

C. DRIVER.

TURNSTILE.

APPLICATION FILED MAR. 12, 1910.

987,445.

Patented Mar. 21, 1911

2 SHEETS-SHEET 1.

FIG. 1.

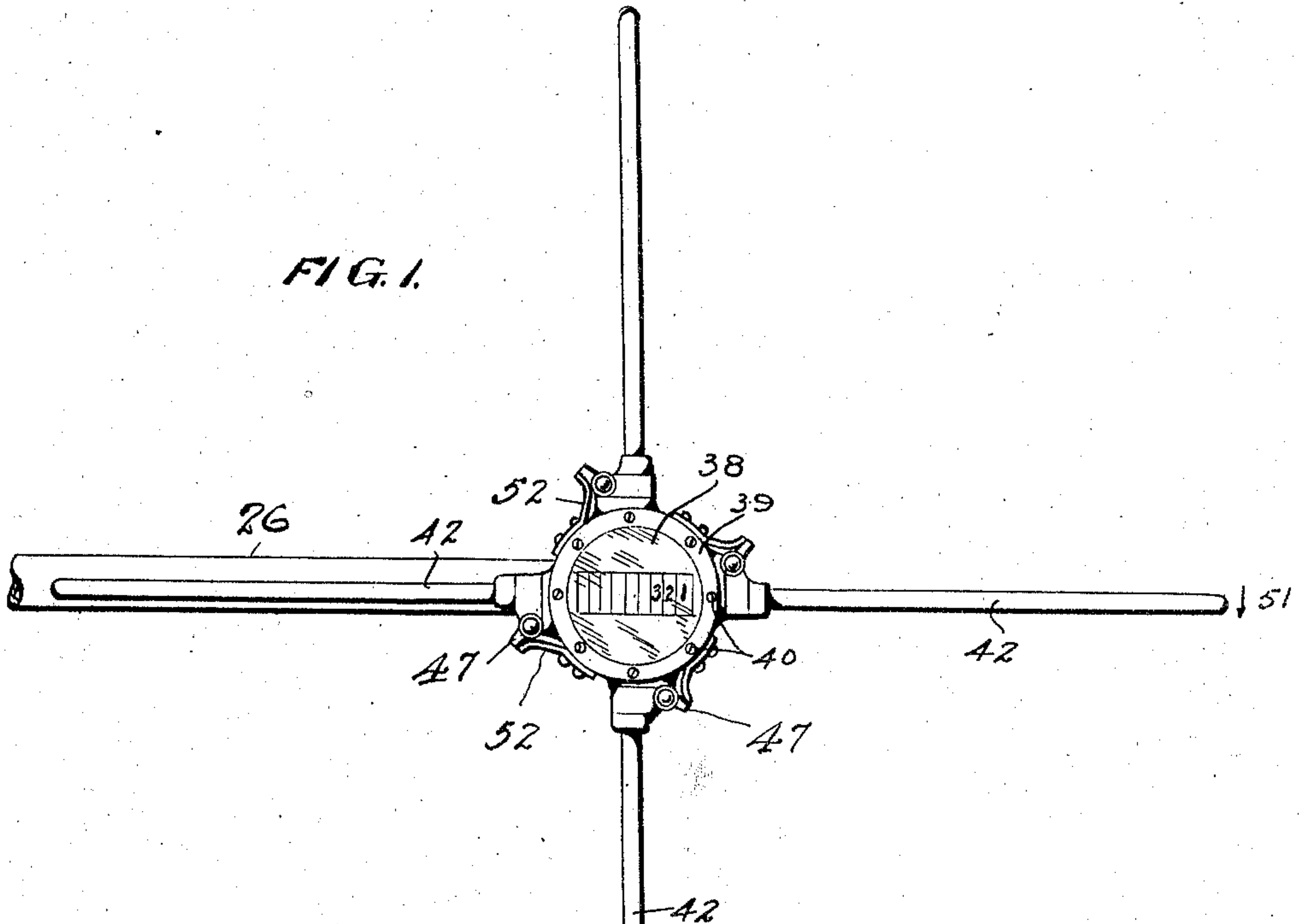
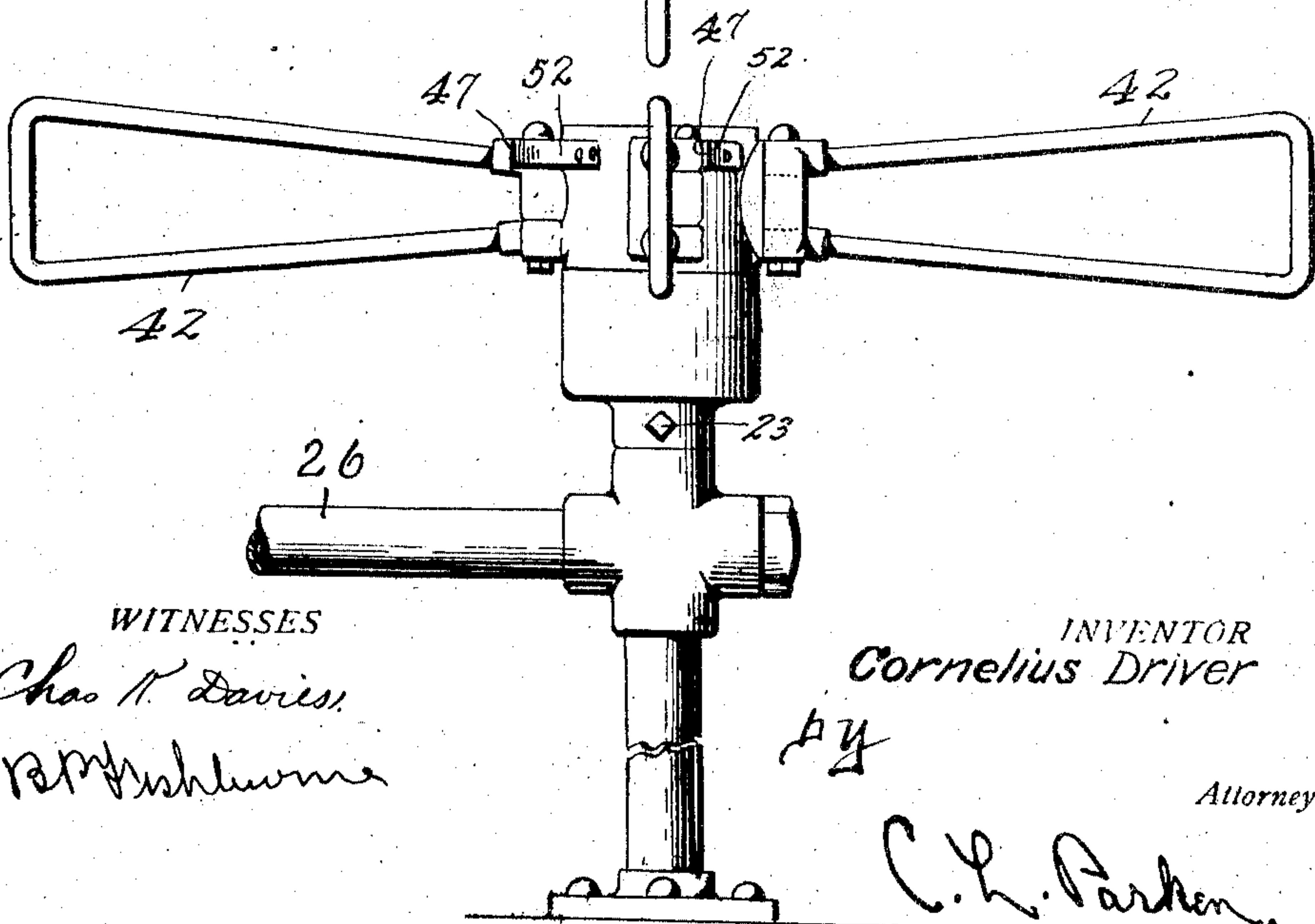


