

W. A. DANIELS.
METHOD OF COATING PICTURE FILMS.
APPLICATION FILED JULY 29, 1909.

987,437.

Patented Mar. 21, 1911.

2 SHEETS—SHEET 1.

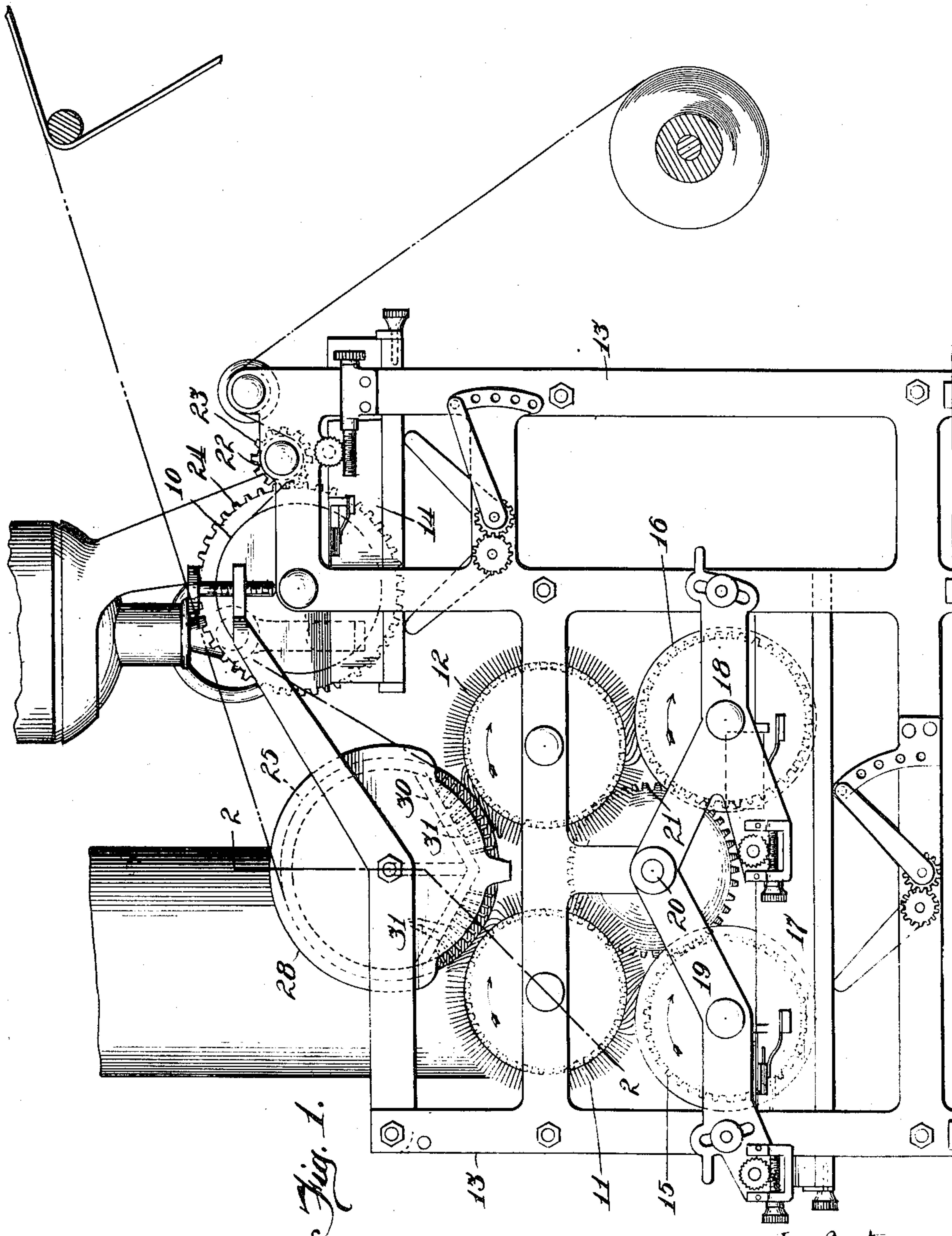


Fig. 1.

