No. 614,077. Patented Nov. 15, 1898.

R. M. BEATTY.

TURNSTILE.

(Application filed Nov. 11, 1897.)

(No Model.)

2 Sheets—Sheet 1.

Fig. 1.

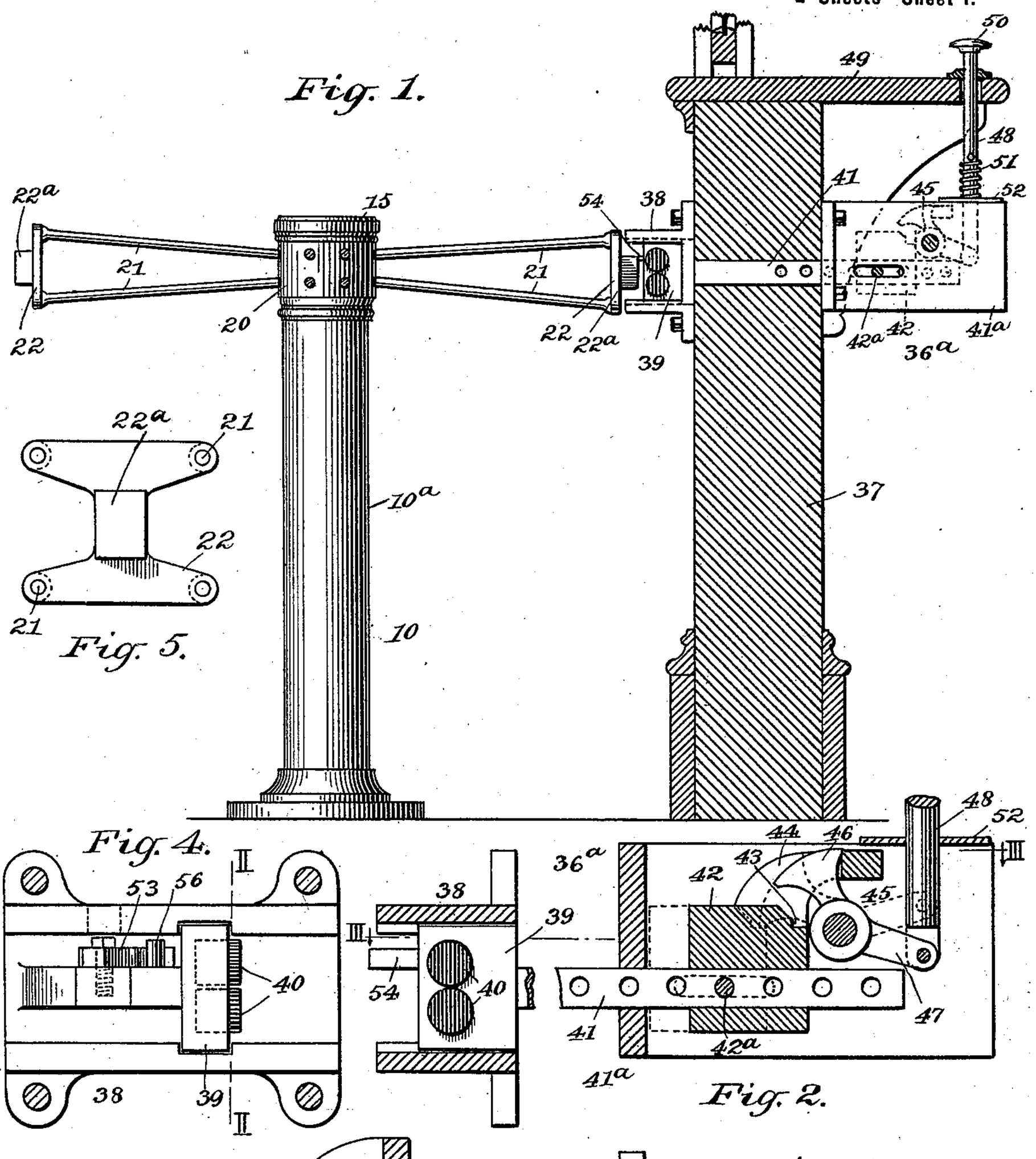
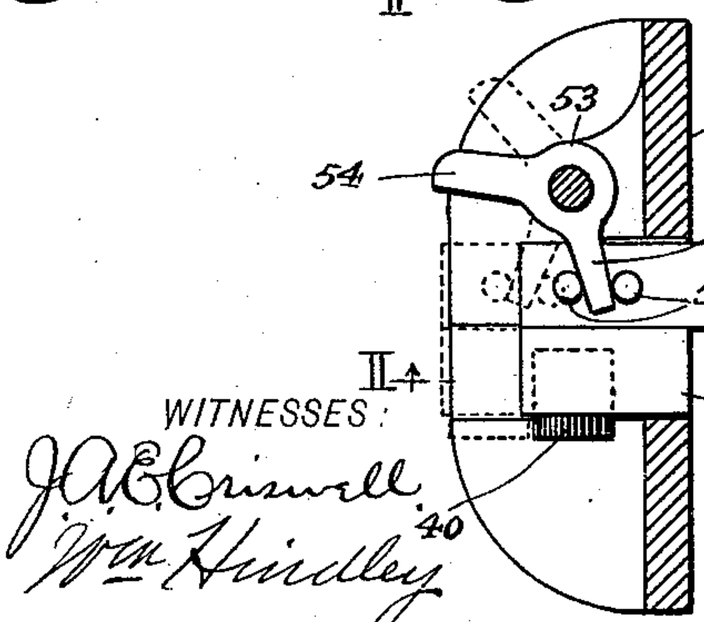


