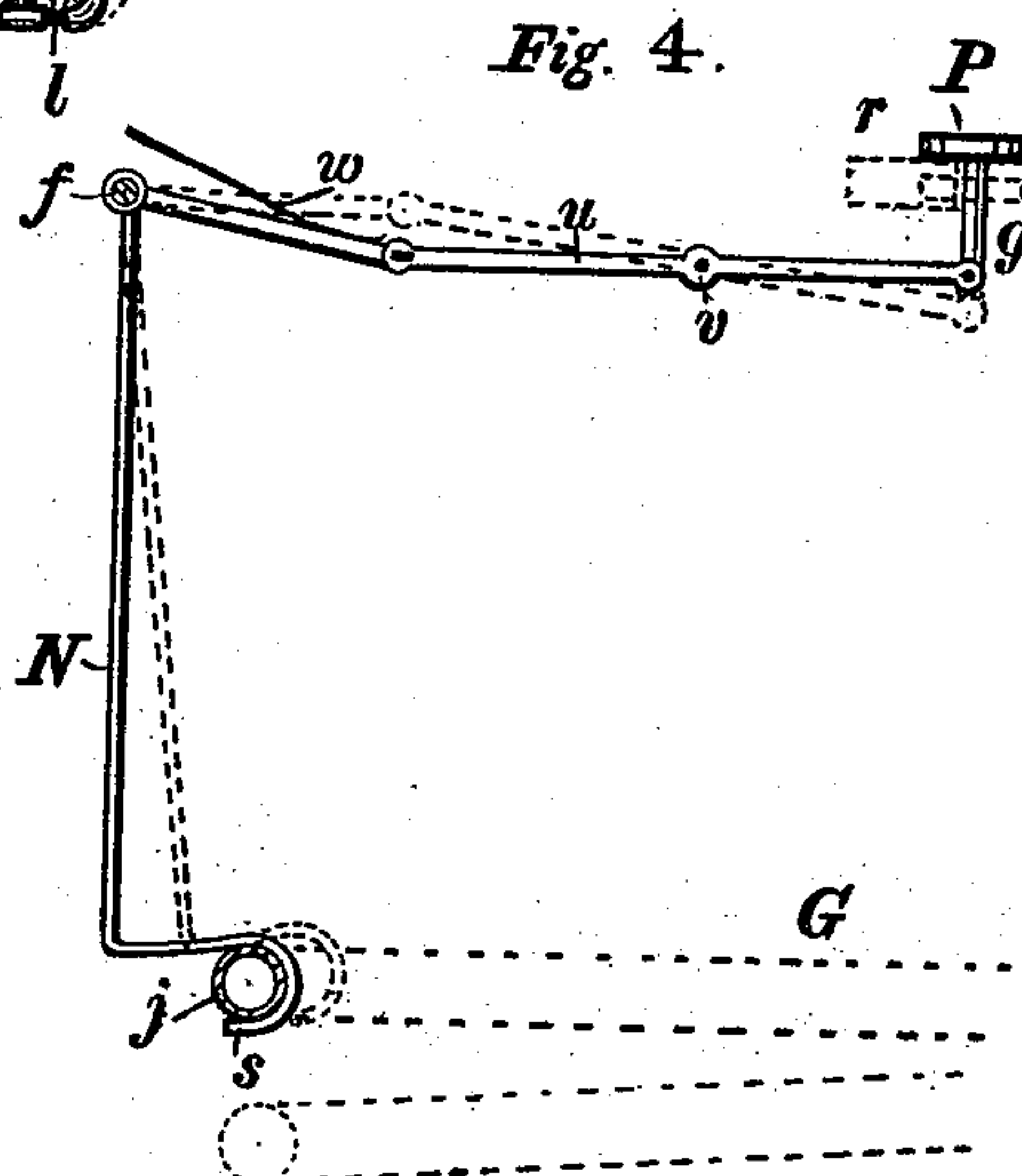
