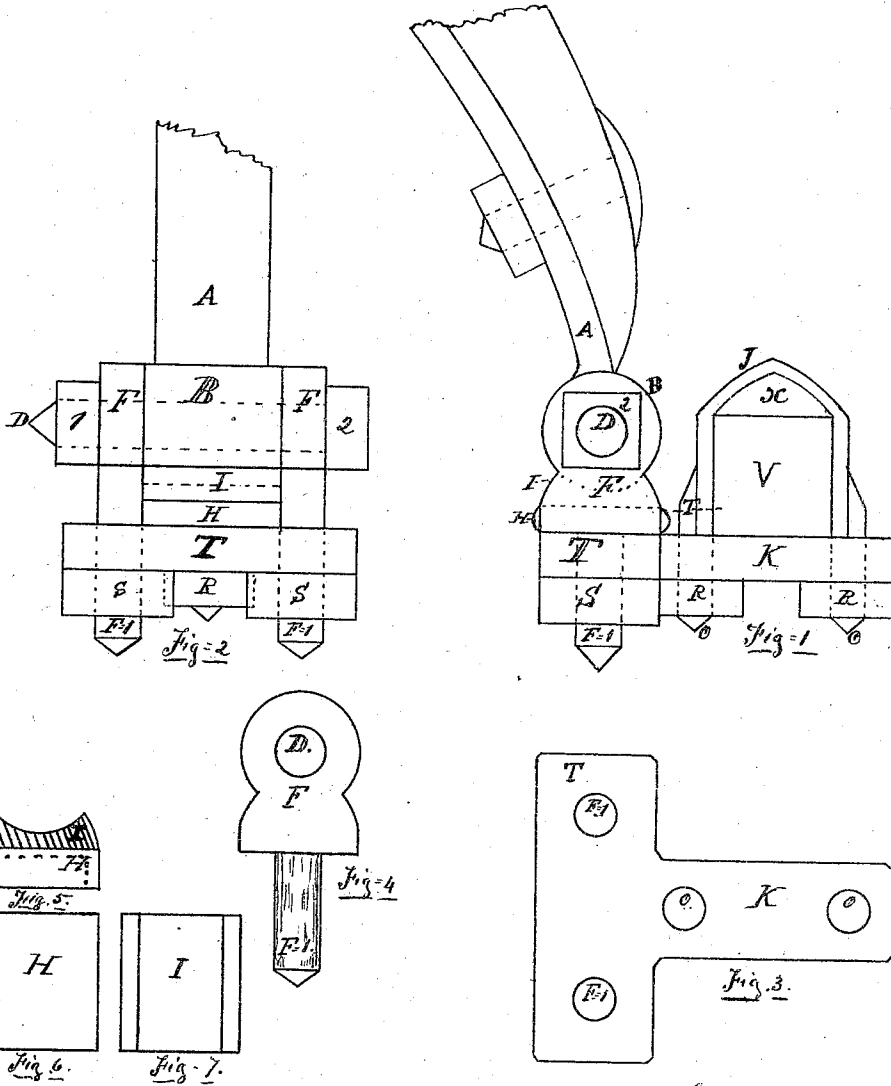


CYRUS W. SALADEE.

Improvement in Thill Couplings. 2 Sheets--Sheet 1.

No. 120,002.

Patented Oct. 17, 1871.



Witnesses
 S. S. Baker
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Inventor
 Cyrus W. Saladee

