No. 700,702. Patented May 20, 1902.

T. T. McGILVARY.

PICTURE EXHIBITOR.

(Application filed July 15, 1901.)

(No Model.) 4 Sheets—Sheet 1.

Fig. 2.

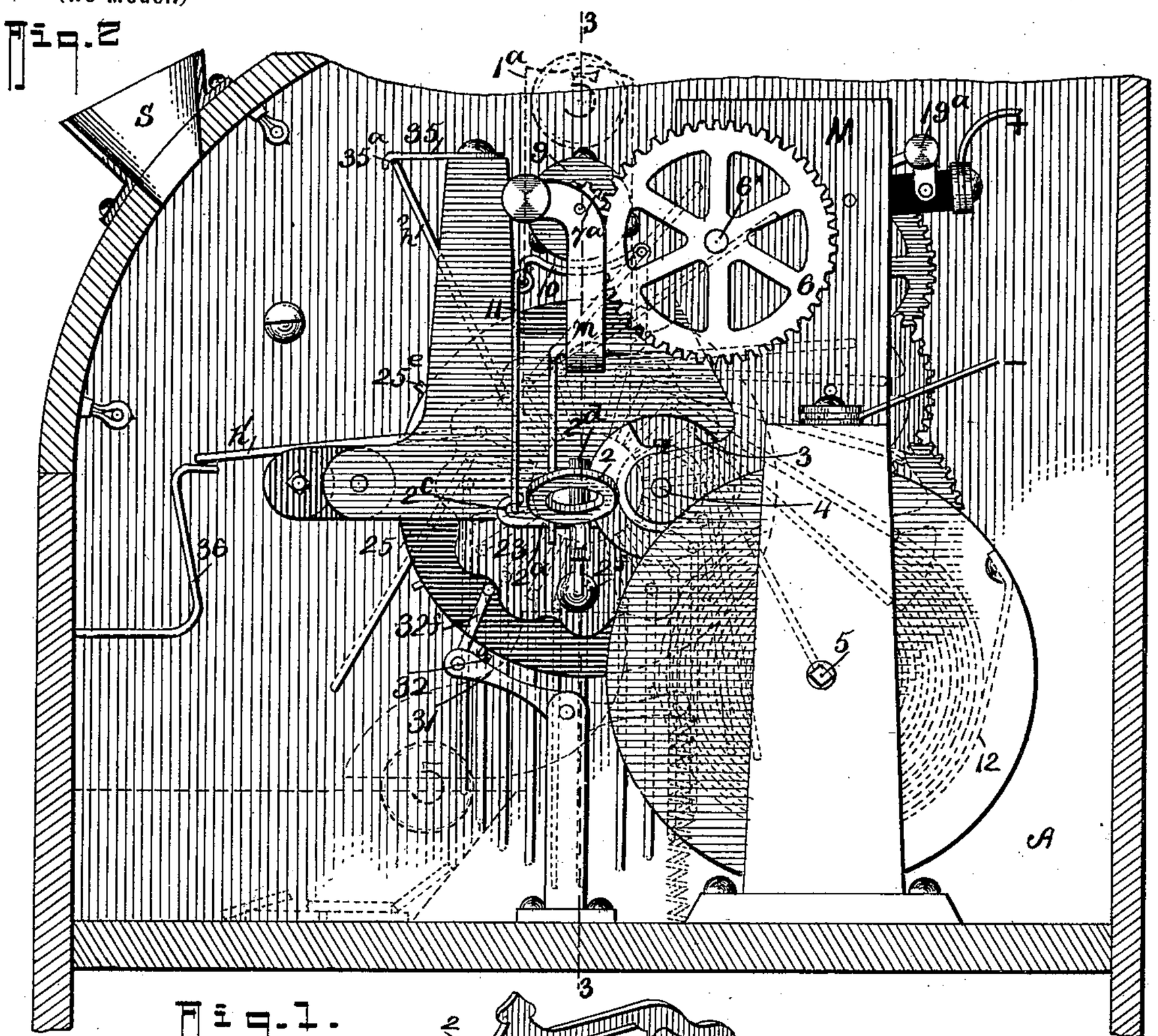

Fig. 1.

