

F. H. WENDT.  
KNUCKLE OPENER.

APPLICATION FILED FEB. 4, 1907.

931,708.

Patented Aug. 17, 1909.

2 SHEETS—SHEET 1.

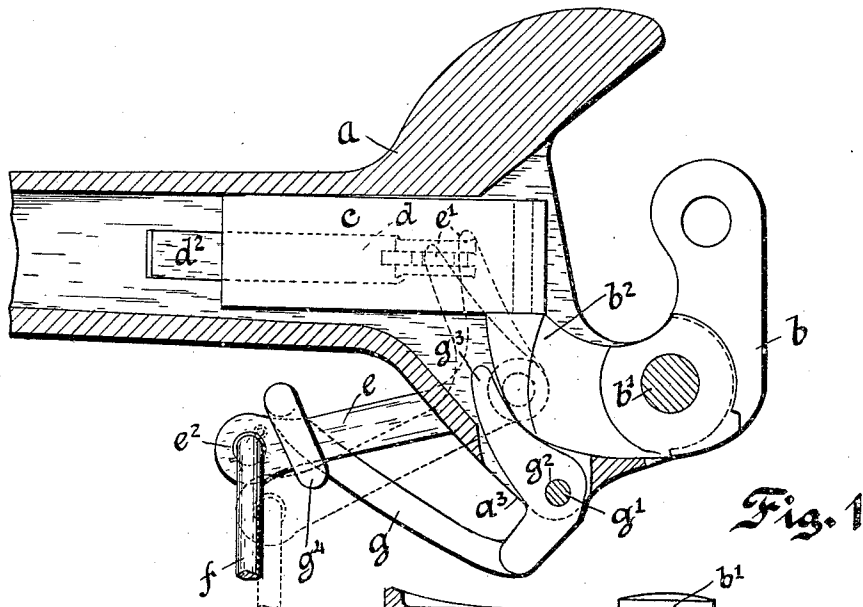


Fig. 1

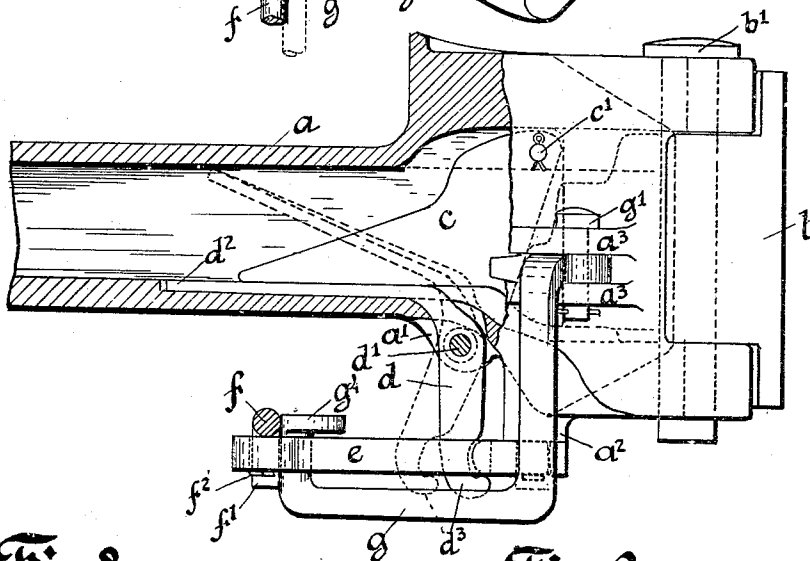
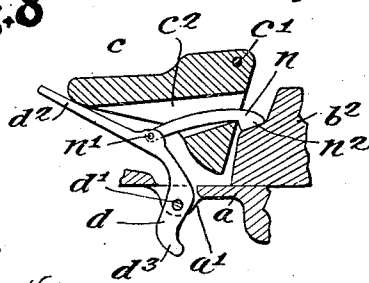


