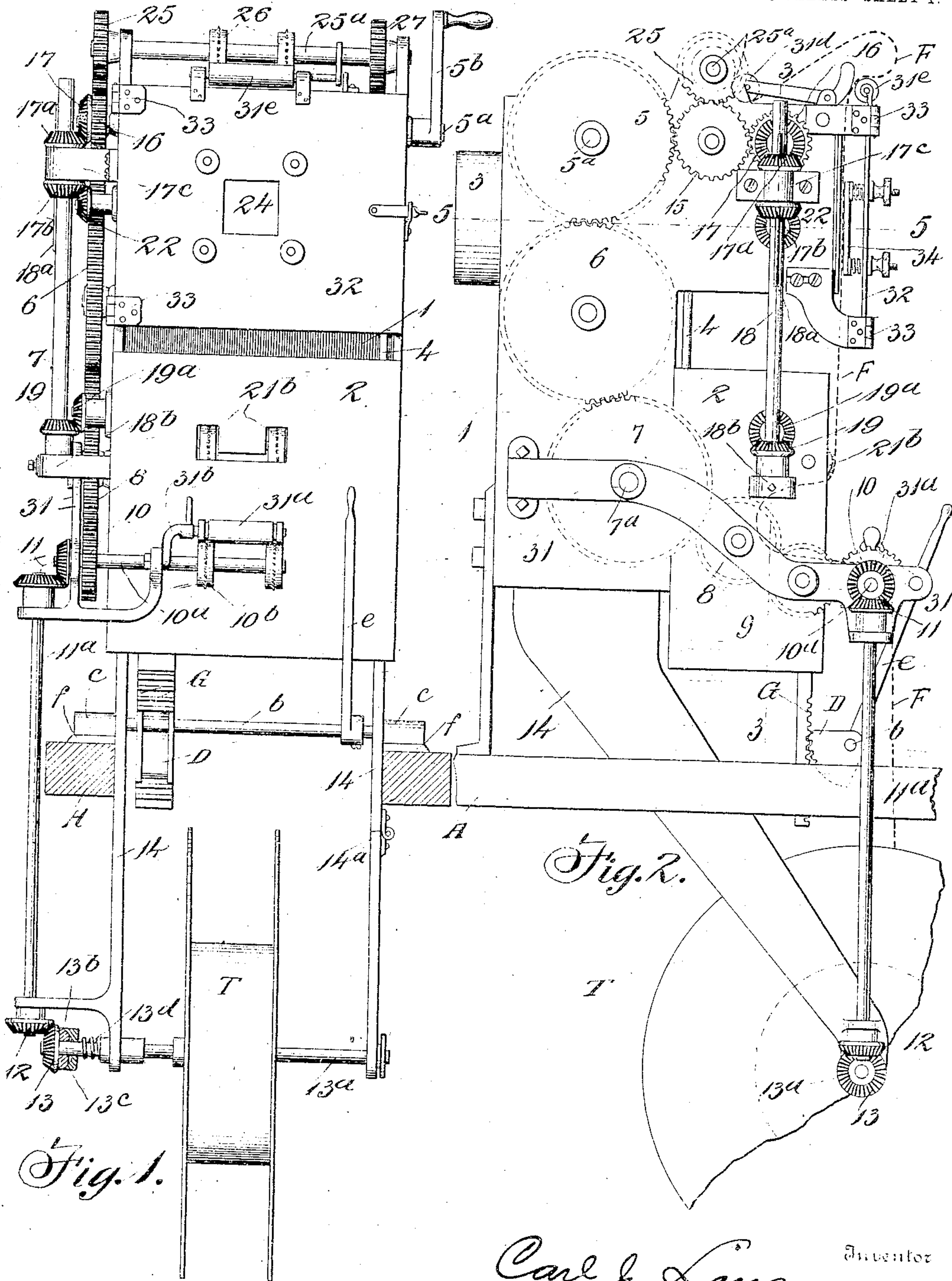


C. J. LANG.
KINETOSCOPE.

APPLICATION FILED NOV. 23, 1907.

