(No Model.)

A. PAUL.

THILL COUPLING.

No. 446,005. Patented Feb. 10, 1891.

Fig. 1.

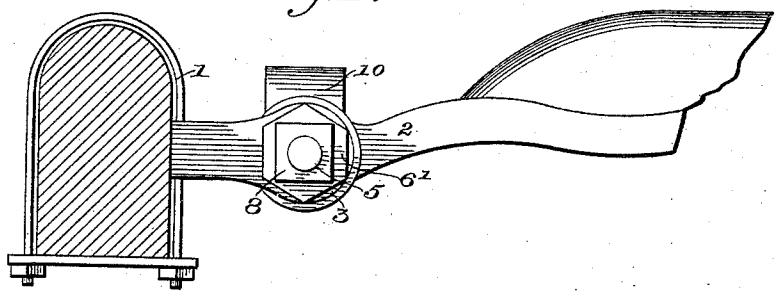


Fig. 2.

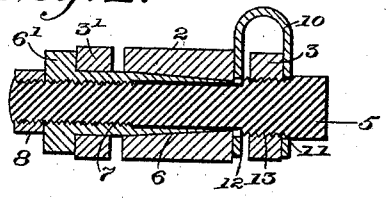


Fig. 3.

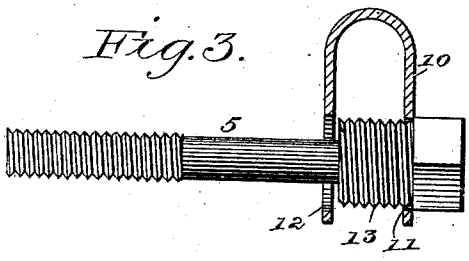
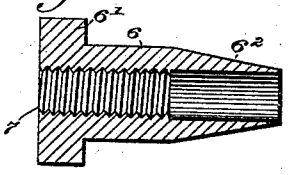


Fig. 4.



WITNESSES

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UNITED STATES PATENT OFFICE.

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THILL-COUPLING.

SPECIFICATION forming part of Letters Patent No. 446,005, dated February 10, 1891.

Application filed May 12, 1890. Serial No. 351,544. (No model.)

To all whom it may concern:

Be it known that I, ARCHIBALD PAUL, a citizen of the United States, residing at Cohoes, in the county of Albany and State of New York, have invented certain new and useful Improvements in Thill-Couplings; and I do declare the following to be a full, clear, and exact description of the invention, such as will enable others skilled in the art to which it appertains to make and use the same, reference being had to the accompanying drawings, and to the figures of reference marked thereon, which form a part of this specification.

My invention relates to improvements in thill-couplings; and the objects of my invention are, first, to provide the coupling with means whereby rattling is entirely overcome and the parts can be quickly adjusted to compensate for wear and friction; second, to enable old parts of an ordinary coupling to be refitted at a slight expense with my improvements, and, finally, to improve the coupling to promote durability and simplicity of construction and cheapness of manufacture.

With these and other ends in view my invention consists in the combination of devices and construction and arrangement of parts, as will be hereinafter fully described and claimed.

In the accompanying drawings, Figure 1 is a side elevation of a thill-coupling constructed in accordance with my invention. Fig. 2 is a longitudinal central sectional view through the coupling. Fig. 3 is an enlarged detail view of the bolt and spring, and Fig. 4 is a like view of the adjusting-sleeve.

Like numerals of reference denote corresponding parts in all the figures of the drawings, referring to which—

1 designates an ordinary clip adapted to be securely fastened to an axle, and 2 the thill-iron, which is also of the ordinary form, with the exception that its eye is bored slightly conical or tapering, instead of being uniform in diameter, as is usual. The clip has the usual perforated ears 3, between which the eye of the thill-iron is fitted, and the thill-iron is connected to the clip by a through-bolt 5, which passes through both ears and the eye of the thill-iron.

