

No. 652,769.

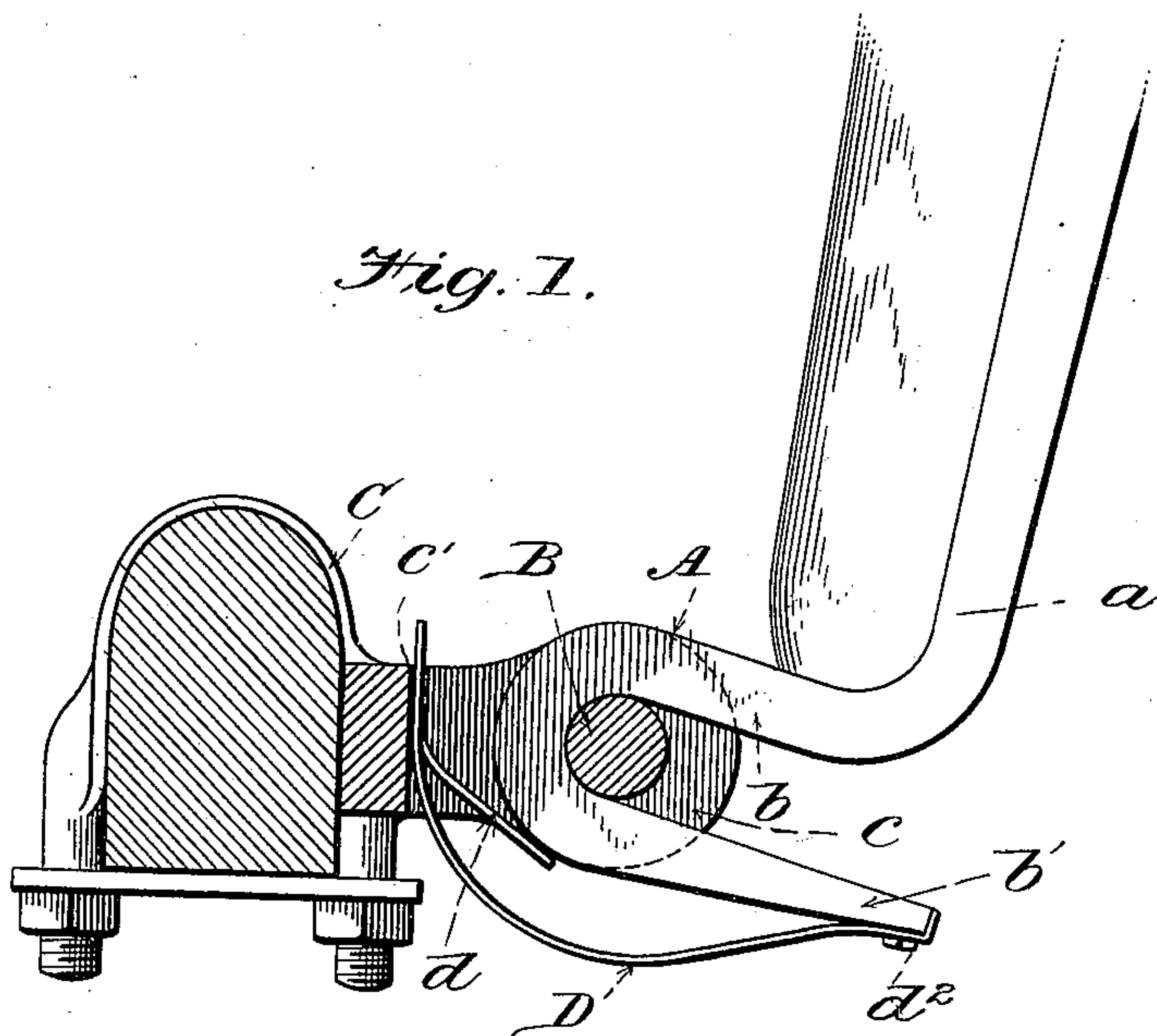
Patented July 3, 1900.