Patented Feb. 9, 1909.
3 SHEETS—SHEET 1.

912,137.



Witnesses

A. H. Howard
Geo. E. Jew

Carl J. Lang

Inventor

By

M. B. Swenson

Attorneys

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3 SHEETS—SHEET 2.

Fig. 3.

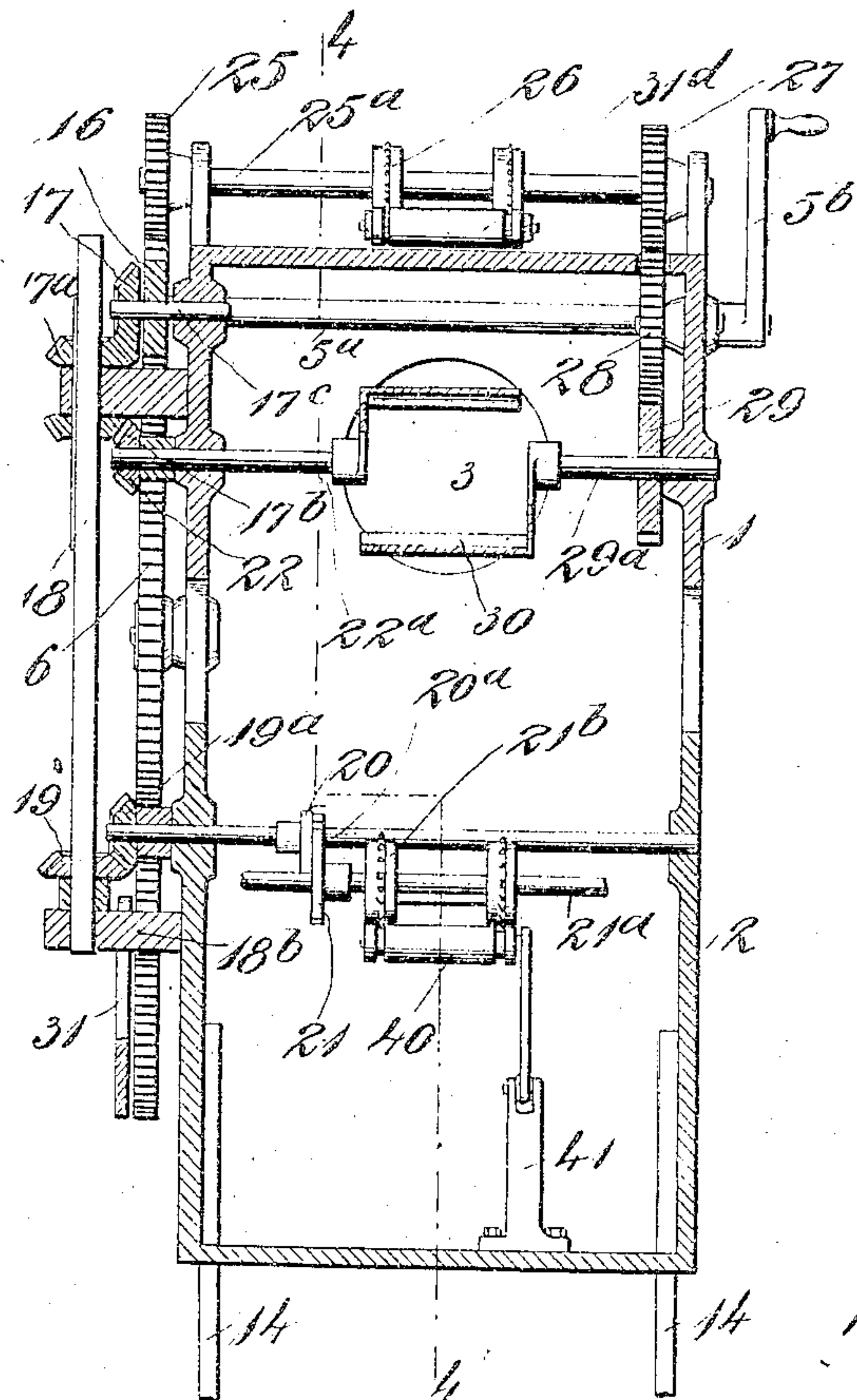
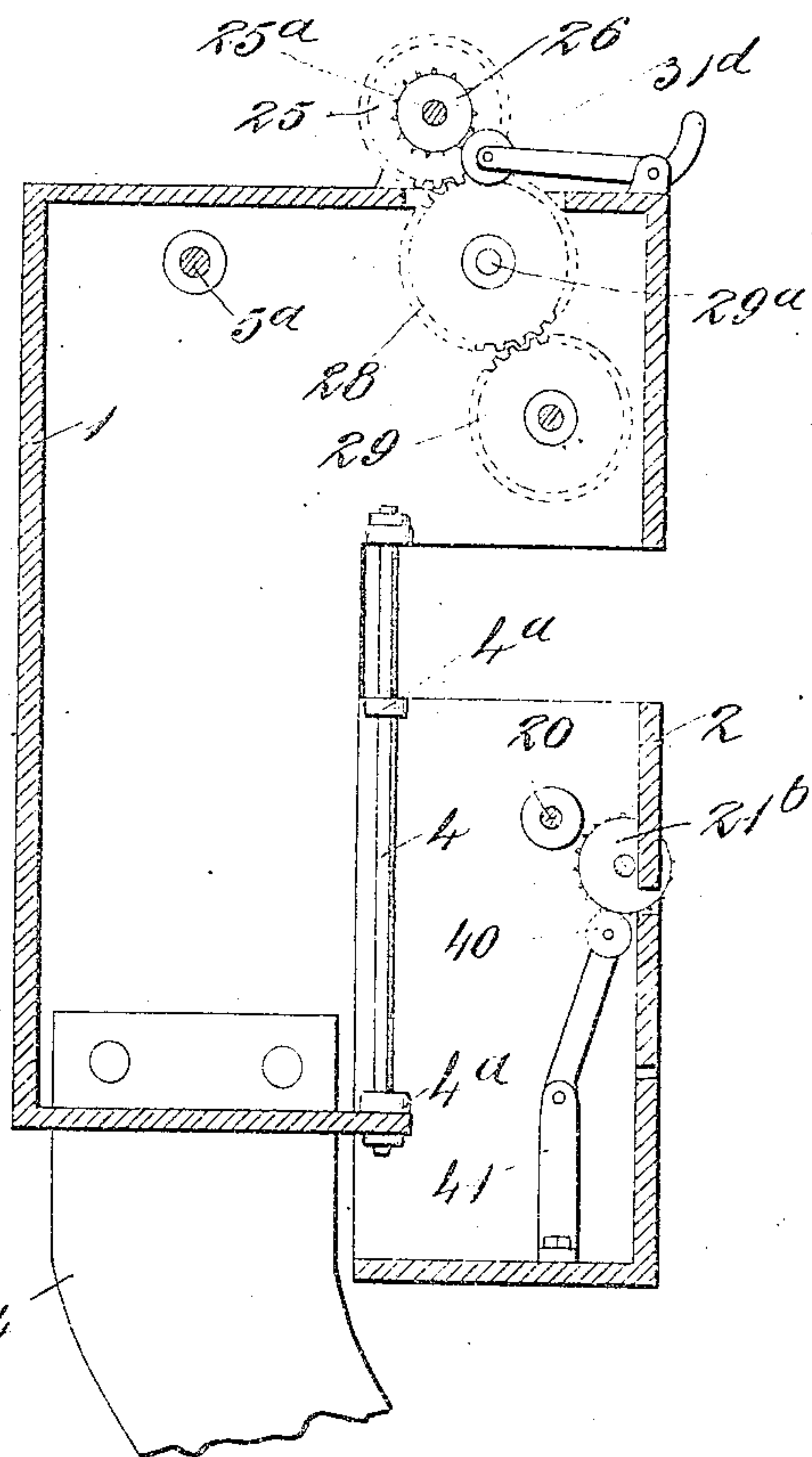


Fig. 4.