FIG. 2.



WITNESSES

Chas. H. Davies,
Rm. 11, 1st Floor

INVENTOR

Cornelius Driver

By

Attorney

C. L. Parker.

C. DRIVER.
TURNSTILE.

APPLICATION FILED MAR. 12, 1910.

987,445.

Patented Mar. 21, 1911

2 SHEETS-SHEET 2.

FIG. 7.

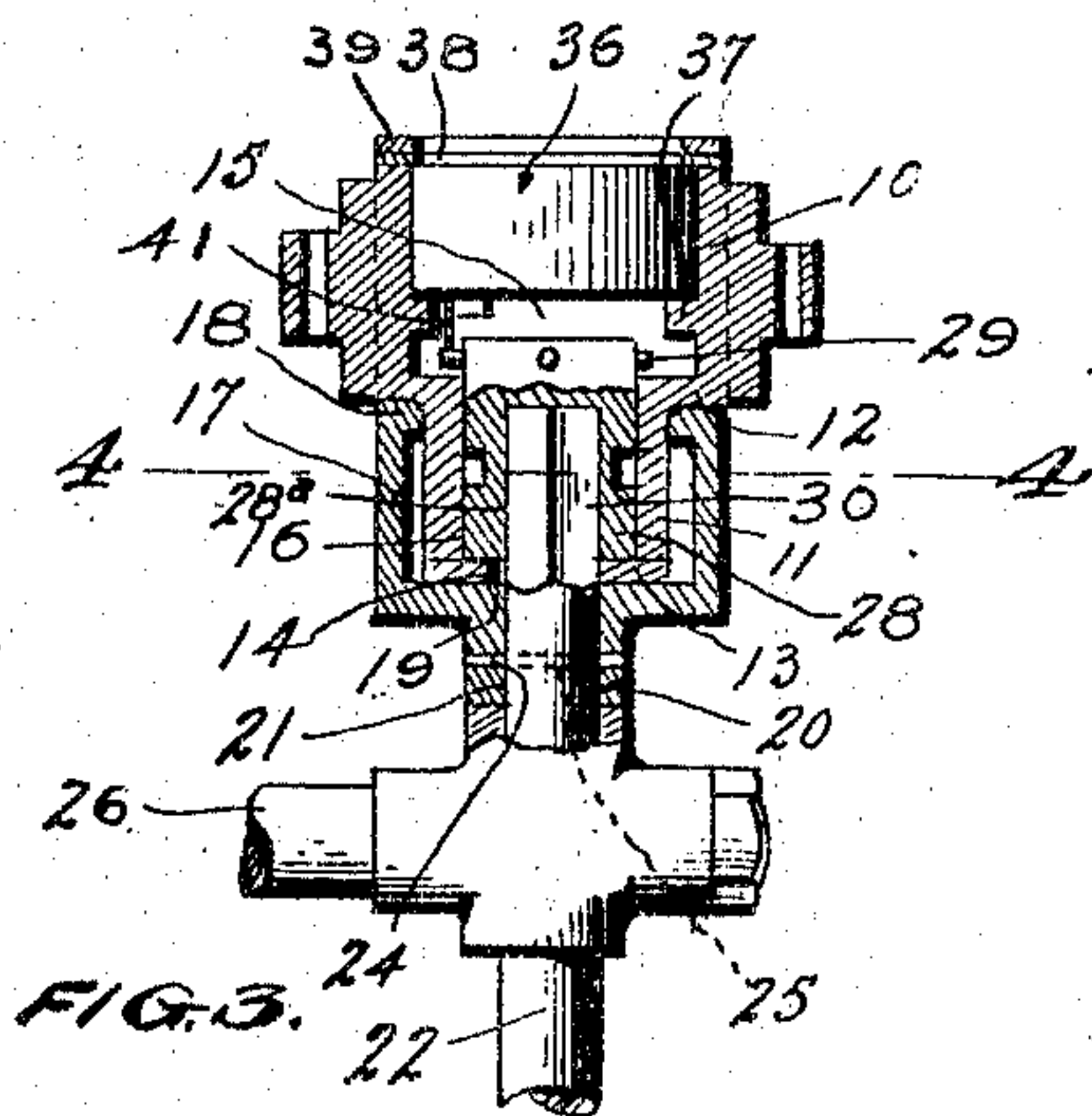
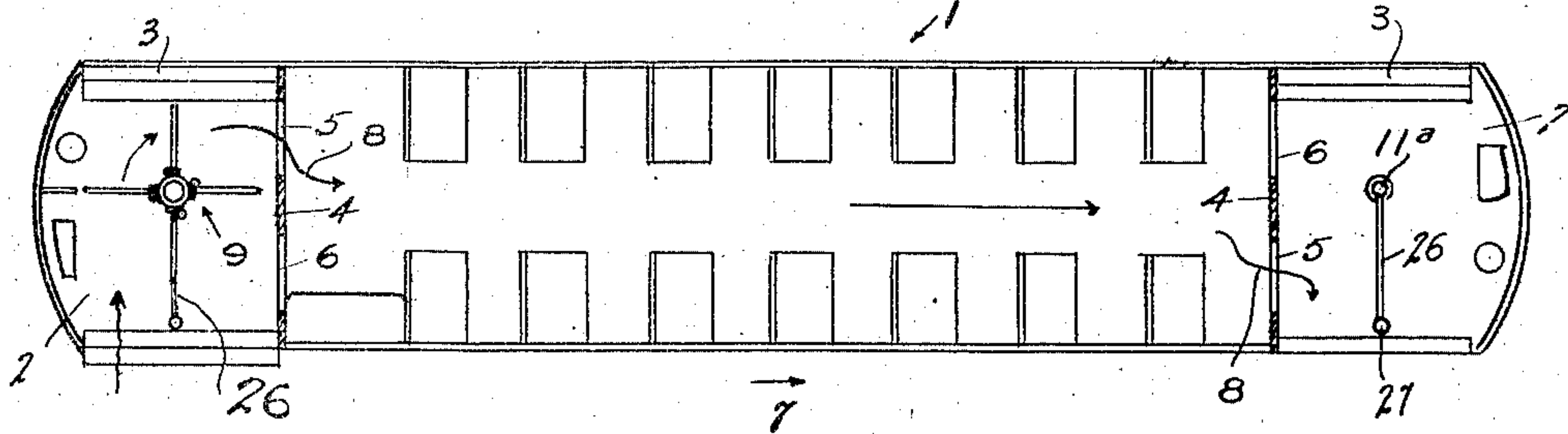