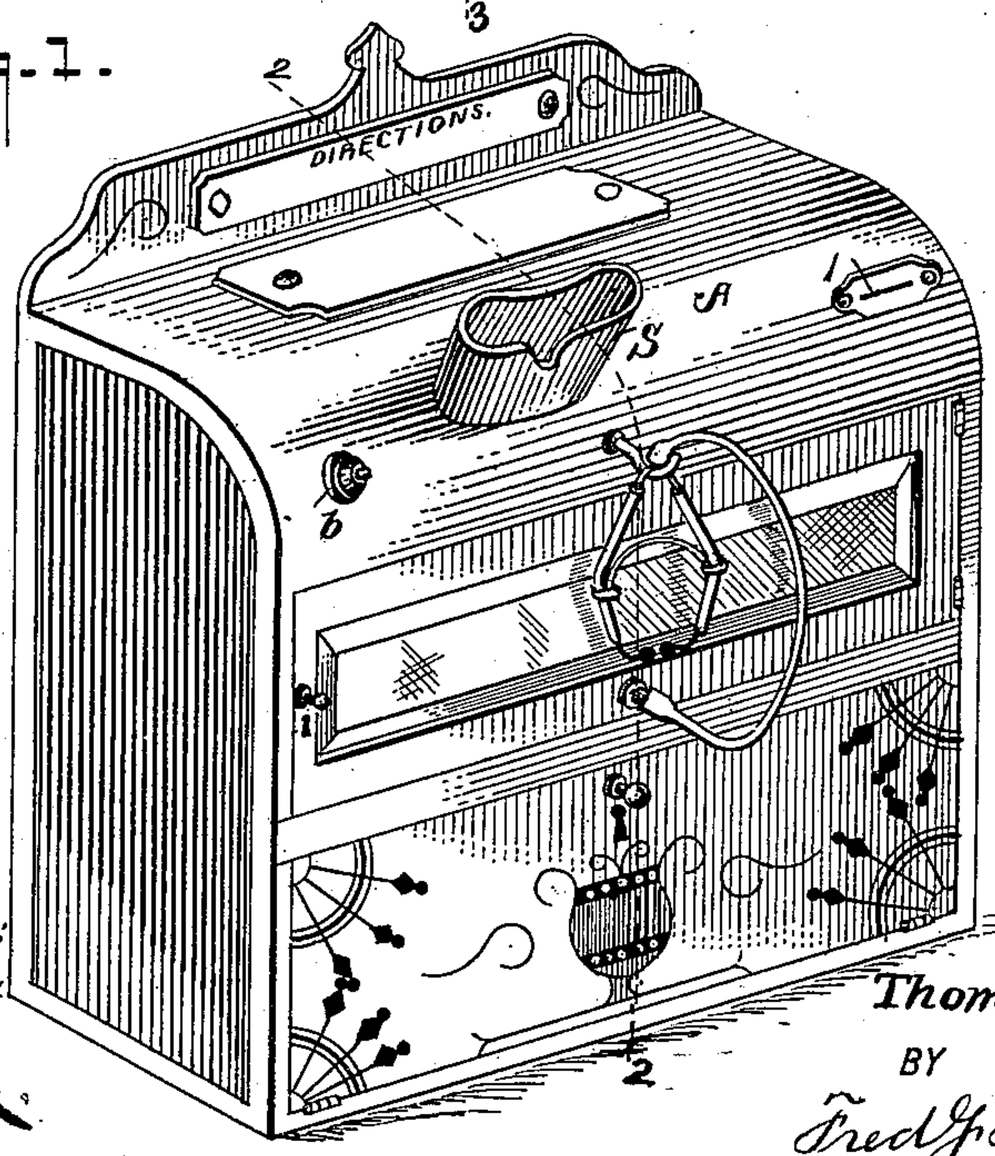

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Fig. 3.

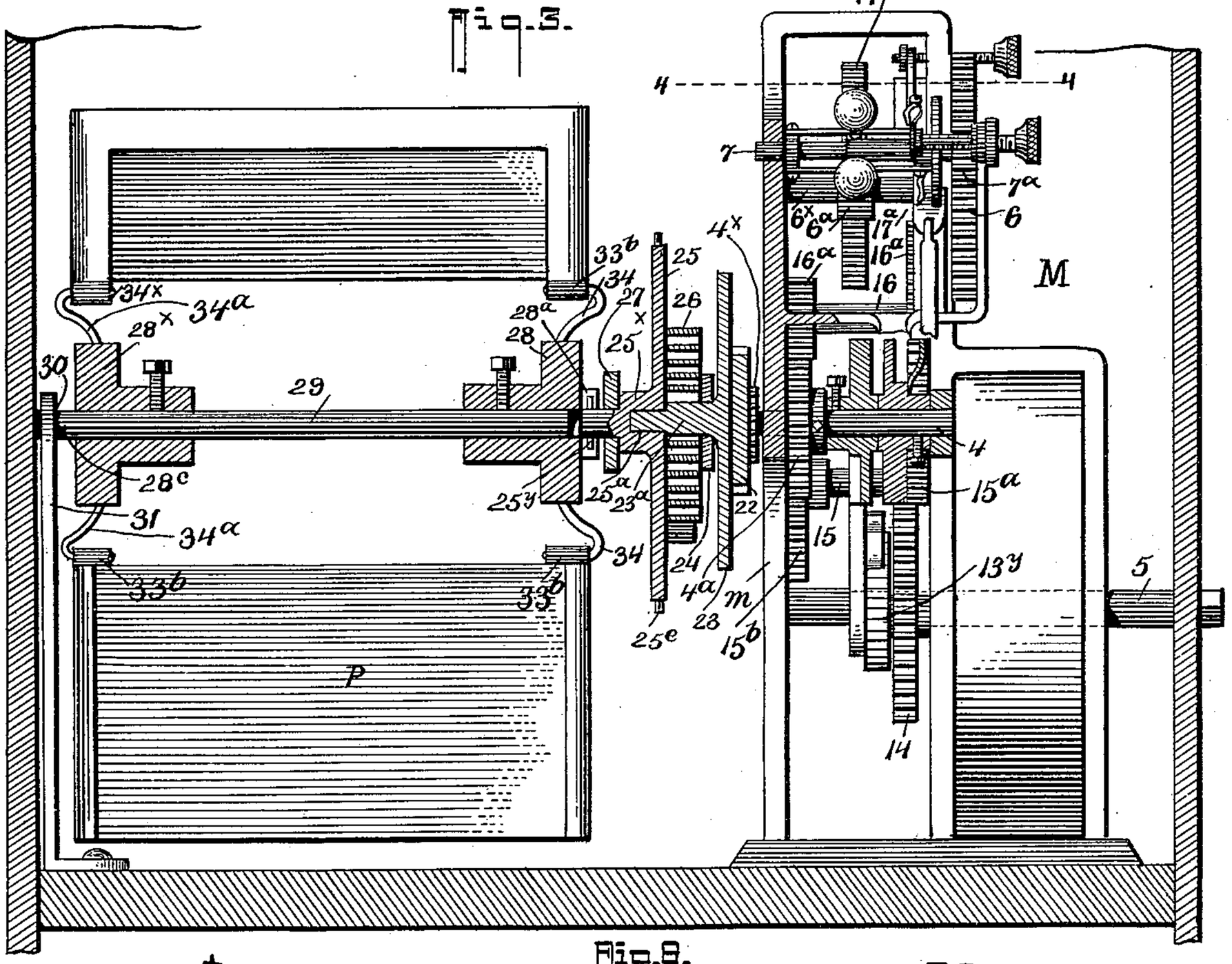


Fig. 4.

