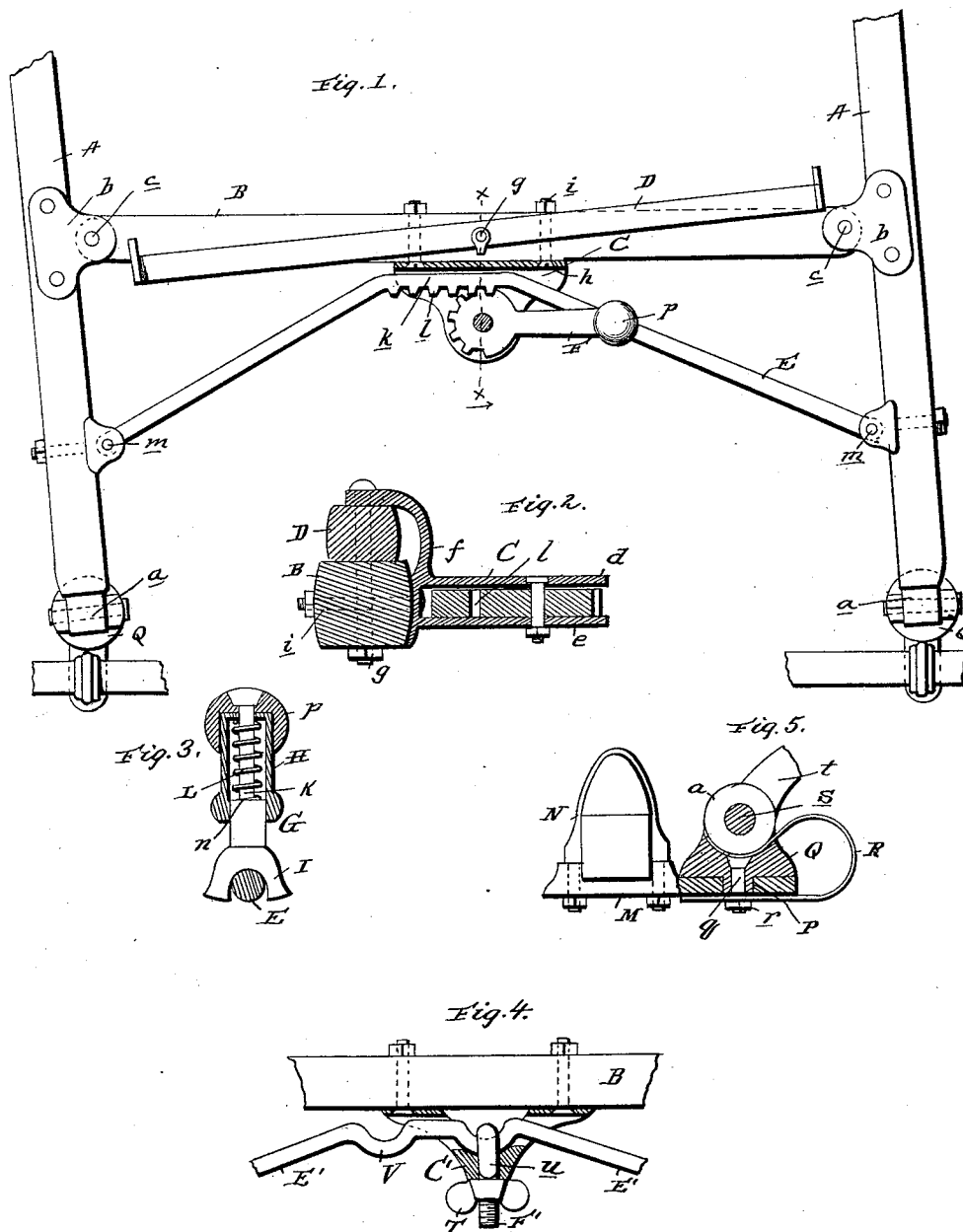


(No Model.)

W. PATTERSON & L. SWENSON.
VEHICLE THILL.

No. 480,129.

Patented Aug. 2, 1892.