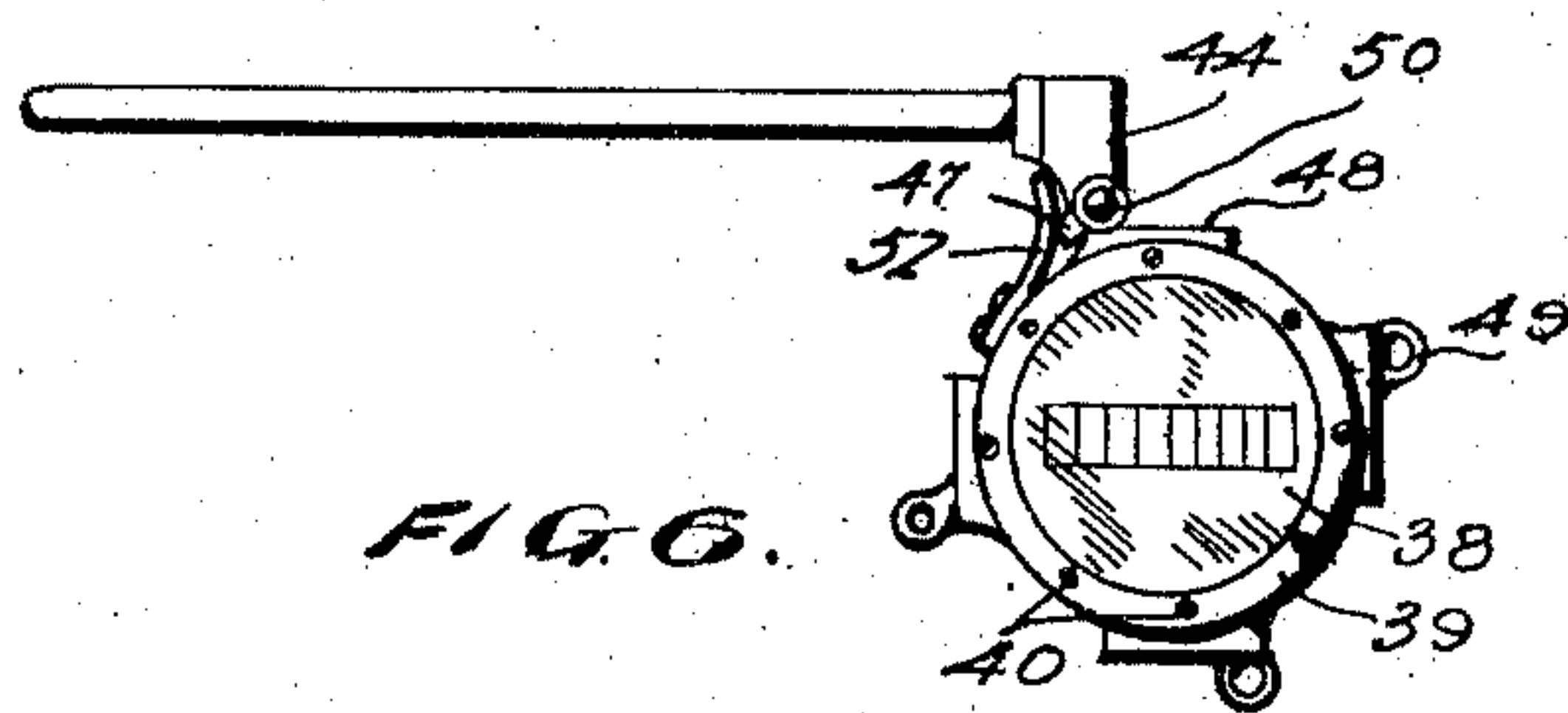
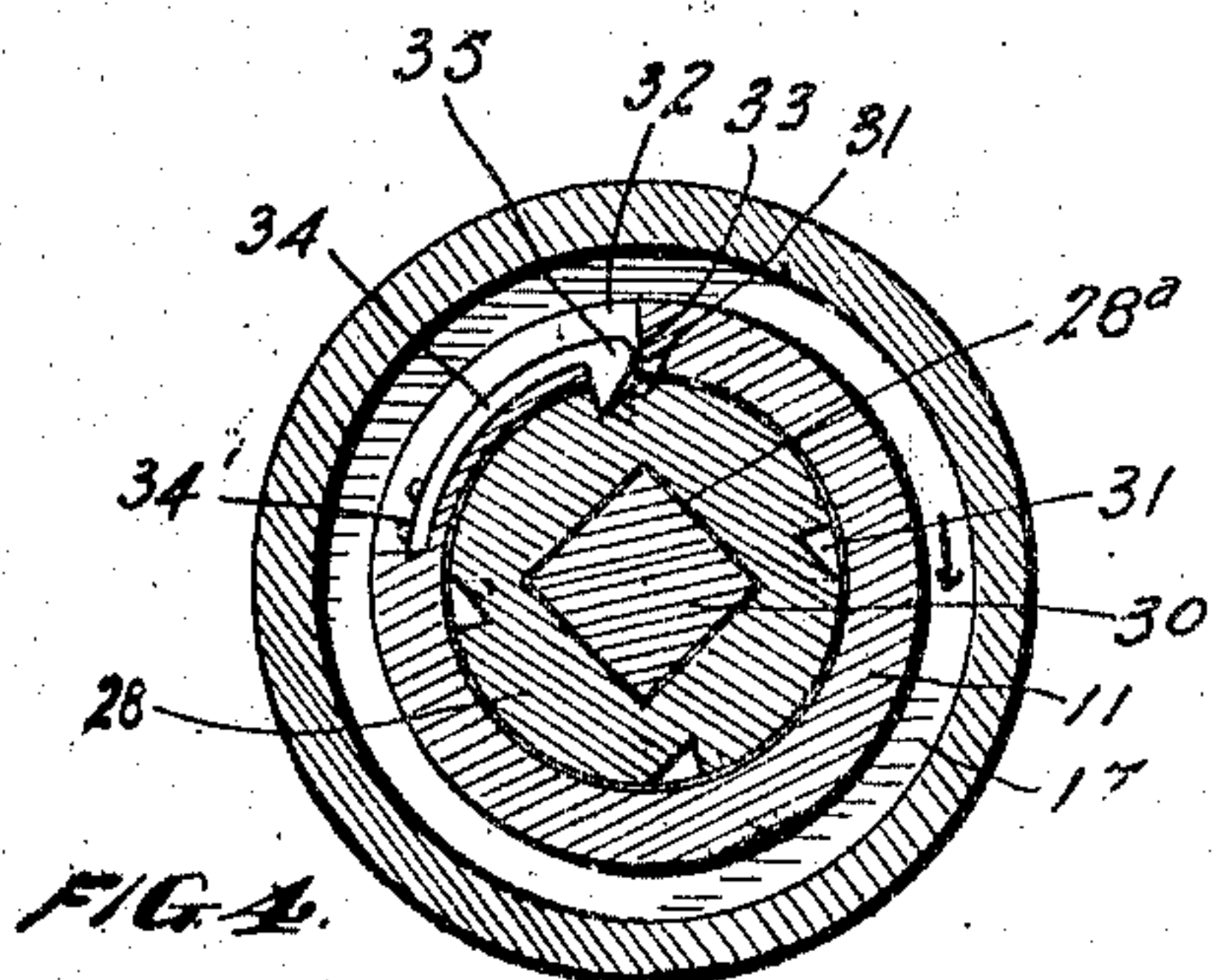
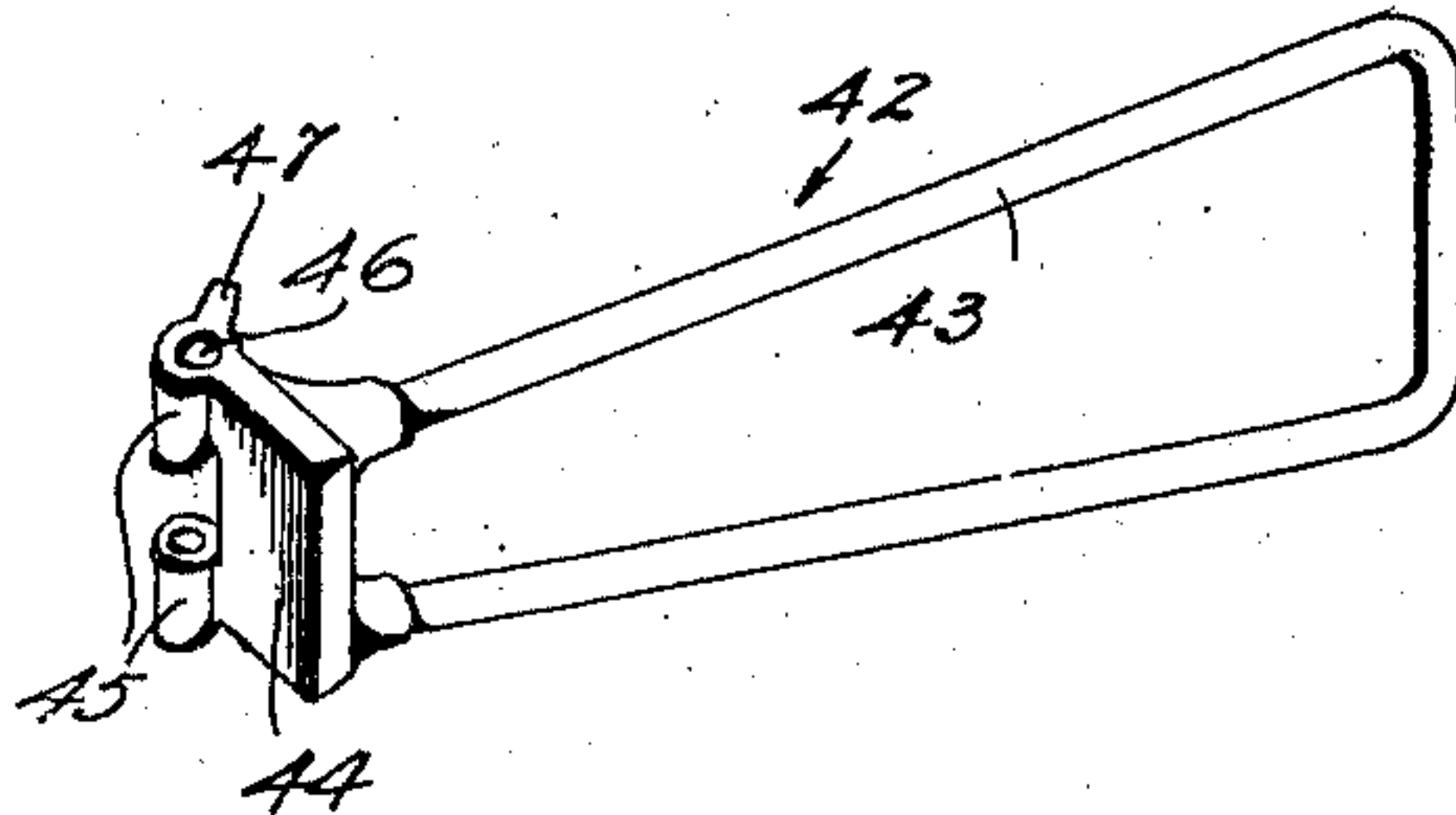