Fig. 5.

Fig. 4.

Fig. 2.



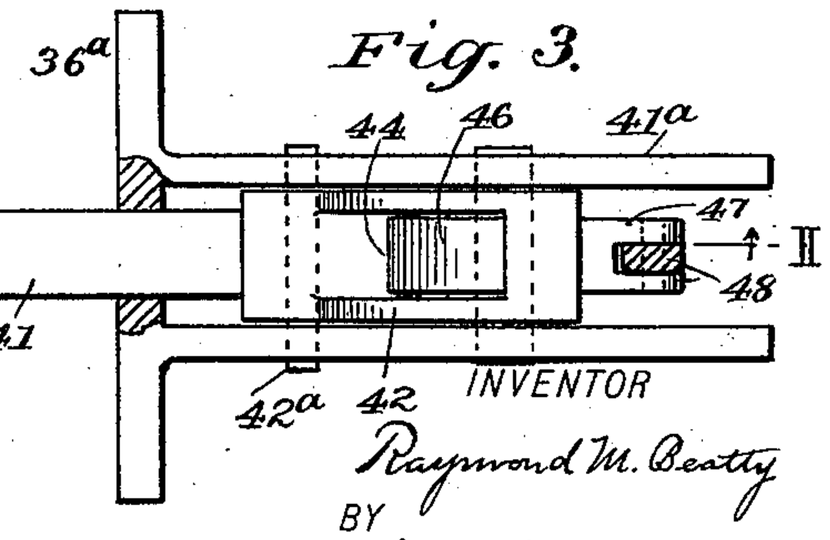


Fig. 3.

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Fig. 6.