Fig. 2

Fig. 3



Fred H. Wendt, Inventor

Witnesses

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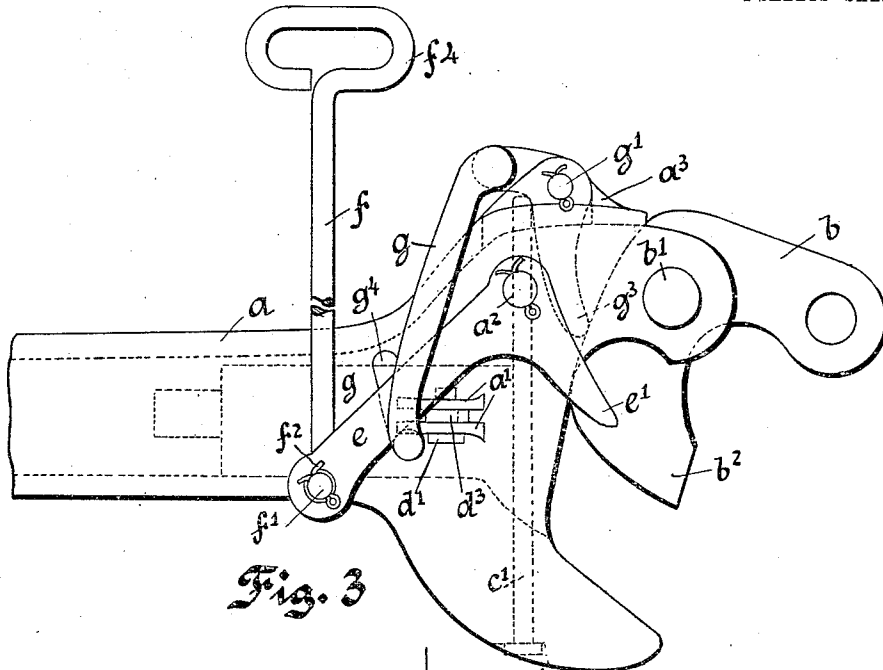


Fig. 3

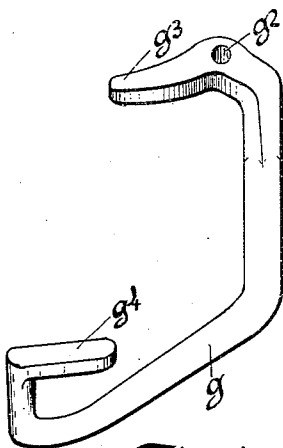


Fig. 4

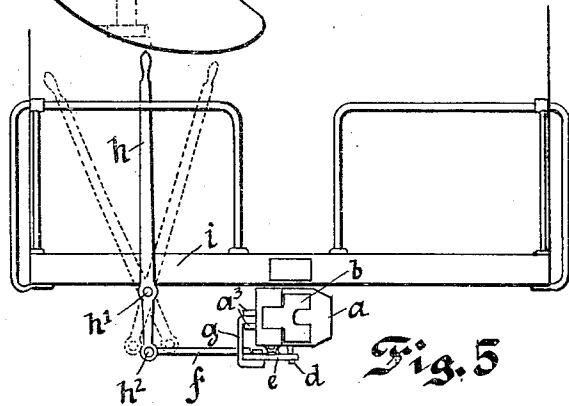


Fig. 5

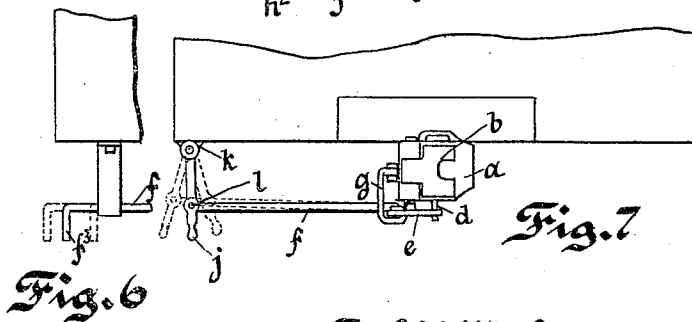


Fig. 6

Fig. 7

Fred H. Wendt, Inventor

Witnesses

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By *George S. Moore* Attorney

# UNITED STATES PATENT OFFICE.

FRED H. WENDT, OF MARSHFIELD, WISCONSIN, ASSIGNOR OF ONE-THIRD TO ELI CROTTEAU, OF MARSHFIELD, WISCONSIN.

## KNUCKLE-OPENER.

No. 931,708.

Specification of Letters Patent.

Patented Aug. 17, 1909.

Application filed February 4, 1907. Serial No. 355,562.

