No. 676,903. Patented June 25, 1901.

W. R. MEIKLE.

AUTOMATIC COUPLING FOR RAILWAY OR LIKE VEHICLES.

(Application filed Oct. 9, 1900.)

(No Model.) 2 Sheets—Sheet 1.

Fig. 2.

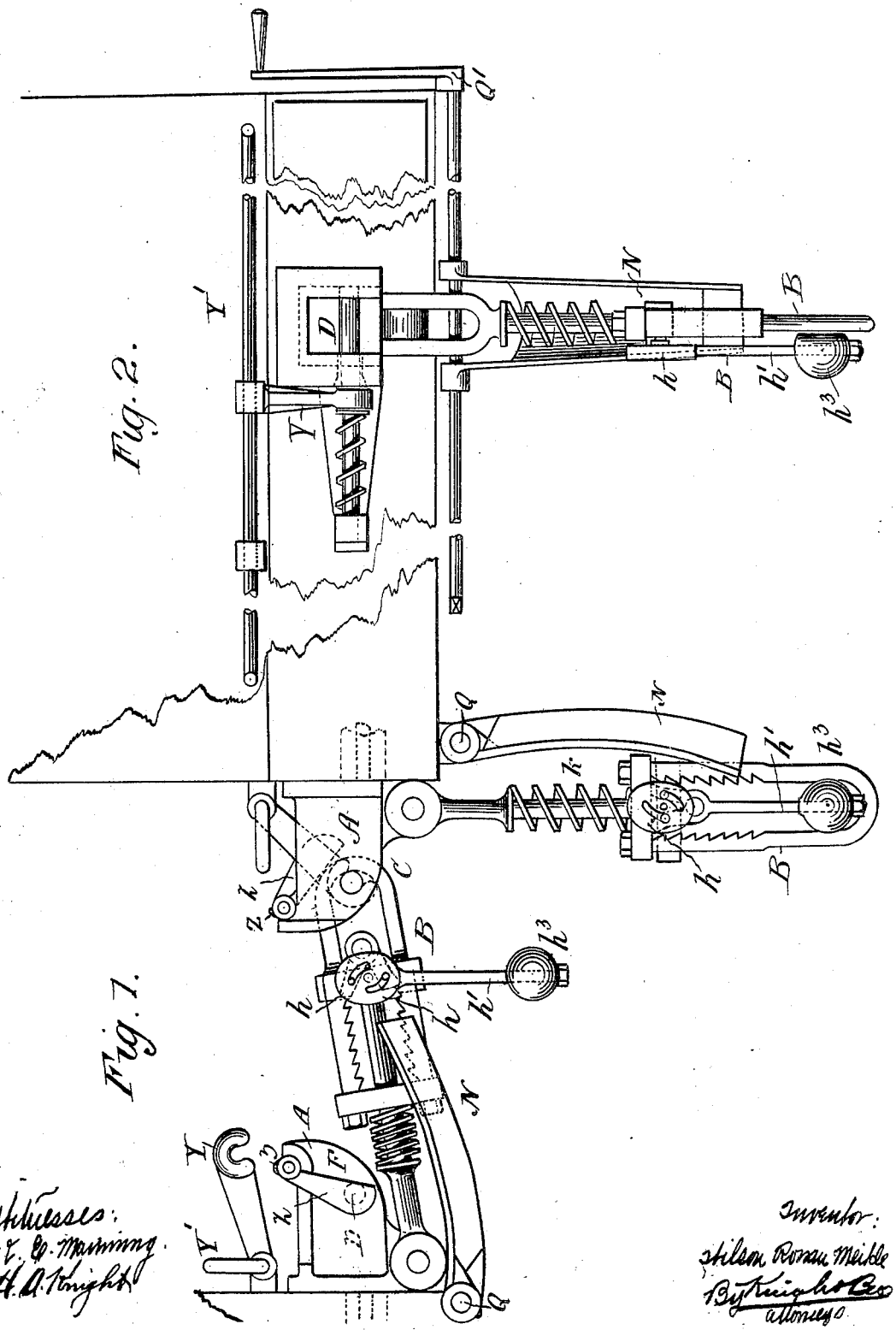


Fig. 1.