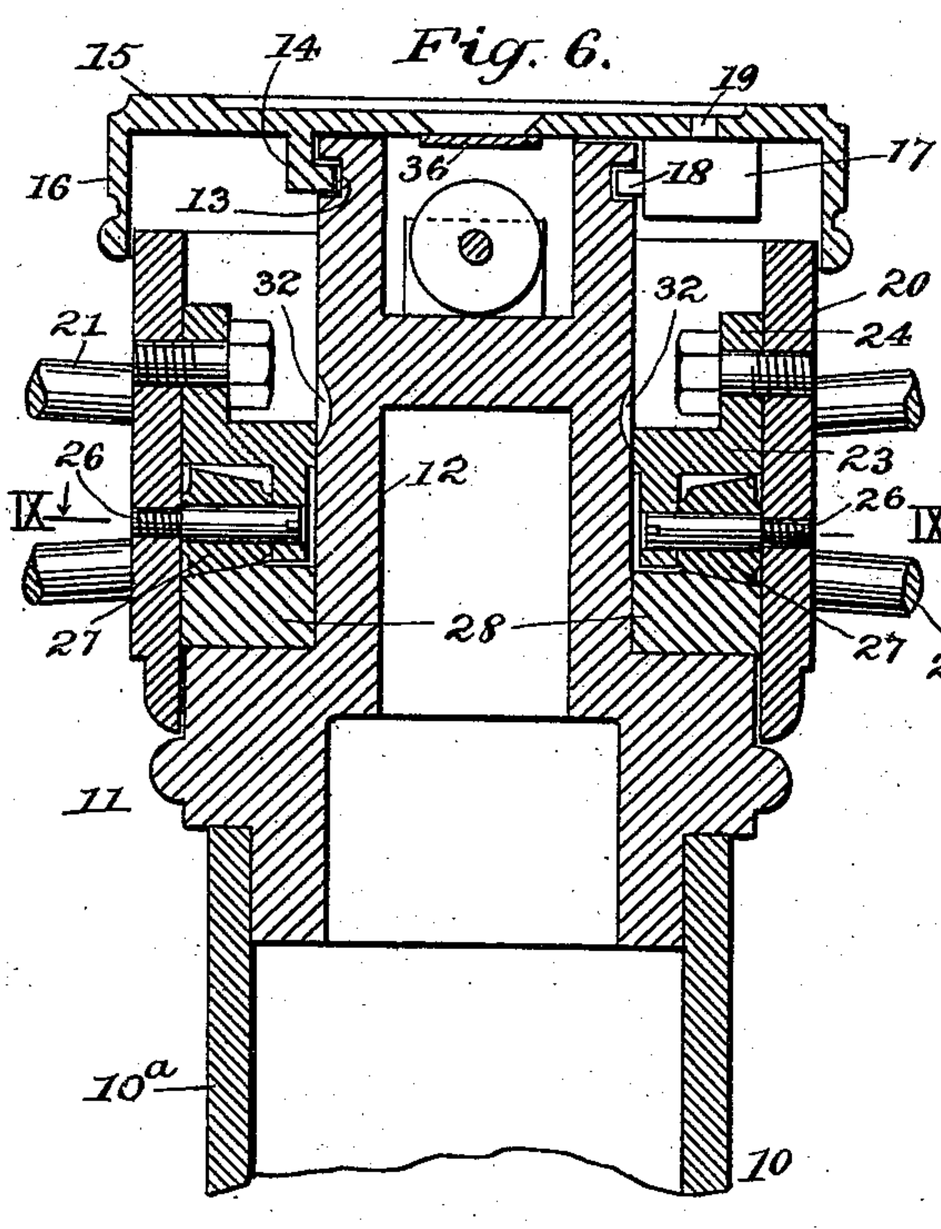


Fig. 7.

