No. 676,146. Patented June 11, 1901.

H. S. MILLS.

COIN CONTROLLED APPARATUS.

(Application filed Jan. 14, 1901.)

(No Model.) 4 Sheets—Sheet 1.

Fig. 1.

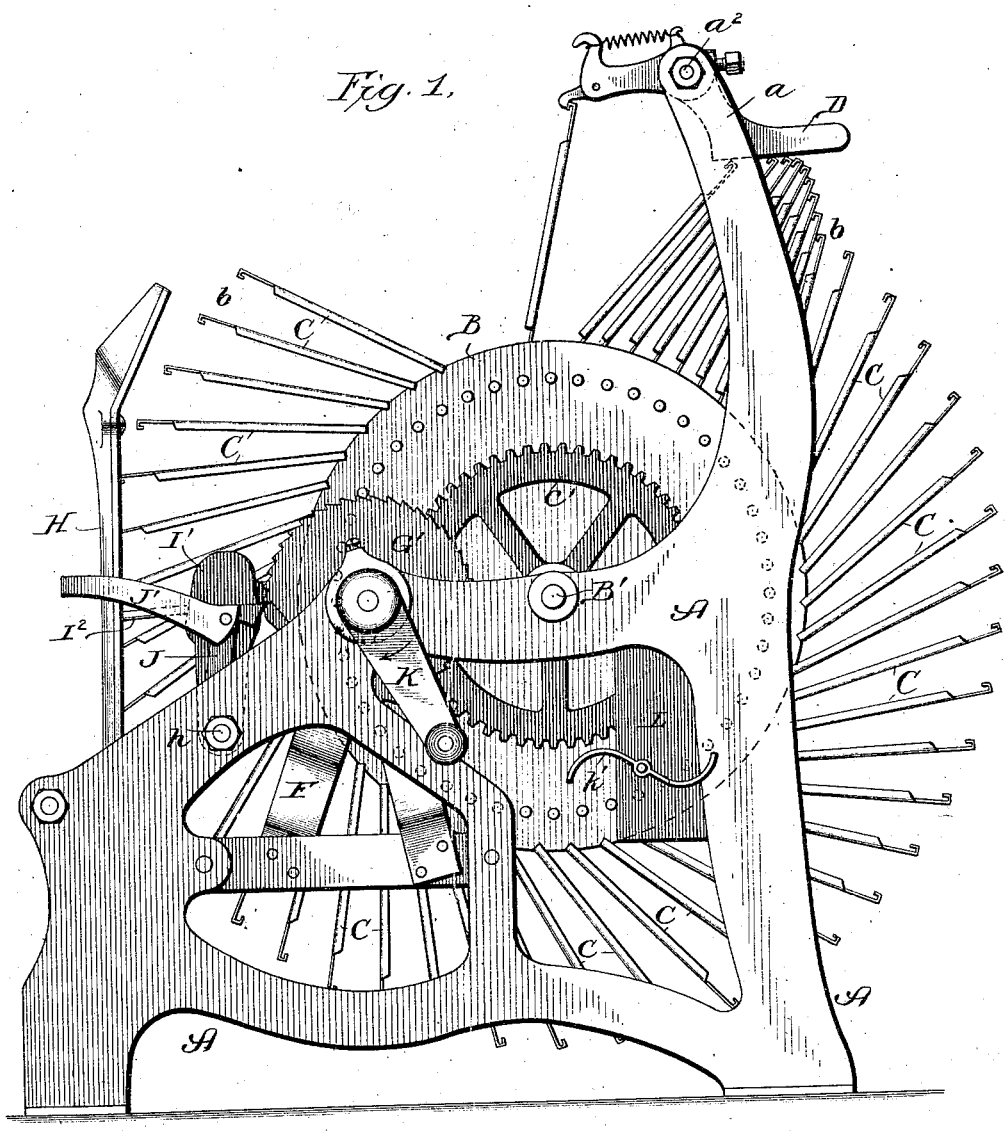

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Fig. 2.

