H. A. LUTTGENS.

Thill-Coupling.

No. 161,973. Patented April 13, 1875.

Fig 4.

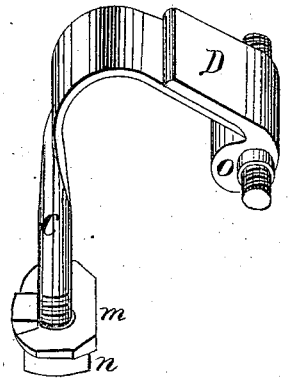


Fig 1.

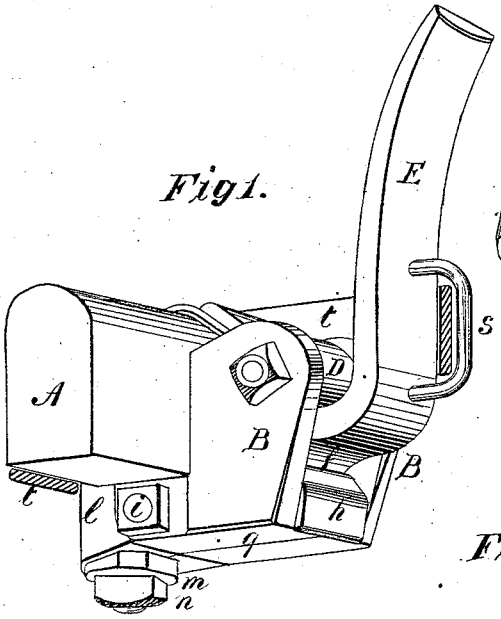


Fig 5.

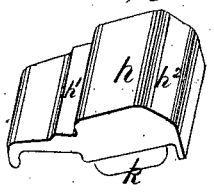


Fig 6.

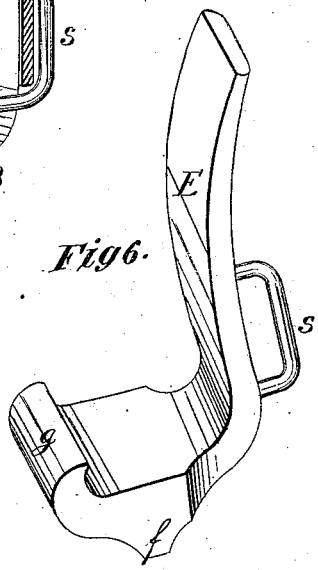


Fig 2.

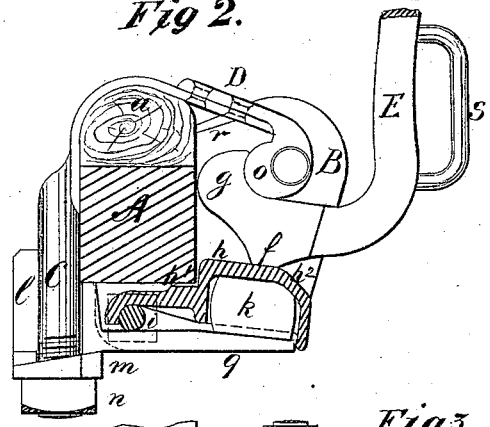


Fig 7.

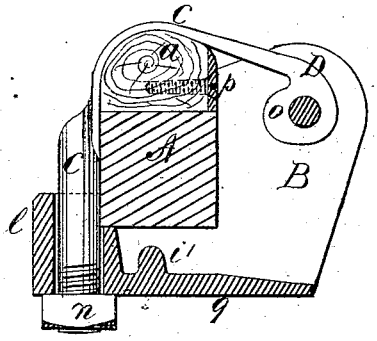
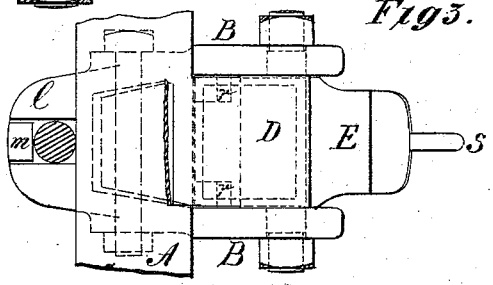


Fig 3.



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UNITED STATES PATENT OFFICE.

HENRY A. LUTTGENS, OF PATERSON, NEW JERSEY.

IMPROVEMENT IN THILL-COUPLINGS.

Specification forming part of Letters Patent No. **161,973**, dated April 13, 1875; application filed June 4, 1874.

To all whom it may concern:

Be it known that I, HENRY AUGUSTUS LUTTGENS, of Paterson, in the county of Passaic and State of New Jersey, have invented a new and Improved Carriage-Thill Coupling; and I do hereby declare that the following is a full and exact description thereof, reference being had to the accompanying drawings, forming part of this specification, in which—

Figure I represents a perspective view of the carriage-thill coupling attached to the axle. Fig. II represents a central section of the same, with the thill inserted and with the clip not shown in section. Fig. III is a top view of the same, with a portion of the clip omitted. Figs. IV, V, and VI are the clip, packing-cover, and thill-iron hook or end shown in detail in perspective; and Fig. VII is a section of a modification of the coupling.

Similar letters of reference indicate corresponding parts in each of the several figures.

