

(No Model.)

2 Sheets—Sheet 1.

W. A. COOPER.
CAR COUPLING.

No. 420,226.

Patented Jan. 28, 1890.

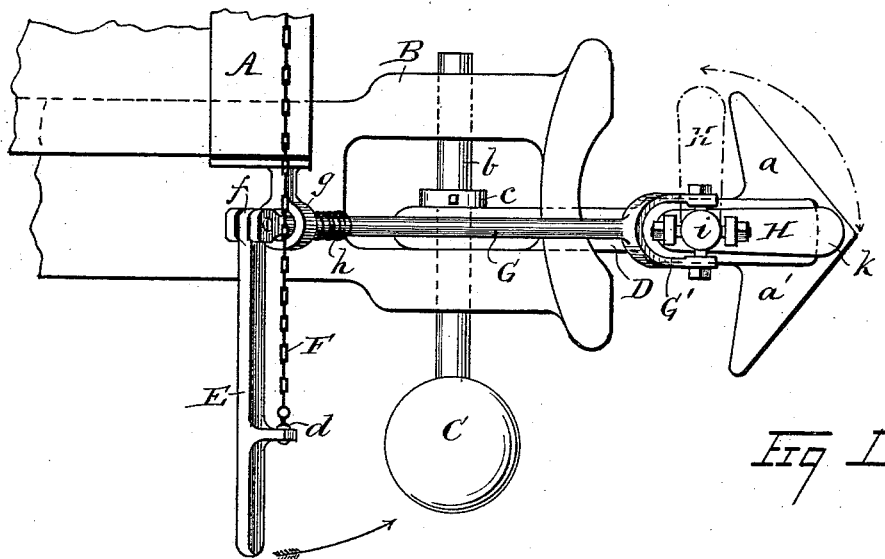


Fig 1

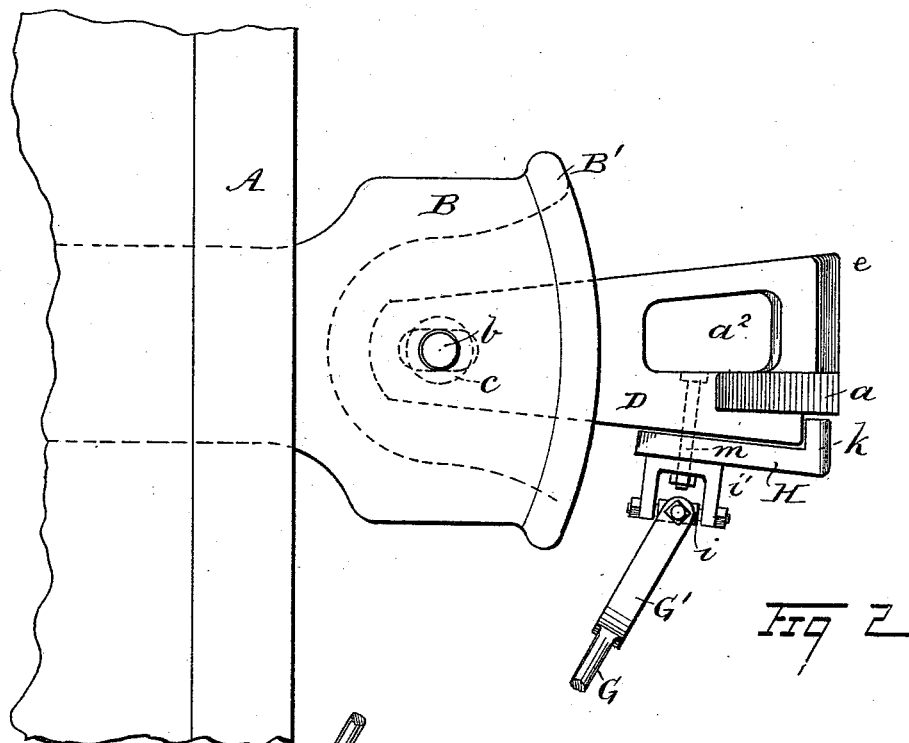


Fig 2

WITNESSES:

H. Walker
C. Sedgwick

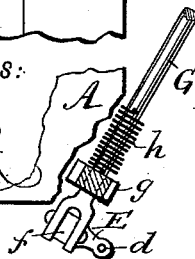


Fig 3

INVENTOR:

W. A. Cooper

B

Munn & Co

ATTORNEYS.