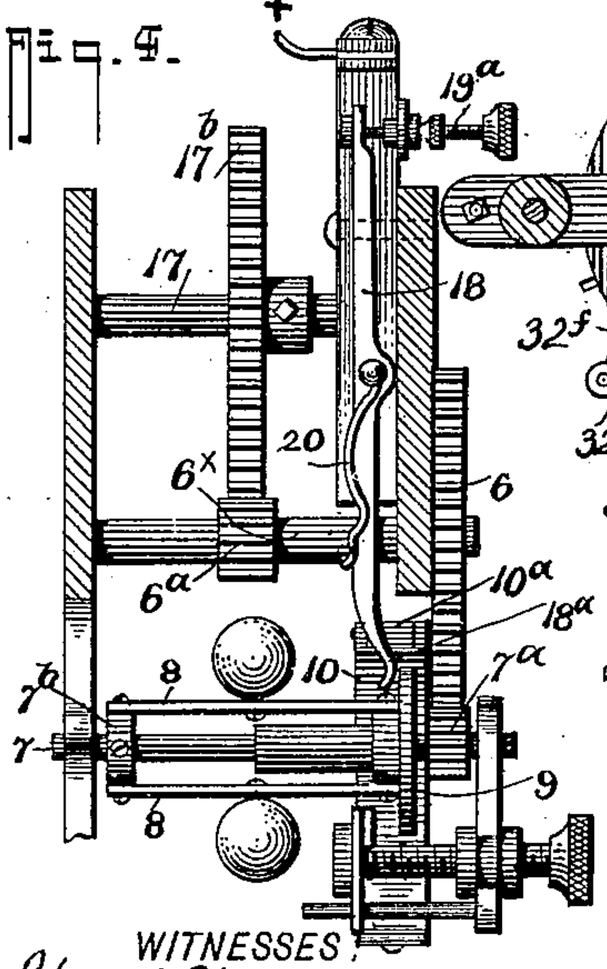


Fig. 8.

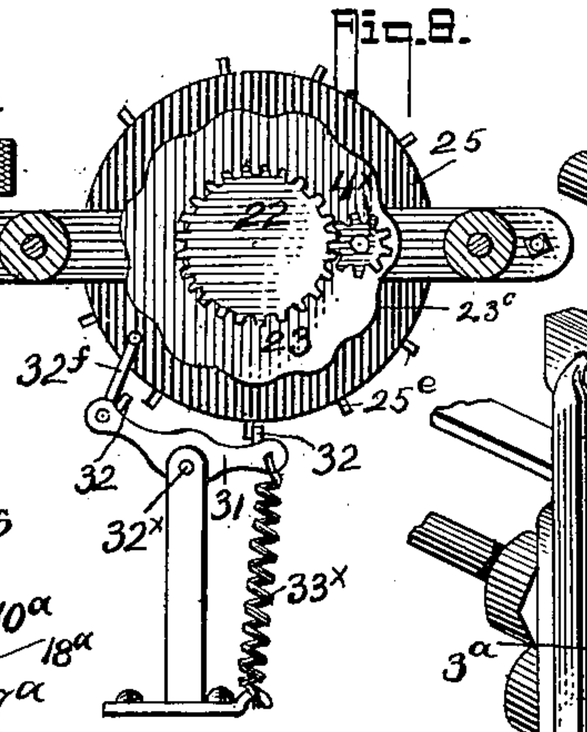
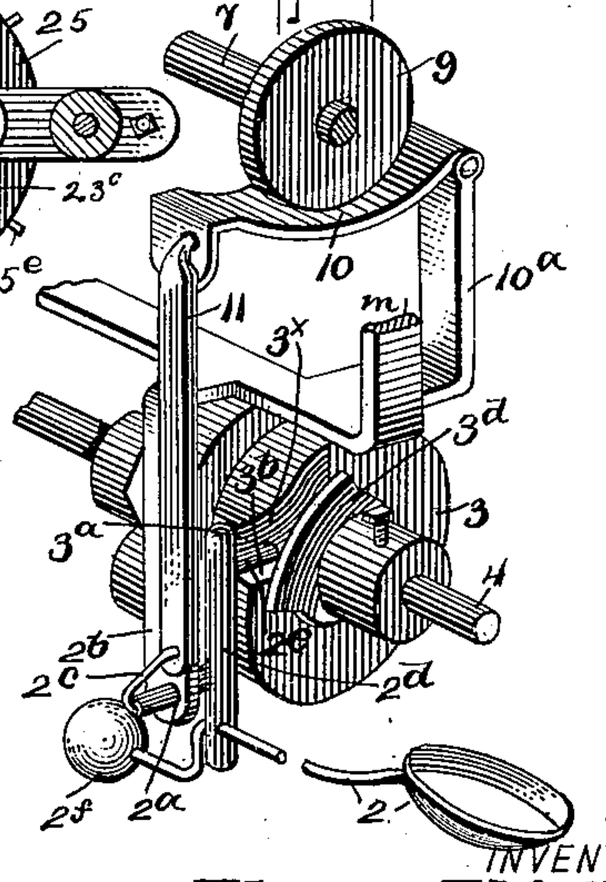


Fig. 5a.



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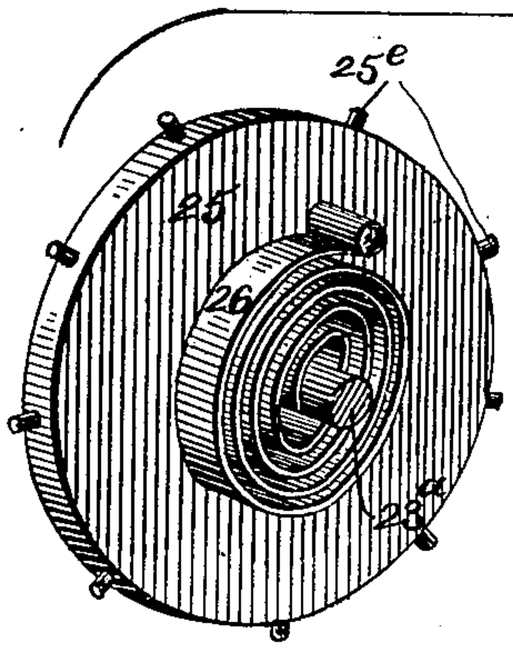
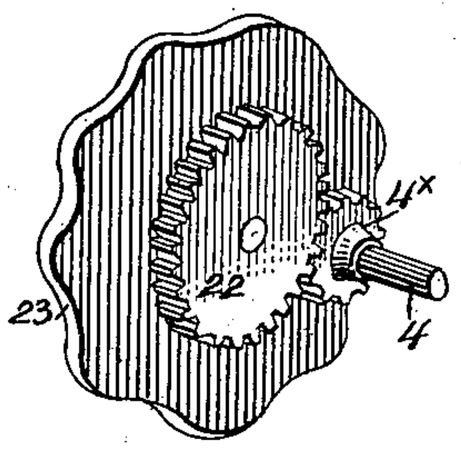
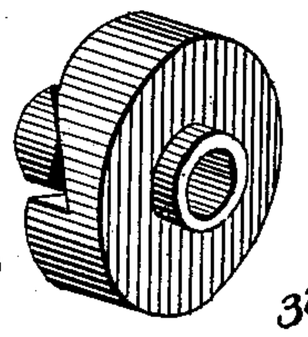
(No Model.) 4 Sheets—Sheet 3.

