



No. 708,689.

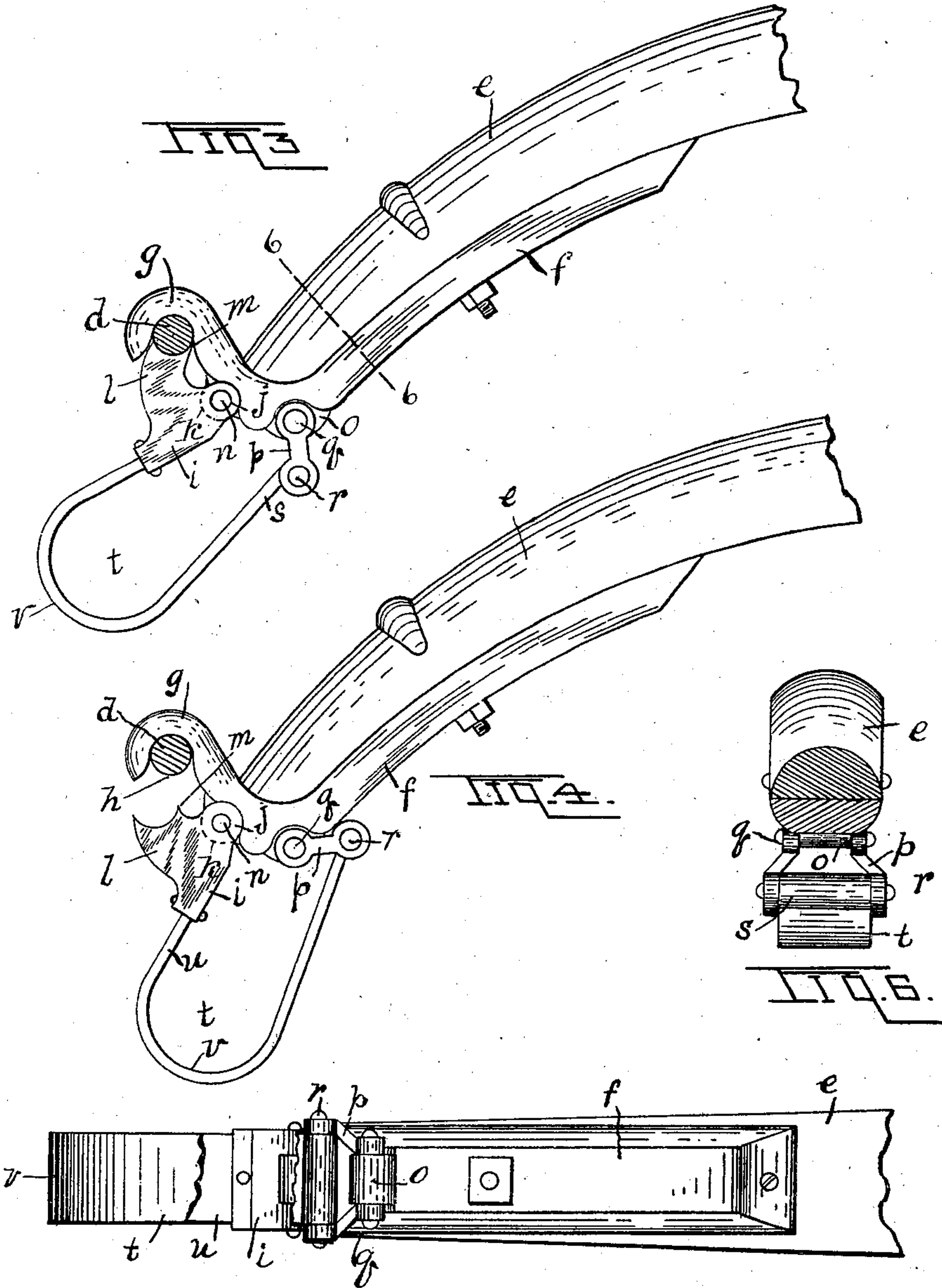
Patented Sept. 9, 1902.

A. H. WORREST.  
THILL COUPLING.

(Application filed May. 13, 1900.)

(No Model.)

2 Sheets—Sheet 2.



WITNESSES

H. H. M. Greiner  
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Fig. 7.

INVENTOR

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# UNITED STATES PATENT OFFICE.

ALFRED H. WORREST, OF LANCASTER, PENNSYLVANIA, ASSIGNOR TO THE METAL STAMPING COMPANY, OF NEW YORK, N. Y., A CORPORATION OF NEW YORK.

## THILL-COUPLING.

SPECIFICATION forming part of Letters Patent No. 708,689, dated September 9, 1902.

Application filed March 13, 1900. Serial No. 8,428. (No model.)

*To all whom it may concern:*

Be it known that I, ALFRED H. WORREST, a citizen of the United States, residing at Lancaster, county of Lancaster, State of Pennsylvania, have invented certain Improvements in Thill-Couplings, of which the following is a specification.

