

H. A. GORDON.

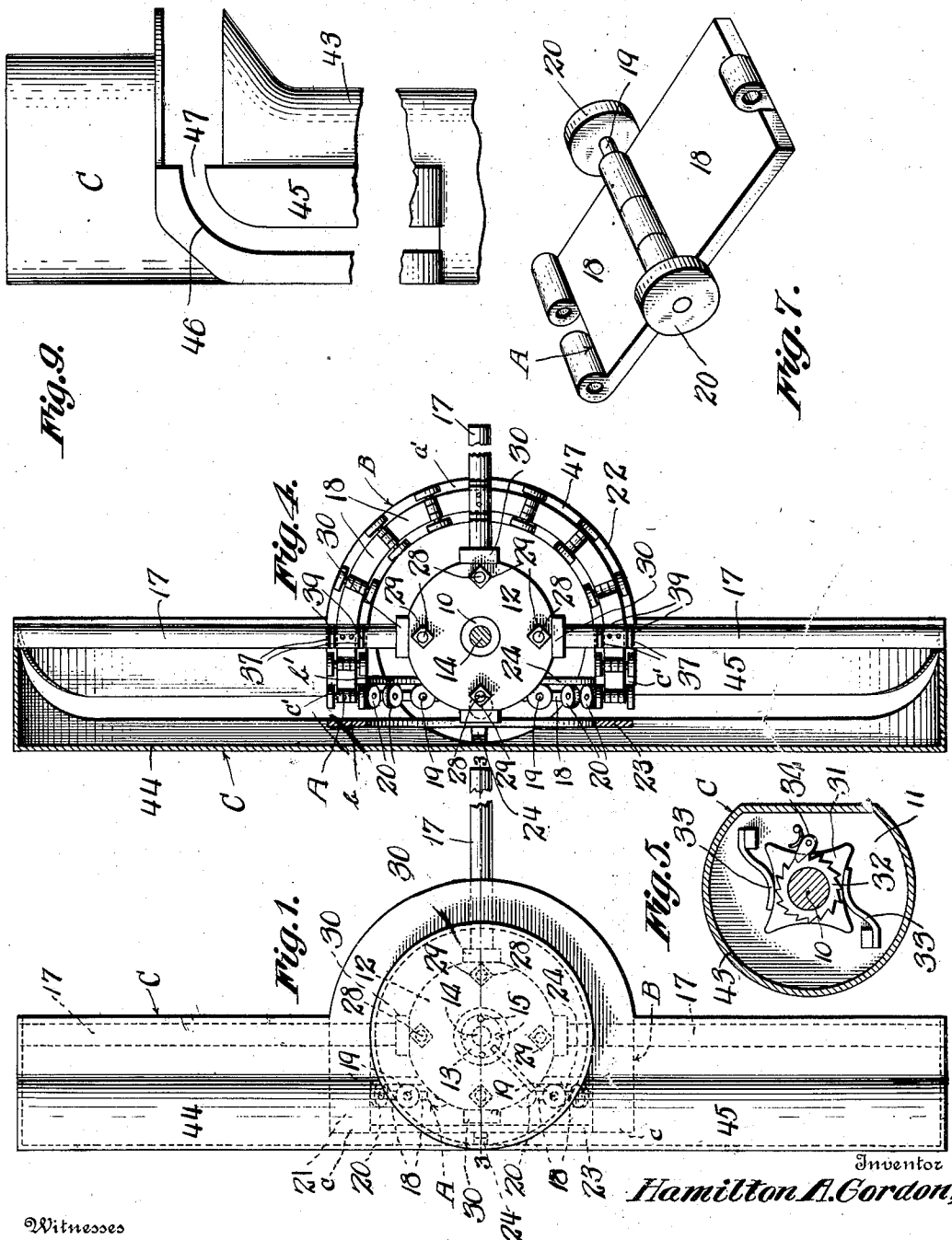
TURNSTILE.

APPLICATION FILED MAY 11, 1909.

954,182.

Patented Apr. 5, 1910.