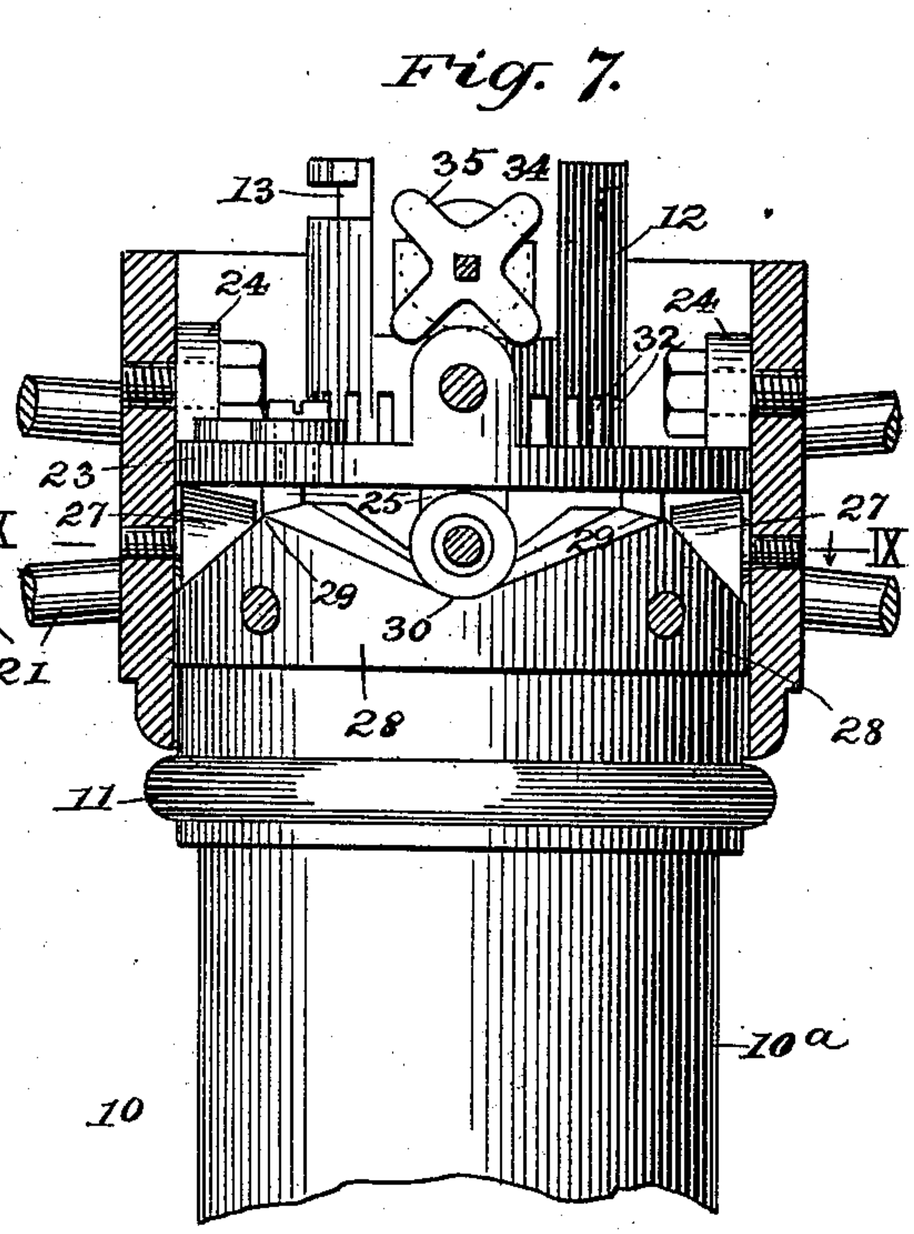


Fig. 8.

