

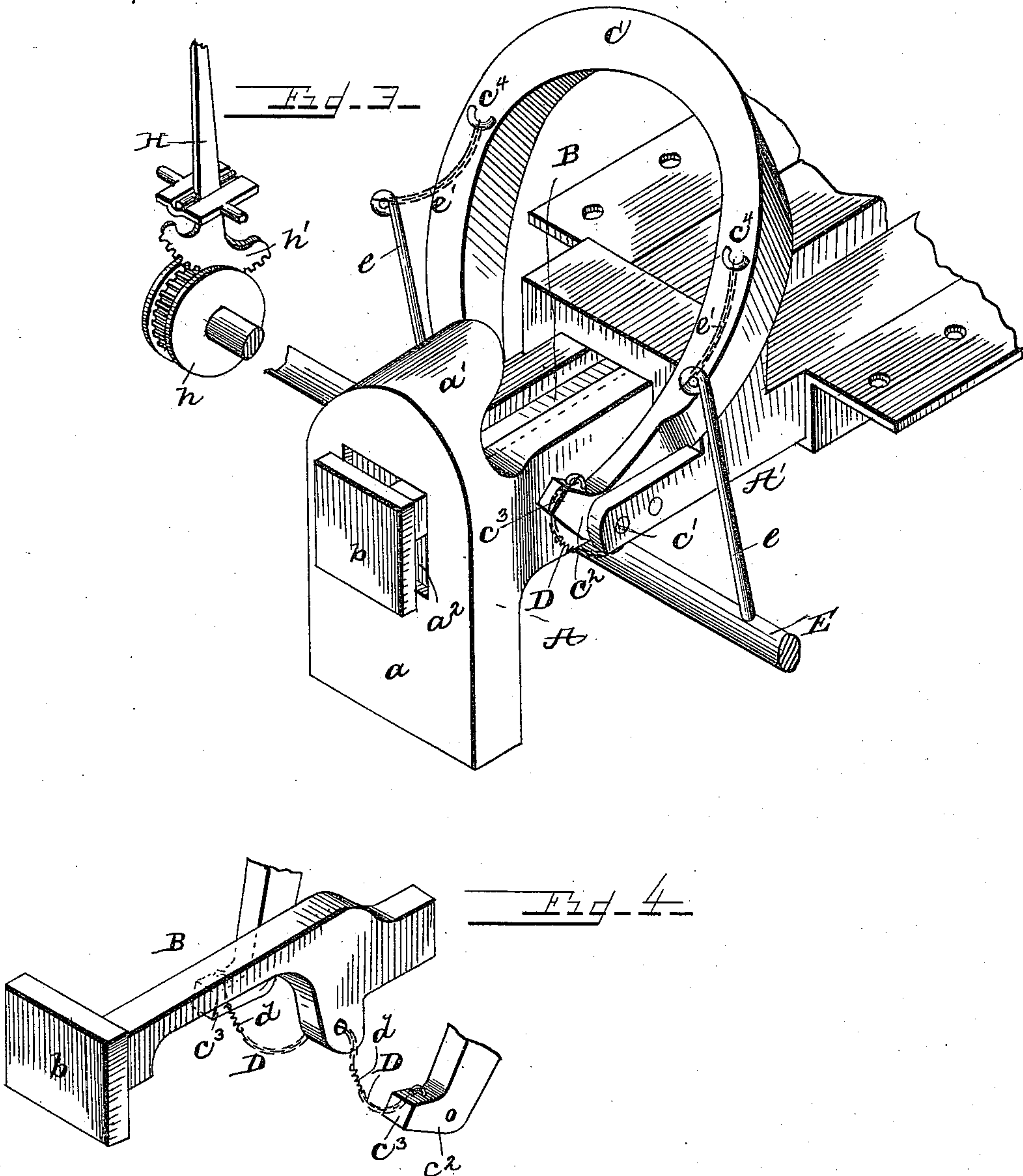
(No Model.)

2 Sheets—Sheet 2.

C. S. McMILLEN.
CAR COUPLING.

No. 441,189.

Patented Nov. 25, 1890.



Witnesses

Inventor

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UNITED STATES PATENT OFFICE.

CHARLES S. McMILLEN, OF VAN WERT, OHIO.

CAR-COUPLING.

SPECIFICATION forming part of Letters Patent No. 441,189, dated November 25, 1890.

Application filed April 14, 1890. Serial No. 347,804. (No model.)

