No. 726,663. PATENTED APR. 28, 1903.

J. H. FASSETT & J. E. WARREN.

CAR.

APPLICATION FILED OCT. 14, 1902.

NO MODEL.

Fig. 1.

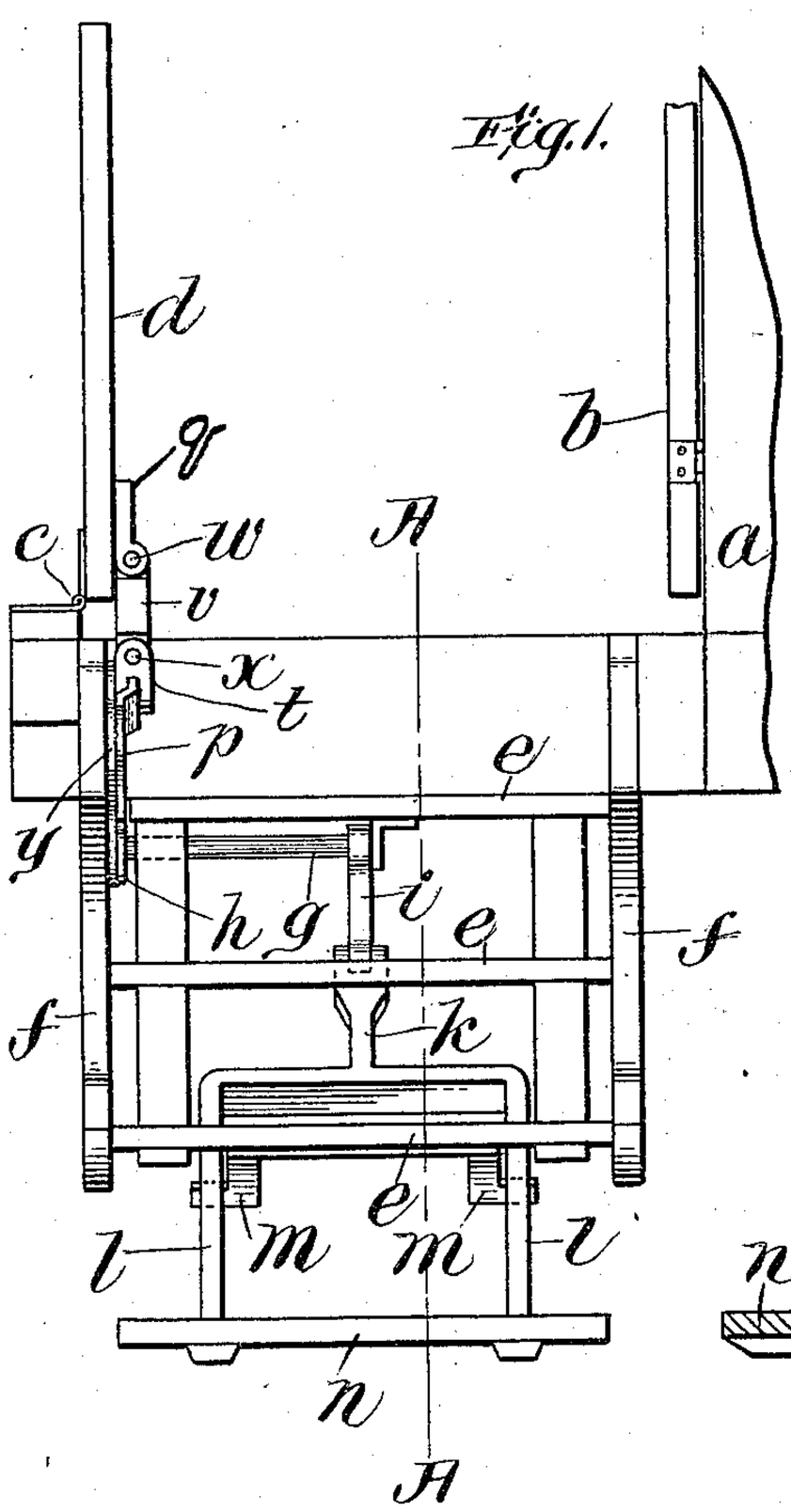


Fig. 2.

