

(No Model.)

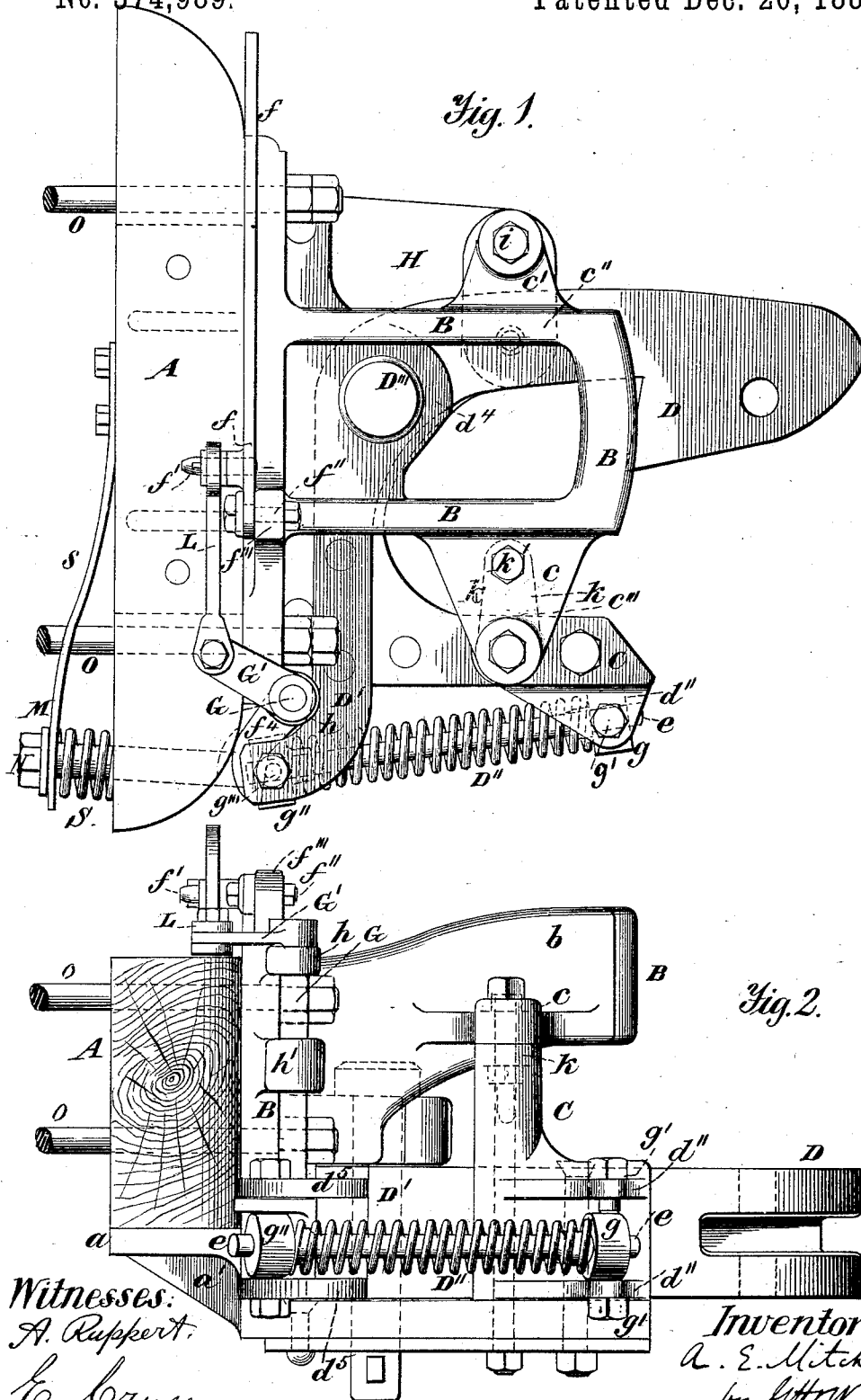
4 Sheets—Sheet 1.

A. E. MITCHELL.

CAR COUPLING.

No. 374,989.

Patented Dec. 20, 1887.



(No Model.)

4 Sheets—Sheet 2.

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Fig. 3.