Witnesses
Milton Lenoir
E. M. Klatches

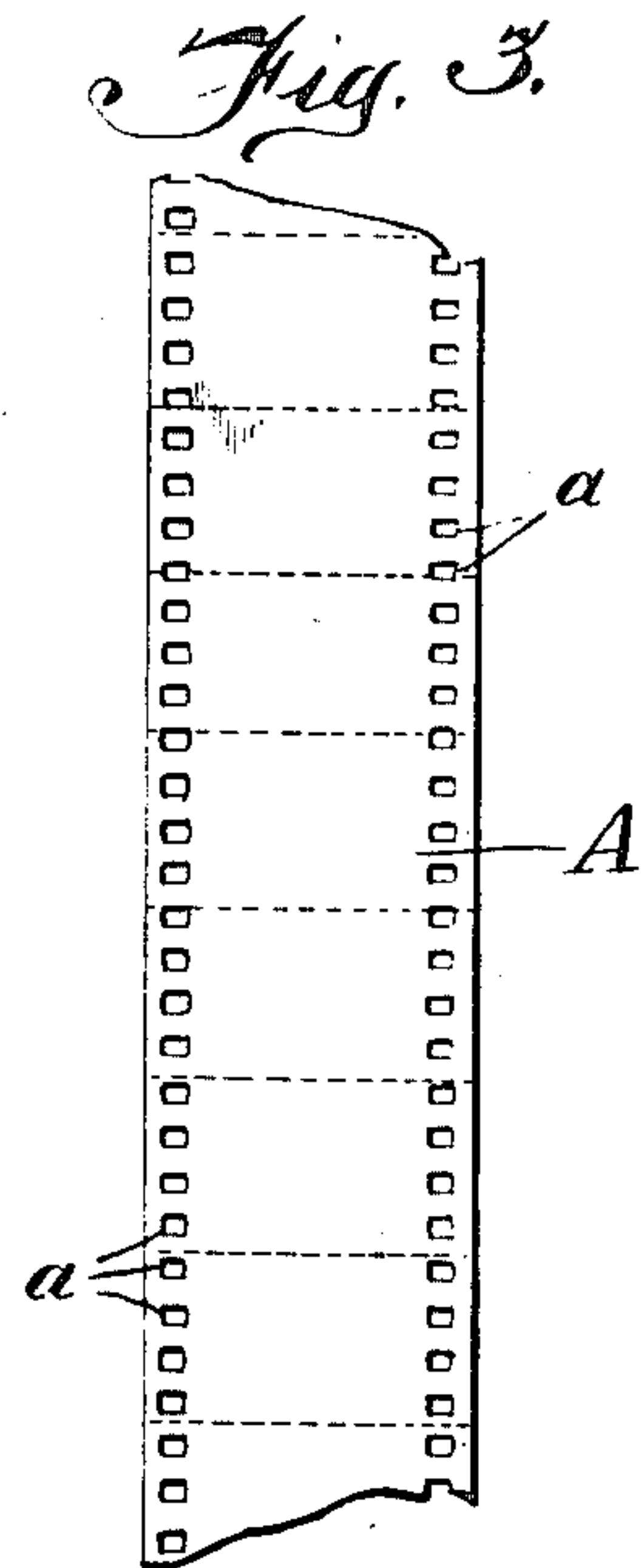
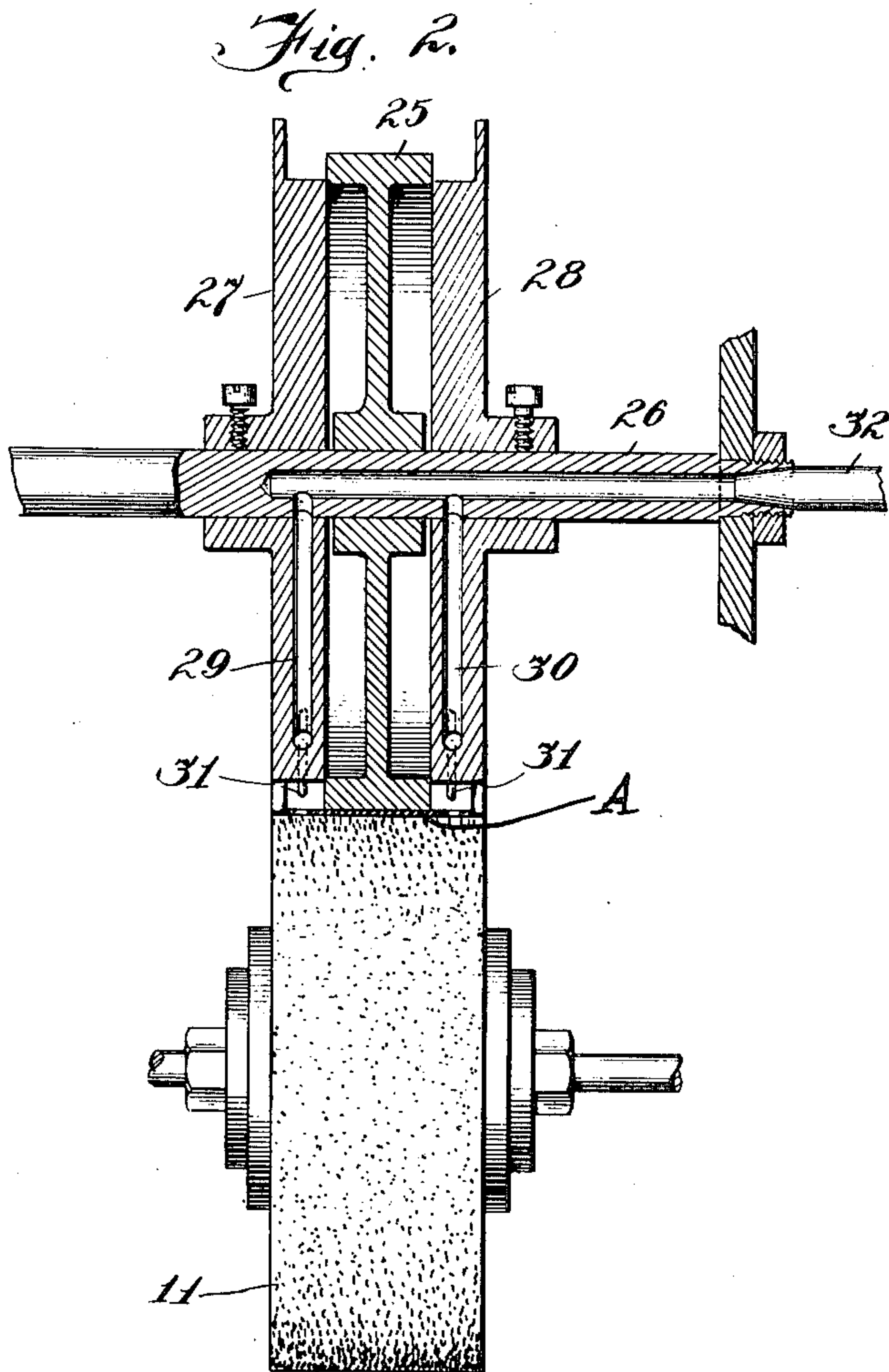
Inventor,
Walter A. Daniels.
By Gillson & Gillson
Attorneys.

