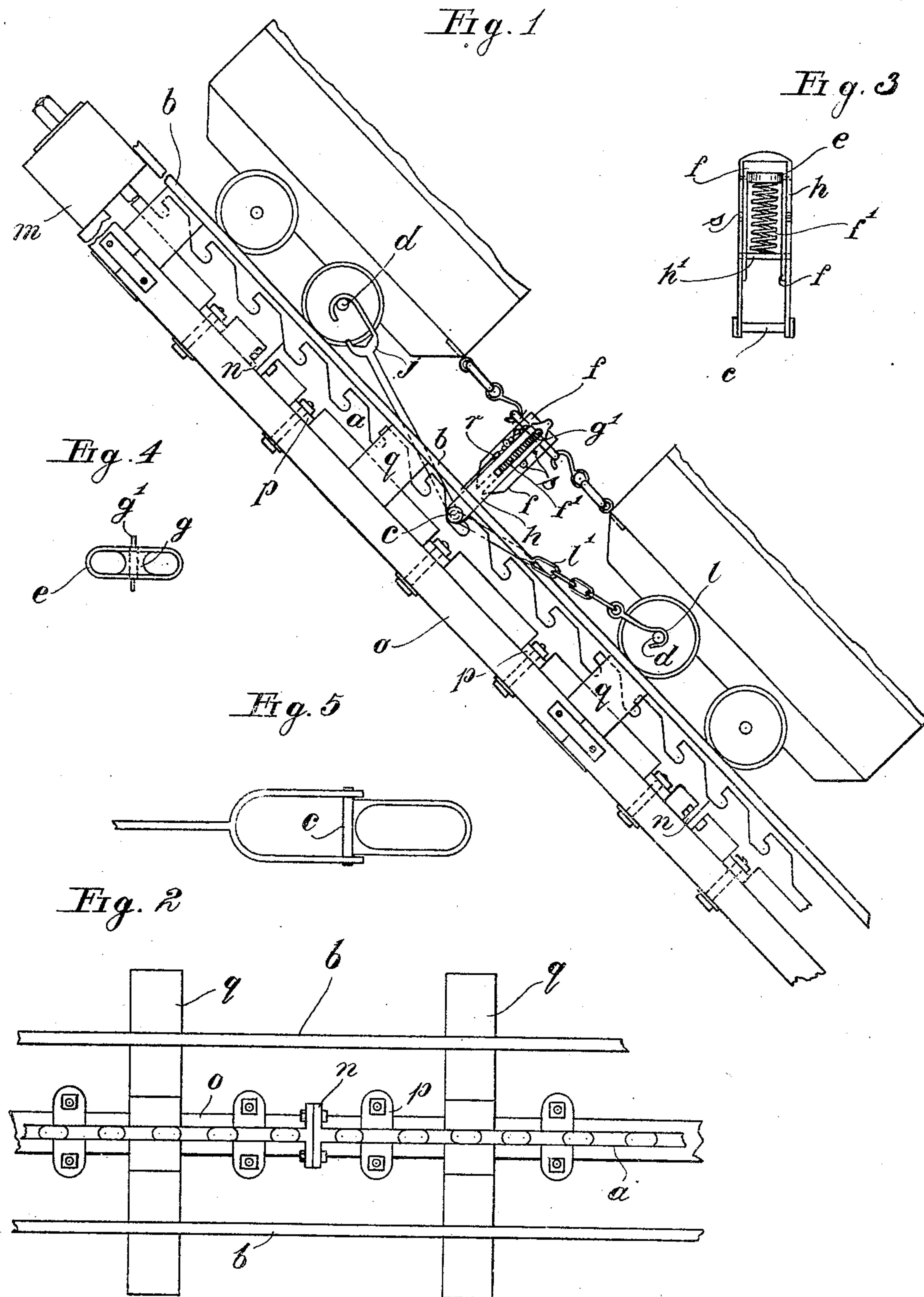


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SAFETY APPLIANCE FOR COLLIERY AND OTHER INCLINES.
APPLICATION FILED MAR. 10, 1908.

931,078.

Patented Aug. 17, 1909.



Witnesses
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UNITED STATES PATENT OFFICE.

JOHN NORTON, OF WIGAN, ENGLAND.

SAFETY APPLIANCE FOR COLLIERY AND OTHER INCLINES.

No. 931,078.

Specification of Letters Patent.

Patented Aug. 17, 1909.

Application filed March 10, 1908. Serial No. 420,279.