FIG. 5.



WITNESSES

C. H. Davis
B. H. Hishaw

INVENTOR

Cornelius Driver,

by

Attorney

C. L. Parker.

UNITED STATES PATENT OFFICE.

CORNELIUS DRIVER, OF TIMBERVILLE, VIRGINIA.

TURNSTILE.

987,445.

Specification of Letters Patent.

Patented Mar. 21, 1911.

Application filed March 12, 1910. Serial No. 549,059.

To all whom it may concern:

Be it known that I, CORNELIUS DRIVER, a citizen of the United States, residing at Timberville, in the county of Rockingham and State of Virginia, have invented certain new and useful Improvements in Turnstiles, of which the following is a specification.

My invention relates to railway passenger cars and particularly to "pay-as-you-enter" cars provided with novel automatic means for accurately registering the number of passengers entering the same.

An important object of my invention is to provide a car with a turn-stile which may be transferred from one platform of the car to the other, in accordance with the direction in which the car is traveling.

A further object of this invention is to provide a turn-stile which can be rotated in one direction only.

A further object of this invention is to provide a turn-stile embodying registering mechanism, which is mounted with said turn-stile.

A further object of my invention is to provide a turn-stile having a registering mechanism associated therewith, which is actuated by the rotation of the turn-stile, and said turn-stile being so constructed that passengers may pass the same in leaving the car without actuating the registering mechanism.

A further object of my invention is to provide a removable turn-stile comprising a hub to which are mounted arms capable of being swung in one direction only.

The final object of this invention is the provision of a turn-stile which will be proficient in its operation, simple in construction and cheap to manufacture.

One of the most difficult problems in the management of street railway cars is to provide for the proper collection of the fares from the passengers. Conductors are often dishonest and the car companies accordingly lose quite a large percentage of their earnings. Besides from the dishonesty of the conductor, many fares are often not collected, due to the fact that the conductor is too lazy or lacks personal interest in his

business. On account of the above recited difficulties, the "pay-as-you-enter" cars are coming into use, and to an extent lessen the dishonesty and negligence of conductors. The "pay-as-you-enter" cars however do not entirely remedy the trouble, and the problem is still unsolved. I propose to equip a railway car and preferably a "pay-as-you-enter" car with a registering turn-stile so that the number of the passengers entering the cars will be registered and the conductor forced to collect all of the fares or make up the deficiency himself. I am aware that turn-stiles have before been employed in connection with street railway cars, but so far as I am aware have met with little success. A great objection heretofore to the employment of a turn-stile upon a street railway car, is the fact that it prevents passengers from quickly leaving the car in case of accidents. Turn-stiles have heretofore been employed upon street cars to actuate a fare registering mechanism, but this arrangement is complicated and by far too expensive.

I provide a turn-stile to be used upon a "pay-as-you-enter" car, which may be transferred from one platform to the other; thus reducing the expense of such apparatus by making it perform the duties of two turn-stiles. The registering mechanism of my turn-stile is rotated with the hub of the same, and removable from said turn-stile.

In the accompanying drawings forming a part of this specification, and in which like numerals are employed to designate like parts throughout the same, Figure 1 is a plan view of the turn-stile. Fig. 2 is a side elevation of the same. Fig. 3 is a vertical sectional view through the hub of the turn-stile. Fig. 4 is a horizontal section taken on line 4-4 of Fig. 3. Fig. 5 is a perspective view of one of the arms of the turn-stile. Fig. 6 is a plan view of the turn-stile, parts thereof being removed and showing one of the arms arranged in its inoperative position. Fig. 7 is a plan view of a car, showing the application of my invention.

