

(No Model.)

T. BALL.
CAR COUPLING.

No. 549,180.

Patented Nov. 5, 1895.

Fig. 1.

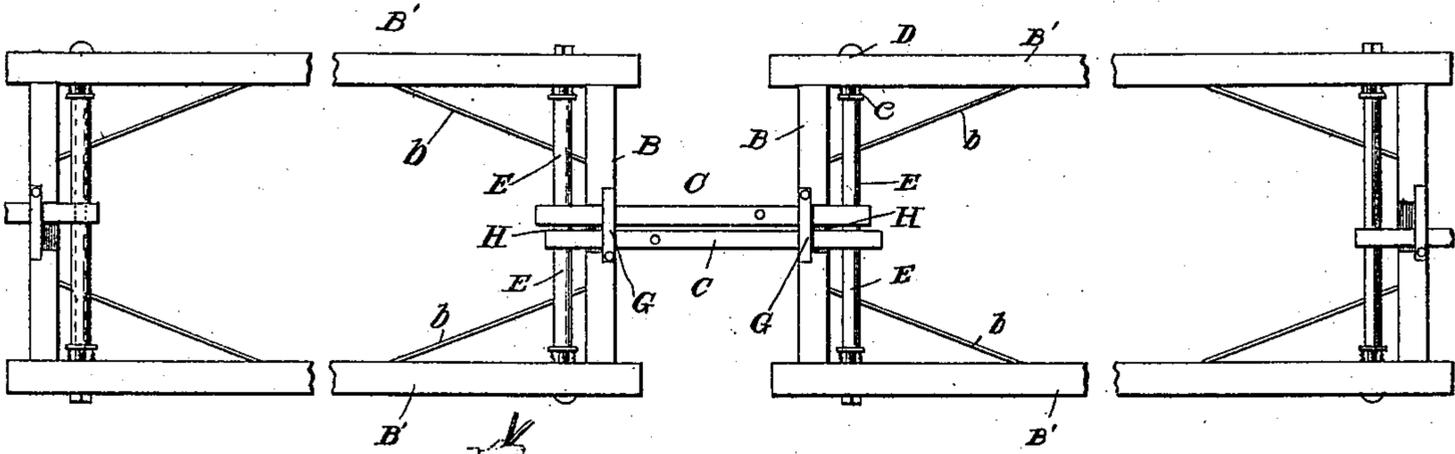


Fig. 2.

