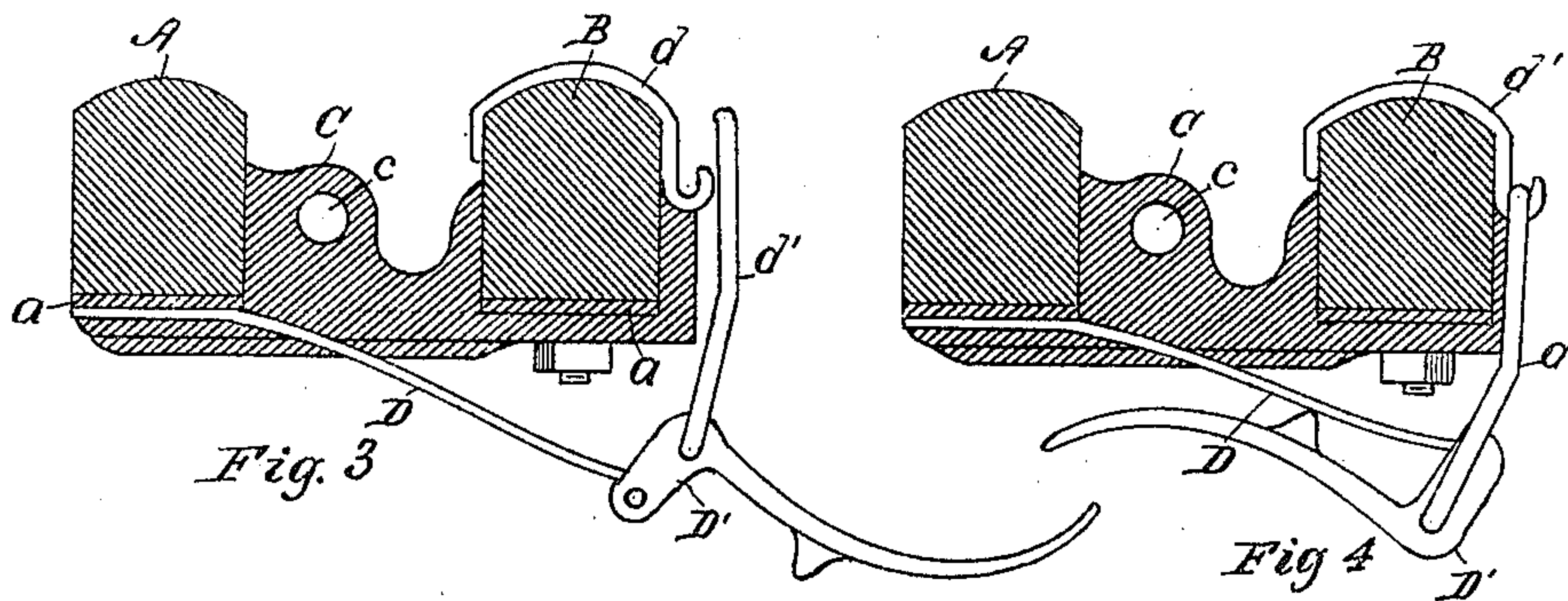
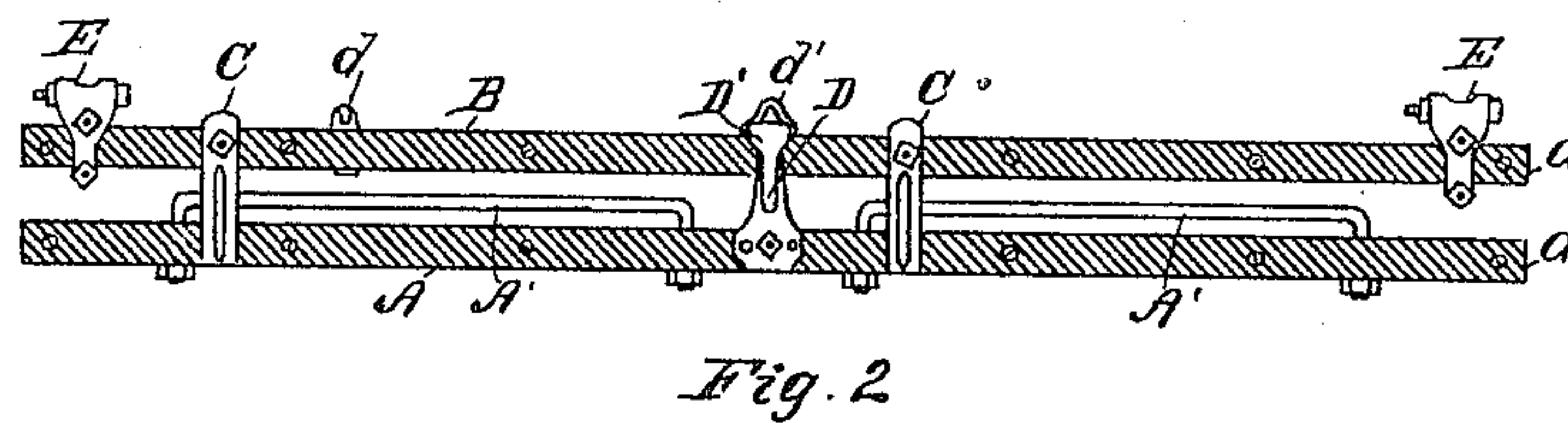
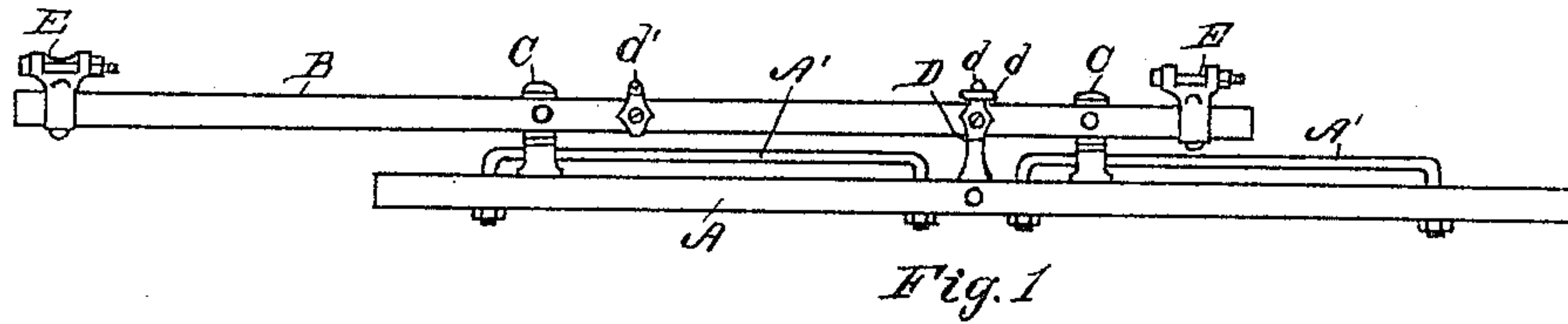