Fig. 5.







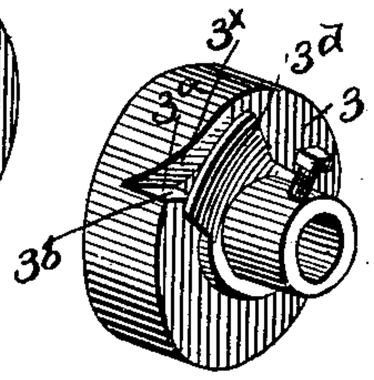


Fig. 6.

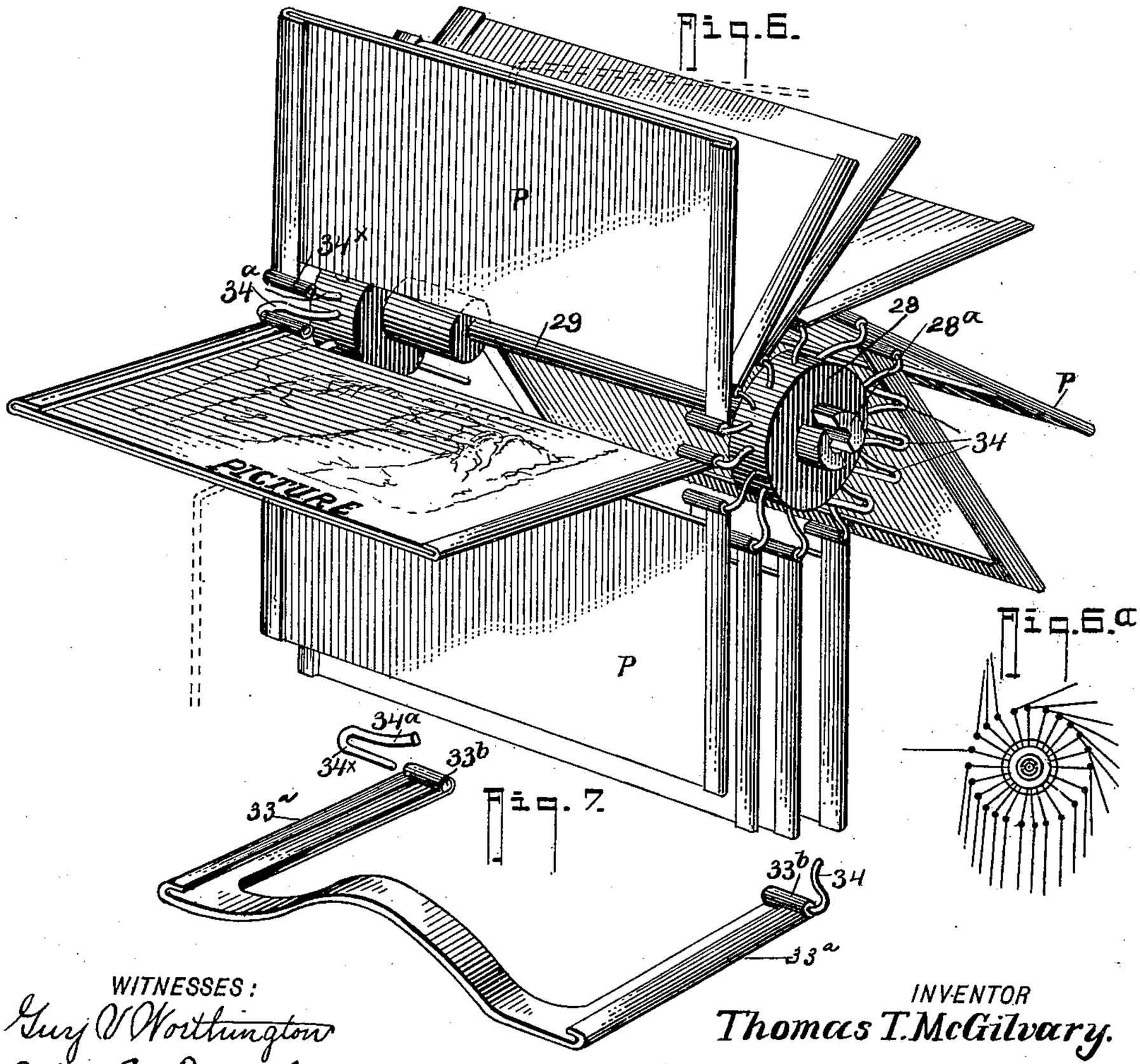


Fig. 6a.

Fig. 7.

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(No Model.) 4 Sheets—Sheet 4.

Fig. 9.