This invention relates to that class of thill-couplings wherein the thill-iron is connected with the coupling-bolt by a hook-eye, and it is an improvement on a thill-coupling for which Letters Patent No. 646,531 were issued to me on the 3d day of April, 1900.

The objects of this invention are, first, to so dispose the parts that the mechanism locking the thill to the coupling-bolt shall be rigidly held in place when in either an open or a closed position, and, second, to provide a stronger, more rigid, and yet cheaper coupling than that shown and described in said patent.

The invention consists in the construction and combination of the various parts, as hereinafter fully described and then pointed out in the claims.

In the accompanying drawings, which form a part of this specification, Figure 1 is a side view of a thill-coupling embodying my invention; showing the lever-dog in a closed position; Fig. 2, a similar view, but showing the lever-dog in an open position; and Figs. 3 and 4 views similar, respectively, to those seen in Figs. 1 and 2, but with parts cut away to more fully show the relation of the lever-dog to the bolt. Fig. 5 is a vertical section on broken line 5 5 of Fig. 2; Fig. 6, a vertical section on broken line 6 6 of Fig. 3; and Fig. 7 is a bottom plan view, a portion of the spring being cut away. Fig. 8 is a side view of the lever-spring detached.

Similar letters indicate like parts throughout the several views.

Referring to the details of the drawings, *a* indicates an axle; *b*, the axle-clip; *c*, forwardly-extending ears on the clip; *d*, the coupling-bolt; *e*, the thill, and *f* the thill-iron, provided on its inner end with the hook-eye *g*, having the slot *h* in its lower side, and this hook-eye is adapted to take over coupling-bolt *d*, as fully illustrated in the drawings.

The lever *i* has on its front end forwardly-extending ears *j*, which embrace a lug *k*, located on the under side of the thill-iron and in front of slot *h*, to which lug said ears of lever *i* are hinged by a pin *n*. On lever *i* is a dog *l*, adapted to enter slot *h* and engage the coupling-bolt, the upper end of said dog being recessed to fit up snug to said bolt, the front jaw *m* of the dog extending upward between said bolt and the front wall of the hook-eye.

On the lower side of the thill-iron and in front of and below hinge-pin *n* is a lug *o*, embraced by the upper ends of a double link *p*, and to which lug link *p* is hinged by a pin *q*. The shoulders formed on the thill-iron by lug *o* are a stop, whereby when the lever is opened the forward movement of the link is limited. The lower ends of double link *p* are connected by a round bar *r*. Around bar *r* is loosely engaged the front end *s* of the flat spring *t*. Spring *t* extends backward from link *p*, and its rear end *u* is turned upward and forward, forming a loop *v*, and is then rigidly engaged in a socket in the swinging end of lever *i*, wherein it is secured. It will be observed that when the dog is in a closed position the link is inclined backward from its hinge-pin and that when the dog is in an open position the link is inclined forward. The relation of the lever, the spring, and the link is such that either in opening or closing the dog the movement is against the tension of the spring until the link is under its center and that after the link has passed its center the tension of the spring acts in the direction of the movement of the lever, but that at the completion of the opening movement the tension on the spring is caused by the expansion of its ends, and that at the completion of the closing movement the tension on the spring is caused by the contraction of its ends. A shorter link can be used by pivoting it either below or in front of the pivot of the lever than by pivoting it otherwise, and the shorter the link the greater the resistance to any opening of the dog when in a closed position, and by pivoting the link both below and in front of the pivot of the lever the maximum of resistance to the opening of the dog is attained.



For the purpose of this specification the normal position of the thills is assumed to be the one they occupy when a horse is harnessed between them.

5 I do not confine myself to the details of construction herein shown and described, as it is obvious that many alterations may be made therein without departing from the principle and scope of my invention.

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

1. The combination, in a thill-coupling, of a coupling-bolt, a hook-eye connected with a  
15 thill and having a slot in the lower side thereof, a pivoted lever, a dog on the lever and adapted to enter said slot and bear against the bolt, a link so located that its upper end is pivoted below the lever-pivot when the  
20 thills are in their normal position, and a spring having one end connected with the

lower end of the link and the other end secured to the swinging end of the lever, the spring forming a loop between its ends, for the purpose specified.

2. The combination, in a thill-coupling, of a coupling-bolt, a hook-eye connected with a thill and having the slot in the lower side thereof, a pivoted lever, a dog on the lever and adapted to enter said slot and bear  
25 against the bolt, a link so located that its upper end is pivoted below and in front of the lever-pivot when the thills are in their normal position, and a spring having one end connected with the lower end of the link and  
30 the other end secured to the swinging end of the lever, the spring forming a loop between its ends, for the purpose specified.

ALFRED H. WORREST.

Witnesses:

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WM. R. GERHART.