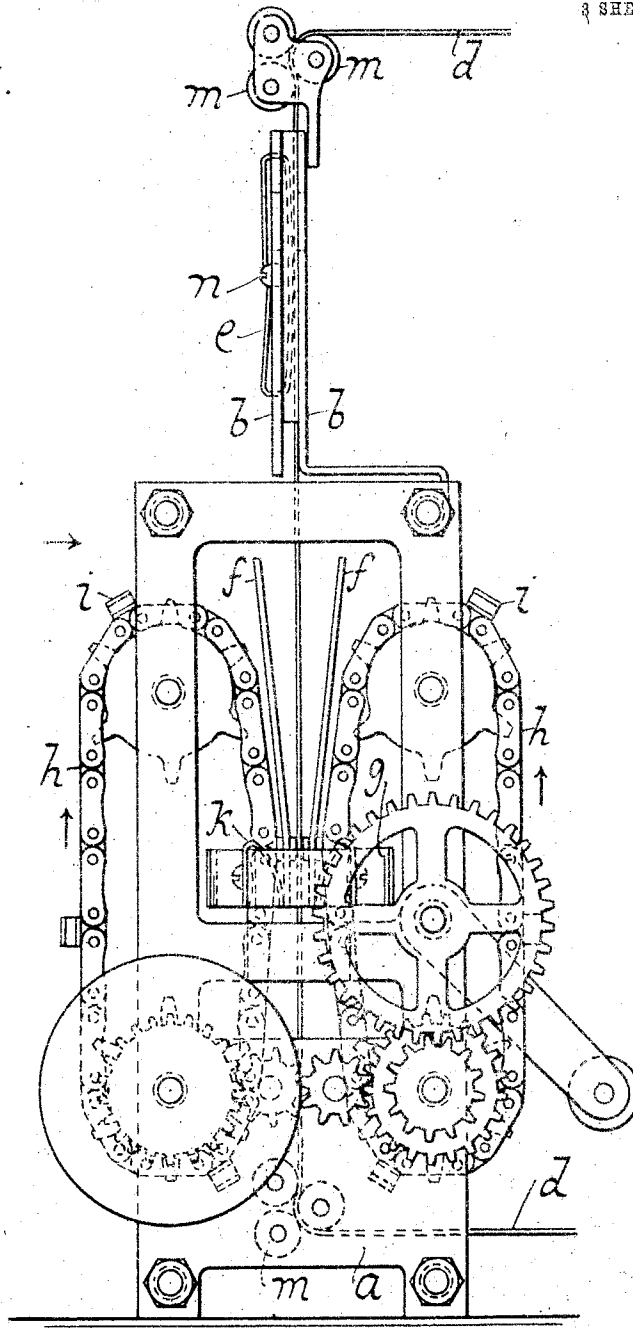
N. C. TRAVIS.
MOVING PICTURE CAMERA.
APPLICATION FILED APR. 20, 1909.

978,077.

Patented Dec. 6, 1910.

3 SHEETS—SHEET 1.

Fig. 1.



WITNESSES:

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Norton C. Travis

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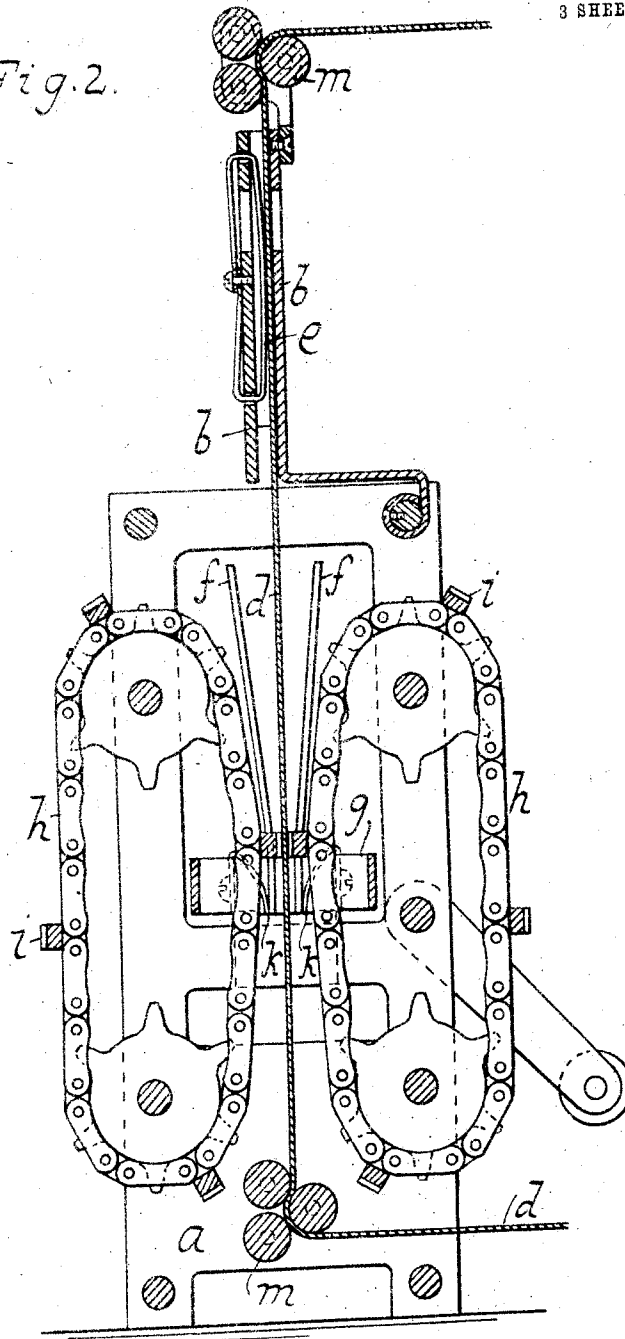
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Fig. 2.