6 designates the adjusting and bearing sleeve, which constitues a bearing for the end of the through-bolt and one end of the thill-iron, and which is adapted to be adjusted to compensate for wear due to friction of the moving parts and to keep the several parts of the coupling free from rattling. This sleeve is made of steel and "case-hardened" to render it very durable and strong, and said sleeve or tubular bearing is provided at one end with an angular-sided flange 6′, which serves as a convenient surface to apply a wrench or other implement in order to rotate or turn the sleeve or tube. The sleeve or bearing is made of uniform diameter for a portion of its length—*i. e.*, that portion extending from the flange 6′ to the middle of the sleeve—and from the middle the sleeve is made tapering or conical in form. At the part thereof which is uniform in diameter it is threaded interiorly, as at 7, and this threaded part of the sleeve is screwed upon the end of the threaded bolt. The case-hardened sleeve or bearing passes through the perforation in the ear 3′ of the clip 1 and enters the conical portion of the eye in the thill-iron; and as the sleeve is screwed upon the threaded bolt it is evident that the conical end of the sleeve can be adjusted within the thill-iron to compensate for wear due to friction on the moving parts.

As the sleeve or bearing is made of case-hardened steel, the wear is reduced to a minimum, and the parts are very durable and can be replaced at a trifling cost when they become worn to such extent as to become useless. The tubular bearing is held from working loose on the bolt by a nut 8, which is screwed on the outer end of the bolt and jams against the flange of the sleeve or tubular bearing.

The conical part of the adjustable bearing or sleeve bears against the thill-iron, so as to adjust the same in one direction to compensate for wear, &c., and against the opposite side of the thill-iron presses a spring 10, which serves to keep the parts tight and prevent rattling thereof. This spring is preferably made of a piece of metal, which is bent into U shape or formed with two arms, one of which has a threaded eye, as at 11, and the other arm has a smooth eye 12. The U-shaped spring straddles the ear 3 of the clip, and is disposed in such relation thereto that the eyes in the arms thereof coincide with the

perforation in the ear 3, and through the eyes in the spring and the ear 3 passes the through-bolt, said bolt having an enlarged threaded shoulder 12 formed thereon adjacent to the head of the bolt. This threaded shoulder of the bolt screws into the threaded eye on the arm of the spring, and by adjusting the bolt inward the spring is compressed and forced against the thill-iron, whereby said iron is forced against the conical part of the sleeve or tubular bearing and the parts held tight, so that the coupling is free from rattling.

My improvements are simple, durable, and cheap of manufacture. The adjustable sleeve or tubular bearing, the spring, and bolt can be readily used in connection with the ordinary clip and thill-iron, as it is only necessary to bore the parts of the clip and thill-iron to receive the adjustable sleeve and bolt.

Slight changes in the form and proportion of parts and details of construction can be made without departing from the spirit or sacrificing the advantages of my invention.

I claim as my invention—

1. In a thill-coupling, the combination of a clip, a thill-iron having a conical eye therein, the adjustable sleeve fitted in one of the arms of the clip and having the inner conical or tapered end fitted snugly in said thill-iron and the interior screw-threads at its outer end, and a bolt passing through the clip and sleeve, engaging the screw-threads in said sleeve, and having a nut which bears against the outer end of the sleeve, substantially as described.

2. In a thill-coupling, the combination of a clip, a thill-iron having a conical eye therein, a sleeve passing through one of the clips, with its tapered inner end fitting in the eye of the thill-iron and having the interior screw-threads at its outer end, a bolt passing through one arm of the clip and screwed into the threaded end of the sleeve and having the threaded portion 13 near its head, and a spring arranged to straddle an arm of the clip and having a slotted end fitted loosely on the bolt and a threaded eye at its opposite end, into which eye the threaded portion 13 of the bolt is screwed, substantially as described.

In testimony whereof I affix my signature in presence of two witnesses.

ARCHIBALD PAUL.

Witnesses:
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