

A. C. ROEBUCK.

KINETOSCOPE.

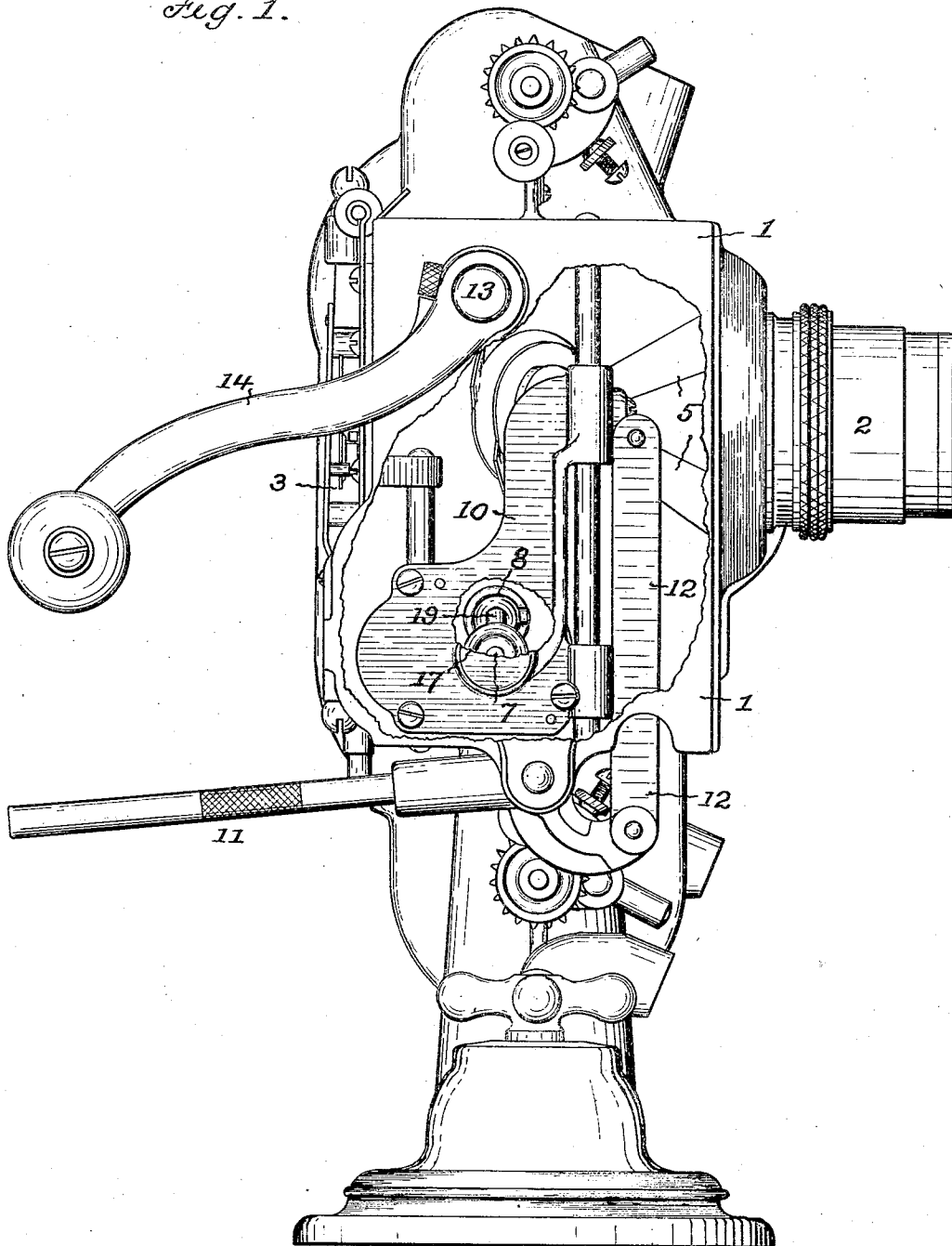
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939,634.

Patented Nov. 9, 1909.

3 SHEETS—SHEET 1.

Fig. 1.



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3 SHEETS—SHEET 2.

Fig. 2.

