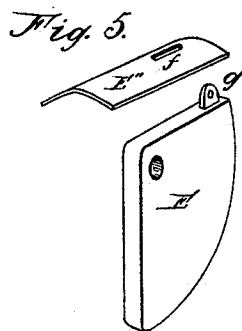
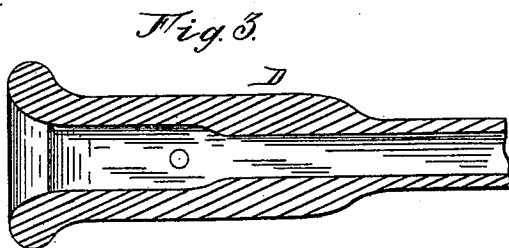
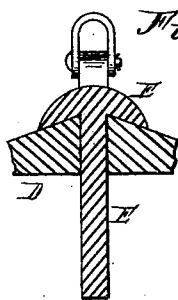
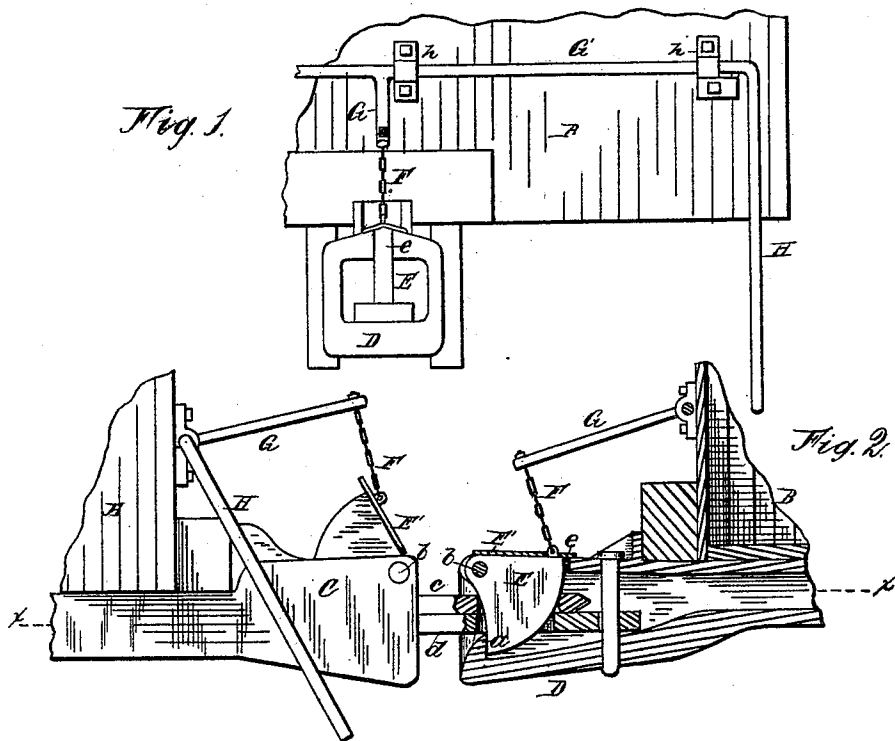


(No Model.)

J. B. GRAVES.
CAR COUPLING.

No. 460,532.

Patented Sept. 29, 1891.



Attest.

W. H. Meyers
S. M. Brainerd.

Inventor:
John B. Graves,
By J. M. St. John,
Atty.

UNITED STATES PATENT OFFICE.

JOHN B. GRAVES, OF CEDAR RAPIDS, IOWA.

CAR-COUPLING.

SPECIFICATION forming part of Letters Patent No. 460,532, dated September 29, 1891.

Application filed January 19, 1891. Serial No. 378,182. (No model.)

To all whom it may concern:

Be it known that I, JOHN B. GRAVES, a citizen of the United States, residing at Cedar Rapids, in the county of Linn and State of Iowa, 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.

The object of my invention is to improve the construction of car-couplers, so as to render the coupling thereof automatic regardless of the height of the cars and to simplify and improve the coupling devices.

The invention consists in the construction, combination, and arrangement of parts, as hereinafter fully set forth and claimed.

In the accompanying drawings, forming a part of this specification, Figure 1 is an end elevation of a coupler embodying my invention. Fig. 2 is a side elevation of a pair of them as coupled, one of the draw-heads being in central longitudinal section. Fig. 3 is a horizontal section of a portion of one of the draw-heads in the line *xx*. Fig. 4 is a transverse section of the dog, and Fig. 5 is a view in perspective of a modification of the same.

