(No Model.) 4 Sheets—Sheet 1.

F. O. DESCHAMPS.

STREET CAR.

No. 307,447. Patented Nov. 4, 1884.

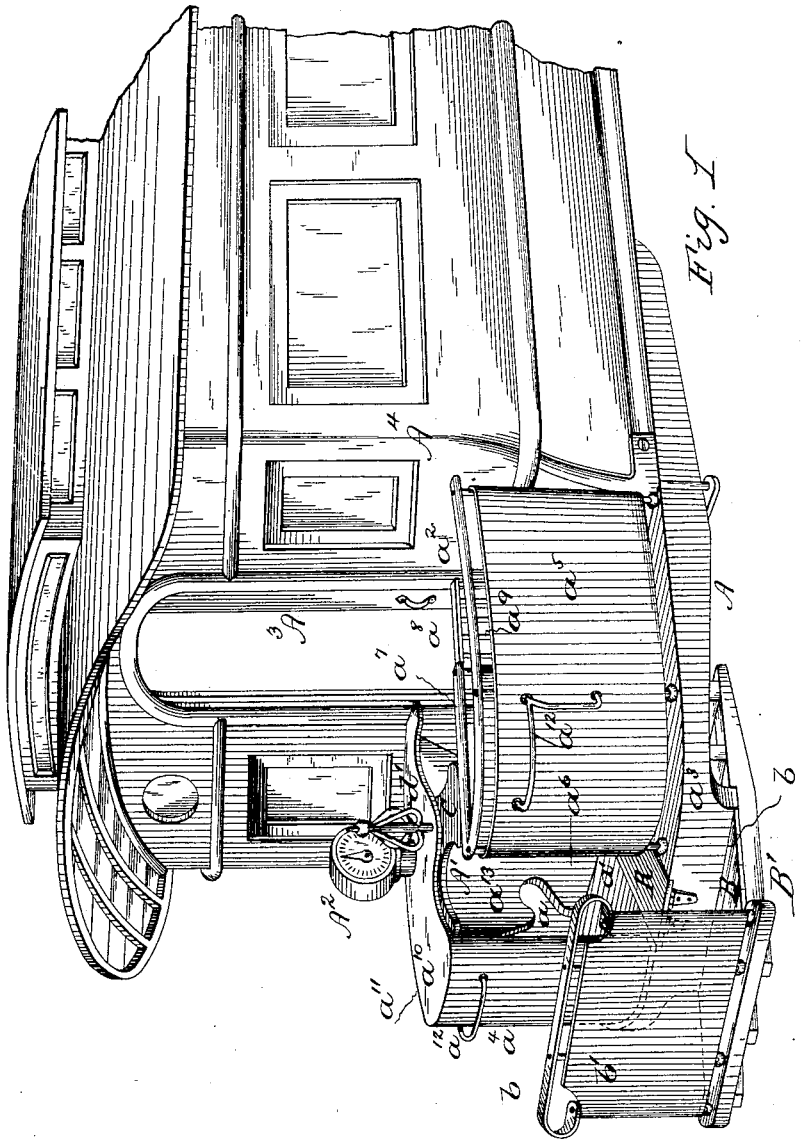

Fig. 1.

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(No Model.) 4 Sheets—Sheet 2.

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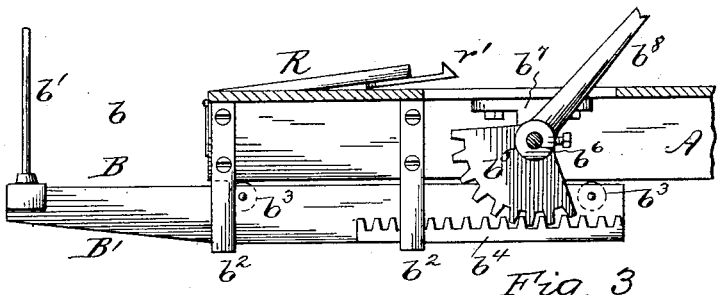


