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SHUTTER MECHANISM FOR KINETOSCOPES OR KINEMATOGRAPHIC APPARATUS.

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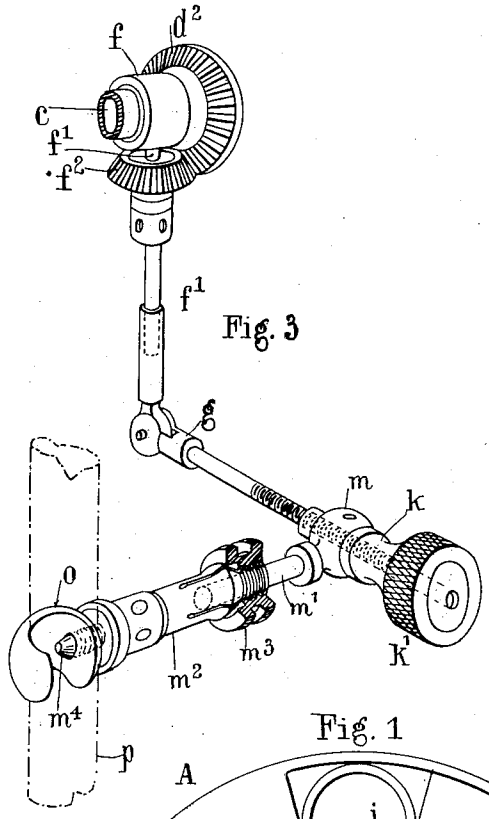


Fig. 3

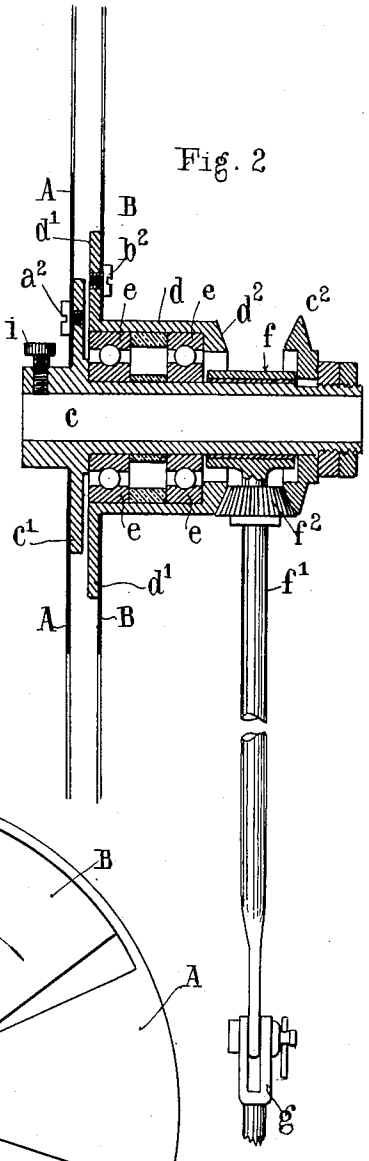


Fig. 2

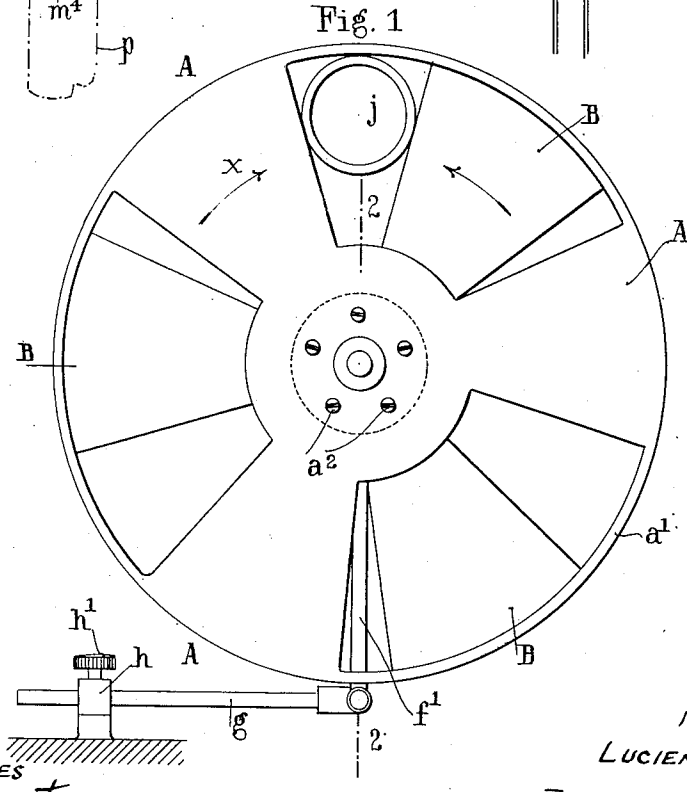


Fig. 1

WITNESSES

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SHUTTER MECHANISM FOR KINETOSCOPES OR KINEMATOGRAPHIC APPARATUS.

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To all whom it may concern:

Be it known that I, LUCIEN HERMAND, a citizen of the Republic of France, and a resident of 45 Quai de Paris, at Rouen, France, have invented a new and useful Improvement in Shutter Mechanism for Kinetoscopes or Kinematographic Apparatus, of which the following is a specification.