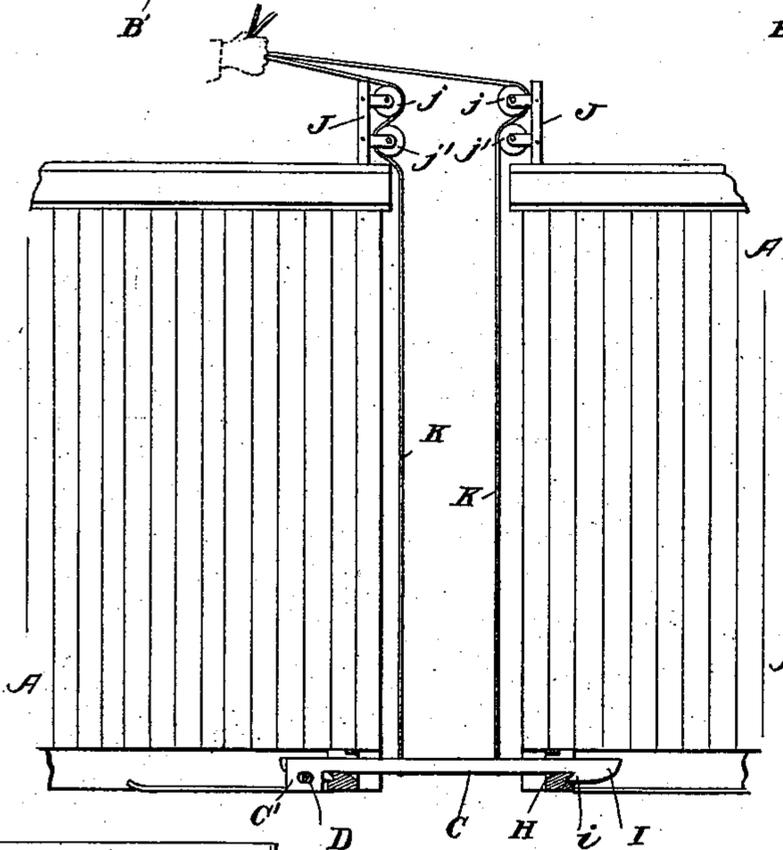


Fig. 3.

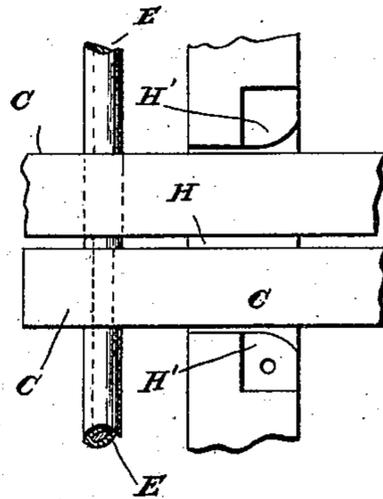


Fig. 4.

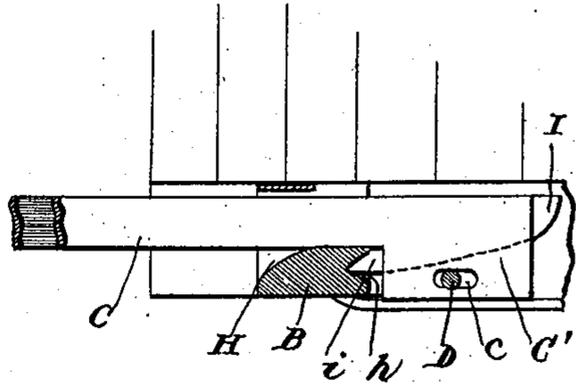


Fig. 5.

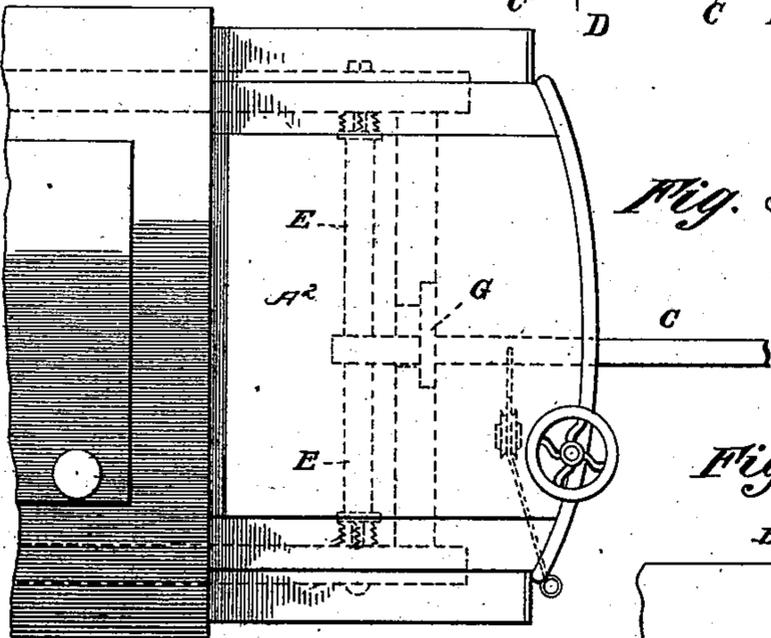
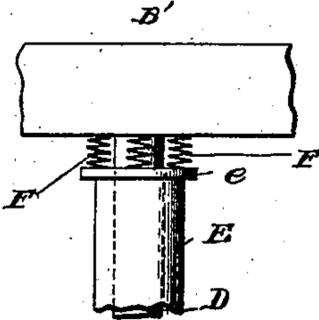


Fig. 6.