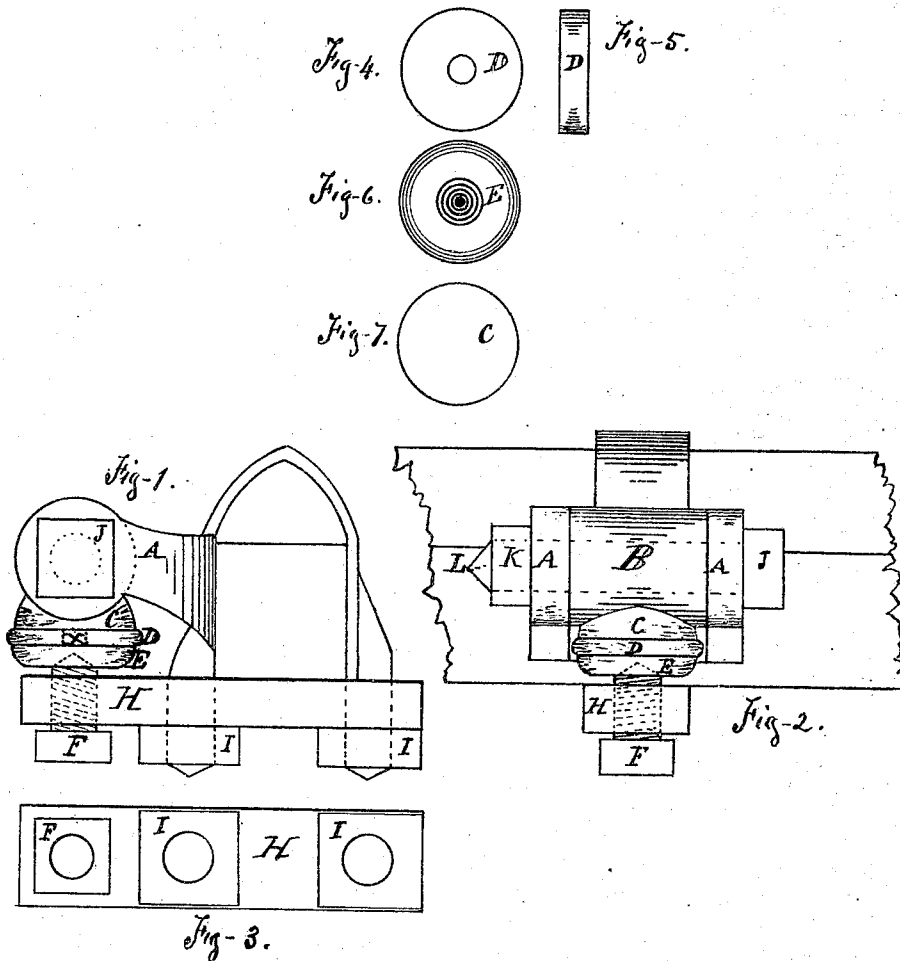
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Witnesses

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UNITED STATES PATENT OFFICE.

CYRUS W. SALADEE, OF ST. CATHARINE'S, CANADA.

IMPROVEMENT IN THILL-COUPINGS.

Specification forming part of Letters Patent No. 120,002, dated October 17, 1871.

To all whom it may concern:

Be it known that I, CYRUS W. SALADEE, of St. Catharine's, in the Dominion of Canada, have invented certain Improvements for Attaching Thills and Poles to Axles, of which the following is a specification:

The first part of my invention relates to the formation of a shaft-clip with adjustable ears F and F', in combination with the shaft-head B, and connecting-bolt D, as and for the purpose hereinafter described and claimed. The second part of my invention relates to the combination of the cross-head T with the shaft-clip J, as and for the purpose hereinafter described and claimed. The third part of my invention relates to the interposition of a plain rubber or other elastic block, H, when placed on the top side of the cross-head T and between the ears F and F', and under the shaft-head B in such manner that the rubber or its equivalent is compressed by means of the ears F and F' and the shaft-head B, as hereinafter more fully described and claimed. The fourth part of my invention relates to the use of a metallic friction-plate, I, in combination with the elastic block H, as and for the purpose hereinafter described and claimed. The fifth part of my invention relates to forming the cross-head T upon the clip-bar K, as hereinafter described and claimed.

Figure 1 is a side elevation of the complete shaft-coupling embodying my invention. Fig. 2 is a front view of the same, showing the shaft-head B, the detachable ears F and F', connecting-bolt D, friction-plate I, elastic block H, cross-head T, screw-taps S and S on the bolt-ends F¹ of the ears F and the screw-tap R. Fig. 3 is a plan view of the cross-head T and clip-bar K, seen in the other two figures. Fig. 4 is a side view of one of the detachable ears F, seen in Figs. 1 and 2, and showing the lower end of the ear to be formed with the round portion passing through the cross-head T, and which receives the screw-taps S S, seen in Figs. 1 and 2. Fig. 5 is an end view of the elastic block H, with the metallic friction-plate I in position on the top of the block H. Fig. 6 is a top view of the elastic block H, shown in Figs. 1, 2, and 5; and Fig. 7 is a top view of the metallic friction-plate I, showing the corrugation into which fits and works the under side of the shaft-head B, as seen in Figs. 1 and 2.

