No. 661,299. Patented Nov. 6, 1900.

C. WRAY.

COIN FREED PHOTOGRAPH EXHIBITING APPARATUS.

(Application filed Mar. 14, 1900.)

(No Model.) 3 Sheets—Sheet 1.

FIG. 2.

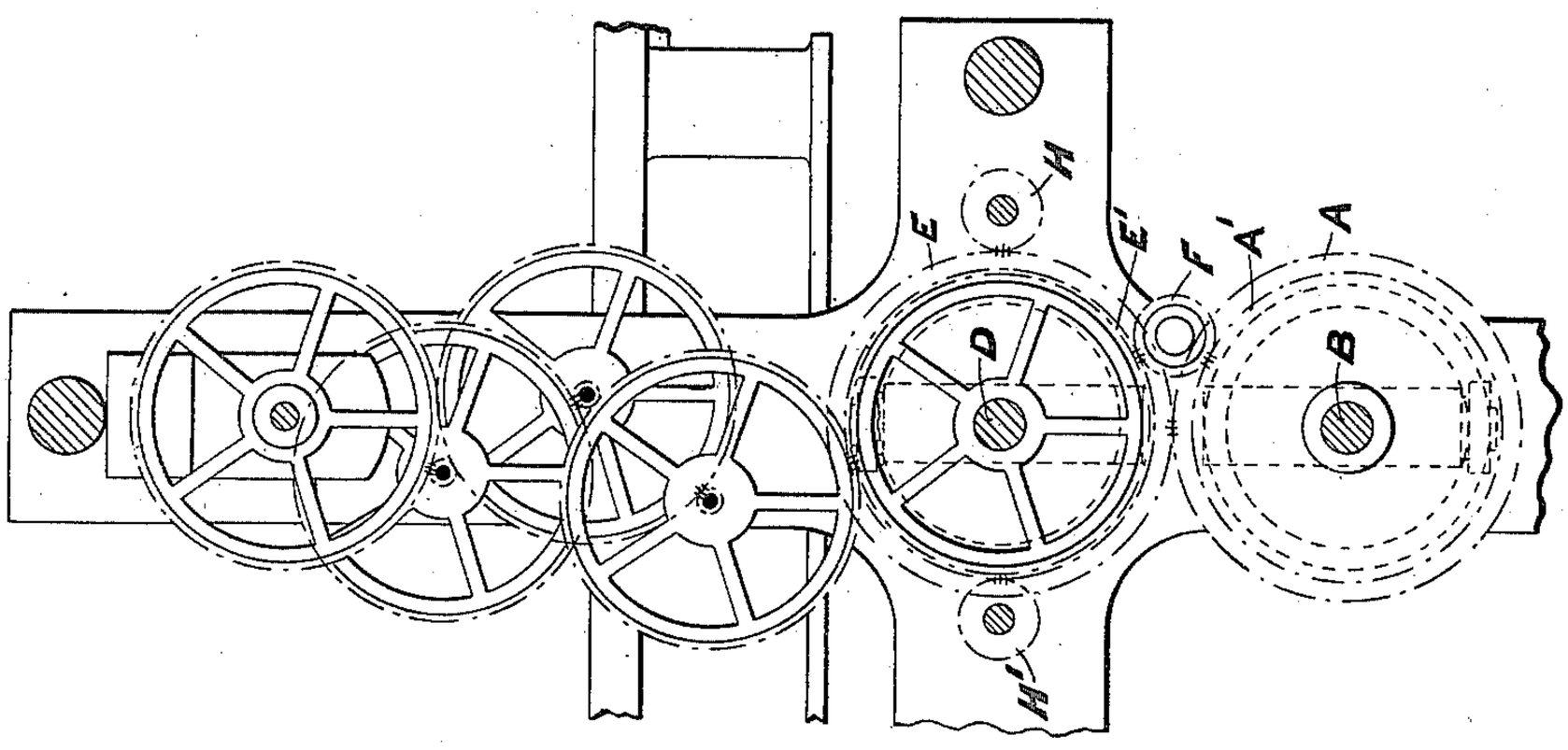

FIG. 1.