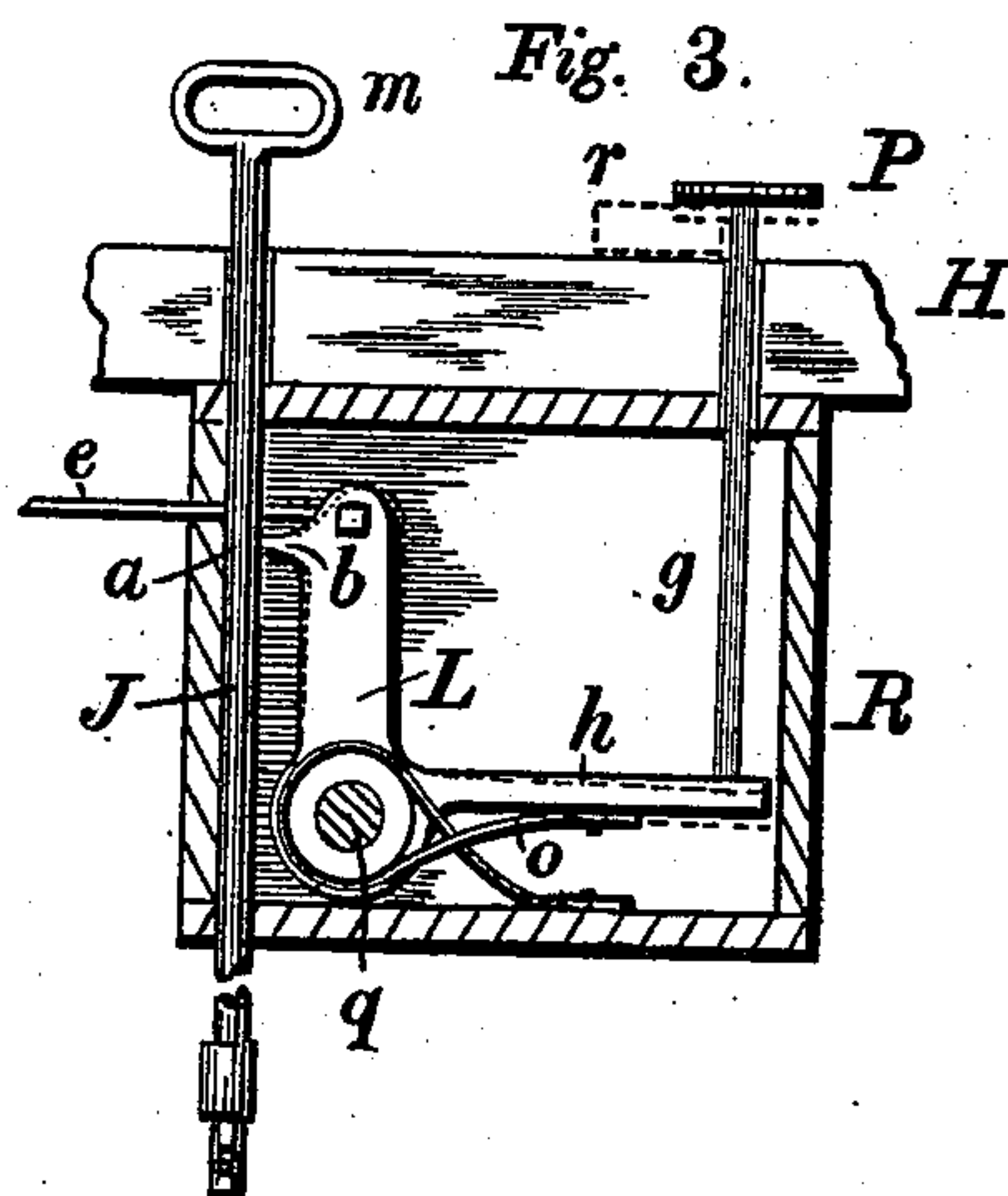
