2 Sheets—Sheet 1.

T. HAWKES & T. F. WATSON.

Step and Turnstile Register for Cars, &c.

No. 197,270. Patented Nov. 20, 1877.

Fig. 1.

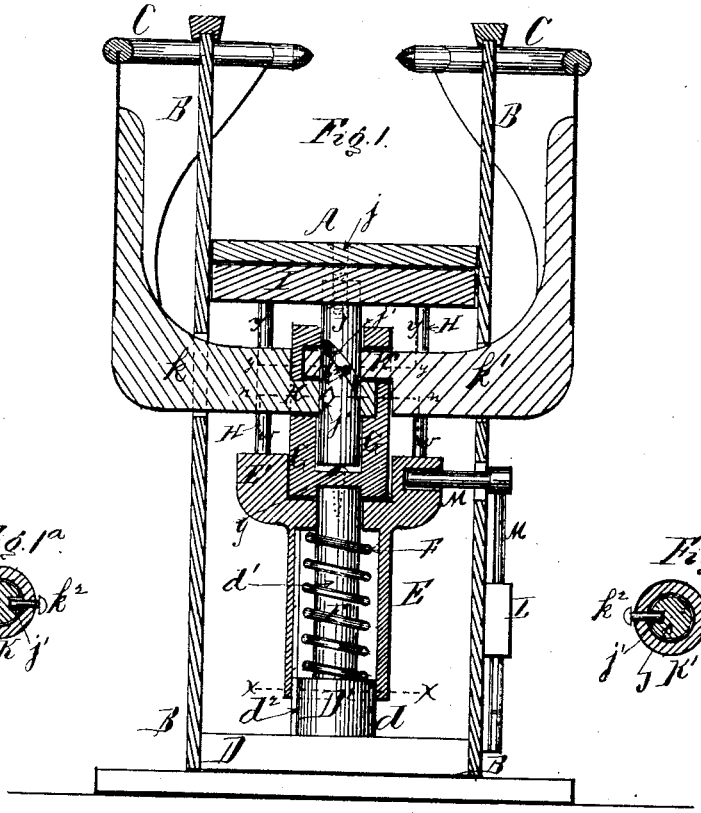


Fig. 1ª.

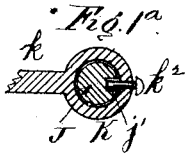


Fig. 1ª.

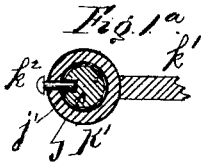


Fig. 11.

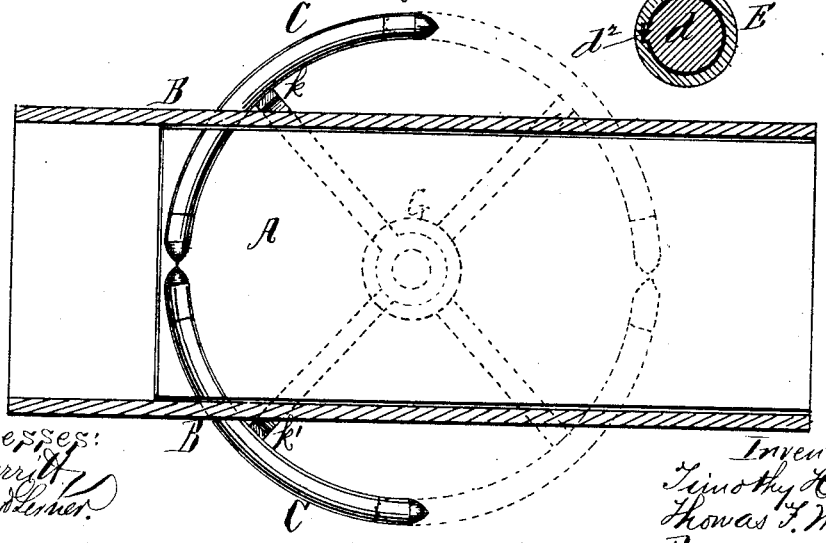
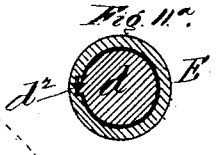


Fig. 11ª.



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2 Sheets—Sheet 2

T. HAWKES & T. F. WATSON.

Step and Turnstile Register for Cars, &c.

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Fig. IV.