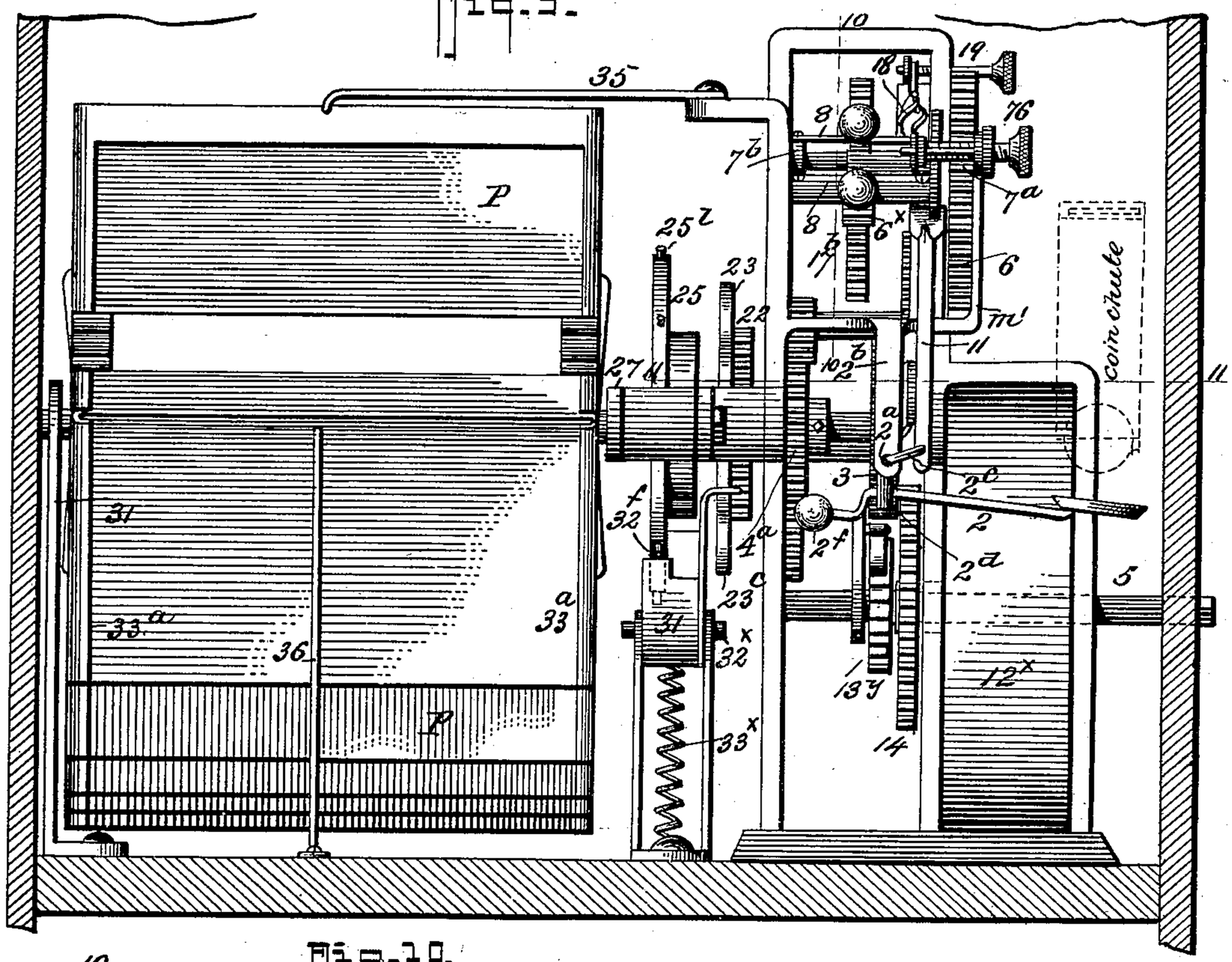


Fig. 10.

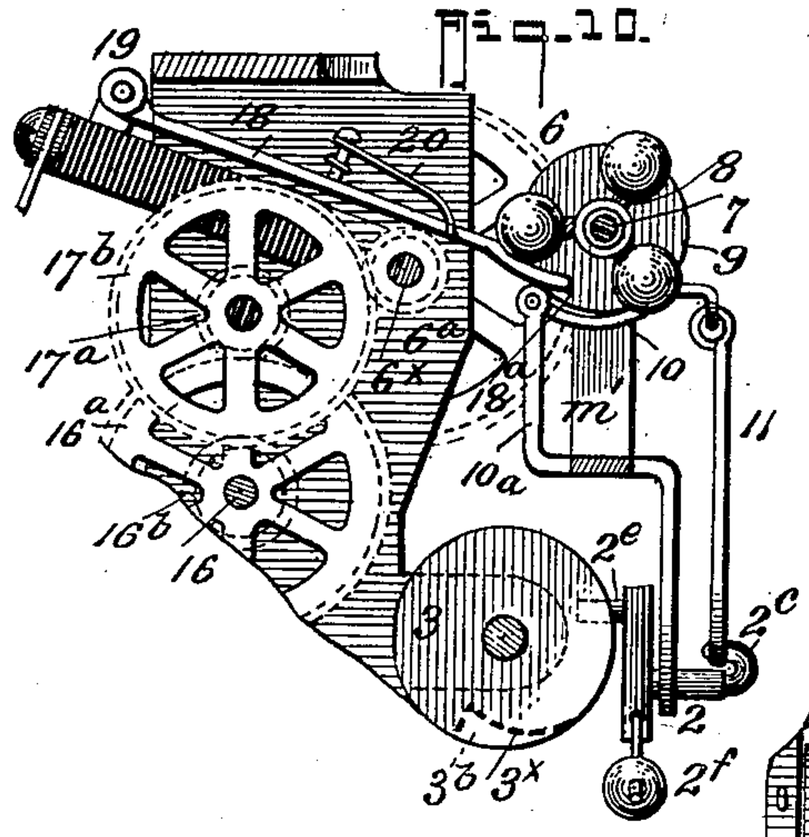
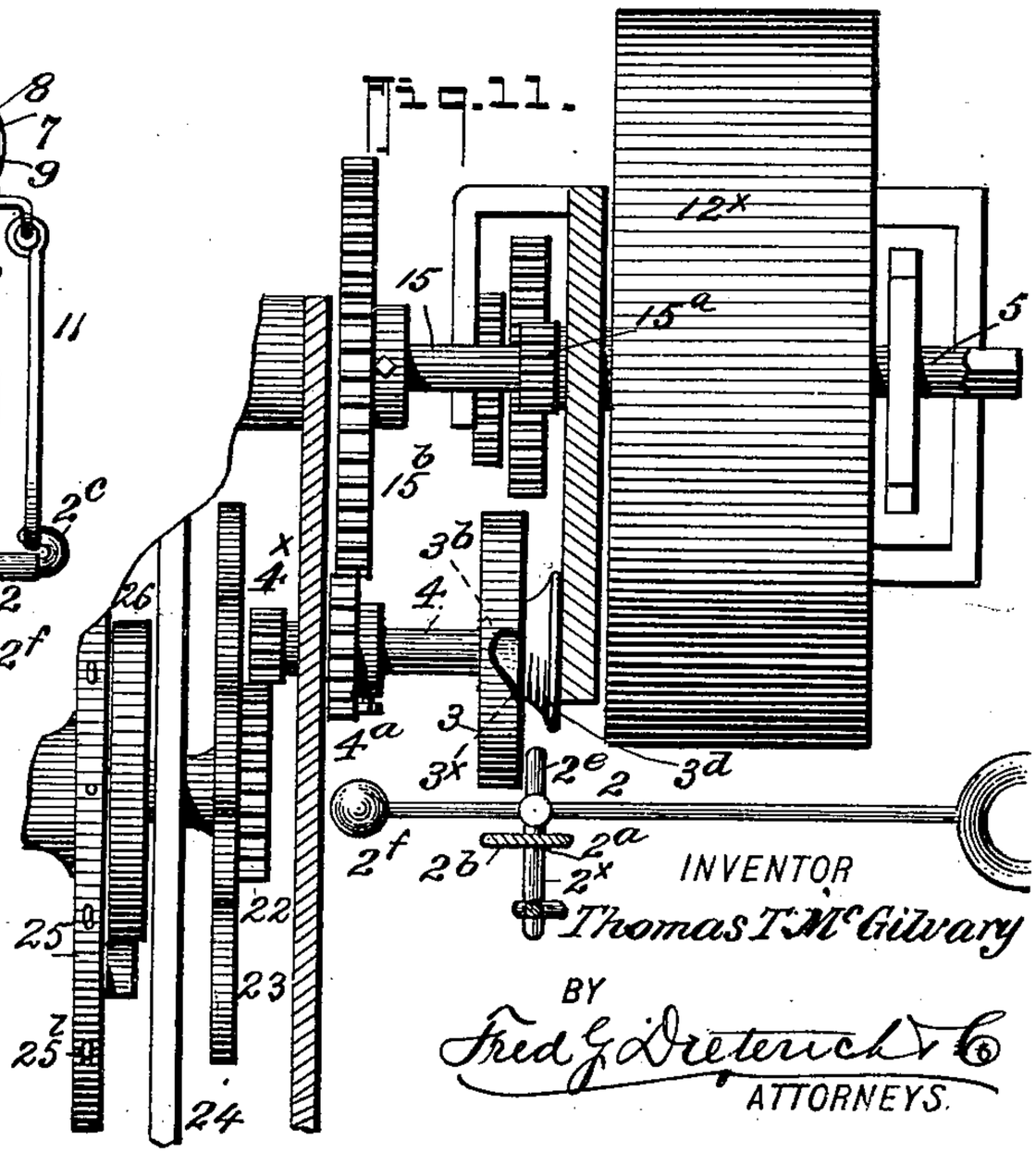