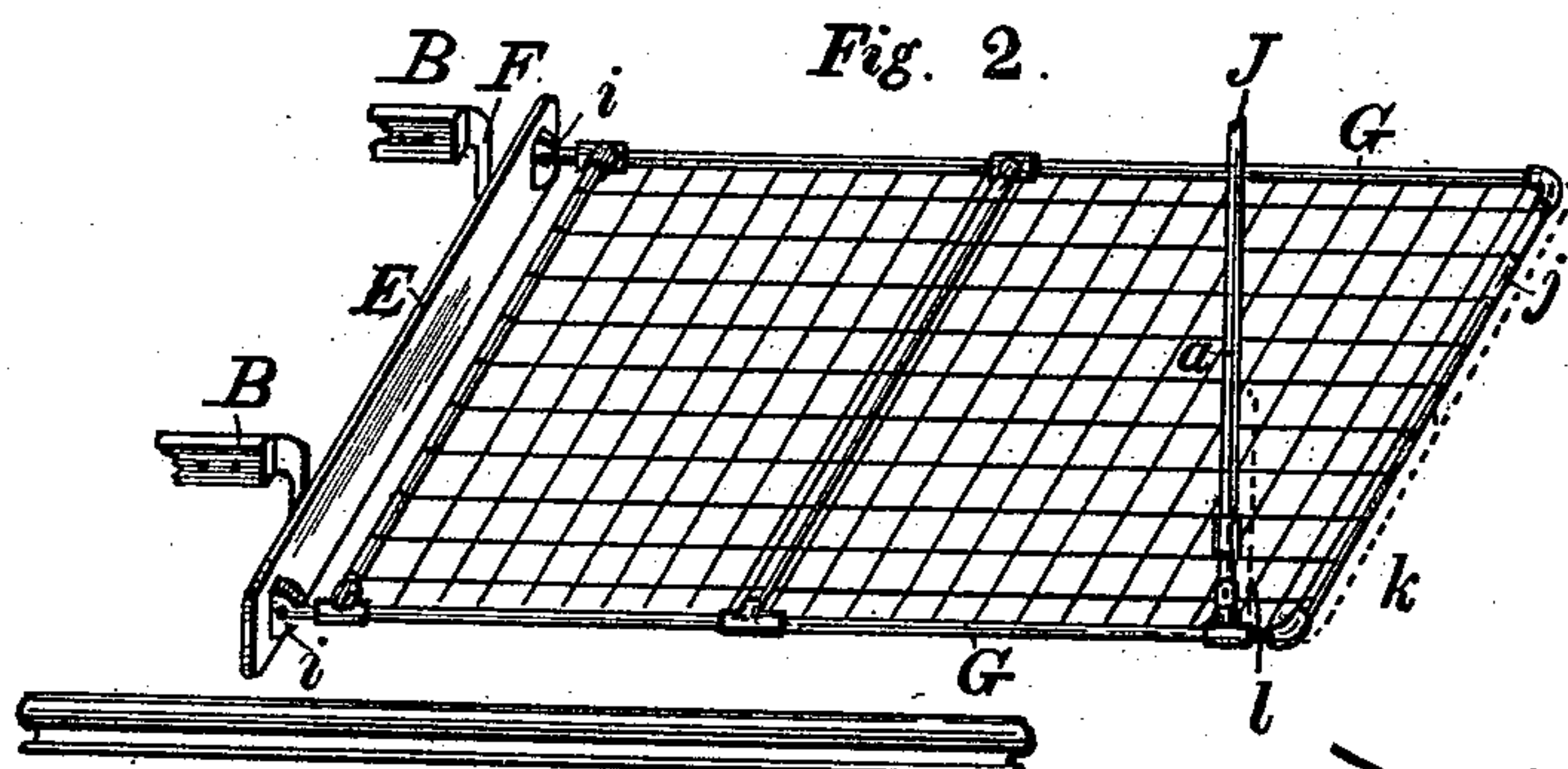
