2 Sheets—Sheet 1.

J. H. BROWN.

Passenger Register.

No. 197,244. Patented Nov. 20, 1877.

Fig. 1.

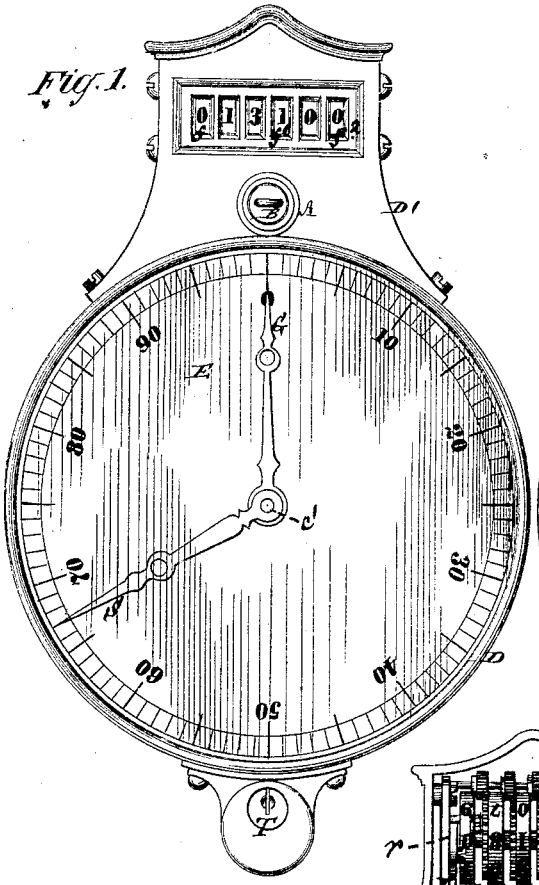


Fig. 2.

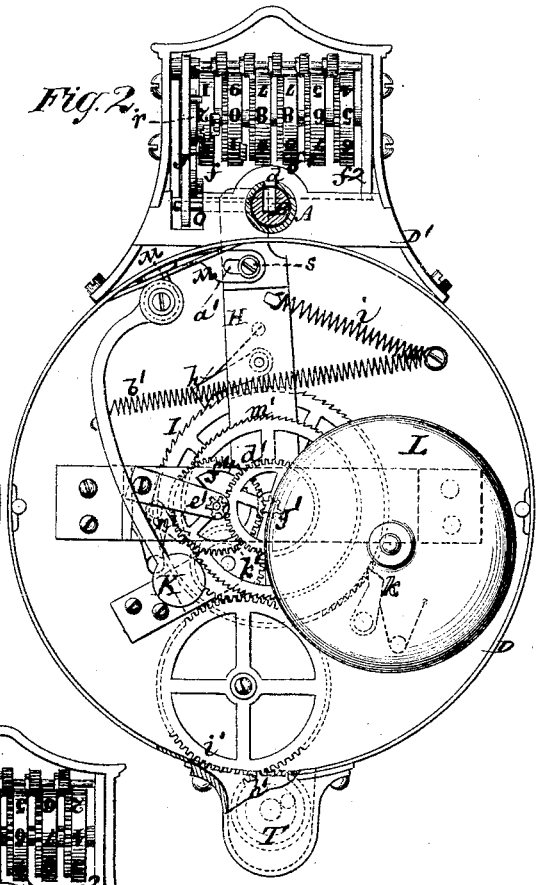
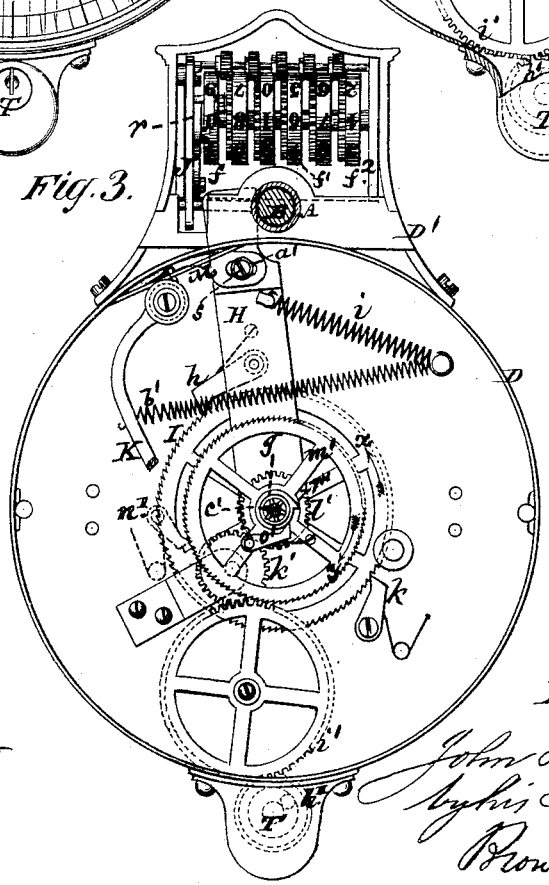


Fig. 3.