To all whom it may concern:

Be it known that I, CHARLES S. McMILLEN, a citizen of the United States, residing at Van Wert, in the county of Van Wert and State of Ohio, have invented certain new and useful Improvements in Car-Couplings; 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.

My invention is an improvement in car-couplings; and it consists in the novel features of construction and combination of parts hereinafter fully described.

In the accompanying drawings I have shown one form in which I have contemplated embodying my invention, and the same is fully disclosed in the following specification and claims.

Referring to the said drawings, Figure 1 is a top plan view of a portion of two cars coupled with my improved coupling. Fig. 2 is a side elevation of the same, partly in section. Fig. 3 is a detail perspective of one coupling, showing a slightly-modified means for operating the link-raising shaft. Fig. 4 is a detail of the automatic tripping device for lowering the link into position for coupling.

In the drawings, A represents the draw-bar, which is secured to the car in any ordinary or convenient manner. The outer extremity of the draw-bar is provided with an enlarged face *a*, forming a buffer, and with a coupling-hook *a'*. The bar A is also provided with a central longitudinal slot or recess, in which is located a movable or sliding trip-rod B, having a head *b* of considerable diameter, adapted when pushed inwardly to occupy a recess *a*² in the face *a* of the draw-bar.

The coupling-link C is of horseshoe form, and its ends are pivoted to the draw-bar by a horizontal pivot *c*, passing through the draw-bar A and supplemental wings or side pieces A', formed integral therewith or secured thereto. Each end of the horseshoe link is thus held between the side of the draw-bar A and one of these side pieces A'.

The ends of the links C are provided with straight parallel portions *c'*, as shown in the drawings, and the draw-bar and side pieces A' are provided with two or more registering

apertures for the reception of the pin *c* in different vertical planes, so that the link may be pivoted nearer to or farther from the car, as desired or found most effective. The result would be the same if the straight portions *c'* of the link were provided with one or more apertures for this purpose.

The ends *c*² of the horseshoe-link C are provided with heels or projecting arms *c*³, having rings or other means for attaching a chain D, which I term the "trip-chain." These rings may be cast integrally with the link or suitably secured thereto. The chain D is secured at its central portion to the trip-rod B, preferably by passing through an aperture in the same, as shown in the drawings, as the draft of the two portions of the chain will thereby be rendered equal; but the chain may be attached in some other manner, if found desirable. The points of attaching the chain D to the heels of the link are so arranged that when the trip-rod B is pressed inward the chain will be drawn with it, and thereby pull downward upon the heels of the link with sufficient force to throw the link forward past the vertical position, when it will fall of its own weight and the weight of the lifting-arms attached thereto.

I provide means for relieving the sudden strain brought to bear upon the chain D by inserting links *d*, consisting of spiral springs between the links of the chain where found most effective. I may also provide the heels of the link with rubber or other elastic cushions beneath the chain D, as indicated in Fig. 2.

On a suitable portion of the car is located the transverse lifting-shaft E, mounted in suitable bearings and provided with a lifting arm or arms *e*.

The horseshoe-link C is provided with means, as rings *c*⁴, for attaching lifting-chains *e'*, which extend from the link to the extremity of each lifting-arm *e*, so that the link may be raised from a horizontal or depending position by rotating the lifting-shaft E.

I provide the lifting-shaft E at either or both ends with a hand-wheel E' for rotating the same and raising the link when desired. The shaft E is also provided with ratchet-hubs F F, secured rigidly thereto, and so located as to be engaged by suitable spring or

gravity pawls *f*. When the link is thrown down and engages the coupling-hook of the next adjacent car, as shown in Figs. 1 and 2, the pawls engage the ratchets of the hubs and prevent the link from rising or becoming accidentally disengaged from said hook. The lifting-arms will by their own weight tend to hold the links down but the pawls render it impossible for them to rise.

The hubs *F* are provided with a smooth cylindrical portion adjacent to the ratchet-teeth, and by moving the shaft *E* longitudinally in its bearings the pawls will slip from the ratchet-teeth onto the said smooth portions when the shaft may be rotated in a reverse direction and the link *C* raised.

I provide a suitable spring *f'*, interposed between one of the hubs and the adjacent shaft-bearing, to hold the shaft normally in such a position that the pawls will engage the ratchet portions of the hubs *F* and to return the shaft to this position when the link has been raised. In order to allow the pawls to properly engage the ratchet portion of the hubs, I make the portion of the same which is engaged by the pawls when the link has been raised smooth across the whole face of the same, as clearly shown in Figs. 1 and 2, and in this way the pawl may readily pass from the smooth portion of the hub to the ratchet portion at this point without encountering any resistance.

