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N. WARNER & G. W. JACOBS.

AUTOMATIC KNUCKLE OPENER.

APPLICATION FILED FEB. 9, 1905. RENEWED JAN. 27, 1906.

Fig. 1.

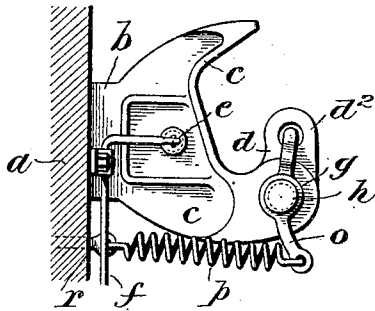


Fig. 2.

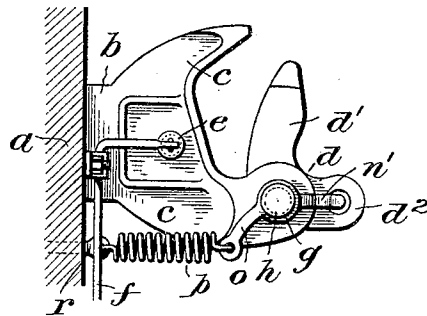


Fig. 3.

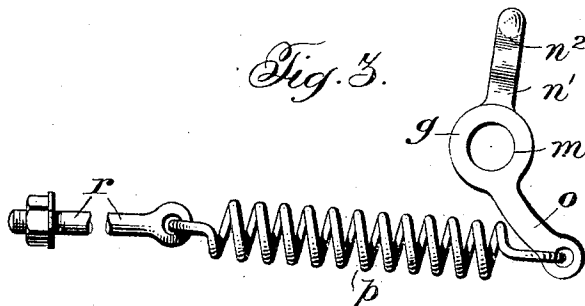
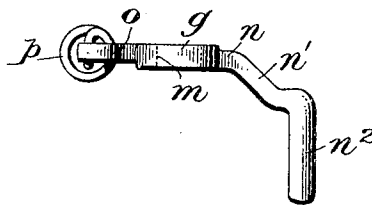


Fig. 4.



Witnesses:

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UNITED STATES PATENT OFFICE.

NORMAN WARNER AND GEORGE W. JACOBS, OF GLENN'S FERRY, IDAHO.

AUTOMATIC KNUCKLE-OPENER.

No. 813,930.

Specification of Letters Patent.

Patented Feb. 27, 1906.

Application filed February 9, 1905. Renewed January 27, 1906. Serial No. 298,266.

To all whom it may concern:

Be it known that we, NORMAN WARNER and GEORGE W. JACOBS, citizens of the United States, residing at Glenn's Ferry, in the county of Elmore and State of Idaho, have invented certain new and useful Improvements in Automatic Knuckle-Openers, of which the following is a specification.

Our invention relates to car-couplers, and more particularly to means susceptible of embodiment in or designed to be applied to a car-coupler in which one of the interlocking members is a pivoted knuckle, as in car-couplers of the Master Car-Builders' type, for automatically opening the knuckle as soon as released from the cooperating knuckle or part carried by the opposing draft-beam or from the ordinary locking-pin and for maintaining the knuckle in open position or set to receive the companion knuckle or cooperating part, and thereby entirely obviating the necessity of a trainman entering between two cars for the purpose of positioning the knuckle preparatory to the coupling thereof.

The object of the invention is to provide means of the character defined which is particularly simple and durable in construction and highly efficient in use.

The invention includes the parts, the combination and arrangement of parts, and the details of construction to be hereinafter described, and particularly pointed out in the claims.

The invention is susceptible of varying embodiments, and a preferable exemplification of the same is illustrated in the accompanying drawings, in which—

Figure 1 shows in plan view one coupling member of conventional construction equipped with our improved opening mechanism for the knuckle, the latter being shown in its locked position. Fig. 2 is a similar view showing the knuckle in its open position. Fig. 3 is an enlarged view of the opening mechanism detached from the coupler, and Fig. 4 is an edge view of the opening-lever.

In the accompanying drawings a conventional construction of coupler provided with an interlocking knuckle is shown as equipped with our opening mechanism. A fragment of a buffer-block is indicated by *a*, the draw-bar by *b*, and the head of the latter by *c*. The interlocking knuckle associated with the head is designated by *d* and is of the usual

construction, being pivotally mounted in the head *c* and provided with an inner arm *d'* and an outer arm *d''*.

A conventional construction of locking mechanism for the knuckle is also shown in Figs. 1 and 2, the same including a locking element, as a pin *e* and a lever *f*, designed to be operated from a point remote from the coupler-head for lifting the element *e* to free the knuckle.