Carl J. Lang.

Inventor

Witnesses

A. J. Stewart.
Geo. E. Tew

By

Milton S. Stevens & Co.

Attorneys

C. J. LANG.
KINETOSCOPE.

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3 SHEETS—SHEET 3.

912,137.

Fig. 5.

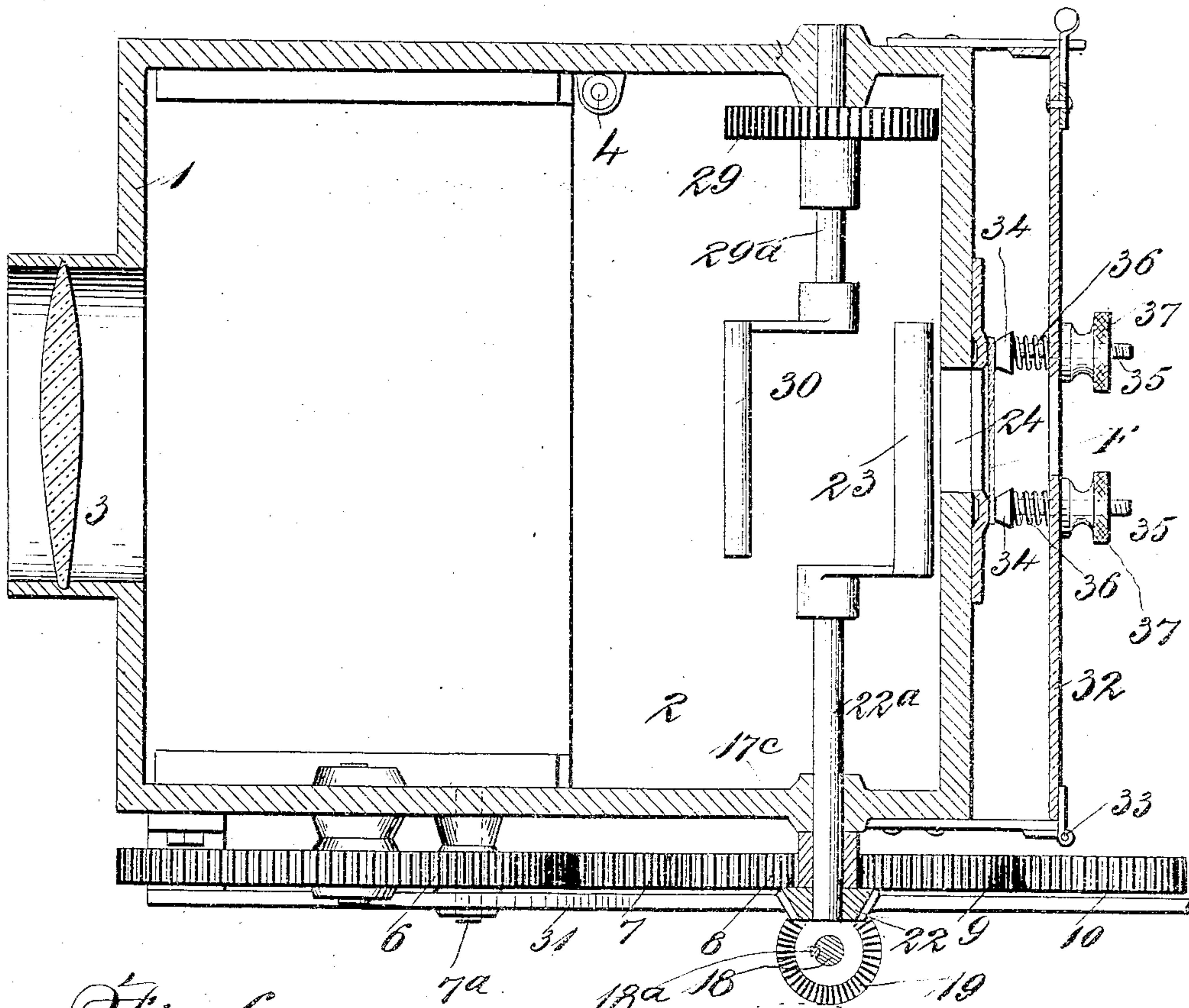


Fig. 6.

