J. L. CRIST, W. E. CRIST & G. H. SMITH.

THILL-COUPLING.

No. 188,042. Patented March 6, 1877.

fig. 1.

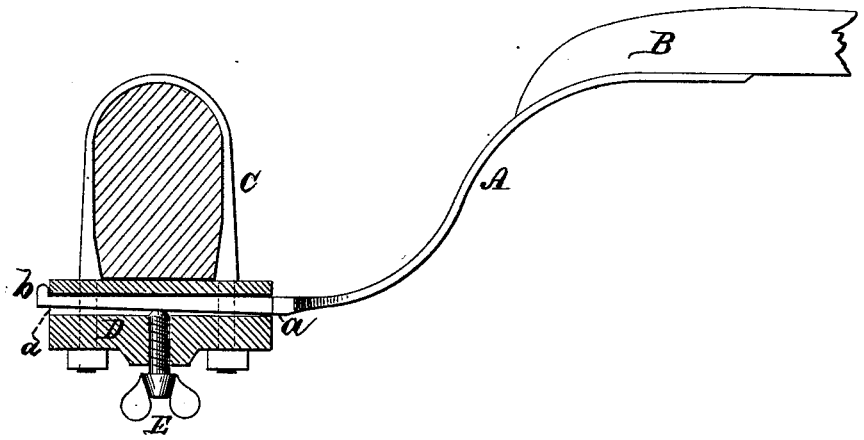
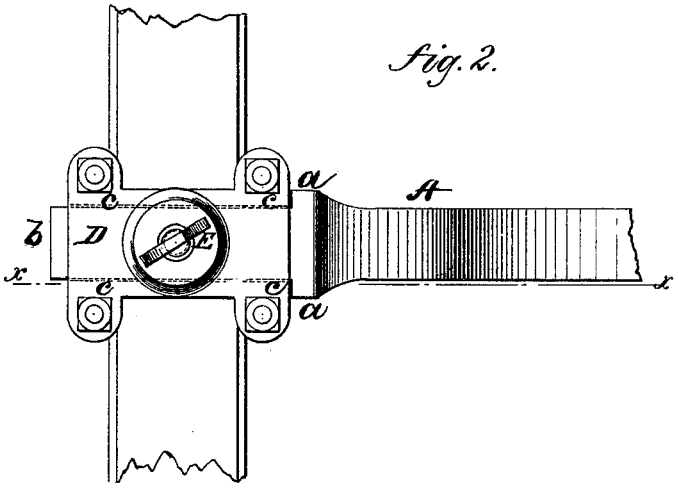


fig. 2.



WITNESSES:

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UNITED STATES PATENT OFFICE.

JOHN L. CRIST, WILLIAM E. CRIST, AND GEORGE H. SMITH, OF SACRAMENTO, CALIFORNIA.

IMPROVEMENT IN THILL-COUPLINGS.

Specification forming part of Letters Patent No. **188,042**, dated March 6, 1877; application filed January 19, 1877.

To all whom it may concern:

Be it known that we, JOHN L. CRIST, WILLIAM E. CRIST, and GEORGE H. SMITH, of Sacramento, in the county of Sacramento and State of California, have invented a new and Improved Thill-Coupling, of which the following is a specification:

Figure 1 is a side elevation of our improved coupling, taken in section on line *x x* in Fig. 2. Fig. 2 is a view looking toward the under side.

Similar letters of reference indicate corresponding parts.

Our invention relates to couplings for thills or shafts of vehicles; and it consists of a spring for connecting each of the shafts with a clamp or clip attached to the axle, and upon the lower end of the said spring a nib is formed that engages with the clip when the end of the spring is clamped by a set-screw in the clip.

Referring to the drawing, A is a spring, that is attached to the shaft B by means of bolts or screws, and is bent in the same manner as thill-irons are usually bent, and is thicker at its lower end, and has formed upon it the shoulders *a a*, and is provided with a nib, *b*. C C are clips that embrace the axle of the vehicle and retain the part D by passing through it, and by the nuts *c*, that bend it against the axle. A mortise, *d*, is made in the part D, for receiving the thick end of the spring A. E is a thumb-screw, that passes through the part D into the mortise, and bears against the spring A, so that the nib *b* engages with the part D at the side of the mortise, and prevents drawing the spring A from the mortise.

The spring A is sufficiently rigid to support the thills, while it is also sufficiently flexible to permit of the required latitude of motion. All rattling and noise are obviated by the improvement, and the thills are readily attached and removed.

To afford additional security a ring may be cast on one side of the part D, for receiving a strap that is attached to the thills.

Having thus described our invention, we claim as new and desire to secure by Letters Patent—

The thill-coupling herein described, consisting of the spring A, having shoulders *a* and lug *b*, the socket-piece D, and thumb-screw E, all constructed and relatively arranged in respect to the thills and axle, substantially as herein set forth.

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