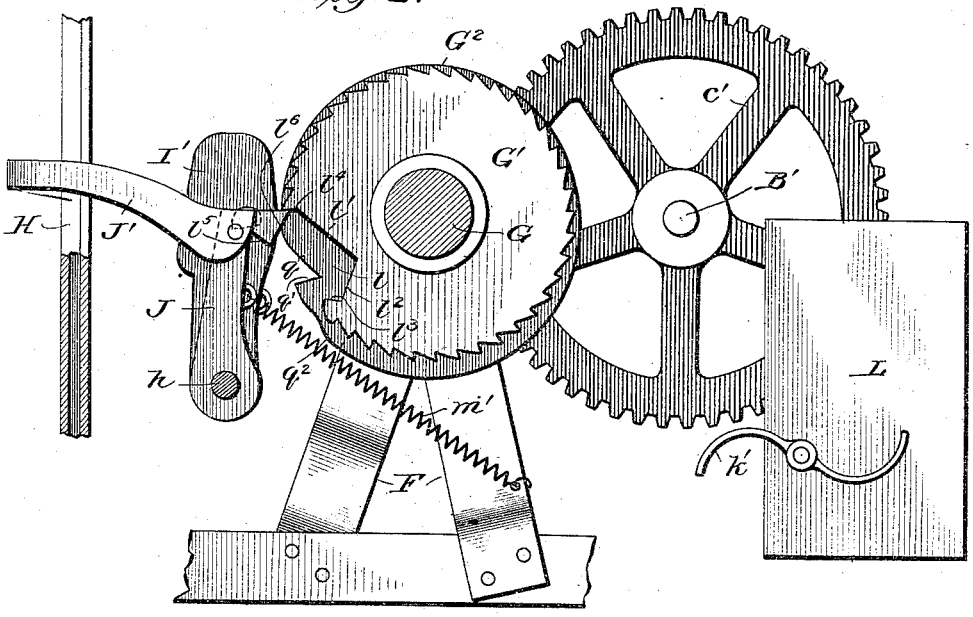
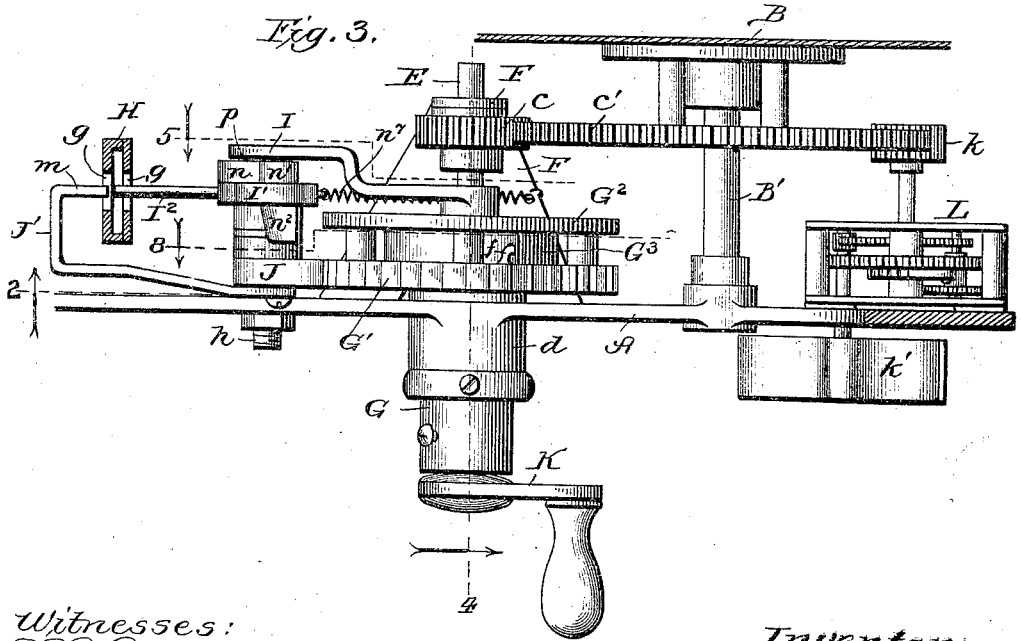


Fig. 3.