A. L. GRANT.  
THILL COUPLING.

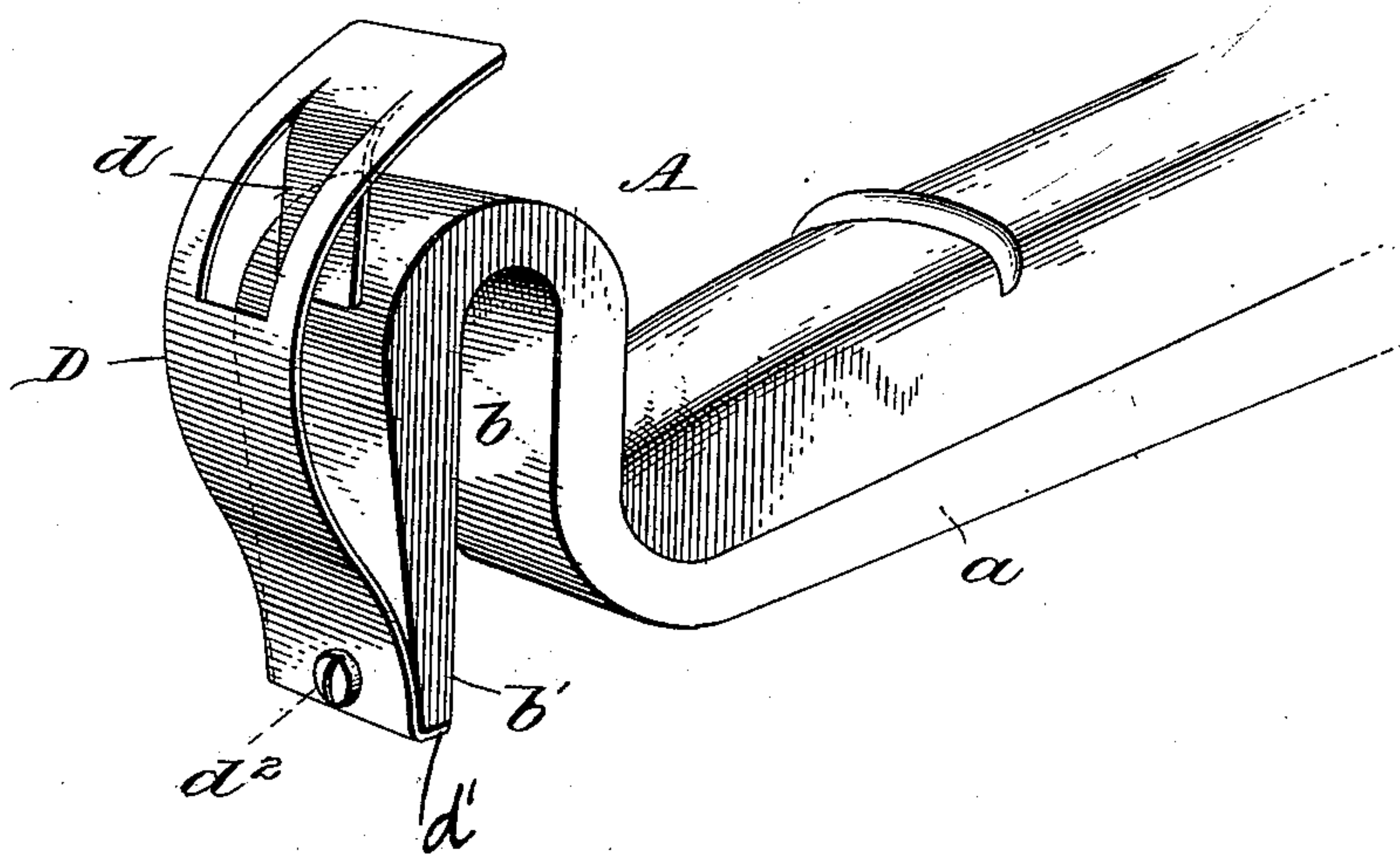
(Application filed Mar. 31, 1900.)

(No Model.)

*Fig. 1.*



*Fig. 2.*



Witnesses.  
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# UNITED STATES PATENT OFFICE.

ALBERT L. GRANT, OF PHILADELPHIA, PENNSYLVANIA.

## THILL-COUPLING.

SPECIFICATION forming part of Letters Patent No. 652,769, dated July 3, 1900.

Application filed March 31, 1900. Serial No. 10,923. (No model.)

*To all whom it may concern:*

Be it known that I, ALBERT L. GRANT, a citizen of the United States, and a resident of the city of Philadelphia, State of Pennsylvania, have invented certain new and useful Improvements in Thill-Couplings, of which the following is a full, clear, and exact description, reference being had to the accompanying drawings, forming part of this specification.

My invention relates to certain improvements in thill-couplings, and has for its objects to provide a construction which can be readily applied or detached from the supporting-clip without removing the coupling-bolt, also to provide a construction which will effectually prevent any noise or rattling during travel of the vehicle to which it is attached, and also to provide a spring so constructed as to have increased tension or stiffness, so as to render the connection strong and durable.

With these objects in view my invention consists in the combination and arrangement of the parts substantially as herein described, and particularly pointed out in the claims.

Referring to the accompanying drawings, in which similar letters of reference are used to indicate similar parts, Figure 1 is an elevation, partly in section, of a thill-coupling embodying my invention. Fig. 2 is a perspective view of the thill-hook having my improved spring applied thereto, the position being that assumed during the process of coupling.