While the general appearance of this shaft-

coupling does not differ materially from those now in use, it is wholly different in its mode of construction and operation. The cross-head T I make a part of either the clip-bar K or the front of the clip J, at or near the point indicated by T, Fig. 1. Through this cross-head T are put two holes, (see Fig. 3,) F¹ and F¹, the inside edges of which are distant from each other equal to the width of the shaft-head B, seen in Fig. 2. The ears F and F', shown in Figs. 1, 2, and 4, are formed substantially as shown by Fig. 4, with a screw-thread cut on the lower end of the rounded part forming the bolt F¹, and which bolt ends of the ears F are passed down through the corresponding holes of the cross-head T, seen in Fig. 3, and there firmly held in their position by the screw-taps S S, as seen in Figs. 1 and 2. On the top side of this cross-head T, Fig. 3, and between the ears F, as seen in Fig. 2, I place the elastic block H, and on the top of this is placed the metallic friction-plate I, seen in Figs. 2, 5, and 7. The top side of this plate has a corrugation, as seen at Fig. 5, which corresponds with the round part of the shaft-head B, seen in Figs. 1 and 2. The connecting-bolt D, seen in Figs. 1 and 2, is made and passed through the ears F and F', the same as in the ordinary shaft-coupling; but as a greater security against the working out of this bolt, I am permitted, by means of the detachable ears F and F', to form short studs on each end of the shaft-head B solid with it, and to project far enough to pass through the holes of the ears F, and thus, with neither head nor tap upon the bolt, the shaft-head would be firmly held between the ears when the latter are in position, as seen at Fig. 2; and as, in this case, the connecting-bolt P is made solid with and a part of the shaft-head, there could be no liability of ever losing it. Still another way of connecting the shaft-head with the ears is to suppose the connecting-bolt D, now seen in Fig. 2, to be nearly a five-sixteenth round iron passed through the ears F and the shaft-head B, and the ears and shaft-head held together by riveting the ends of the bolt into a shallow countersink in the hole from the outside of each ear, and thus do away with the head and top of the bolt D. The parts now being made as shown and described, and the shaft-clip J in position on the axle, as seen in Fig. 1, the ears F and F' are secured to the shaft-head, as seen in Fig. 2, when the elastic block

H and metallic friction-plate I are placed in position, as shown and described, when the bolt-ends of the ears F and F are passed down through the corresponding holes in the cross-head T, seen in Fig. 3, when the screw-taps S and S are applied, and by which the ears F are drawn down upon the friction-plate I and the elastic block H until the shoulders of the ears are made to rest firmly upon the cross-head T. The elastic block H is now compressed, as seen in Fig. 1, and the friction-plate I is forced firmly up against the lower side of the shaft-head B, and the rattling of the same effectually prevented, while the friction-plate I protects the rubber or block K from the friction of the shaft-head upon it, and while, too, the corrugation in the top side of the plate I keeps both the plate and the elastic block in position under all circumstances, while in use. Now, to remove the shaft-head B, first slacken the screw-taps S S until the pressure of the elastic block against the shaft-head is fully relieved, when the connection-bolt D is easily removed; but in case either of the other two modes hereinbefore described is adopted to secure the ears F to the shaft-head B, the taps S S must be entirely removed from the bolt-ends of the ears and the latter are drawn up out of the cross-head T with the shaft-head in position between them.

I will here state that I do not confine my claim for the combination of the friction-plate I with the elastic block H to their exclusive use in connection with the shaft-coupling here shown and described, as this combination of the plate I and block H is equally applicable to shaft-couplings now in general use, and is a decided improvement upon the naked rubber block now very generally interposed between the rear of the shaft-head B and the shaft-clip J, as the friction-plate I will, in all cases, effectually protect the elastic block or rubber from wear by the otherwise direct contact of the shaft-head against the rubber; and I purpose putting my combined elastic blocks H and friction-plates I into the market independent of those used for the shaft-coupling here shown and described.