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(No Model.) 4 Sheets—Sheet 3.

Fig. 4.

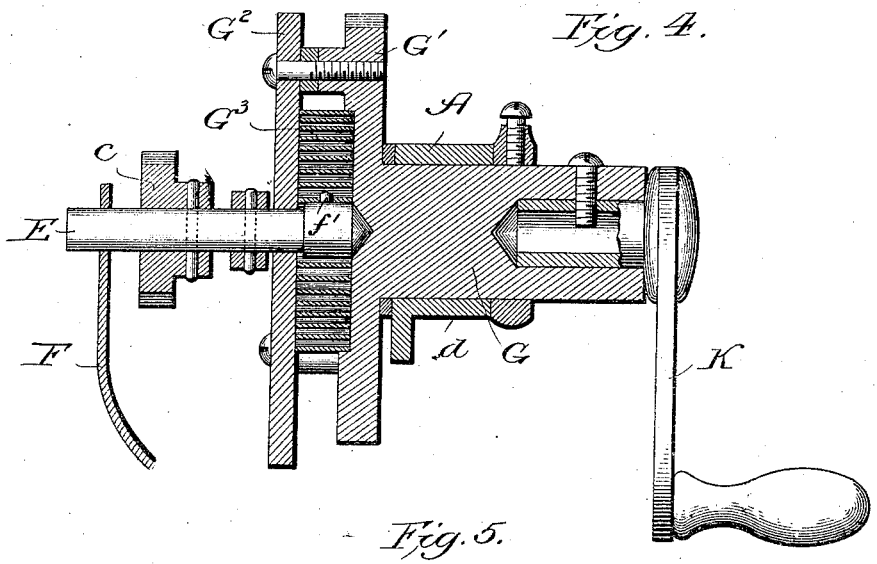


Fig. 5.

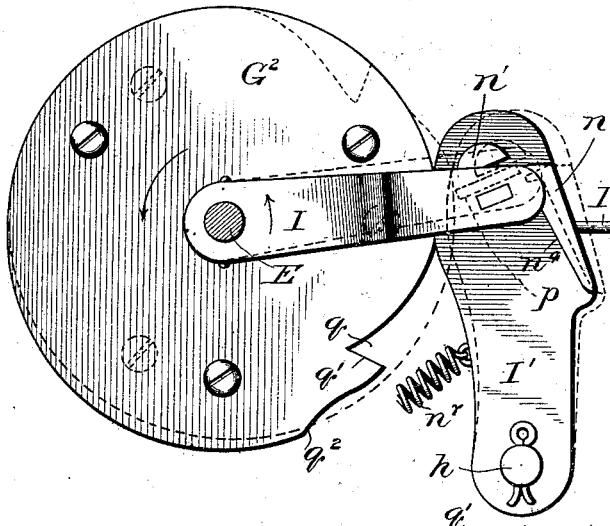


Fig. 6.

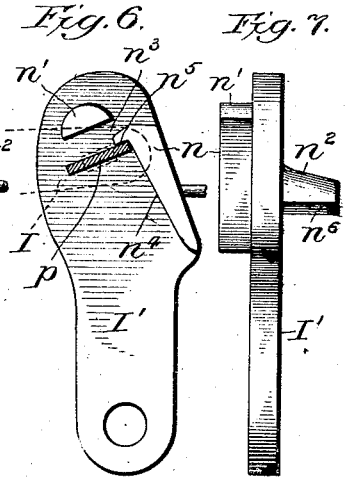
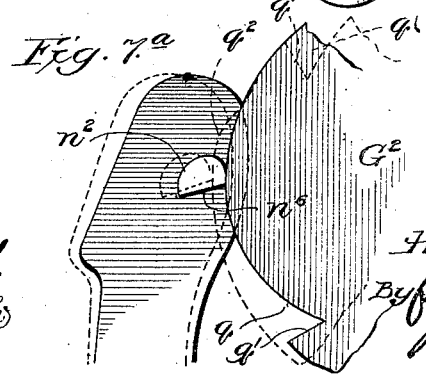


Fig. 7.