In the drawings illustrating a preferred embodiment of my invention, the numeral 1

designates as a whole an ordinary form of "pay-as-you-enter" car. This car is shown as provided at each end with a platform 2, which is provided upon opposite sides with steps 3. The body portion of the car further comprises ends 4, which are provided with entering and leaving door-ways 5 and 6 as shown. As is customary in the operation of "pay-as-you-enter" cars, passengers are permitted to enter only at the rear platforms; while they may leave by either front or back platform. The car shown in Fig. 7 is supposed to be traveling in the direction of the arrow 7, and the passengers enter and leave the same as shown diagrammatically by the arrows 8, that is they enter by the rear platform and leave by the front platform.

As shown in Fig. 7 a turn-stile 9 is arranged upon the rear platform 1 and is actuated by the passengers entering the car. This turn-stile comprises a cylindrical hub 10, which is provided upon its lower end with a cylindrical reduced portion 11, forming with hub 10 a shoulder 12. The lower end of the reduced portion 11 is closed by means of a cap 13, which is suitably secured to the same by any suitable means, and provided centrally thereof with a circular opening 14. The hub 10 is hollow as shown, being provided with a cylindrical opening 15, and the reduced portion is provided with a cylindrical opening 16, which communicates with opening 15. The hub 10 of the turn-stile is rotatably supported by having its reduced portion 16 removably and rotatably mounted within a cup-like socket 17. This cup-like socket has its upper open end provided with an inwardly extending flange 18, which engages the reduced portion 11, as shown. The lower end of the reduced portion 11 or cap 14, rests upon the bottom-wall 19 of the socket as shown, and this bottom-wall 19 is provided centrally thereof with a downwardly extending tubular sleeve 20, the axial opening of which registers with an opening 21 formed through the wall 19 as shown. The sleeve 20 is arranged upon a vertically disposed rod or support 22 which is fixedly secured upon each of the platforms 3. This sleeve is detachably secured to the rod 22 by means of a removable bolt 23 which passes through openings 24 and 25 formed respectively upon the sleeve 20 and rod 22. The vertically arranged rod 22 is connected as shown with a horizontally arranged rod 26, the outer end of which is supported by a vertical rod 27. The horizontal rod 26 is employed as is shown to divide the platforms 3 into entrance and exit aisles.

Within the reduced portion 11 of the hub 10 is loosely mounted a cylinder 28, which as shown extends above this reduced portion to within the opening 15 of the hub 10. The cylinder 28 is provided near its upper end

with laterally extending lugs 29 which are disposed at 90° apart. The cylinder 28 is provided with an opening 28^a which is square in cross-section and adapted to removably receive the reduced end 30 of the rod 22, which is also square in cross-section as shown.

By the construction so far described it is obvious that the hub 10 is capable of being rotated within the socket 17, while the cylinder 28 is held stationary by the rod 22. It is also seen that the reduced portion of the hub 10 together with the cylinder 28 may be readily removed from the rod 22 when desired. The cylinder 28 is provided upon its periphery with cut out portions or recesses 31, which are triangular in cross-section and disposed at 90° apart. These recesses are in vertical alinement with the projections 29. The reduced portion 11 of the hub 10 is provided intermediate its ends with an elongated recess 32, which communicates at one end thereof with an opening 33, which leads into the opening 16 above referred to. As shown in Fig. 4 a leaf spring 34 is fixedly secured to the reduced portion 11 within the recess 32 as at 34', and this spring is provided at its free end with a head 35 which is triangular in horizontal cross-section and arranged within the opening 33 for engagement within a selected one of the recesses 31. It is to be understood that as the reduced portion 11 is rotated in the direction of the arrow as shown in Fig. 1, the head 35 of the spring 34 will be forced out of the recess 31 within which the same is arranged, and remain in its outer position until the next recess 31 is moved into registration with the opening 33 when the head 35 will accordingly be urged into this next recess. It is obvious that the spring 34 will tend to stop the rotation of the hub 10 at every quarter of a revolution of the same when traveling in the direction of the arrow, and that sufficient force will have to be applied to the hub in order to force the spring 34 outwardly after said hub has been rotated 90°. It is thus seen that the spring 34 does not positively prevent the rotation of the hub 10 in the direction of the arrow, but the same simply makes its rotation more difficult after each movement of 90°. Owing to the shape of the openings 31 and the shape of the head 35 of the spring 34 as shown in Fig. 4 it is obvious that the hub 10 cannot be rotated in a direction opposite to that indicated by the arrow. Within the upper portion of the hub 10 is arranged a registering device designated as a whole by the numeral 36 and shown as having a cylindrical casing. This registering device is supported within the hub 10 by means of an annular flange 37, and the same is covered by a section of glass 38 or other suitable transparent material which is held in