2 SHEETS—SHEET 1.



Witnesses

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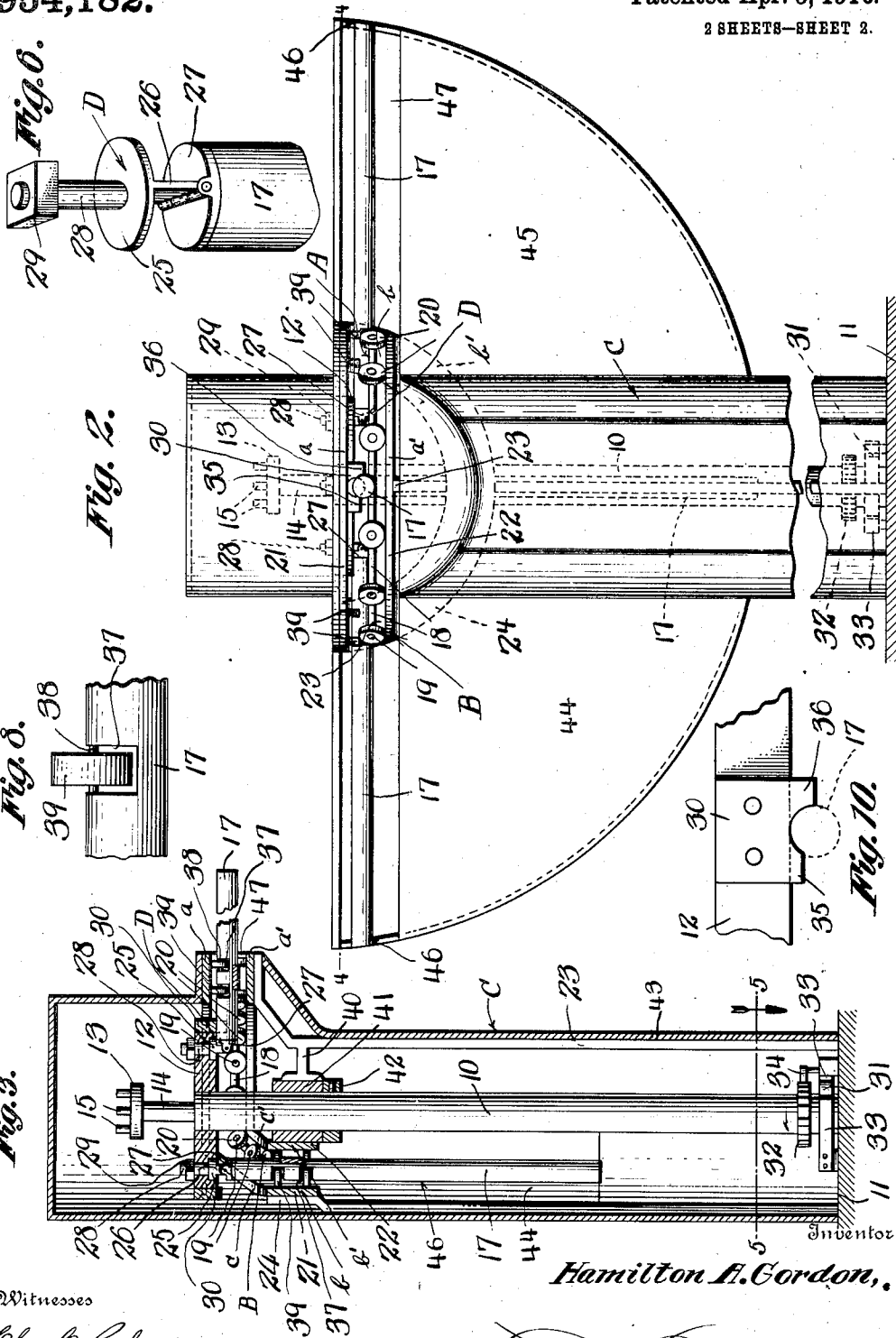
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UNITED STATES PATENT OFFICE.

HAMILTON A. GORDON, OF EAST ORANGE, NEW JERSEY.

TURNSTILE.

954,182.

Specification of Letters Patent.

Patented Apr. 5, 1910.

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To all whom it may concern:

Be it known that I, HAMILTON A. GORDON, a citizen of the United States, residing at East Orange, in the county of Essex, State of New Jersey, have invented certain new and useful Improvements in Turnstiles; and I do hereby declare the following to be a full, clear, and exact description of the invention, such as will enable others skilled in the art to which it appertains to make and use the same.

