B. R. RAPP.

Improvement in Thill Couplings.

No. 124,159. Patented Feb. 27, 1872.

FIG. 2.

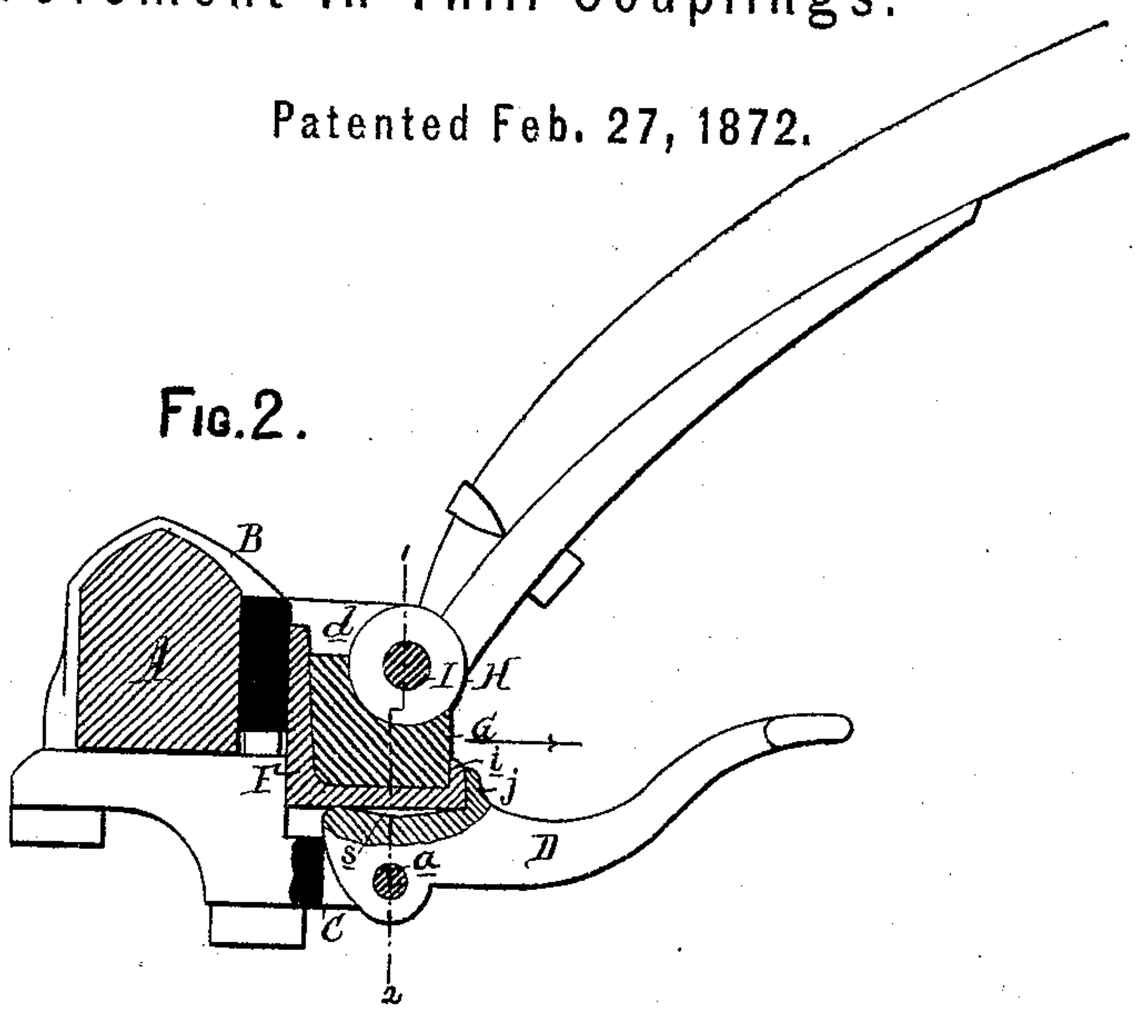


FIG. 3.