Witnesses:
W. E. Manning
H. A. Knight

Inventor:
Wilson Ronan Meikle
By Knight Bros
Attorneys

No. 676,903. Patented June 25, 1901.

W. R. MEIKLE.

AUTOMATIC COUPLING FOR RAILWAY OR LIKE VEHICLES.

(No Model.) (Application filed Oct. 9, 1900.) 2 Sheets—Sheet 2.

Fig. 3.

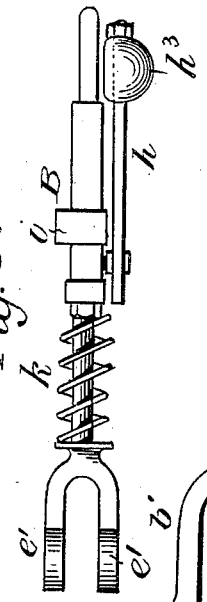


Fig. 4.

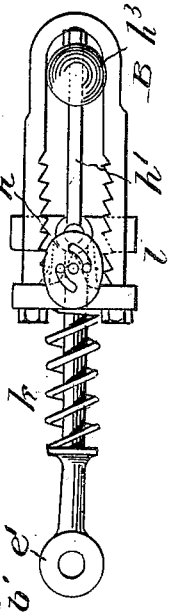


Fig. 5.

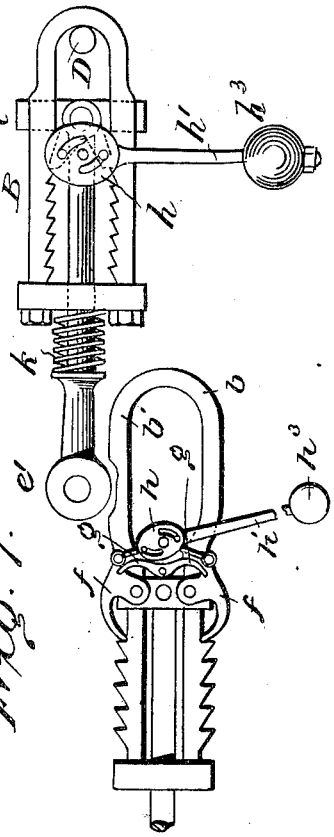


Fig. 6.

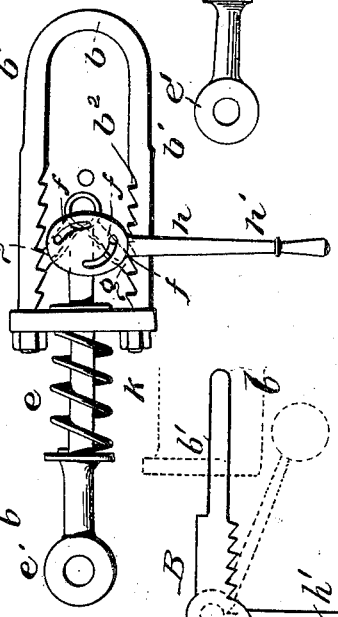


Fig. 7.

Fig. 8.

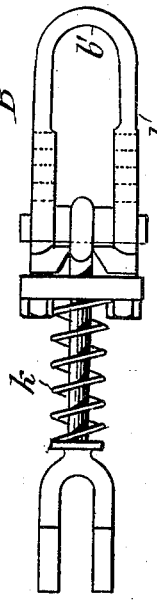
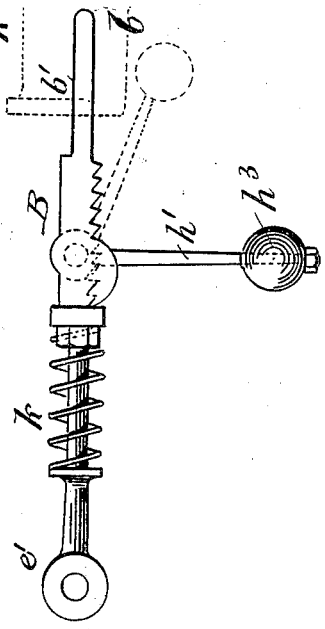


Fig. 9.



Witnesses:
H. E. Mannix
L. A. Knight

Inventor
Nelson Roman Meikle
By Knight Bros
Attorneys

UNITED STATES PATENT OFFICE.

