(No Model.)

R. F. LUDLOW.

CAR COUPLING.

No. 539,005. Patented May 7, 1895.

Fig 5

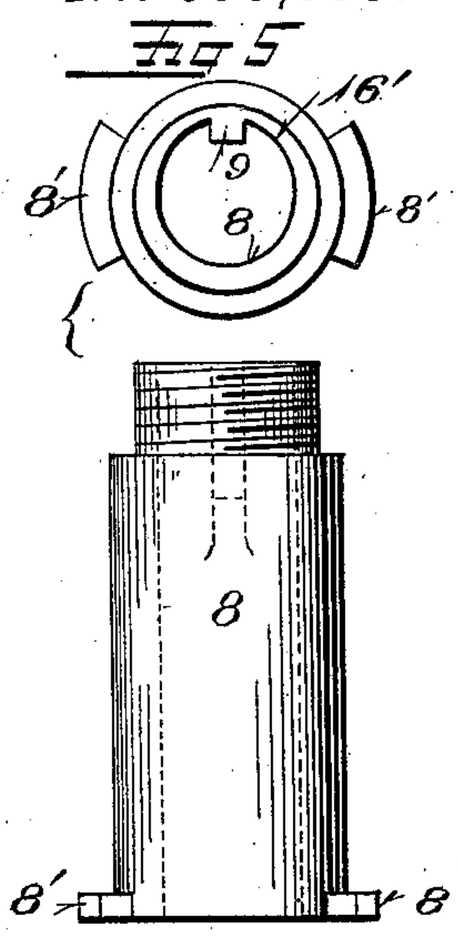


Fig 1

