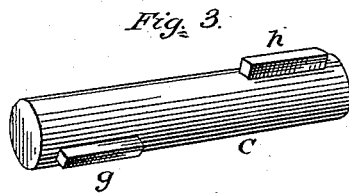
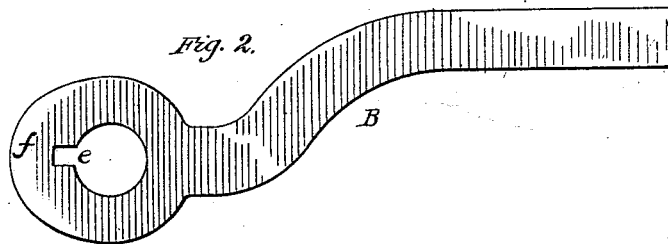
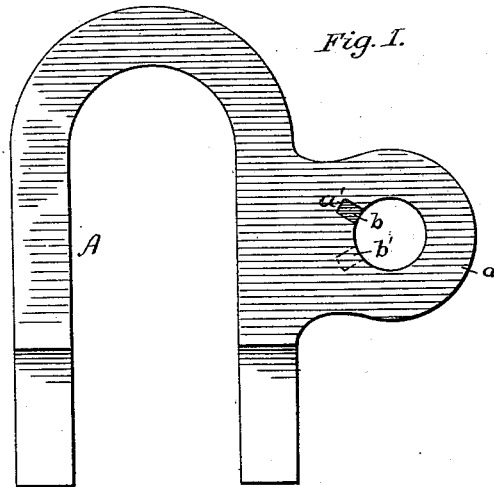


W. C. CODDINGTON.  
Thill-Coupling.

No. 212,194.

Patented Feb. 11, 1879.



*Attest:*  
Clarence Pool  
Warren Seely

*Inventor:*  
William Clarence Coddington,  
by Ellis Spear  
his Atty.

# UNITED STATES PATENT OFFICE.

WILLIAM C. CODDINGTON, OF BALTIMORE, MARYLAND.

## IMPROVEMENT IN THILL-COUPLINGS.

Specification forming part of Letters Patent No. 212,194, dated February 11, 1879; application filed December 12, 1878.

*To all whom it may concern:*

Be it known that I, WILLIAM CLARENCE CODDINGTON, of Baltimore, Maryland, have invented an Improvement in Thill-Couplings, of which the following is a specification:

My invention relates to thill-couplings of that class in which the shaft-iron is connected to the clip by means of a bolt feathered and passing through grooves in the shaft-iron and ears of the clip, so as to interlock and be held against removal without the aid of nuts or the like.

The object is to furnish such a connection that while it cannot be removed by accident, it can yet be removed readily by any one who understands its construction, and is at the same time durable in use and economical in manufacture.

In the accompanying drawings, making a part of this specification, Figure 1 represents a side view of the clip, the opposite ear being shown by dotted lines. Fig. 2 is a side view of the shaft-iron detached, and Fig. 3 a view of the bolt detached.

Like letters refer to the same parts in all the figures.

A represents the clip, provided with two ears, *a b*, projecting from its front side, and each having a circular hole to admit the bolt. Grooves *a' b'* are cut on the inside of each of these holes, but in different positions on the inner circumference. In cutting these grooves care should be taken that, while they should not be in line with each other, they should be placed on the rear portion of the holes. If placed elsewhere they would have a tendency to weaken the ear, which is, of course, to be avoided. The clip, ears, and grooves are all formed out of one piece of metal, and are designed to be attached to the carriage in the usual manner.

B represents the shaft-iron. (Shown more particularly in Fig. 2.) Through its end is another hole of proper size to fit the bolt. It is provided on the rear side of its circumference with a groove, *e*, of the same size as the grooves in the ears of the clip A. To compensate for the metal removed in forming this groove, I make the iron cam-shaped, as shown at *f*, preserving an equal, or nearly equal, thickness throughout the entire annular portion.

The cam-shaped portion *f*, when the shaft is raised and lowered, presses firmly against the rubber backing and effectually prevents rattling, even when the iron becomes somewhat worn by long-continued use. The groove *e* is so placed that when the shafts are in their ordinary position while in use, it will not be in line with either of the other grooves, *a' b'*.

C is the bolt. (Shown in perspective in Fig. 3.) It is round in form, and has formed with it, upon its surface, two feathers, *g h*, occupying relatively the same position as the grooves *a' b'* to the ears *a b*. In order to insert the bolt in position it is necessary, in the first place, that one of the grooves *a'* or *b'* on the ears *a b* should be in line with the groove *e* on the shaft-iron. One end of the bolt is then inserted, the feather on that end passing through the two grooves in line until it can progress no farther because it bears against a point on the opposite ear, where there is no groove. The shaft must then be depressed until the feather *g* has come into line with the groove *a'* and the groove *b'* with the feather *h*, when it can be slipped into place; but by this operation both feathers have been thrown out of line with the groove *e* on the shaft-iron, making it an impossibility to entirely withdraw the bolt while in any one position.

The operation of withdrawing the bolt on the side toward the ear *b* is as follows: The shaft is depressed until the feather *g* registers with the groove *e*, when the bolt is withdrawn until the feather *g* strikes against the ear *b*, where there is no groove. The shaft is then raised, bringing the feather *g* and groove *b'* into line, when the bolt can be completely withdrawn.

If the bolt is to be withdrawn on the other side, the operation is reversed, the shaft being raised, and the bolt partially withdrawn and then depressed, when it can be entirely taken out.

The advantages of my device, as will be readily seen, lie in its great simplicity of construction, whereby all nuts or other means of fastening are dispensed with.

Another point of great importance is, that all the wear, when in use, comes upon the shaft-iron and the center of the bolt, where it is easy to repair by proper bushing; but in the ears of

the clip and ends of the bolt there can be no wear, because the bolt does not revolve therein. This constitutes a great superiority over the devices of this class heretofore used, where the wear is uniform, even in positions where it is not convenient to place a bushing.

I am aware of the patent granted June 4, 1878, to J. J. D. Kingsbury, wherein is shown a bolt having a single feather, with grooves in the eyes of the clip, adapting the bolt to be entirely withdrawn when the shafts are either elevated or depressed, and I do not desire to claim the invention shown therein.

I am also aware of the patent granted April 27, 1875, to M. McDevitt, and disclaim the invention shown therein, since it differs from mine in a very important particular. In his device the grooves in the ears of the clip are in line, making it possible to withdraw the fastening-bolt when the shafts are in a certain position. In my device there is no position of

the shafts in which my bolt can be entirely withdrawn, it taking two different movements of the shafts to make this possible. The additional security of my device is very apparent.

What I claim as new, and desire to secure by Letters Patent, is—

In a thill-coupling, the combination of the ears *a b*, provided with grooves *a' b'*, situated in different planes, with the eye B of the shaft-iron, also provided with a groove, and the bolt C, having the feathers *g h*, occupying the same positions, relatively, as the grooves on the said ears *a b*, all constructed and arranged substantially as set forth.

In testimony whereof I have signed my name to this specification in the presence of two subscribing witnesses.

WM. CLARENCE CODDINGTON.

Witnesses:

WARREN SEELY,

WM. C. MARTIN.