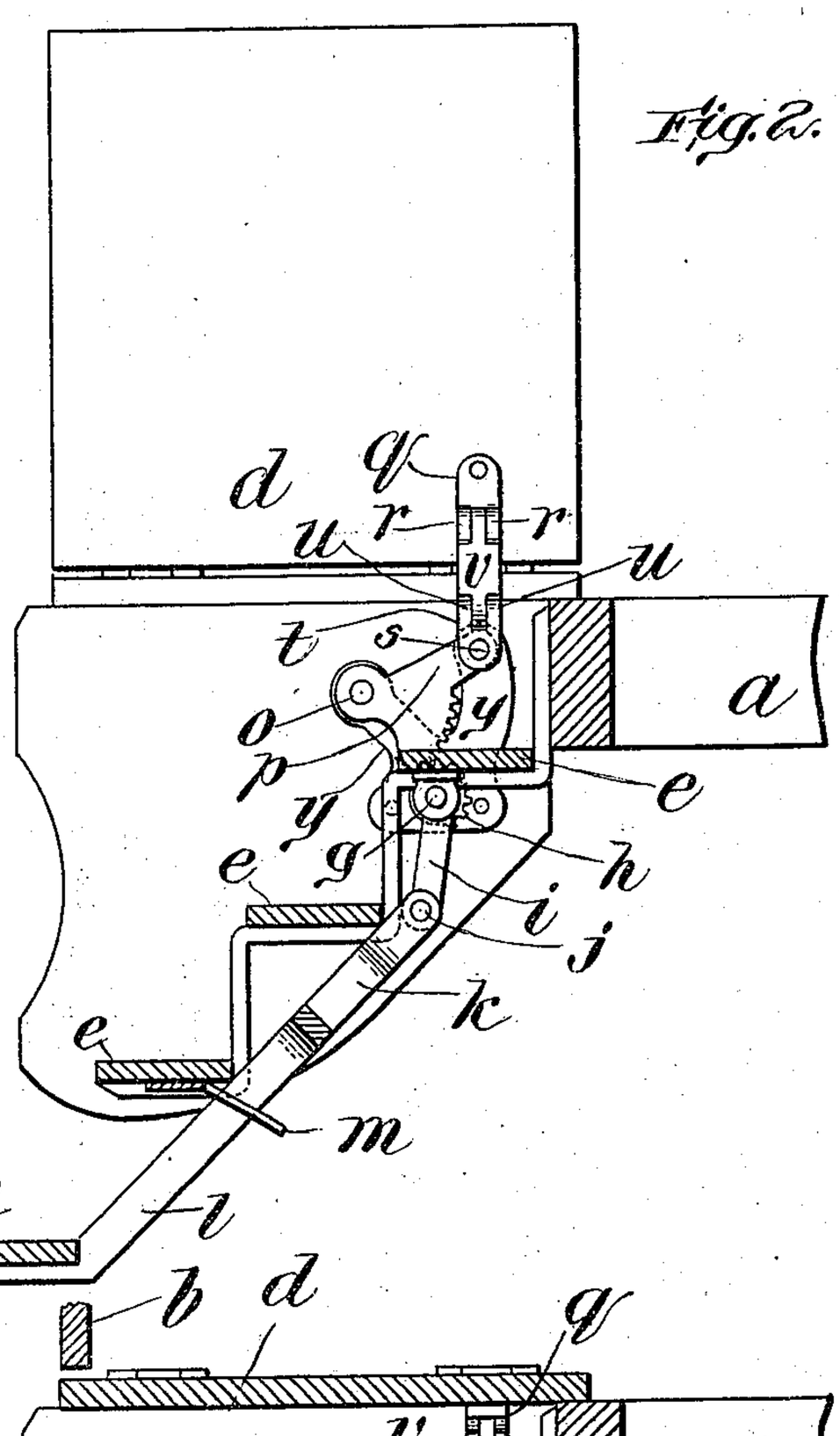
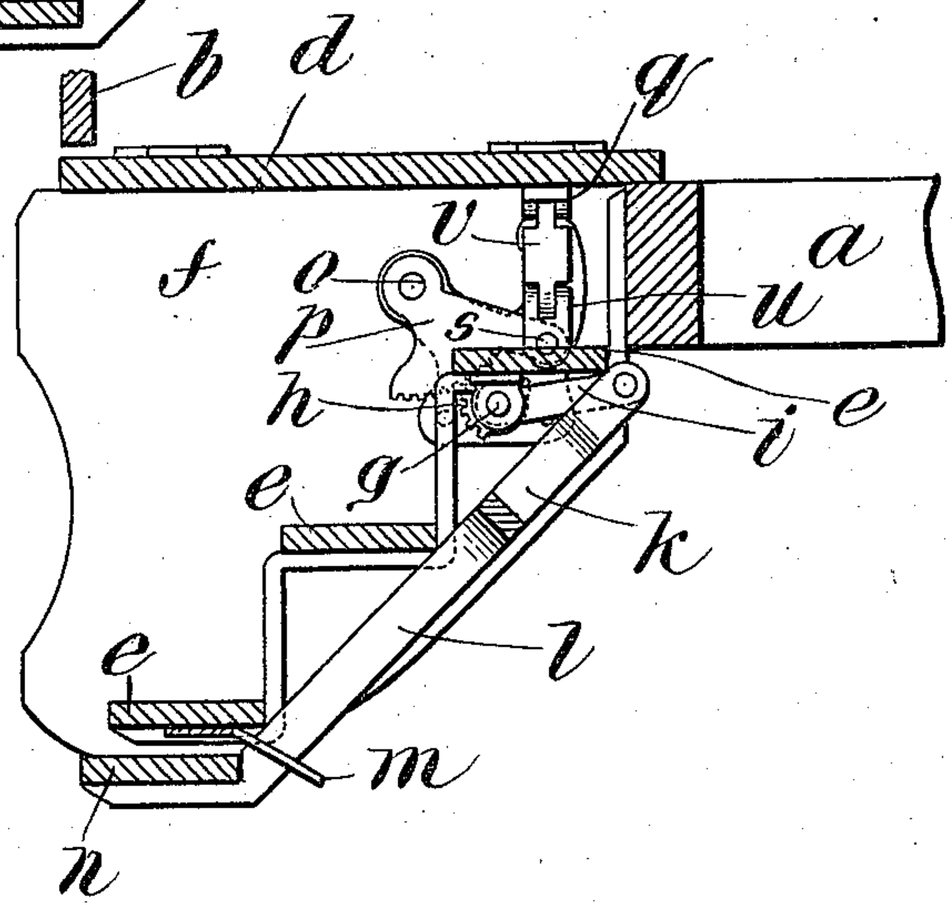


