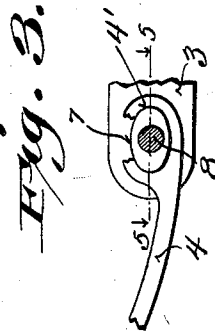
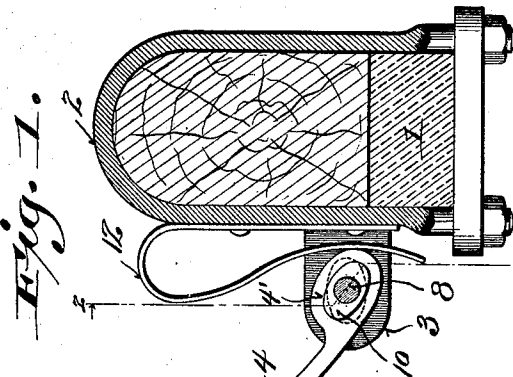
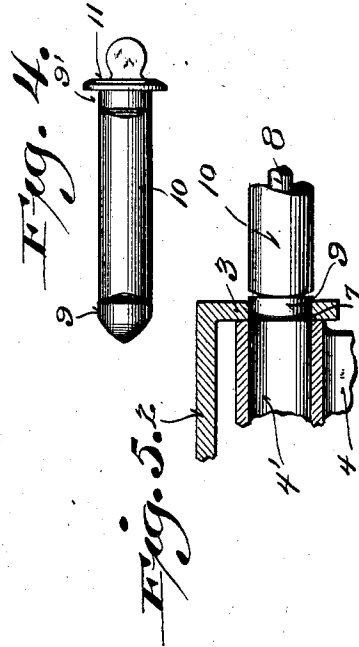
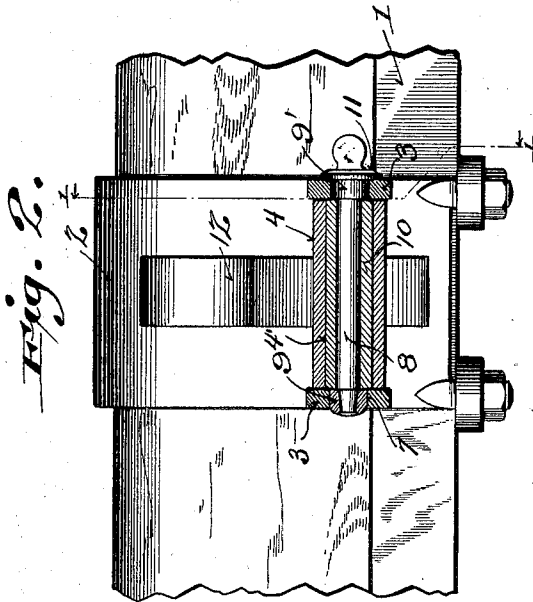


H. ROEBER.
THILL COUPLING.

APPLICATION FILED AUG. 29, 1911.

1,029,717.

Patented June 18, 1912.



Inventor:
Herman Roerber
By *Arthur J. Young*
May Downey

Inventor:
Herman Roerber
By *Arthur J. Young*
Attorneys

UNITED STATES PATENT OFFICE.

HERMAN ROEBER, OF MILWAUKEE, WISCONSIN.

THILL-COUPLING.

1,029,717.

Specification of Letters Patent.

Patented June 18, 1912.

Application filed August 29, 1911. Serial No. 646,640.

To all whom it may concern:

Be it known that I, HERMAN ROEBER, a citizen of the United States, and resident of Milwaukee, in the county of Milwaukee and State of Wisconsin, have invented certain new and useful Improvements in Thill-Couplings; and I do hereby declare that the following is a full, clear, and exact description thereof.

My invention has for its object to provide a simple, durable and effective thill-coupling whereby the usual threaded coupling bolt and nut are dispensed with, the coupling being readily effected by the insertion of a key-bolt, eliminating the use of a wrench and at the same time insuring a positive lock of said bolt when the latter is properly adjusted.

The arrangement and construction of the thill-coupling comprises a thill-iron and clip each of which is provided with oblong bolt-receiving apertures through which is inserted a bolt having integral end-heads that are oblong in cross-section, the bolt being also provided with a corresponding loose bushing intermediate of the heads, which bushing is oblong in cross-section for matched engagement with the apertures of the clip and thill-iron. By this arrangement when the shafts or pole are lowered the elongated apertures in the thill-iron and clip are brought into register, whereby the key-bolt can be readily inserted and thereafter when said shafts or pole is raised, the sleeve portion of said bolt is partly rotated within the thill-iron, out of alinement with the clip apertures, thus locking the key-bolt against end play and rendering it impossible to uncouple the thill-irons from the clip until said thill-irons are dropped or swung down so as to again register the apertures in the fixed and movable coupling member.

With the above object in view the invention consists in certain peculiarities of construction and combination of parts as hereinafter set forth with reference to the accompanying drawings and subsequently claimed.

In the drawings Figure 1 represents a sectional elevation of a thill-coupling embodying the features of my invention, the section being indicated by line 1—1 of Fig. 2; Fig. 2, a front elevation of the same partly in section as indicated by line 2—2 of Fig. 1; Fig. 3, a detail view of the thill-iron and clip showing the relative positions assumed

when the apertures in these parts are in register, the bolt being illustrated in section; Fig. 4, a detailed elevation of the key-bolt, and Fig. 5, a detailed sectional plan view of a portion of the clip and thill-iron adjusted, the parts being partly in section as indicated by line 5—5 of Fig. 3, and also showing a key-bolt in position to be inserted to effect a coupling between the members.