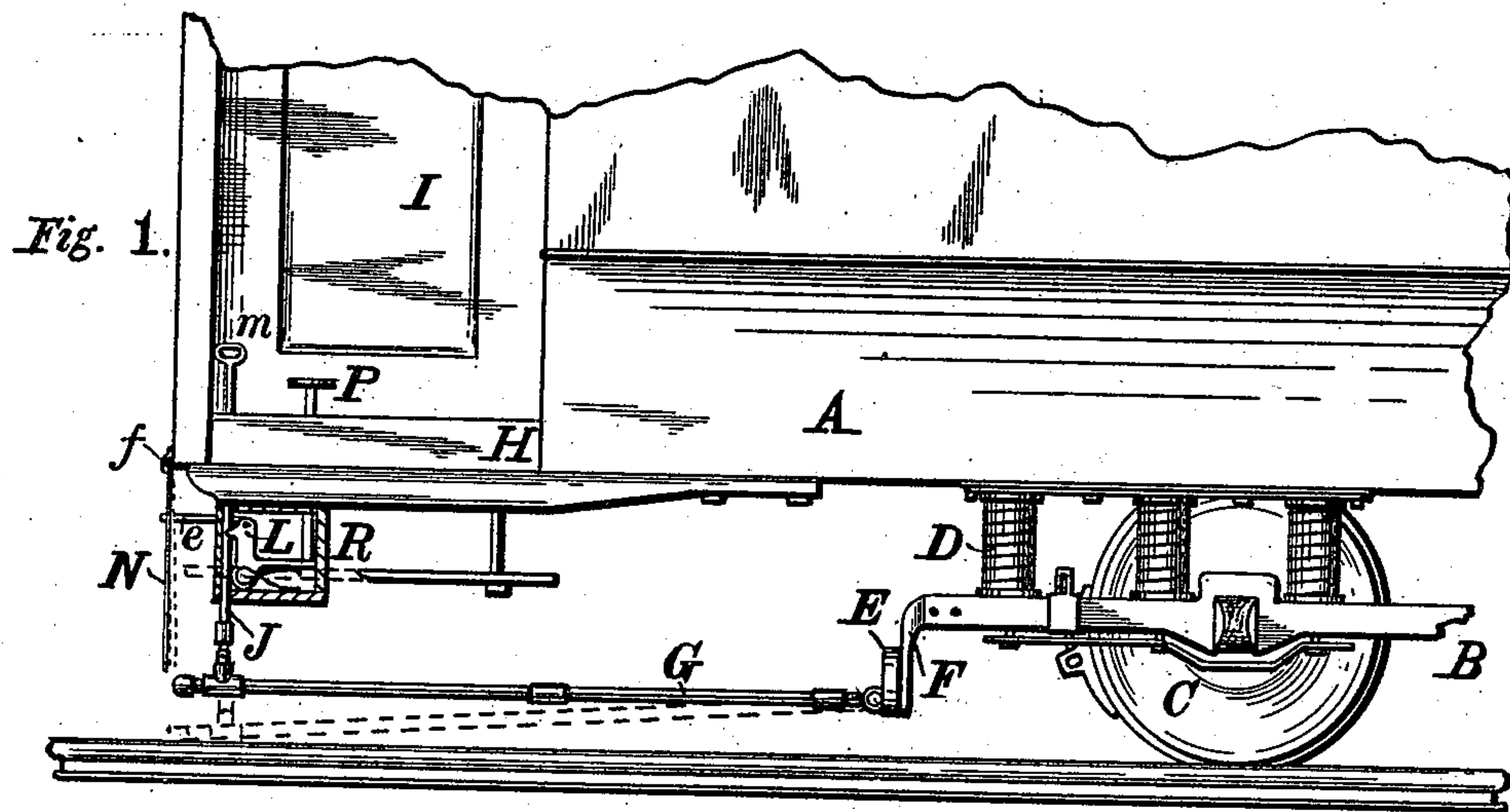


