(No Model.)

W. H. BRACE.

Thill Coupling.

No. 236,412. Patented Jan. 11, 1881.

Fig. 1.

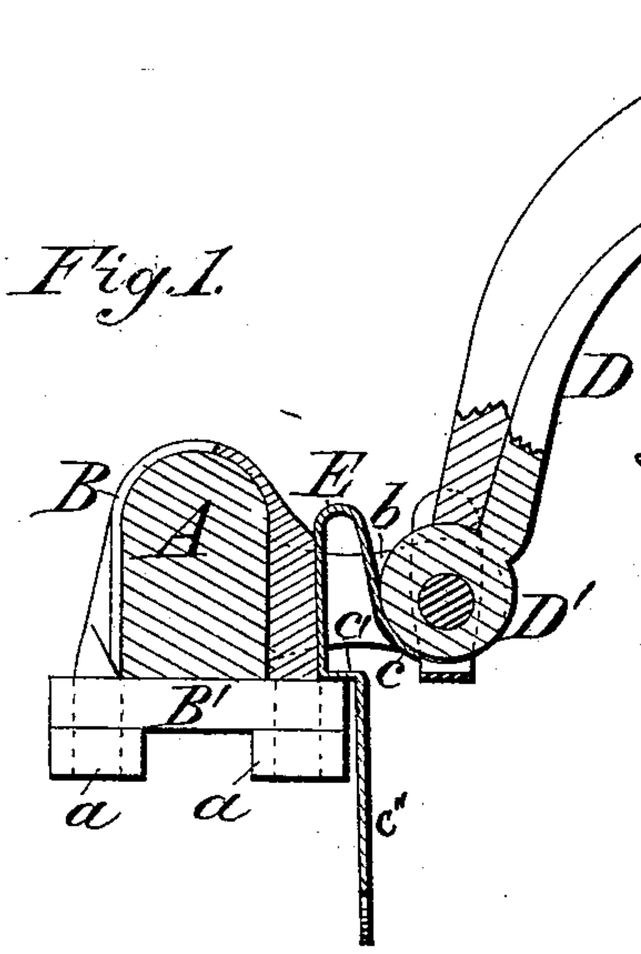


Fig. 3.

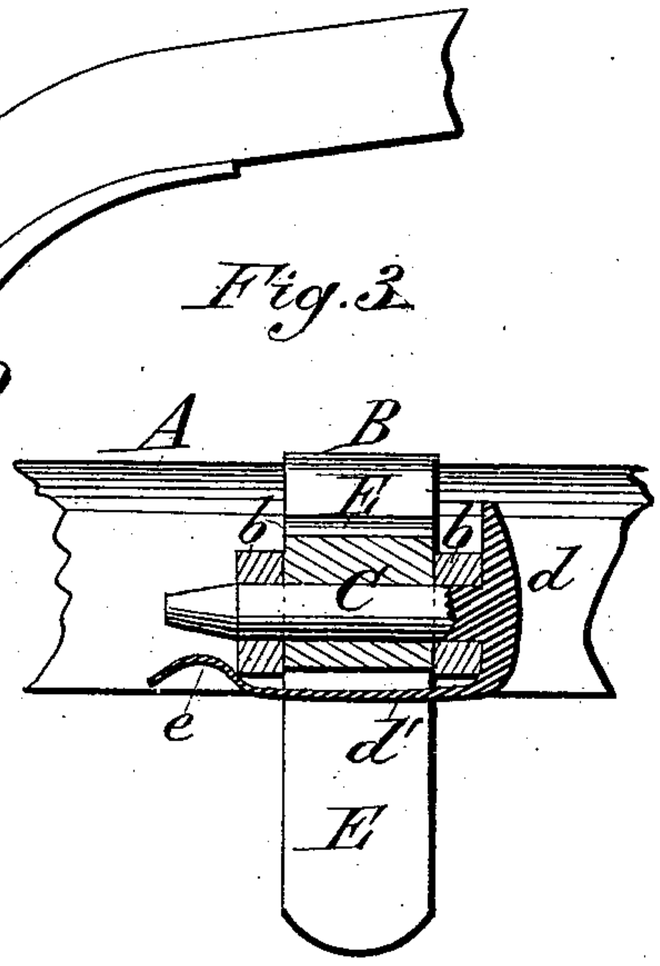


Fig. 2.