Referring by characters to the drawings, 1 represents the fore-axle of a vehicle provided with a standard clip 2 having forwardly extended spaced clip-ears 3, between which is fitted the usual thill-iron 4 that is fast to a shaft or pole-member 6. The clip-ears are provided with oblong apertures 7 preferably in the form of ovals as shown, there being a similar transverse aperture 4' formed in the head of the thill-iron. As best shown in Fig. 3, when these oblong apertures are in register the pole or shafts which constitute the movable member of the coupling is designed to be dropped to a low plane with the ends thereof resting upon the ground or floor and in this position a key-bolt 8 is inserted through the thill-iron, head and ear apertures, whereby the parts are coupled.

The key-bolt 8 comprises a stem portion, round in cross-section having end-heads 9, 9', permanently secured thereto, which end-heads are oblong or elliptical in cross-section to correspond to the oblong or elliptical apertures in the coupling members. Mounted upon the stem portion of the key-bolt intermediate of its heads is a loose bushing 10 which is also oblong in cross-section to conform to the contour of said heads, the ends of the oblong bushing, adjacent to the heads being slightly beveled at their minor axes as best shown in Figs. 4 and 5. The length of the bushing is approximately equal to the width of the thill-iron head which is fitted between the clip-ears and the inner faces of the key-bolt heads are adapted to aline flush with the inner faces of the clip ears when the key-bolt is in place. By this arrangement of key-bolt it is apparent that when the parts are in the position shown in Fig. 3, with the oval aperture 4' in register with the oval apertures of the clip ears, said key-bolt can be readily inserted, to effect a coupling operation, it being understood that when the key-bolt is inserted its loose sleeve and heads are in register to form an unbroken oblong plug. When fully inserted inward

movement of the key-bolt is limited by a flanged grip-head 11 which is provided for convenience in adjusting and extracting the key-bolt. After said key-bolt has been inserted the shaft or pole can be raised to its normal position of draft for attaching the draft animal and when so raised, it will be observed by referring to Fig. 1, that the thill-iron head aperture will cause the bushing 10 to rotate about the axes of the stem portion of said key-bolt, whereby the major axis of said bushing is rocked out of register with the major axis of the ear apertures and head ends of the key-bolt. Thus said bushing being twisted will securely lock the key-bolt in place, whereby it is held against transverse play by engagement of its end faces with the inner faces of the clip ears 3. It is impossible to extract the key-bolt until such time as the shaft or pole has been lowered so as to cause registration of the thill-iron head aperture and clip-ear apertures. In assembling the bolt members the loose bushing is first slipped over the key-bolt 8 in abutting engagement with a fixed head 9' and thereafter the separable head 9 is inserted over the shouldered end of the key-bolt and riveted to form a second rigid head and in some instances the head 9 may be shrunk or brazed upon the shouldered end of said key-bolt.

As shown in Fig. 1, the clip 2 is provided with an anti-rattling leaf-spring 12 of the ordinary type, which spring is adapted to exert pressure upon the head of the thill-iron 4 and thus hold the parts tightly in position whereby wear or loose play is taken up.

It will be observed that when the key-bolt is inserted, its bushing will be self-centered between the inner faces of the clip-ears owing to the fact, as previously stated, that the ends of said bushing 10 are beveled. Hence when the bushing is twisted upon the key-bolt pin its beveled ends will engage the faces of the ears and thus adjust said bushing laterally between said ears, the beveled edges serving to prevent locking of the bushing within the clip-ear apertures should the end of said bushing be inadvertently centered between the inner faces of the inner faces of said clip-ears.

From the foregoing description with relation to the key-bolt and loose bushing a further advantage is obtained by said construction owing to the fact that the members of the key-bolt being oblong in cross-section, said key-bolt can be reversed to prevent wear, that is the draft strain and continual oscillation will cause wear between the bushing and key-bolt proper upon

one side of said key-bolt only and this wear can be compensated for by reversal of the parts so as to bring the wear upon the opposite side of said bolt, by which change the bolt which would otherwise wear elliptical will be worn equally on all sides, and furthermore should the bushing become loose by wear a new bushing can be readily substituted therefor.

I claim:

1. A thill-coupling comprising a thill-iron head and clip ears, each being provided with oblong apertures adapted to register when the thill-iron is at a predetermined elevation, a bolt fitted through the ear and head apertures, the bolt being provided with oblong rigid end-heads for engagement with the ear apertures, and an intermediate loose bushing for matched engagement with the thill-iron head aperture, the bushing being oblong in cross-section and provided with beveled end faces that intersect the bolt end heads.

2. A thill-coupling comprising a thill-iron head and clip ears therefor, each being provided with oval apertures adapted to register when the thill-iron is at a predetermined elevation, a bolt fitted through the ear apertures and head aperture having rigid oval end-heads in nested engagement with the ear apertures, and an intermediate oscillatory oval beveled end bushing in nested engagement with the thill-iron head aperture, whereby locking engagement between the inner faces of the ears and the ends of the oscillatory bushing is effected when the thill-iron is raised to a predetermined position.

3. A thill-coupling comprising a thill-iron head and clip ears therefor, each being provided with oblong apertures adapted to register when the thill-iron is at a predetermined elevation, a bolt fitted through the ear and thill-iron head apertures, the bolt being provided with oblong end-heads for nested engagement with the ear apertures and a correspondingly oblong intermediate beveled end bushing-section loosely mounted upon the bolt for engagement with the thill-iron head aperture and ear apertures, the oblong end-heads being of the same width as the clip-ears and the bushing being of the same width as the thill-iron head.

In testimony that I claim the foregoing I have hereunto set my hand at Milwaukee in the county of Milwaukee and State of Wisconsin in the presence of two witnesses.

HERMAN ROEBER.

Witnesses:

GEO. W. YOUNG,
MAY DOWNEY.