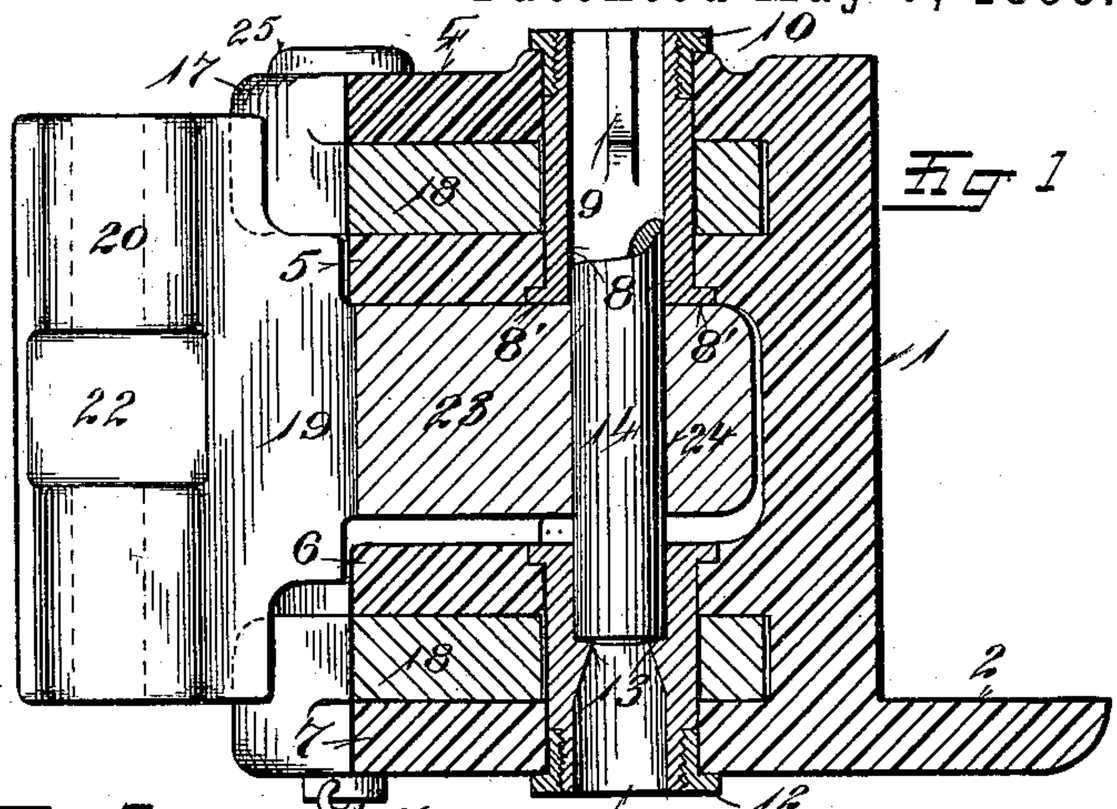


Fig 2

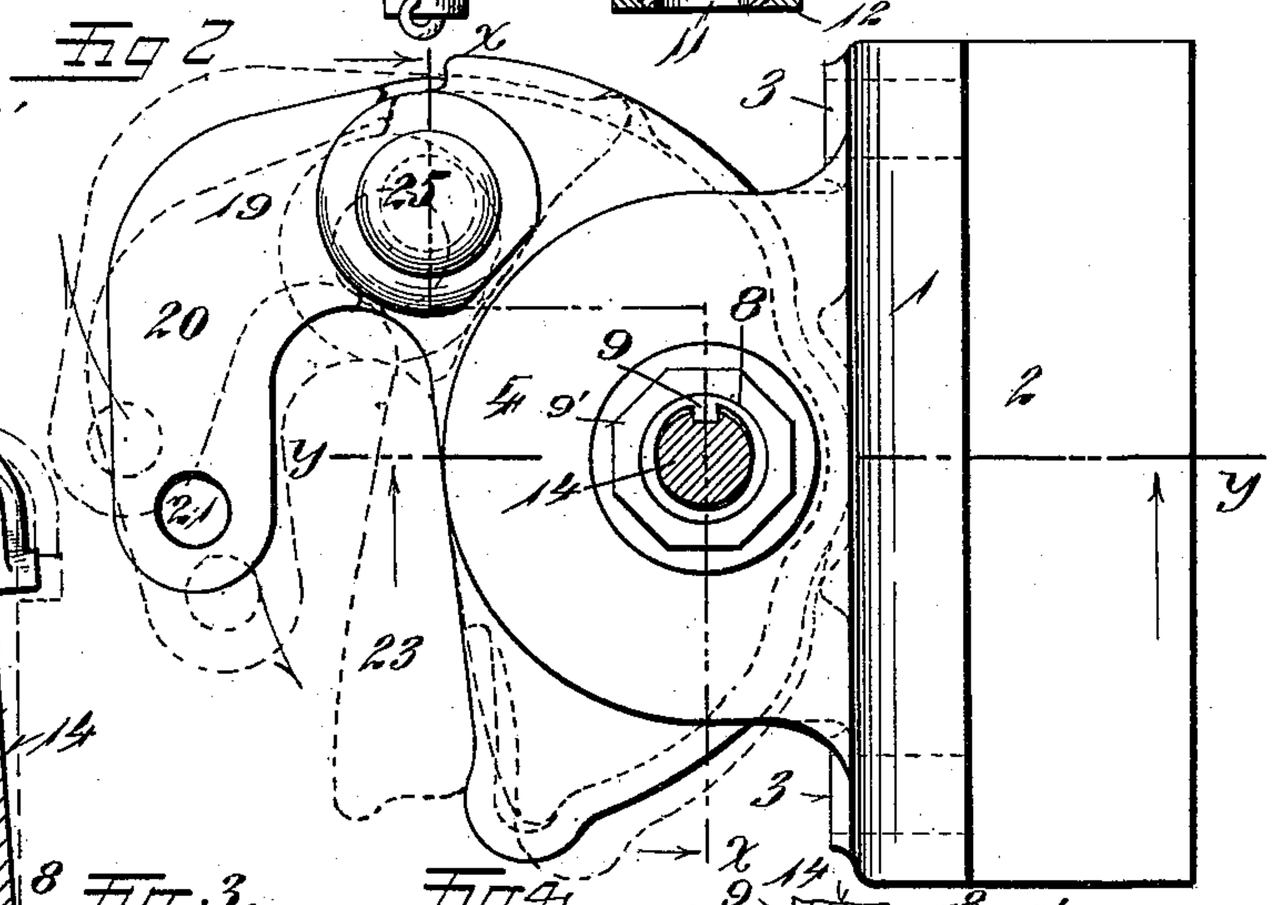


Fig 6

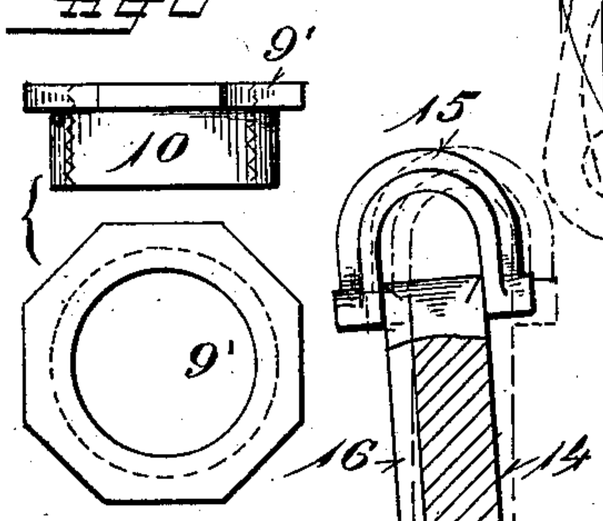


Fig. 3.