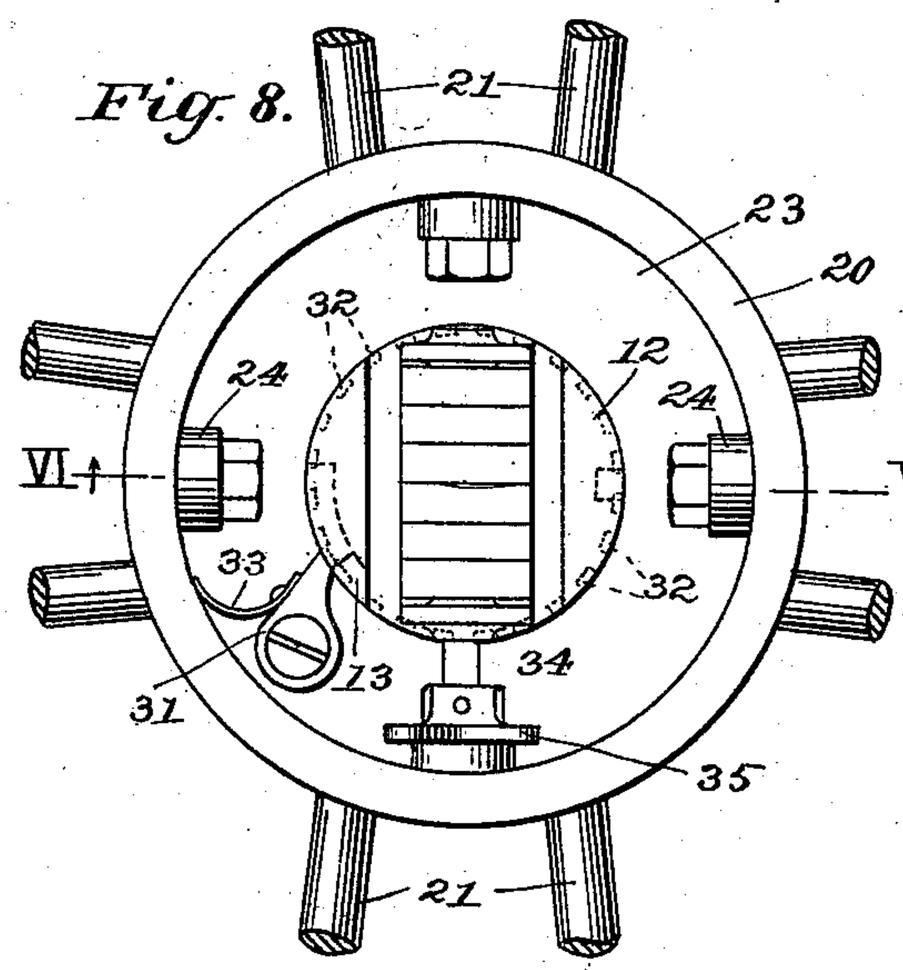
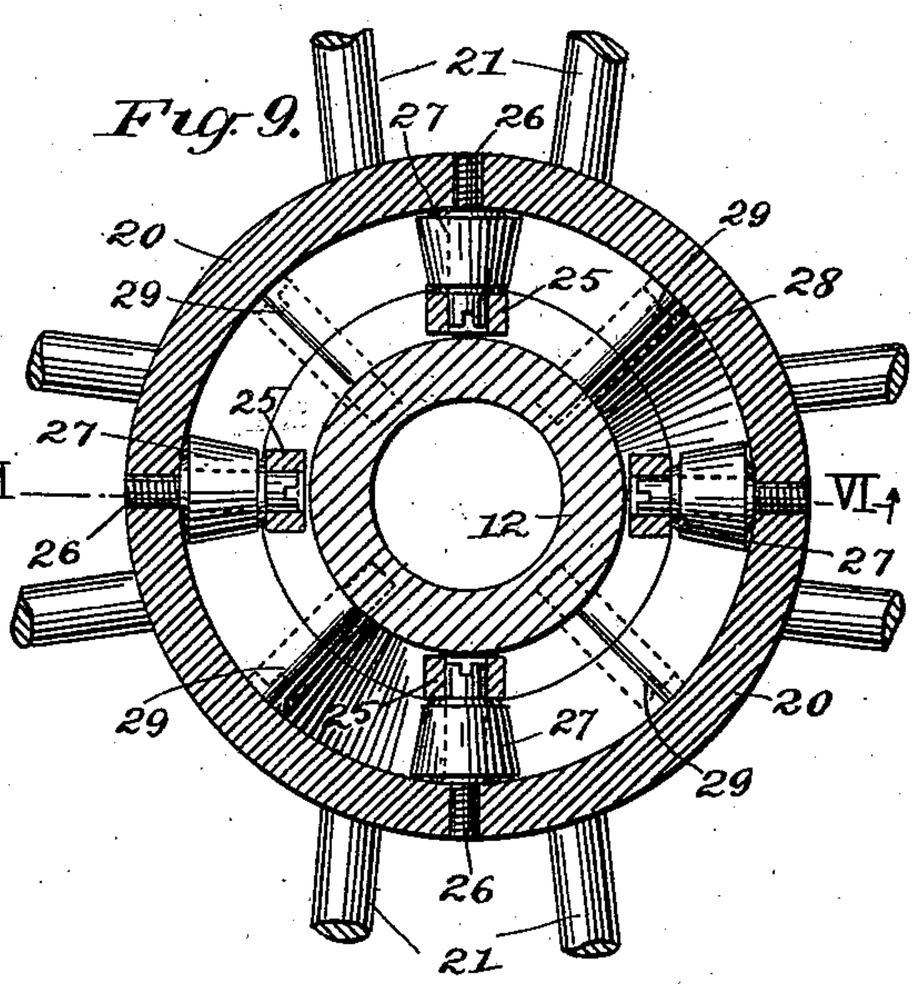


Fig. 9.



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TURNSTILE.

SPECIFICATION forming part of Letters Patent No. 614,077, dated November 15, 1898.

Application filed November 11, 1897. Serial No. 658,122. (No model.)

To all whom it may concern:

Be it known that I, RAYMOND M. BEATTY, of Newark, in the county of Essex and State of New Jersey, have invented certain new and useful Improvements in Turnstiles, of which the following is a full, clear, and exact description.

This invention relates to turnstiles, but more particularly to turnstiles adapted for use at the stations of elevated railroads.

The primary object of my invention is to provide a simple and efficient device which is adapted to be placed in such a position as to close or obstruct the usual passage-way leading from the entrance of the station to the platform of elevated railroads or in any other desired location and which may be directly under the control of the ticket-seller or other person, thus dispensing with the usual ticket-chopper and the services of the attendant who operates the chopper and avoiding the necessity of depositing tickets into the usual chopper or other receptacle by the purchaser.

A further object is to provide a turnstile having simple and efficient locking mechanism for controlling the same and in which the working parts are readily accessible for repair or for other purposes, which may be employed in connection with a device of a like character when the passage-way is of such a nature as to require the use of two or more of such devices, and which may be used in various locations and for various purposes.

The invention will be hereinafter more particularly described with reference to the accompanying drawings, forming a part of this specification, and then pointed out in the claims at the end of the description.