Fig. 7ª



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(Application filed Jan. 14, 1901.)

(No Model.) 4 Sheets—Sheet 4.

Fig. 8.

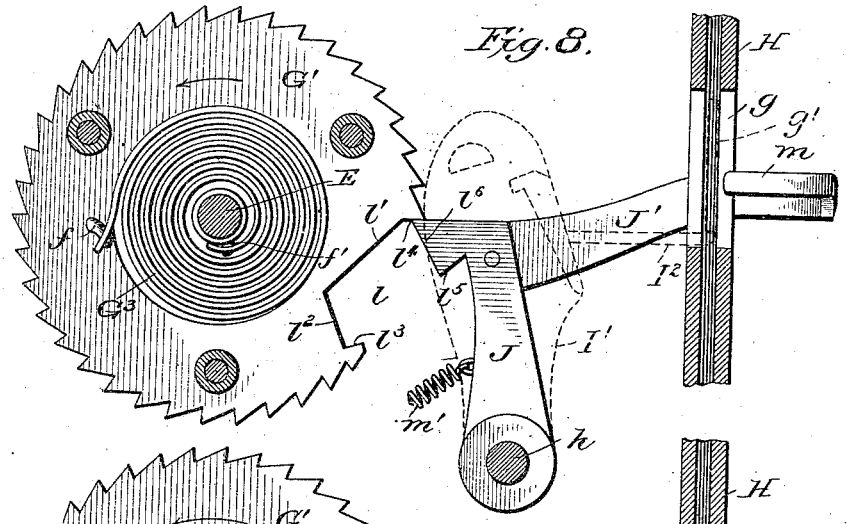


Fig. 9.

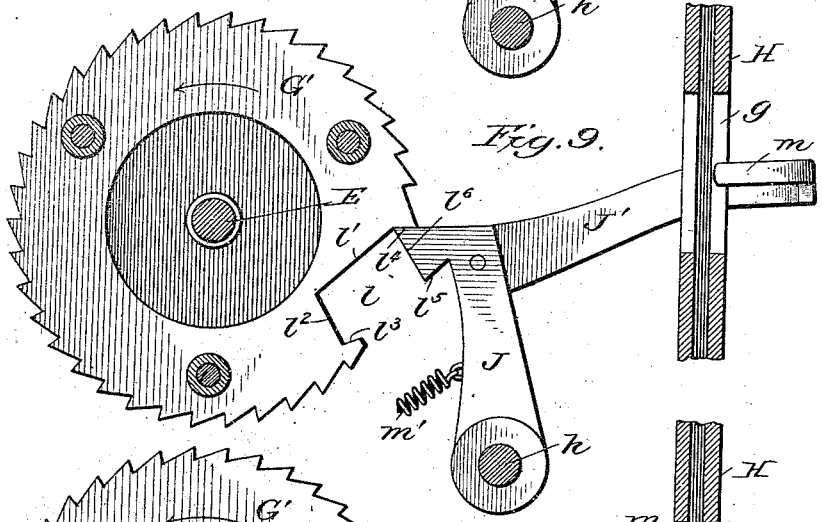
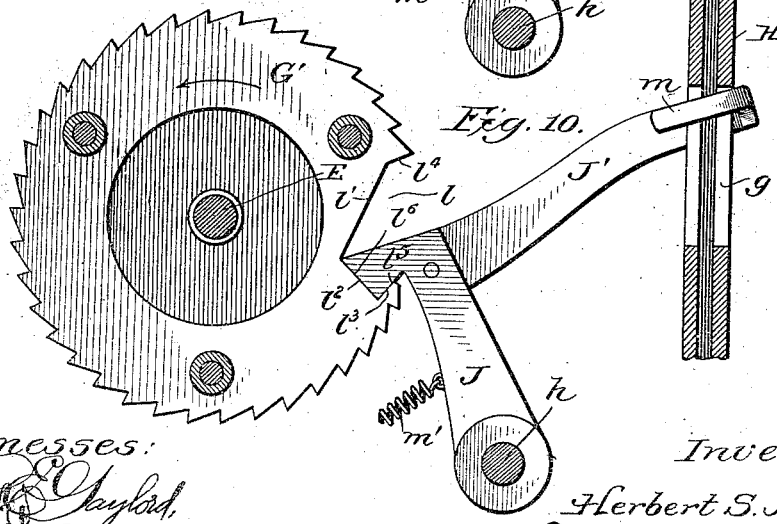


Fig. 10.