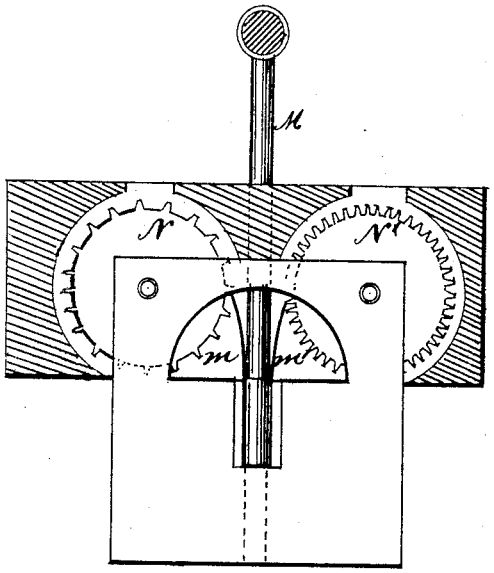


Fig. V.

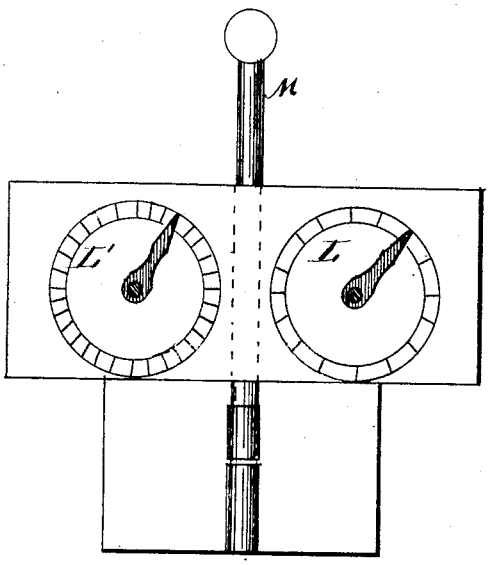
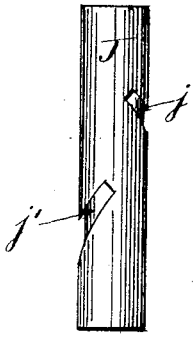


Fig. III.



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UNITED STATES PATENT OFFICE.

TIMOTHY HAWKES AND THOMAS F. WATSON, OF JERSEY CITY, NEW JERSEY.

IMPROVEMENT IN STEP AND TURNSTILE REGISTERS FOR CARS, &c.

Specification forming part of Letters Patent No. **197,270**, dated November 20, 1877; application filed July 31, 1877.

To all whom it may concern:

Be it known that we, TIMOTHY HAWKES and THOMAS F. WATSON, of Jersey City, in the county of Hudson and State of New Jersey, have invented a new and useful Improvement in Apparatus for Registering Passengers, or admissions to any public conveyance or place; and we hereby declare the following to be a full and clear description of the same.

This invention has for its object the registration, by one and the same apparatus, of half-fares and full fares; and it consists of an automatically-operating foot-board, which will be moved by the weight of the person treading on it a distance coinciding with the weight of a full fare or a half-fare, and the said foot-board is connected with an automatically-operating attachment, which closes the passage-way, and also with a registering device, by which the number of whole and half fares is recorded.

The invention will be readily understood by reference to the accompanying drawings, of which—

Figure I is a transverse sectional elevation of the improved apparatus. Figs. I^a are plan sectionals taken on lines *y y* and *n n* of Fig. I. Fig. II is a plan view of the same. Fig. II^a is a plan sectional view of the spindle, taken on the line *x x* of Fig. I. Fig. III is an elevation of the spirally-grooved spindle that imparts motion to the stop-arms that close the passage-way. Fig. IV is an elevation of the rear part of the registering dial-plate, showing the mechanism for operating the registering device. Fig. V is a front elevation of the parts shown in Fig. IV.

The apparatus is to be placed in the floor over which persons are to walk to the inclosure to which they are to be admitted, and consists of a platform, A, on which they are to tread; side rails B, which shall limit the width of the walk, and also the width of the aforesaid platform; stop-arms C, which shall close the passage-way, both before and behind each person admitted; and, also, a base, placed below the platform A, and containing several integral parts, that form, respectively, the operative mechanisms for the platform A, the stop-arms C, and the registering device.

The parts of the apparatus below the floor A are built upon a bed-plate, D, that is to be securely fixed to some permanent part of the structure to which the apparatus is to be applied. Rising from the top surface of this bed-plate, and fixed to it, is a spindle, D′, which is formed of a base, *d*, and a spindle proper, d^1, both parts being cylindrical in form, and the base having a lug, d^2, upon one of its sides, the use of which will be presently described.

A cylindrical slide, E, having a somewhat enlarged head, E′, is placed upon the spindle D′, an annular opening being formed between E and the spindle d^1, in which is placed a spiral spring, F, the office of which is to press the said slide E habitually upward to the limit of its motion.