*To all whom it may concern:*

Be it known that I, FRED H. WENDT, of Marshfield, Wisconsin, have invented a Knuckle-Opener, of which the following is a

specification.  
This invention has relation to car-couplers and consists of an improved means for opening the knuckle of the coupler after it has been released by the unlocking movement. Many devices have heretofore been invented for so opening the knuckle, in order to avoid the necessity of the operative's handling the knuckle during the coupling of cars, which is dangerous and results in considerable loss of life and physical injuries annually. At the same time the knuckle opening devices previously devised have for the most part not proved practical, either because they involve too much complication, or else they involve parts or arrangements which are either easily broken or get out of order, and hence they have failed of adoption in practice.

The object of my present invention is to provide a knuckle-opener consisting of the fewest and simplest parts; which shall not interfere with the use or operation of couplers of the standard design now used in rolling stock; which can be either used or omitted in connection with the coupler as may be desirable, and without in any way changing or modifying the construction of the coupler itself; and finally, one which can be operated in connection with the improved locking-mechanism described and claimed in my United States Patent No. 861,413, issued July 30, 1907, and my improved unlocking mechanism described and claimed in my United States Patent No. 861,414, issued July 30, 1907.

My improved knuckle-opener consists virtually of but a single piece (or two pieces if the pivot-pin be considered) and involves no modification whatever of the coupler other than a hole in one side of the drawhead and a pair of pivot lugs or a single pivot-lug. Moreover, in my most improved form the knuckle-opener is arranged to be operated from the side of the car without any connection or lever-mechanism whatever other than that used in the unlocking or uncoupling operation.

As a still further and special improvement, I arrange the uncoupling-lever to be operated by a pull to unlock the knuckle

and by a push to open it; and these operations, while carried out with the same handle, are quite independent one of the other, so that the knuckle-opening operation can be carried out at any time quite independently of the unlocking operation, and vice versa, as is desirable when the knuckle is already unlocked and remains in closed position, or on the other hand when the knuckle is to be unlocked without opening the knuckle, as in the case of standing cars.

For a better understanding of my invention I have illustrated the same in the accompanying drawings which show my most improved embodiment thereof.

In these drawings, Figure 1 is a plan view of a coupler provided with my knuckle-opener and also with my improved unlocking-mechanism; the upper portion of the drawhead being removed to show the locking-mechanism in full lines. Fig. 2 is a side elevation of the coupler, part of the wall of same being broken away. Fig. 3 is a bottom plan view of the coupler, showing the device in a position to open the knuckle. Fig. 4 is a perspective view of the knuckle-opening device. Fig. 5 is an end view of a passenger-car showing a coupler provided with my knuckle-opener and improved unlocking-device attached thereto. Figs. 6 and 7 are similar views of a freight-car provided with the device in two different forms thereof. Fig. 8 is a longitudinal section through the locking-block showing my lock-setting device before referred to applied thereto, to illustrate the action of the unlocking mechanism.

In these drawings each reference character refers always to the same part.

In the drawings, Figs. 1 to 3 show the drawhead end of an ordinary car-coupler *a* of the well known M. C. B. pattern; the knuckle *b* pivoted to the jaw thereof with the usual knuckle-pin *b*<sup>1</sup>; the triangular locking-block *c* pivoted on the transverse pin *c*<sup>1</sup>, the said locking-block engaging the heel *b*<sup>2</sup> of the knuckle; the unlocking-lever *d* pivoted on a pin *d*<sup>1</sup> carried in lugs *a*<sup>1</sup> on the under side of the drawhead, and having a horizontal backwardly extending arm *d*<sup>2</sup> which acts to raise the locking-block *c*, and a depending arm *d*<sup>3</sup>; and an auxiliary bell-crank lever *e* pivoted on a projecting boss *a*<sup>2</sup> on the bottom of the drawhead and having an arm *e*<sup>1</sup> which engages the depending arm *d*<sup>3</sup> of the lever *d*, and a rearwardly extend-

ing arm provided with an operating connection such as a rod  $f$  extending to the side of the car; all substantially as described and claimed in my aforesaid patent No. 861,414.

