

S. B. CRANE.
 Passenger Recorder.
 No. 214,628. Patented April 22, 1879.

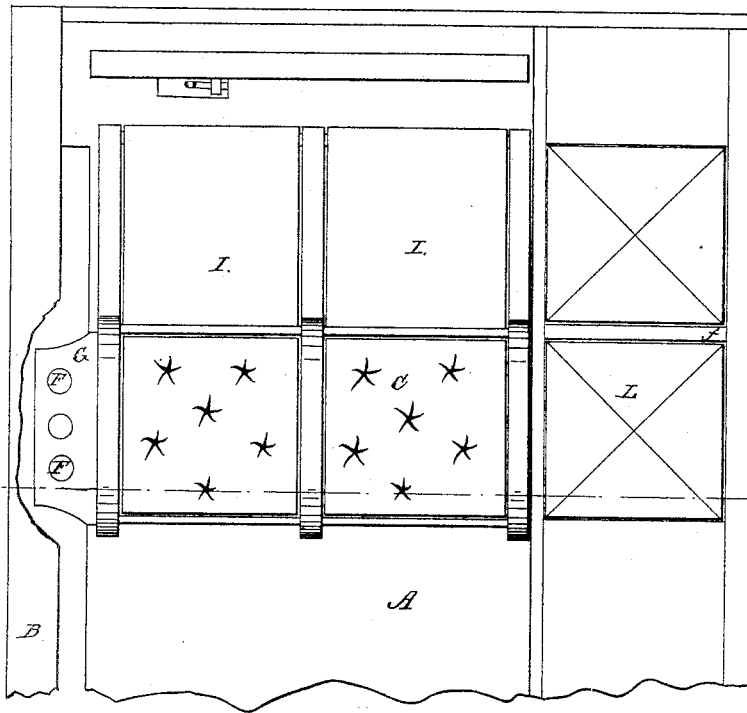


Fig. 3.

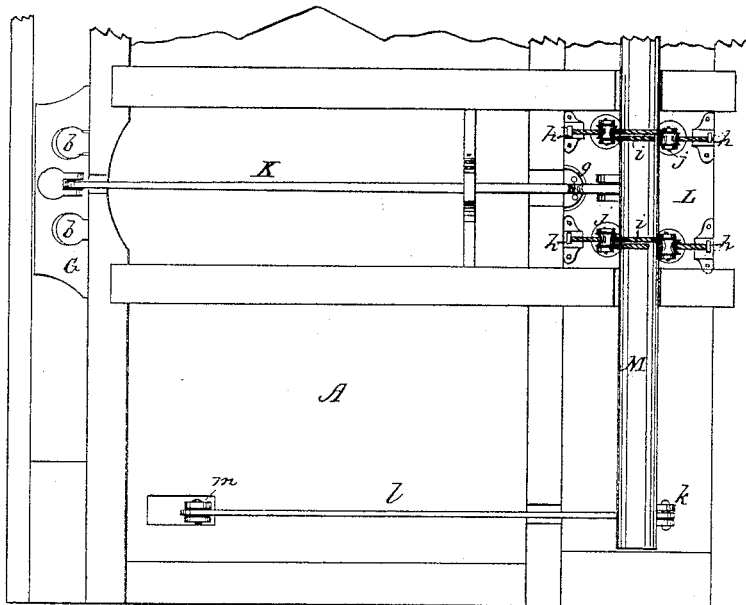


Fig. 4.

WITNESSES:

Edw. A. Byrn
John C. Kemm

INVENTOR:

S. B. Crane

BY

Samuel B. Crane

ATTORNEYS.

UNITED STATES PATENT OFFICE.

SYLVANUS B. CRANE, OF DAVENPORT, IOWA.

IMPROVEMENT IN PASSENGER-RECORDERS.

Specification forming part of Letters Patent No. **214,628**, dated April 22, 1879; application filed February 7, 1879.