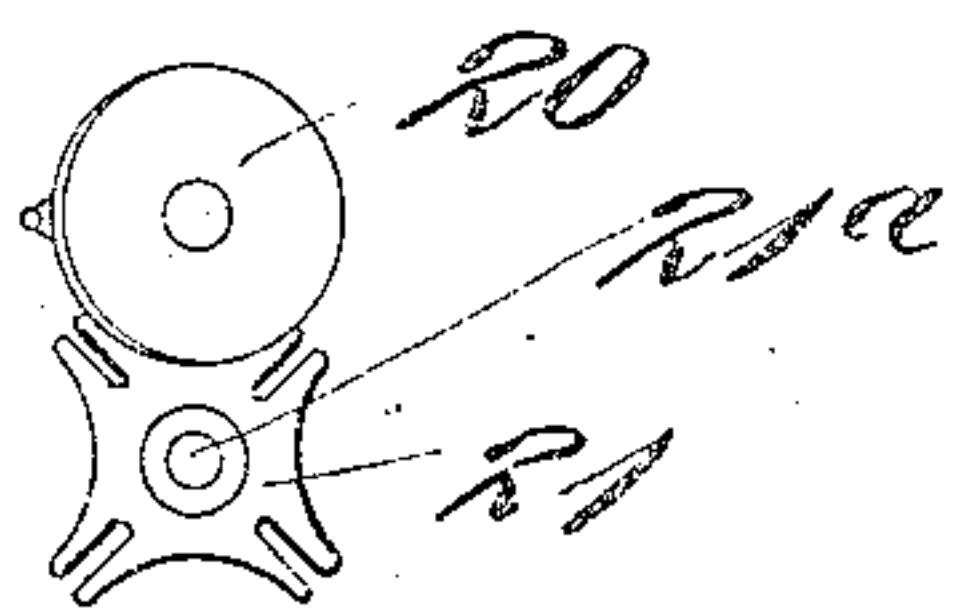
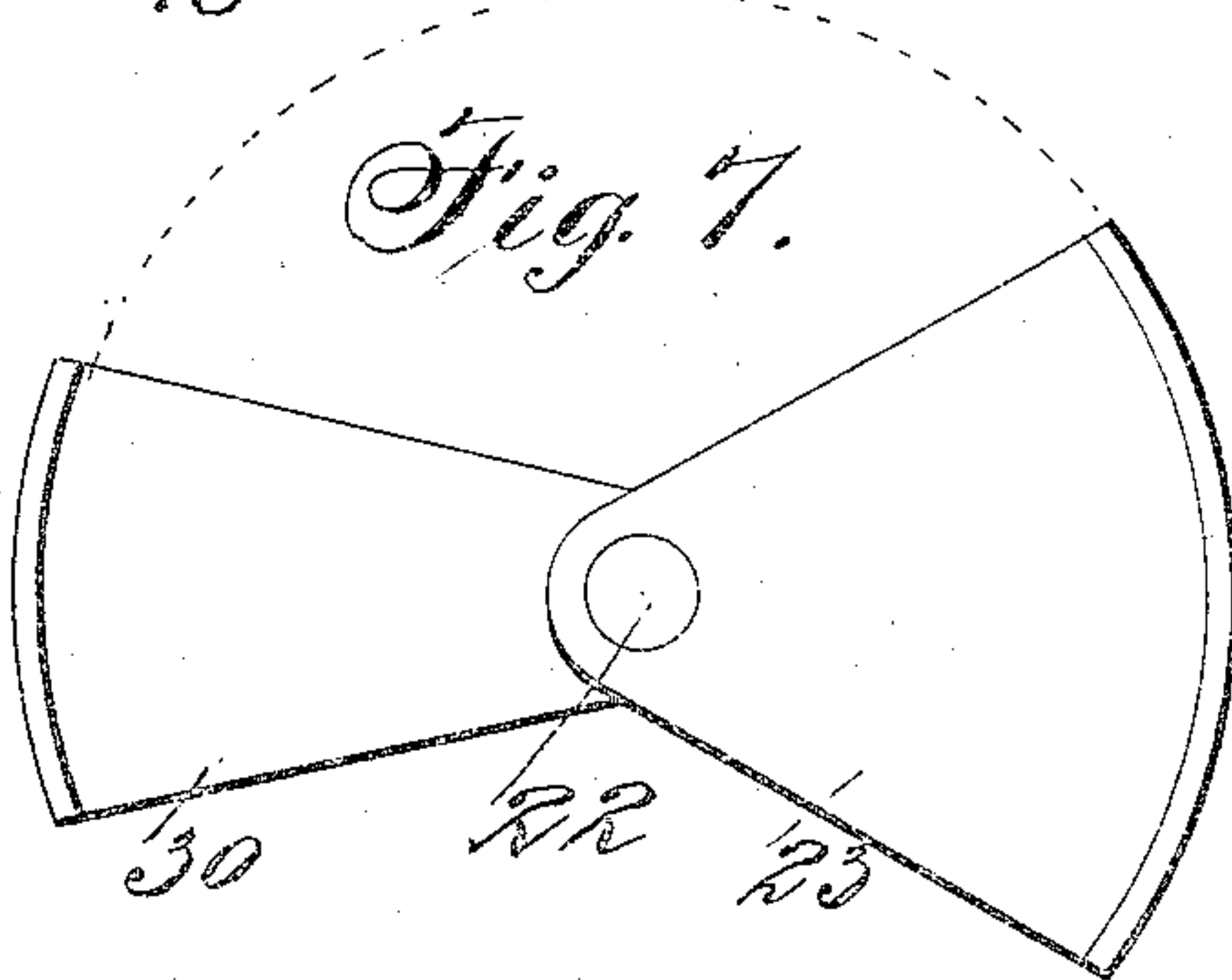