Witnesses
John Becker
Fred. Haynes

Inventor
John H. Brown
by his Attorneys
Brown & Allen

2 Sheets—Sheet 2.

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Fig. 4.

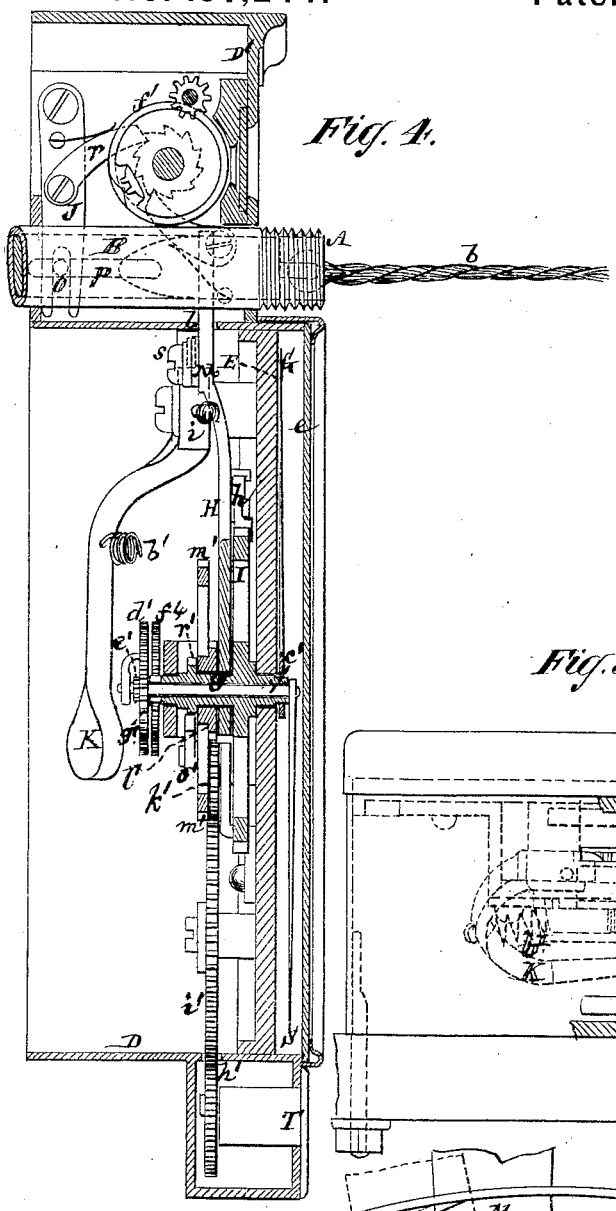

Fig. 5.