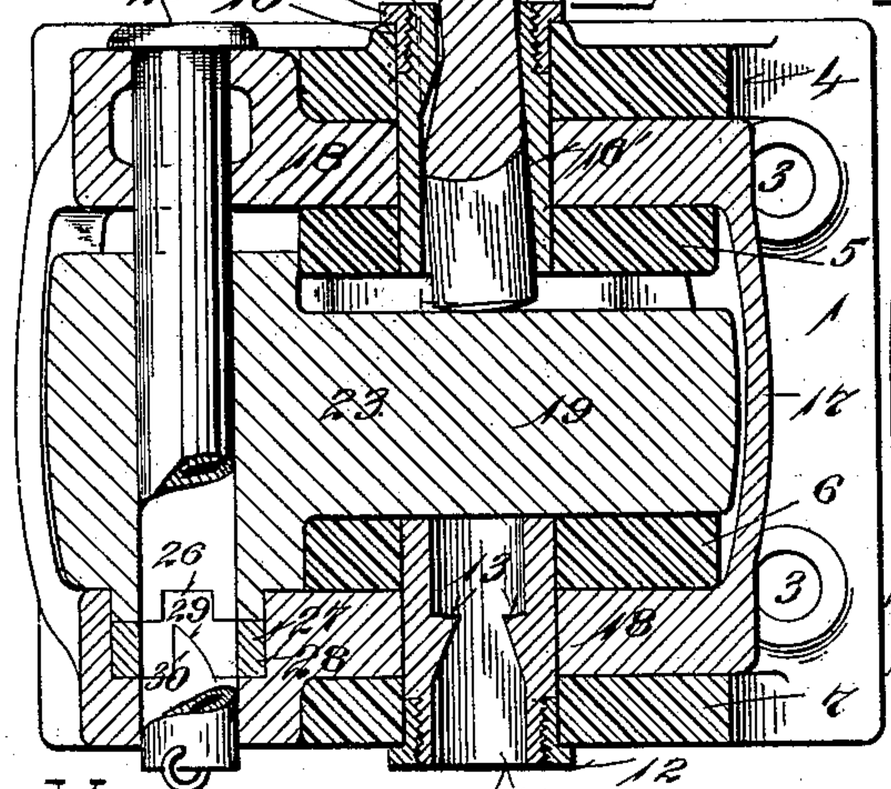
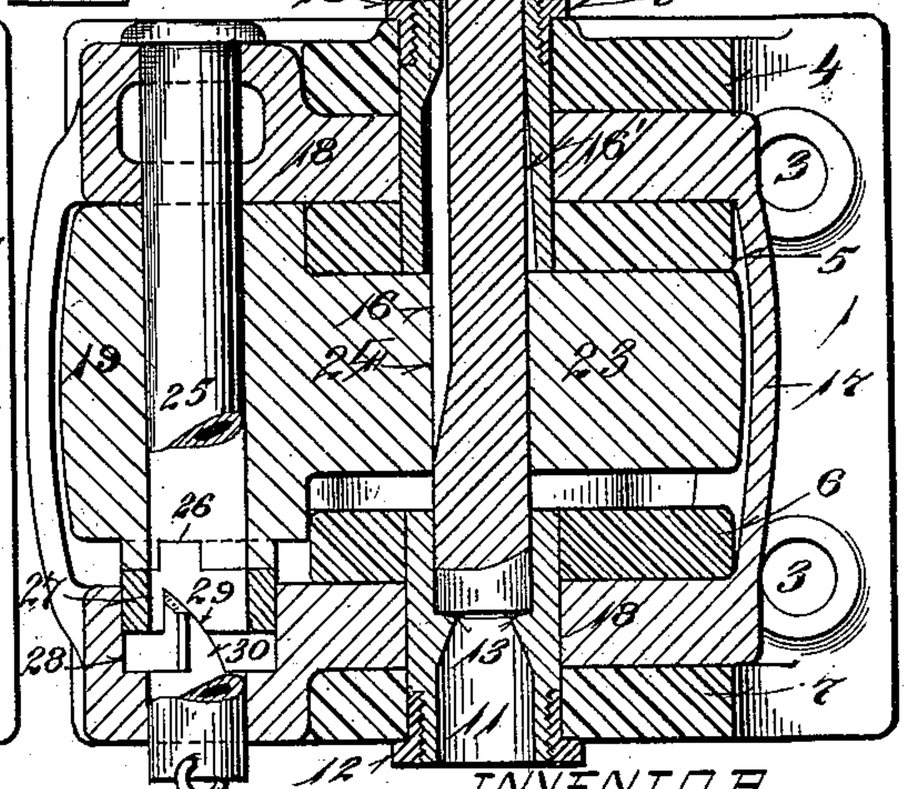