The particular exemplification of our invention shown in the accompanying drawings includes a lever of the first order having one arm connected to the arm *d''* and its other arm connected to means which tend when the knuckle is in closed position to draw the latter arm inwardly or toward the buffer-block, and thereby force the first arm of the lever which is connected to the arm *d''* outwardly. The lever is designated by *g* and is preferably mounted upon an end of the pivot-pin *h* of the knuckle, which is projected through the upper side of the head *c*. As here shown, the lever *g* comprises a central eye *m* for the reception of the pivot-pin *h*, an integral arm *n*, having an obliquely-extending part *n'*, terminating in a vertically-depending part *n''*, which loosely fits within an orifice in the end of the arm *d''* of the knuckle, and a second arm *o*, extending beyond the vertical wall of the head *c* and provided adjacent its end with an engaging part for the tensioning means.

The tensioning means here shown comprises a helical spring *p*, interposed between the end of the arm *o* and the buffer-block *a* and connected at its opposite ends to said parts, respectively. The connection between the end of the spring *p* and the buffer-block *a* is preferably secured by means of an eyebolt *r*, and the connection between the outer end of the spring and the arm *o* of the lever *g* is preferably obtained by providing said outer end with a laterally-deflected portion which coacts with the engaging part on the arm *o*.

As illustrated in Fig. 1, when the knuckle occupies its inward position, as when in engagement with the coacting-knuckle associated with a companion head or when locked by element *e*, the spring *p* is strained, so that as soon as the knuckle is freed the spring, acting through the lever *g*, will immediately throw the knuckle *d* into its outward position, as shown in Fig. 2, and will yieldingly

maintain the knuckle in this position until the same is again forced inwardly by engagement with the coacting part of a companion coupling mechanism.

5 The construction and operation of the herein-described invention will be readily understood upon reference to the foregoing description and accompanying drawings, and it will be appreciated that the parts and combinations recited may be varied within a wide
10 range without departing from the spirit and scope thereof.

Having thus described our invention, what is claimed as new, and desired to be secured
15 by Letters Patent, is—

1. The combination with a car-coupling mechanism including a pivoted knuckle, of means tending to maintain said knuckle in position to engage a coacting coupling part
20 associated with a companion coupling mechanism, said means including a lever mounted on the pivot-pin of the knuckle and having an arm coacting with the knuckle, substantially as described.

25 2. The combination with a car-coupling mechanism including a pivoted knuckle, of means for automatically throwing the knuckle when freed in its open position and for yieldingly maintaining said knuckle in said
30 open position, said means including a lever having an engagement with the interlocking arm of the knuckle, substantially as described.

3. The combination with a car-coupling
35 mechanism including a pivoted knuckle, of a lever pivotally mounted outside of the coupling-head, said lever being connected at one end to one arm of the knuckle, and means associated with the lever for automatically
40 shifting the same for throwing the knuckle into open position.

4. The combination with a car-coupling mechanism including a pivoted knuckle, of a
45 pivoted lever having an arm connected to the interlocking arm of the knuckle and a

second arm, and tensioning means connected to said second arm.

5. The combination with a car-coupling mechanism including a pivoted knuckle, of a
50 pivoted lever having an arm connected to the interlocking arm of the knuckle, and a second arm, and a spring interposed between the second arm and a fixed part.

6. The combination with a buffer-block, a
55 draw-bar head and a knuckle pivoted therein, of a lever mounted upon said head having one arm connected to the knuckle, and a second arm extending at an angle to the first, and a spring interposed between the second arm and the buffer-block.
60

7. The combination with a car-coupling mechanism including a head and a knuckle pivoted therein, of a lever mounted upon the
65 end of the pivot-pin of the knuckle projecting through the top face of the head, a connection between one arm of the lever and the outer arm of the knuckle, and a spring interposed between a second arm of the lever and a part fixed relatively to the head.

8. The combination with a coupling mechanism including a head and a knuckle pivotally
70 mounted therein, of a lever having a central eye to receive a pivot-pin, an integral arm extending obliquely from the eye and terminating in a vertically-depending part
75 engaging the outer arm of the knuckle, a second integral arm extending from the eye, and tensioning means coacting with the latter arm.

In testimony whereof we have hereunto
80 signed our names, in the presence of two attesting witnesses, at Glenns Ferry, in the county of Elmore and State of Idaho, this 30th day of January, 1905.

NORMAN WARNER.
GEORGE W. JACOBS.

Witnesses:

IRA BLACK,
DELL B. WARNER.