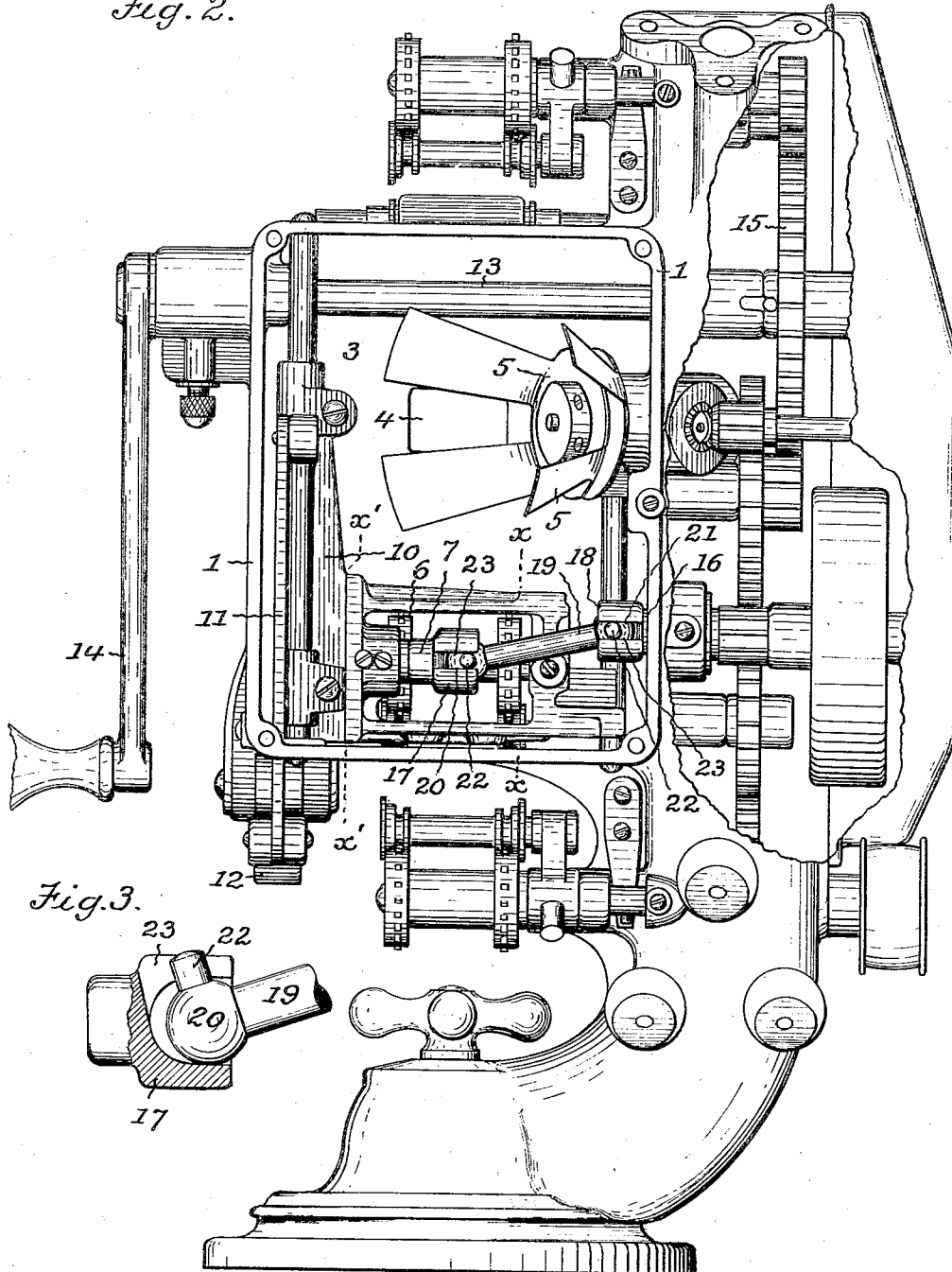
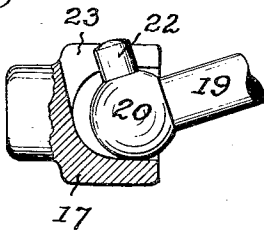


Fig. 3.