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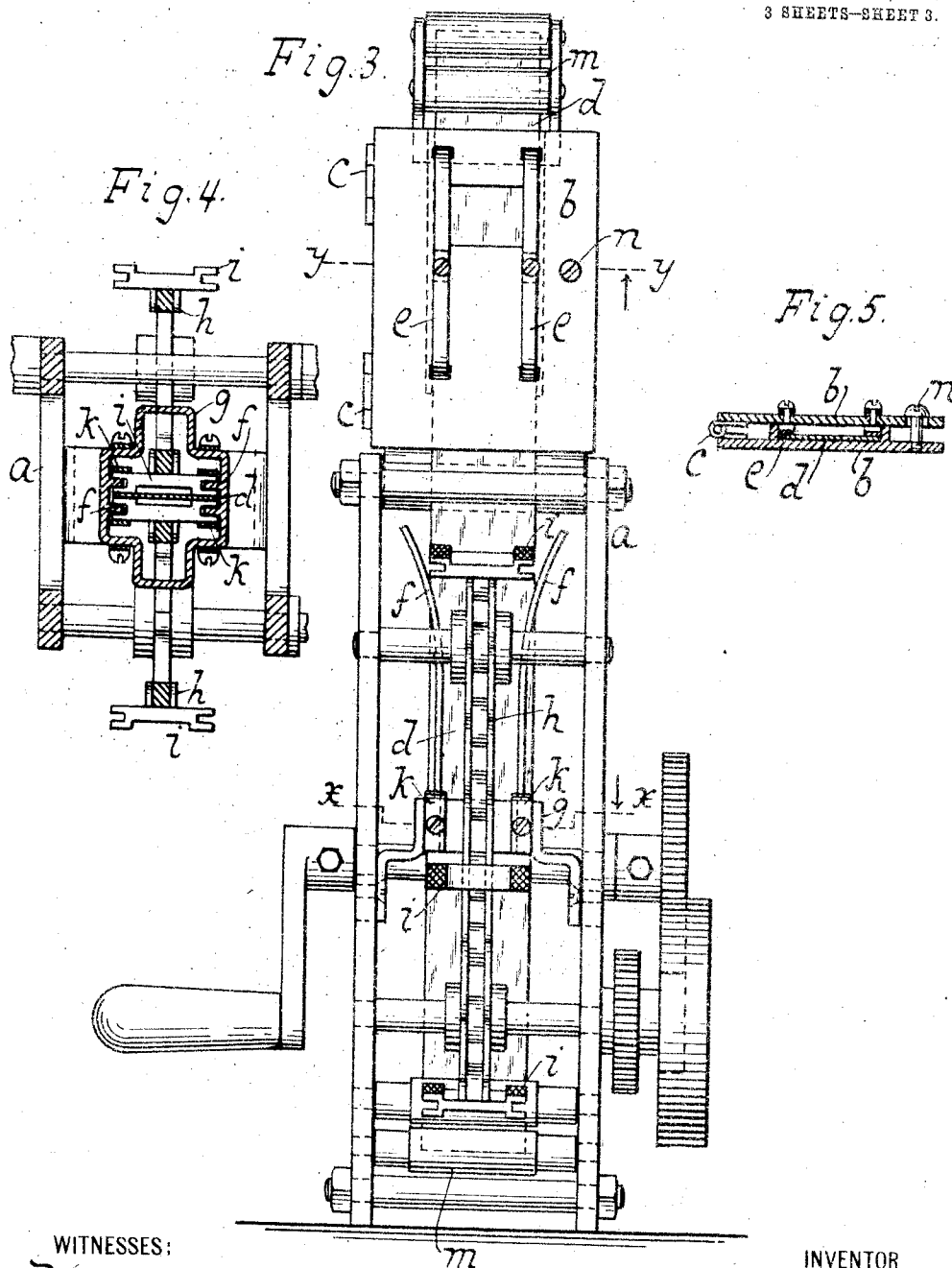
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3 SHEETS-SHEET 3.