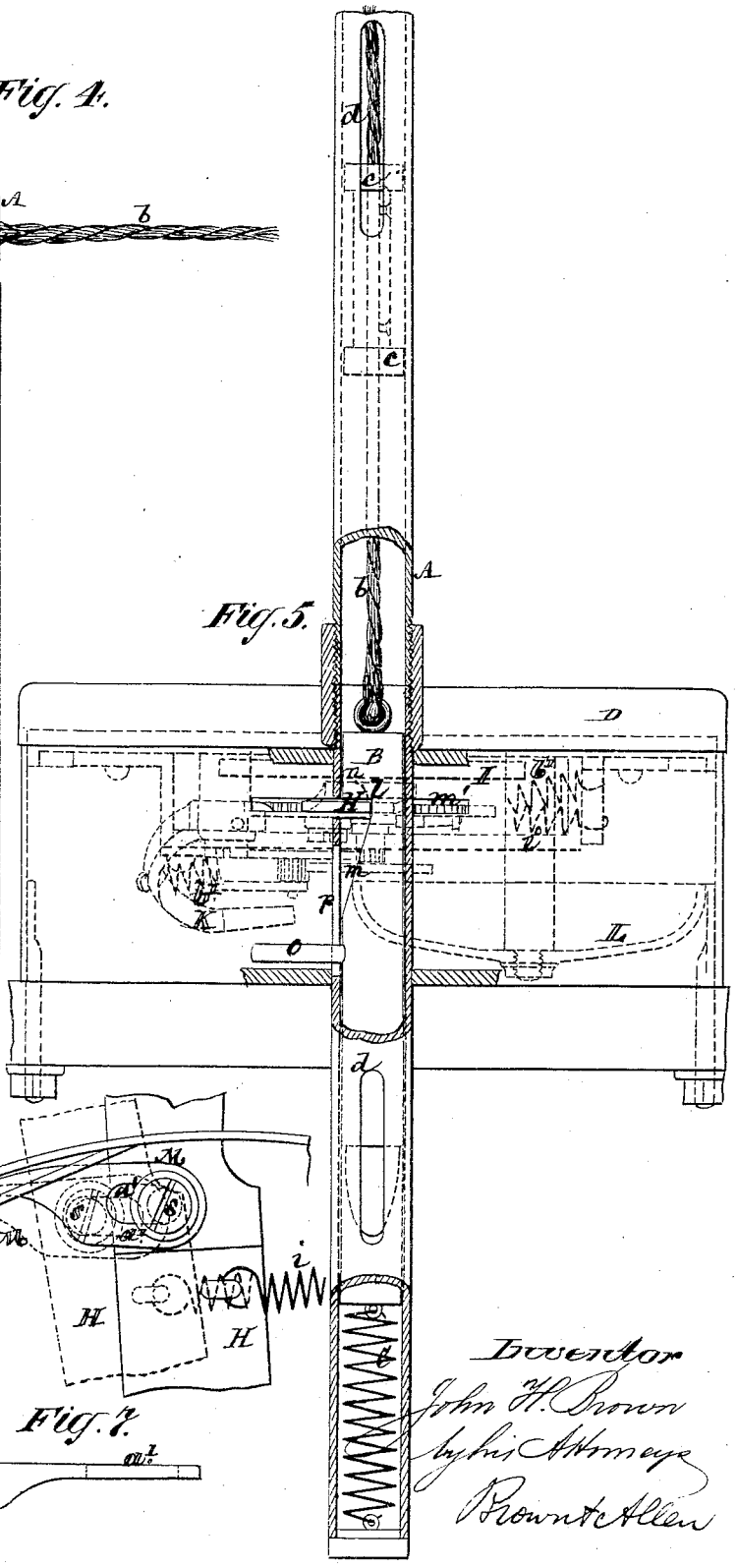

Fig. 6.

Fig. 7.

Witnesses.
John Becker
Fred. Haynes

Inventor
John H. Brown
by his Attorneys
Brown & Allen

UNITED STATES PATENT OFFICE.

JOHN H. BROWN, OF NEW YORK, N. Y., ASSIGNOR TO JAMES GOODFELLOW, OF SAME PLACE.

IMPROVEMENT IN PASSENGER-REGISTERS.

Specification forming part of Letters Patent No. **197,244**, dated November 20, 1877; application filed March 6, 1877.

To all whom it may concern:

Be it known that I, JOHN H. BROWN, of the city, county, and State of New York, have invented certain new and useful Improvements in Passenger-Registers, of which the following is such a description as will enable others skilled in the construction and working of passenger-registers to make and use the same.

This invention—like that for which Letters Patent No. 183,119 were issued, October 10, 1876, to James Goodfellow as assignee of and joint inventor with John H. Brown, and upon which this invention is an improvement—relates generally to apparatus for registering the number of passengers entering cars, and for other similar purposes in which consecutive numbers are to be recorded, as, for instance, the number of payments made by persons entering places of public amusement; but it is more especially designed to be used, and will here be described, as applied to recording the number of fares taken from passengers while riding in or upon street-cars or other public vehicles.

The invention more particularly pertains to the registering mechanism the operation of which is controlled by the conductor or person having charge of the apparatus, subject, as regards the setting of it, to a lock having a special key, and in gear with said mechanism. About such, in the abstract, nothing here is claimed as new, nor any restriction placed upon the means for operating the indicator and counter from various points or distances, which means may consist of a longitudinally-operating flexible rack inclosed by a slotted tube, and worked by a portable or detached hook, as in the patented invention of John H. Brown and James Goodfellow hereinbefore referred to.

In this invention, as in others, duplex indexes, moving over a dial common to both, are used, one of said indexes, in the application of the registering apparatus to a street-car, indicating the number of persons entering the car, and the other of said indexes indicating the number of trips made by the car, and a bell or gong, which is only struck after registering, also being combined therewith.

The invention consists in certain novel combinations of parts or devices for operating the two indexes, subject to the control of the lock; also, in means for actuating the bell or gong, and for actuating or striking the latter in proper relation with the indicator and with a counter connected therewith, whereby great efficiency and security are obtained for the registering apparatus, free from all possibility of collusion or tampering.