Fig. 3

Fig. 2

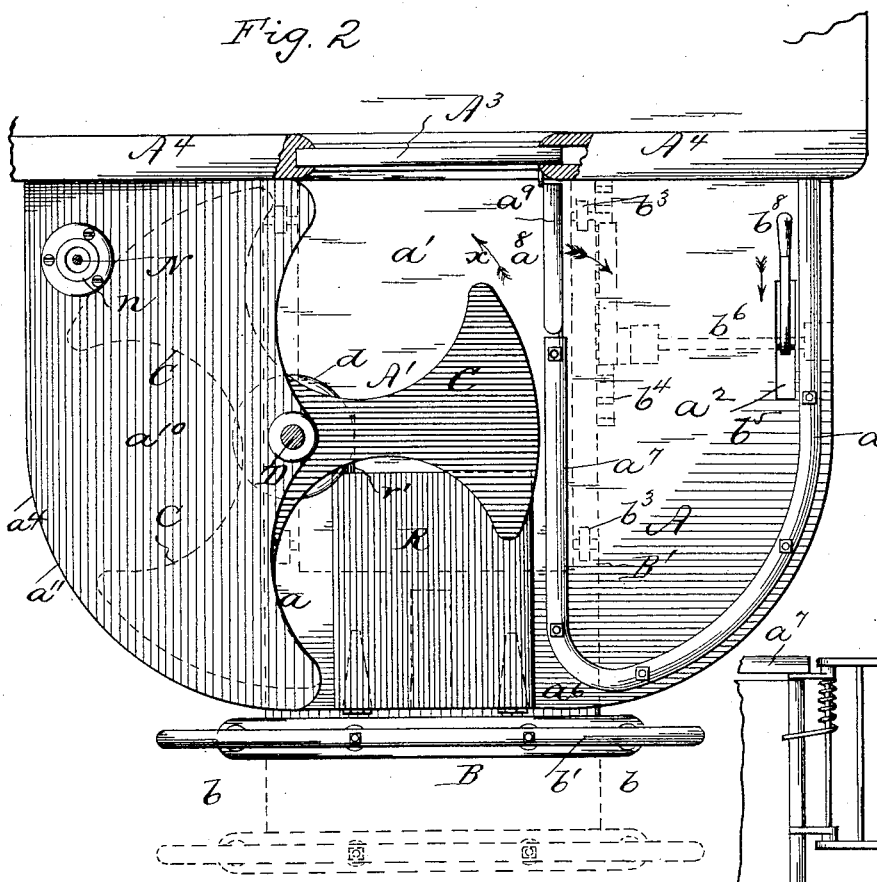
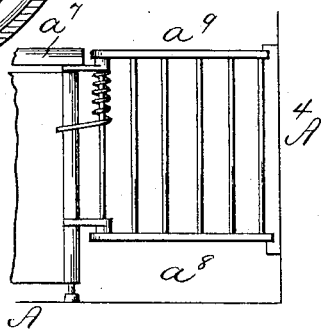