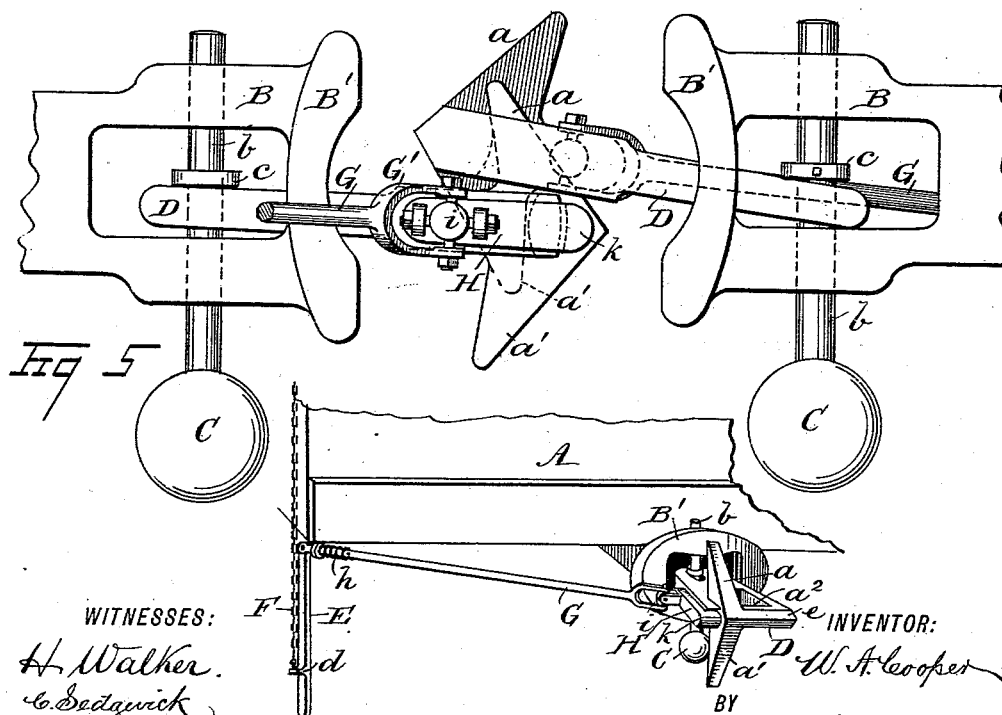
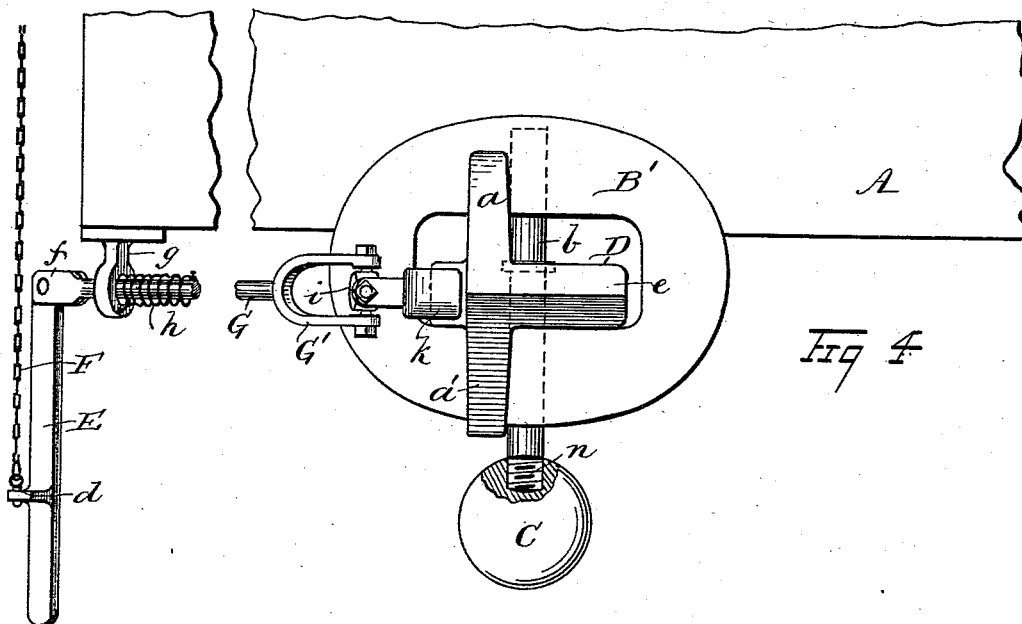
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INVENTOR:
W. A. Cooper
BY
Munn & Co.
ATTORNEYS.