5 To fix ideas I have illustrated in Fig. 8 the lock-setting mechanism described and claimed in my aforesaid patent No. 861,414, which consists of the hooked bar  $n$  pivoted on a pin  $n^1$  to the arm  $d^2$  of the lever  $d$ , said  
10 bar lying in a recess  $c^2$  through the center of the locking-block  $c$  and having a hooked nose  $n^2$  which engages over the lower front edge of said recess when the block is raised by the tilting of the lever  $d$ ; said hooked  
15 nose  $n^2$  being in the path of the heel  $b^2$  of the knuckle so that the latter in opening strikes and raises the same thus releasing the locking-block  $c$  and allowing it to fall again as soon as the heel  $b^2$  has swung past. It  
20 should be understood however that this particular lock-setting mechanism is not a part of the present invention, but any convenient lock-setting mechanism can be used.

The knuckle-opening device comprises a  
25 single member in the form of a bent lever  $g$  shown in perspective in Fig. 4, said member being pivoted upon a pin  $g^1$  which passes through a hole  $g^2$  in the lever and is mounted in a pair of lugs  $a^3$  on the side of the draw-  
30 head. An opening is formed between said lugs  $a^3$  through which passes the active end  $g^3$  of the lever  $g$ , consisting of a finger which presses upon the back of the heel  $b^2$  of the knuckle, and is so shaped that when in the  
35 position shown in Fig. 1, it lies behind the knuckle and does not interfere with the motion thereof, while when thrown into the position shown in Fig. 3 it causes the knuckle to assume a wide-open position. The other  
40 end of the lever  $g$ , as shown, is directed outwardly between the pivot-lugs  $a^3$ , then vertically downward to a point below the lever  $e$ , then horizontally to a point on the inner side of the rearwardly extending arm  
45 of the latter (this portion being slightly crooked to enable it to avoid the arm  $d^3$  of the unlocking lever); thence upwardly to form a means of engagement with said arm or lever  $e$ . It is also preferable to form on  
50 the end of the knuckle-opener a horizontal extension  $g^4$  which extends back over the upper surface of the lever  $e$  and acts to prevent the two members from becoming dis-  
55 engaged by bending, which might otherwise occur owing to the shocks and violence to which devices of this class are subjected in practice; but such extension  $g^4$  is not necessary to the successful operation of my invention.

60 The connection  $f$  with the side of the car or other convenient point for operation may be any kind of rigid connection, and would in an ordinary freight-car be simply a bar having one end  $f^1$  bent down to pass through  
65 the eye  $e^2$  in lever  $e$ , and provided with

means to prevent its accidental withdrawal such as a split-pin  $f^2$ ; the bar  $f$  being provided with a handle at its opposite end as shown in Figs. 3 and 6. The handle  $f^3$  shown in Fig. 6 is probably the preferable  
70 form as it is the simplest, being simply the end of the bar  $f$  bent downwardly; another form of handle  $f^4$  is shown in Fig. 3. As is clearly shown in the drawing, the mode of operation consists simply in pulling the han-  
75 dle  $f^3$  or  $f^4$  to uncouple the car or unlock the knuckle, and in pushing on the handle to open the knuckle; the former position is shown dotted in Fig. 1, and the latter in full lines in Fig. 3. 80

The operating-connection may assume various forms, one convenient form for a passenger-car being shown in Fig. 5, and one for a freight-car in Fig. 7. In Fig. 5 the uncoupling lever  $h$  is as usual mounted on  
85 the platform  $i$  and pivoted at  $h^1$  and has a pivotal connection  $h^2$  with the bar  $f$ . In Fig. 7 a swinging lever  $j$  is pivoted in ears  $k$  on the bottom of the car and has a pivotal connection  $l$  with the rod  $f$ , being operated  
90 by moving it into the several positions shown in dotted lines. Modifications of these operating connections will of course readily suggest themselves to those skilled in the art. 95

Structural modifications may also be made within certain limits, hereinafter demarked by my claims, without departing from the principle of my invention.

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

1. In combination with a car-coupler having a drawhead and a knuckle pivoted thereon, a knuckle-opening device comprising a  
105 bent lever pivoted on a vertical axis on the side of said drawhead and at the rear of said knuckle and having an active end pressing against the heel of said knuckle and adapted to press it into open position when said  
110 lever is rotated, said lever having its other end bent outwardly, downwardly and rearwardly so as to pass under the drawhead when rotated to open the knuckle, and means connected with the free end of said lever for  
115 rotating it when said means is pushed inwardly.

2. In combination with a car-coupler having an unlocking device projecting from its lower side, a lever pivoted on the under side  
120 of said coupler and adapted to act on said unlocking device to unlock the knuckle, operating means extending laterally to a point distant from the coupler and connected with  
125 said lever, and a knuckle-opening device comprising a lever pivoted on the drawhead and acting on the knuckle and having one end connected operatively with said first-named lever.