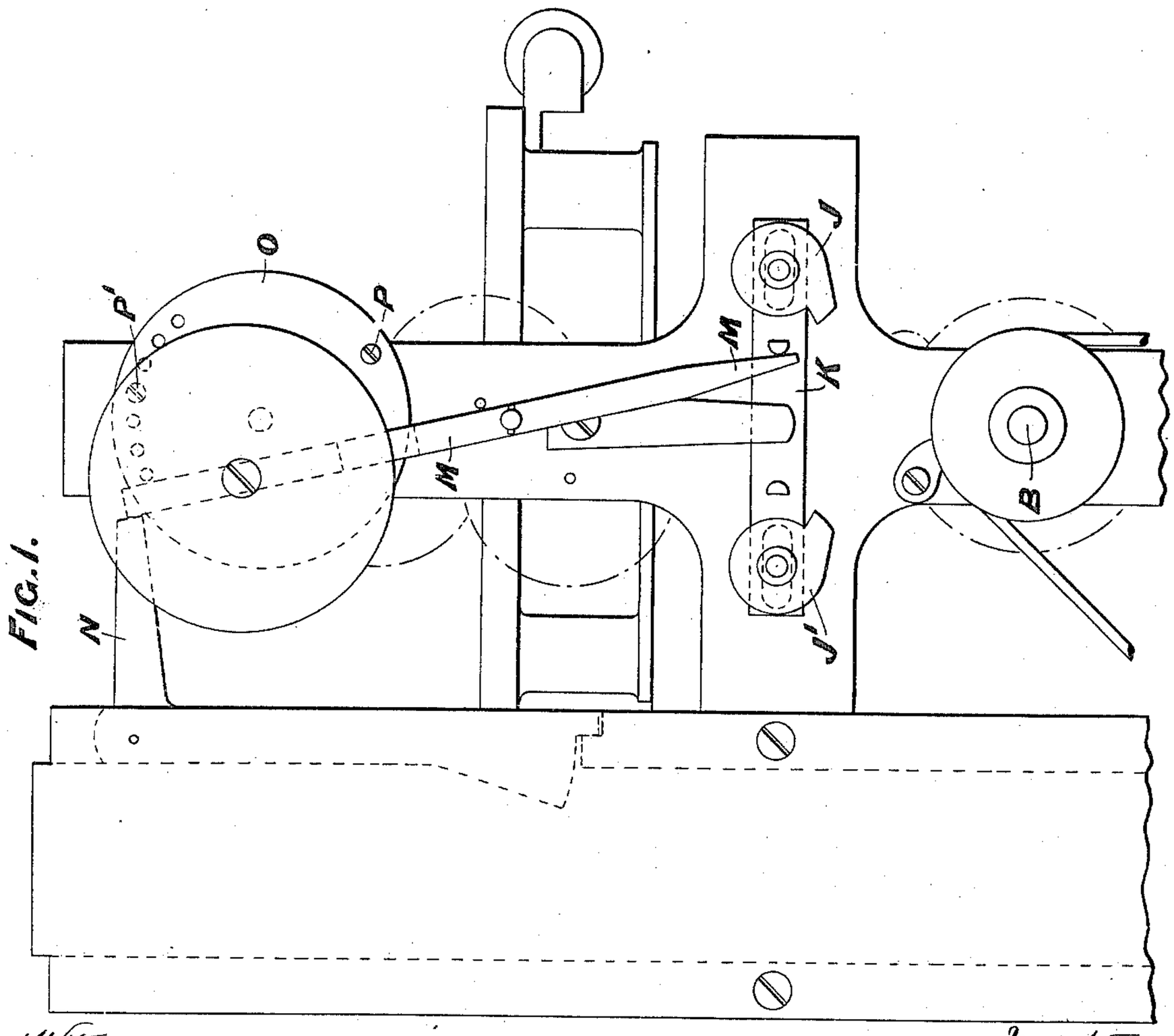

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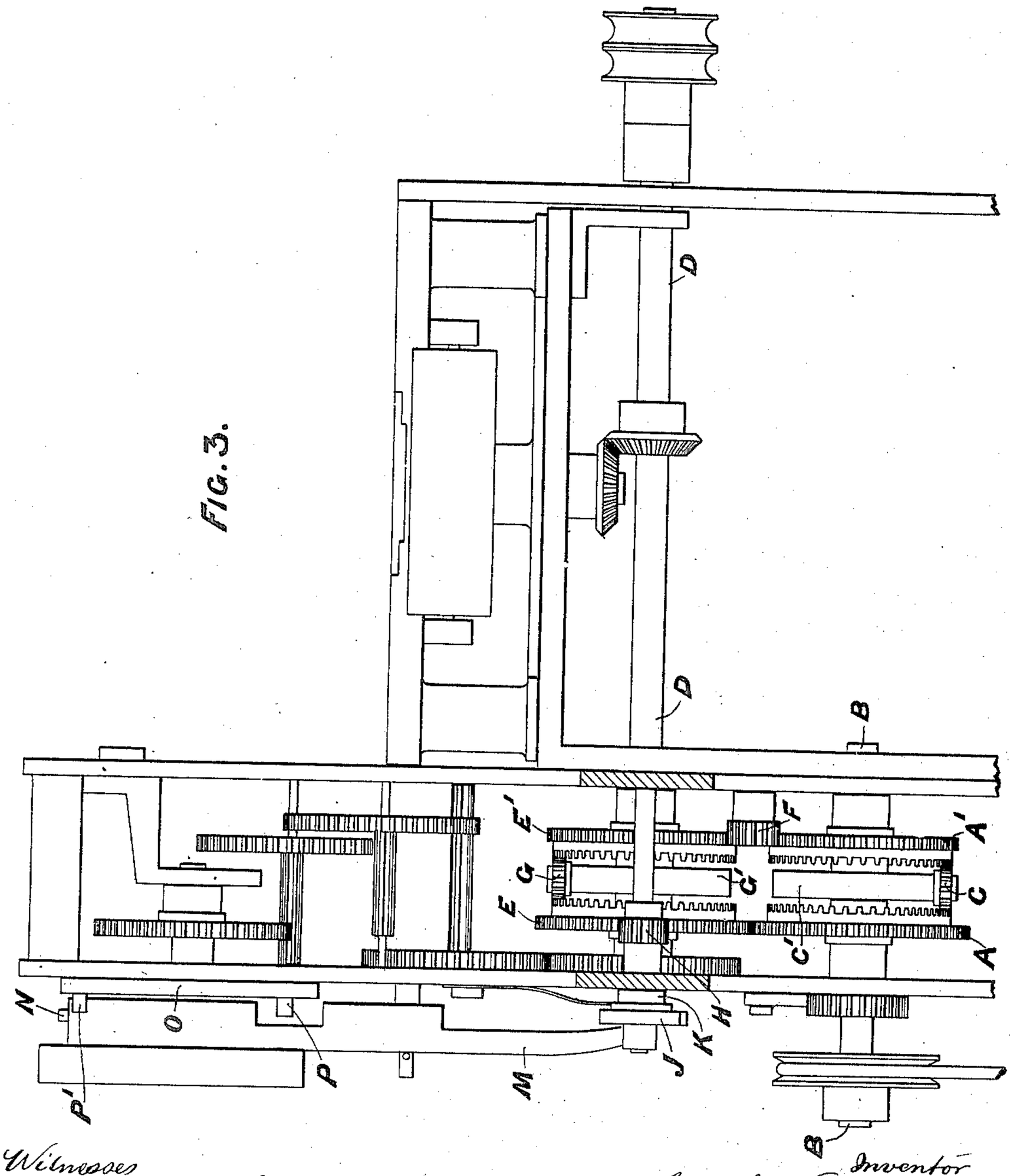
FIG. 3.



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(No Model.) 3 Sheets—Sheet 3.

FIG. 4.