The present invention relates to improvements in turnstiles, and more particularly in those which are attached to or employed in connection with a registering mechanism, for indicating the number of persons who pass through a passageway, wherein the turnstile is located, into an inclosure.

In general, the object of the invention is to produce an extremely simple, inexpensive, and efficient turnstile of the type specified above, which includes among its essential parts, a head and a series of radially arranged arms secured thereto, the arms being connected in such a manner to the head as to successively drop into vertical position during a portion of their rotation, so as not to interfere with the ticket puncher or collector who is thus enabled to stand nearer to the turnstile than has heretofore been possible. To this end, the arms are arranged to travel along a track composed of a pair of spaced members whose rear portions are bent downward, thus causing each arm to automatically assume a vertical position as it reaches the bent portion of the track, and during its travel along such portion, and to return to its normal or horizontal position upon reaching the main or horizontal stretch of the track, the latter portion of the track projecting across the passageway.

The preferred embodiment of the invention is illustrated in the accompanying drawings, in which corresponding parts are designated by the same reference characters throughout the several views.

Of the drawings, Figure 1 is a plan view of the improved turnstile. Fig. 2 is a front elevation thereof. Fig. 3 is a vertical section taken on the line 3—3 of Fig. 1. Fig. 4 is a horizontal section taken on the line 4—4 of Fig. 2. Fig. 5 is a horizontal section taken on the line 5—5 of Fig. 3. Fig. 6 is an enlarged detail perspective view of one of the swivel connections between the

arms and head. Fig. 7 is an enlarged detail perspective view of two of the links of the chain. Fig. 8 is a fragmental detail view of one of the arms, showing the roller attached thereto. Fig. 9 is a fragmental side elevation of the turnstile. Fig. 10 is an enlarged detail view of one of the stop plates secured to the head.

Referring more particularly to the drawings, 10 designates the vertical main shaft of the turnstile, 11 the base plate wherein the lower end of the shaft is journaled, and 12 the top plate or head threaded upon the upper end of said shaft, which latter carries at such point a disk 13 mounted upon an upstanding pin 14 set into the shaft end, said disk being provided with a series of lugs 15 arranged for successive engagement with one of the wheels of a registering apparatus (not shown) of any preferred type.

The arms 17 of the turnstile are of the usual number, *i. e.*, four, and are riveted adjacent their inner ends to a chain A composed of a series of plates 18 connected together by hinge pins 19, which extend loosely through the registering openings formed in the knuckles with which the plates are provided at their mutually adjacent edges. Each pin has secured to its ends a pair of rollers 20 arranged to travel upon the lower member of the track B. This track consists of spaced upper and lower annular plates 21 and 22 supported, respectively, by rear and front uprights 23 and 24 disposed within the turnstile casing C, as shown. The front or major portions *a* and *a'* of the two plates occupy parallel horizontal planes, and the rear or minor portions *b* and *b'* thereof occupy parallel vertical planes, the downwardly inclined connecting portions *c* and *c'* being likewise parallel. The distance between the two plates is the same at all points.

The arms 17 are connected to the head 12 by means of the hinge joints D, one of which is illustrated in Fig. 6. Each of these joints comprises a disk 25 formed with a depending shoulder 26 to which is hinged a second disk 27 secured to the extreme inner end of one of the arms, the disk portion 25 of each joint having an upstanding pin 28 which extends loosely through an opening formed in said head 12, and has a fastening nut 29 threaded upon its upper end. Thus it will be seen that each arm is capable both of a

bodily swinging movement in a vertical plane, and of a turning movement or rotation upon its longitudinal axis, the arms being held at right angles to each other at all times by means of stop plates 30 bolted to the periphery of the head 12, each of said plates having its lower portion recessed in such a manner as to provide a pair of depending fingers 35 and 36 of unequal lengths, between which fingers the arms fit during their travel along the horizontal stretch of the track. These fingers also serve to prevent any rearward movement of the arms independently of the head.