My invention applies to improvements in the style of carriage-shaft or thill couplings where the end of the thill-iron is hook-shaped; and consists, first, in the peculiar construction of the box and clip, whereby these are united near the top of the box, thereby dispensing with the front clip-bolt or limb, and forming, through the combination of the coupling-box and axle-clip, (bolted together at the coupling-joint, which latter is united to the end of the axle-clip,) a continuous band and clamp around the axle, secured by a single bolt at the rear of the axle, which leaves the coupling in front of the axle open for the insertion of the thill-iron; second, in so constructing a packing-cover, inserted below the thill-iron and between the thill-iron and packing, that its action is limited, both up and down, by contact with the lower side of the axle and bottom web of the coupling-box, the extent of its upward movement indicating about the amount to which it can follow up the wear of the thill-iron upon the upper bearing-face of the latter. This limited action enables the packing to exert a considerable pressure against the under side of the packing-cover, even before the latter is acted upon by the thill-iron, this pressure not diminishing the opening for the insertion of the thill-iron. The packing-cover also securely locks the thill-iron when in position for use within the coupling, since, when the cover has been acted upon to the extent of its downward movement, it bears with its sides upon the bottom web of the coupling-box, so as to make the removal of the thill-iron (without change of position) impossible. The cover is supplied with an extension which hooks upon a bar or projection in the rear end of the coupling-box, whereby it is retained within the coupling.

To enable others skilled in the art to make and use my invention, I will proceed to describe its construction and operation.

The sides B B of the coupling bottom 9 and projection *l* are made in halves, as shown in Fig. I, or in one piece, as shown in Fig. VII. If the forward end D of the axle-clip C is made to fit into the sides B B, and bolted to the same, as shown in Figs. I and IV, it is necessary to make the sides B B together with the bottom 9 and projection *l* in halves. If the forward end D of clip C is perforated then an ordinary bolt or rivet secures the clip at *o* and sides B B together, in which case the sides B B, bottom 9, and projection *l* are formed into one piece. The axle-clip C passes over the top of axle A, and, being provided with washer *m* and nut *n*, it secures the coupling to the axle. The axle-clip C may be formed in one with the hook-bearing O, as shown in Fig. VII, or the latter may be made separate and united to the former by rivets, as shown in Figs. I, II, and IV. The hole, which allows the clip C to pass through projection *l* of the coupling, is either slotted, as shown in Figs. II and III, and the lower face of the coupling inclined with a similar inclination to the top face of washer *m*, or the clip C passes through an ordinary hole, as shown in Fig. VII, in which case the washer may be dispensed with. The end of thill-iron E is formed hook-shaped, as shown at *g*, and fitted to the end D of the axle-clip C. It is provided with heel *f*, which rests upon packing-cover *h*. The cover *h* is provided with a cavity underneath for the reception of packing *k*. It is hinged upon bolt *i*, as shown in Fig. II, which latter passes through the coupling, or it is hinged upon projection *i'*, as shown in Fig. VII. The cover *h* is fitted so as to leave a small space between

it and the bottom of axle A at h^1 when the shaft E is in its proper position for use. It is also made slanting at h^2 to facilitate entering the thill-iron into the coupling. The sides B B may be provided with projections *r r* upon the inside to form a cover for the opening at the top; also, the bed-piece *a* upon axle A may be provided with washer or plate *p*, Fig. VII, secured to it by wood-screws to protect the face of bed-piece *a*, where it is in contact with the coupling, or the plate *p* may be extended so as also to cover and protect the top and rear of the bed-piece *a*. The thill-iron E is provided with a staple or slotted hole, *s*, to receive a safety-strap, *t*, which also passes around the axle A.

The thill-coupling may also be constructed with the following modifications: First, the projection *i'*, Fig. VII, may be formed by inserting a small bolt from the bottom. Second, the packing *k* may be substituted by a spiral or other steel spring, and the depth of the coupling increased so as to provide space for the spring. Third, the plate or washer *p* (shown in Fig. VII) may be formed on the coupling itself, uniting with the sides B B, and may extend so as to form a cover for the face of axle A and bed-piece *a*, leaving the necessary opening at the bottom for the insertion of the packing-cover *h*.

The coupling proper may be made of malleable iron, cast-steel, or wrought-iron. If made of wrought-iron the shapes are formed in dies, so that after the sides B B are bent up the forging of that portion of the coupling is completed. The packing-cover *h* may be made of ordinary cast or wrought iron. It may also be case-hardened, as well as the other parts liable to wear.

The thill-iron E is entered into and held by the coupling in the following manner: The front end of the carriage-shaft or pole is raised above its ordinary position, the thill-iron E entered into the opening between packing-cover h^1 and hook-bearing O, after which the shaft is lowered into its proper position, which causes the heel *f* of the thill-iron E to compress the packing *k* as it passes into the top of packing-cover *h*. The parts thus held together are made anti-rattling.

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

1. The coupling-box B in combination with axle-clip C D, forming a continuous band and clamp around the axle A, secured by a single bolt at the rear of the axle, as set forth.

2. Packing-cover *h*, interposed between thill-iron E and packing *k*, in combination with projection *i*, axle A, and bottom web 9 of coupling-box B, substantially as and for the purpose described.

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