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CAR-COUPLING.

SPECIFICATION forming part of Letters Patent No. 549,180, dated November 5, 1895.

Application filed March 28, 1895. Serial No. 543,553. (No model.)

To all whom it may concern:

Be it known that I, THOMAS BALL, a citizen of the United States, residing at Hopeside, in the county of Northumberland and State of Virginia, have invented certain new and useful Improvements in Car-Couplers; and I do hereby declare the following to be a full, clear, and exact description of the invention, such as will enable others skilled in the art to which it appertains to make and use the same.

This invention has reference to an improvement in car-couplers, the object being to simplify and perfect the construction and operation of mechanisms of this character, and especially to make a strong and effective coupler, and provide for automatic uncoupling in case of accident; and the invention therefore consists, essentially, in the construction, arrangement, and combination of parts, substantially as will be hereinafter described and claimed.

In the annexed drawings, illustrating my invention, Figure 1 is the plan view of the lower frame of two cars having my improved coupling mechanism applied thereto. Fig. 2 is a partial side elevation of two freight-cars provided with my improved coupler, certain parts of which are shown in section. Fig. 3 is an enlarged detail plan view of a part of the coupler mechanism. Fig. 4 is an enlarged detail sectional view. Fig. 5 is a plan view of the platform and one end of a passenger-car provided with my new coupler. Fig. 6 is an enlarged detail view showing the yielding arrangement of one of the endwise-movable spacing-collars for keeping the coupling-links in place.

Like letters of reference denote like parts in all the different figures of the drawings.

A A denote the end portions of a couple of cars, being in the example shown in Fig. 2 freight-cars, although of course I do not intend to be restricted to any particular style of car. A passenger-car is shown at A' in Fig. 5, having a platform A². Beneath the cars are arranged the usual rectangular frames, composed of beams or sills suitably constructed—as, for example, the parallel longitudinal beams B' B', connected at each end by the transverse cross-beams B. In order to more firmly attach the beams B to the

beams B' B', and enable said beams B to withstand a greater strain thereon, I provide the inner brace-rods *b b*, which are fastened to the beams B and also to the beams B' B'.

The beams or sills B, which as we have seen, are at the front ends of the cars, are provided with central slots H, having horizontally-inclined or slightly-curved faces that slope toward the end of the car, as shown in Figs. 2 and 4, while the edges of the slots are made flaring at the front at H', so that thus the bottom and sides of slots H are flared to provide a sort of mouth to receive the coupling-links, which operate therein in a manner to be presently described. The rear faces of the beams B, on the side opposite to the inclined bottom face of the slot H, are provided with a recess or groove *h* to receive the hook of the grappling-link, as shown in Figs. 2 and 4.

C C denote the duplicate "grappling" or "coupling" links or hooks, as they may be termed. One of these is pivotally mounted at each end of each car. By referring to Fig. 1 it will be seen how they are situated parallel to each other. Take, for instance, the left-hand end of the right-hand car-frame shown in this figure. The coupling-hook C occupies there a position in the right-hand end of slot H; also, the hook C, belonging to the right-hand or adjacent end of the left-hand car-frame, occupies a similar position in the right-hand end of slot H in said frame. Thus when two cars come together the coupling-hooks C pass alongside of each other to the right. By always equipping the cars with the duplicate links thus arranged at the right hand in each instance a correct and accurate engagement of the parts will be insured. These coupling-bars C may be of any desired size and shape. When they are in coupling position, they will both occupy the two adjacent slots H, as shown in Fig. 1, and hence said slots should properly be of a width sufficiently large to easily accommodate the two bars therein and give them the necessary play. The rear ends of bars C have the enlarged parts C', and the forward ends have an arrow-head form, being rounded to a blunt point I and provided with the hook-point *i* on the under side. The rear ends C' of these bars C are pivotally hung upon the horizon-

tal bars D, which pass through the side beams B' B', and are held by means of an integral head at one end and an adjustable nut at the other, or by any other suitable means which
 5 may be found convenient and fitting for the purpose. The ends C' of bars C are provided with slots *c*, through which the rods D pass, the object of the slots being to take the strain
 10 off the rods D when the coupling-bars are in coupling action by permitting the enlarged ends C' to abut against the rear sides of beams B with a hooking action thereon.