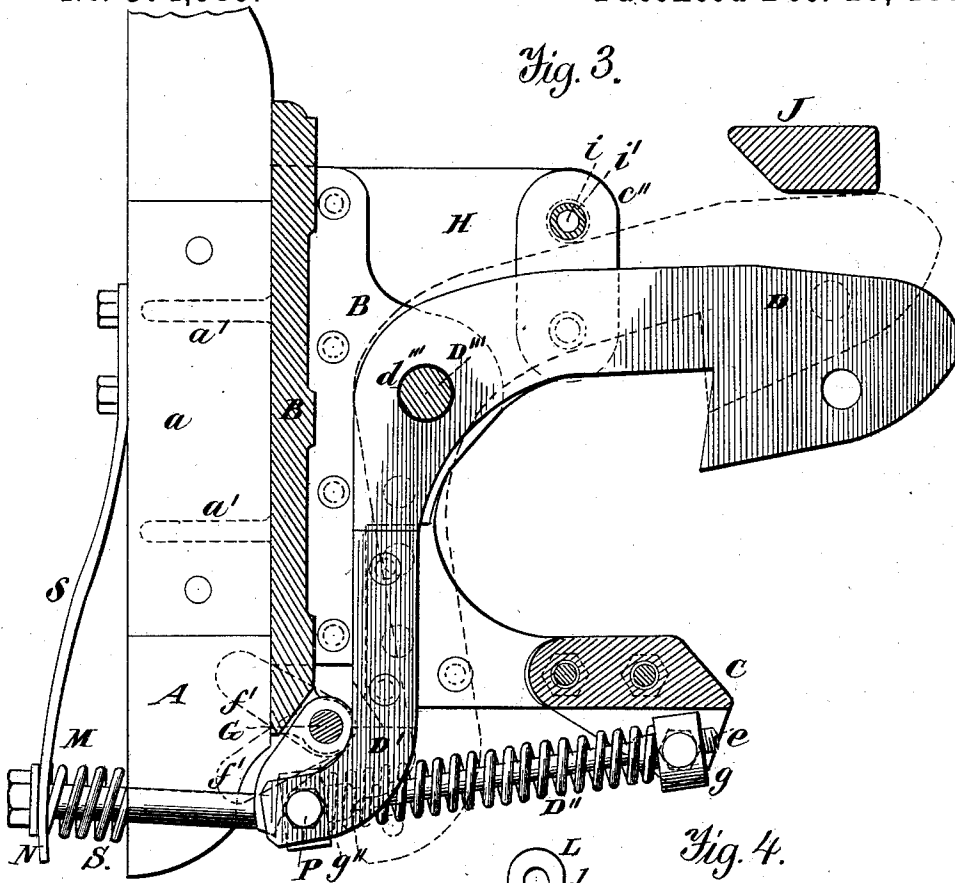
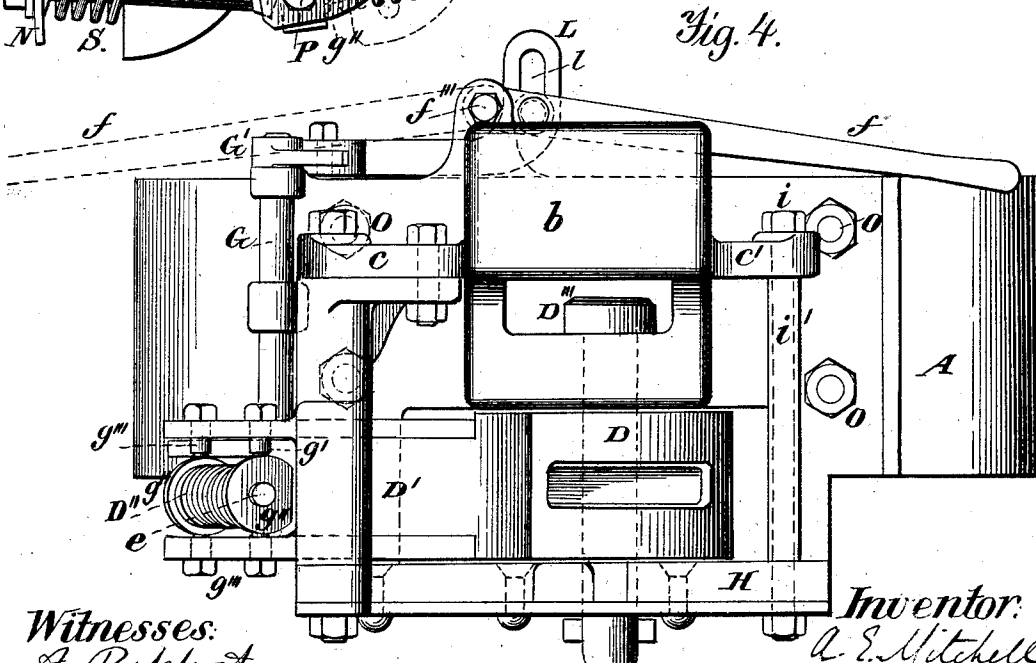


Fig. 4.