WILSON ROWAN MEIKLE, OF GLASGOW, SCOTLAND.

AUTOMATIC COUPLING FOR RAILWAY OR LIKE VEHICLES.

SPECIFICATION forming part of Letters Patent No. 676,903, dated June 25, 1901.

Application filed October 9, 1900. Serial No. 32,504. (No model.)

To all whom it may concern:

Be it known that I, WILSON ROWAN MEIKLE, assurance manager of The Liberal Club, in the county and city of Glasgow, Scotland, have invented certain new and useful Improvements in and Relating to Automatic Couplings for Railway or Like Vehicles, of which the following is a specification.

This invention relates to improvements in apparatus for automatically coupling and uncoupling railway-carriages, wagons, and other vehicles and links connected therewith, and has for its object to dispense with the necessity of any one going between the vehicles when coupling or uncoupling.

In the drawings, Figure 1 is a side elevation of two cars broken away, showing my improved link in coupled and uncoupled position. Fig. 2 is a front elevation of a car broken away with the link in uncoupled position. Fig. 3 is a top plan of my improved link detached. Fig. 4 is a side elevation of the same, the parts being in normal position. Fig. 5 is a similar view, the parts being locked in working position. Fig. 6 is a view similar to Fig. 5, the parts being in different relative position. Fig. 7 is a side elevation of a slightly-modified construction. Figs. 8 and 9 are respectively bottom plan and side elevations of still another modification.

In carrying out my invention I provide on one of the vehicles a coupling-box A, which is attached to or forms part of the draw-bar. This coupling-box A may be of a square or elliptical shape with a flattened top or any other suitable shape. It is open at its outer side for the coupling-link B to enter, and it is also provided with an opening to permit a pin D to pass through the coupling-box A when two vehicles are being coupled, as will be hereinafter more fully described, and it is so shaped as to act as a guide for the link when inserted with the object of having it in the best possible position when the pin drops through it. With this view I may make the bottom and both sides of the box A to taper inward in the direction of the draw-bar.

When the coupling-link does not maintain of itself the proper coupling position, it may be raised by a bent arm or lever Q, to which the coupling-link 8 is rigidly fixed, which is operated by the hand directly, or the coupling-links may be raised to the required position by a cradle N. This cradle may be fixed to the end of the vehicle carrying the coupling-link 8, or it may be fixed to the draw-bar. (Not shown.) It consists of an iron or other frame, preferably of crescent shape; but it may be of any other shape to suit the link to be carried, and it is suitably hinged to the vehicle or draw-bar toward its upper end and hangs perpendicularly, with the concave side facing outward. This cradle N is operated by a lever Q, carried to the outside of the wagon, or it may be raised by a chain. Should any resiliency be required, this may be accomplished by having a length of spiral spring on the raising-chain, or some such convenient means may be employed for raising the cradle and altering the amount of resiliency necessary. When released, the cradle falls out of the way by its own weight.

The vehicles may be fitted at both ends, if desired, with coupling-boxes, pins, levers, couplings, and all other appliances, so that each carriage may be able from either end either to give or receive the coupling-link. A reserve set of coupling apparatus is thus provided.

I make one of the ends b of the coupling-link B rounded in the usual manner, but having flattened sides b', while the other end is bolted or otherwise fixed onto a plate B', of metal, or, if desired, the plate may be made to slip into eyes on the sides of the link and clamped or fastened with screw-nuts, either rigidly or loosely, so as to give the link sufficient play. The flattened sides b' of the link B are provided on their inner sides with teeth b^2, which extend as far toward the rounded end as may be found most desirable. Passing through the plate fixed to the end of the link there is a movable rod e, having on its end clips f, which engage with the teeth b^2 on the sides of the link by means of suitable springs g, provided for the purpose, pressing on their sides. These clips f are released by means of a cam-plate h, operated by means of a lever h'. Suitable guides i, which run on top and bottom of link, may also be provided for end of rod should such be necessary to retain it in its proper position. The other end e' of the rod e fits into a coupling-link. (Not shown.) This end of the rod may be

fixed rigidly to the link, or it may be connected loosely, so as to give the coupling further flexibility, and thus provide for the jerk essential for the starting of goods or mineral trains or to get over the risk of fracture when the link is used for automatic coupling, or it may be connected in a manner similar to that first mentioned and be also provided with the clutching arrangement. Carried on that part of the rod coming between the links there is a spiral or other spring or springs *k* or other convenient arrangement which keeps the two coupling-links as far apart as possible when such is desired and also to provide for the amount of rigidity necessary for automatic coupling purposes.