To all whom it may concern:

Be it known that I, JOHN NORTON, mining surveyor, a subject of the King of England, and resident of Wigan, county of Lancaster, England, have invented Improvements in Safety Appliances for Colliery and other Inclines, of which the following is a specification.

This invention has for its object the prevention of the almost daily accidents which occur in inclines in mines, and often on the surface through breakage of the rope or coupling in which case the wagons rush down the incline with great force. At present the method adopted to prevent this, is having a trailing bar on the lowest carriage, which when the coupling breaks and the carriage begins to descend, catches in the roadway. It often happens however, that the force of the descending wagons overcomes that of gravity, and the wagons rise up over the lowest, or tear up the track, and the result is a very bad breakage. Now by my invention this is entirely prevented as will be understood with the aid of the accompanying drawings, in which:—

Figure 1 is an elevation of an incline showing the present invention. Fig. 2 a plan of the incline, and Fig. 3, Fig. 4 and Fig. 5 details of the catch device hereinafter described.

The invention consists essentially in having first a firmly planted rack *a* preferably between the rails *b*; secondly a bar *c* which ordinarily will slide or be lifted over this track *a*, but on the breaking of a coupling will at once fall into this rack, and as this bar is linked to the carriage axle *d*, it at once holds the carriage axle firm. One of these bars is preferably fitted to every pair of wagons, and it is so arranged that it can at any moment be disconnected by hand. In my original design as shown for this purpose, I formed the central link *e* of the links connecting the wagons as the bearing of a vertical slotted bar *f* held to the link *e* by a central cross piece *g* carrying a pin *g*¹, on this bar *f* is a stout stirrup *h* normally pressed downward by the spring *f*¹ carrying the catch bar *c* and cross bar *h*¹. On this catch bar *c* are pivoted the stirrups of two hooks *j* and *l* hooking on to the axles *d* of two adjacent wagons. The hook *j* is preferably rigid so as to stand compression, the actual hook being double as shown, while

the hook *l* can be provided with links *l*¹ connecting it to the bar *c* as it will only be submitted to tension. The central vertical link or stirrup *h* preferably has a device such as a pin *r*, capable of being inserted in the holes *e* in the slotted bar *f* and in the stirrup *h*, so that it can be drawn up and hooked on to the central bar so as not to come in contact with the rail at all, and thus be out of action when the carriages are descending in order to be coupled up to more carriages. When the carriages are coupled and the train is ready to start up the incline, the pin *r* is withdrawn by hand from the hole *s* and the catch bar is pressed against the rack by the spring between the stirrups. This latter is the normal position of the catch bar when the train is ascending the incline. In this same original design, the rack *a* firmly secured at the top to an extremely strong timber cross piece *m* at the head of the incline and each piece of the rack after the first is firmly attached to the one above by fish plates and bolts as at *n*. Further this rack is firmly bolted down on to the longitudinal sleepers *o* as at *p* passing under the transverse sleepers *q* on which the rails are laid, and the whole is thoroughly well bolted in place. In thus describing my original design, I do not however bind myself to the exact arrangement as the necessary parts only are a firmly fixed rack, a piece carried by the two carriages or even each carriage and capable of hooking into the rack at any tooth and a device, whereby this hooking device can be lifted from the rack when the carriage is normally descending; I in fact apply to an incline the safety appliance of hooks and racks of the type at present applied to vertical hoists, but as in inclines wedging action so useful in vertical hoists cannot be used, I use a rack extremely firmly fixed to the floor of the incline, and held down also by the entire weight of the rails and sleepers.

Having fully described my invention, what I claim and desire to secure by Letters Patent is:—

1. In a safety appliance for colliery and other inclines, a catch bar linked to the carriage or wagon preferably to the axle and supported by the carriage coupling, in combination with a rack, as described.

2. In a safety appliance for colliery and other inclines having a catch bar acting in

conjunction with a fixed rack, mounting the bar on a vertical link or stirrup, which latter rests on the middle link of the coupling between two carriages, and connecting the
5 bar by suitable hooks to the axles of the carriages, substantially as described and shown.

3. In a safety appliance for colliery and other inclines, having a catch bar acting in conjunction with a fixed rack securing the
10 rack to longitudinal sleepers under the trans-

verse sleepers carrying the rails, substantially as described and shown.

In testimony whereof I have hereunto set my hand in the presence of two subscribing witnesses.

JOHN NORTON.

Witnesses:

DANIEL GLEESON,
JOSEPH NORTON.