

Aug. 7, 1923.

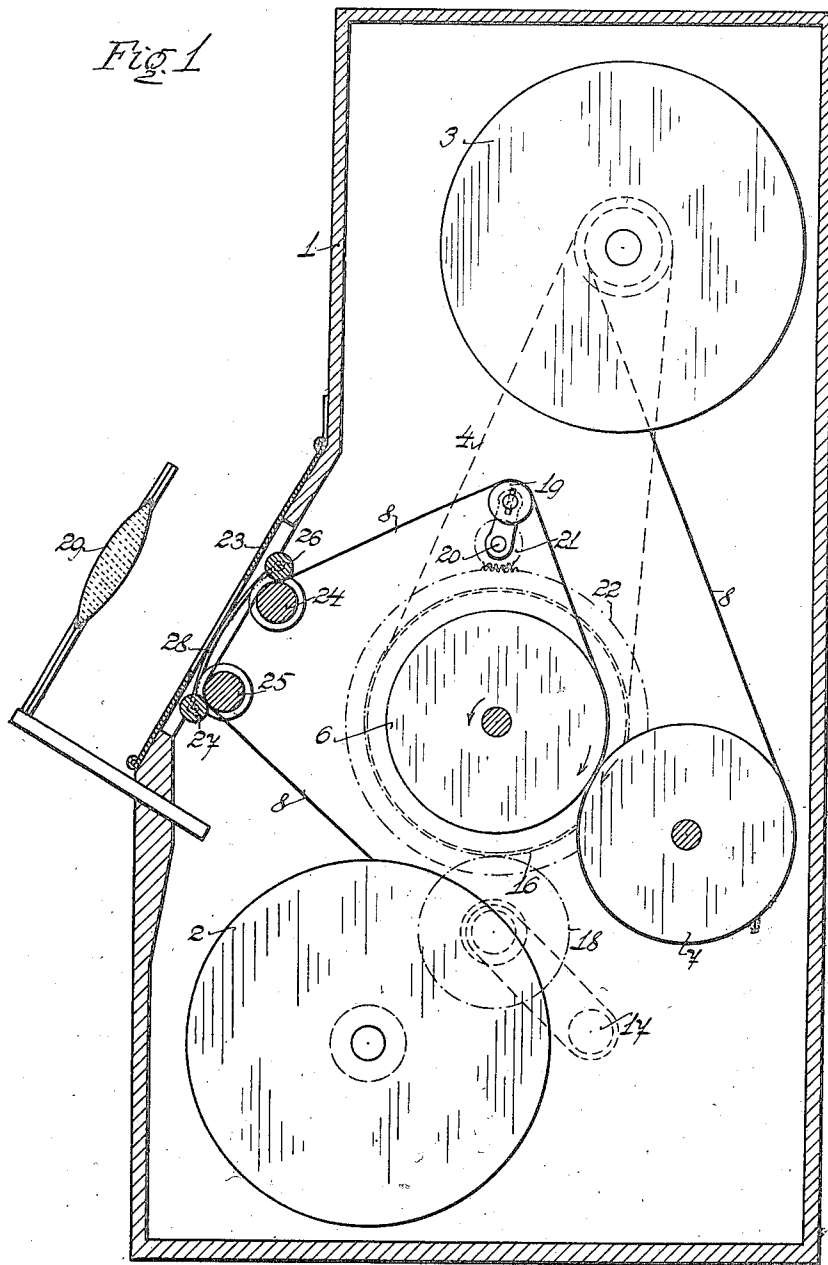
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V. KRIEGERBECK ET AL
CINEMATOGRAPHIC APPARATUS