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UNITED STATES PATENT OFFICE.

HERBERT S. MILLS, OF CHICAGO, ILLINOIS.

COIN-CONTROLLED APPARATUS.

SPECIFICATION forming part of Letters Patent No. 676,146, dated June 11, 1901.

Application filed January 14, 1901. Serial No. 43,137. (No model.)

To all whom it may concern:

Be it known that I, HERBERT S. MILLS, a citizen of the United States, residing at Chicago, in the county of Cook and State of Illinois, have invented a new and useful Improvement in Coin-Controlled Apparatus, of which the following is a specification.

My invention relates particularly to coin-controlled apparatus for use in connection with picture-exhibiting machines and vending-machines of various descriptions, though the invention may be employed in connection with automatic machines of any description wherein coins are employed as a means for securing some desired thing or end.

My object is to provide apparatus or mechanism of the nature described which shall be simple in construction, little liable to get out of order, and certain in action.

In the preferred construction there is employed a spring-driven shaft for operating the machine to which the coin-controlled apparatus is applied, a winding-shaft connected with said first-named shaft, a coin-stop projecting normally into the coin-passage, a locking device for the spring-driven shaft connected with said coin-stop, and a locking device for the winding-shaft provided with a coin-engaging part located adjacent to the coin-passage.

In the accompanying drawings my invention is illustrated in connection with a picture-exhibiting machine. In the preferred construction a cam is employed for unlocking the spring-driven shaft, and the locking device for the winding-shaft comprises a ratchet-wheel provided with a suitable recess for engaging the companion locking member connected with the coin-engaging arm above mentioned. It may be here stated that when a coin is dropped into the coin-passage it serves as a means for holding the ratchet-wheel-engaging locking member out of locking engagement with the ratchet-wheel, thereby permitting the spring to be wound up. When the winding is completed or nearly completed, the cam serves to release the locking device of the spring-actuated shaft, thereby permitting it to operate the machine to which the apparatus is applied.

In the drawings, Figure 1 is a view in side elevation showing a picture-exhibiting machine to which my invention is applied; Fig. 2, an enlarged broken section parallel to the side of the machine and taken as indicated at line 2 of Fig. 3; Fig. 3, a broken plan view of the near or left-hand side of the machine; Fig. 4, a broken sectional view taken as indicated at line 4 of Fig. 3; Fig. 5, a broken sectional view taken as indicated at line 5 of Fig. 3 and showing one position of the locking device for the spring-driven shaft; Fig. 6, a view of a locking member comprising a portion of the locking device for the spring-driven shaft; Fig. 7, an edge view of the same; Fig. 7^a, a broken view serving with Fig. 5 to illustrate the release of the spring-driven shaft; Fig. 8, a broken section taken as indicated at line 8 of Fig. 3 and showing one position of the locking device for the winding-shaft; Fig. 9, a similar section, but with the spring connection between the winding-shaft and the spring-driven shaft omitted; and Fig. 10, a view similar to Fig. 9, but showing a different position of the locking device for the winding-shaft.

The general construction of the picture-exhibiting machine here shown is well understood, and the same will be described in a general way only.