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Inventor:

A. E. Mitchell,

by *Wm. H. H. H.*
att'y.

(No Model.)

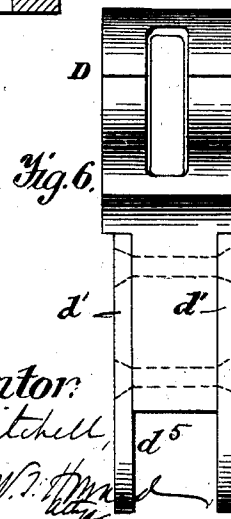
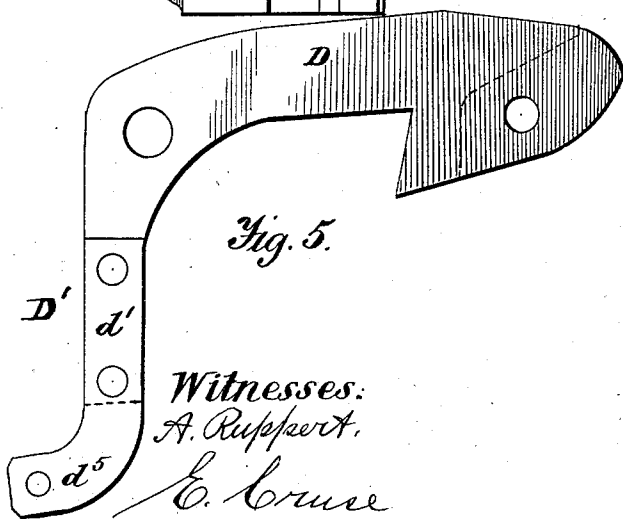
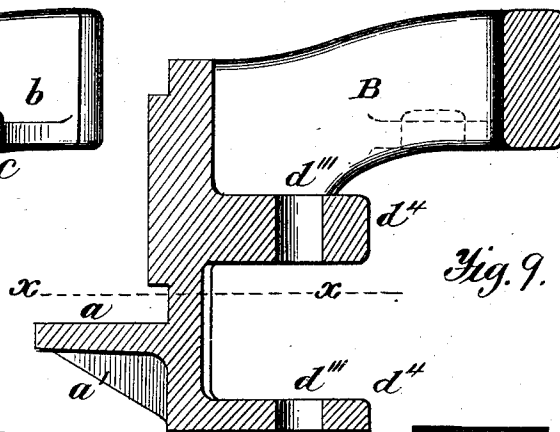
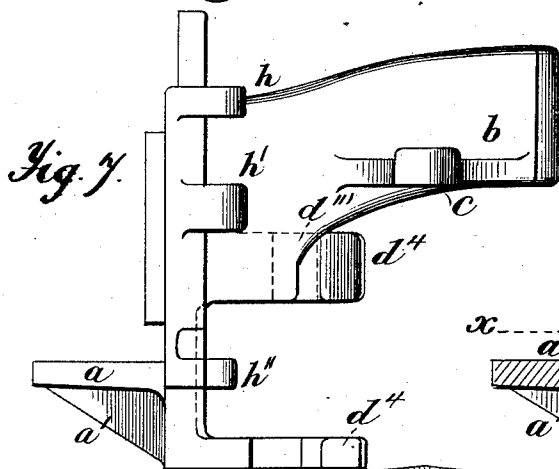
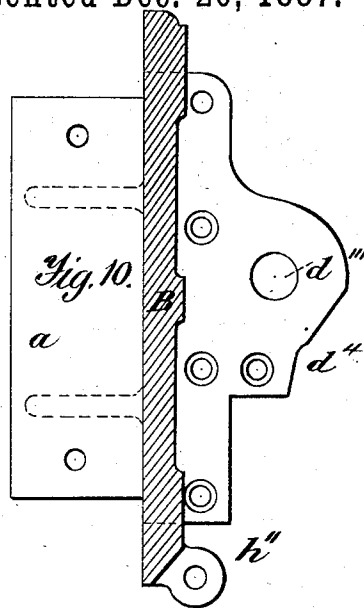
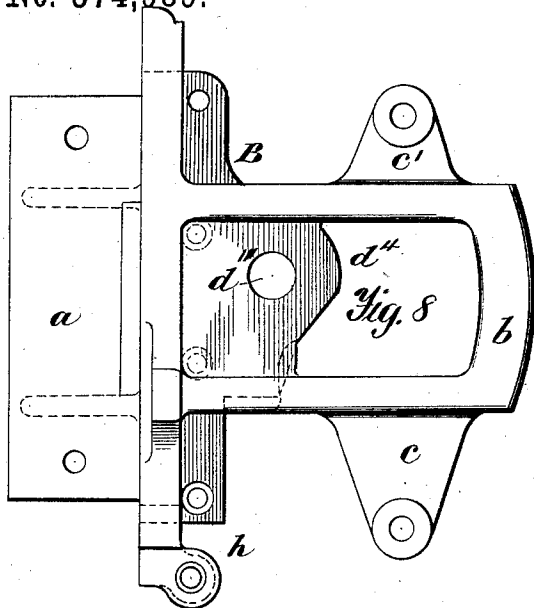
4 Sheets—Sheet 3.