The coupling or grappling links C are kept at the proper place upon the rods D and prevented from becoming displaced laterally by
 15 means of spacing sleeves or collars E, which fit tolerably loosely over the rod D and lie between the pivotal point of link C and the beams B'. In order to permit the pivotal end
 20 of the link C to have a little lateral play, it is found best to arrange these sleeves so that they will be yielding to a certain extent, and this is accomplished by arranging springs at their ends next to the beams B'. I preferably
 25 provide the ends of sleeves E with flanges *e*, and between these flanges and beams B', I arrange a series of, say, three spiral springs F, as shown in Fig. 6, said springs being held, for instance, in small openings in beams B'.
 30 These springs F exert a gentle pressure against the sleeves E and cause the latter to be yieldingly held against the pivotal portions of the coupling-links C, thereby allowing said links C to have a slight freedom of
 35 lateral movement upon their pivots.

Across each of the slots H is a flat horizontal spring G, which is secured at one end to the upper face of the beam B, the other end being free and therefore capable of being
 40 lifted. The end at which the spring is fastened is nearest to the link C belonging to the frame on which said spring is fastened. These springs act as a yielding-pressure device above the links C, and in conjunction
 45 with the slots H provide the openings or mouths into which the hooked ends of the links C enter when cars are being coupled together.

The operation of the grapplers C in coupling will be readily apparent from the foregoing description of the parts. When the cars approach each other, the inclined ends I of the links C will enter the opposite slots H and ride upon the inclined bottom faces thereof beneath springs G until they drop
 50 over the rear edges of beams B and the hooks *i* engage the rear grooves *h*, as shown in Fig. 4.

In order to uncouple the grapplers C, cords or chains K are attached to said grapplers at
 60 a short distance from their pivotal points.

(See Figs. 2 and 5.) In case of a passenger-car having platform A² the cord K may be carried over a single pulley and out to the edge of the platform, where it may easily be grasped by the brakeman. In the case of
 65 freight-cars, as shown in Fig. 2, I preferably carry the cords K to the top of the cars and around the pairs of pulleys *j' j'*, which are supported in the standards J. The manner of using these cords K is fully delineated in
 70 Fig. 2.

My improved car-coupler is especially useful in cases of accident, because it is so constructed as to permit an automatic uncoupling to be effected. If the locomotive or one
 75 car should jump the track, the wrench given to the locomotive or car by the displacement of the wheels thereby caused will make the coupling-links twist sufficiently to become disengaged from the slots H, and hence the
 80 derailment of one car will not effect the train, but the rest of the cars will be left secure upon the track.

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

1. In a car coupler, the combination of the car-beams having inclined slots, the pivoted coupling links having a bearing against said beams, and the yielding pressure device bearing
 90 above the links, substantially as described.

2. In a car coupler, the combination of the car frame having an incline-bottomed slot, the coupling links having slotted rear ends
 95 and hooked front ends, the rods supporting the slotted ends of the links, the flat springs above the links, and the receiving grooves for the hooked parts of the links, substantially as described. 100

3. In a car coupler, the combination of the coupling links, the rods on which they are pivotally supported, and the yielding collars on said rods, substantially as described.

4. The combination of the coupling links, the supporting rods therefor, the collars on said rods, and the springs at the ends of said collars, substantially as described. 105

5. The combination of the hooking links, the rods passing through slots therein, the yielding collars on the rods, the yielding devices above the links, and the car beams having inclined slots, substantially as described. 110

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

THOMAS BALL.

Witnesses:

CHAS. W. KENNARD,
 CLAY A. TEMPLEMAN.