B. F. RICHARDSON.
Thill-Coupling.

No. 221,423. Patented Nov. 11, 1879.

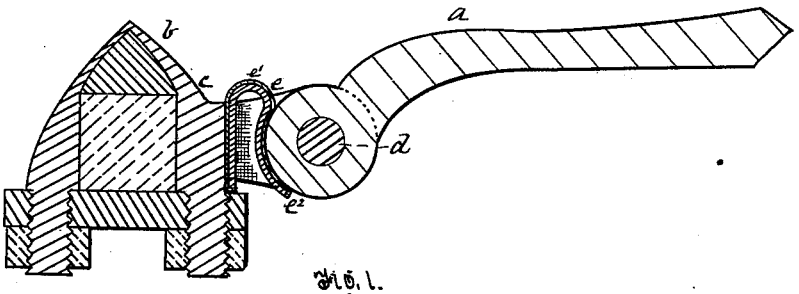

Fig. 1.

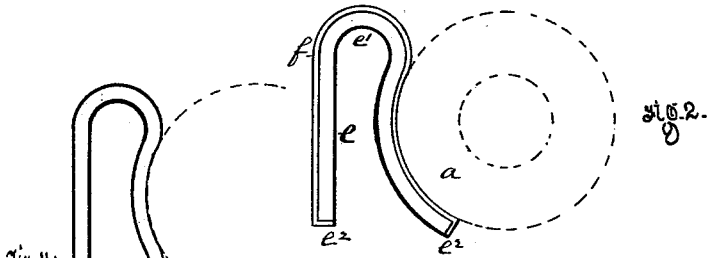

Fig. 2.

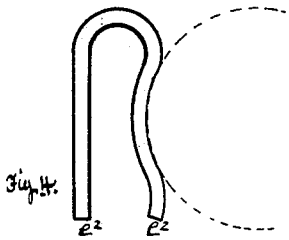

Fig. 4.

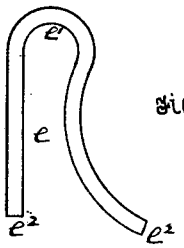

Fig. 3.

Witnesses.
James K. Bakewell
L. C. Fitter.

Inventor.
Benjamin F. Richardson
by Bakewell & Kerr
Attorneys

UNITED STATES PATENT OFFICE.

BENJAMIN F. RICHARDSON, OF CINCINNATI, OHIO.

IMPROVEMENT IN THILL-COUPLINGS.

Specification forming part of Letters Patent No. **221,423**, dated November 11, 1879; application filed September 26, 1879.

To all whom it may concern:

Be it known that I, BENJAMIN F. RICHARDSON, of Cincinnati, in the county of Hamilton and State of Ohio, have invented a new and useful Improvement in Anti-Rattlers for Thills and Poles of Vehicles; and I do hereby declare the following to be a full, clear, and exact description thereof, reference being had to the accompanying drawings, forming a part of this specification, in which—

Figure 1 is a sectional view of a thill or pole coupling, showing my improved device for preventing the rattling of the thill or pole and shackle-bolt of vehicles. Figs. 2, 3, and 4 are detail views and modifications.

Like letters of reference indicate like parts in each.

My invention belongs to that class of devices designed to prevent the disagreeable rattling of the thills or poles of vehicles at their attachment to the axle.

As ordinarily constructed, the attachment is made by means of a shackle-bolt, and the parts are necessarily more or less movable, especially under wear. This mobility in use gives rise to the rattling noise mentioned. Various devices have been employed for its prevention; but all that have come to my notice have been more or less defective in operation, difficult to apply, and lacking in durability.

The most preferable of these prior devices is a block of india-rubber compound having a concave face, said block being placed between the thill or pole iron and the axle connection. This rubber compound, however, soon becomes friable and inelastic from exposure and pressure, and wears away rapidly. For these reasons it is made relatively large, and is very difficult to adjust. From wear and loss of elasticity it soon permits rattling.

My invention consists of a spring doubled upon itself, and somewhat of the form of the letter U, composed of steel or other springy metal, covered on its outer surface with a layer or strip of bronze, brass, or other composition metal.

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

The thill or pole iron is shown at *a*. It is united to the axle *b* by a clip, *c*, of the usual construction, having a bolt, *d*. It is the disagreeable noise or rattling of these parts when in use that my invention is designed to prevent. It consists of a U-shaped spring, *e*, of stiff elastic steel or other suitable metal, inserted between the end of the thill or pole *a* and the axle *b*, the arm next to the thill or pole being curved to conform to the rounded shape of the thill or pole loop.

The yoke end e' of the spring, when in position, becomes so shaped that it cannot escape downward between the thill end and axle-clip, and the cross-plate of the axle-clip underneath contributes to the same end by arresting the rear arm of the spring. So, also, the ends e^2 diverge sufficiently to prevent the slipping out of the spring upward.

The outer surface of the spring has a layer or covering, *f*, of bronze, brass, or other suitable material, which is not only ornamental, but it also serves to muffle the spring, and prevents any creaking or sound by the working of the other parts thereon.

The form of the spring may be varied in several ways, one of which is shown at Fig. 4. It may be adjusted in the shackle by compressing its arms together with the end of the thill or pole sufficiently to allow the bolt to pass through the thill or pole eye; or, in the form of Fig. 4, it may be compressed and driven into its place after the thill or pole has been bolted.

By "U-shaped" I mean a spring doubled upon itself, forming a yoke with arms, one of which is curved, diverging from each other when not in position for use.

The advantages of my invention are, its cheapness and durability, the comparative ease with which it may be adjusted, and the entire prevention of rattling or creaking of the thill or pole when in use.

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

A U-shaped metallic spring having an outer layer or covering of bronze, brass, or similar material, substantially as and for the purpose described.

In testimony whereof I, the said BENJAMIN F. RICHARDSON, have hereunto set my hand.

BENJAMIN F. RICHARDSON.

Witnesses:

JNO. K. SMITH,

A. C. JOHNSTON.