

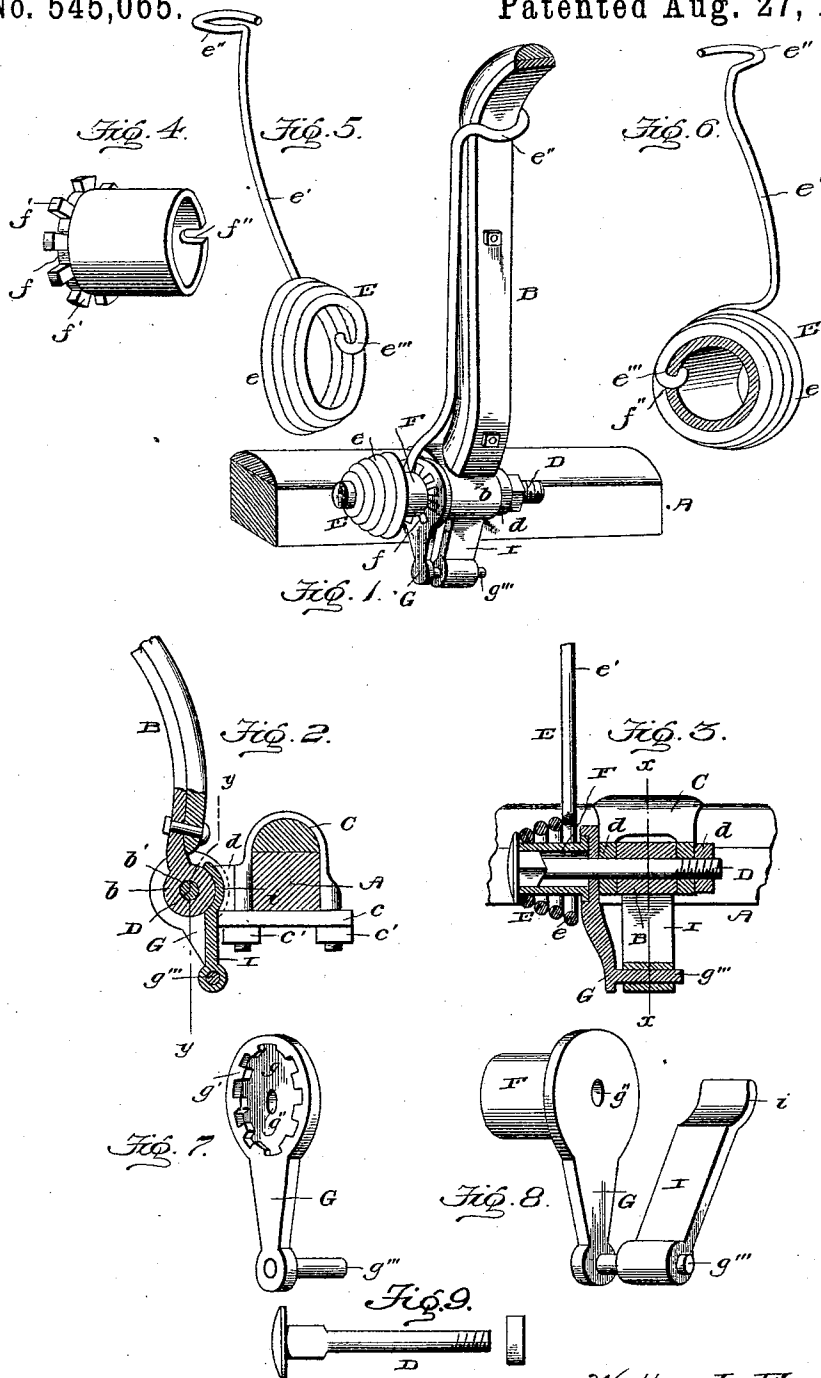
(No Model.)

W. L. FRAZER.

COMBINED THILL SUPPORT, ANTIRATTLE, AND COUPLING.

No. 545,065.

Patented Aug. 27, 1895.



Witnesses—

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UNITED STATES PATENT OFFICE.

WALTER L. FRAZER, OF SAN DIEGO, CALIFORNIA, ASSIGNOR OF ONE-HALF
TO WILLIAM COOPER, OF SAME PLACE.

COMBINED THILL-SUPPORT, ANTIRATTLER, AND COUPLING.

SPECIFICATION forming part of Letters Patent No. 545,065, dated August 27, 1895.

Application filed October 20, 1894. Serial No. 526,519. (No model.)

To all whom it may concern:

Be it known that I, WALTER L. FRAZER, a citizen of the United States, residing at San Diego, State of California, have invented certain new and useful Improvements in Shaft-Supporters and Antirattler Thill-Couplings; and I do hereby declare the following to be a full, clear, and exact specification, such as will enable others skilled in the art to which it appertains to make and use the same.

The object of this invention is to provide a simple, compact, and durable contrivance which couples a thill-iron to an axle in a manner to effectually obviate any rattling or loose joints between the thill and axle, and which also affords an efficient means for supporting the thills of the vehicles.

