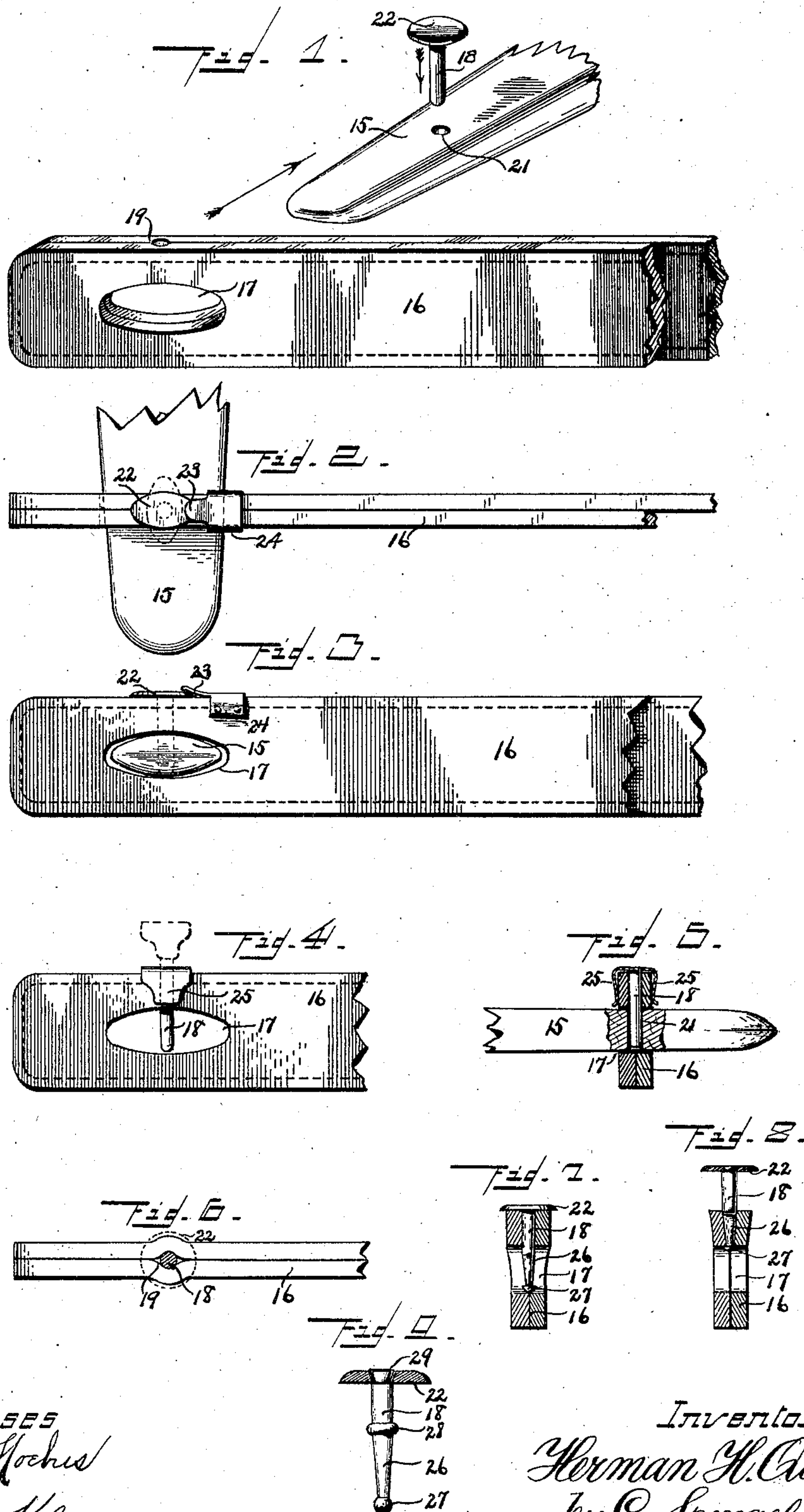


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H. H. QUEHL.
TRACE LOCK.

APPLICATION FILED OCT. 12, 1903.



Witnesses
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UNITED STATES PATENT OFFICE.

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TRACE-LOCK.

SPECIFICATION forming part of Letters Patent No. 785,378, dated March 21, 1905.

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To all whom it may concern:

Be it known that I, HERMAN H. QUEHL, a citizen of the United States, residing in Newport, in the county of Campbell and State of Kentucky, have invented a certain new and Improved Trace-Lock; and I do declare the following to be a clear, full, and exact description thereof, attention being called to the accompanying drawings, with the reference characters marked thereon, which form also a part of this specification.

This invention relates in general to a trace-lock constituting a device whereby the ends of the traces or tugs by which horses are hitched to vehicles are locked in position to the ends of the whiffle or swingle tree after being placed thereon. In the usual form these traces have elongated holes near their rear ends to receive the ends of the swingletree.

My invention relates more particularly to devices which prevent the ends of these traces from slipping off from the ends of the swingletree after once placed thereon.

The invention consists of the particular device itself as it is shown and hereinafter described.

It consists, further, of the means whereby this device is held in its operative or locking position; and, finally, it consists of the means whereby the device is held in position at all times to prevent its loss, but being adjustable, so as to permit locking the trace to the tree or to unlock it therefrom.