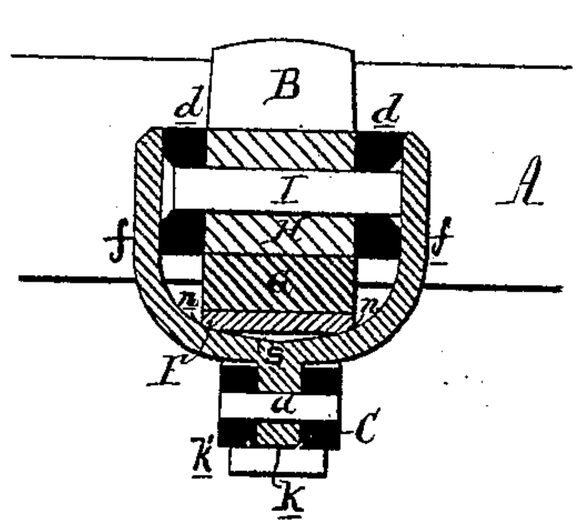
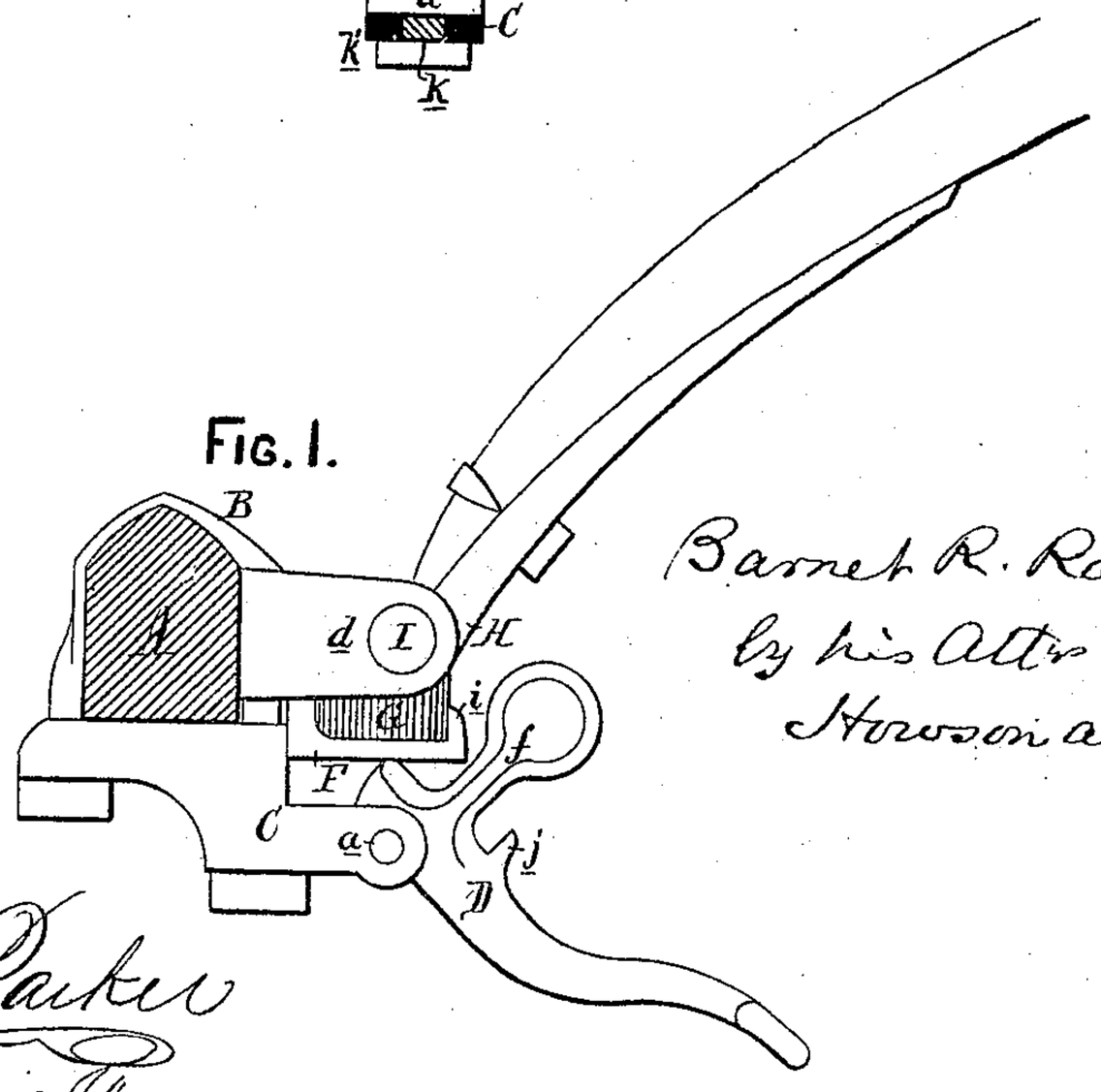


FIG. 1.



Barnet R. Rapp
by his Attys
Howson and Son

WITNESSES,

John Parker

Thos. McElwain

UNITED STATES PATENT OFFICE.