With these ends in view my invention consists in the combination, with an axle-clip and a thill-iron, of an antirattling device embodying a thill-supporting spring, connected at one end to a spool and at its other end to the thill-iron, a pendent arm controlled by the spring-spool and supporting a tongue which has a bearing against the axle-clip and the eye-formed end of the thill-iron, and a single bolt which serves to pivotally connect the thill-iron to the axle-clip and to couple all of the parts of the device together; and the invention further consists in the novel construction and arrangement of parts, which will be hereinafter more fully described, and pointed out in the claims.

To enable others to more readily understand my improvements, I have illustrated the preferred embodiment thereof in the accompanying drawings, forming a part of this specification, in which—

Figure 1 is a perspective view. Fig. 2 is a vertical sectional view on a plane transversely through the axle and the clip thereon, the section being taken on the dotted line *xx* of Fig. 3. Fig. 3 is a section taken longitudinally through the eye of the thill-iron and the coupling device, the plane of the section being indicated by the dotted line *yy* of Fig. 2. Fig. 4 is a detail perspective view of the spring-spool. Fig. 5 is a like view of the thill-supporting spring. Fig. 6 is a detail sectional view through the spring-spool, illustrating the

convolute coil of the spring in position upon and connected with the spring-spool. Fig. 7 is a detail view of the pendent arm. Fig. 8 is a detail perspective view on the pendent arm, the spring-spool, and the tongue-plate connected together. Fig. 9 is a detail view of the bolt which serves to couple all the parts together and as a pivot for the thill-iron.

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

A designates the axle; B, the thill-iron, and C the clip, which is fastened to the axle. As is usual, the thill-iron has its inner pivotal end enlarged and rounded at *b* and formed with an eye or perforation *b'*, and the clip C has its threaded legs connected by the clip-plate *c* below the axle and provided with the nuts *c'* that are screwed on the threaded legs and bear against the clip-plate to bind the clip securely to the axle. This axle-clip C is also furnished with the ears or lugs *d d*, which project from the front side of the axle, and between these ears is fitted the eye-formed end of the thill-iron, the latter being pivoted to the clip-ears by means of the bolt D. The clip and thill-iron herein described are of common construction, familiar to those skilled in the art; but I reserve the right to use any preferred style of clip and thill-iron, as my invention is not restricted to any particular form of the clip or the thill-iron.

My device for supporting the thill and coupling the various parts together in a manner to wholly obviate any rattling thereof is used in connection with the through-bolt D, which serves to connect the various parts together, and also forms the pivot for the thill-iron; and said devices consist of the thill-holding spring E, the spool F, the pendent arm G, and the tongue-plate I, which are assembled together in a manner to cause the spring and the tongue-plate to bear upon the axle-clip and upon the thill-iron at the pivotal end and the free end of said thill-iron to prevent any of the parts from working loose and rattling and to hold the thill in an elevated position.

The pendent arm G is made or cast from a single piece of metal with an enlarged upper end. In this enlarged upper end of this pend-

ent arm G is an annular recess *g*, which is formed or provided in one face or side of the arm, and communicating with this recess are the radial notches forming the spurs or teeth *g'*, which are arranged in a circle and radiate from the center or axis of the transverse bolt-opening *g''*, pierced in the arm concentric with the annular recess *g*. At its other tapered end this arm carries a stud *g'''*, which projects from the opposite side of the arm in which the recess *g* is formed, and on this stud is fitted the lower end of the tongue-plate I, the latter being pierced with an opening designed to receive the stud *g'''*, as shown by Fig. 8 of the drawings. This tongue I is thus pivotally supported by the pendent arm G, and said plate projects upwardly from its pivotal connection with said pendent arm, whereby the upper end of the tongue-plate is caused to fit between the lugs or ears *d d* on the clip. This tongue-plate bears or presses at its rear side against the end of the clip-plate *c* of the axle-clip, while the upper end of the tongue-plate has the curved or concaved bearing-face *i*, which is fitted snugly against the rounded enlarged end of the thill-iron, as shown by Fig. 3 of the drawings.

The spring-spool F is cast or made in a single piece of metal with a rim or flange *f* at one end thereof, and the periphery of this rim or flange is formed with notches which provide a series of tongues *f'*, the diameter of the rim or flange *f* being such as to enable it to be fitted within the annular recess *g* in the pendent arm G, and thus the tongues *f'* on the spool can be interlocked with the radial spurs or teeth *g'* on the pendent arm, whereby the arm and spool can be detachably locked together to have simultaneous movement on the bolt D as the center, and the spool and arm can be disconnected for the purpose of turning the spool in order to increase or vary the tension of the spring E. As shown in the drawings, the spool is made hollow and cylindrical in form, and at one end of this spool is provided the longitudinal notch *f''*, which extends a short distance inward from the free end of the spool, thus forming a seat for the reception of one end of the spring. This spring is of the construction shown more clearly by Fig. 6 of the drawings, and it is formed or bent from a single piece of wire having the necessary strength to serve as the support for holding the thill and with sufficient elasticity to serve the purposes for holding the various parts under tension, so as to prevent any rattling thereof. The spring is formed into a coil *e* and an arm *e'*, the former adapted to be fitted upon and interlocking with the spring-spool F, and the latter provided with a loop or eye *e''*, which fits around the thill-iron or engages therewith, so as to support the thill. The coil *e* is in the form of a convolute spring, with the coils gradually increasing in diameter from one end of the spring to the other end thereof, and the wire