Fig. 4



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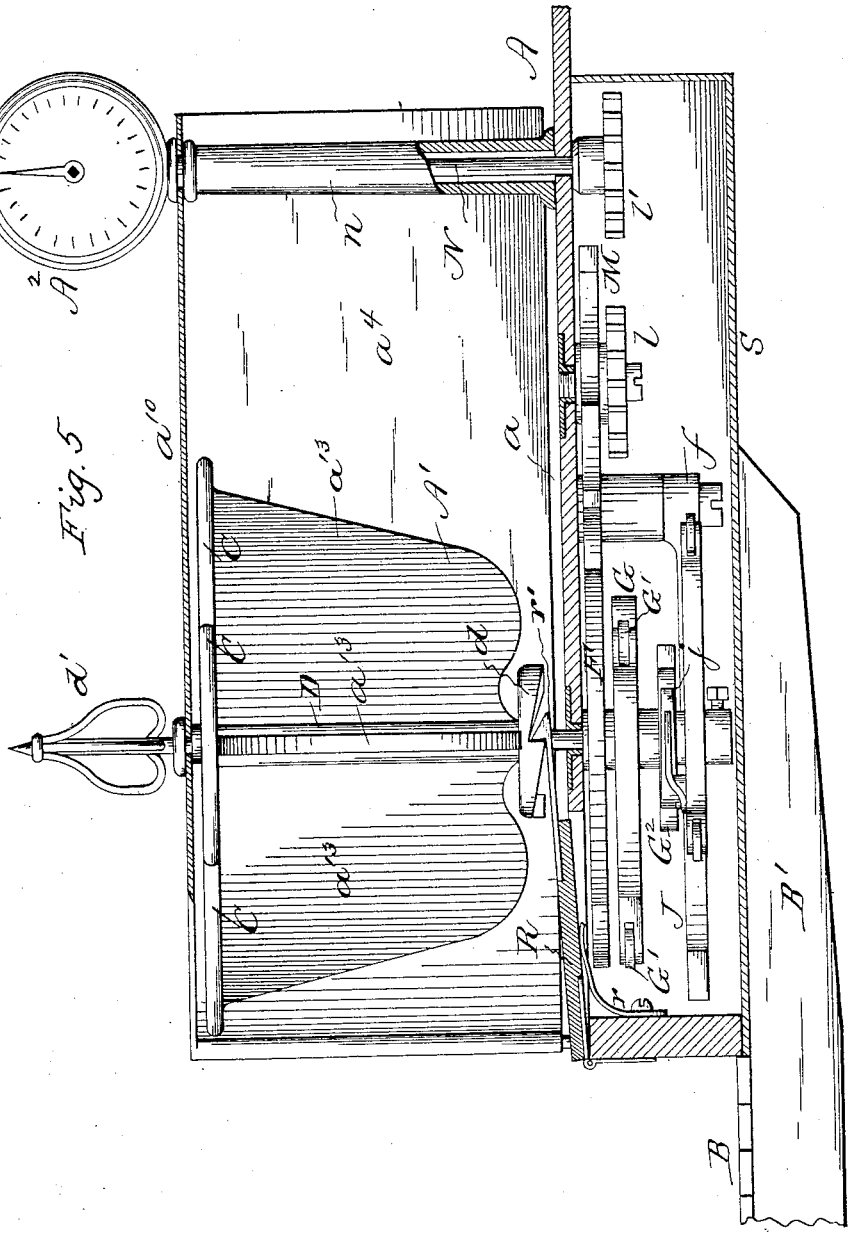

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(No Model.) 4 Sheets—Sheet 4.

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STREET CAR.

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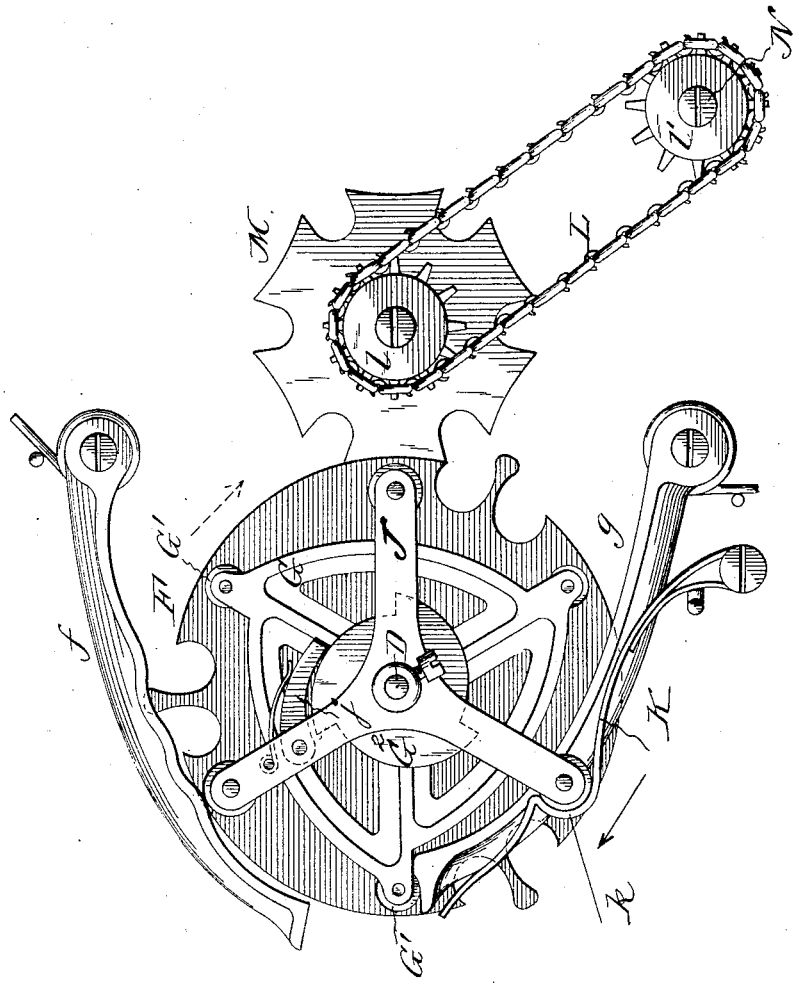