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UNITED STATES PATENT OFFICE.

NORTON C. TRAVIS, OF BROOKLYN, NEW YORK.

MOVING-PICTURE CAMERA.

978,073.

Specification of Letters Patent.

Patented Dec. 6, 1910.

Application filed April 20, 1909. Serial No. 491,113.

To all whom it may concern:

Be it known that I, NORTON C. TRAVIS, a citizen of the United-States, residing at Brooklyn, in the county of Kings and State of New York, have invented new and useful Improvements in Moving-Picture Cameras, of which the following is a specification.

The present invention is an improvement in moving picture apparatus designed primarily for application to a photographic camera and it resides in the special features of construction of an extremely simple, inexpensive and efficient mechanism for imparting the requisite certain and accurate movement to the film.

The preferred embodiment of the invention is illustrated in the accompanying drawings, wherein:

Figure 1 is a side elevation of the improved apparatus. Figs. 2 and 3 are, respectively, side sectional and front views of Fig. 1. Figs. 4 and 5 are horizontal sections taken, respectively, on the lines $x-x$ and $y-y$ of Fig. 3.

The framework a of the apparatus has mounted thereupon a two-part window whose leaves b, b are connected together by a hinge c , as shown in Fig. 5. One of these leaves is formed with a lateral extension which is secured to a rocking cross-bar located at the top of the framework, the arrangement being such that the window may be swung bodily to one side of the apparatus, so as to afford access to the interior thereof. The film or tape d is led downwardly between the two window leaves b and is kept flat during its passage across the aperture in the window by means of springs e . From the window, the film is led between converging tracks f arranged in pairs and having their lower ends secured in a frame g secured to the framework a . Through this frame, which is of open or skeleton construction, as shown in Fig. 4, runs a pair of continuously-driven endless chains h , each provided with a series of transversely arranged spaced gripping blocks i . These blocks are positioned directly opposite each other upon the chains, so as to gradually approach each other as they draw near frame g , and to come together as they pass therethrough. As they come together, they grip the film and momentarily feed the same downwardly, as will be apparent, the frequency of such feed being dependent upon the extent of the

spaces between adjacent blocks. To effect the requisite inward movement of the blocks, their ends are so constructed as to engage the tracks f during a portion of their travel, and since these tracks converge, as above stated, and have their lower ends secured in the frame g , it will be apparent that they will positively direct the blocks toward each other during the time that said blocks are engaged therewith. Frame g is also provided with springs k which are located therewithin and exert a positive pressure upon the blocks when the latter reach said frame, so that the film is actually gripped and held by the blocks and fed in the direction in which said blocks are being carried by the chains. With reference to these blocks, it may be stated that portions of their gripping faces are preferably milled or otherwise roughened, thereby insuring their positive engagement with the film. They may, moreover, be magnetized, or provided at suitable points with magnets. The feeding arrangement, therefore, is such that it is unnecessary to provide the film with the usual perforations which have heretofore been found essential in order to insure the film being fed without slipping.

The actuation of the chains may be effected by any preferred means, as, for instance, a crank and gears, or other well known appliances.

The film is guided to and from the window and chains by rollers m located at suitable points in the apparatus. No claim is made herein to such construction, however, since it is customary in apparatus of this type. The usual shutter, (not shown), may also be applied to the window, the leaves of which latter are removably held in closed position by means of a button n provided upon one leaf.

What is claimed is:

1. A film-feed mechanism comprising, in combination, a pair of oppositely-located movable members between which the film is arranged to pass; means for driving the same; gripping devices carried by said members; converging tracks located adjacent said members and arranged for engagement with said devices during a portion of the travel of the latter, for guiding said devices toward and into engagement with the film; and means for exerting a lateral pressure upon said devices when engaged with the film.

2. In a film-feed mechanism, the combination of a frame; film-conveying members ar-

5 ranged for movement therethrough; converging tracks leading toward said frame, for guiding said members into engagement with the film; and means arranged within the frame for exerting a lateral pressure upon said members, for holding the same in such engagement.

10 3. In a moving picture apparatus, the combination of a framework, and a window pivotally mounted upon the top of the framework, for swinging movement bodily

to one side thereof, to permit access to the interior of the apparatus, said window being provided with a passageway through which the film is arranged to travel. 15

In testimony whereof I have hereunto set my hand in the presence of two subscribing witnesses.

NORTON C. TRAVIS

Witnesses:

CHRISTIAN ALMSTAEDT,
W. C. HAUFF.