Similar letters of reference indicate corresponding parts.

The coupler herein illustrated and described embodies certain features embraced in a former application for Letters Patent, Serial No. 375,556, bearing date the 23d of December, 1890, and such features as are therein claimed are disclaimed herein.

One of the most common difficulties met with in the application of automatic couplers to cars is the difference in height that prevails between the draw-heads of the cars of various roads. One part of this invention relates to such a construction of the draw-heads as will obviate this difficulty without any change in the form or construction of the car itself.

Referring to the drawings, A represents a car which is lower than the standard height, and B a car higher than standard. To these cars are attached in the usual way a pair of draw-heads C and D, respectively. It will be seen that the meeting portions of these draw-heads are of the same height, and it will be

understood that this is the standard height, so that the links *c* and *d*, which, when in position for coupling lie practically horizontal, cannot but enter the mouths of the opposite draw-heads, respectively. This uniformity in the elevation of the mouths of the draw-heads, notwithstanding the height of the cars, is effected by making offsets in the draw-heads, as clearly shown in Fig. 2. Thus in the case of a low car the mouth of the draw-head, by an offset in the body of the draw-head, is elevated with respect to the portion passing under the car, while in the case of high car by a reverse offset the relative positions are reversed. The amount of the offset is governed by the amount of elevation or depression of the body of the car from normal or standard height, it being understood that the amount need not be exact, as a little variation in the meeting positions of the draw-heads does not prevent their coupling automatically. To compensate for the weakening effect of this offset the material of the draw-heads at this point should be made thicker than in the body thereof, as indicated in Figs. 2 and 3.

In connection with the draw-heads I have illustrated the double-link coupling described in my said former application. It will be understood that one of these links is attached to each draw-head permanently, and in coupling the protruding portion of each link enters the mouth of the other draw-head, displacing the dog E, which drops into engagement with the link as soon as the end portion of said link passes the bottom of said dog. The lower part of the dog abuts upon a shoulder *a*, formed in the mouth of the draw-head. The construction of this dog is such that but little "slack" is required in coupling the cars. It will be seen that the rear face of the dog is the segment of a circle of which its pivot-pin *b* is the center. It is therefore evident that a very slight slackening up of the strain upon the links will admit of the dog being lifted out of engagement with the link, and conversely the link needs to pass but slightly beyond the position shown in Fig. 2 to admit of the dog dropping into coupling position of its own gravity. To permit the necessary movement of the dog the upper part of the draw-head should be slotted at *e*. The upper portion of the dog may thus lie a little above the top of the draw-head

and a chain F connect it with a lever G, attached to or forming a part of a rock-shaft G', mounted in boxes h h at the end of the car. By means of a depending hand-lever H at each end of the rock-shaft the dog may be
5 lifted from either side of the car, it being understood that both dogs must be disengaged to uncouple the cars.

To exclude rain, snow, cinders, &c., from the slot in the upper part of the draw-head, I
10 provide the dog with a hood or cap E', which extends beyond the slot, as shown. This cap may form an integral portion of the dog itself, as in Fig. 4, or be a separate piece, as E''
15 in Fig. 5. In the latter case it is provided with a hole f, through which passes the lug g, with which the chain connects. By making the cap integral with the dog it may serve to hold the dog in place in case the shoulder a
20 should give way, or the shoulder may even be dispensed with.

To facilitate the escape of water and the like from the top of the draw-head, I make it crowning in the middle, as shown in Fig. 1.
25 Having thus described my invention, what

I claim as new, and desire to secure by Letters Patent, is—

1. The combination of a draw-head made crowning in the middle, as described, and having a slot to receive a coupling-dog, and a dog
30 mounted pivotally in said slot and having a cap attached to or forming a part thereof to cover said slot and exclude rain, cinders, &c.

2. The combination of the herein-described draw-head, having a slot to receive the coupling-dog and inclined on the upper side each
35 way from said slot, a dog mounted pivotally in said slot and having a suitable extension to cover the slot when down, and a link permanently secured in the draw-head by a pin
40 back of the dog and adapted to couple by engaging a similar dog on the abutting draw-head, as described.

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

JOHN B. GRAVES.

Witnesses:

FRANK G. CLARK,
J. M. ST. JOHN.