Fig. 7.



Inventor

Carl J. Lang.

Witnesses

A. H. H. H. H.
Geo. E. Jew

By

Mrs. J. H. H. Attorneys

UNITED STATES PATENT OFFICE.

CARL J. LANG, OF OLEAN, NEW YORK.

KINETOSCOPE.

No. 912,137.

Specification of Letters Patent.

Patented Feb. 9, 1909.

Application filed November 23, 1907. Serial No. 403,522.

To all whom it may concern:

Be it known that I, CARL J. LANG, a citizen of the United States, residing at Olean, in the county of Cattaraugus and State of New York, have invented certain new and useful Improvements in Kinetoscopes, of which the following is a specification.

This invention relates to kinetoscopes of the intermittent-feed type.

10 An object of the invention is to provide an improved construction by means of which successive exposures are produced. These means include a revolving shutter and also a revolving cut out plate for preventing "flick-
15 ers" by throwing shadows which prevent or avoid flickering of the picture on the screen.

A further object of the invention is to provide a vertically adjustable frame by means of which the film may be adjusted to proper
20 position with respect to the aperture plate.

A further object of the invention is to provide improved means for holding the film against the aperture plate and for guiding the same in its movement across said plate.

25 Another object of the invention is to provide an improved construction for taking up the film on the take-up reel.

Other improvements in the details of the machine will be evident from the following
30 description and the accompanying drawings.

In the drawings, Figure 1 is an elevation of the machine, from the rear. Fig. 2 is a side elevation. Fig. 3 is a vertical section on the line 3—3 of Fig. 2. Fig. 4 is a vertical section on the line 4—4 of Fig. 3. Fig. 5 is a
35 horizontal section on the line 5—5 of Fig. 2. Fig. 6 is a detail of the stop motion. Fig. 7 is a detail of the shutter and flicker cut out.