No. 812,843.

PATENTED FEB. 20, 1906.

T. GRANT,  
SHIFTING THILL.  
APPLICATION FILED MAR. 13, 1905.



Witnesses  
Elihu A. Miller  
Adelaide J. Adams

Inventor  
Thomas Grant  
By Chappell & Carl  
Attorneys



# UNITED STATES PATENT OFFICE.

THOMAS GRANT, OF KALAMAZOO, MICHIGAN, ASSIGNOR OF ONE-HALF  
TO THE MICHIGAN BUGGY COMPANY, OF KALAMAZOO, MICHIGAN.

## SHIFTING THILL.

No. 812,843.

Specification of Letters Patent.

Patented Feb. 20, 1906.

Application filed March 13, 1905. Serial No. 249,845.

*To all whom it may concern:*

Be it known that I, THOMAS GRANT, a citizen of the United States, residing at the city of Kalamazoo, in the county of Kalamazoo, State of Michigan, have invented certain new and useful Improvements in Shifting Thills, of which the following is a specification.

This invention relates to improvements in shifting-thill couplings.

The objects of this invention are, first, to provide an improved shifting-thill coupling which is comparatively compact and is very strong and durable and easily adjusted; second, to provide an improved shifting-thill coupling which is comparatively economical in structure and at the same time is attractive in appearance.

Further objects and objects relating to structural details will definitely appear from the detailed description to follow.

I accomplish the objects of my invention by the devices and means described in the following specification.

The invention is clearly defined and pointed out in the claims.