Filed Jan. 14, 1922

2 Sheets-Sheet 1

Fig 1



Inventors
V. Kriegerbeck,
Attorneys *J. Bantz*
Marks Clerk

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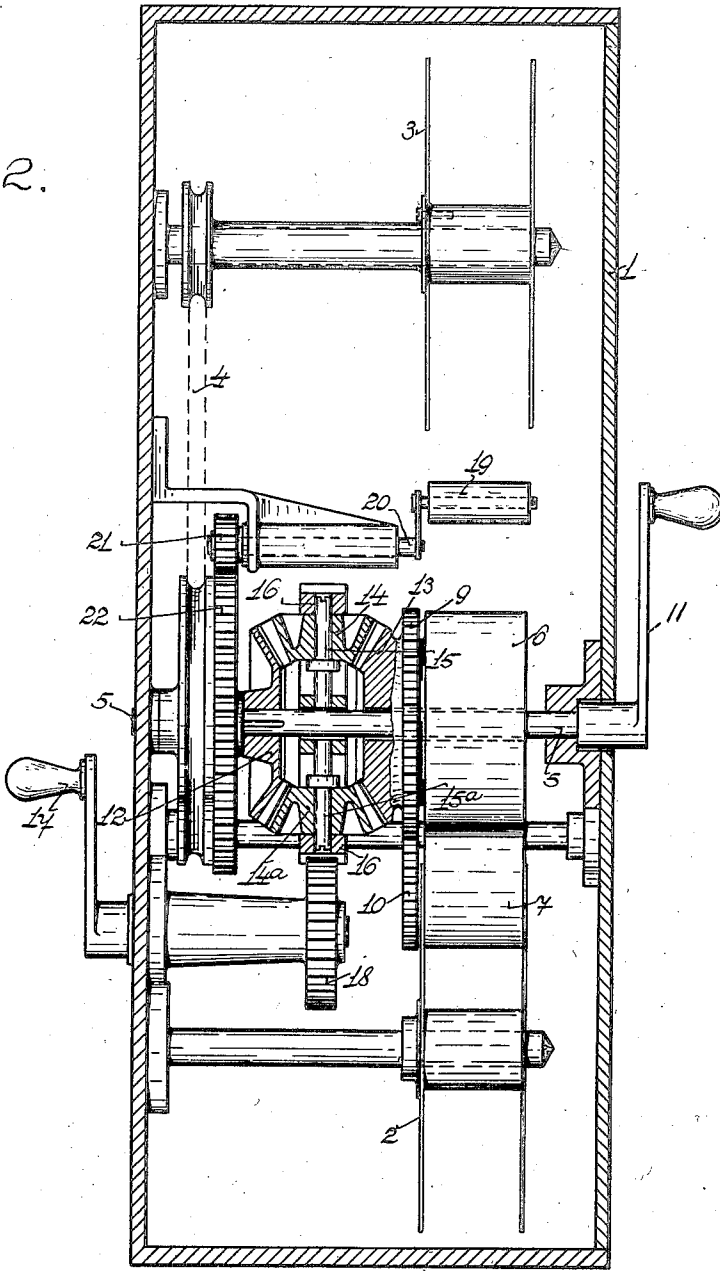
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2 Sheets-Sheet 2

Fig. 2.



Inventors
V. Kriegerbeck
By *J. Baratz,*
Attorney
Marks & Clerk

UNITED STATES PATENT OFFICE.

VÁCLAV KRIEGERBECK AND JINDŘICH BAUTZ, OF PRAGUE, CZECHOSLOVAKIA.

CINEMATOGRAPHIC APPARATUS.

Application filed January 14, 1922. Serial No. 529,349.

To all whom it may concern:

Be it known that we, VÁCLAV KRIEGERBECK and JINDŘICH BAUTZ, citizens of the Czechoslovak Republic, and residing at Karlova ul. 180, Prague, Czechoslovakia, have invented certain new and useful Improvements in and Relating to Cinematographic Apparatus, of which the following is a specification.

The invention relates to a cinematographic apparatus, which is intended more particularly for non-perforated paper films having the record on both sides.

The internal arrangement of the cinematographic apparatus is shown diagrammatically in the accompanying drawing, Fig. 1 being a side elevation and Fig. 2 a front elevation.

In the lower part of the box 1 a reel 2 to be unwound is loosely journaled and in the upper part a reel 3 to be wound up, driven in a known manner by means of a wire spiral 4 from the driving shaft 5. On the shaft 5 a drum 6 is loosely mounted, against which another drum 7 is pressed. The peripheries of these two drums 6 and 7 are covered with rubber, so as to prevent the paper film band 8, which is transmitted by them, from slipping off.