In the accompanying drawings, Figure 1 represents a front view of a passenger-register constructed in accordance with the invention, and which will here be described as applied to a street passenger-car. Fig. 2 is a rear view of the same; and Fig. 3 a like view of the same with the gear which operates the trip-index, the bridge which carries said and other gear, and the gong removed. Fig. 4 is an axial section, upon an enlarged scale, of the register; and Fig. 5 is a top view thereof, with a tube which contains a cord or chain for actuating the indicator, partly in section or broken away. Fig. 6 is a rear view, in part, showing mainly the lever by which the passenger-index is operated, and a certain trip or device for actuating the hammer of the gong or bell; and Fig. 7, a top view of said device detached.

The indicator and counter of which the register is composed are placed at one end of the car. A simple cord or rod running along the upper portion of the car may be used to actuate the indicator, or, in place thereof, a chain or flexible rack, arranged within a fixed tube, A, may be used. Thus, *b* is an actuating-cord, having disks *c c* secured to it at suitable distances apart, and fitting freely within the tube A, which latter is constructed with slots *d*, to admit of a hook being introduced by the conductor to the interior of the tube to pull upon the cord by the disks when it is required to operate the indicator. One end of the cord *b* is secured to one end of the tube A, and the other end of it to a sliding bolt, B, which is connected with the other end of the tube by a spring, C, that serves to return the cord to its normal position after the conductor has removed the hook by which he pulls on the cord to operate the indicator.

D D′ is the indicator and counter case, and E the indicator-dial, having a glass, *e*, in front.

G is the passenger-index, which indicates on the dial E the number of fares or passengers taken in a single trip; and H is a trip-index, which indicates on the same or other dial the number of trips made during a day or other fixed period of time. The counter consists of a series of wheels, $f\,f^1\,f^2$, having units, tens, &c., on their peripheries to register the counts made by the indicator, said wheels $f\,f^1\,f^2$ being inclosed in the upper part D′ of the case D D′.

The passenger hand or index G is worked by a pawl-lever, H, which is loose on the hollow spindle g of said index. This lever H carries a pawl, h, which serves, as said lever is moved to one side, to give motion, in direction of the arrow x in Fig. 3, to a ratchet-wheel, I, fast on the spindle g, and thus to cause the index G to register one point or fare on the dial E. A spring, i, is attached to the lever H to return it or move it in the opposite direction, and a stop-pawl, k, is applied to the ratchet-wheel I to prevent it being turned backward. The pawl-lever H passes through a slot, l, cut transversely in that part of the tube A, which passes through the case D D′, and the said lever enters a notch, $m\,n$, Fig. 5, in the bolt B. The face m of this notch is inclined, and forms a wedge to act upon the pawl-lever H, to cause the latter to operate the ratchet-wheel I, as hereinbefore described, whenever the cord b is pulled by the conductor. The bolt B carries a lateral pin, o, which passes through a slot, p, in the tube A, and acts upon a forked pawl-lever, J, the pawl r of which actuates the counting and registering wheels $f\,f^1\,f^2$ as the bolt B is slid forward by the conductor pulling on the cord b.

As, however, the passenger-index G completes its movement to register a single passenger or fare, the pawl-lever H is caused to release a hammer, K, of a bell or gong, L, and sound the latter, thus making it impossible to ring the bell without registering, inasmuch as the index G is first moved a point before the bell is struck. To do this, the pawl-lever H has on it a pin, s, which passes freely through a slot, a', of a trip, M. This slot is somewhat shorter than the travel of the pin s, as caused by the motion of the lever H, so that as said lever completes its back stroke by the action of the spring i, which is when the conductor releases hold of the cord b, the pin s strikes the rear end of the slot a', and moves the trip M to hold the hammer K away from the gong L, and under tension of a spring, b', which controls the hammer, as shown in Fig. 2.

When, however, the pawl-lever H is operated to register, but not before it has moved the necessary distance to register, the pin s strikes the front end of the slot a', and, by a further slight motion of the lever H in the same direction, moves the trip M to liberate the hammer K, as shown in Fig. 3, thereby striking the bell. The slight excessive movement thus given to the ratchet-wheel I by the pawl-lever H is afterward taken up by the pressure of the operating-pawl h on said wheel, causing the latter to move slightly backward until arrested by the stop-pawl k, which determines the registering position of the index G on the dial.