A represents a machine-frame whose sides are provided with upward extensions a a', connected by the rod a^2; B, a picture-exhibiting wheel, drum, or cylinder rigidly secured to a shaft B', journaled in the sides of the frame; C, picture-frames connected with the drum B in a well-known manner and normally held in a given position by springs in a well-understood manner; D, a regulating or controlling device supported on the rod a^2 and serving in a well-known manner to exhibit one picture at a time; E, Figs. 3 and 4, a spring-driven shaft, which serves, through the medium of a pinion c and a gear c', to impart motion to the shaft B'; F, a bracket supported from one of the side frames of the machine and serving to receive the shaft E; G, a winding-shaft journaled in the box d, with which the side frame is provided, and having at its inner end a ratchet-wheel G', with which is rigidly connected a cam G^2; G^3, a coil-spring connected with the ratchet-wheel G' by means of a stud or pin f, Fig. 3, and with the shaft E by means of a stud or pin

f', Fig. 4; H, a coin-chute provided with a slot g, extending transversely of the chute, as shown in Figs. 2 and 3; I, a locking arm or member for the shaft E, and which is rigidly connected with said shaft; I', a locking member, which coacts with the arm I and is pivoted to the frame of the machine on a stud h; I^2, a coin-stop projecting forwardly from the pivoted part I'; J, a locking member for the winding-shaft, which coacts with the ratchet-wheel G' and through the medium thereof serves to lock the winding-shaft; J', a coin-engaging arm carried by the locking member J and serving when a coin is engaged thereby as a retaining device for holding the locking member J out of locking engagement with the ratchet-wheel G'; K, a handle, through the medium of which the winding-shaft is moved, and L a speed-regulator or governor having a pinion k, engaging the gear c' and provided with a vane k'.

The construction of the locking device for the winding-shaft is shown in Figs. 8 to 10, inclusive. The ratchet-wheel G' is provided with a recess l, having an inclined surface l', a surface l^2 at an angle thereto, and a locking-shoulder l^3. The member J is provided with a locking-head having a shoulder l^4, which serves to prevent retraction of the ratchet-wheel as the latter is wound up, and a shoulder l^5, which serves to prevent turning of the ratchet-wheel in the direction of the winding, except when a coin serves to hold the member J out of locking engagement with the ratchet-wheel. The point m of the arm J' normally enters the slot g in the front wall of the coin-passage, and the spring m', attached to the member J and a stationary part of the machine, serves to move the arm J' to bring the point m into engagement with a coin when the head of the member J enters the recess l. Fig. 10 illustrates the manner in which the shoulder l^6 engages the shoulder l^3 when an effort is made to turn the winding-shaft when no coin is in the path of the point m.

Figs. 1 and 3 illustrate the position of the parts when the machine is at rest and show how the coin-stop I^2 projects through the slot g in the rear wall of the coin-passage and into the path of the coin, thereby to hold the coin at the proper height to be engaged by the point m when the machine is operated. The arm or member I', which is pivoted on the same stud h as is the member J, is provided on one surface with lugs n n' and on the opposite side with a lug n^2. The lugs n n' are separated by the space or channel n^3. The lug n is provided with an inclined surface n^4, which ends at its upper part in an overhanging shoulder n^5. The lug n^2 has on its under side an inclined plane locking-surface n^6. The spring n^7, connected with the member I' and with a stationary part, tends to draw the member I' toward the shaft E. The lug n^2 bears upon the periphery of the cam G^2 during the greater part of the revolution thereof.

The ratchet-wheel G' and the cam G^2 are provided with spacing-lugs, as shown in Fig. 4, thereby affording between them a housing for the spring G^3.

The device L is of a well-known construction and requires no detailed description. Motion is communicated to the vane k' from the pinion k, and the vane by engaging the air serves to regulate the speed. No novelty is claimed for this device aside from its connection with the other portions of the coin-controlled apparatus.