In the drawings, wherein similar figures of reference designate similar parts throughout the several views, Figure 1 is an elevation, partly in section, of one form of device embodying my invention, illustrating the same in position for use. Fig. 2 is a vertical longitudinal section, partly broken away, on an enlarged scale, of the locking or controlling mechanism, taken on the line II II of Figs. 3 and 4. Fig. 3 is a sectional plan view, partly in elevation, of the locking mechanism, taken on the line III III of Fig. 2. Fig. 4 is an end elevation of the outer support and the slide or locking-plate. Fig. 5 is a detail enlarged end elevation of the outwardly-extending arms of the turnstile. Fig. 6 is a vertical section, on an enlarged scale, of the upper portion of the turnstile, taken on the line VI VI of Figs. 8 and 9, the outwardly-extending arms being broken away. Fig. 7 is a vertical sectional view, partly in elevation, of the upper portion of the turnstile, the cap being removed. Fig. 8 is a plan view looking at the parts as shown in Fig. 7, and Fig. 9 is a sectional plan view taken on the line IX IX of Figs. 6 and 7.

The support 10 may be of any desired form or construction and may comprise a pedestal or standard 10^a, having a base adapted to be secured or otherwise arranged upon the floor or support, and a head, as 11, at the upper portion thereof, which may be secured to the pedestal or formed integrally therewith, as desired. This head, like the pedestal, may be hollow and may have a post 12, provided at its upper end with one or more circular recesses 13, adapted to be engaged by an L-shaped lug or lugs 14, depending from the cap 15, the latter having a pendent flange 16, partly inclosing the post, and provided with a suitable lock 17, said lock having its bolt 18 adapted to engage a recess in the post 12 and operated through a suitable keyhole, as 19, in the cap or otherwise in order that the cap may be removably secured and held to the post. Beneath the cap 15 and arranged to revolve within the flange 16 is a revoluble sleeve or collar 20, having arms 21 extending outwardly therefrom and preferably arranged in series of four, the upper and lower pair of each series being slightly inclined in opposite directions and connected at their outer ends with a suitable bracket, as at 22, which is substantially I-shaped and has a lug or block 22^a projecting outwardly therefrom for a purpose to be hereinafter explained.

The sleeve or collar 20 has an internal ring 23, provided with lugs 24, extending upwardly therefrom, by means of which and suitable bolts said ring is rigidly secured to the sleeve or collar, and with pendent lugs or projections 25, which form the inner support for the pins or shafts 26. These shafts may be in the form of a screw and have the outer

ends thereof engaging threaded recesses or apertures in the collar or sleeve and may have wheels or rollers 27 journaled thereon between the sleeve and the projections 25. The wheels 27 may be slightly beveled and are adapted to roll upon the upper surface of the cam-ring 28, which latter may be secured to or formed integrally with the head 11, the wheels 27 serving to support the sleeve 20 on the cam-ring, so as to reduce the friction as much as possible while being revolved. This cam-ring 28 has its upper surface provided with projecting portions 29, preferably four in number, forming between them inclined planes and recesses, as at 30, so that as the sleeve 20 and ring 23 are revolved the wheels 27, carried thereby, will ride from the recesses 30 up the inclined planes to the apices of the projections 29 and as soon as they pass said apices will ride down the opposite inclines by gravity, thus automatically carrying and advancing the sleeve 20 and arms 21, extending outwardly therefrom, in this case one-eighth of a revolution and until the wheels again reach the recesses. To prevent the sleeve 20 from being forced backward, so that it will revolve in one direction only, I may secure a cam or pawl 31, Figs. 7 and 8, upon the upper surface of the ring 23. This pawl may have its end engaging suitable teeth, as at 32, in the post 12 of the head 11 and may be normally pressed in one direction, as by the spring 33, in order that when the sleeve 20 and ring 23 are revolved in one direction the post will slip by the end of the pawl 31; but when forced or attempted to be forced in the opposite direction the said pawl will be thrown into the teeth 32, so as to engage the sides of the same, though instead of the pawl engaging teeth on the post 12 a suitable spring-pressed cam may have its surface adapted to frictionally engage the outer surface of a portion of the head. By removing and reversing the position of the cam 31, so that the spring will operate on the side opposite to that shown, the sleeve may be permitted to revolve or prevented from revolving in a reverse direction to that described. By this means it will be seen that the device is made reversible, since where it is necessary to revolve in one direction in one passage-way it may be necessary to revolve it in an opposite direction in another passage-way, and that this may be secured by simply placing the pawl or cam so that the spring will act to push or throw the same in the desired direction, according to the direction in which the sleeve 20 and arms 21 are to revolve.