Fig 4



WITNESSES

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UNITED STATES PATENT OFFICE.

RODNEY F. LUDLOW, OF SPRINGFIELD, OHIO.

CAR-COUPLING.

SPECIFICATION forming part of Letters Patent No. 539,005, dated May 7, 1895.

Application filed November 1, 1894. Serial No. 527,614. (No model.)

To all whom it may concern:

Be it known that I, RODNEY F. LUDLOW, a citizen of the United States, residing at Springfield, in the county of Clark and State of Ohio, have invented certain new and useful Improvements in Car-Couplers, of which the following is a specification, reference being had therein to the accompanying drawings.

This invention relates to certain new and useful improvements in car couplers.

The special features of the invention have reference to a draft plate especially adapted for connection with the engine tender, in combination with a head pivoted to the draft plate and a knuckle pivoted to the head, with means to lock the knuckle in coupled position; have reference to a means of supporting the locking pin against dropping out of the coupler in case the clevis becomes detached from the pin and have reference to arranging the draft plate so that it will receive the blow of the knuckle of the other car, incident to coupling, instead of resisting such blow by the head and knuckle, and thence transferring the strain to the knuckle pivot, and head pivot.

In the accompanying drawings, on which like reference-numerals indicate corresponding parts, Figure 1 is a sectional view of the coupler entire on the line *y y* of Fig. 2; Fig. 2, a plan view of what is shown in Fig. 1; Fig. 3, a sectional view of the coupler on the line *x x* of Fig. 2, with the locking-pin elevated and the knuckle swung out of the dotted position shown in Fig. 2; Fig. 4, a sectional view of the coupler also on the line *x x* of Fig. 2, showing the knuckle in coupled position as per the full lines in Fig. 2 and with the locking-pin down; Fig. 5, a plan and elevation of the upper thimble, and Fig. 6 a side and plan view of the thimble-caps.

Referring now in detail to my coupler I have shown at 1, a stout plate which I term the draft plate. It has a flange 2 at the bottom and holes 3 near the sides. It is fitted to the cross timber, say of a locomotive tender, at the rear end, and is there bolted. It is provided with two pairs of ears, the upper pair consisting of the ears 4 and 5 and the lower pair of the ears 6 and 7. It is further provided with a vertical aperture in each ear, all of the apertures being in line. In the apertures of the upper ears is fitted a thimble 8 having an interior bead or rib 9 and screw-threaded at its upper end to receive a screw-threaded part or cap 10. The thimble and its part 10 are shouldered, as shown, to prevent longitudinal displacement, the former shoulder 8′ preventing the thimbles from turning when the cap or part 10 is screwed on; the shoulder 9′ of the latter being octagonal. In the lower ears I place another thimble 11, screw-threaded at its lower end to receive its screw-threaded part or cap 12. This thimble and cap are shouldered the same as the thimble 8 and cap 10. I form the thimble 11 with a contracted part to form a shoulder 13 to prevent the locking pin 14 from dropping down and being lost in case its clevis 15 should be broken off or lost. This pin 14 is grooved out longitudinally, as seen at 16 so that when its lower extremity is brought in contact with the lower extremity of the head or rib 9 the pin is canted over to one side so that it will rest upon the knuckle. This construction is embraced, however, in a patent granted to me May 15, 1894, No. 519,725. These thimbles 8 and 11 serve as a pivot upon which is mounted the draft head 17 having wings 18 which fit, respectively, between the upper and lower sets of ears 4 and 5 and 6 and 7. The axis of the thimbles is on the central draft line, and thus this pivoted head pulls from an axis which is coincident with the central draft line. The head swings laterally on its pivot more or less as the lateral rocking of the cars and the turning of curves, occasion. In this pivoted head I mount a knuckle 19, whose outer horn 20 has a pin-hole 21 and a notch 22 for coupling a link to it, and whose inner arm 23 passes in between the ear 5 and the ear 6 of the draft plate. This horn has a pin-hole 24 through which the lock pin 14 is dropped to lock the knuckle. When the knuckle is in uncoupled position, as shown by the dotted lines in Fig. 8 and by the section in Fig. 10 the pin 14 rests on the inner horn 23, and when the knuckle is engaged by the knuckle of the opposing coupler it swings back and the hole 24 passes under the pin 14,