Fig. 11.



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UNITED STATES PATENT OFFICE.

THOMAS TYSON McGILVARY, OF FAYETTEVILLE, NORTH CAROLINA, ASSIGNOR OF THREE-FOURTHS TO JAMES R. WILLIAMS, OF FAYETTEVILLE, NORTH CAROLINA.

PICTURE-EXHIBITOR.

SPECIFICATION forming part of Letters Patent No. 700,702, dated May 20, 1902.

Application filed July 15, 1901. Serial No. 68,356. (No model.)

To all whom it may concern:

Be it known that I, THOMAS TYSON McGILVARY, residing at Fayetteville, in the county of Cumberland and State of North Carolina, have invented certain new and useful Improvements in Picture-Exhibitors, of which the following is a specification.

This invention is in the nature of an improved exhibiting-machine, and my present application relates more particularly to certain special correlation of the parts forming the picture-carrying mechanism and light-controlling devices, which form the essential parts of the complete machine disclosed in my copending application, No. 58,991, filed May 6, 1901.

My present invention comprehends a picture carrier or holder for sustaining a number of different pictures or views and adapted to bring said views in view successively during the operation of the driving means and in such manner that the view under the sight-opening will be maintained in position when the machine is at rest and in which the total number of picture-holding portions of the carrier and the means for moving the carrier have such correlative arrangement that only a fractional number of the entire series of pictures will be brought successively into view at each operation of the machine, and thereby provide for different unitary combinations of the sets of pictures presented at each different operation of the machine.

Another and essential feature of my present invention lies in a novel and peculiar construction of picture-holding drum and drive mechanism therefor adapted to impart a proper shifting of the picture-carrier and for maintaining the picture being in sight or exhibited stationary during the time in which the operating mechanism moves and adjusts itself to bring the next picture in position, whereby the objectionable creeping action of the picture being viewed in other types of exhibiting-machines is entirely overcome.

Again, this invention includes in its complete make-up a governor device forming a coöperative part of the mechanism for imparting motion to the picture-carrier and having an interdependent operative connection with the picture-exhibitor, its driving mechanism, and circuit-controlling devices for the lamp-circuit within the machine to control the lights and automatically shut off said lights when machine is not in operation or run down.

Again, this invention comprehends a novel construction of picture-holder in which the several frames are detachably connected with the hub or drum frame in such manner as to admit of each picture-frame being instantly removed or replaced or the entire drum removed without disorganizing the drum-operating mechanism or any of the several frames forming a part of the drum to permit the substitution of a new drum of pictures at any time in place of an old drum or carrier.