Fig. 4.

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UNITED STATES PATENT OFFICE.

FRANCIS O. DESCHAMPS, OF PHILADELPHIA, PENNSYLVANIA.

STREET-CAR.

SPECIFICATION forming part of Letters Patent No. 307,447, dated November 4, 1884.

Application filed December 27, 1883. (No model.)

To all whom it may concern:

Be it known that I, FRANCIS O. DESCHAMPS, a citizen of the United States, residing at Philadelphia, in the county of Philadelphia and State of Pennsylvania, have invented certain new and useful Improvements in Street-Car Turnstile and Registering Mechanism, of which the following is a specification, reference being had therein to the accompanying drawings, wherein—

Figure 1 is a perspective showing a part or the rear end of a street-car with my improvements. Fig. 2 is a plan, partly sectional, of same. Fig. 3 is a detail sectional elevation. Fig. 4 is a like elevation. Fig. 5 is a vertical longitudinal section, and Fig. 6 is an inverted plan of mechanism interposed between the turnstile and register.

My invention has relation to street or tramway cars having turnstile and registering mechanism; and it has for its objects to so arrange the car-platform and locate the turnstile thereon that accurate registration of the passengers is obtained, false registration and what is known as "beating the register" prevented, and safe and free access provided to and from the car.

My invention has for a further object to so simplify and improve the construction and arrangement of the parts of the turnstile-register for which Letters Patent of the United States were issued to me May 6, 1879, and numbered 215,104, that it may be applied to the rear end or platform of the street-cars now in use without necessitating expensive alterations or materially changing the form of the same; to lock the forward movement of the turnstile, or prevent it being accidentally or designedly turned in the required direction for operating the register, when passengers are not passing through it to gain access to the car, the turnstile being free at all times to revolve in an opposite direction, or that which permits egress from the car; to provide the platform with an apartment or inclosure which is located on one side of and extends from end to end of the platform, for the use of the conductor; the provision of a straight inclosed central avenue or passage-way across the platform for travel through the turnstile in passing into or departing from the car; to furnish the platform with a drop-step having lateral openings or entrances and exits, and means for moving or sliding the step to and from the platform to bar or close its passage-way and prevent overcrowding of the car and back platform riding.

In the drawings, A represents the rear or other platform of a street-car or other vehicle, A′ the turnstile, and A^2 the register.

In my aforesaid patent the shaft or spindle of the turnstile is shown located in the median line of the platform or its extension. Such arrangement involves a waste of platform-space, furnishes a tortuous passage-way through the stile to the car, and provides no apartment or space on the platform for the sole use of the conductor.

In employing a turnstile upon street-cars it is desirable to maintain as near as possible the present size of platforms; to have a straight passage-way or entrance across the platform; and the latter should be so arranged that the conductor can, without passing through the turnstile, obtain access to the extreme rear end of the platform, or get to the rear of the stile for purposes of observation and for imparting information to incoming passengers as to whether or not they are getting on the desired car before they pass through the turnstile and are registered. To obtain these desirable objects I place the shaft D of the turnstile to the one side, *a*, of the platform, so that the body of the former will not occupy the entire area of the latter, but will leave a central space, *a*′, and an opposite open side, a^2.