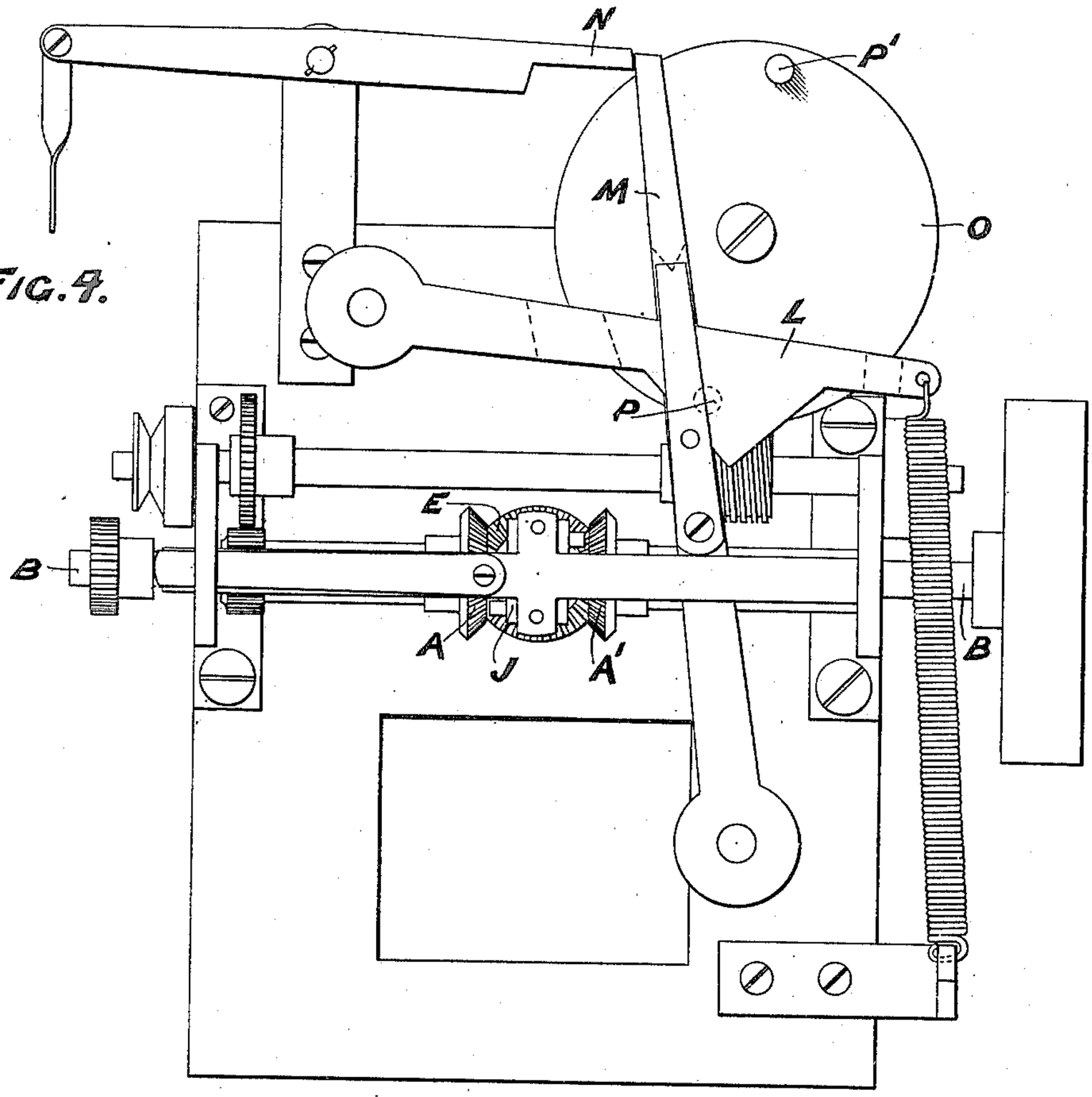
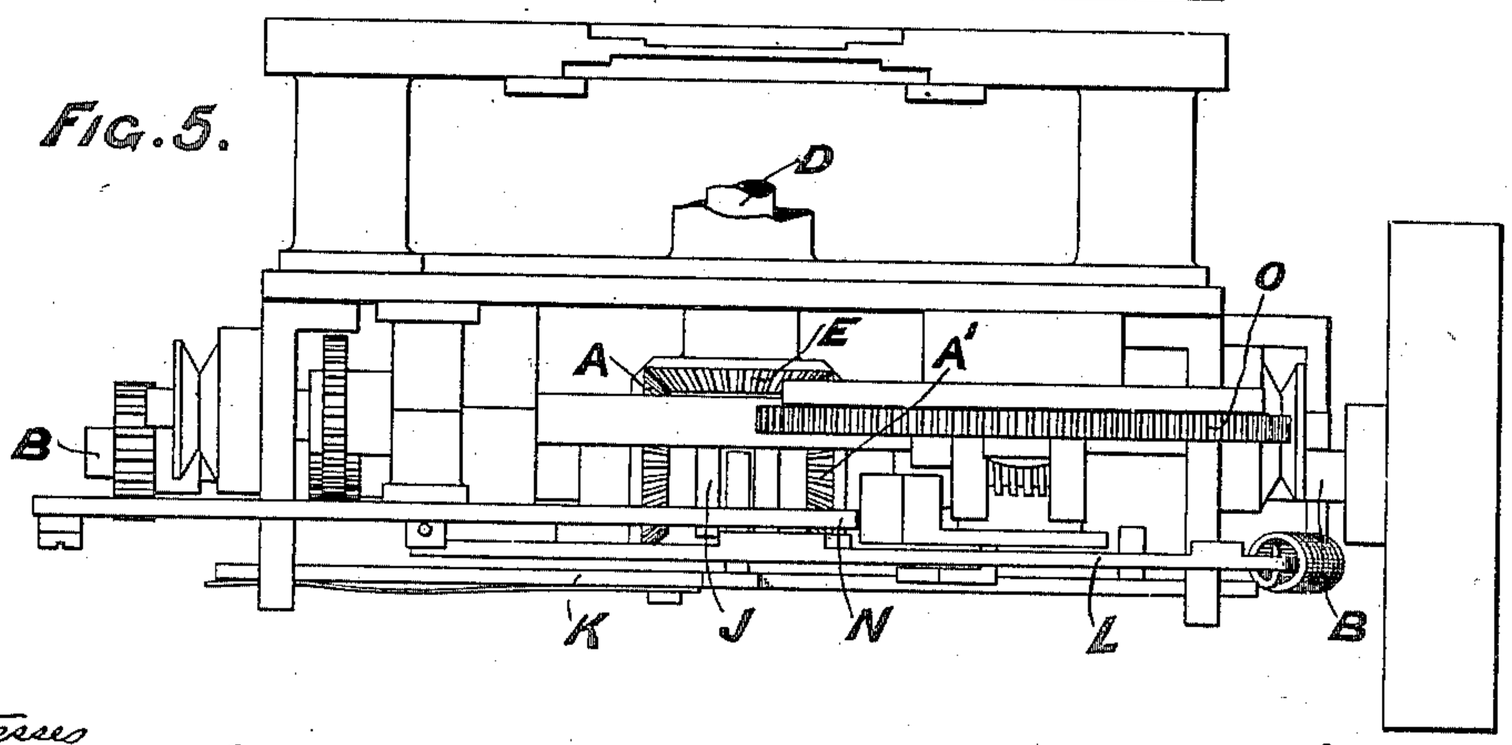