BARNET R. RAPP, OF WEST CHESTER, PENNSYLVANIA, ASSIGNOR TO HIMSELF AND WILLIAM H. LAWSON, OF SAME PLACE.

IMPROVEMENT IN THILL-COUPLINGS.

Specification forming part of Letters Patent No. 124,159, dated February 27, 1872.

Specification describing an Improved Carriage-Coupling, invented by BARNET R. RAPP, of West Chester, Chester county, Pennsylvania.

My invention consists of certain improvements, too fully explained hereafter to need preliminary description, in the carriage-coupling for which Letters Patent were granted to me on the 14th day of September, 1869, the said improvements having been designed with the view of simplifying the coupling and of rendering it more secure.

In the accompanying drawing, Figure 1 is an exterior view of my improved carriage-coupling; Fig. 2, a sectional view of the same, showing the coupling complete; and Fig. 3, a transverse section on the line 1 2, Fig. 2.

A represents part of a carriage-axle; B, a clip passing around the same; C, an extension-plate secured to the clip; D, a cam-lever, jointed to the outer end of the extension-plate by a pin, *a*, and arranged, when turned upward, as shown in Fig. 2, to bear against an elbow-plate, F, and thus compress a block of rubber, G, between the same and the thill H, which is jointed to the ears *d d* of the clip by a coupling-pin, I. The said cam-lever has also two arms, *f f*, which, when the lever is raised, extend upward on either side of the ears *d* and cover the ends of the coupling-pin, thus preventing the withdrawal of the latter; but which, when the said lever is lowered in order to relieve the pressure of the rubber spring upon the end of the thill, are drawn away from and uncover the ends of the coupling-pins, so as to permit the withdrawal of the same. All of these parts are shown in my aforesaid patent of September 14, 1869. In my former invention, however, the rubber block was retained upon the elbow-plate F by a projection on the cam-lever, which, when the latter was raised, bore against the front of the said rubber. In consequence of this the rubber, especially if a little too large, prevented the lever from being raised to its full extent, and by expanding outward, (as indicated by the arrow, Fig. 2,) when compressed, frequently exerted such a pressure against the cam-lever and turned the same to such an extent as to remove its arms *f* from over the ends of the coupling-pin, and thus permitted the latter to be withdrawn or shaken off. I have overcome this objection by providing the elbow-plate at its front edge with a flange, *i*, against which, instead of against the rubber, the projection *j* of the cam-lever bears. By this means the rubber is retained in its proper position upon the elbow-plate, and, as it exerts no outward pressure whatever against the cam-lever, the latter will remain in its elevated position. Instead of recessing the arms *f* of the cam-lever for the head and end of the coupling-pin, as in my former patent, I now make these arms perfectly plain, as shown in Fig. 3, and recess or countersink the ears of the clip for the reception of the head of the pin, which can be inserted from either side. This enables the arms of the cam-lever to be brought close up to the clip, thus reducing the width of the coupling, and also enables the cost of recessing the inner faces of the arms to be avoided. In my former patent the elbow-plate was retained in position laterally by a rib on its under side adapted to a slot in the cam-lever, into which slot was also fitted a tenon on the extension plate, to which the said cam-lever is hung. I have found that the coupling can be made much stronger by reversing this method of connection, as shown in Fig. 3, and adapting a tenon, *k*, on the cam lever to the slotted end *k'* of the extension-plate; but as with this latter plan it would be inconvenient to slot the cam-lever for the reception of a rib on the under side of the elbow-plate, I have dispensed with the said rib, and now retain the elbow-plate in its proper lateral position by means of the arms *f*, which are bent upward and bear against the opposite rounded edges *n n* of the said elbow-plate, as shown in Fig. 3. A depression, *s*, is formed in that portion of the cam-lever which bears against the under side of the elbow-plate for the purpose of reducing the friction in forcing the latter upward against the rubber block, and also to serve as a receptacle for lubricating material to still further reduce such friction.

I claim as my invention—

1. The flange *i* at front edge of the elbow-plate F, in combination with the projection *j* of the cam-lever D.

2. The combination of the plain or recessed arms *f f* of the cam-lever, the coupling-pin I, and the ears *d d* of the clip, recessed or coun-

tersunk for the reception of the head of the said pin, all substantially as specified.

3. The cam-lever D, hung to the extension-plate C in the manner described, and having arms *f f* bent around and bearing against the opposite sides of the elbow-plate F, as specified.

4. The depression *s* in the cam-lever, for the purpose specified.

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

BARNET R. RAPP.

Witnesses:
A. C. ROBERTS,
I. S. BROOKE.