S. P. LITTLEFIELD.

Way-Meters for Railway-Carriages.

No. 156,430. Patented Nov. 3, 1874.

Fig 1.

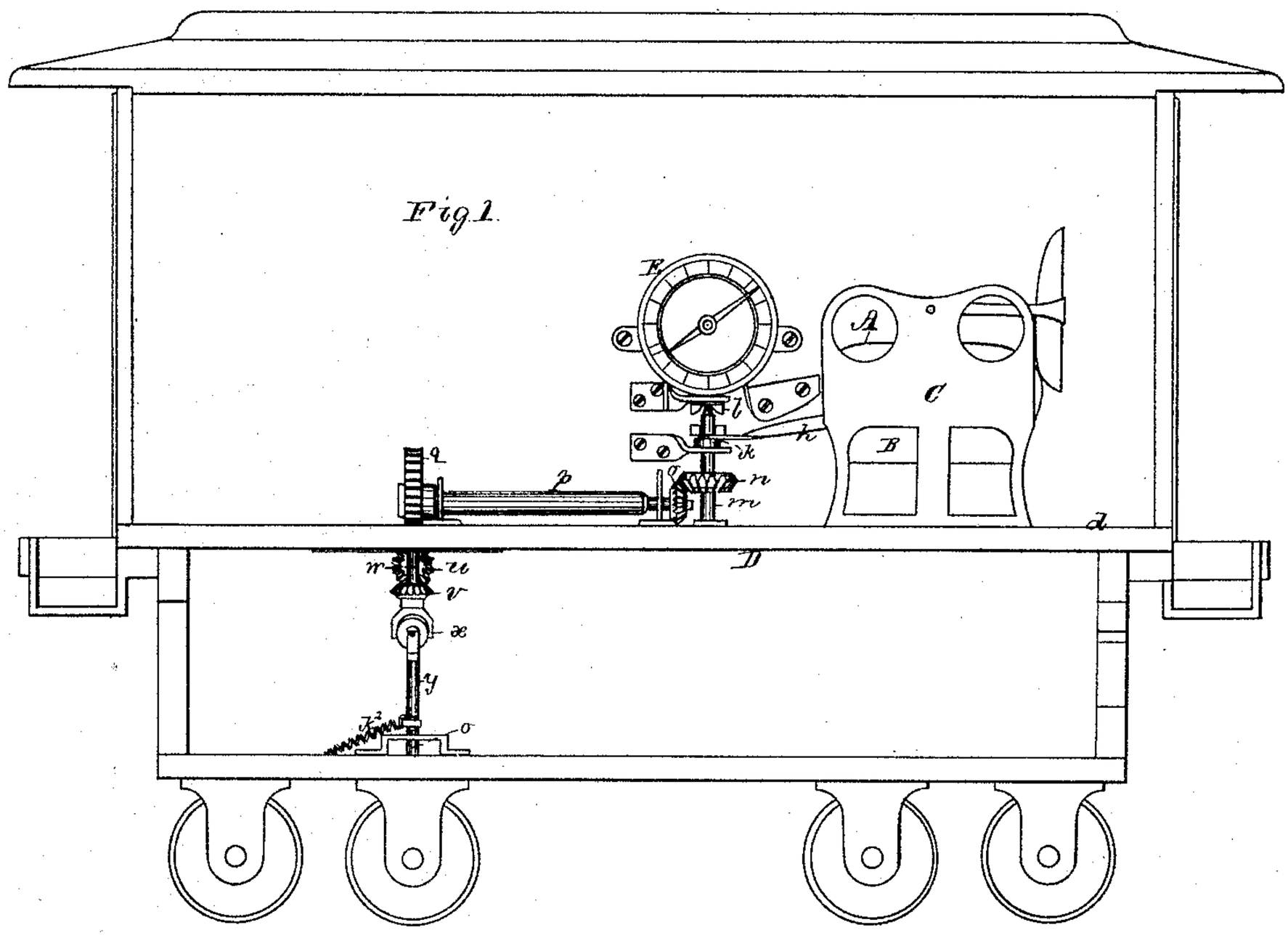


Fig 2

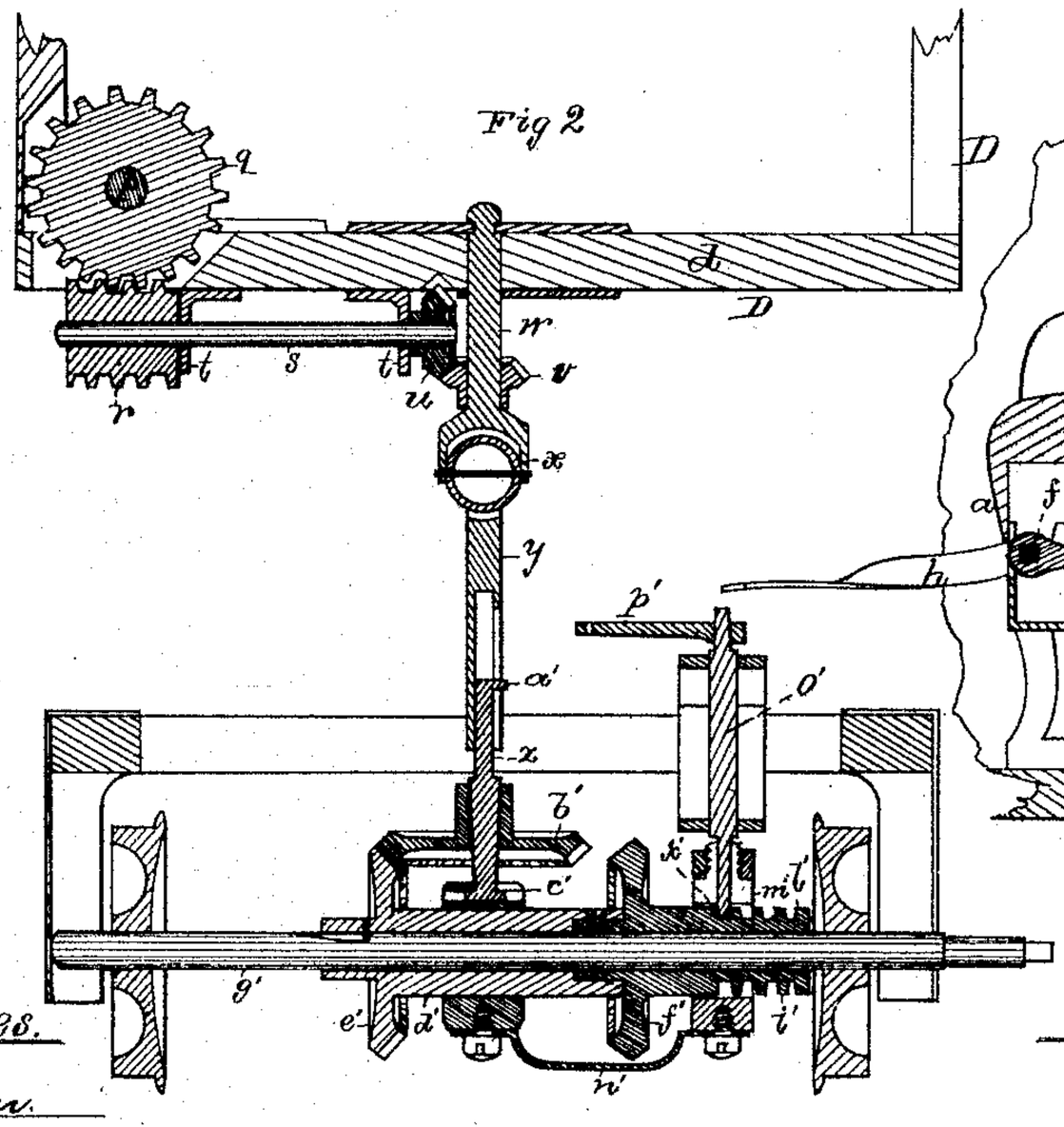
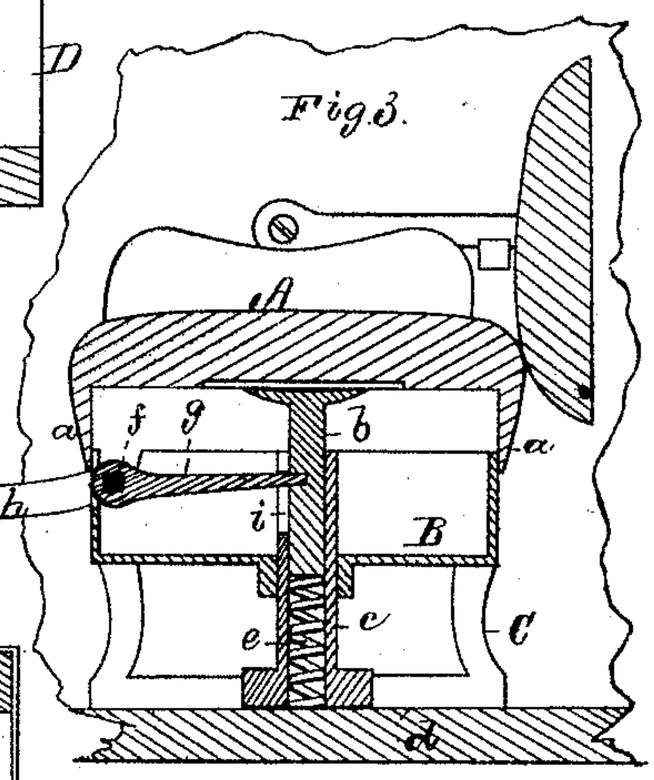


Fig 3.



Witnesses.

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UNITED STATES PATENT OFFICE

SILAS P. LITTLEFIELD, OF LYNN, MASSACHUSETTS.

IMPROVEMENT IN WAY-METERS FOR RAILWAY-CARRIAGES.

Specification forming part of Letters Patent No. **156,430**, dated November 3, 1874; application filed October 1, 1874.