The upper portion of the post 12 may be provided with a suitable recess in which may be arranged a suitable registering mechanism 34. This registering mechanism may be operated in any desired manner. As shown, it is provided with a shaft extending outwardly therefrom, on which is arranged a star-wheel 35, the arms of which are adapted to come in contact with the projections or lugs 24 when the sleeve 20 is rotated, thus causing the mechanism 34 to register once at each quarter-revolution, a suitable opening, having a glass or other suitable covering, as 36, being provided in the cap 15 to permit the registering mechanism to be seen at all times.

For the purpose of having the turnstile proper directly under the control of a person at one side of the usual passage-way, such as the ticket-seller, I provide suitable locking mechanism, as at 36ª. As shown, this mechanism is arranged on an upright or portion of the usual office, as 37, to which is secured a suitable bracket 38. The bracket 38 has suitable grooves in which is guided a slide or locking-plate 39, on which may be arranged one or more yielding buffers, as at 40, against which the block or lug 22ª, carried by the arms 21, abuts when in a locked position in order to reduce the shock as much as possible, though instead of the buffers, which in this case are shown as being of rubber, springs or other suitable means may be employed. The slide or locking-plate 39 is connected to the bar 41, which is adapted to move back and forth in the support or bracket 41ª and the bracket 38, and adjustably held to the bar 41 by means of a pin 42ª, which is adapted to pass through any one of the series of apertures in said bar, is a block 42. This block 42 has a recess 43, which serves as a stop or a detaining portion, and an opening 44, through which the end 46 of a bell-crank lever 45 passes, the other end of said bell-crank lever, as at 47, being connected to a vertically-movable rod 48, which passes through an aperture in a suitable support, as the shelf 49, and has a knob 50 on the upper end thereof, by which a vertical movement may be readily imparted to said rod. A spring 51 is arranged around the rod 48 and interposed between a pin on said rod and the plate 52 in order to force the rod 48 upward, the plate 52 being loosely arranged upon the upper surface of the bracket 41ª in order that various inclinations of the rod 48 may be secured by simply sliding said plate along the bracket.

The bracket 38 has a preferably angular lever or trip 53 pivoted thereto, which has one end, as at 54, when in the position shown in full lines in Fig. 3, arranged in the path of movement of the lug or projection 22ª of the arms 21, while the other end, as at 55, engages the pins 56 on the bar 41 of the slide or locking-plate 39, so that when the arms 21 are revolved the lug 22ª will engage the end 54 of the lever 53 and will force the end 55 and slide 39 outward back of the lug or projection 22ª in position for the buffers 40 to engage the next succeeding lug on the arms 21 and prevent further movement of the sleeve 20, though the slide 39 may be made to engage any other suitable rotating portion of the turnstile. In this latter position the end 46 of the bell-crank lever 45 rests in the

recess 44 of the block 42, thus preventing inward movement of the rod 41 and slide 39, as shown in dotted lines in Fig. 2.

The construction and operation of the invention will be readily understood from the foregoing description when taken in connection with the accompanying drawings.

The device being arranged as shown in Fig. 1, it will be seen that a person entering between the pedestal 10^a and the upright or portion of the office, as 37, will be prevented from passing through the passage-way by the outwardly-extending arms 21. In this position if the rod 48 is forced downward the lever 45 will be tilted on its pivot, so that the end 46 will engage a portion of the block 42 and force the same, together with the rod 41 and the slide or plate 39, away from the lug or projection 22^a, carried by the arms 21, as shown in Figs. 1 and 2. The arms and sleeve of the turnstile are now free to revolve, so as to permit the person to pass through the passage-way, and while revolving the lug 22^a will come in contact with the end 54 of the pivoted lever 53 and will throw the rod 41 and slide 39 back or to the rear of the lug or projection in position for the buffers 40 to engage the lug on the next succeeding arm and prevent further revolution of the sleeve 20. As the arms 21 and the sleeve 20 revolve by force exerted by the person or otherwise the sleeve 20 and the ring 23 will cause the rollers 27 to roll upon the upper surface of the cam-ring 28 until the cam-wheels reach the apex of each projection 29, the sleeve 20 at this time also being moved vertically within the pendent flange 16 of the cap 15. Immediately upon passing the apices of the projections 29 of the cam-ring 28 the weight of the sleeve 20 and parts carried thereby will cause the wheels to travel on the opposite inclines of the projections into the recesses 30, so as to automatically revolve the sleeve in this case one-eighth of a revolution, the pawl or cam 31 preventing the backward movement of the sleeve 20, as hereinbefore explained. As the sleeve and the outwardly-extending arms 21 revolve the lugs 24 on the ring 23 will successively engage the projecting portions of the star-wheel 35, so as to operate the registering mechanism to indicate each quarter-revolution of the sleeve.