Witnesses:

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UNITED STATES PATENT OFFICE.

WILL PATTERSON AND LORENS SWENSON, OF CRESCO, IOWA.

VEHICLE-THILL.

SPECIFICATION forming part of Letters Patent No. 480,129, dated August 2, 1892.

Application filed April 1, 1892. Serial No. 427,375. (No model.)

To all whom it may concern:

Be it known that we, WILL PATTERSON and LORENS SWENSON, citizens of the United States, residing at Cresco, in the county of Howard and State of Iowa, have invented certain new and useful Improvements in Thills; and we 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.

This invention relates to an improvement in shaft-couplings and attachments; and it has for its prime object to provide devices which will allow the shafts to move laterally or obliquely with respect to the body of the vehicle and fixed in such position so as to permit a horse while the wheels of the vehicle are moving in the tracks or rut of a road to travel on what is known as the "beaten-down" portion or path.

It is well known that by constant driving on country roads and on others soft roads a track is formed and a path in which the draft-animals travel, and when such paths become rough the animal, having a desire to travel on either side, keeps the wheels of the vehicle continually moving sidewise in and out of the rut or track.

With our invention the horse or other draft-animal may travel on either side of the ordinary path, while the wheels may remain in the tracks, and thus lessen the draft and wear, as well as render it more comfortable for the driver.

The invention will be fully understood from the following description and claims when taken in connection with the annexed drawings, in which—

Figure 1 is a plan view of a portion of a pair of shafts and axle with our improvements applied and parts in section. Fig. 2 is a cross-sectional view taken in the plane indicated by the dotted lines *xx* on Fig. 1. Fig. 3 is a vertical sectional view taken through the lock for securing the shafts in fixed positions. Fig. 4 is a view of a modification showing a portion of a cross-bar and the bearing for the slidable rod in section. Fig. 5 is a sectional view of the thill-coupling and axle with the thill-iron in position.

Referring by letter to said drawings, A in-

dicates the shafts, which may be mainly of the ordinary construction, having the usual thill-irons *a* at their inner ends.

B indicates a cross-bar. This cross-bar is pivoted or hinged at opposite ends to the respective shafts by means of plates *b* and pivot-bolts *c* or other suitable devices, so that the shafts may be allowed to play laterally and uniformly. This cross-bar has secured to it midway of its length and on its rear side a metallic bearing C. This bearing, which extends rearwardly from said cross-bar, is slotted so as to form two parallel branches *d* and *e*. An arm *f* extends upwardly and forwardly from the inner end of the upper branch *d*, and this outwardly and forwardly curved branch is provided near its upper end with an eye, as shown, to receive a vertical bolt *g*, which passes down through a hole in the whiffletree D and also through a corresponding hole in the cross-bar B and secured in position by nuts or other suitable fastening devices. This bearing is furthermore provided in its vertical walls with holes *h* to receive horizontal bolts *i*, which pass through apertures in the cross-bar in a plane at right angles to the bolt *g* and are secured in position by nuts or the like.

E indicates a slidable rod which serves the additional function of a brace. This rod, which is of a form substantially as shown, is provided about midway of its length with a straight transverse portion *k*, having rack-teeth *l*, and is arranged between the parallel branches *d* and *e* of the bearing C and is designed to slide therein, as will be presently described. The opposite ends of this rod, which are preferably directed rearwardly oblique in opposite directions, have their terminal ends pivoted to the shafts or thills at suitable points in rear of the cross-bar, as shown at *m*.

F indicates a toothed lever. This lever, which is arranged horizontally, is pivoted between the branches *d* and *e* of the bearing C, so that its teeth will mesh with the teeth of the rod E, and consequently move said rod in the bearings, and by such means deflect or change the position of the thills according to the extent or movement of the lever. This lever is provided at its outer end with a handle G, which is surrounded by a sleeve H, in-

tegral with said lever. The handle G has its lower end forked or recessed, as shown at I, so as to straddle and normally bear against the rod E, as better shown in Fig. 3 of the drawings. The handle is also reduced, as shown at K, and surrounded by a spiral spring L, which bears at its lower end against the shoulder *n* of said handle, and the spring bears at its opposite end within the top of the sleeve H, which incloses said spring. The reduced upper end of the handle is provided with a knob *p*, so that said handle may be conveniently manipulated. By this construction it will be observed that when it is desirable to slide the toothed rod in the bearing C and consequently change the position of the thills the knob or handle of the lever must be first raised so that the forked end will free itself from said rod, when the handle may be thrown to the opposite side, and when placed over the rod at that side the spring L will serve to cast down the handle and lock the lever in position.