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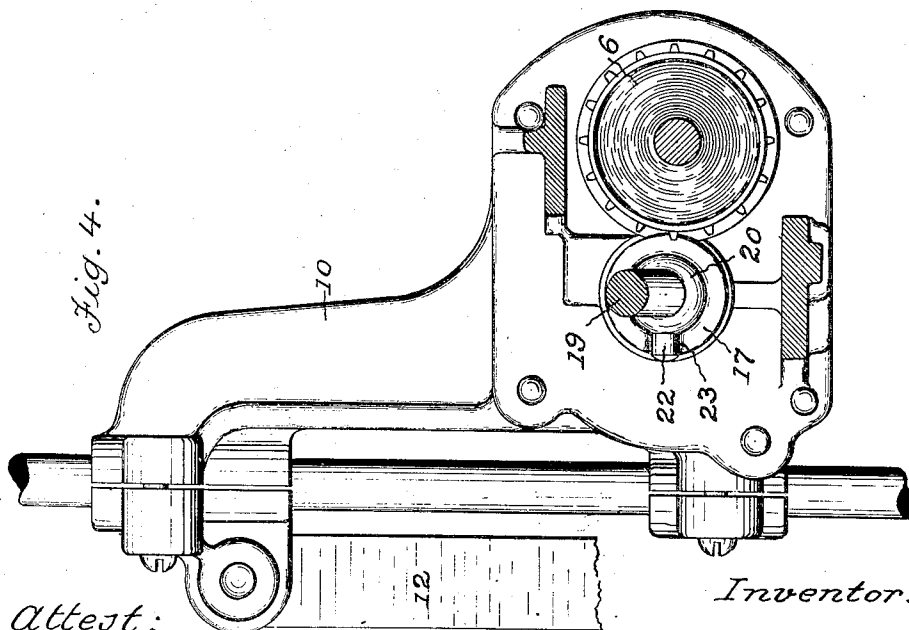
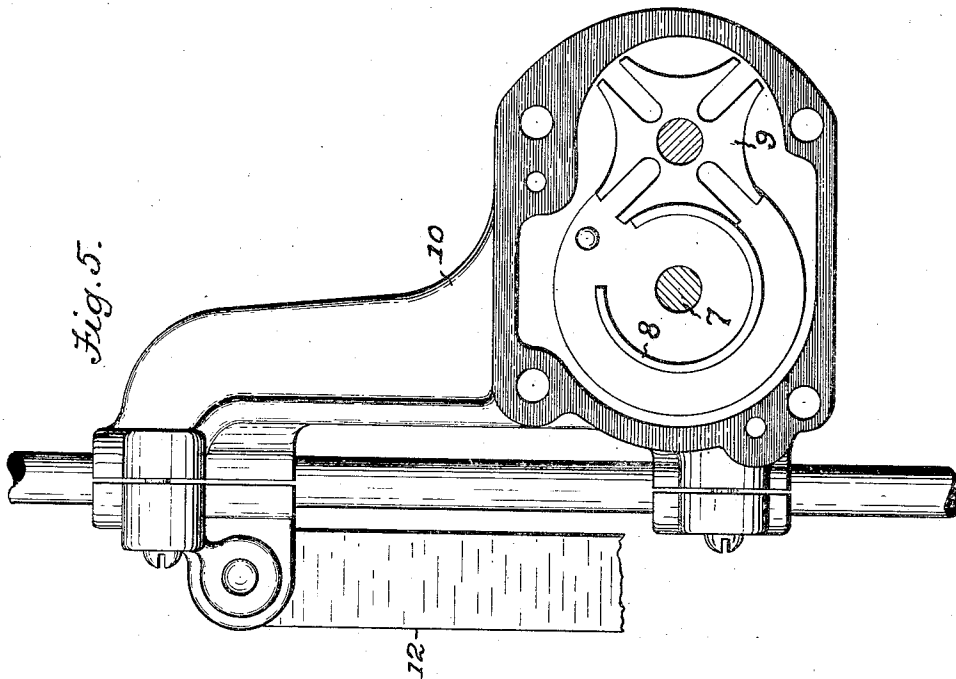
by Robert Burns, Att'y.

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3 SHEETS—SHEET 3.



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KINETOSCOPE.

939,634.

Specification of Letters Patent.

Patented Nov. 9, 1909.

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To all whom it may concern:

Be it known that I, ALVAH C. ROEBUCK, a citizen of the United States of America, and a resident of Chicago, in the county of Cook and State of Illinois, have invented certain new and useful Improvements in Kinetoscopes, of which the following is a specification.