Referring specifically to the drawings, 1
40 indicates a box frame which supports the operative parts and which is suitably mounted upon sills A at each side. The lower rear part of the sides of this frame is recessed to receive the adjustable sliding frame or box 2
45 which is held in position for vertical movement by lugs 4^a projecting from the side of the frame and slidable up and down on a bar 4 which is fastened to the side frame 1. The sliding frame is moved up and down by
50 means of a lever *e* projecting from a cross shaft *b* which is mounted in bearings *c* upon lips *f* which rest upon the sills A. The shaft *b* carries a toothed quadrant D which engages a rack G which is fastened to and pro-
55 jects downwardly from the side of the frame

2. By manipulation of the lever the sliding frame is moved up and down, and may be locked in position by any suitable key or blade inserted between the gear teeth. Or the lever handle may be fastened in any suitable way.

The main shaft 5^a extends across the top of the main frame and may be rotated by a crank 5^b or any other means. At one end the shaft carries the main driving gear 5
55 which drives a train of gears 6, 7, 8 and 9, the last of which drives the lower sprocket gear 10 and it has a shaft 10^a which carries the lower sprockets 10^b. The gears 7, 8, 9 and 10 are supported by an arm 31 which is
70 fastened to one side of the main frame 1 and extends rearwardly beside the same, with space enough to allow the gear wheels and hubs to clear the movable frame 2. The shaft 7^a of the wheel 7 extends through the
75 arm and also through the adjacent side of the frame 1, to help support said arm. The shaft 10^a also carries one of a pair of beveled gears 11 the other of which is mounted upon the upper end of a vertical shaft 11^a which is
80 mounted at the top in a bearing projecting from the arm 31 and at the bottom in a bearing projecting from one of a pair of arms 14. At the lower end the shaft 11^a has a beveled gear 12 meshing with a beveled gear
85 13 loose on the shaft 13^a which carries a take-up reel T. Said gear 13 carries one member 13^b of a friction clutch, the other member 13^c of which is pressed to contact by a spring 13^d coiled around the shaft. The
90 friction clutch is provided to give the proper tension in winding up the film and to allow slip on occasion, to avoid breaking the film. The arms 14 are secured to and project downwardly from the side plates of the
95 frame 1, and each arm has a lip *f* which rests on the sills A. The arm at the right is hinged as at 14^a, so that it can be opened to take out the take-up reel by sliding the same off the shaft. The first wheel 5 also meshes
100 with a counter gear 15 which drives a spur gear 16 and a beveled gear 17 which latter meshes with a beveled gear 17^a on a vertical shaft 18. The gear 17^a is formed double with a beveled gear 17^b and said gears are
105 held by bearing bracket 17^c. The shaft 18 has a long key 18^a which engages and drives the gears 17^a and 17^b and also allows said shaft 18 to be raised and lowered at will, in connection with the frame 2, the lower end
110

of said shaft being mounted in a bearing bracket 18^a projecting from the side of the frame 2. The shaft carries a beveled gear 19 which meshes with a beveled gear 19^a on a shaft 20^a which carries the member 20 of an ordinary stop motion the other member 21 of which is carried by a shaft 21^a which carries the intermittent sprockets 21^b whereby the intermittent feed of the film is produced. The film, which is indicated at F, is held in contact with the sprockets 21^b by means of grooved rollers 40 supported by an arm 41 projecting from the bottom of the frame 2, and said film is held in contact with the sprockets 10^b by means of a grooved roller 31^a supported by a bracket 31^b mounted on the arm 31. The upper or feed sprockets 26 are mounted on a shaft 25^a which has a gear 25 in mesh with the counter gear 15. The film is held to the sprockets by a grooved roller 31^d.