when the latter drops to the position shown in Figs. 1 and 4. In order to permit the pin to cant over to one side it will be seen that the thimble 8 is cut away on the inside as seen at 16′ in Figs. 3 and 4.

It will be seen that the ears of the draft plate extend out a little beyond the forward wall or face of the horn 23 of the knuckle when the latter is in coupled position, and about flush with the front walls of the wings 18 of the head. Consequently the forward face of the outer horn of the approaching knuckle will strike against these ears, and thus bring the impact against the draft plate, a strong structure firmly shouldered against the car frame, instead of against the said forward wall of the receiving horn 23, which would throw the strain upon the pin 14, principally, and even somewhat upon the pivot-pin of the knuckle 25, and instead of against the wings of the head which would throw the strain against the thimbles.

Referring now to the opening of the knuckle, it is shown at its lower end as interlocked, as seen at 26, with an annulus 27, fitted to the recess 28 in the head and having inclines 29 riding upon corresponding inclines 30 formed on projections which extend into said recess 28. When the knuckle is in coupled position, as shown in Figs. 1, 2 and 4, the inclines of the annulus are well up on the fixed inclines. Thus when the locking pin 14 is withdrawn the gravity of the knuckle 19 will swing it outward to uncoupled position by the action of these inclines, such uncoupled position being shown by dotted lines in Fig. 2. This feature of the annulus and inclines, however, is the subject of said Letters Patent No. 519,725, above mentioned.

Thus it will be seen that my invention comprehends an improved bearing for the rock shaft by which the locking pin is drawn out; an improved buffer which produces good results; an improved draft plate combined with a pivoted draft head, a pivoted knuckle and a locking device for the knuckle, and I wish to be understood as laying a broad claim to this latter combination of four elements.

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

1. In a car coupler, the combination with a draft plate, of a draft head pivoted thereto and a knuckle pivoted to the head, and a locking device for the knuckle.

2. In a car coupler, the combination with the draft plate of a head pivoted thereto, a knuckle pivoted to the head and a locking device for the knuckle carried by the draft plate.

3. In a car coupler, the combination with the draft plate, of a head pivoted thereto with the pivot axis coincident with the central draft line of the plate, a knuckle pivoted to the head at one side of said draft line and a locking device for the knuckle, located centrally with respect to said draft line.

4. In a car coupler, the combination with a draft plate and a head pivoted thereto, of a knuckle pivoted to the head and having means to automatically swing the knuckle outward by the action of its gravitation, and a locking device for the knuckle.

5. In a car coupler, the combination with the draft plate and the head pivoted thereto on a pivot whose axis is coincident with the central draft line of the plate, of a knuckle pivoted to the head at one side of said line and having means to automatically swing it outward by the action of its gravity, and a locking pin carried by the plate and located centrally with respect to said draft line.

6. In a car coupler, the combination with a draft plate having an upper and a lower set of ears with a space between each set and between the ears of each set, thimbles mounted in the ears, and a locking pin in the thimbles, a head pivoted on the thimbles with wings fitted between the ears of each set, and the knuckle pivoted to the head and having its inner horn adapted to swing in the space between the sets of ears, and a hole to receive the locking pin.

7. In a car coupler, the combination with a draft plate having an upper and a lower set of ears, and a thimble in each set of ears, each thimble having a cap or piece screwed thereon, the thimbles and caps or pieces being shouldered.

8. In a car coupler, the combination with a draft plate having ears and thimbles mounted therein, one of which has an interior rib or bead at one side and is cut away at the opposite side of its interior, of a head carried by the plate and a knuckle carried by the head and having a pin aperture in its inner horn, and a locking pin grooved to fit said rib or bead by which it is canted to one side when lifted up, whereby it is made to rest upon the knuckle horn.

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

RODNEY F. LUDLOW.

Witnesses:
OLIVER H. MILLER,
W. M. MCNAIR.