To all whom it may concern:

Be it known that I, SYLVANUS B. CRANE, of Davenport, in the county of Scott and State of Iowa, have invented a new and Improved Passenger-Register; and I do hereby declare that the following is a full, clear, and exact description of the same, reference being had to the accompanying drawings, forming part of this specification, in which—

Figure 1 is a vertical transverse section of a portion of the car through the line *x x*, Fig. 3. Fig. 2 is an inside sectional view. Fig. 3 is a plan view. Fig. 4 is a view of the underneath side of the car-floor.

My invention is an improvement in passenger-registers for cars, omnibuses, &c. It is an improvement in that class of automatic registers in which the step of a car, the car-seat, or the foot-rest is made movable, so that when the weight of a passenger is put thereupon the seat, step, or rest, as the case may be, is made to yield, and in yielding either actuates a recording device direct or closes an electrical circuit, which actuates a recording device.

My invention is designed to be used in connection with an electric circuit, and it contemplates the registering of not only such passengers as are seated, but also those that may be standing.

To this end it consists in the specific construction and arrangement of the seats with levers, balancing-weights, and contact-points, and also in the provision of yielding squares or platforms, arranged in the floor of the aisles, in combination with connecting mechanism, such as the seats are provided with, which squares or platforms may be either locked rigidly, so that they are inoperative, as will be required at times, or be allowed to be yielding to the weight of the person standing on each, as hereinafter more fully described.

In the drawings, A represents the floor, and B the side, of a car to which my devices are shown applied. C is one of a series of car-seats. Beneath each of these car-seats are arranged, longitudinally therewith, two levers, D D', of which D is a long, and D' a short, lever. Each of these levers has a rigidly-attached cross-bar, E, which cross-bars are constructed upon the principle of the lever of a

platform-scale, or in any other suitable manner, and are supported in bearings in the lower part of the car-seat frame, so as to constitute a fulcrum. These levers terminate respectively beneath the two divisions of the seats of the car, the longer lever beneath the inner division, and the shorter lever beneath the outer division, next to the window. Said car-seats are loosely arranged in the framework in guides, and at their centers upon their lower sides are connected respectively to the ends of the two levers by plates *a*, screwed or otherwise fastened to the bottoms of the car-seats, which plates have two downwardly-projecting lugs, between which the ends of the levers are pivoted. The outer ends of these levers are provided each with pivoted cups or holders *b*, or with a common pivot or hinge, which latter carry the weights that counterbalance the car-seats. Said weights are constructed in the form of elongated vertical rods F F, whose lower ends are seated in the holders *b*, and which rods, after passing up through guide G, extend to a point between the car-seat and window, where they operate upon contact-points to close the electrical circuit.

In connection with these rods, other weights may be used, if necessary.

By making the weights in the form of the elongated rods, it will be seen that they serve the double function of holding the car-seat in its elevated position and connecting the ends of the levers with the circuit controlling the recording apparatus.

As this recording apparatus may be of any approved form, it will be sufficient to describe how the levers and weights open and close the circuit.

H H', Fig. 2, represent the fixed terminals of an electric circuit which passes through a battery and recording-instrument.

To the terminal H is attached a metal spring, *c*, bearing a face which is normally out of contact with the other terminal, H', and this spring is located directly above the weight of the seat for which it was intended.

Now, it will be seen that, the seats being held up to their highest position by the weights, as soon as a passenger seats himself, his own weight, together with that of the seat,

overbalances the counter-weight, and the seat accordingly sinks down a short distance, while the weight upon the other end of the lever rises, and, in forcing spring *c* against the terminal *H'*, closes the electrical circuit, so that the recording-instrument, when thrown into circuit by the conductor, indicates the occupancy of the seat. As soon as the passenger leaves his seat, the weight again raises the seat and opens the circuit, which action may be made available by a proper adjustment of the recording-instrument, to indicate the distance which the passenger has traveled.