The last part of my invention relates to another modification, producing the same results as the one described, and which is shown in Sheet 2 of the drawing.

Figure 1, Sheet 2, is a side elevation of the ordinary shaft-clip in position on the axle. Fig. 2 is a front view of the same. Fig. 3 is a bottom view of the clip-bar H, showing the taps I I and the head of the set-bolt F. Fig. 4 is a face view of the rubber washer D, while Fig. 5 is an edge view of the same. Fig. 6 is a bottom view of the screw-plate E, showing the countersink in the center to receive the point of the set-bolt F, seen in the other figures. Fig. 7 is a bottom view of the friction-plate C.

The application of my invention may be made to any of the present approved styles of shaft-couplings and clips. The one shown in the drawing is the most generally used. To apply my invention, the clip-bar H is extended in front of the axle the required distance to receive the set-bolt F, seen in Figs. 1 and 2. The end of this

set-bolt is pointed, and a corresponding countersink is made on the bottom side of the round solid plate E, whose diameter is about one inch. On the top of this plate E is cast solid the stud X, seen in Fig. 1 in dotted lines. A rubber washer, D, is next provided, having a hole through its center to receive the stud X when in position on the screw-plate E, and the diameter of this rubber is the same as the plate E before it is compressed; D, Fig. 5, being an edge view of the same. On the top of the rubber washer or its equivalent I place the friction-plate C, formed as shown in Figs. 1 and 2, and which has a concaved surface or corrugation corresponding with the outer circumference of the shaft-head B, as plainly seen in Figs. 1 and 2.

My invention constructed and applied as shown, the operation of it is as follows, viz.: The set-bolt F is screwed into the hole in the front end of the clip-bar H till the point comes flush with the top, when plate E, having rubber D and friction-plate C in position, is placed immediately over the center point of the set-bolt F. The shaft-head B is now placed in position, as shown in Fig. 2, and the connecting-bolt L passed through and the tap K screwed firmly up against the ear A of the shaft-clip. The set-bolt F is now tightened by screwing it up against the plate E, when the rubber is compressed between the plates C and E, as shown in Figs. 1 and 2, when the shaft-head B is pressed firmly up against the connecting-bolt L, and the joint effectually prevented from rattling or the bolt L from losing out. To remove the thills or pole, first slacken the set-bolt F until the pressure is taken off of the under side of the shaft-head, when the connecting-bolt may be removed and the shaft-head B released from its position. A spiral spring may be substituted for the rubber, if preferred, and made to answer the same purpose; but I now consider the rubber the best elastic device that can be used for this purpose.

I will further state in this connection that a base may be formed solid with the shaft-clip on which to rest the set-bolt F, in place of extending the clip-bar H, as seen in the drawing, so that I do not limit my claims to the use of the clip-bar H, to receive the set-bolt F, nor to the use of rubber as a spring. I contemplate manufacturing thill-couplings with the improvements shown and described attached, and so put them into the market; and I also contemplate manufacturing the parts C, D, E, F, and H in sets or pairs, independent of the thill-coupling, and so place them on the market to be applied to any of the ordinary thill-couplings now in use. In this case the holes through the clip-bar H for the reception of the ends of the clip-bolts I I will be omitted, so as to admit of drilling them as may be required for application to the different sizes and kinds of thill-couplings now in use on vehicles.

I claim as my invention—

1. The detachable and adjustable ears F and F, in combination with the shaft-head B, connecting-bolt D, or its equivalent, substantially as and for the purpose shown and described.

2. The combination of the cross-head T with

the shaft-clip J, substantially as and for the purpose set forth.

3. The interposition of an elastic block H, when placed on the top side of the cross-head T, and between the ears F and F and under the shaft-head B in such manner that the elastic block H is compressed by means of the ears F and F and screw-taps S and S, substantially as and for the purpose shown and described.

4. In combination with the thill-coupling described, the friction-plate I and the elastic block H, as and for the purpose set forth.

5. The T-headed clip-bar K, substantially as and for the purpose of receiving the ears F and F, as shown and described.

6. The combination of the parts C, D, E, F, and H, Sheet 2, or their equivalents, in connection with thill-couplings, in the manner and for the purpose substantially as shown and described.

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(31)