A. E. MITCHELL.

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No. 374,989.

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4 Sheets—Sheet 4.

CAR COUPLING.

Patented Dec. 20, 1887.



UNITED STATES PATENT OFFICE.

ALBERT E. MITCHELL, OF CLEVELAND, OHIO, ASSIGNOR TO THE WILKINS
LOCOMOTIVE CAR COUPLER COMPANY, OF KITTERY, MAINE.

CAR-COUPLING.

SPECIFICATION forming part of Letters Patent No. 374,989, dated December 20, 1887.

Application filed July 14, 1884. Serial No. 137,688. (No model.)

To all whom it may concern:

Be it known that I, ALBERT E. MITCHELL, of Cleveland, in the county of Cuyahoga and State of Ohio, have invented certain Improvements in Couplers for Locomotive - Engine Tenders, of which the following is a specification.

My invention is an improvement upon the well-known Miller coupler, which is described in certain patents granted to Ezra Miller, as follows: No. 38,057, March 31, 1863; No. 46,126, January 31, 1865; No. 56,594, July 24, 1866.

The object of Miller's invention, as set forth more particularly in his Patent No. 38,057, is to effect the automatic coupling of the cars together and their uncoupling without the necessity of the brakeman going between the platforms of the cars, the invention being automatic in its character.

Briefly considered, Miller's invention consists of two horizontal coupling-hooks, one being arranged at each end of a car, &c., the hooks having such relation to each other that the hook on one end of the car will couple with the hook of any other car on the bringing of the two cars together. A spring is used with each coupling-hook, which yields as the hooks couple and afterward forms a stop to prevent their displacement. Buffer-boxes are dispensed with. The uncoupling of the cars is effected by the employment of devices extending above the hooks within reach of the brakeman. It is therefore unnecessary for him to go between the platforms to effect the uncoupling.

In Patent No. 46,126 are described means for connecting a car having the coupling-hook described in Patent No. 38,057 with a car or locomotive having any ordinary coupling contrivance applied to it.

In Patent No. 56,594 "one object of the invention is to prevent the crushing or giving away of car-platforms in the event of collision between trains, and also to so strengthen the platforms that they shall be capable of resisting the sudden shocks to which they are subjected, by locating the buffer-beam and its supporting-timbers in or nearly in a plane with the sill-beam and longitudinal timbers of

the car-bed, and employing in conjunction with such elevated platform a system of trussed braces, which are so applied as to tie the platform firmly to the car-bed, and also to sustain it against upward or downward strain." Another object "is to prevent the sudden and injurious jerks and concussions of cars in starting or stopping a train by the employment of centrally-arranged spring couplings and buffers in such manner that these parts are under constant tension or compression when the cars are coupled together and the buffer-heads are brought in contact with each other, thus forming a continuous connection of all the cars in a train."