The operation will be readily understood from the foregoing description. The stop I^2 projects normally into the coin-passage. When a coin g' is dropped into the chute H, it rests upon said stop, as illustrated in Fig. 8, where the arm I' and coin-support I^2 are shown in dotted lines. By turning the handle K in the direction indicated by the arrow in Fig. 1 the ratchet-wheel G' is rotated in the direction indicated by the arrow in Fig. 8. When the machine is at rest, the arm I is in the position represented by dotted lines in Fig. 6, and a lug p, with which said arm is provided, engages the shoulder n^5 of the lug n on the arm I'. Thus the arm I serves to hold the member I' away from the cam-wheel, so that the lug n^2 is out of engagement with the periphery of said wheel. At the same time the shoulder n^5 serves to lock the arm I, thereby preventing rotation of the shaft E during the winding of the spring. Assuming that the coin is in position to be engaged by the end m of the arm J', the ratchet-wheel G' can be moved till the surface l^6 is engaged by the teeth of the ratchet-wheel beneath the recess l, which rocks the member J, thereby moving the part m away from the coin. The point m is held in the retracted position until the ratchet-wheel G' has nearly completed a revolution, by which time the stop I^2 will have been withdrawn from the coin-passage, after which the point m is free to pass through the slot g in the coin-chute, thereby permitting the head of the member J to enter the recess l and lock the ratchet-wheel. Fig. 5 illustrates the manner in which the arm I is released from the stop n^5 to permit the spring-driven shaft E to rotate. The cam G^2 is provided with a recess q, ending in an abrupt shoulder q', and adjacent to said shoulder with a raised portion q^2. While the cam G^2 is making a revolution during the turning of the winding-shaft the lug n^2 of the locking member I' bears upon the periphery of the cam. The initial movement of the cam is permitted by reason of the fact that the member I' is held away from the cam-wheel by the arm I, as illustrated in Fig. 6, whereby the shoulder q' is permitted to pass the lug n^2. Further movement of the cam brings the raised part q^2 in beneath the lug n^2, thereby rocking the member I' farther away from the shaft E. The tension of the spring G^3 tends constantly to rotate the arm I in the direction indicated in Fig. 5, and when the raised

part q^2 passes beneath the lug n^2 the lug p on the arm I is released from the shoulder n^5 and moves into contact with the lug n'. As the cam rotates farther, the arm I' is permitted to move closer to the shaft E and the lug p^2 enters the channel n^3. This movement continues until the lug p clears the outer portion of the lug n', when the arm I is free to rotate. This it does under the influence of the spring connected with the shaft E, and as it nears the completion of the revolution the lug p comes into contact with the inclined surface n^4 of the lug n and forces the arm I' away from the shaft E. Prior to this movement the lug n^2, which bears upon the periphery of the cam, engages the shoulder q^2 of the cam and locks the same. When the arm I' is forced outwardly in the manner stated, the cam becomes disengaged from the lug n^2. Thus it appears that the lug n^2 is in position to engage the lug q' after one winding operation is completed and is soon thereafter moved away from the cam when the arm I completes its revolution. The tendency of the ratchet-wheel G' after one revolution is to revolve under the influence of its spring in a direction the reverse of that indicated by the arrow in Fig. 8. Thus the normal position of the ratchet-wheel and the locking member J is shown in Fig. 8. Any attempt to rotate the ratchet-wheel in the direction of the arrow will be hindered by the head of the member G entering the recess l and the shoulder l^5 becoming engaged with the shoulder l^3. This will always be the case except when a coin is interposed, as described.

The foregoing description of operation relates to the coin-controlled apparatus alone. After the spring connected with the shaft E is wound up and the arm I released, thereby permitting the shaft E to rotate, motion is communicated to the shaft B' of the picture-exhibiting machine through the medium of the pinion c and the gear c'. As the cylinder B rotates, the device D serves to exhibit one picture at a time, as illustrated in Fig. 1, and in a manner now well understood in the art. In the construction shown the shaft E is so geared to the shaft B' that during one rotation of the shaft E twelve pictures are exhibited to view. During the operation of the machine the vane k' serves to resist increase of speed, thereby regulating the movement.

The invention may be embodied in other forms of apparatus and the apparatus may be applied to any machine of the general character mentioned. No limitation is to be understood, therefore, from the foregoing detailed description, except as shall appear from the appended claims.

The shaft E and attendant parts may be regarded as mechanism for imparting motion to the machine to which the apparatus is applied, and the shaft G and attendant parts may be regarded as manual means for actuating said mechanism. The parts E and G are relatively movable and are preferably connected by a spring. Locking devices are provided for both said parts, one locking device having connection with the coin-stop and the other locking device having connection with the coin-engaging part.