FIG. 5.



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UNITED STATES PATENT OFFICE.

CECIL WRAY, OF BRADFORD, ENGLAND, ASSIGNOR TO THE AUTOMATIC CINOGRAPH COMPANY, LIMITED, OF LEEDS, ENGLAND.

COIN-FREED PHOTOGRAPH-EXHIBITING APPARATUS.

SPECIFICATION forming part of Letters Patent No. 661,299, dated November 6, 1900.

Application filed March 14, 1900. Serial No. 8,569. (No model.)

To all whom it may concern:

Be it known that I, CECIL WRAY, a subject of the Queen of Great Britain and Ireland, and a resident of Borough Mills, Manchester road, in the city of Bradford, county of York, England, have invented certain new and useful Improvements in Coin-Freed Apparatus for Exhibiting Series of Photographs or other Pictures, (for which I have made application for a patent in Great Britain, No. 16,773, bearing date August 18, 1899,) of which the following is a specification.

The object of this invention is to construct mechanism for use in coin-freed apparatus for exhibiting series of photographs or other pictures whereby the driving or motor shaft which communicates motion to the film operating and displaying mechanism and which is adapted to rotate in one direction only may be placed into gear with the film-operating mechanism upon the insertion of a coin, and after a predetermined number of photographs in series has been exhibited in a forward direction the mechanism automatically reverses the direction of travel of the film, and the same photographs are then traveled through the machine in the opposite or backward direction, and upon completing the exhibition of the said photographs in this order the mechanism then automatically throws the driving or motor shaft out of gear with the film operating and displaying mechanism and leaves the parts in their normal or inoperative positions, ready for the insertion of a coin, and upon the insertion of a coin the same cycle of operations may be repeated.

In order that my invention may be clearly understood, I will describe the same with reference to the accompanying drawings, wherein—

Figure 1 is a front elevation of one form of mechanism for carrying my invention into effect. Fig. 2 is a sectional elevation, a front plate and some mechanism having been removed. Fig. 3 is an end elevation of the mechanism illustrated at Fig. 1. Fig. 4 is a front elevation of a second form of mechanism for carrying my invention into effect, and Fig. 5 is a plan of the same.