In the following specification, and particularly pointed out in the claims following, is found a full description of the invention, together with its manner of use, parts, and construction, which latter is also illustrated in the accompanying drawings, in which—

Figure 1 shows in perspective view the various parts concerned in my invention, it showing one end of a swingletree, the one end of a trace to be placed thereon, and my locking device to hold the trace in place. Fig. 2 is a top view of these parts when all are engaged and in proper operative position. Fig. 3 is a side view of the preceding figure. Fig. 4 in a side view shows a modified construction of the means for holding the locking device in position. Fig. 5 is a vertical cross-section

of the preceding figure through the trace at the point of its connection to the swingletree. Fig. 6 is a top view of the rear end of a trace, showing modified manner of seating the locking-pin, the head of this latter having been removed. Figs. 7 and 8 are views similar to Fig. 5, showing a modified locking-pin in different positions. Fig. 9 shows a further modified construction of the locking-pin on enlarged scale.

15 is the end of a customary swingletree, and 16 the end of a usual trace provided near its end with an opening 17, adapted to receive the end of a swingletree. To prevent the end of the trace from slipping off from the tree after being placed thereon, I use a pin 18, adapted to be inserted into an opening 19, entering edgewise through the trace and passing also into an opening 21 in the swingletree as soon as this latter opening registers with the other one. To facilitate its manipulation, pin 18 is provided with a head 22. It will be noticed that aside from the openings 19 and 21 nothing further is required at either of the ends of the swingletree or of the trace. It is necessary to provide means to hold the pin in this locking position. In Figs. 2 and 3 I show a catch 23, having flanges 24, whereby it is secured to the trace by means of rivets or simple compression against the trace. The head of the pin is eccentric or oval, as shown, so that after the pin is inserted it may be turned under catch 23. (See dotted lines in Fig. 2.) In Figs. 4 and 5 this head itself has lateral flanges or jaws 25, shaped as shown and elastic, the action being with their lower edges against the trace, so that the pin is held by the clamping pressure of these jaws. In Figs. 6, 7, and 8 the pin is shown as held altogether by friction produced by pressure. For such purpose perforation 19 in the trace is not formed by the removal of material, but simply by forcing the pin through between the stitches which hold together the straps out of which these traces are usually formed, (see particularly Fig. 6,) but without severing said stitching. The lower part of the pin is tapering, as shown at 26, and its extreme lower end is again abruptly enlarged, as shown at 27.

The friction created by the pressure of the straps composing the trace and held forcibly apart by the pin is sufficient to hold this latter in locking position within the end of the swingletree after being pushed down. On withdrawing this pin when unhitching the trace the straps composing this latter close against the lower part of the pin, so that when finally the enlarged end 27 reaches the lower end of opening 19 it acts as a stop and retards the withdrawal of the pin entirely, as best seen in Fig. 8. In this manner this arrangement serves also as a means to prevent complete detachment of the pin, misplacing, or loss of it when not in use. This frictional effect may be increased by providing an additional enlargement at 28, as shown in Fig. 9. The head 22 may be formed on the pin in any suitable way. Both may be formed integral, or the head may be attached by a riveting action, as shown in Fig. 8. As shown in Fig. 9, a cap 29 is used, which is crowded into the space between the undercut upper end of the pin after said end occupies a correspondingly formed opening in the cap.

Where a trace is composed of but a single member or strap, the pressure necessary to produce the frictional effect to hold the locking-pin might be produced by an elongated vertical slit extending edgewise through the trace and in which the pin would be seated.

It will be observed that as against existing trace-locking means comprising two complementary locking members adapted to engage each other my device differs prominently by dispensing entirely with one of these complementary members, and the remaining member—that is, the locking-pin—is received and held as to one of the parts simply by a perforation formed in the material of the trace. The construction of the trace-lock is thus very much simplified and the manufacturing cost correspondingly reduced.

Having described my invention, I claim as new—

1. In a trace-lock, the combination of a trace consisting of two straps stitched to each other and having a lateral opening in it to receive the perforated end of a swingletree and a locking-pin provided with an enlargement at its lower end and inserted between the two parts comprising the trace and entering the perforation in the swingletree, the material of the straps comprising the trace, holding such locking-pin in position by frictional contact.

2. In a trace-lock to be used with a verti-

cally-perforated swingletree, the combination with the trace provided with a lateral opening 17 and having a portion of its material above such opening separated edgewise, of a locking-pin seated in this separated portion of the material and held adjustably in position by the frictional pressure of the separated, opposite parts of the yielding material of the trace which grasp the pin while being held apart by the same and an enlargement at the lower end of this pin to retard its entire withdrawal from the separated part of the trace.

3. In a trace-lock to be used with a vertically-perforated swingletree, the combination with the trace provided with a lateral opening 17 and having a portion of its material above such opening separated edgewise, of a locking-pin seated in this separated portion of the material and adapted to be adjusted so that its lower part projects into opening 17 and into the perforation in the swingletree if properly alined, such lower part being tapered, and an enlargement at the lower end of the pin which retards its entire withdrawal when coming in contact with the inner edges of the separated parts of the yielding material of the trace held apart by the upper part of the pin and closing against the tapering part thereof when the same is raised out of opening 17.

4. In a trace-lock, the combination of a trace consisting of two straps stitched to each other and having a lateral opening in it to receive the perforated end of a swingletree, a locking-pin inserted between the two parts comprising the trace and entering also the perforation in the swingletree and means to hold this pin in position.

5. In a trace-lock to be used with a vertically-perforated swingletree, the combination with the trace provided with a lateral opening 17 and having a portion of its material above such opening separated edgewise, of a locking-pin seated in this separated portion of the material and adapted to be adjusted so that its lower part projects into opening 17 and into the perforation in the swingletree if properly alined and means to hold this locking-pin adjustably in position.

In testimony whereof I hereunto set my signature in the presence of two witnesses.

HERMAN H. QUEHL.

Witnesses:

ROBT. QUEHL,
C. SPENGEL.