To all whom it may concern:

Be it known that I, SILAS P. LITTLEFIELD, of Lynn, of the county of Essex and State of Massachusetts, have invented a new and useful Way-Meter for Railway-Carriages; and I do hereby declare the same to be fully described in the following specification, and represented in the accompanying drawings, of which—

Figure 1 denotes a front elevation of it as applied to a railway-carriage. Fig. 2 is a transverse section taken through the rear axle of the forward pair of axles of the wheels. Fig. 3 is a transverse section taken through one of the seats.

The meter is to enable a passenger or other party to determine the distance traveled by the carriage from time to time, the record to commence when the passenger takes his seat, and to stop on his rising therefrom, whether the carriage be moved forward or backward on the track.

The seat A is arranged over and so as to cover a box or chamber, B, in the supporting-frame C. The seat is provided with flanges *a a*, arranged, as shown, to lap on the opposite sides of the box, during the vertical movements of the seat, the same being to prevent access to the mechanism within the frame. The seat is supported on a spindle, *b*, arranged to slide freely up and down within a post or standard, *c*, erected on the floor *d* of the carriage D, a spring, *e*, serving to support the spindle, and to elevate it, with the seat, on a passenger rising therefrom. Extending along within the seat-frame is a shaft, *f*, provided with two arms, *g h*. The first of these arms extends through a slot, *i*, in the post *c*, and into a notch made in the spindle. The other arm is forked, and enters the groove of the movable part *k* of a clutch, *k l*. The part *l* of the clutch is fixed on the lower end of the driving-shaft of a register, E, arranged as shown. The part *k* is arranged to slide on another vertical shaft, *m*, provided with a bevel-gear, *n*. This latter gear engages with another such gear, *o*, fixed on a horizontal shaft, *p*, at one end thereof. This shaft, at its other end, has a worm-gear, *q*, fixed to it, which engages with a worm or screw, *r*, fixed on a horizontal shaft, *s*, arranged underneath the carriage-body, and supported in bearings or brackets *t*, projecting down therefrom. On the inner end of the shaft *s* is a bevel-gear, *u*, that engages with another gear, *v*, fixed on a short upright shaft, *w*. This latter shaft is connected, by a universal joint, *x*, with a tubular shaft, *y*, which has a vertical shaft, *z*, projecting up within it. The shaft *y* is slotted vertically, there being extended from the shaft *z* a stud, *a'*, to enter the slot. On the shaft *z* is a bevel-gear, *b'*. The shaft *z* is pivoted in a collar, *c'*, that encompasses a tubular shaft, *d'*, provided with two bevel-gears, *e' f'*, arranged as represented. The collar is to be so applied to the shaft *d'* as to admit of the latter revolving within it, (the collar.) The shaft *d'* is arranged concentrically on the wheel-axle *g'*, and connected therewith by a feather or spline connection, whereby the shaft turns with the axle, but can move endwise on it. On the shaft *d'* is a short screw, *i'*, formed between shoulders *k' l'*, and terminating at a short distance from each. A collar, *m'*, encompasses the screw, and is connected with the collar *c'* by a curved bar, *n'*. A rod, *o'*, provided with a handle or arm, *p'*, and at its lower end with an arched head to rest on the shaft and run in the groove between the threads of the screw, extends down through the truck-frame and the collar *m'*, and into the screw *i'*. A spring, *k'*, is attached to the arm *p'* and the truck-frame, and arranged as shown. The purpose of the arm *p'* and the spring *k'* is to cause the foot of the rod *o'* to take into or engage with the screw whenever the movement of the axle is reversed, the said foot, after coming against one of the shoulders, remaining in contact with it until reversal of the rotary motion of the axle may take place.

While the carriage may be moving in one direction on the track, one of the bevel-gears gears *e' f'* will be held in engagement with the gear *b'*; but in case the motion of the carriage is reversed the other of the gears *e' f'* will be moved into engagement with the said gear *b'*. Thus whichever way the carriage may be moving the mechanism for actuating the register will be in operation, it being constituted so that however the carriage-body may move up and down, or swing laterally, with respect to the truck-frame, there will be an accommodation of the parts to admit of such, such accom-

modation being effected by the universal joint *x*, the tubular or slotted shaft *y*, and the shaft *z*, provided with the stud to enter the slot of the said shaft *y*.

I claim as my invention, as follows, viz:

1. The combination of the movable seat A, the register E, and one of the wheel-axles *g'* with the clutch *k l*, the mechanism for spreading the clutch, as described, by means of the seat, (viz., the spring *e*, the shaft *f*, and its arms *g h*,) and with the mechanism for revolving the clutch-shaft *m*, by the said axle, whichever way the latter may be in revolution, this latter mechanism consisting of the gears *n o*, shaft *p*, worm-gear *q*, worm *r*, shaft *s*, bevel-gears *u v*, shaft *w*, universal joint *x*, tubular shaft *y*, shaft *z*, gear *b'*, collar *c'*, gears *e' f'*, screw *i'*, shoulders *k' l'*, collar *m'*, bar *n'*, and the rod *o'*, with its arm *p'* and spring k^2, all arranged and combined substantially as specified.

2. The seat provided with the flanges *a a*, in combination with the supporting-frame C, provided with the chamber B underneath the seat.

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Witnesses:
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