What I claim as new, and desire to secure by Letters Patent, is—

1. In apparatus of the character described, the combination of a driven part, a locking device therefor, a coin-stop connected with said locking device, a driving part connected with said driven part, a locking device for said driving part, means for releasing the lock of said driven part, a coin-passage, and a coin-engaging part carried by the locking device of said driving part and serving, when a coin is interposed, to restrain the locking device of the driving part, substantially as and for the purpose set forth.

2. In apparatus of the character described, the combination of a spring-driven part, a spring for actuating the same, means for setting said spring, a locking device for the spring-driven part, a coin-stop carried by said locking device, a locking device for said spring-setting means, a coin-passage, and a coin-engaging part carried by said last-named locking device, said coin-engaging part being located above said coin-stop, substantially as and for the purpose set forth.

3. In apparatus of the character described, the combination of a spring-driven shaft, a locking member connected therewith, a pivoted locking member coacting with said first-named locking member and carrying a coin-stop, a winding-shaft, a spring connected with said shafts, a locking member carried by said winding-shaft, a pivoted locking member engaging the member on said winding-shaft, a coin-passage, and a coin-engaging arm carried by said last-named pivoted member, substantially as described.

4. In apparatus of the character described, the combination of a spring-driven shaft, a locking member carried thereby, a locking member movably connected with a stationary part of the apparatus and coacting with said first-named locking member, a coin-stop carried by said second-mentioned locking member, a winding-shaft, a cam carried by said winding-shaft controlling one of said locking members, a ratchet-wheel on said winding-shaft, a locking member movably connected with a stationary part of the apparatus and coacting said ratchet-wheel, means on said ratchet-wheel for lockingly engaging said last-named locking member, a coin-passage, a coin-engaging arm carried by said last-named locking member, and means for setting said winding-shaft, substantially as described.

5. In apparatus of the character described, a coin-passage, a coin-stop projecting normally thereinto, a coin-engaging part located adjacent to said coin-stop, mechanism for actuating the machine to which the apparatus is applied, manually-actuated means for moving said mechanism, and a locking device for

said manual means, which locking device is connected with said coin-engaging part, substantially as and for the purpose set forth.

6. In apparatus of the character described, the combination of a winding-shaft, a spring-driven shaft, an interposed spring, an arm on said driven shaft having a locking-lug, a pivoted arm provided with a lug n having an inclined surface n^4, and an overhanging shoulder n^5 having also a lug n' separated from the lug n, a spring tending to draw the pivoted arm toward said driven shaft, a cam carried by said winding-shaft, a lug on said pivoted arm engaging said cam and serving to disengage the lug on the shaft-carried arm from the shoulder n^5, a locking device for the winding-shaft, and a coin-engaging arm carried by said last-named locking device, substantially as described.

7. In apparatus of the character described, the combination of a spring-driven shaft, a winding-shaft, an interposed spring, a locking member I, a locking member I', a coin-stop I^2, a cam G^2, a ratchet-wheel G', a locking member J, and means for turning the winding-shaft, substantially as described.

8. In apparatus of the character described, a spring-driven shaft, a driving-shaft, an interposed spring, a locking member on the driven shaft, a locking member movably connected with a stationary part and serving to engage said last-named locking member, a cam carried by said winding-shaft and provided with means for lockingly engaging said second-named locking member, a ratchet-wheel on said winding-shaft and carrying a locking member, a locking member movably connected with a stationary part and serving to engage said last-named locking member, and a coin-stop and a coin-engaging device connected with two of said locking members, substantially as and for the purpose set forth.

9. In apparatus of the character described, the combination with mechanism for actuating a machine to which the apparatus is applied and manual means for imparting motion to said mechanism, of locking devices for said mechanism and manual means carrying a coin-stop I^2 and a coin-engaging part G^2, the coin-passage being slotted to receive said stop and said coin-engaging part, substantially as and for the purpose set forth.

HERBERT S. MILLS.

In presence of—
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ALBERT D. BACCI.