Referring particularly to Figs. 1 to 3, A A′ are two sun-wheels mounted on the driving-shaft B and free to rotate thereon, but not to move laterally. These wheels A A′ have teeth on their neighboring faces, as well as on their peripheries. A planet-wheel C, mounted upon a radial arm C′, rigidly fixed to the driving-shaft B, connects the teeth on the faces of the two wheels A A′ together. Consequently if the shaft B is rotated the two sun-wheels A A′ turn with it; but if either of the sun-wheels A A′ is held the other is driven at twice the speed of the driving-shaft. On a shaft D, through which motion is conveyed to the film-operating mechanism, a pair of wheels E E′ similar to the wheels A A′ are mounted, and the wheel E directly engages the sun-wheel A on the driving-shaft, and the wheel E′ is connected by an intermediate wheel F to the sun-wheel A′ on the driving-shaft B. The sun-wheels E E′ on the film-operating shaft D are connected together by a planet-wheel G, mounted upon a radial arm G′, rigidly fixed on the film-operating shaft D. By this arrangement motion may be communicated from the driving-shaft B to the film-operating shaft D through the medium of the gearing by locking one or other of the sun-wheels A A′ on the driving-shaft, and according to which one of the sun-wheels A or A′ is locked the film-driving mechanism is driven either forward or backward and causes the film to travel either in a forward or backward direction. Mechanism for effecting this purpose may consist in employing separate pinions H H′ to engage each of the sun-wheels A A′ on the driving-shaft and mounting two locking-wheels J J′ preferably in the same plane upon the two pinion-shafts. A locking-slide K is mounted between the two locking-wheels J J′, and this slide is operated by a lever M, pivoted below its center of gravity and controlled by a coin-operated detent N and a wheel O, driven by a train of wheels from the film-operating gear. When the mechanism is at rest or in its normal condition, the lever M is held in such a position by the detent N that the locking-slide K is disengaged from both locking-wheels J J′. Consequently rotation of the driving-shaft B does not communicate motion to the film-operating shaft D; but as soon as the detent N releases the lever M the latter falls over to one side and,

actuating the slide K, locks the locking-wheel J, thereby enabling the motion of the driving-shaft B to be communicated at an increased speed to the film-operating shaft D. When the film-operating shaft has been driven in this way a specified number of revolutions, a pin carried, by the wheel O P, engages the lever and moves it sufficiently to cause it to fall toward the other side of its pivot, and as it falls it causes the slide K to release the locking-wheel J, with which it is then engaged, and engage the locking-wheel J′, thereby reversing the motion of the film-shaft D. As soon as a specific number of revolutions has been imparted to the film-operating shaft D in this direction a pin P′, also carried by the wheel O and which may be adjustable thereon, engages the reversing-lever M and causes it to fall over to its original position and again engage the detent N. This movement of the lever M is sufficient to disengage the locking-slide K from the locking-wheel J′; but the movement imparted to the locking-slide is not sufficient to enable it to engage the other locking-wheel J.

Referring particularly to Figs. 4 and 5 of the drawings, I will now describe the second form of mechanism for carrying my invention into effect.