As already mentioned, the extent to which tightening is desired can be regulated by the length of the link or links and the number of teeth, or it may be so regulated by the screwing up of the nuts connecting the metal plate to the link.

The end of either of the links is fitted onto the draw-bar of the carriage, or it may be so constructed as to form part of the draw-bar. Should the coupling-link be so fitted to the draw-bar as to hang pendent, it may be brought into coupling position by hand or by a coupling-rod, or it may be raised into position by a cradle attached to the carriage and operated by means of a lever or other suitable appliance. The teeth may be placed on the outside of one side of the link, as shown in Figs. 8 and 9, or on the outside of both, Figs. 7, 8, and 9.

When the coupling is affected by the pin passing across the box A, a weight h^3 may be attached to the lever h', which when the coupling-link is raised lies in a vertical position and so causes the teeth in the link to be locked by means of the cam-plate *h*, and thereby dispenses with the necessity of providing a spring for this purpose. When the coupling-link is lowered, the weighted lever falls and so disengages the teeth, and the link is thus allowed to lengthen of its own accord through the medium of the spring *k*. When the link is raised again, it is thus in the proper coupling position, all as indicated in Figs. 5, 6, 7, and 9.

Fig. 2 is a detached view showing a different arrangement for lifting the coupling-link. In this case the lifter N is crescent-shaped and may be pivoted to the carriage or draw-bar, so that in pulling the chain V that portion of the lifter on which the coupling-link is resting is raised.

The coupling-pin D is prevented from passing through the openings in the head by means of a tumbler Z, which in its normal state lies between the jaws. When a coupling is being effected, the link B throws the tumbler clear of the openings and so allows the pin to pass through. A check *z* on the tumbler is provided to prevent it from being thrown over beyond the desired distance. The coupling-pin may be withdrawn by a clutch *y*, connected to a lever *y'*, which may be fixed to the draw-bar or side of the carriage.

I claim—

1. In a car-coupling, the combination with an open link, teeth formed on the inside thereof near its open end, a sliding member mounted on the link, means carried by the said member adapted to engage said teeth, a bar *k* secured at one end to the sliding member and supported at its other end by a suitable pivot.

2. In a car-coupling the combination with an open link, teeth formed on the inside thereof near its open end, a sliding member mounted on said link, a brace closing the open end of the link provided with a central opening, a bar *k* secured at one end to the sliding member, and loosely mounted in an opening in said brace and pivoted at its other end to a suitable support, said bar being provided with a shoulder and a spring coiled around the bar between said shoulder and brace, and means carried by the sliding member adapted to engage the teeth on the link.

3. In a car-coupler the combination with the bar *k*, of a link, teeth formed on said link, a sliding member mounted on said link, means carried by said member adapted to engage the said teeth and means pivoted to the sliding member for operating the teeth-engaging means.

4. In a car-coupler the combination with the bar *k*, of a link, teeth formed on the same, a sliding member mounted on said link, pawls or dogs also mounted on the sliding member and means pivoted on the sliding member adapted to operate said pawls.

5. In a car-coupling, the combination with the bar *k*, of a link, teeth formed on the same, a sliding member mounted on said link, pawls also mounted on said member, a cam-plate connected with said pawls and mounted on the sliding member and means to operate said plate.

6. In a car-coupling, the combination with a link, teeth formed on the same, a sliding member mounted on the link, pawls mounted on said member, a cam-plate connected with said pawls and a weighted lever secured to the cam-plate, of a bar *k* connected at one end to said sliding member and pivoted to a suitable support at its other end.

In testimony whereof I affix my signature in the presence of two witnesses.

WILSON ROWAN MEIKLE.

Witnesses:
JOHN LIDDLE,
EDITH MARY EDMONDSTONE.