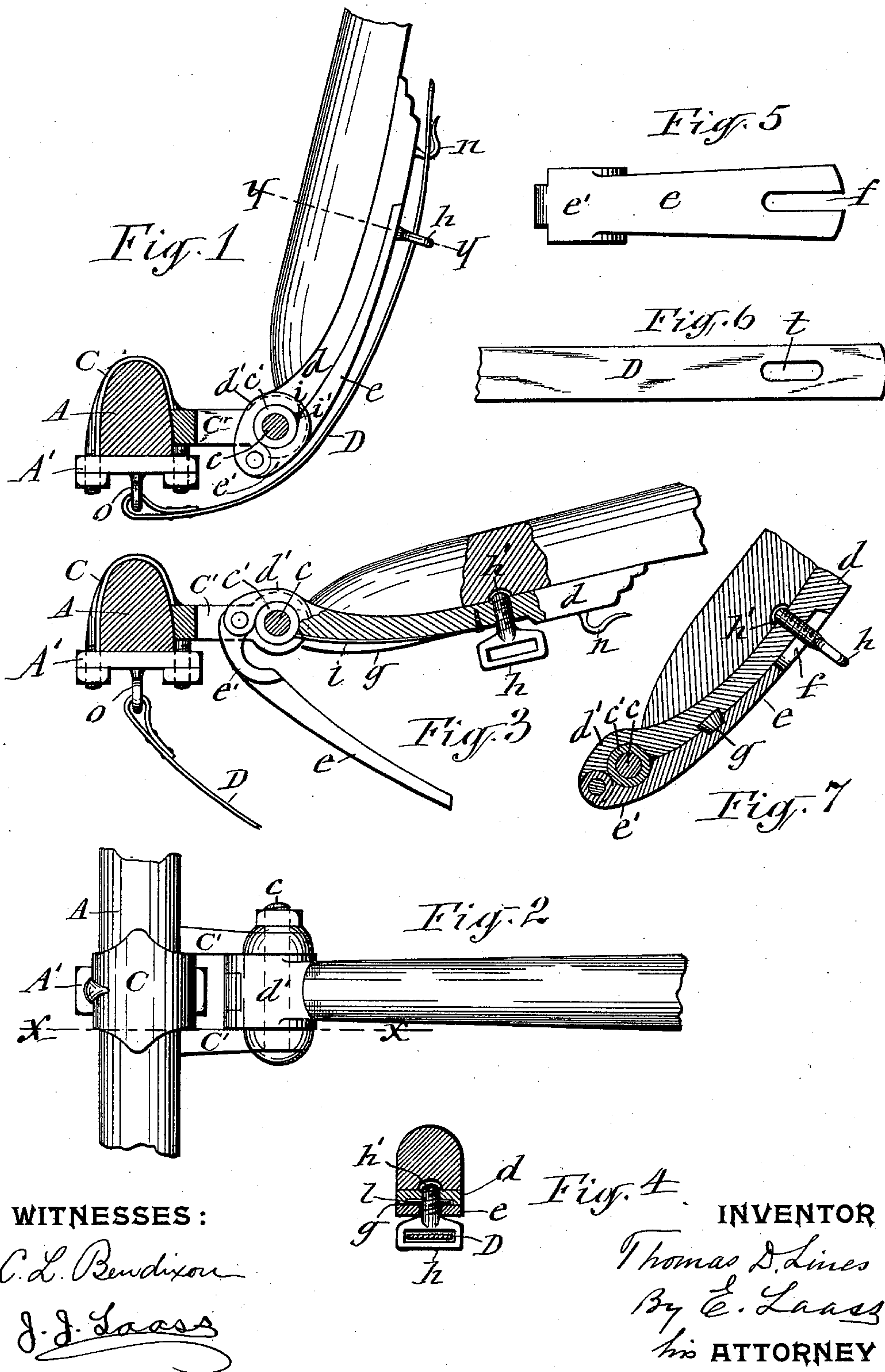


(No Model.)

T. D. LINES.
THILL COUPLING.

No. 582,429.

Patented May 11, 1897.



UNITED STATES PATENT OFFICE.

THOMAS D. LINES, OF SYRACUSE, NEW YORK, ASSIGNOR TO JENNIE L. DENISON, OF SAME PLACE.

THILL-COUPLING.

SPECIFICATION forming part of Letters Patent No. 582,429, dated May 11, 1897.

Application filed April 11, 1896. Serial No. 587,072. (No model.)

To all whom it may concern:

Be it known that I, THOMAS D. LINES, of Syracuse, in the county of Onondaga, in the State of New York, have invented new and
5 useful Improvements in Thill-Couplings, of which the following, taken in connection with the accompanying drawings, is a full, clear, and exact description.

The object of the invention is to provide a
10 thill-coupling which shall embody simplicity of construction combined with neat appearance, quick shifting, and especially with greater safety against accidental detachment of the thills or shafts and pole from the ve-
15 hicle.

In the annexed drawings, Figure 1 is a side view of a thill-coupling embodying my invention. Fig. 2 is a top plan view of said coupling. Fig. 3 is a vertical longitudinal section
20 on line X X in Fig. 2. Fig. 4 is a transverse section on line Y Y in Fig. 1. Fig. 5 is a plan view of the under side of the coupling-tongue. Fig. 6 is a plan view of the free end portion of the safety-strap; and Fig. 7 is a central
25 longitudinal vertical section of the coupling, showing a modification of the spring interposed between the thill-iron and coupling-tongue.