Mounted upon the driving-shaft B are two bevel-wheels A A′, adapted to engage with a bevel-wheel E, fixed upon the film-operating shaft D. A sliding clutch J is mounted upon the driving-shaft B, adapted to engage with the bevel-wheels A A′ and lock either of them to the driving-shaft B, or the clutch may be moved into an intermediate and inactive position, whereby both the bevel-wheels are free and disconnected from the driving-shaft. A locking-slide K is provided, coupled to the sliding clutch J, through which the movements of the clutch J are controlled, and consequently the direction of rotation and the throwing into and out of gear of the film-operating shaft are also controlled. The locking-slide K is operated by mechanism constructed and acting in substantially the same manner as that of the locking-slide K described with reference to Figs. 1, 2, and 3 of the drawings and is as follows: A pivoted lever M is mounted upon the framework of the machine and is adapted to engage with two stops upon the slide K. The lever M is controlled by a coin-operated detent N and a wheel O, which is driven by a train of wheels from the film-operating gear. A spring-actuated lever L is also provided to impart the same movements to the lever M as are imparted by the weighted lever M in the foregoing mechanism. This lever L has a projecting portion of angular formation, which under the influence of the spring acts upon a bearing-point on the lever and causes or tends to move the lever in either direction after it has passed the vertical position. When the mechanism is at rest or in its normal condition, the lever M is held in such a position by the detent N that the slide K places the sliding clutch J into its intermediate position. Consequently rotation of the driving-shaft B does not communicate motion to the film-operating shaft D; but as soon as the detent N releases the lever M the latter is drawn over to one side and, actuating the slide K, slides the clutch J into engagement with the bevel-wheel A, thereby enabling the motion of the driving-shaft B to be communicated to the film-operating shaft D. When the film-operating shaft has been driven in this way a specified number of revolutions, a pin P, carried by the wheel O, engages the lever and moves it sufficiently to allow it to be drawn over by the lever L toward the other side of its pivot, and as it travels it causes the slide K to release the clutch J from engagement with the bevel-wheel A and to engage with the bevel-wheel A′, thereby reversing the motion of the film-shaft D. As soon as a specified number of revolutions has been imparted to the film-operating shaft in this direction a pin P′, also carried upon the wheel O and which may be adjustable thereon, engages the reversing-lever M and causes it to be drawn over to its original position and again engage the detent N. This movement of the lever M is sufficient to cause the slide K to disengage the clutch J from the bevel-wheel A′; but the movement imparted to the slide K is not sufficient to enable the clutch J to engage with the bevel-wheel A.

Having now described my invention, what I claim as new, and desire to secure by Letters Patent, is—

1. In coin-freed apparatus for exhibiting series of photographs or other pictures, and in which the motor or driving shaft is adapted to rotate in one direction only, providing gearing between the motor-shaft and the film-operating shaft whereby the latter may be driven in a forward direction, automatically reversed and driven in a rearward direction and finally thrown out of gear, in combination with means for controlling such gearing, consisting of a slide provided with locking or engaging means, a lever arranged to rock automatically after having been carried into a vertical position, a wheel provided with pins, one of which is adjustable, to engage with and move the lever into the vertical position together with a coin-freed detent, all acting substantially as herein set forth.

2. In coin-freed apparatus for exhibiting series of photographs or other pictures and in which the motor or driving shaft is adapted to rotate in one direction only, providing disengaging and reversing gear between the motor-shaft and the film-operating shaft for the purposes herein set forth, in combination with a locking-slide K, a lever M, pivoted below its center of gravity, a wheel O, carrying two pins P, P′, and detent N, substantially as herein set forth.

3. In coin-freed apparatus for exhibiting

series of photographs or other pictures, and in which the motor or driving shaft is adapted to rotate in one direction only, providing disengaging and reversing gearing between the motor-shaft and the film-operating shaft for the purposes herein set forth, in combination with a slide K, pivoted lever M, spring-actuated lever L, wheel O carrying pins P, P′, together with detent N, substantially as herein set forth.

4. In coin-freed apparatus for exhibiting series of photographs or other pictures, and in which the motor or driving shaft is adapted to rotate in one direction only, providing gearing between the motor-shaft and the film-operating shaft, consisting of two bevel-wheels A, A′, mounted upon the driving-shaft B, bevel-wheel E, fixed upon the shaft D, and sliding clutch J, in combination with means for controlling such gearing, consisting of a slide, a lever arranged to rock automatically after having been carried into a vertical position, a wheel provided with pins to engage with and move the lever into the vertical position, together with a coin-freed detent, all acting substantially as and for the purposes herein set forth.

5. In coin-freed apparatus for exhibiting series of photographs or other pictures, and in which the motor or driving shaft is adapted to rotate in one direction only providing gearing between the motor-shaft and the film-operating shaft, consisting of two bevel-wheels A, A′, mounted upon the driving-shaft B, bevel-wheel E fixed upon the shaft D, and sliding clutch J, in combination with means for controlling such gearing, consisting of a slide K, pivoted lever M, spring-actuated lever L, wheel O carrying pins P, P′, together with detent N, all acting and arranged substantially as herein set forth.

In witness whereof I have hereunto set my hand in presence of two witnesses.

CECIL WRAY.

Witnesses:
J. ALFRED BREWER,
JOHN JOWETT.