(No Model.)

J. M. KELLY.
SAFETY DEVICE FOR ELECTRIC CARS.

No. 528,438.

Patented Oct. 30, 1894.



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UNITED STATES PATENT OFFICE.

JOHN MILLER KELLY, OF ROCHESTER, NEW YORK.

SAFETY DEVICE FOR ELECTRIC CARS.

SPECIFICATION forming part of Letters Patent No. 528,438, dated October 30, 1894.

Application filed November 21, 1892. Serial No. 452,709. (No model.)

To all whom it may concern:

Be it known that I, JOHN MILLER KELLY, a citizen of the United States, residing at Rochester, in the county of Monroe, in the State of New York, have invented certain Improvements in Safety Devices for Electric Cars, of which the following is a specification, reference being had to the accompanying drawings.

My invention relates to an improved safety device for preventing accidents in the operation of electric cars, which improvement is fully described and illustrated in the following specification and the accompanying drawings,—the novel features thereof being specified in the claims annexed to the said specification.

In the accompanying drawings representing my improved safety device, Figure 1 is a side view of a portion of a car showing my improvement attached thereto. Fig. 2 is a perspective view of the safety platform or grating detached. Fig. 3 is an enlarged view of the trip mechanism. Fig. 4 represents a modification.

In order to prevent injury to persons or animals accidentally on the track in front of a moving car, I attach to the truck a safety platform or grating which extends forward to the end of the car at a suitable distance above the rails, and is provided at its outer end with a trip which is operated automatically, by one or more movable fenders or guards, so that on encountering an obstruction the front end of the grating drops to the level of the rails and forms an inclined plane which picks up the obstacle and carries it onward without serious injury until the car is stopped.

In the accompanying drawings, A represents the body of the car; B, the truck-frame; C, one of the truck-wheels, and G the platform or grating.

The truck-frame, which may be of any ordinary construction, is provided as usual with a cross-bar E, which may be attached directly to the frame or supported by the brackets F.

D represents springs by which the car-body is supported on the truck-frame.

The platform of the car, which is occupied by the motorman, is indicated at H, and it may be either open or provided with doors,—one of which, on the far side of the car, is par-

tially represented at I. To the front end of the grating is pivoted a supporting rod J, which extends upward through the car platform, and is provided with a notch *a*, in which the point *b* of the spring-catch or trip L engages, so that the grating is held normally in the position indicated in the full lines in Fig. 1, in substantial parallelism with the rails. Provision is made for disengaging the catch from the notch in the rod, so that the front end of the grating may drop down to the track, as indicated by the dotted lines in Fig. 1, either automatically or by a foot-piece or tread located so as to be conveniently reached by the motorman.

To provide for the automatic operation of the platform, one or more movable fenders or guards N are attached to the front of the car, connected with the catch L by the rod *e*. The fenders, of which there may be any preferred number, arranged at suitable distances apart along the front end of the car, are attached to a shaft *f*, pivoted in suitable eyes or bearings secured to the car. The rod or connection *e* is pivoted at one end to the catch L, and at the other attached to one of the fenders or to an arm on the shaft *f*.

The fenders may be made of wooden strips or of suitable metallic rods or strips,—the intention being to give them sufficient rigidity to operate the catch L when they come in contact with any obstacle in front of the car, and yet to have them sufficiently elastic not to inflict any serious injury on any animate object in such situation.

In order to provide for the tripping of the grating by the motorman, I place on the car-platform a foot-piece or tread, P, which is connected to the catch L in any suitable way so that by depressing the tread, the catch is disengaged and the grating allowed to drop. Such connection may be arranged in many different ways,—that shown in the accompanying drawings and consisting of the rod *g* and arm *h* being simple and efficient. The movement of the parts is indicated by the dotted lines in Fig. 3. If the motorman sees an obstruction on the track, in time, under circumstances where he cannot stop his car, he puts his foot on the tread P, and drops the grating, so that the object may be caught on the inclined platform and carried along until

the car is stopped,—being thereby prevented from getting under the wheels,—the fenders bending out of the way. The grating should be made of a width not materially less than the distance between the rails. In length it may be adapted to the particular style of car to which it is attached.

The grating is constructed in any suitable way to combine strength with lightness. It may be a tight platform, but it is preferable to make it open or perforated, and the construction shown in Fig. 2, in which it is represented as made of a frame-work of tubes supporting a wire-netting, is cheap and durable.

The rear end of the grating is pivoted at *i* to the cross-bar *E*, or other suitable part of the truck-frame,—the object being to secure as much space between the bottom of the car and the top of the grating as is consistent with keeping the grating from striking the track during ordinary running. The front cross-bar *j* of the grating may be provided with any suitable form of pad, as indicated at *k*, Fig. 2,—such as a covering of stuffed leather or fabric, india-rubber, or other suitable material,—to prevent injury to any object with which it may come in contact. The lower part of the rod *J* may be similarly protected with a suitable padding, as indicated at *l*. The rod *J* is provided with a handle or pull, *m*, Figs. 1 and 3, by which the grating may be raised when desired.