I prefer to make the platform with rounded end a^3, having side inclosures or railings, a^4 a^5, with central opening, a^6, leading into space *a*′. The railing a^5 on the side a^2 is continued across the platform at a^7, or bounds one side of the central space, *a*′, to near the end A^4 of the car, leaving an interval or opening, a^8, which, if desired, may be closed by a spring or other automatically-closing gate, a^9.

The turnstile is so arranged that its arms C revolve close up to but do not touch the adjacent end wall, A^4, of the car, and are covered by a roof or sheathing, a^{10}. By such construction it will be noted that the main portion of the turnstile is within an inclosure, a^{11}, on the side *a* of the platform; that only one of its

arms projects into the space a', and must be moved before access to or departure from the car can be effected; that said space a' forms a straight passage-way through the turnstile; that the rail a^7 forms a guard for preventing passengers slipping by the turnstile and entering the car without passing through the stile and being registered, and that the railed space a^2 forms an apartment for the sole use of the conductor, affording him access to the extreme rear end of the platform and entrance to the car, thereby dispensing with his use of the turnstile, avoiding false or the registration of more passengers than actually pass into the car, and all interference with the freedom of their movements through the turnstile.

The conductor leaves apartment a^2 through the gate a^9 or passage-way a^8 to gain access to the interior of the car for collecting fares or other purposes, and returns in the same way, said gate being placed at the passage a^8 to prevent passengers thoughtlessly or designedly stepping into the conductor's apartment for purposes of riding upon the platform A, or otherwise. If desired, however, the gate a^9 may be dispensed with.

The platform A is provided with a drop-step, B, which may be of any suitable construction, the use of this step depending upon the elevation of the platform A above the road-bed. I prefer to so arrange said step that it will have side openings, b, for the entrance and exit of passengers, and a rail or guard, b', arranged transversely to the car. The step B may, if desired, be permanently fixed to a secondary platform, B', which is bolted or otherwise firmly secured to platform A, as shown in Fig. 1; or it may be loosely supported in hangers b^2, and be provided with anti-friction rollers b^3, and a rack, b^4, which engages with a segment or wheel, b^5, secured upon a shaft, b^6, which has its bearings in boxes b^7, and is provided with an operating-lever, b^8. By oscillating the latter to and fro, which may be done by the conductor or other attendant of the car, the step B is reciprocated to and fro, opening the passage-way over the step for admission to or departure from the car, as indicated by dotted lines, Fig. 2, or bringing its rail b' up against the entrance to the central passage-way a', as shown in full lines, said figure, to close the entrance to the turnstile. The last-named movement is made in the intervals between the ingress and egress of passengers, to prevent riding upon the step, or, whenever the car is full of passengers, to avoid overcrowding.

I have shown a rack-and-segment device or gear for moving the step B; but it is obvious that various other forms of mechanism may be substituted therefor and accomplish the same result. If desired, any other form of step may be used in lieu of the one shown and above described. Upon the curved ends of the railings are placed hand or safety rails a^{12}, for the convenience of the passengers.

