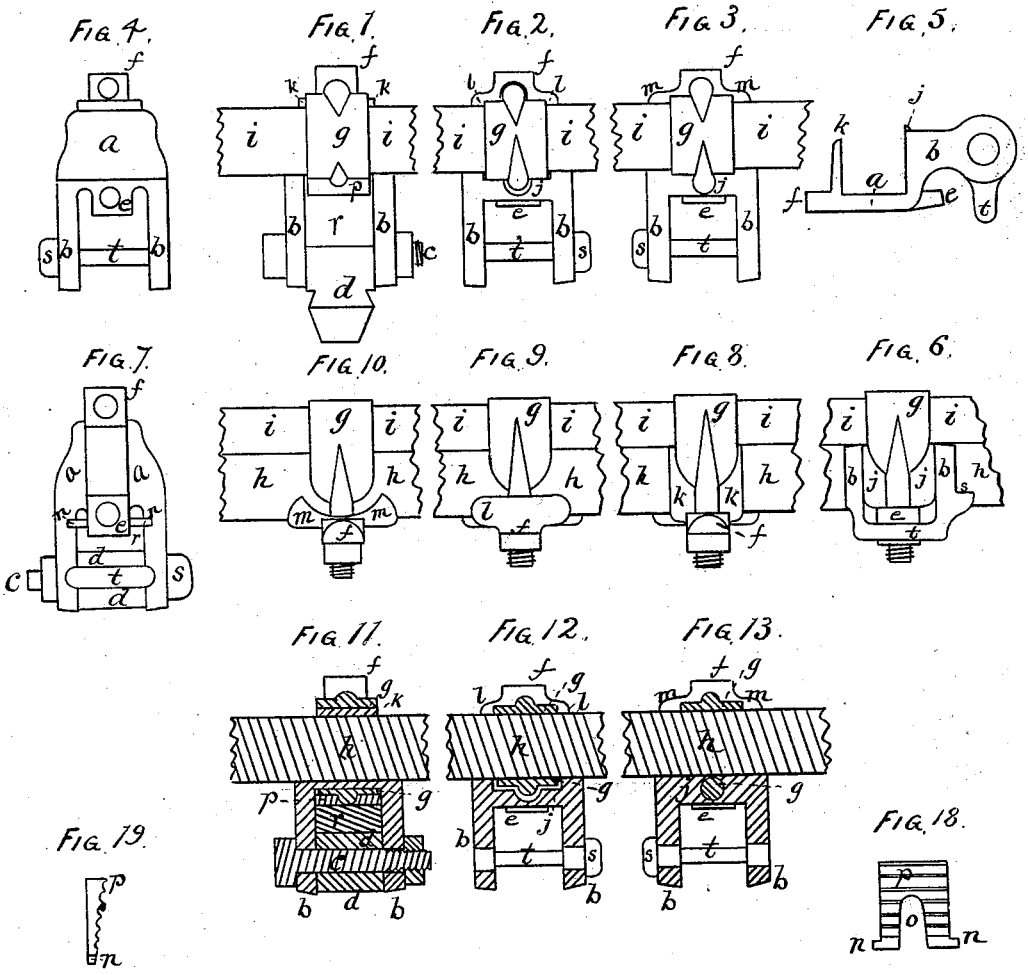
# T. W. & H. K. PORTER.

## Thill-Coupling.

**No. 221,188.** **Patented Nov. 4, 1879.**

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# UNITED STATES PATENT OFFICE.

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## IMPROVEMENT IN THILL-COUPLINGS.

Specification forming part of Letters Patent No. **221,188**, dated November 4, 1879; application filed March 14, 1878.

*To all whom it may concern:*

Be it known that we, THOMAS W. PORTER, of the city of Chelsea, State of Massachusetts, and HENRY K. PORTER, of the city of Boston, in said State, have invented Improvements in Shaft-Shackles for Vehicles, of which the following is a specification.

This invention relates to the shackles by which the shafts of four-wheeled vehicles are hinged to the forward axle; and the invention consists in certain improvements in the shackle proper—to wit, that part which is secured to the axle, and in which the draft-eye of the shaft-iron is pivoted—such improvements being as follows: first, in a shackle formed with a bed or plate to be clipped beneath the axle, and with the draft-ears extending back and shouldering against the axle, with a web rising from the bed and extending from one of such ears to the other, such web having formed in the rear side a recess to receive the clip which secures the shackle to the axle; second, in a thin wedge-like shoulder formed upon the bed to extend up the back side of the axle, and to be inclosed between the clip and the axle; third, in a shoulder formed upon the bed, with a concavity in its upper line to receive the rounded end of the web of the clip, so that while such shoulder extends up the axle, yet the clip-web may extend down the axle as far as if no shoulder were employed; fourth, in a shelf-like stop formed upon one of the draft-ears, in such close contiguity to the pivot-bolt hole that one of the faces of the square head of such bolt shall, by its contact with the stop, prevent rotation of the bolt, either by use of the vehicle or when the nut is being turned on or off; fifth, in a roughened plate formed to be interlocked with the draft-ears, and to receive upon its front face and hold in position an elastic buffer inserted between such plate and the draft-eye, to prevent the said eye from rattling; sixth, in a seat for the front nut of the clip, such seat projecting from the bed midway between the draft-ears, with a space between such seat and ears on each side, to admit such roughened plate to rest upon said seat and be locked beneath such ears.