It will be understood that I may operate the shaft *E* from any desired point, as from the side of the car by the use of the hand-wheels *E'* or from the top or platform of the car by the use of suitable mechanism. In Fig. 1 I have shown one means of operating the lifting-shaft from the top of the car. In this figure the shaft *E* is provided with a beveled gear *G*, which is engaged by a bevel-pinion *g* on a vertical shaft *G'*, extending to the top of the car, where it may be provided with a hand-wheel or other suitable device for operating it. In this construction the pawls *f* may be raised by means of suitable chains or cords secured adjacent to the top of the car within easy reach of the operator and the link raised by the hand-wheel or other device for rotating the vertical shaft and the lifting-shaft. When it is desired to operate the lifting-shaft from the ground, the motion of the shaft longitudinally to disengage the pawls will also disengage the two beveled wheels *G* *g*, as will be readily seen.

In Fig. 3 I have illustrated a construction by means of which the shaft *E* may be operated from the platform of a car. In this figure I have shown the shaft provided with a pinion *h* and a pivoted lever *H*, suitably mounted and having a segment *h'* engaging the said pinion. I may also, if desired, provide the pinion with side webs or flanges and pivot the lever in such a manner that it may be moved sidewise as well as back and forth. By this means the lever may be moved laterally to throw the shaft *E* longitudinally and

disengage the pawls from the ratchets, and then moved backward or forward to rotate the shaft and raise the link.

In the practical application of my invention I may provide a construction for limiting the forward throw of one of the links when two adjacent cars are to be coupled, if found desirable. I have shown in Fig. 2 a short chain for this purpose, which may be temporarily attached to one of the links, in order that but one of the links will be thrown forward to engage the coupling-hook of the other car.

The operation of my improved coupling will be readily seen from the foregoing description. When two cars are brought together, the tripping-bar of one of the draw-bars will be struck by some portion of the other coupling, as the other trip-rod, or by the enlarged face of the draw-bar, according to the variation in the height or construction of the two cars, and this will throw the coupling link forward and allow it to engage the coupling-hook of the other car. The trip-rods and draw-bars will, as before stated, have large faces, in order to insure the accurate tripping of the said rod when two cars are brought together.

I do not desire to limit myself to the exact construction herein shown and described, as variations may be made from them without departing from the spirit of my invention.

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

1. The combination, substantially as before set forth, of the hooked draw-bar, the swinging coupling-link, the sliding trip-bar, flexible connections between said bar and link, the lifting-shaft having lifting-arms, and flexible connections between said arms and link, substantially as described.

2. The combination, substantially as before set forth, of the draw-bar, the coupling-link, and the lifting devices forming a weight to retain the link in its operative position.

3. The combination, substantially as before set forth, with the draw-bar and swinging coupling-link, of the lifting-shaft provided with lifting-arms and connections between said arms and link and an automatic locking device for retaining the shaft in position when the link is in operative position.

4. The combination, with the draw-bar and swinging coupling-link, of the lifting-shaft operatively connected with said link, said shaft having a sliding movement in its bearings, and plain and ratchet surfaces and pawls, substantially as described.

5. The combination, with the draw-bar and swinging coupling-link, of the lifting-shaft having disks with plain and ratchet surfaces and pawls, said shaft having a sliding movement in its bearings and being operatively connected with said link, and a spring for holding said shaft with the pawls engaging the ratchet, substantially as described.

6. The combination, with the draw-bar and

5 swinging coupling-link, of a lifting-shaft operatively connected with said link and provided with hubs having a plain circular surface and a mutilated ratchet-surface and pawls, said shaft having a sliding movement in its bearings, substantially as described.

10 7. The combination, with the draw-bar and swinging coupling-link, of the sliding trip-bar extending beyond the outer face of the draw-bar and chains connecting the trip-bar and the swinging coupling-link, substantially as described.

8. The combination, with the draw-bar and

swinging coupling-link having heels, as described, of the sliding trip-bar extending beyond the outer face of the draw-bar, chains 15 connecting the said trip-bar and the said link, engaging the heels of the link, and an elastic construction interposed between the chain and link, substantially as described. 20

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

CHARLES S. McMILLEN.

Witnesses:

OLIVER EAGY,
W. B. JONES.