This invention relates to shutters for kinetoscopes or kinematographic apparatus having two concentric disks provided with openings in form of sectors separated by full parts of equal size and having rotation in opposite directions. It relates to a mechanism which permits the adjustment of the relative position of both shutter-disks even during the operation of the latter.

An embodiment of the invention is shown by way of example in the accompanying drawings in which:

Figure 1 is an end view, Fig. 2 is, to a larger scale, a sectional view on line 2—2 of Fig. 1, from the right, Fig. 3 is a detail perspective view of another form.

The apparatus (Figs. 1 and 2) comprises two concentric shutter-disks A and B rotating at the same speed in opposite directions. Each disk (A or B) is provided as usual with openings of sector shape separated by full parts of equal size and is provided at its periphery with a metallic protector ring a^1.

The disk A is fastened, by means of screws a^2, on a ring collar c^1 secured on the hollow shaft c or made integral with the same. The disk B is fastened by means of screws b^2, on the ring or collar d^1 secured on a sleeve d, or made integral with the same. The sleeve d is journaled on the hollow shaft c by means of ball-bearings e. Bevel gear wheels c^2 and d^2 are respectively secured on the hollow shaft c and the sleeve d. Between the wheels c^2 and d^2 and loose on the shaft a is a sleeve f, on which is secured a spindle f^1. A bevel gear wheel f^2, mounted on the spindle f^1 engages simultaneously both wheels c^2 and d^2. At the end of the spindle f^1 is hinged a rod g which may slide in the ring h provided with a set screw h^1.

The apparatus may be mounted quickly upon a kinetoscope or kinematographic apparatus of any kind. For this purpose, it is only necessary to insert the usual shaft which drives the shutter, in the hollow shaft c and secure it by means of the set screw i and then to clamp the spindle f^1. The shaft c and the disk A are actuated through the shaft of the kinematographic apparatus in the direction of the arrow x, for example (Fig. 1). At the same time, the wheel c^2 drives, by means of the wheel f^2, the wheel d^2 and the disk B which turn in an opposite direction of the arrow x.

With the device just described, it is possible to modify, even during operation, the relative value of the periods of whole obturation and of the periods of partial obturation. For this purpose it is only necessary to displace the rod g in the desired direction. With this device, it is possible to control the shutter in such a way that the partial obturation of the image by one shutter in advance of the other is minimum. This is obtained when the edges of the full sectors of the disks A and B meet at the same time the opposite sides of the cone of luminous rays issuing from the object glass j.

In Fig. 3 is shown another form of the device which permits to adjust even during operation the position of the wheel f^2 *i. e.* the relative position of the disks A and B. Similar letters of reference indicate like parts as in the Figs. 1 and 2. The spindle f^1 is made of two parts which can slide one in the other. The rod g is threaded and engages a nut k provided with a knob k^1 capable of turning in the fixed sleeve m. The sleeve m is fixed at the end of an extensible arm made of two parts m^1, m^2 slidable one in the other. The extensible arm m^1 m^2 may be clamped in desired position by means of a cone clamping device of usual kind, controlled by a ring m^3. The part m^2 terminates in a cone screw m^4 passing through one side of the socket o which may embrace any support such as the pillar p (in dotted lines on the Fig. 3). By screwing the screw m^4 in the socket o, the arm m^1, m^2 is clamped on its support. All the parts which constitute the device of the Fig. 3, may be controlled in length and in direction and so, it is possible to mount them quickly on a kinetoscope or kinematographic apparatus of any kind.

It will of course be understood that the invention is not confined to the details just described and that it may be executed according to any other form based on the same principle.

Having now described my said invention, what I claim is:

1. In kinetoscope apparatus or the like, a shutter mechanism comprising a pair of oppositely rotating shutter disks mounted on a common axis, bevel gears operatively connected to said shutters, a bevel pinion meshing therewith and driving said gears in opposite directions, together with means for rotating said pinion around the common axis of said bevel gears to adjust the relative rotary positions of said shutters, for the purpose described.

2. In kinetoscope apparatus or the like, a shutter mechanism comprising a pair of oppositely rotating shutter disks mounted on a common axis, bevel gears operatively connected to said shutters, a bevel pinion meshing therewith and driving said gears in opposite directions, together with means operative during the actuation of said shutters for rotating said pinion around the common axis of said bevel gears to adjust the relative rotary positions of said shutters, for the purpose described.

3. In kinetoscope apparatus or the like, a shutter mechanism comprising a pair of oppositely rotating shutter disks mounted on a common axis, bevel gears operatively connected to said shutters, a bevel pinion meshing therewith and driving said gears in opposite directions, a sleeve mounted on said common axis and carrying said pinion, together with a lever for turning said sleeve on its axis to adjust the relative rotary positions of said shutters, for the purpose described.

4. In kinetoscope apparatus or the like, a shutter mechanism comprising a pair of oppositely rotating shutter disks mounted on a common axis, bevel gears operatively connected to said shutters, a bevel pinion meshing therewith and driving said gears in opposite directions, a sleeve mounted on said common axis, a lever rigid with said sleeve and forming the axis for said pinion, whereby upon the operation of said lever, said pinion may be rotated on the common axis of said bevel gears and the relative rotary position of said shutters adjusted, substantially as described.

In testimony whereof I sign my name to this specification in the presence of two subscribing witnesses.

LUCIEN HERMAND.

Witnesses:

LOUIS RAQUET,

LUCIEN MEMMINGER.