It will be understood that the catch and its connected parts are represented on an enlarged scale in Fig. 1, and that, in order to secure a clear opening between the car and the grating, the catch *L* may be arranged to swing horizontally, on a vertical axis, instead of about a horizontal axis, as shown,—the connected parts being correspondingly modified. *o* is a suitable spring by which the catch is held in engagement with the notch in the rod *J*, and *q* is the pin or pivot on which the catch turns. The catch is inclosed and supported by a suitable casing *R* attached to the car-body.

In order to lock the grating in place so that it cannot be depressed, a block or stop, *r*, Fig. 3, may be placed under the tread *P*. This stop may be pivoted to the car platform, so as to be swung in under the tread,—the rod *g* in this case being pivoted to the arm *h*. By this means the grating may be locked in its normal position when desired,—as for instance, in running through snow-banks.

In the modification represented in Fig. 4, the trip is applied directly to one of the fenders, which is provided with a hook or catch *s*, which is bent so as to engage with a suitable part of the grating, and to support it in its normal position, unless the fenders are swung backward by contact with some obstacle. In the construction shown, the fender *N* is made of metal, and is bent backward and downward so as to engage with the rear and lower sides of the front cross-bar *j* of the grating *G*. The arrangement of the front

cross-bar *j* in rear of the fender or fenders, in consequence of the rearward extension of the catch *s*, allows sufficient time for the front end of the platform or grating to fall to the level of the track when the fender comes in contact with an obstacle, before the front cross-bar arrives at the obstacle, which is thereby prevented from getting under the platform. A spring is attached in any convenient way so as to hold the fender in engagement with the grating—such for instance as the spring *w* on the arm *t*. A lever *u*, pivoted at *v* to the car-platform, and connected with the tread *P*, serves to put the grating under the control of the motorman.

It will be observed that the fenders are placed in front of the front end of the grating, so that an obstacle necessarily comes in contact with the fenders before it can strike the grating.

The tread may be provided with or connected with a bell, so that persons in the car or within hearing may be informed of the precise instant when the grating is dropped. In case the hooked fender shown in Fig. 4 be employed, the cross-wires opposite it should be omitted, to allow its movement, or it may be placed at one side of the grating.

It will be understood that the rear end of the platform or grating may be attached to arms or brackets depending from the car body, but I prefer the arrangement shown as cheaper and more convenient.

The edges of the platform may be cut away or bent inward so as to allow the use of the ordinary scrapers in front of the wheels.

I claim—

1. The combination with a car of a fender hinged at its rear end to the car, and a pivoted catch adapted to be connected with the free or forward end of the fender, said catch located in position and adapted to be operated by the foot of the motorman to drop the fender, substantially as set forth.

2. The combination with the body and running gear of a car, of the platform arranged underneath the body of the car, hinged at its rear end and provided at or near its front end with a supporting rod, one or more fenders attached to the front of the car, and suitable trip-mechanism operated by the contact of one of the fenders with an obstacle, substantially as described.

3. The combination, with the body and running gear of a car, of the platform arranged underneath the body, hinged at its rear end, and supported at its front end by a movable trip, one or more fenders attached to the front of the car, and arranged to operate the trip or catch upon the contact of one of the fenders with an obstacle, and mechanism whereby the platform or grating may be released by the motorman, substantially as described.

4. The combination, with the body and running-gear of a car, of the platform or grating *G*, hinged at its rear end and provided at or near its front end with the notched support-

ing rod J, the movable catch L, one or more fenders N and connection e, substantially as described.

5 The combination, with the body and running gear of a car, of the platform or grating G, hinged at its rear end and provided at or near its front end with the notched supporting rod J, the movable catch L, one or more

fenders N and connection e, and the tread P arranged to operate the catch, substantially as described.

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Witnesses:

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