place by means of a ring 39, which in turn is fastened to the upper end of the hub 10 by means of screws 40 or the like. It is to be understood that the registering device 36 may be of any well known form and the same will not be described in detail as no claim will be made thereto *per se*. It is to be understood that the mechanism within the registering device 36 is actuated by a toothed wheel 41, which is shown in Fig. 3 as extending through the bottom wall of the device 36 and disposed to be actuated successively by the projections 29. It is obvious that when the hub 10 is rotated a quarter of a revolution and the cylinder 28 held stationary, the wheel 41 will be urged into engagement with one of the projections 29 and actuate the mechanism within the registering device 36 to record the entrance of passengers into the car.

As shown in Figs. 1 and 2 the hub 10 is provided upon its periphery with arms 42, which are arranged at 90° apart and in vertical alignment with the projections 29. Each of the arms 42 comprises a substantially U-shaped rod 43, which has its free ends fixedly secured to a rectangular plate 44 in the manner shown. This plate is provided upon one of its vertical edges with spaced knuckles 45 which are provided as usual with axial openings 46. The upper knuckle 45 has formed thereon an angularly arranged ear 47 for a purpose to be hereinafter described. Each of the arms 42 is pivotally connected to the hub 10 by virtue of a flat plate 48 formed upon the periphery of the hub and provided with a knuckle 49 adapted to be inserted between the knuckles 45 and be pivotally connected to the same by means of a suitable pintle 50 thus forming a hinged joint. When each of the arms 42 is in its operative position the same is radially arranged with relation to the hub 10 and the plate 44 engages or is in parallel relation to the plate 48 as shown in Fig. 1. By the construction so far described it will be obvious that each of the arms 42 has a knee-joint engagement with the hub 10 and the same cannot be oscillated upon the hub when swung in the direction of the arrow 1. It is also obvious that each of the arms 42 is free to oscillate upon the hub 10 when swung in a direction opposite to the arrow. The hub 10 is provided with springs 52 which are rigidly secured to the same and disposed for engagement with the ears 47. When each of the arms 42 is in its operative position as shown in Fig. 1 the spring 52 will tend to hold the same in such position, until sufficient pressure is exerted upon the arm to overcome the spring 52. When the arm 42 has been oscillated rearwardly as shown in Fig. 6, the spring 52 engages the ear 47 and tends to normally hold the arm in its new position.

As shown in Fig. 7 the turn-stile 9 is arranged upon the rear platform so as to control the entrance aisle of this platform, attention being called to the fact that it is hereinabove stated that the rod 26 divides this platform into entrance and exit aisles. The passengers enter the car by the rear platform only and leave by the front platform. The travel of the passengers through the car is designated diagrammatically by the arrows 8. It is obvious that each passenger will rotate the turn-stile one half of a revolution to enter the door 5, and the correct number of passengers carried by the car may be ascertained by dividing the number displayed by the register 36 by 2. It is to be understood that the vertical rod 22 arranged upon the forward platform 3 has secured thereto a socket 11^a similar to the socket 11 arranged upon the rear platform, whereby the turn-stile may be removed from the rear platform and placed upon the forward platform, which becomes the rear platform upon the return travel of the car where two tracks run into each other at the end of a line. The turn-stile 9 is thus transferable from one platform to another and operates precisely the same upon each platform.

Having fully described my invention, I claim:

1. The combination with the platforms of a car, of means for dividing each of said platforms into entrance and exit aisles, a support arranged upon each of said platforms, a turn-stile removably supported by the support upon one of said platforms, and said turn-stile being adapted to be arranged upon the support upon the other platform.
2. The combination with a plurality of supports, of a hub and arms connected therewith, removably mounted upon one of said supports and adapted to be transferred to and removably mounted upon the other support.
3. In a turn-stile of the character described, a hub, a flat plate formed upon said hub, a second plate, an arm fixedly secured to said second plate, said plates having a hinged engagement with each other, and means for normally retaining said plates in contact with each other.
4. In a turn-stile of the character described, a hub, a plate formed upon the same, a second plate, an arm fixedly secured to said second plate, said plates having a hinged engagement with each other, an ear formed upon said second plate, and a spring carried by said hub for engagement with said ear.
5. In a turn-stile of the character described, a support, a rotatable hub removably mounted upon said support, and arms pivotally connected with said hub, to oscillate in an approximately horizontal plane.
6. The combination with the platform of

BEST AVAILABLE COPY

987,445

a car, of means to divide the same into entrance and exit aisles, a support arranged upon said platform, a turn-stile removably mounted upon said support, comprising a hub, and arms pivotally connected therewith, to oscillate in an approximately horizontal plane.

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

CORNELIUS DRIVER.

Witnesses:

WILLIAM B. MURRAY,
C. L. PARKER.