This invention relates to that type of kinetoscopes in which a pictured band film is intermittently fed through the apparatus, and has for its object to provide a simple and effective structural arrangement and combination of parts whereby the series of pictures on the film can be adjusted in relation to the light aperture or passage of the apparatus to effect a ready and accurate framing of said pictures without any interference with or disturbance in the normal relations of the other mechanisms of the apparatus, all as will hereinafter more fully appear:

In the accompanying drawings:—Figure 1, is a side elevation of the kinetoscope with parts of the main frame or housing broken away. Fig. 2, is a front elevation, with the front closure plate of the housing removed, and with parts of the housing broken away. Fig. 3, is an enlarged detail section of the universal joint. Figs. 4 and 5, are enlarged detail sectional elevations on lines $x-x$ and $x'-x'$ respectively, Fig. 2.

Similar numerals of reference indicate like parts in the several views.

Referring to the drawings, 1, is the main frame or housing of the kinetoscope preferably of the closed rectangular form shown, and provided at one end with the usual objective 2, and at the opposite end with a horizontally swinging door 3, for convenience in inserting and removing the picture film, as usual in the present type of kinetoscopes.

4, is the light passage of the apparatus, formed by the usual alined openings or orifices in the housing 1 and door 3, as shown.

5, is the light controlling shutter, of any usual construction, and preferably of the cone type shown, and which forms the subject matter of my application for Letters Patent Serial No. 413,346, filed January 30, 1908. Such shutter is arranged within the housing 1, across the path of the light passage 4, aforesaid, and is adapted to alternately open and close said light passage in the normal operation of the apparatus.

6, is the film feeding sprocket drum arranged transversely in the housing 1, in adjacent relation to the shutter 5, aforesaid; such sprocket drum receives intermittent rotation, in unison with the constant rotation of the light controlling shutter, through the hereinafter described connecting gearing between said parts and so that the film will be left stationary during the full period in which the shutter remains open, and will as usual have its travel past the light passage of the kinetoscope when the shutter is closed.

7, is a countershaft journaled in fixed relation to the sprocket drum 6, on a common carriage as hereinafter more fully described; such countershaft carries the driving member of the intermediate pair of gears 8 and 9, by which the continuous rotation of the shaft 7 imparts the intermittent rotation to the film feeding sprocket drum 6, above referred to, and such intermediate gearing will be of the "Geneva" or other equivalent type usually employed in the present form of apparatus.

In the present invention the light controlling shutter 5, has its pivot or journal axis on a fixed plane in the main housing 1, in order to maintain a fixed relation to the light passage 4, while the film feeding sprocket drum 6 and the countershaft 7 are made adjustable to and from said shutter and light passage for the purpose of affording an independent adjustment of the sprocket drum, and the picture film in engagement therewith, in relation to said shutter and light passage. And in this connection a material part of the invention consists in the provision of an intermediate operating connection between the main driving shaft of the apparatus and the sprocket drum 6, and driving countershaft 7, whereby the aforesaid independent adjustment of the sprocket drum, and the film in engagement therewith, in relation to the light passage and shutter can be attained without any circular disturbance in the normal relation of said shutter to the light passage 4 and the other coacting mechanisms of the apparatus. In the attainment of the functions above set forth, a construction and arrangement of parts as follows is employed.

10 is an adjustable frame or carriage having sliding movement on suitable slide rods or guideways in the housing 1 and provided with journal bearings for the support of the

film feeding sprocket drum 6 and counter-shaft 7, before described.

11 is a hand lever journaled upon the main housing 1 and connected by a link 12 with the carriage 10, to afford means for the convenient manual adjustment of said carriage.

13 is the main driving shaft arranged transversely in the main frame or housing 1, and provided at one end with an operating handle 14, and at the other end with a spur gear 15, forming the primary gearing element of the trains of gears by which the different mechanisms of the kinetoscope are driven.

16 is a countershaft journaled in the main frame or housing 1, and receiving motion from the spur gear 15 aforesaid through a series of intermediate idler or speed increasing gears as shown more particularly in Fig. 2.

17 and 18 are knuckles of heads arranged on the opposed ends of the shafts 7 and 16 above described and in separated relation, as shown in Fig. 2.