At the entrance of the passage-way a', and pivoted or hinged to the platform A, is a tilting board or tread-plate, R, which is so located that a passenger cannot gain admittance to said passage-way without stepping upon and tilting or depressing plate R. It is provided with a spring, r, which acts to elevate the forward end of plate R above the floor of platform A, and with a finger or catch, r', which engages with the teeth of a ratchet-wheel, d, firmly secured to the turnstile-shaft at its lower part or just above the platform-floor, as shown more plainly in Fig. 5. The engagement of finger r' with ratchet-wheel d locks the turnstile or prevents it being turned, either accidentally or designedly, in the direction of arrow x, Fig. 2, when passengers are not passing through it, such direction being the one required to effect a movement of the register and entrance to the car; hence in the intervals between the admission to the car of the passengers the turnstile cannot be rotated in its forward direction. When, however, an entering passenger passes into the passage-way a', treads upon and depresses the plate R, the finger r' is disengaged from ratchet-wheel d, whereby the turnstile is unlocked, or is free to be revolved by the entering passenger passing through it. The plate R is so arranged with reference to the turnstile that such disengagement is effected before the passenger has advanced far enough into the passage-way a' to take hold of the turnstile. If desired, however, the plate R may be so arranged that the disengagement between it and the turnstile is made at the moment the passenger presses against or gives the initial movement to the stile. As soon as the passenger passes through the stile the reaction of spring r elevates plate R to effect the locking of the stile. The latter has the outer ends of its arms enlarged and its spaces arranged as set forth in my former patent. It is provided with radial partitions a^{13}, extending from its arms down to the ratchet-wheel d, for guards, and to prevent surreptitious passing through the stile. Its shaft at its upper end is furnished with ornamental radial or other hand-rails, d', for the passengers to take hold of as they travel through the stile, to avoid being thrown against the sides of the passage-way a' by the sudden jolting or swaying of the car.

Beneath the platform A, and mounted upon the turnstile-shaft D, are the disk F, ratchet-wheel G, three-armed or triangular plate J, spring-arm f, and spring-pawl g, all constructed and arranged as described in my aforesaid patent, except that the wheel G has anti-friction rollers G' for contact with the spring-pawl g, and it is not provided with spring-arms; but in lieu of the latter it has an integral or fixed ratchet-wheel, G^2, which revolves therewith and engages with a spring-pawl, j, pivoted to one of the arms of plate J, as plainly shown in Fig. 6. The function of the ratchet-wheel G^2 and pawl j is precisely

similar to that described in my said patent for the spring-arms—to wit, to cause the ratchet-wheel G and disk F to turn with the plate J when moved by the turnstile in the direction of dotted arrow, Fig. 6, in order that the forward movement of the stile may be transmitted to the register, said pawl *j* slipping by the teeth of ratchet-wheel G^2 so as not to move it or the disk F when the plate J is reversely moved by the backward rotation of the stile, the ratchet-wheel G^2 and pawl *j*, herein shown and described, being preferable, as they are more durable and have a more positive action than that of the spring-arms referred to.

The disk M, instead of being connected directly to register-operating rod N, as shown in my said patent, is journaled to the platform and is in gear with rod N by means of a chain, L, and sprocket-wheels *l l'*, respectively secured to the disk M and rod N. The operation in both cases is exactly the same, the advantage of the latter construction being that it affords greater latitude for disposing the register in the desired position upon the car or its platforms. The rod N is inclosed in a tubular column, *n*, firmly bolted to platform A, and extends above the sheathing a^{10}, as shown in Fig. 5. Upon the top of column is secured the register, which may be of any suitable or desired construction, preferably arranged so that its dial will face the conductor's apartment. Inclosing the rod N in column *n* prevents access to said rod for the purpose of tampering with the register.

The functions of the disks F M, ratchet-wheel G, plate J, spring-arm *f*, and spring-pawl *g* are the same as those described for them in my aforesaid patent, and need not, therefore, be herein redescribed; but it will be noted that these disks and ratchet-wheels are independent of tread-plate R and spring pawl or catch *r'*, which simply holds or locks the turnstile in its forward movement, while said disks lock the registering mechanism independently of the tread-plate.

K represents a spring-arm, having a notch or indentation, *k*. Said arm is secured to the platform A, so that it is in the plane of the plate J, in order that its arms will come in contact therewith and pass into and out of the notch *k*, (see Fig. 6,) for the purpose of preventing recoil of the turnstile on its backward rotation before it is in position to receive another or succeeding passenger, and avoiding a like result on the forward rotation of the turnstile before it has effected a movement of the register.

I do not claim in this application the above-described improvement in the register, its locking mechanism, and means for preventing the recoil of the turnstile, as I intend making them the subjects-matter of separate applications.

I have shown and described my improvements applied to a street-car having a sliding or movable door, A^3; but it is obvious that they may be used upon other forms of vehicles, at the entrance of public halls, theaters, or other places. So, too, any form of turnstile and register may be employed.