My invention also includes certain subordinate features of construction and peculiar combination of parts, all of which will hereinafter be fully explained, and particularly pointed out in the appended claims, reference being had to the accompanying drawings, in which—

Figure 1 is a perspective view of my improved exhibiting-machine. Fig. 2 is a vertical section thereof, taken substantially on the line 2 2 of Fig. 1, the picture-holding devices and the drive mechanism therefor being shown in side elevation. Fig. 3 is a transverse section thereof, taken practically on the line 3 3 of Fig. 2. Fig. 4 is a detail sectional plan view taken on the line 4 4 of Fig. 3 and illustrating the governor, the electric-light controller, and adjacent drive-gearing. Fig. 5 is a detail view of the picture-carrier rotation stop mechanism. Fig. 5ª is a detail perspective view of the coin-engaged latch-lever, the latch-disk, and the band-brake devices controlled thereby. Fig. 6 is a perspective view of the picture-carrying drum, some of the plate or picture holders being omitted. Fig. 6ª is a diagram of the same, hereinafter explained. Fig. 7 is a view illustrating the manner in which the flexible picture-holders are joined to the hub. Fig. 8 is a detail view of the escapement-wheel, the cam-wheel for controlling the operation of the escapement-wheel, and the drive-gears

for imparting movement to the cam-wheel. Fig. 9 is a front elevation of the internal mechanism, the outer casing being in section. Fig. 10 is a detail cross-section taken substantially on the line 10 10 of Fig. 9, and Fig. 11 is a horizontal section taken practically on the line 11 11 of Fig. 9.

In the accompanying drawings I have illustrated the drive mechanism for controlling the picture holder or carrier and the electric-lighting devices arranged to be coin-released; but I desire it understood the said mechanism may be tripped or set in motion in any other desired way, and I therefore in this application make no claim to the coin-releasable mechanism, as the same forms an essential feature of the mechanism disclosed in my copending application.

Referring now to the accompanying drawings, in which like characters indicate like parts in all the figures, A designates a suitably-ornamental casing having a chamber, in which the exhibiting devices and driving motor or mechanism (indicated generally by M) are held.

As shown in the drawings, the casing A has a coin-slot 1, with which the coin-chute 1^a connects and which discharges onto a coin-engaged latch-lever 2, which, as best shown in Fig. 5^a, is gravity-held to its normal position and is pivoted at 2^a to a bracket 2^b, adjacent to the latch-disk 3 on a shaft 4, journaled in the motor-frame members *m m*. The shaft 4 has a cog-wheel 4^a, held to mesh with a train of gears joined with a powerful spring connected with the drive-shaft 5 or a casing rotatable thereon, presently again referred to.

The disk 3 has a recess or notch 3^b, having a straight or stop portion and a beveled part 3^x, and said disk 3 is held on the shaft 4 to rotate therewith, the reason for which will presently appear.

The coin-lever 2 has a laterally-extending spindle 2^x, held to rock in its bearing, which terminates at one end in a crank-arm 2^c and at the other end in an angle member 2^d, having a finger 2^e, arranged to traverse the face of the disk 3 in the path of the notch 3^b, into which the finger 2^e moves by gravitation when the motor is at a rest or normal position, said lever being weighted, as at 2^f, to assist its automatic return to the normal position. The shaft 4 carries a drive-gear 4^x, that imparts motion to a cam-wheel and escapement devices, to be again referred to.

6 designates a fly-wheel or large cog-gear held to mesh with a pinion 7^a on the governor-carrying shaft 7, mounted on standards *m' m'*, as best shown in Figs. 2, 3, and 4, by reference to which it will be seen the governor is of the usual expansible-spring type, the weight-carrying spring members 8 8 being made fast at one end to the hub 7^b, fixedly secured to shaft 7, their outer end being made fast to the disk 9, slidably mounted on the shaft 7 in the usual manner.

Hinged to a standard 10^a in line with disk 9 is a band-brake 10 to normally engage and retard the movement of the disk 9 and held to such position by the weighted coin-lever 2 through the media of a link 11, connected to the free end of the brake 10 and to the crank member 2^c of lever 2.

The motor or driving-gear mechanism may consist of any approved spring-actuated train of gearing—for example, a strong spring 12, mounted on and secured to a casing 12^x, rotatable upon a winding-shaft 5, held stationary by ratchet and gear devices 13^y of any well-known construction.

14 designates a master-gear on the drive-shaft, that meshes with a pinion 15^a on a short shaft 15, that carries a cog-gear 15^b, which engages a pinion 16^a on a shaft 16, having a gear 16^b, held to mesh with a pinion 17^a on another shaft having a gear 17^b, held to mesh with a pinion 6^a on shaft 6^x, that carries the fly or large cog wheel 6, hereinbefore referred to, said train of gear mechanisms being arranged to impart proper speed or rotation to the governor-shaft 7 and to shaft 4, that controls the exhibitor cam-wheel and escapement devices, the cog-gear 4^a of which meshes with the large cog 15^b, as clearly shown in Fig. 3.

In my present invention I have specially provided means coöperating with and interdependently joined with the drive mechanism and the exhibitor drum or carrier for controlling a light-circuit to automatically cut out the lights within the picture-holding casing, and said means, as best shown in Figs. 3, 4, and 10, include an adjustably-held contact-maker in the nature of a pivotally-held rocking lever 18, the front end of which is normally held by a spring 20 to press in the direction of the disk 9, the pressure being regulated by the adjusting-screws 19^a. By providing a contact-maker of the character described when the gear or motor mechanism stops at the end of each complete exhibit of pictures or for any other reason and the disk 9 by reason of such stoppage resumes its normal position the contact between the point 18^a of lever 18 and disk 9 will be broken and the light-circuit cut out, it being understood that the pressure of the spring 20 will maintain the contact 18^a in touch with the disk 9 as it fluctuates on the shaft 7, and by reason of the screws 19 the point 18^a can be set to be engaged on the first inward impulse of disk 9 on shaft 7 or after the machine has been fully set in motion, the latter adjustment relieving the motor devices from unnecessary frictional resistance at the beginning of their operation.

The disk 3, before referred to and which controls the picture-exhibitor devices, in addition to its notch 3^a has a guard-plate 3^d, which serves to engage and positively move the lever-finger 2^e of the coin-lever to cause it to engage the notch 3^a and the edge 3^b thereof.

Now comes an essential feature of my present invention—the picture-exhibitor devices especially designed and arranged to coöper-

ate and work in harmony with the light-controlling and drive mechanism hereinbefore described.