In carrying out my invention I provide a thill-iron A, comprising the shank *a*, adapted to be welded or otherwise secured to the ends of the shaft, and the hook *b*, which is adapted for engagement with the coupling-bolt B of the clip C. The clip C is of the ordinary construction or standard make, having the usual projecting ears *c*, which carry in their forward ends the coupling-bolt B.

Extending from the bill *b'* of the hook is a flat metallic spring D, which is curved outwardly from said hook and is bowed, as illustrated in the drawings. Near the upper end of said spring D, I provide a tongue *d*, which is formed by cutting out a portion of the main body of the spring and bending it down, as illustrated most clearly in Fig. 2 of the drawings. When the shafts are coupled and

the hooks *b* are in engagement with the bolts B, the spring D bears against the transverse wall *c'* of the clip and the tongue *d* bears against the outer surface of the hook, the said spring and tongue thus firmly holding the said hook in position and preventing any noise which might be occasioned by the rattling of the parts.

The improved construction of my spring D, which is the most important feature of my present invention, gives greater stiffness and rigidity to said spring, and thereby increases its tension and lasting powers, which is a decided advantage in devices of this character.

The lower or free end of the auxiliary arm or tongue *d* is of such a length and so arranged and adjusted in relation to the outer surface of the hook against which it bears that when the shafts are in the raised position in use, as illustrated in Fig. 1, the full amount of tension requisite to prevent rattling is exerted upon the convex-spring arm D in its bearing against the transverse wall *c'* of the clip, and when the free or outer ends of the shafts are dropped, as when the vehicle is not in use, the thill-hook still being in connection with the clip, the tongue of the spring will be relieved. The tongue *d* itself has very little, if any, yielding properties and forms a substantially-rigid arm for keeping the spring D in engagement with the transverse walls of the clip, thus exerting the necessary tension, as when the shafts are in the raised position. The upper end of the tongue *d* or portion where it is connected with the spring D is located at a point about where the spring comes in contact with the transverse face of the clip, and in this manner the pressure is brought to bear directly at that point, the tongue *d* being substantially rigid, and in this manner I accomplish superior results over constructions heretofore invented.

I am aware of the construction of thill-coupling illustrated and described in United States Patent No. 617,767, issued to Lewis Prideaux January 17, 1899, and do not claim the same herein, my present invention being an improvement upon the said Prideaux coupling.

The lower end of the spring D is bent at substantially right angles to form a foot *d'*, which bears against the squared end of the



hook-bill. A set-screw, as  $d^2$ , is provided for securing the spring to the hook.

When it is desired to couple the shafts to the axle-clips, the said shafts are lowered until the hooks assume the position illustrated in Fig. 2 of the drawings, when the said hooks are then pushed down over the coupling-bolt B and the spring D forced against the wall  $c'$  of the clip. The shafts are then turned up to position for harnessing and the parts of the coupling assume about the position shown in Fig. 1 of the drawings. The two straight walls of the hook are thus in a nearly-horizontal position, which, together with the force of the spring D, prevents the displacement of the coupling, while the spring prevents the parts from rattling, as heretofore described.

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

1. In a thill-coupling having a hook formed on the free end of the thill-iron adapted to the transverse bolt of the clip carried by the axle of the vehicle, a convex spring comprising a flat metallic plate, D, of single thickness secured at the lower end to the bill of the thill-hook, a convex body portion, a tongue  $d$ , formed by being struck from the main body portion leaving an aperture in the main body portion, said tongue,  $d$ , having its free end depending and adapted to bear against the upper portion of the thill-hook operating as an auxiliary arm to keep the spring-plate, D in

engagement with the adjacent side wall of the axle-clip, said tongue  $d$ , being so arranged and disposed in relation to its bearing-surface upon the hook member as to maintain the spring at a requisite tension when the shafts are raised in position and to relieve and release the tension when the shafts are dropped and the vehicle is not in use, substantially as described.

2. In a thill-coupling, a convex spring secured at its lower end to the bill of the thill-hook having an auxiliary tongue,  $d$ , formed by cutting out a portion of the main spring and bending the said cut-out portion inwardly, the free end of said tongue being adapted to bear against the outer surface of the upper portion of the hook for keeping the convex spring in engagement with the transverse wall of the clip upon the vehicle-axle, substantially as described.

3. A spring for thill-couplings comprising a flat metallic spring, D, having a foot,  $d'$ , formed on its lower end, a convex body portion, and a tongue,  $d$ , formed by cutting out a portion of the main spring and bending the said cut-out portion inwardly, for the purpose described.

In witness whereof I have hereunto set my hand this 27th day of March, A. D. 1900.

ALBERT L. GRANT.

Witnesses:

CHARLES H. SPECKMAN,  
JNO. T. CROSS.