at the smaller end of the convolute spring is provided with a bent tongue or projection *e'''*, which is fitted and retained in the seat in the outer end of the spool F, thereby detachably connecting the convolute coil to the spool. By constructing the spring with the convolute coil, in which the members are gradually increased from one end of the coil to the other, the tension of the spring can be increased or decreased by interlocking the spool with the pendent arm at different points of adjustment, and thus the power of the spring can be increased or diminished as occasion may demand.

The manner of assembling my antirattler and thill-coupling is as follows: The convolute coil of the spring is first fitted on the free end of the spool, with the tongue of the spring in the notched seat in the spool, and the flanged rim of the spool is then fitted in the recess *g* in the pendent arm, so that the tongues of the spool interlock with the spurs or projections on the arm. The bolt D is now passed through the spring-spool and the eye or opening *g''* in the arm, so that the enlarged head of the bolt bears against the spool to hold the convolute coil of the spring from becoming displaced on the spool, after which the tongue-plate I is fitted on the pivot of the arm and the parts are adjusted to bring the pendent arm at one side of the clip and cause the tongue-plate to bear against the end of the clip-plate *c* and the eye-formed end of the thill-iron. The bolt D is now pushed farther inward through the ears *d d* on the axle-clip and the eye in the thill-iron, and at the same time the pivotal stud on the ratchet-arm G is fitted in the eye in the lower end of the tongue-plate, the nut *d''* being then fitted on the free end of the bolt D to couple the thill-iron to the axle-clip and to hold the spring-spool and the pendent arm G together. The shaft and thill-iron are now raised to their highest positions, and the loop or eye at the free end of the thill-supporting arm *e'* is fitted around the thill-iron, so as to sustain and support the thill. It will be observed that the spring-coil *e* has a tendency to throw the pendent arm G to an inclined position, with its lower end toward the clip and the axle, and as the tongue-plate is carried by the lower end of the arm G, and said plate has bearings against the clip-plate and the pivotal end of the thill-iron, the parts are held securely together to prevent any looseness or rattle, while at the same time the thill-iron is free to have an easy turning movement on the pivotal bolt to accommodate itself to the motions of the thill.

I am aware that changes in the form and proportion of parts and in the details of construction herein shown and described as an embodiment of my invention can be made without departing from the spirit or sacrificing the advantages thereof, and I therefore reserve the right to make such modifications

and alterations as fairly fall within the scope of invention.

Having thus fully described my invention, what I claim as new, and desire to secure by Letters Patent, is—

1. The combination with a thill-iron and an axle clip, of the interlocking arm and spool, a tongue plate supported by said arm and bearing upon the thill-iron and the clip plate, a thill-supporting spring connected with the spool and the thill-iron respectively, and a pivotal bolt which supports the thill iron in the clip and connects the spool and arm to said clip, for the purposes described, substantially as set forth.

2. The combination with an axle clip, and a thill-iron pivoted thereto, of the interlocking spool and arm supported by said clip, a tongue plate pivoted to the arm and bearing against the clip plate and eye-formed end of the thill-iron, respectively, and a thill-supporting spring having its coil fitted on and connected with the spool and its arm connected with the thill-iron, substantially as and for the purposes described.

3. The combination with an axle-clip, and a thill-iron, of a spring-tool, a pendent arm detachably interlocked with said spool, a pivotal bolt passing through the spool, arm, clip, and thill-iron, a tongue plate pivoted to the arm and bearing against the thill-iron, and the thill-supporting spring formed with a convolute coil which is fitted upon and connected

with the thill-iron, substantially as and for the purposes described.

4. The combination with a clip, and a thill-iron, of a pendent arm provided with a recess, g, and radial projections therein, a spool fitted within said recess and having its tongues detachably interlocked with the radial projections of the arm, a bolt passing through the spool and arm and connecting the thill-iron to the clip, and a spring, substantially as and for the purposes described.

5. The combination with an axle clip and a thill-iron, of a pendent arm, a spool detachably locked with said arm, a single bolt which connects the thill-iron to the clip and detachably couples the arm and spool together, a tongue pivoted to the lower end of the arm and bearing at its opposite sides against the clip plate and eye of the thill-iron, respectively, and a thill-supporting spring formed with a convolute coil and with an arm, said coil being fitted upon and connected detachably to the spool, and said arm provided with an eye or loop to be fitted detachably to the thill-iron, substantially as and for the purposes described.

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

WALTER L. FRAZER.

Witnesses:

W. S. HINKLE,
C. Q. STANTON.