Shaft 10 is provided adjacent its lower end with a four-sided wheel 31 and a ratchet wheel 32, the concaved edges of the sides of the former wheel being engaged by the free ends of a pair of diametrically opposite leaf springs 33 secured to the base plate 11, which latter carries a spring pressed pawl 34 arranged to engage the teeth of the ratchet wheel. The combined action of the wheel 31 and the springs causes the shaft to make exactly a quarter revolution each time the turnstile is actuated, thus insuring the extension of one of the arms across the passageway D at the termination of each actuation. The pawl and ratchet cooperate in holding the shaft against backward rotation.

The major or horizontal portions a and a' of the two plates 21 and 22, which form the guide B project toward and extend a slight distance across the passageway, while the minor portions b and b' of said plates extend downward in close proximity to shaft 10. By reason of this arrangement, it will be apparent that during the rotation of said shaft, the arms 17 will move in a horizontal plane across the passageway and on reaching the inclined portion of the track will drop, or move downwardly assuming a vertical position, when the rear portion of the track is reached, thus enabling the ticket puncher or collector to take his stand directly opposite the turnstile and close to the shaft thereof, instead of to the rear or at one side of the turnstile, as has been necessary heretofore. Moreover, the arms of the turnstile are in no danger of striking or otherwise interfering with the official, who is thus free to continue his occupation without fear of interruption.

In order to permit the arms to move along the track with the least possible friction, each arm has formed therein adjacent the point of its attachment to the chain, a pair of recesses 37 each of which is bridged by a pin 38 having a roller 39 rotatably mounted thereon, as shown in Fig. 8.

The front upright 23 located within the casing C is formed with a lateral arm 40 having attached thereto a collar 41 through which the shaft 10 loosely extends, said shaft

being steadied in this manner, as will be apparent. The shaft is also held against any upward movement by means of a collar 42, which is fastened thereto and is arranged to bear against the above mentioned collar 41.

The casing C is so constructed as to completely inclose the entire turnstile with the exception of the arm which projects into the passageway. This casing may be briefly described as comprising a vertically disposed cylindrical body portion 43 and two wings 44 and 45 located upon opposite sides thereof, as shown in Fig. 2, the edge portions of the wings being formed with curved slots 46, whose upper ends open into a single horizontal slot 47 formed in the front faces of said wings and continuing across the adjacent surface of the casing body, the arms 17 moving outwardly through the left hand portion of the last mentioned slot, and inwardly through the right hand portion thereof, as will be obvious.

What is claimed, is:—

1. A turnstile comprising a rotary member, a guide rail having a horizontal section and a vertical section, a series of radial arms pivotally connected to said rotary member for up and down movement, and a flexible connection between all of said arms.

2. A turnstile comprising a rotary member, a guide rail having a horizontal section and a vertical section, a series of radial arms pivotally connected to said rotary member for up and down movement, and arranged to travel along said rail; and a flexible connection between all of said arms disposed between said arms and the guide rail.

3. A turnstile comprising a rotary member, a guide rail having a horizontal section and a vertical section, a series of radial arms pivotally connected to said rotary member for up and down movement; and a flexible connection between all of said arms disposed between same and the guide rail and provided with an anti-friction bearing for engagement with said guide rail.

4. A turnstile comprising a rotary member, a guide rail having a horizontal section and a vertical section, a series of radial arms pivotally connected thereto for up and down movement and arranged to travel along said rail, a flexible connection between all of said arms and disposed between same and the guide rail, and anti-friction rollers mounted on said flexible connection for engagement with the guide rail.

5. A turnstile comprising a rotary member, a guide rail having a horizontal section and a vertical section, a series of radial arms pivotally connected with said rotary member for up and down movement and arranged to travel along said guide rail, and a flexible connection between all of said arms and disposed between same and the guide rail said connection comprising a series of

pivoted links and anti-friction rollers mounted on said links for contact with the guide rail.

5 6. A turnstile comprising a rotary member, a guide rail having a horizontal section and a vertical section, a series of radial arms each having a swiveled hinge connection with said member and arranged to travel along said guide rail and a flexible connec-

tion between all of said arms and disposed 10 between same and the guide rail.

In testimony whereof, I affix my signature, in presence of two witnesses.

HAMILTON A. GORDON.

Witnesses:

CAROLINE C. GORDON,
ELIZABETH A. GORDON.