19 is a shaft arranged intermediate of the aforesaid knuckles 17 and 18, to form an intermediate operative connection between said knuckles, and which connection is adapted to permit of an independent vertical adjustment of the knuckle carrying shaft 7 with relation to the other knuckle carrying shaft 16; and to such end the following structural formation of the parts is employed. 20 and 21 are spherical heads on the respective ends of the intermediate shaft 19, adapted to fit and have limited endwise movement in cylindrical cavities in the aforesaid knuckles 17 and 18, and held from independent rotation by one or more radial pins 22, moving in corresponding slots 23 in the walls of the knuckle cavities aforesaid, as shown in Figs. 2 and 3. Such construction affords a simple and efficient operative connection whereby the carriage carrying the film feeding mechanism is capable of adjustment to and from the shutter, to properly frame the pictures in relation to the light opening or aperture and without disturbing the circular relation of the parts, and with very little friction and absolutely no lost motion in the parts.

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

1. In a kinetoscope, the combination of a shutter journaled on a stationary axis, a carriage movable to and from said shutter, a film feeding mechanism mounted on said carriage, and an intermediate operative connection between the shutter and the film feeding mechanism, the same comprising a shaft journaled in the main frame or housing and provided with a knuckle at one end, a shaft of the film feeding mechanism journaled in said carriage and having a knuckle

at one end, and an intermediate shaft having universal connections with said knuckles at its respective ends, substantially as set forth.

2. In a kinetoscope, the combination of a shutter journaled on a stationary axis, a carriage movable to and from said shutter, a film feeding sprocket drum journaled in said carriage, and an intermediate operative connection between the shutter and the film feeding mechanism, the same comprising a shaft journaled on the main frame or housing and provided with a knuckle at one end, a shaft of the film feeding mechanism journaled in said carriage and having a knuckle at one end, and an intermediate shaft having universal connections with said knuckles at its respective ends, substantially as set forth.

3. In a kinetoscope, the combination of a shutter journaled on a stationary axis, a carriage movable to and from said shutter, a film feeding sprocket drum and intermittent gearing for operating the same mounted on said carriage, and an intermediate operative connection between the shutter and the film feeding mechanism, the same comprising a shaft journaled in the main frame or housing and provided with a knuckle at one end, a shaft of the film feeding mechanism journaled in said carriage and having a knuckle at one end, and an intermediate shaft having universal connections with said knuckles at its respective ends, substantially as set forth.

4. In a kinetoscope, the combination of a shutter journaled on a stationary axis, a carriage movable to and from said shutter, a film feeding mechanism mounted on said carriage, and an intermediate operative connection between the shutter and the film feeding mechanism, the same comprising a shaft journaled in the main frame or housing and provided with a knuckle at one end, a shaft of the film feeding mechanism journaled in said carriage and having a knuckle at one end, and an intermediate shaft having spherical heads at its ends and studs extending radially from said heads, said knuckles being formed with cylindrical cavities and with slots in the walls of such cavities and adapted for engagement with the spherical heads and radial studs aforesaid, substantially as set forth.

5. In a kinetoscope, the combination of a shutter journaled on a stationary axis, a carriage movable to and from said shutter, a film feeding sprocket drum journaled in said carriage and an intermediate operative connection between the shutter and the film feeding mechanisms, the same comprising a shaft journaled on the main frame or housing and provided with a knuckle at one end, a shaft of the film feeding mechanism journaled in said carriage and having a knuckle at one end, and an intermediate shaft hav-

ing spherical heads at its ends and studs extending radially from such heads, said knuckles being formed with cylindrical cavities and with slots in the walls of such cavities and adapted for engagement with the spherical heads and radial slots aforesaid, substantially as set forth.

6. In a kinetoscope, the combination of a shutter journaled on a stationary axis, a carriage movable to and from said shutter, a film feeding sprocket drum and intermittent gearing for operating the same mounted on said carriage, and an intermediate operative connection between the shutter and the film feeding mechanism, the same comprising a shaft journaled in the main frame or housing and provided with a knuckle at one

end; a shaft of the film feeding mechanism journaled in said carriage and having a knuckle at one end, and an intermediate shaft having spherical heads at its ends and studs extending radially from such heads, said knuckles being formed with cylindrical cavities and with slots in the walls of such cavities and adapted for engagement with the spherical heads and radial slots aforesaid, substantially as set forth.

Signed at Chicago, Illinois, this first day of April 1908.

ALVAH C. ROEBUCK.

Witnesses:

E. D. SEIDLER,

E. J. WILLIAMS.