The absolute uniformity of movement of these drums is ensured by laterally mounted toothed wheels 9 and 10. The drum 6 is driven from the driving shaft 5 and the crank 11 by means of a differential gear 12, 13, 14, 14^a, the object of which is to compensate the displacement of the image in the field of light, which may occur when the film is being exhibited. The bevel wheel 12 is fixed on the shaft 5 and the bevel wheel 13 is connected to the loose drum 6, conical planet wheels 14 and 14^a mesh with the two bevel wheels and are mounted on shafts 15 and 15^a, which are journaled in a ring 16, which is mounted loosely on the shaft 5 and can be rotated by means of a pinion 18 in either direction with a crank 17. The required intermittent advance of the non-perforated paper band by the length of one picture is effected by means of the roller 19, which is fixed eccentrically on a shaft 20, which is driven by means of gearing 21, 22, from the shaft 5. The gearing ratio of the toothed wheels 21, 22 is such that the roller 19 in a third of its travel displaces the paper band, which is drawn by the roller 6, each

time by the length of one picture in the display aperture.

For obtaining a constantly uniform tension in the paper band between the unwinding reel 2 and the advancing roller 19, the band 8 is guided under the hinged observation window 23 over two rollers 26, 27, which are held resiliently by springs 28 under the hinged window 23, for enabling the film band 8 to be inserted round the rollers 24, 25.

The record to be shown is observed by means of a magnifying glass 29 mounted in front of the observation window 23. The apparatus works in the following manner:— after the film has been passed over the unwinding reel 2 and the rollers 25, 24, 19 between the rubber drums 6, 7 to the winding up reel 3, the shaft 5 is turned in the counter-clockwise direction (Fig. 1), during which rotation the drum 6 and the eccentrically mounted roller 19, which advance the film in front of the display aperture 23 each time by the length of one picture, being rotated in the opposite direction.

The drum 6 and its toothed wheel 13 rotate at the same speed as the wheel 12 of the shaft 5, as the shafts 15, 15^a of the planet wheels 14, 14^a do not change their position. Should the picture become partially displaced out of the field of view of the observation aperture while a record is being exhibited, such a displacement will be compensated by turning the crank 17 and thereby displacing the toothed ring 16 and the planet wheels 14, 14^a either in the same direction of rotation as the drum 6 or of the wheel 12, according to whether the upper or lower edge of the picture lies outside the observation aperture 23. By rotating the ring 16 a different ratio is obtained between the rotary speeds of the wheels 12 and the drum 6 or the roller 19 and the drum 6, so that a part of the film band 8 between the roller 14 and the drum 6 (Fig. 1) is either loosened or put under greater tension and the band 8 is thereby drawn from the roller 19 by a smaller or greater amount than is the case during normal working.

As the second half of the record is printed in the reverse direction on the other side of the paper film, it will suffice, after the first half of the record has been shown, to replace the wound-up reel 3 by the reel 2 without its being necessary previously to rewind the

film, as is the case with photographic films as at present used. When exhibiting stereoscopic pictures, the apparatus need only be adapted to the greater width of the film and the lens 29 replaced by a stereoscopic double lens of a known kind.

We claim—

1. A combined feeding and framing mechanism for cinematographic apparatus including a window having an aperture through which films may be viewed, an unwinding reel and a winding reel, a strip of film adapted to be unwound from the unwinding reel and wound on the winding reel, means for guiding said film strip adjacent to said window, a pair of continuously driven smooth surfaced rollers adapted to grip the film, a beating roller adapted to contact with the film and feed the same step by step, driving means for said beating roller and means including an adjustable differential mechanism interposed between said driving means and pair of rollers, whereby the film strip may be framed in said window.

2. A cinematographic apparatus including a casing having an observation window, film reels, a film strip adapted to be unwound from one reel and wound on the other reel, a shaft arranged in said casing, a first gear fixed to said shaft, a beater roller shaft ar-

ranged in the casing and provided with a gear meshing with said first gear, an arm provided on the beater roller shaft, a stub shaft carried by said arm, a roller mounted on said stub shaft and movable by said arm in an arcuate path between said reels, a second gear fixed to the first mentioned shaft, a ring loosely mounted on the first mentioned shaft and having teeth, other gears carried by the ring and meshing with the second gear, a third gear loosely mounted on the first mentioned shaft and meshing with the gears of said ring, a smooth surfaced roller movable with the third gear, a second smooth surfaced roller, gearing connecting the smooth surfaced rollers for joint movement, the film in its passage from one reel to the other being passed over the beater roller and between the smooth surfaced rollers, and means for adjusting said ring whereby the film may be framed in said window.

In testimony whereof we have signed our names to this specification.

VÁCLAV KRIEGERBECK.
JINDŘICH BAUTZ.

Witnesses:

SWET KUVTY,
JULG S. WALHAUSER.