Fig. 3.



Witnesses:
Arthur F. Randall
G. L. Hamilton.

Inventors:
James H. Fassett,
John E. Warren,
by James Hamilton
Attorney.

UNITED STATES PATENT OFFICE.

JAMES H. FASSETT, OF NASHUA, AND JOHN E. WARREN, OF GREENFIELD, NEW HAMPSHIRE, ASSIGNORS OF ONE-HALF TO WILLIAM H. CHEEVER, OF NASHUA, NEW HAMPSHIRE.

CAR.

SPECIFICATION forming part of Letters Patent No. 726,663, dated April 28, 1903.

Application filed October 14, 1902. Serial No. 127,255. (No model.)

To all whom it may concern:

Be it known that we, JAMES H. FASSETT, of Nashua, and JOHN E. WARREN, of Greenfield, in the county of Hillsboro and State of New Hampshire, citizens of the United States, have jointly invented a new and useful Improvement in Cars, of which the following is a specification, reference being had to the accompanying drawings.

Our invention relates to improvements in cars, especially of the class now commonly used in vestibuled trains; and the object of our invention is to provide cars with a simple and efficient means whereby a retractable step is automatically raised and lowered.

Our invention consists in the combinations hereinafter described and claimed.

In our novel construction the retractable step is so connected with the trap-door, which is adapted and designed to form a part of the platform of the car when the train is in motion, that upon the swinging upward or opening of said trap-door the retractable step is automatically lowered, while when said trap-door is closed down, as it is designed to be when the car is in motion, the retractable step is automatically raised up out of the way. The car-door when closed serves as a locking means to hold down the trap-door, and thereby secure the retractable step in its raised position.