UNITED STATES PATENT OFFICE.

WILLIAM A. COOPER, OF WEST GROVE, PENNSYLVANIA.

CAR-COUPLING.

SPECIFICATION forming part of Letters Patent No. 420,226, dated January 28, 1890.

Application filed December 6, 1889. Serial No. 332,787. (No model.)

To all whom it may concern:

Be it known that I, WILLIAM A. COOPER, a resident of West Grove, in the county of Chester and State of Pennsylvania, have invented a new and useful Improvement in Car-Couplings, of which the following is a full, clear, and exact description.

The object of my invention is to provide a coupling for railroad-cars which will be automatic in its action and that may be quickly manipulated to release the couplings when cars are to be detached.

A further object is to provide weighted supports for the coupling-limbs or draw-bars, so that these will be maintained in normal position for interlocking engagement, and another object is to furnish the car-coupling with efficient means for the detachment of two connected couplings in an expeditious manner from the sides or roof of the cars.

With these objects in view my invention consists in the peculiar construction and combinations of parts, as is hereinafter described, and indicated in the claims.

Reference is to be had to the accompanying drawings, forming a part of this specification, in which similar letters of reference indicate corresponding parts in all the figures.

Figure 1 is a side elevation of the coupling in position on the car. Fig. 2 is a top plan view of the coupling in place on a car. Fig. 3 is a view of the lever, whereby the coupling is detached, in place on the corner of a car. Fig. 4 is a front elevation of the coupling on a car-frame, the body of the car being removed. Fig. 5 is a side elevation of two couplings in interlocked engagement, showing the position of parts when the couplings are connected; and Fig. 6 is a perspective view of a front portion of a car with the car-coupling in position on the same.

The coupling is comprised of an elongated draw-bar D, having a slot produced in its rear end for the insertion of a pin *b*, which is provided with an adjustable collar *c*, that engages the top surface of the bar.

The draw-head B, in which the draw-bar D is inserted, is of the usual form employed where link-and-pin connection is provided. At a suitable distance from the bumper-plate B' the top and bottom walls of the draw-head are perforated for the free insertion of the

cylindrical pin *b*, to the lower end of which the weight C, preferably in the shape of a ball, is secured removably, the lower end of the pin being threaded to engage a tapped hole in the ball, as shown at *n* in Fig. 4.

Upon the forward end of the draw-bar D, which is there widened, as shown in Fig. 2, the inclined locking-limbs *a a'* are integrally formed, these being located oppositely or in the same vertical plane near one edge of the draw-bar, and, considered together, forming an "arrow-head."

The body of the draw-bar D is perforated vertically at *a²* for the reception of one limb of a corresponding arrow-head formed on a mating car-coupling when an interlocked engagement is to be produced.

As shown at *e* in Figs. 4 and 6, the front part of the draw-bar is beveled to an edge which aligns with the vertices of the arrow-head, and is a lateral extension of said vertices. An approaching draw-bar intended to couple to the one being described, if of similar construction, will either lift or depress the draw-bar when the front edges meet, and the upper or lower limb of the arrow-head will interlock with the apertures *a²*, provided for it.

In Fig. 5 the engagement of two mating draw-bars is shown, the parts adjusting relatively to effect an interlock of the limbs of the arrow-heads with corresponding apertures formed at their sides, and thus producing a secure but flexible connection of parts, which, by reason of the vertical play of the pins *b* and collars *c*, afforded by the weights C moving upwardly, is sufficient to provide for "curving" on the road or the connection of car-couplings, which vary in height from the road-bed.

A tripping-arm H is pivotally secured at *m* to the side of the draw-bar D, and on the same bolt which supports this arm one portion *i'* of a universal coupling *i* is mounted, which portion is rigidly connected to the tripping-arm to align its pivot-point. The other portion of the universal coupling-joint *i* is formed by the bifurcated portion G' of the rocking bar G, so as to adapt the bar when rocked to elevate the tripping-arm or lower it, as the case may require. At *g* the opposite end of the rocking bar G is loosely held to the corner of the car-frame A by a

depending bracket-box. Outside of the journal support of the bar a fork *f* is formed on said bar *G* for the jointed attachment thereto of the swinging lever *E*, to which a chain *F* is attached at *d*, said chain extending upwardly to reach the deck or roof of the car, (not shown,) and thus afford means for manipulation of the lever and rocking bar therefrom. On the outside extremity of the tripping-arm *H* a toe *k* is formed, which extends laterally so as to lie below the forward end of a mating draw-bar when the two bars are in locked engagement. At the other end of the rocking bar *G*, near to the bracket-box *g*, a coiled spring *h* is placed on the rounded body of the bar, the ends of the spring being respectively connected to the box and bar, so that the torsional strength of the spring will hold the tripping-arm *H* in its normal position, aligning with the draw-bar, as shown in Fig. 6.

