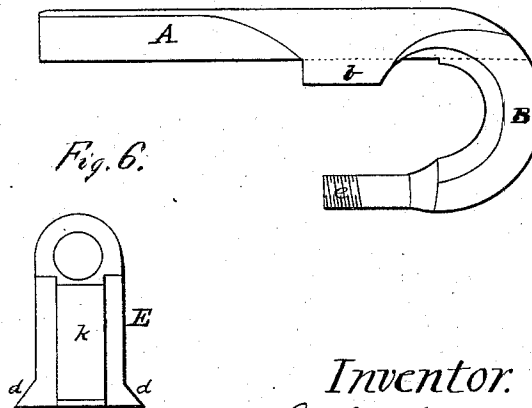
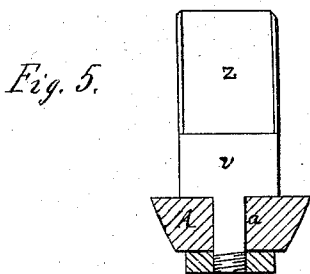
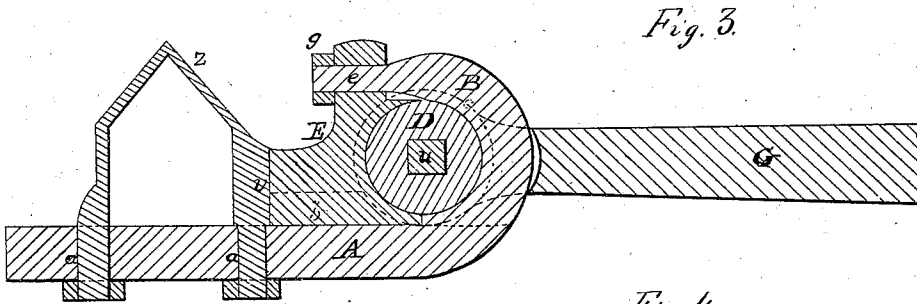
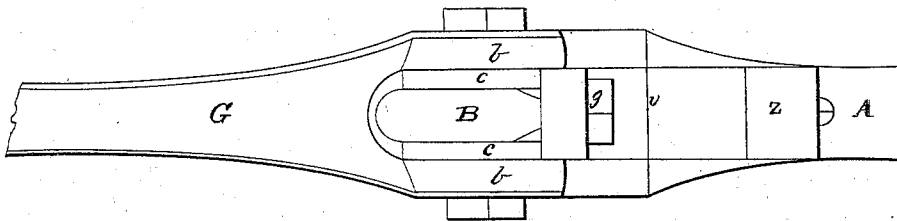
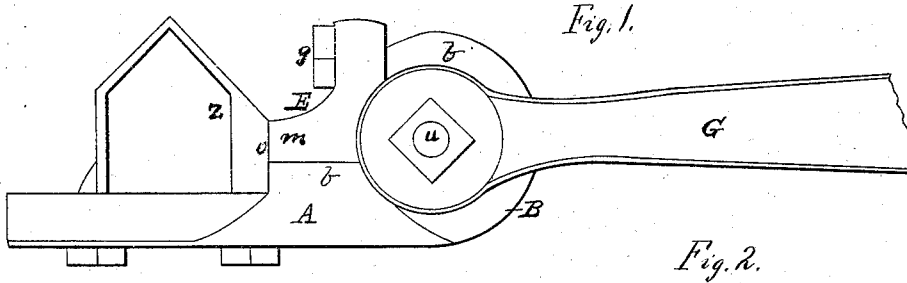


L. D. WARREN.
Thill-Couplings.

No. 148,011.

Patented Feb. 24, 1874.



Witnesses.
Chas. B. Steele
J. E. Upham.

Inventor.
L. D. Warren,
Cliftonman & Co.,
Atty.

UNITED STATES PATENT OFFICE.

LEVERETT D. WARREN, OF WETHERSFIELD, CONNECTICUT.

IMPROVEMENT IN THILL-COUPPLINGS.

Specification forming part of Letters Patent No. **148,011**, dated February 24, 1874; application filed April 19, 1873.

To all whom it may concern:

Be it known that I, LEVERETT D. WARREN, of Wethersfield, in the county of Hartford and State of Connecticut, have invented a new and valuable Improvement in Clip and Thill-Fastening; and I do hereby declare that the following is a full, clear, and exact description of the construction and operation of the same, reference being had to the annexed drawings making a part of this specification, and to the letters and figures of reference marked thereon.

Figure 1 of the drawings is a representation of a side view of my thill-coupling. Fig. 2 is a top view of the same. Fig. 3 is a sectional view, and Figs. 4, 5, and 6 detail views, of the same.

This invention has relation to thill-couplings; and it consists in the construction and novel arrangement of the hooked end of the coupling-iron, threaded for the reception of a nut. The object of this invention is to provide a durable and easily-adjusted thill-coupling, which may be constructed without using rubber.

In the accompanying drawings, the letter A designates the coupling-iron, perforated at *a* for the passage of the ends of the clip. B indicates a hook, forming a part of the coupling-iron. Dovetail flanges *b* are provided on each side of the coupling-iron, to serve as guides for the slide. D indicates the roller, having a square opening through its center, and a peripheral groove bounded by flanges *c*, which embrace the sides of the inner wall of the hook B, and the sides of the

slide at its forward edge. E designates the slide. This has flanges *d* at its base to fit the guides *b* of the coupling-iron. It is perforated at its upper portion for the passage of the straight threaded portion *e* of the hook, a nut, *g*, being screwed on this portion, and bearing against the rear wall of the slide. On its forward or inside edge the slide E is provided with the concave circular projection or tongue *k*, which is designed to fit the groove of the roller when the slide is pressed home. The base of the slide is a solid block, extending somewhat to the rear, as at *m*, and, when in position, abutting against the bearing-face *v* of the clip *z*. G indicates the thill-iron, and *u* the square bolt by which it is secured to the roller of the coupling. This coupling is readily adjusted and easily tightened to prevent rattling.

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

In a thill-coupling, the removable slide E, having the flanges *d* at its base to fit the guides *b*, the concave circular tongue *k* to fit the groove of the roller D, and perforated at its upper portion for the passage of threaded portion *e* of the hook A, substantially as and for the purpose specified.

In testimony that I claim the above I have hereunto subscribed my name in the presence of two witnesses.

LEVERETT DWIGHT WARREN.

Witnesses:

A. N. HATHEWAY,
M. G. DIBBLE.