A represents the axle of the vehicle, C one
30 of the clips, which are formed with the usual ears C', for the attachment of the thills or pole, and A' is the so-called "clip-tie," which, by means of nuts on the protruding ends of the clip-shanks, fastens the clip to the axle in the
35 usual and well-known manner.

d denotes the so-called "thill-iron," which is fastened to the rear end of the thill in the usual manner and is formed with the semi-cylindrical shackle-eye section d', embracing
40 somewhat more than one-half of the bushing c', applied to the coupling-bolt c. To the end of said thill-iron is hinged the coupling-tongue e, which is also formed with a semicircular shackle-eye section e', embracing the remain-
45 der of the bushing c'. In order to prevent said eye-sections from gripping or pinching and cutting the bushing in the operation of tightening the coupling, I bevel the ends of the eye-sections d' and e' adjacent to the
50 thill-iron, as shown at i and i' in Figs. 1, 3, and 7 of the drawings.

The free end of the coupling-tongue e is provided with a longitudinal slot f, through which passes the T-shaped head h of the key or clamp, which holds the coupling-tongue e
55 locked on the thill-iron when the thill is connected to the coupling-bolt c. This key is adjustable to release the coupling-tongue when it is desired to disconnect the thills from the vehicle, and for this purpose I prefer to form
60 said key with a shank h', by which I pivot it to the thill-iron in a position to allow the head h to pass through the slot f of the coupling-tongue, and in order to allow said key to ef-
65 fectually press the coupling-tongue against the thill-iron I screw-thread the shank h' and provide the thill-iron with a corresponding screw-threaded eye for the reception of said shank.

By turning the key so as to cause the head
70 h thereof to stand parallel with the slot f the coupling-tongue e can be placed contiguous to the under side of the thill-iron and then retained thereon by turning the key so as to cause the head h to stand at right angles to
75 the aforesaid slot.

In order to retain as near as possible the appearance of an ordinary thill-iron and render the thill-coupling more compact and neat
80 in appearance, I form the under side of the thill-iron with a longitudinal recess extending from the shackle-eye part way the length of the thill-iron and seat the coupling-tongue e in said recess, so as to bring the under side of said tongue flush with that of the thill-
85 iron, as shown in Fig. 1 of the drawings.

To guard against loosening and rattling of the coupling-tongue, I interpose between it and the thill-iron a suitable spring g, which is seated in a recess l in the under side of the
90 thill-iron. The pressure of the spring tends to pry the tongue e from the thill-iron and causes said tongue to constantly bear on the head of the key, and therefore prevents the same from rattling. The aforesaid spring
95 may be formed either of metal and of the shape represented in Fig. 3 of the drawings, or of rubber, as shown in Fig. 7 of the drawings.

D represents a safety-strap which consists
100 of a plain thong attached at one end to a loop o, affixed to the clip-tie A' and provided

at its opposite end with a longitudinal slot *t*. This slotted end of the thong passes through the eye in the head *h* of the key and thence forward, and receives through its slot *t* a hook *n*, rigidly secured to the thill in front of the key, which hook stands with its free end forward for the purpose hereinafter explained.

To attach the thill, the key is turned so as to cause the head *h* to stand parallel with the slot *f*, when the tongue *e* is forced away from the thill-iron by the spring *g* and thereby drops down. The tongue is then inserted behind the coupling-bolt *c* and brought forward and upward against the thill-iron, when the key is turned so as to cause the head *h* to stand at right angles to the slot *f*, thereby retaining the tongue thereon. The free end of the safety-strap *D* is then passed through the slot in the head *h* of the aforesaid key and the slot in the strap made to engage the hook *n*. This strap serves for two purposes—viz., to prevent the key from accidentally turning and to afford a supplemental hold for the thill to the axle in case the coupling-bolt breaks or is lost out.

It will be observed by the relative positions of the loop *o*, coupling-bolt *c*, and the hook *n* that when the thills are raised to an approximately horizontal position or when a horse is hitched to the same the strap is drawn tight and thereby prevented from becoming disengaged from the hook, and in order to detach the thills it is necessary to have the strap slack, and this can only be accomplished by dropping the forward ends of the thills on the ground. The safety-strap can then be drawn forward to bring the eye *t* thereof into a position to allow it to be drawn out of the hook *n*. Said safety-strap remains attached to the clip-tie after the thills are removed and is thus in position to be used again in attaching a tongue or pole to the carriage. Hence the detached thills and pole are not encumbered with such straps, and only one set of straps is required, and when not in use

they are suspended from the axle and out of the way.

What I claim as my invention is—

1. The combination with the axle-clip, coupling-bolt and the thill-iron formed with a shackle-eye section, the coupling-tongue formed with the companion eye-section and hinged thereat to the thill-iron and provided with a longitudinal slot in its free end, a key pivoted to the thill-iron and provided with a T-head passing through the slot of the coupling-tongue, a hook fixed to the thill-iron in front of the said key and disposed with its free end forward, and a thong secured at one end to the axle and passing with its free end through the eye of the key and thence forward and provided with a slot for the reception of the aforesaid hook, by which it is retained, and which releases the thong when the front end of the thill or pole is dropped, as set forth.

2. In combination with the axle-clip and coupling-bolt, the thill-iron formed with a shackle-eye section and with a recess in its under side extending from said eye-section part way the length of the thill-iron, the coupling-tongue hinged to the rear end of the thill-iron and lying in the aforesaid recess flush with the under side of the thill-iron and provided with a longitudinal slot in its free end, a key pivoted to the thill-iron and provided with a T-head passing through the slot of the coupling-tongue and with an eye in said head, a safety-strap passing through said eye, and a spring interposed between the thill-iron and coupling-tongue and countersunk in one of said parts, said spring serving to facilitate the separation of the coupling-tongue from the thill-iron, as set forth.

In testimony whereof I have hereunto signed my name this 28th day of March, 1896.

THOMAS D. LINES. [L. S.]

Witnesses:

C. L. BENDIXON,
J. J. LAASS.