If the lever *E* is swung upwardly from either side of a car or is drawn up by the chain *F*, the tripping-arm *H* will be elevated, as shown in dotted lines in Fig. 1, and an engaged draw-bar will be lifted sufficiently to disengage the limbs of the arrow-heads, thus detaching the couplings. When the swinging lever *E* is released, it will hang pendent, as shown in the figures; or it may be held elevated by securing the chain *F* so as to retain it in this position, which will prevent cars from coupling should this be desirable, as is the case in "cutting out" cars that are to be shifted onto a siding.

The torsional strength of the spring *h* should be sufficient to hold the tripping-arm *H* in depressed position until it is designedly elevated, and the size of the balls *C* must be gaged to afford proper weight for their service.

As the parts comprising the coupling mechanism are few and adaptable for use on ordinary draw-heads, it is claimed that an efficient device is afforded at a comparatively low cost.

The draw-bars of this improved coupling can be used in connecting cars having the ordinary link-and-pin connection, the link being hooked onto the inclined limbs *a* of the arrow-head in an obvious manner.

When ordinary car-coupling links are employed to couple a car provided with this improvement to a common draw-head on another car, the uncoupling can be effected by manipulation of the rod *G* and lever *E*, thus avoiding danger of injury to the operator.

Having thus described my invention, what I claim as new, and desire to secure by Letters Patent, is—

1. In a car-coupling, the combination, with a draw-head and a draw-bar having an arrow-head, of a vertical pin provided with a collar which engages the top side of the inner end of the draw-bar, and a weight on its lower end that holds the pin and its collar depressed and the draw-bar extended, substantially as set forth.

2. In a car-coupling, the combination, with a draw-head and a draw-bar having an arrow-head formed on its front end and a vertical aperture at the side of the arrow-head, of a vertical sliding pin and a weight attached to the pin, substantially as set forth.

3. In a car-coupling, the combination, with a draw-head and a draw-bar which is provided with an arrow-head and a vertical aperture at the side of the arrow-head, of a weighted pin which is made to slide in the walls of the draw-head, and a tripping-arm which is adapted to be rocked upwardly and release the interlocked connection of two mating draw-bars, substantially as set forth.

4. In a car-coupling, the combination, with a draw-head, a draw-bar having an arrow-head and an aperture vertically formed at the side of the arrow-head, and a sliding vertical pin which is weighted, of a tripping-arm, and a rocking bar attached to the tripping-arm and adapted to elevate it when the bar is revolvably moved, substantially as set forth.

5. In a car-coupling, the combination, with a draw-head, a draw-bar having an arrow-head and a vertical aperture at the side of the arrow-head, and a vertically-sliding weighted pin, of a pivoted tripping-arm that is adapted to engage a mating draw-bar and elevate it, a rocking bar, a universal-joint coupling which connects the rocking bar and tripping-arm, a swinging lever, a bracket-box, and a coiled spring, substantially as set forth.

6. In a car-coupling, the combination, with a draw-head, a draw-bar having an arrow-head and a vertical aperture at the side of the arrow-head, a vertical sliding pin, and an adjustable collar for the pin, of a tripping-arm, a universal-joint coupling, a rocking bar, a bracket-box, a coiled spring, a swinging jointed lever, and a flexible connection that extends from this lever to the roof of the car, substantially as set forth.

7. A draw-bar adapted for engagement with a draw-head, consisting of a bar apertured at one end, formed with an arrow-head at the opposite end, and provided with an aperture at one side of the arrow-head, substantially as shown and described.

8. The combination, with a draw-head and a draw-bar formed with an arrow-head and a side aperture, of a tripping-bar pivoted on the draw-bar, and means for raising said tripping-bar, substantially as shown and described.

9. The combination, with a draw-head and a draw-bar formed with an arrow-head and a side aperture, of a tripping-bar pivoted on the draw-bar, and a rocking bar pivoted to said tripping-bar, substantially as shown and described.

WILLIAM A. COOPER.

Witnesses:

GEORGE R. CHAMBERS,
EBER HESTON.