W. A. DANIELS.
METHOD OF COATING PICTURE FILMS.
APPLICATION FILED JULY 29, 1909.

987,437.

Patented Mar. 21, 1911.

2 SHEETS—SHEET 2.



Witnesses
Milton Lenoir
E. M. Klatchew

Inventor
Walter A. Daniels
By *Gillean & Gillean*
Attorneys.

UNITED STATES PATENT OFFICE.

WALTER A. DANIELS, OF CHICAGO, ILLINOIS, ASSIGNOR TO NATIONAL WATERPROOF FILM COMPANY, OF CHICAGO, ILLINOIS, A CORPORATION OF ILLINOIS.

METHOD OF COATING PICTURE-FILMS.

987,437.

Specification of Letters Patent. Patented Mar. 21, 1911.

Application filed July 29, 1909. Serial No. 510,337.

To all whom it may concern:

Be it known that I, WALTER A. DANIELS, a citizen of the United States, and resident of Chicago, county of Cook, and State of Illinois, have invented certain new and useful Improvements in Methods of Coating Picture-Films, of which the following is a specification, and which are illustrated in the accompanying drawings, forming a part thereof.

The invention relates to an improved method of applying a protective coating to picture films, particularly those employed in the form of a web for the exhibition of pictures representing motion. These films commonly comprise a supporting web of transparent flexible material, such as celluloid or acetate of cellulose, and a photographic pellicle in which the picture image is formed applied to one side of the supporting web. As now commonly used surface scratches in which dirt accumulates are very likely to be produced in both faces of picture films and the character of the photographic pellicle will not permit of the film being readily cleansed by washing. It has therefore been proposed to cover the photographic pellicle with a coating which will render the film waterproof. Such a coating may take the form of a celluloid varnish composed of a solution of pyroxylin in amylacetate, softened by the addition thereto of small quantities of glycerin or castor oil.

By reason of the fact that those picture films which are formed in a web for the projection of pictures representing motion are provided with marginal rows of sprocket-engaging apertures for coöperating with the sprockets of machines employed for their exhibition, and the fact that these sprocket apertures are also made use of in the production of the photographic image which must be completed before the waterproofing is effected, the application of the waterproof coating to films of this form has heretofore been exceedingly difficult.