To render the closing of the circuit more positive, and to provide for the registration of persons who may be standing between the seats, foot-rests *I I* are provided. These are in the nature of wide boards extending from the middle of one seat to the middle of the next. These boards are pivoted at their front ends flush with the floor, and at their rear ends are connected, through a link-rod, *d*, and clevis *e*, with the plate beneath the car-seat, so that the pressure upon the seat or upon the foot-rest act alike and in unison to deflect the lever and raise the weights to close the circuit.

These foot-rests are to be made reversible, to correspond to the reversal of the seats.

In some applications of my invention it will be necessary to register those passengers who may be standing up in the aisle of the car, and to accomplish this result a weight, *J*, and lever *K* are made to operate in connection with sinking platforms *L*, arranged in a second floor in the aisle. These platforms have the same connections and electrical contacts as the seats, except that the lever is arranged beneath the floor and out of sight. Said platforms are made large enough to receive one person when standing, and have a thin metallic or wooden frame-piece, *f*, separating each of the platforms or squares from the rest. To prevent persons from standing on this frame it is made very thin, and may be either sharp, like a knife, or serrated, like saw-teeth. In any case it does not project up above the general level of the floor, and causes no inconvenience to any one. To prevent any rattling of the squares or platforms, one or more springs, *g*, may be employed to hold them tightly to their places. Although these squares are described as being sinking or yielding to the weight of the passenger, they are not designed to be normally in this condition, but only yielding when the conductor may desire to register those standing. Ordinarily these squares are locked rigidly, and for this purpose four (more or less) spring-bolts, *h*, are arranged to shoot from the underneath edges of each platform into locking-recesses in the marginal or separating frame. These spring-bolts are withdrawn by cords *i*, which latter pass over pulleys *j*, and are attached to or

wrapped about an elongated roller, *M*, which extends the full length of the aisle underneath the floor. This roller *M* is similarly connected with the spring-bolts of each square or platform, and at the end of the car it is provided with an arm, *k*, connected through a link, *l*, with the lower end of lever *m*, projecting up into the car, or with any other suitable lever for operating the same. Now, when the car is filled, and the conductor wishes to register the persons standing, he throws lever *m* to one side. This action turns the roller, and in withdrawing the spring-bolts of each platform allows the weight of the passenger to cause the latter to yield and effect an electrical registration, as before described.

In providing for the fall of the platforms or seats, (this is very slight—ranging only from a half-inch, more or less,) in adjusting the weights they are preferably made to preponderate over the seats or platforms, so that they require a considerable weight to operate them. This is with a view to discriminating between persons passing at full fare and children who are under age.

The advantages which this system of registering passengers presents are, that it prevents the fraudulent retention of fares on the part of conductors, since it compels them to turn over all fares taken. It dispenses, also, to a great extent, with local ticket agents or sale of local tickets. By slight modification of my invention it may be applied to sleeping-cars, if found desirable.

Having thus described my invention, what I claim as new is—

1. One or more levers, *D*, fulcrumed beneath the seat of a car or omnibus, and attached at one end to the same, in combination with an elongated vertical weight connected with the opposite end of the lever to overbalance the seat, and a circuit-closing device adapted to be operated by the said vertical weight, substantially as shown and described.

2. The sinking squares or platforms in the floor of the aisle of the car, in combination with the levers *K*, the weights *J*, and circuit-closing devices, substantially as shown and described.

3. The combination, with the sinking squares or platforms *L*, and the floor of a car or its equivalent, of the spring-bolts *h*, adapted to lock said squares rigidly within their inclosures, substantially as described.

4. The combination, with sinking platforms having spring-bolts, of a set of cords and pulleys, and a roller running the full length of the aisle, adapted to be turned to withdraw the bolts, substantially as described.

SYLVANUS BURT CRANE.

Witnesses:

E. W. TAIT,

C. R. ROBINSON.