In the drawings illustrating the principle of our invention and the best mode in which we have contemplated applying that principle, Figure 1 is a side view of the end of part of a car embodying our invention, the retractable step being shown lowered. Fig. 2 is an end view, partly in section, of what is shown in Fig. 1; and Fig. 3 is a sectional view on line A A of Fig. 1, the retractable step being shown, however, in its raised position.

Hinged to the side of the car-body *a* is the ordinary car-door *b* or door of the vestibule, and hinged at *c* to the floor of the vestibule is the ordinary trap-door *d*. Suitably secured to the car-body is the flight of fixed steps *e e e*, inclosed between the sides *f f*. Journaled in suitable bearings beneath the topmost of these steps *e* is a rock-shaft *g*, provided at its outer end with a pinion *h* and at its inner end with a rocker-arm *i*, that is pivotally secured at *j* to a yoke *k*. Secured to the lowermost of these steps *e* are the guides *m m*, in which the arms *l l* of the yoke *k* are slidably supported, and secured to the arms *l l* is the retractable step *n*. Pivoted at *o* to one of the sides *f* is a toothed sector *p*, the teeth of which mesh with the teeth of the pinion *h* on the end of the rock-shaft *g*, so that when the sector *p* is swung on its pivot the pinion *h* is rotated, thereby rocking the rock-shaft *g* and lowering or raising the retractable step *n*. A metal plate *y* is interposed between the sector *p* and the side *f* in order to prevent wear of the side *f*. The sector *p* is oscillated through its connection with the trap-door *d*, which connection will now be described. To the trap-door *d* is secured a block *q*, formed with ears *r r*, and pivoted at *s* to the upper corner of the sector *p* is another block *t*, formed with ears *u u*. The blocks *q* and *t* are connected by a link *v*, the upper end of which is joined to the block *q* by a pin *w* and the lower end of which is joined to the block *t* by a pin *x*.

The operation will now be readily understood. When the train arrives at a station, the porter opens the car-door *b*, which in its closed position is over the trap-door *d* and serves as a locking means therefor. The porter next raises the trap-door *d*, and this raising of the trap-door *d* swings the toothed sector *p* on its pivot *o*, and thereby rocks the rock-shaft *g* and through the rocker-arm *i* lowers the yoke *k* and the retractable step *n*. When the train starts, the trap-door *d* is closed down, thereby raising the retractable step *n*. The weight of the trap-door *d* serves to hold the retractable step *n* in its raised position, and the car-door *b* serves in its closed position as a means to prevent the step *n* from being lowered inadvertently.

What we claim is—

1. The combination in a structure of the class described of a car-platform floor; a door mounted therein; a flight of fixed steps leading to said floor; a retractable step below said flight; mechanism by which said retractable step is positively raised and also positively

lowered; and devices which operatively connect said mechanism with said door by which the movement of said door is made to raise positively and positively to lower said retractable step.

2. The combination in a structure of the class described of a car-platform; a door; a flight of fixed steps leading to said car-platform; a retractable step below said flight; intermeshing toothed mechanism by which said retractable step is positively raised and positively lowered; and a link which operatively connects said toothed mechanism with said door by which the movement of said door raises and lowers positively said retractable step.

3. The combination in a structure of the class described of a car-vestibule; a door therefor; a trap-door mounted in the floor portion of said car-vestibule; a flight of fixed steps leading to said car-vestibule; a retractable step below said flight; mechanism for moving said retractable step to and from said flight; and connecting means between said mechanism and trap-door by which the movement of said trap-door is transmitted to said mechanism; said door in its closed position locking said trap-door against movement.

4. The combination in a structure of the class described of a car-vestibule having a floor portion; a trap-door hinged to said floor portion; a flight of fixed steps leading to said car-vestibule; a retractable step below said flight; mechanism which positively raises and also positively lowers said retractable step; and connecting devices between said mechanism and said trap-door by which the movement of said trap-door is positively transmitted to raise and lower positively said retractable step.

In testimony whereof we hereunto set our hands, in the presence of two witnesses, at said Nashua, this 10th day of October, A. D. 1902.

JAMES H. FASSETT.
JOHN E. WARREN.

Witnesses:
GEO. F. JACKSON,
M. EVELYN COOK.