In order to permit a lateral movement of the thills, it is necessary that a swivel or similar joint should be made at the couplings, and in Fig. 5 of the drawings we have shown the plate M, which is secured to the axle by the usual clip N, as provided with a vertical aperture P at a point in advance of the axle. Upon this apertured portion of the plate N is a bearing Q, which is swiveled to said plate M by means of a vertically-disposed pivot-bolt *q*, whereby the bearing Q might be permitted to turn horizontally and the shafts connected therewith to move in a corresponding direction. The bolt *q* may be secured in position by a nut *r* or the like, and the bearing is provided with eyes to receive the pivot-bolt *s*, which passes through the eye of the thill-iron *t*.

R indicates a spring which is of a form as shown. This spring is designed to bear against the thill-iron, and may be secured in position by the socket or pivot bolt which connects the bearing with the plate N.

In Fig. 4 of the drawings we have illustrated a modification of our invention, in which the bearing C', which is secured to the cross-bar B, has an eye *u*, and an eyebolt F' is passed through said eye and carries at its outer threaded end a set-screw or wing-nut T. The rod E' instead of having the rack-teeth is provided with two bends or depressions V, and the eye of the bolt F' receives said rod, and by means of its thumb or wing nut securely or adjustably fixes the rod in position in its bearings. In this latter construction when it is desirable to twist the rod and change the position of the shafts it is necessary to loosen the wing-nut, and consequently the eye-

bolt, and after the rod has been moved in the eye of the bolt to the other bend or depression in the rod the nut is then tightened up, when the shafts will be firmly fixed at the desired angle.

Having described our invention, what we claim is—

1. A pair of shafts or thills pivotally connected by a cross-bar and also pivotally connected in rear of the cross-bar and suitable means for shifting the latter connection, whereby the thills may be moved parallel at desired angles to the body of a vehicle, substantially as specified.

2. The combination, with a pair of shafts or thills, of a slidable rod pivotally connecting said thills and arranged in a suitable bearing and means for shifting the rod so as to move the shafts parallel and at desired angles to a vehicle, substantially as specified.

3. The combination, with a pair of shafts, of a cross-bar pivotally connecting said shafts, a bearing secured to the cross-bar, a rod connecting the shafts and having a portion arranged in the bearing, and suitable means for fixing the rod to the bearing, substantially as specified.

4. The combination, with a pair of shafts, of a cross-bar pivotally connecting the same, a bearing secured to the cross-bar, a toothed rod arranged in the bearing and pivotally connecting the shafts in rear of said cross-bar, and a toothed lever adapted to engage the toothed rod to shift the same and having a lock at its handle end to secure the lever on the rod, substantially as specified.

5. The combination, with a pair of shafts, of a cross-bar pivotally connecting the same, a bearing secured to the cross-bar, a slidable rod having rack-teeth arranged in the bearing and pivotally connecting the shaft in rear of the cross-bar, the toothed lever arranged in the bearing and adapted to engage the toothed rod, and a spring-pressed handle arranged on the outer end of the lever and forked or recessed at its lower end to engage the connecting-rod, substantially as specified.

6. The combination, with a pair of shafts, of a bearing secured to a cross-bar pivotally connecting the shafts, a slidable rod arranged in the bearing and pivotally connecting said shaft in rear of the cross-bar, and a fastening for adjustably fixing the rod in the bearing, substantially as specified.

In testimony whereof we affix our signatures in presence of two witnesses.

WILL PATTERSON.
LORENS SWENSON.

Witnesses:

N. S. DURGIN,
C. P. LENT.