The object of my invention is to appropriate in a newly-organized structure all the advantages which have long attended the use of the Miller coupler, and to so improve the construction in its application to engine-tenders as to effect a proper coupling both when the engine-tender frame is the same height as the car-frame or is too low to admit of the hook passing under the end sill.

Another object is to further improve the construction, whereby to add to its simplicity and effective working and to simplify and render more effective the uncoupling mechanism.

In the accompanying drawings, Figure 1 is a plan view of my invention. Fig. 2 is a side elevation thereof. Fig. 3 is a sectional plan through the center of Fig. 2. Fig. 4 is a front elevation. Figs. 5 to 31, inclusive, are details.

Similar letters of reference indicate similar parts in the respective figures.

A represents the bumper on the rear of the tender or the back end sill of the tender-frame. To the bumper is bolted a buffer-casting, B, a front view of which is shown in Fig. 14, on which is a shelf or flange, *a*, provided with ribs *a'*, the flange *a* passing under the bumper A to give additional strength to the device. On this casting a horn, *b*, projects upward and outward to press against the buffer-plate on the first car or coach when coupled to the train. On each side of this horn is an arm, the arms being marked *c c'*, respectively, and each projecting outward. The arm *c* holds in

place the striking-guard C through the medium of the arm *k* and bolt *k'*, and the other arm, *c'*, in connection with the first mentioned, by the bolt *i* and thimble-pipe *i'*, Figs. 27 and 28, secures in place the plate H. (Shown in Figs. 11, 12, and 13.) The plate H in turn supports the hook D, which is pivoted upon the bolt D'', the bolt D''' passing through the holes d'', formed within the projections d' of the casting B and the plate H. (See Figs. 7, 8, 9, 10, and 11.) For detailed views of the buffer-casting see Figs. 7, 8, 9, and 10, 7 being a side view, 8 a plan, 9 a vertical section, and 10 a transverse section on the line *xx* of Fig. 9. For detailed views of the hook D see Figs. 5 and 6, 5 being a top view, and 6 a front view.

On the plate H are bolted or riveted two blocking-pieces, *c'' c'''*, (see Figs. 11 and 12,) on which the hook D rests. The hook D is made of the proper shape at one end to couple with the Miller hook on cars, and at the other end is formed with an arm, D', which indirectly attaches to the end of a spring, D''. (Shown in detail in Fig. 18.) The attachment of the spring D'' to the hook D and the striking-guard C, which latter is shown in detail in Figs. 15, 16, and 17, is effected by the following devices: One end of the spring is supported by means of lugs d'', cast upon the side of the guard. The connection between the spring and the lugs d'' of the striking-guard is effected through the medium of the collar or thimble *g* and screws *g'*, (see Fig. 24,) the screw end of the spindle *e* passing through the thimble, as shown in Fig. 3. The spindle *e* is shown in detail in Fig. 23, and runs through the spring to prevent its being thrown out of a straight line when strained. The end of the spring which presses against the arm D' of the hook is connected to the said arm by a similar collar, *g''*, which slips loosely upon the stem *e*, the screws *g''* passing through lugs d', Fig. 5, of the plates d', attached to the arm D of the hook. (See Fig. 2.)

The collar or thimble and its screws are shown in detail in Fig. 25. A vertical rock-shaft, G, (see Fig. 29,) passes through lugs *h h'*, formed upon the casting B, (see Figs. 2, 7, 8, and 10,) and an arm, G', (shown in detail in Fig. 20,) is placed at the upper end of the rock-shaft, connecting through the link L, Fig. 19, with the lever *f*, Fig. 22, by a pin, *f'*, Fig. 30. The lever has its fulcrum on the bolt *f''*, Fig. 31, which passes through the lug *f'''* of the casting B. (See Figs. 1, 2, and 14.) An arm, *f⁴*, (see Fig. 21,) is attached to the lower end of the rock-shaft G, the arm *f⁴* being arranged to bear against the upper screw, *g''*, of the collar *g''* at that end of the spring D'' which is contiguous to the arm D' of the hook D.