A structure embodying the features of my invention is clearly illustrated in the accompanying drawings, forming a part of this specification, in which—

Figure 1 is a plan view of a structure embodying the features of my invention with the shifting bar B in its outer position. Fig. 2 is an inverted plan view of the structure appearing in Fig. 1 with the shifting bar B in its inner position. Fig. 3 is an enlarged transverse sectional view through one of the clips or brackets C, the locking means being shown in full lines in its operative position. Fig. 4 is a similar transverse sectional view showing the locking means in its operative position.

In the drawings similar letters of reference refer to similar parts throughout the several views.

Referring to the drawings, A is a relatively stationary draw-bar, and B is a shifting bar. The stationary draw-bar A is secured to the vehicle in a suitable manner, the same not being here shown. The draw-bar A is provided with a pair of draft-rods A', which are arranged on its front side and parallel thereto. These draft-rods A are preferably made up of rods having their threaded ends turned at right angles and passed through the draw-

bar and secured by suitable nuts, as clearly appears in the drawings.

The clips or draw-irons C are rigidly secured to the shifting bar B. These clips C are provided with holes c, through which the draft-rods A' are arranged. The clips C are shouldered to fit against the front side of the draw-bar A and extend under the same, so that when they are in position the bars A and B are firmly secured together, although the shifting bar B may be readily and easily adjusted.

A forwardly and downwardly projecting spring D is secured to the under side of the draw-bar A. To the forward end of this spring a lever D' is pivoted. To this lever is pivoted a link d', adapted to engage the hooks d on the shifting bar B for locking the bar in its adjusted positions. The link d' is pivoted to the lever D' in such a manner that when the lever is in its rearward or locking position the pivot-point of the link is carried past the pivot-point of the lever, thereby automatically locking the parts. To release the shifting bar, it is only necessary to release the lever D'. It is evident that this can be very quickly done and that the shifting bar can be adjusted very quickly and easily.

On account of the peculiar attachment of the shifting bar to the draft-bar the shifting bar may be adjusted without any binding of the parts. The shifting bar B is provided with suitable thill-couplings E, here shown in the common form.

The bars are locked under spring tension by the spring D, so that rattling is prevented, which is a very desirable feature. The bars A and B are reinforced, if desired, by plates a of metal, as is illustrated.

I have illustrated and described my improved shifting-thill coupling in the form preferred by me on account of its structural simplicity and economy, although I am aware that it is capable of considerable variation in structural details without departing from my invention.

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

1. The combination of a relatively stationary draft-bar having a pair of draft-rods arranged on the front thereof and parallel thereto; a shifting bar; connecting-clips for said bars, having holes therein adapted to receive



the said draft-rods of said draw-bar, rigidly secured to said shifting bar, said clips being conformed to engage the forward face and under side of said draft-bar; hooks on said shifting bar; a forwardly-projecting spring on said draw-bar; a lever pivoted thereto; a loop on said lever adapted to engage said hooks on said shifting bar, said loop being pivoted to said lever at a point so related to its pivotal point as to lock the parts when the lever is in its rearward position, for the purpose specified.

2. The combination of a relatively stationary draft-bar; a shifting bar; connecting-clips for said bars; hooks on one of said shifting bars; a spring on the other bar; a lever pivoted to said spring; a loop on said lever adapted to engage said hooks, said loop being pivoted to said lever at a point so related to its pivotal point as to lock the parts when the lever is in its rearward position, for the purpose specified.

3. The combination of a relatively stationary draft-bar; a shifting bar; connecting-clips for said bars; hooks on one of said bars;

a spring carried by the other of said bars; and means for engaging said hooks carried by said spring, for the purpose specified.

4. The combination of a relatively stationary bar; a shifting bar; connecting-clips for said bars; a spring carried by one of said bars; and means for engaging the other bar carried by said spring, whereby said bars are locked together under spring tension, for the purpose specified.

5. The combination of a fixed bar; a shifting bar; forwardly-projecting clips secured to said fixed bar on which said shifting bar is mounted; a spring carried by one of said bars; and means for engaging the other bar carried by said spring, whereby said shifting bar is locked in its adjusted position under spring tension, for the purpose specified.

In witness whereof I have hereunto set my hand and seal in presence of two witnesses.

THOMAS GRANT. [L. s.]

Witnesses:

ETHEL A. TELLER,  
OTIS A. EARL.