Figure 1 is a top or plan view of a shackle, shown as clipped to the axle, and formed with a thin web between the draft-ears, and with a thin web as a back shoulder, the draft-eye and pivot-bolt, the anti-rattler, and roughened retaining-plate being shown in their proper positions. Fig. 2 is a similar view of a shackle formed with a recess in the back side of the web between the ears for the reception of the round rib and flat portion of the clip, the strap-loop and bolt-stop being shown, but the draft-eye, the draft-bolt, the buffer, and its roughened plate being omitted. Fig. 3 is a view similar to Fig. 1, but reversed, or showing the bolt-stop on the opposite side, and with a modification in the web between the ears. Fig. 4 is a top or plan view of the shackle, as in Fig. 1, all the other parts being omitted. Fig. 5 is a side elevation of Fig. 4. Fig. 6 is a front elevation of Fig. 4, shown as clipped to the axle. Fig. 7 is a bottom or under-side view of the shackle, as shown in Figs. 1, 4, 5, 6. Fig. 8 is a rear or back side view of Figs. 1 and 6. Fig. 9 is a rear view of the modification shown in Fig. 2. Fig. 10 is a rear view of Fig. 3. Fig. 11 is a horizontal section of Fig. 1, taken through the axis of the draft or pivot bolt, as shown on line Y Z, Figs. 14, 15, 16. Fig. 12 is a similar section of Fig. 2. Fig. 13 is a similar section of Fig. 3. Fig. 14 is a central vertical section of Fig. 1, taken transversely to the axle, and showing the lower portion of a safety-strap on the loop. Fig. 15 is a similar section of Fig. 2. Fig. 16 is a similar section of Fig. 3. Fig. 17 is a vertical section as taken on line W X, Fig. 14. Fig. 18 is a front elevation of the roughened buffer-plate. Fig. 19 is an edge or side elevation of the same.

In these figures, *a* represents the bed of the shackle. *b b* are the draft-ears, through which pass the draft-bolt *c*, on which is pivoted the draft-eye *d*. *e* is a clip-nut seat formed at the front of bed *a*, and extending between the draft-ears, with an open space on either side between the seat and ears. *f* is a similar nut-seat formed at the rear of the bed. The rounded ends of the clip pass through holes in these seats, and the clip secures the shackle in place. *j* is a web which rises from bed *a* and unites ears *b*. Three modifications of this web are shown; but as we claim but one of these the others need not be fully described.

In Figs. 2, 12, and 15 this web is shown with a recess on the side next the axle for the reception of clip *g*.

In Figs. 1, 5, 8, 11, and 14, *k* shows a wedge-like shoulder formed upon and rising from bed *a*, and extending up the back side of the axle *h*, the clip *g* embracing this shoulder.

In Fig. 10 the shoulder *m* is shown cut down or formed with a concavity in its upper edge, thereby allowing the web of the clip to be drawn as near the bottom of the axle as if no shoulder were formed upon the shackle.

Fig. 18 is a front view, and Fig. 19 an edge view, of the roughened plate *p*, which is inserted between ears *b*, as shown in Figs. 1, 7, 11, and 14, the short projections *n n* catching under the ears to prevent the friction or action of buffer *r* from raising the plate out of place, while its lower edge, resting upon the seat *e*, prevents its being forced downward. *o* is a groove or space in this plate to receive the tail of clip *g*. This plate may be fluted, corrugated, toothed, or otherwise roughened, in order that it may take a firm hold upon the rubber buffer and prevent its being displaced by the action of the draft-eye.

*s* is a stop formed upon one of ears *b*, in such close proximity to the hole for the draft-bolt *c* that the head of this bolt will bear directly against the stop and prevent its rotation from any cause. *t* is a loop formed on ears *b*, beneath the same, to which loop the safety-strap *u* is secured.

We do not claim, broadly, a shackle having the web formed between the draft-ears, but only when such web is formed with a recess for the clip in the back side; nor do we herein claim, broadly, a bolt-stop formed upon one of the draft-ears, but only when such stop is formed to receive one of the faces of the bolt-head, so as to be held from any rotary motion; neither do we herein broadly claim a safety-strap loop formed upon the draft-ears, but only when such loop is formed beneath the said ears.

We claim as our invention—

1. In a shaft-shackle, the web *j*, having a recess to receive the clip *g*, and uniting the ears *b*, and shouldering against the axle *h*, as described and shown.

2. In a shaft-shackle, the wedge-like shoulder *k*, formed upon the back end of bed *a* and inside the clip-hole, with its outer face tangential to the periphery of such hole, so as to be inclosed between the clip and axle, substantially as specified.

3. In a shaft-shackle, a shoulder or web rising from bed *a*, and formed with a concavity in the upper edge, as shown at *m*, to receive the web of the clip, substantially as specified.

4. In a shaft-shackle, a shelf-like stop, *s*, formed upon and projecting from the outer plane of draft-ear *b*, and in such close proximity to the pivot-bolt hole as to be in contact with the head of such bolt when it is in position for use, and to hold the same from rotation, substantially as specified.

5. In a shaft-shackle, the plate *p*, formed with lugs to interlock with ears *b*, substantially as specified.

6. In a shaft-shackle, the nut-seat *e*, formed upon bed *a*, between ears *b*, and of less width than the space between said ears, substantially as specified.

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