It will be seen that by throwing the lever *f* from the position shown in full lines in Fig. 4 to the position shown in dotted lines in the same figure the arm *f⁴* will be forced against the screw-bolt *g''* and slip the collar *g''* upon the spindle, and thus compress the spring D'', whereupon the hook D, through the medium

of the connection between the collar *g''* and the arm D' of the hook, will be thrown from the position shown in full lines in Fig. 3 to the position shown in the same figure in dotted lines, which latter position is that which it assumes when unlocked from the hook of the adjacent car. The slot *l* in the arm L, Fig. 19, through which the bolt *f'* runs, allows the throw of the lever from the position shown in full to that shown in dotted lines in Fig. 3. J, Fig. 3, represents the position of the striking-guard on the first coach behind the engine-tender when coupled.

The bolts O O, Figs. 1 and 2, secure the device in place, and may or may not pass through the entire length of the tender-frame.

A buffer-plate and buffer-spring connected to the casting B can be used to come in contact with the buffer-plate on cars instead of the horn shown, if desired.

The spring D'' can be placed, if desired, in front of the end sill and bearing against it or an iron secured to it, and can be either spiral, elliptic, or flat, as shown at M and S, Figs. 1 and 3, with an eyebolt running through said spring and secured to the end of the coupling-hook at P by a bolt, and having a shoulder on the end N of the eyebolt, so that the spring will be compressed when the hook is uncoupled. The uncoupling can be done by pulling backward on the end N of the eyebolt either by a lever, chain, or link, or by a common brake-shaft and wheel with chain-connection, thus doing away with the lugs *h h'* on the horn-casting B, lugs d'' on the striking-guard casting C, and the parts shown in Figs. 19, 20, 21, 22, 23, 24, 25, 30, and 31. This device may also be made movable or portable, so that it can be applied to draw-castings on freight-engines without the removal of the same.

It will be seen that by arching forward the horn *b* of the casting B the said part of the casting takes the concussion of the cars during the act of coupling, and that by cutting out the supporting-plate H, as shown particularly in Figs. 1, 3, and 11, the hook of any car may be allowed to move up and down without striking it.

Having described my invention, I claim—

1. A hook held normally in the coupled position by means of a spring, combined with a buffer-casting having a shelf and arching up to come in contact with and receive the blow from the buffer-plate on the end sill or platform of a connecting car, substantially as set forth.

2. A hook having a pivotal movement in a horizontal plane and having a spring to keep it normally in the locked position, and a buffer-casting or a buffer-plate and spring in a plane above that occupied by the said hook, combined with a system of levers, or their equivalent, for uncoupling the hook by thrusting against the hook, spring, or eyebolt, substantially as set forth.

3. In a coupling device, a casting having

a horn arching upward and forward, and further having supports for a rock-shaft or bolt which serves as the pivot for the uncoupling arm or lever, substantially as set forth.

5 4. In a coupling device, a buffer-casting having a shelf and a portion arched upward and forward to receive the blow of the connecting car, combined with a buffer-plate, with or without buffer-spring, and a spring
10 coupling-hook, substantially as set forth.

5. The hook D, supported upon its pivot D''' and having the arm D', combined with the striking-guard C and compressible spring D'', substantially as set forth.

15 6. The hook D, supported upon its pivot D''' and having the arm D', combined with the striking-guard C and compressible spring D'' through the medium of collars or thimbles and screws and a spindle, substantially as set
20 forth.

7. The combination, with the hook D and striking-guard C, of the compressible spring D'', mounted upon a spindle, and a system of levers and arms for forcing the hook back upon
25 its pivot from the locked to the unlocked position, and thereupon sliding and compressing said spring upon its spindle, substantially as set forth.

8. The combination, with the casting B, of the rock-shaft *g*, arm *f*⁴, mounted thereon, piv- 30
oted spring-hook D D', and a system of levers, whereby the arm *f*⁴ is forced against the hook and spring, thereupon uncoupling said hook, substantially as set forth.

9. The combination of the casting B, lever 35
f, slotted link L, arm G', rock-shaft G, arm *f*⁴, and bolt-connections, substantially as set forth.

10. The combination of the spring D, spindle *e*, collars *g g''*, and bolts *g' g'''*, conjointly applied as a spring attachment to a coupler- 40
hook, substantially as set forth.

11. The plate H, placed below the coupling-hook, said plate being cut out to allow the hook from a car to move up and down without striking it, said plate being secured 45
to the buffer-casting and supporting the coupling-hook and striking-guard C, substantially as set forth.

In testimony whereof I have hereunto set my hand this 30th day of June, A. D. 1884.

ALBERT E. MITCHELL.

Witnesses:

C. L. LATIMER,
ROSS KELLS.