The interior cavity of the base of the slide E is just sufficient to slide easily on the base *d* of the said spindle, and the lug d^2 will enter into a correspondingly-formed groove in the base of the slide E, and prevent its rotation, while it is left free to receive a slight vertical motion.

A guide-piece, G, cylindrical in form, is placed concentrically upon the top end of the head E′, into which a cavity may be formed, the better to secure it in place, and a screw, *g*, passing down through the bottom part of G, will enter the top end of the spindle d^1, into which it will be threaded, and thus the parts G and D′ will be securely fixed together, the base of the piece G resting upon the top end of the spindle D′, as shown in Fig. I, while the slide E and its attachments are allowed a free vertical play.

To the top side of the head E^1 are fixed the bases of four or more vertical rods, H, to the top ends of which is fixed a head-plate, I, to the top side of which the platform A is to be securely fastened.

The length of the rods H is such as to allow a vertical motion of, say, one or two inches, more or less, between the head E′ and the top plate I for the guide-piece G, and this distance will control and limit the motion of the platform A and its attachments.

A spindle, J, (shown in elevation, in detail, in Fig. III,) is seated in a bore placed concentrically in the top end of the guide-piece G, and the top end of this spindle is fixed to the bottom side of the plate I, by means of a screw

or bolt, *j*, so that the said spindle J will move up and down with the said plate I and its attached platform, the length of the seat in G permitting this vertical motion of J.

In the opposite sides of the spindle J there are spiral grooves *j'*, as shown in Fig. III. There are two hubs, K and K', placed on the spindle J, one above the other, as shown in Fig. I. From these hubs curved arms *k* and k^1 pass outwardly through openings in the sides of the piece G, and thence upwardly, so as to form attachments for the segmentally-curved side rails B.

The apertures in the sides of the guide G are such as to hold the arms *k* and k^1 in fixed vertical positions relatively with regard to the said guide-piece G, but at the same time permitting them a limited radial movement.

Tappets k^2 are fixed in the hubs K and K', so as to enter the grooves *j*, (see Fig. I[a],) before described, and as the platform A is stepped upon and pressed down by the weight of the individual upon it the spiral grooves *j* will act upon the tappets k^2, and the hubs K and K', so as to turn them and their attached arms B, so that the said arms will first close the passage in front of the platform A, as shown in Fig. II, and then, when the person being admitted is upon the platform, the said arms will close the passage-way behind him, thereby preventing any one from crowding prematurely upon the platform.

As a person passes off from the platform the spring F will act to raise the platform A up, and to restore all of the operative parts to their normal condition, ready for the reception of the next passenger.

The registering apparatus consists of two dials, L and L', the first of which is to be used to indicate the number of full fares entered, and the other one the number of half-fares entered. This device is to be attached to some convenient part of the apparatus, and it will be operated by the actuating-bar M, which may be attached to the head E', or to any of the other vertically-moving parts of the apparatus. The lower end, at the bar M, carries two spring-pawls, *m* and *m'*, which actuate two cog-wheels or ratchets, N and N', attached, respectively, to the axles of the indicator-fingers of the two dials L and L'.

Two pawls will be used to hold the said ratchets to the positions to which they may be moved by the pawls *m* and *m'*.

The cogs or teeth on the wheel N are just twice the distance apart that they are on the wheel N', and the parts are so arranged that when a full fare steps upon the platform A the bar M will be pressed down far enough to move the wheel N the distance of one cog or tooth, and the finger or pointer on the dial L will be moved forward so as to count one.

If the weight on the platform A is only that of a half-fare, the bar M will only be depressed enough to move the wheel N' one notch ahead, thereby indicating on the dial L' the admission of one half-fare. The bar M, however, in descending far enough to move the wheel N forward one notch, will move the wheel N' forward two notches; therefore the dial L will show both the number of full fares and the number of half-fares entered, and in order to ascertain the correct number of each class of admissions made, the registry of the dial L must be subtracted from the dial L', and the remainder will be the number of half-fare admissions.

The number of full-fare admissions will be correctly indicated on the dial L.

Having described our invention, we claim—

1. The platform A, plate I, rods H, slide E E', the spring F, the fixed base D D', and the registering device M N N' L L', constructed and operated substantially as and for the purpose set forth.

2. The guide-piece G, the spindle J, the hubs K and K', with their tappets k^2 and arms *k* and k^1, and the rails B, arranged and operated substantially as and for the purpose set forth.

3. The spindle J, with its spiral grooves *j'*, and the hubs K and K', and their tappets k^2, constructed as and for the purpose set forth.

This specification signed this 19th day of July, 1877.

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