3. In combination with a car-coupler hav- 130

ing a drawhead and a knuckle pivoted thereon, said coupler having further an unlocking device projecting from its lower side, a horizontally pivoted lever on the lower side of said coupler having one end in operative relation to said unlocking device, means connected to the other end of said lever for rotating it from a distance, and a knuckle-opener comprising a bent lever pivoted on the side of the drawhead and having one end disposed to press upon the knuckle to turn it into open position and the other end extending under said drawhead and having an operative connection with said first-named lever.

4. In a railway-car, the combination of a coupler having a drawhead and a knuckle pivoted thereon, an unlocking device projecting from the under face of said drawhead, an auxiliary lever pivoted on a vertical axis on the under side of said drawhead and having one end disposed in operative relation to said unlocking device and the other end extending rearwardly, a knuckle-opening device comprising a bent lever pivoted on the side of said drawhead and having one end pressing against the heel of the knuckle and the other end disposed in operative relation to said first-named lever whereby by the movement of the rearwardly extending arm of said first-named lever turns said knuckle-opening lever causing said knuckle to rotate into open position, and the movement of said auxiliary lever in the opposite direction does not effect any movement of said knuckle-opening lever, and means for rotating said auxiliary lever in both directions.

5. In a railway-car, the combination of a coupler having a drawhead and a knuckle pivoted thereon, an unlocking device projecting from the underface of said drawhead, an auxiliary lever pivoted on a vertical axis on the under side of said drawhead and having one end disposed in operative relation to said unlocking device and the other end extending rearwardly, a knuckle-opening device comprising a bent lever pivoted on the side of said drawhead and having one end pressing against the heel of the knuckle and the other end disposed in operative relation to said first-named lever whereby the movement of the rearwardly extending arm of said first-named lever turns said knuckle-opening lever causing said knuckle to rotate into open position, and the movement of said auxiliary lever in the opposite direction does not effect any movement of said knuckle-opening lever, and operating means for said unlocking and knuckle-opening devices connected with the rearwardly extending arm of said auxiliary lever and extend laterally toward the side of the car on the knuckle side of the coupler.

6. In a railway-car, the combination of a coupler having a drawhead and a knuckle pivoted thereon, an unlocking device projecting from the under face of said drawhead, an auxiliary lever pivoted on a vertical axis on the under side of said drawhead and having one end disposed in operative relation to said unlocking device and the other end extending rearwardly, a knuckle-opening device comprising a bent lever pivoted on the side of said drawhead and having one end pressing against the heel of the knuckle and the other end disposed in operative relation to said first-named lever whereby the movement of the rearwardly extending arm of said first-named lever turns said knuckle-opening lever causing said knuckle to rotate into open position, and the movement of said auxiliary lever in the opposite direction does not effect any movement of said knuckle-opening lever, and a rigid rod connected with the free end of said auxiliary lever and extending laterally toward the side of the car.

7. In a railway-car, the combination of a coupler having a drawhead and a knuckle pivoted thereon, an unlocking device projecting from the under face of said drawhead, an auxiliary lever pivoted on a vertical axis on the under side of said drawhead and having one end disposed in operative relation to said unlocking device and the other end extending rearwardly, a knuckle-opening device comprising a bent lever pivoted on the side of said drawhead and having one end pressing against the heel of the knuckle and the other end disposed in operative relation to said first-named lever whereby the movement of the rearwardly extending arm of said first-named lever turns said knuckle-opening lever causing said knuckle to rotate into open position, and the movement of said auxiliary lever in the opposite direction does not effect any movement of said knuckle-opening lever, an uncoupling lever pivoted on the car body and a rigid link connecting said uncoupling lever with the rearwardly extending end of said auxiliary lever.

8. In a car-coupler, the combination of an uncoupling device, a knuckle-opening-lever, and means extending to a distance from the coupler and connected with said device and lever in a manner to operate said uncoupling device when moved in one direction and said knuckle-opening lever when moved in the opposite direction.

In witness whereof, I have hereunto set my name this first day of January, 1907, in presence of two witnesses.

FRED H. WENDT.

Attest:

GEORGE W. COLLES,  
ELSIE M. HOTZ.