The trip-index S is fast on a spindle, c', which passes through the hollow spindle g of the passenger-index. On said spindle c' is secured a spur-wheel, d', which gears with a laterally-arranged pinion, e'. Upon the same arbor as this pinion e' is a spur-wheel, f^4, which, in its turn, gears with a pinion, g', fast on the hollow spindle g of the passenger-index. These gears $d'\,e'\,f^4\,g'$ are so proportioned that for one entire movement of the passenger-index G around the dial the trip-index S moves but one point on the dial E.

T is a Yale or other suitable lock having a rotating arbor, and into which the key can only be inserted, and from which it can only be withdrawn, when said arbor and said key are in a certain position, and in no other. On the rotating arbor of this lock is a pinion, h', which gears with a wheel, i', that, in its turn, gears with a pinion, k', and this latter, in its turn, with another pinion, l'. This last-named pinion l' is loose on the hollow spindle g of the passenger-index, and has secured to it a ratchet-wheel, m', which is free to turn in direction of the arrow y, Fig. 3, but is prevented from turning in a reverse direction by a stop-pawl, n'. This ratchet-wheel m' carries a pawl, o', which bears on or against a single-toothed driver, r', fast on the hollow spindle g of the passenger-index. The tooth of this driver r' is in line with the passenger-index G, and such toothed driver r' is free to travel under the pawl o' when the passenger-index mechanism rotates in direction of the arrow x, Fig. 3.

The two indexes G and S, connected to rotate in proper relation with each other, as hereinbefore described, are set so that when both stand at zero, or other predetermined point on the dial, then the apparatus is ready to commence its work; and, however many points the passenger-index G may note in a trip short of the entire number of counts on the dial E, the trip-index S will only be moved a proportionate distance of one point or division on said dial. Furthermore, the lock T is set so that the key thereto can only be entered to rotate the ratchet-wheel l' in direction of the arrow y, or can only be withdrawn from the lock when the passenger-index is adjusted by said key to stand at zero or other predetermined starting-point on the dial E. This being the relative condition of the parts, it will readily be seen that, inasmuch as it takes a whole rotation of the passenger-index G on the dial E to move the trip-index one point, and the number of trips the car should make in a given time being known, it is only necessary, to prevent any collusion between the conductor and the starter of the car or setter of the indicator, for said starter or setter, at the end of each trip, by applying the key to the lock, to move

the passenger-index G to zero before commencing another trip, so that each trip will be registered from the same starting-point on the dial, and cannot possibly include any part of a preceding trip, and a spotter or detective getting on the car at any portion of its trip will see at a glance a true record. Moreover, it will be incumbent on the starter of the car or setter of the index, at the end of each trip, to thus set the passenger-index, as in doing so he moves the trip-indicator one point, and so keeps tally on the dial with the number of trips the car is known to make in a day or other given time.

The setting of the passenger-index G to zero, and making the trip-index S register one trip each travel of the car up or down, is effected, through the turning of the key, by the pawl o' on the ratchet-wheel m' being brought into driving contact with the toothed driver r'.

The stop-pawl n', by its action on, or hold of, the ratchet-wheel m', prevents any tampering with or setting back of the trip-index S.

I claim—

1. The combination, with the passenger-index G, the trip-index S, and the dial E, common to both indexes, of the loose pawl-lever H, the hollow spindle g, the pawl h, the ratchet-wheel I, the spring i, the stop-pawl k, the spindle c' of the trip-index S, the gears d' e' f^1 g', and the lock T, in gear with the hollow spindle g of the passenger-index, substantially as specified.

2. The slotted trip M, in combination with the lever H, having a trip-operating stud or pin, s, the hammer K of the bell, and the spring b', essentially as described.

3. The combination, with the passenger-index G and a bell, L, applied to the register, of the pawl-lever H, provided with a pin, s, the trip M having a slot, a', in it, the hammer K, and the spring b', essentially as and for the purpose herein set forth.

4. The combination, with the pin o of the bolt B and the slotted tube A, of the forked pawl-lever J, the pawl r, the counting and registering wheels f f^1 f^2, the pawl-lever H, the passenger-index G, operated by said pawl-lever, the pin s on said lever, the slotted trip M, the hammer K, with its spring b', and the bell or gong L, substantially as specified.

5. The combination, with the trip-index S and the passenger-index G, of the toothed driver r' on the spindle g of the passenger-index, the driving-pawl o', the ratchet-wheel m', the lock T, and gears connecting said lock and said indexes for operation in relation with each other, as shown and described.

In testimony whereof I hereunto sign my name in the presence of two subscribing witnesses.

JOHN H. BROWN.

Witnesses:
BENJAMIN W. HOFFMAN,
FRED. HAYNES.