The drive-shaft 4 has a cog-pinion 4^x, held to mesh with a larger gear 22 on one face of a cam-wheel 23, having an outwardly-projecting stub-shaft 23^a, journaled in a cross-bar 24 of the framing and in a hub-socket 25^a of the escapement-wheel 25, (see Fig. 3,) by reference to which it will be noticed that to the inner face of wheel 25 is secured one end of a volute spring 26, the other end of which is secured to the stub-shaft 23^a on cam-wheel 23. The tension of the said spring 26 is such as to cause a forward rotation of the wheel 25 when it is released by the cam-wheel action presently explained. Wheel 25 has a stub-axle 25^x, which journals in and projects beyond a frame-bar 27, and the outer end has a key 25^y to receive the slotted end 28^a of the hub 28 of the picture-carrying drum detachably connected with the axle or shaft 25^x, the latter forming one end bearing for the drum, whose other hub member 28^x is mounted on a central axle 29, that joins the two hubs 28 28^x, and said axle has its outer end projected to form a stub 28^c to engage a bearing 30 in the standard 31. (See Fig. 3.) The escapement-wheel 25 has a number of radial lugs 25^e, that coöperate with an oscillating escapement-pawl 31, having recoil and repose pallets 32 32 to engage the rim of wheel 25 and its lugs 25^e to control the rotation of the wheel 25 in such manner so it will move under each operation of pawl 31 the distance of one pair of lugs 25^e, which in the arrangement of the parts illustrated is sufficient to properly manipulate the drum, move away the last picture viewed, and bring the next one into position. The pawl 31 is held to oscillate on a fulcrum 32^x and under tension in one direction of movement by a coiled spring 33^x, and the said pawl has a detent-finger 32^f for engaging the jumping cam-face of wheel 23, which in its rotation serves at proper predetermined intervals to trip the detent 32^f and move the escapement-pawl to free the wheel 25 to permit it making a limited movement forward. The cam-surfaces 23^c of wheel 23, equal in number to the number of lugs 25^c on the wheel 25, which in the present case is twelve, but may be more or less, as desired, and the gear 22 on the cam-wheel 23 and the gear 4^x on the shaft 4 are coöperatively arranged to provide for a number of distinct movements of the cam and escapement wheels, whereby to show up an equal number of different sets of pictures during one complete rotation of shaft 4 and the latch or locking disk 3 thereon.

The picture-holders each consist of a ⌐¬-shaped flexible metal frame, the end members 33^a of which have guide-flanges to receive the picture P, and at their inner ends they have eyes 33^b to engage with the inwardly-projecting and opposing fingers 34^x of the members 34 34^a, projected radially from the hubs 28 and 28^x. By providing picture-holding members as described each holder can be almost instantly attached to or removed as a part of the complete drum by simply bending the ends of the said holders inward, as shown in Fig. 7, to permit their eye portions being slid off or slipped onto the fingers 34^x of the members 34 34^a.

It will be noticed by reference to Figs. 2, 6, 6^a, and 3 the picture-holders are hung to swing outward by gravity, and to provide for maintaining but a single picture under the sight-opening S and immovable during the operation of the machine a detent or stop rod 35 is fixedly held on the frame, which projects forward over the drum and has its end 35^a extended down beyond the path of the sweep of the holders, as shown in Fig. 2, and in such manner as to form a rest against which the holders gravitate and are held from dropping to a horizontal position during the complete operation of the machine, and a second stop member 36 is employed which also projects within the peripheral sweep of the holders and acts as a rest for successively sustaining the picture-holders as they are dropped into place under the sight-opening S, the correlation of the members 35 and 36 to the axis of the drum being such that at each shift or turn of the drum the holder that engages the member 35 (indicated by *h* in Fig. 2) and the one being sustained under the sight-opening will be automatically drawn away from the members 35 and 36, the holder *h'* dropping down to a vertical position, the holder *h* down to engage the member 36, and the next succeeding holder to engage the member 35.

As the escapement-wheel operates under a spring tension, it follows that at each predetermined movement of such wheel the picture being viewed will quickly drop as another simultaneously drops to take the place of the last-viewed picture, and during the interim between the movements of the escapement-wheel the drum, together with the entire set of pictures therein, and particularly the one being viewed, remains immovable. The casing is also equipped with a push-button *b* for controlling the electric lights within the casing for viewing the "free picture."

From the foregoing description, taken in connection with the drawings, it will be noticed a free picture, which is always changed at each operation of the machine, is always in position under the sight-opening, which can be viewed by simply pressing the push-button to bring in the light-circuit. To produce a complete pictorial exhibition, the operator trips the motor or drive mechanism, which may be effected by means of a coin or by other mechanical means. The tripping of the lever 2 releases the disk 3 and allows the spring-propelled shaft 4 to rotate, from which motion is transmitted to the cam-wheel that governs the devices that control the spring-actuated escapement-wheel for imparting successive intermittent movements to the picture-holding drum, which drum in

its movements brings a successively-appearing set of pictures to view, each of which rests immovably under the sight-opening during the interim between the actuating movements of the escapement devices.

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

1. In a picture-exhibitor, the combination with the revolving carrier having hub portions, and members 34, projected radially from the hubs, said members 34 having pintles 34^a, projected inward in a plane with the longitudinal axis of the carrier; of the U-shaped holders formed of flexible material, having edges 33^b, to slip into or off of members 34^a, for the purposes described.

2. In an exhibitor of the character described the combination with the object-carrier, and a lamp-circuit; of a drive mechanism for the carrier, said drive mechanism having a governor device connected with and operated by the drum mechanism for controlling the lamp-circuit, whereby to cut out the lamps in case of stoppage of the drive mechanism or for any cause, for the purposes specified.

3. In an exhibitor as described the combination with the object-carrier and the lamp-circuit, and a motor mechanism for driving the object-carrier; of an automatically-adjustable contact-maker connected with and operated by the motor normally out of electrical circuit held to coöperate with the motor, and adapted to make contact and close the lamp-circuit when the motor is put into operation, and break the circuit when the motor stops, as set forth.

4. The combination with the object-carrier, and the motor mechanism, and the electric-light circuit within the casing; of governor devices coöperating with the motor mechanism, said governor devices including a shiftable disk and a contact-maker for the electric-lighting current in the casing, said contact-maker having a spring-held member adapted to be engaged by the shiftable governor-disk when the object-carrier motor mechanism is set into motion, all being arranged substantially as shown and for the purposes described.

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