The beveled gear 17^b carried by the shaft 18 meshes with a beveled gear 22 on the outer end of a shaft 22^a which carries the segmental shutter plate 23, the axis of which is transverse to the frame, whereby said shutter plate revolves in front of the aperture 24 in the front plate of the frame, while the film is moved over said aperture. The shaft 25^a carries a spur gear 27 which meshes with a counter gear 28 which drives a gear 29 fast on a stub shaft 29^a which carries at its inner end the flicker cut out 30 which consists of a segmental plate and which is arranged to revolve around the shutter 23, the shafts 22^a and 29^a being concentric and located on opposite sides of the frame. The shutter plate 23 revolves in the opposite direction to the cut out, and at the same speed, the latter being one-half the width of the former and of less width than the aperture 24, and as the cut-out revolves in front of the aperture, only a portion of the aperture is covered, and shadows are thereby thrown which have the effect of preventing flicker in the picture on the screen.

At the back of the main frame, behind the aperture plate, is a gate 32 which swings on hinges 33 and which carries presser bars 34 which press upon the edges of the film as it slides over the plate. These presser bars are carried by upper and lower pins 35 having springs 36 which press said bars against the film, and the pins are threaded on the outer ends to receive the nuts 37 by means of which the tension and position of the presser bars can be regulated. The gate is provided at the top with a guide roller 31^e to guide the film to the aperture plate. At the front the frame 1 has the mount or case 3 for the lens.

The course of the film through the machine is as indicated on the drawing, feeding from the top sprocket across the aperture plate and then over the intermittent and

lower sprockets to the take-up reel. The sliding frame 2 may be adjusted up and down to register the film exactly with the aperture plate without varying the position or adjustment of the lower sprocket and its driving gears. The use of the vertically adjustable shaft 18 permits the movement of the frame 2, referred to, without interfering with the operation of the machine.

I claim:

1. In a kinetoscope, the combination of two concentric shafts on opposite sides of the projection aperture, a revolving shutter carried by one shaft, and a revolving cut out carried by the other, the shutter and cut out extending and being revoluble across said aperture.

2. In a kinetoscope, the combination of two shafts located end to end on opposite sides of the projection aperture, a segmental shutter extending from the end of one shaft, and a segmental cut-out extending from the end of the other shaft, the shutter and cut-out being revoluble in front of said aperture, the line of revolution of one being within that of the other.

3. In a kinetoscope, the combination of a fixed frame, an adjustable frame below the same, and having film feeding devices mounted thereon, an arm secured to the fixed frame and projecting rearwardly beside the adjustable frame, and take-up sprockets and driving devices therefor supported by the arm behind the adjustable frame.

4. In a kinetoscope, the combination of a frame having a rearwardly projecting arm and a downwardly projecting arm, take-up sprockets supported by the former arm, behind the frame, a take-up reel supported by the latter arm and gearing for simultaneously driving the sprockets and reel.

5. In a kinetoscope, the combination of a frame, having a rearwardly projecting arm and a downwardly projecting arm, shafts supported by said arms respectively and having take-up sprockets and a take-up reel thereon, respectively, and gearing between the shafts, including a friction clutch on the shaft of the take-up reel.

6. In a kinetoscopic apparatus having a light opening, means for giving an intermittent movement to a film across said opening and an objective lens, a shutter consisting of sections journaled on opposite sides of the lens and the light opening and movable past each other in opposite directions and means for operating said shutters, substantially as described.

7. In a kinetoscopic apparatus having a light opening, means for giving an intermittent movement to a film across said opening and an objective lens, a shutter consisting of sections rotatably journaled on opposite sides of the lens and the light opening and movable past each other in opposite direc-

tions and means for operating said shutters, substantially as described.

8. In a kinetoscopic apparatus having a light opening, means for giving an intermittent movement to a film across said opening and an objective lens, a shutter consisting of sections mounted on opposite sides of the lens and the light opening and movable past each other in opposite directions and means

for operating said shutters, substantially as described.

In testimony whereof I affix my signature, in presence of two witnesses.

CARL J. LANG.

Witnesses:

F. L. STOWELL,
LEMUEL PATTERSON.