The gearing and mechanism interposed between the turnstile-shaft D and register-operating rod N are inclosed in a casing, S, to exclude dirt and dust.

What I claim is—

1. A street-car platform having a straight central passage, upon one side of which is a fixed guard-rail, and on the other a turnstile, the arms of which pass through said passage, substantially as described.

2. A street-car platform having a turnstile-register, a central longitudinal passage-way, through which the arms of the stile revolve, a guard-rail or partition on one side of said passage-way, and a side apartment extending from end to end of the platform, substantially as shown and described.

3. A street-car platform having a turnstile-register, a passage-way through the stile, a side wall or guard for the latter, and a pivoted or a tilting board for locking the stile in its forward movement, substantially as shown and described.

4. A street-car platform having a turnstile-register, a central passage-way, one of the sides of which forms a guard for the arms of the turnstile, and a side apartment with opening to the central passage-way, substantially as shown and described.

5. A street-car platform having a turnstile-register, a central passage-way, and a conductor's apartment having communication with said passage-way, substantially as shown and described.

6. A street-car platform having a turnstile-register, a passage-way through the stile, and a conductor's apartment with spring or self-closing gate, substantially as shown and described.

7. A street-car platform having a turnstile-register, a central passage-way, an adjacent side apartment having a dividing wall or guard, and a drop-step located at the entrance of the central passage-way, substantially as shown and described.

8. A street-car platform having a turnstile-register, and a drop-step with lateral entrances and a transverse guard-rail, substantially as shown and described.

9. A street-car platform having a rounded end, a turnstile-register, and a drop-step with lateral openings, and means for moving said step to and from the platform, substantially as shown and described.

10. A street-car platform having a turnstile-register, a central passage-way, a side apartment, a drop-step with lateral openings and guard-rail, and means for moving said step to cause its guard-rail to act as a gate for closing the entrance to said passage-way, substantially as shown and described.

11. A street-car platform having a turnstile-

register, a central passage-way communicating with an inclosed side or conductor's apartment, and a drop-step with lateral openings and transverse guard-rail, substantially as shown and described.

12. A street-car platform having a turnstile-register, a central passage-way, a conductor's apartment, and lateral entrances to said passage-way, substantially as shown and described.

13. A street-car platform having a turnstile-register, means for locking the turnstile in its forward movement, and a drop-step with lateral openings and transverse guard-rail, substantially as shown and described.

14. A street-car platform having a turnstile-register, a central passage-way provided with a tilting board for locking the turnstile in its forward movement, a conductor's apartment, and a drop-step with lateral openings and transverse guard-rail, substantially as shown and described.

15. In combination with platform A, the turnstile A′, having guard-rails d', substantially as shown and described.

16. In combination with platform A, the turnstile A′, having ratchet d, and means for engagement with said ratchet to lock the stile in its forward movement, substantially as shown and described.

17. In combination with platform A, the turnstile A′, having ratchet-wheel d, and pivoted board R, having latch or finger r' and reaction-spring r, substantially as shown and described.

18. The platform A, having railings a^5 a^7, with opening a^8, central space, a', and turnstile A′, substantially as shown and described.

19. The platform A, having railing a^4, roof or sheathing a^{10}, inclosing a turnstile, A′, central passage, a', and apartment a^2, substantially as shown and described.

20. The combination, with the platform A, of a turnstile, A′, register A^2, means for locking the turnstile in its forward movement, devices for transmitting the rotation of the turnstile to the register and locking the latter during the intervals of non-registration, and mechanism for preventing the recoil of the turnstile, substantially as shown and described.

21. A street-car platform having a turnstile-register, a rounded or curved end, a^3, with guard-rails a^{12}, and drop-step B. with lateral openings and transverse rail, substantially as shown and described.

22. A turnstile-register, combined with a platform, means for operating the register when the turnstile is rotated, and independent mechanism for locking the latter in its forward movement, substantially as shown and described.

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

FRANCIS O. DESCHAMPS.

Witnesses:
S. J. VAN STAVOREN,
CHAS. F. VAN HORN.