The object of the present invention is to provide for the application of the coating material to the entire surface of the picture web carrying the photographic pellicle without closing the marginal rows of perforations, and without permitting any of the coating solution to flow through these perforations to the back of the web.

One form of apparatus which may be con-

veniently employed in practicing the invention is illustrated in the accompanying drawings, wherein—

Figure 1 is a side elevation; Fig. 2 is a detail sectional view taken on the line 2—2 of Fig. 1, some of the parts being shown in elevation; and Fig. 3 shows a detail of the web to be coated.

In employing this apparatus for carrying out the process provided by the invention, the coating material is applied to the face of the web A (Fig. 3) in a fluid state, preferably by means of a roller 10 and brushes 11, 12, and means intended to puncture any film of coating material which may bridge over the perforations *a* of the web is introduced into these perforations while the coating material is still in a fluid state. As shown, an air blast delivered from the nipples 32 is introduced in the perforations *a* for the purpose described.

The apparatus illustrated is of a form made the subject of my patent on web coating machines, No. 939,396 dated November 9, 1909. As therein shown in detail, the brushes 11, 12, are preferably made in the form of rollers, and these roller brushes and the roller 10 are trunnioned in a framework generally designated by the numeral 13.

The roller 10 is preferably supplied with the coating material by dipping into a pan 14 in which the material may be contained. For supplying the coating material to the brushes 11, 12, rollers 15, 16, are provided. These rollers dip into a pan 17, also containing a quantity of the material, and contact with the brushes. As shown, the rollers 15, 16, are trunnioned in arms 18, 19, of the framework 13, and are rotated by power applied to a shaft 20, having a gear connection 21 with the roller trunnions. The power shaft 20 also serves for turning the brushes 11, 12. To this end the gear 21 also operatively engages the trunnions of the brushes.

The web A to be coated is passed successively over the roller 10 and in front of the brushes 11, 12. Preferably the web A also turns over a guide-roller 22 before reaching the roller 10, which guide-roller has gear connection 23, 24, with the roller 10. The relation of the gears 23, 24, is preferably such that the surface speed of the roller 10, derived from the rotation of the guide roller 22, is equal to the rate of movement of the web.

For supporting the web in front of the brushes 11, 12, a guide roller 25, most clearly shown in Fig. 2, is provided. This guide roller is rotatably mounted upon a tubular spindle 26 between stationary flanged disks 27, 28, having chambers 29, 30, communicating with the interior of the tubular spindle 26. The chambers 29, 30, have radially directed outlets, as 31, at the periphery of the disks in front of the brushes 11, 12, and in line with the marginal perforations α of the web A as it turns over the guide roller 25.

The web A to be coated is preferably passed through the apparatus illustrated by pulling upon its end. In turning over the roller 10 the face of the web is given an initial application of coating material from the pan 14. Further applications of the coating material and a spreading of the coating previously applied by the roller 10 are effected by the brushes 11, 12, as the web turns over the guide roller 25. If now compressed air be applied to the interior of the tubular spindle 26, as from the nipple 32, an air blast will be directed through the marginal perforations of the web, from the back of the web, to prevent any of the coating material applied by the roller 10, or by the brushes 11, 12, from flowing through the perforations, and for puncturing any film-tened by the addition thereto of small quan-web perforations.

A photographic picture film provided with a protective coating in the manner described may be used for the projection of

pictures in the usual manner when dry, and may be washed with water from time to time for the purpose of removing dirt which has accumulated in its surface scratches, without injury. Furthermore, these surface scratches may be entirely obliterated, if desired, by a further application of coating material.

I claim as my invention—

1. The method of providing a perforated picture web with a protective pellicle which consists in brushing a film of coating material in a fluid state upon one side of the web while directing an air blast through a perforation of the web from the other side of the web.

2. The method of producing a protective coating upon one side only of a perforated picture web, which consists in applying to the said side of the web a film of coating material in a fluid state, and in directing an air blast through a perforation of the web from the other side of the web.

3. The method of producing a protective coating upon one side only of a perforated picture web, which consists in applying to the said side of the web a film of coating material in a fluid state and in puncturing from the other side of the web that part of the film covering a perforation of the web while the said film is still fluid.

WALTER A. DANIELS.

Witnesses:

CHARLES B. GILLSON,
FREDRICK B. THOMPSON.