I thus provide a simple and efficient device which is under the positive control of a person, so as to dispense with the usual ticket-chopper or attendant, which may be readily placed in position, and in which the parts are readily accessible either for repairs or for other purposes.

It will be readily understood that the turnstile, properly speaking, may be used independently of any locking mechanism, that the turnstile may be used in connection with another device of a similar or different character, or that the sleeves and outwardly-projecting arms of two turnstiles may be geared together, so as to revolve toward each other in unison, and that some of the parts may be dispensed with or others substituted therefor, without departing from the spirit of my invention.

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

1. A turnstile, comprising a suitable support, a cylindrical revoluble sleeve arranged on the upper portion of said support, a cap having a pendent flange located above the sleeve, means for automatically moving the sleeve vertically within the flange of the cap when the sleeve is revolved, and arms projecting outwardly from the sleeve, substantially as described.

2. A device of the kind described, comprising a suitable support, a revoluble sleeve arranged on said support, arms projecting outwardly from the sleeve, means for moving the sleeve vertically, and a horizontally-movable cam or pawl carried by the sleeve and adapted to engage the support to prevent backward movement of the sleeve and arms, substantially as described.

3. A turnstile, comprising a pedestal having a suitable head and a post projecting upwardly from the head, a revoluble sleeve arranged on the head, and a horizontally-movable and reversible spring-pressed cam pivotally held to the sleeve so as to engage the post for permitting the sleeve to revolve in but one direction, substantially as described.

4. A device of the kind described, comprising a suitable support, a revoluble sleeve arranged on the support, wheels carried by the sleeve, a ring-cam forming a support for the wheels and adapted to move the sleeve vertically while being revolved, together with a horizontally-spring-pressed cam or pawl carried by the sleeve and adapted to engage teeth in the support to prevent backward movement of the sleeve and arms, substantially as described.

5. A device of the kind described, comprising a suitably-supported head, a sleeve arranged to revolve on said head, arms projecting outwardly from the sleeve, a ring secured to the sleeve, rollers journaled in the sleeve and ring, a cam-ring forming a support for the rollers and adapted to move the sleeve vertically while being revolved, and a cap removably secured to the head and having a pendent flange adapted to partially inclose the sleeve, substantially as described.

6. The combination with a suitable support, and a sleeve having outwardly-projecting arms rotatably arranged on the support, of locking mechanism automatically actuated by the movement of each arm in one direction so as to arrest the movement of the next arm.

7. In a device of the kind described, the combination with a suitable support having a recess in a portion thereof, of a cap having a lug engaging the recess, and a lock for posi-

tively engaging and removably securing the cap to the support, substantially as described.

8. The combination of a suitably-supported head, a sleeve rotatably arranged upon the head, arms projecting outwardly from the sleeve and having a lug or projection thereon, a slide adapted to be thrown in the path of movement of the lug, means for operating the slide in one direction, and a lever arranged in the path of movement of the lug adapted to throw the slide automatically in the opposite direction as the arms and sleeve are rotated, substantially as described.

9. The combination with the revoluble arms of a turnstile, of a slide adapted to engage a portion of the arms, means for releasing the slide, and a lever arranged in the path of movement of the arm and adapted to throw the slide automatically in the reverse direction as the arms are revolved, substantially as described.

10. In a device of the kind described, a locking mechanism, comprising a slide, a bar connected to said slide, a block carried by the bar, a lever engaging a portion of the block, and means for operating the lever, substantially as described.

11. In a device of the kind described, a locking mechanism, comprising a slide provided with buffers adapted to be engaged by a portion of the revolving arms of the turnstile, a bar connected to the slide, a block having a detaining portion and an opening therein adjustably secured to said bar, a bell-crank lever having one end thereof arranged in the opening in the block, and a spring-pressed rod connected to the other end of the bell-crank lever, substantially as described.

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Witnesses:
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