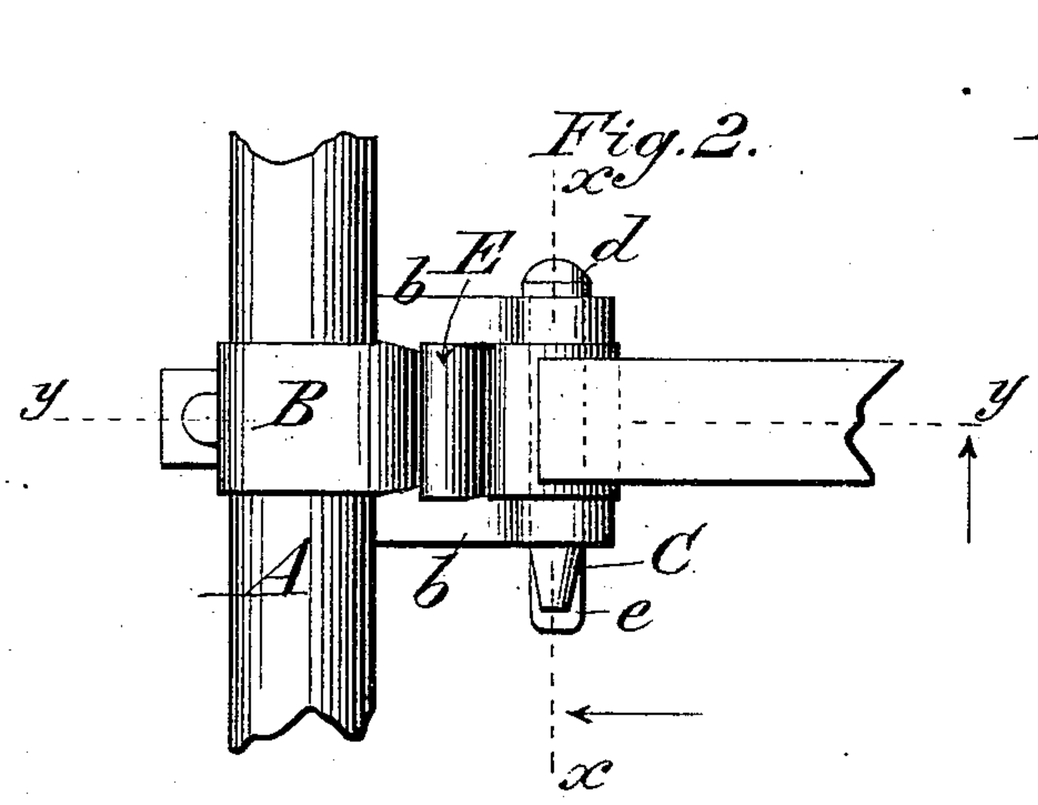


Fig. 4.

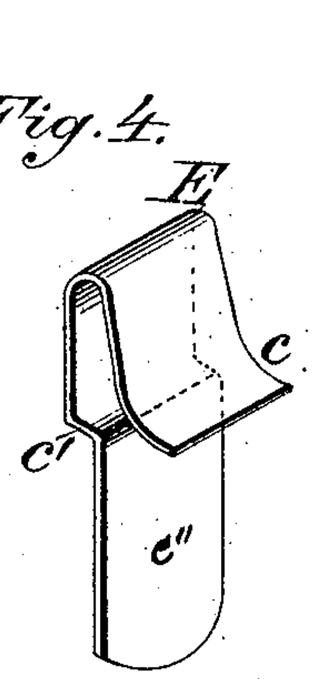
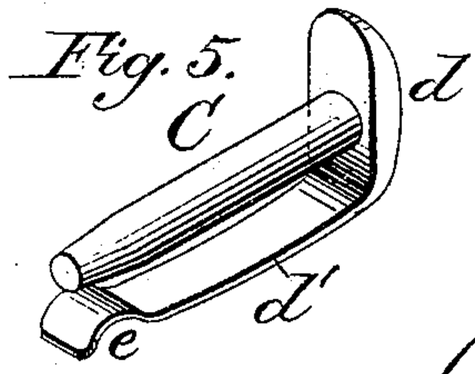


Fig. 5.



Attest:
F. H. Schott.
A. R. Brown

Inventor:
William H. Brace
per H. Dasker atty.

UNITED STATES PATENT OFFICE.

WILLIAM H. BRACE, OF CASTILE, NEW YORK, ASSIGNOR OF ONE-HALF TO CHARLES A. BRACE, OF SAME PLACE.

THILL-COUPLING.

SPECIFICATION forming part of Letters Patent No. 236,412, dated January 11, 1881.

Application filed May 7, 1880. (No model.)

To all whom it may concern:

Be it known that I, WM. H. BRACE, a citizen of the United States, residing at Castile, in the county of Wyoming and State of New York, have invented certain new and useful Improvements in Thill-Couplings; and I do hereby declare the following to be a full, clear, and exact description of the invention, such as will enable others skilled in the art to which it appertains to make and use the same, reference being had to the accompanying drawings, and to letters or figures of reference marked thereon, which form a part of this specification.

This invention relates to that class of devices employed for the purpose of connecting the shafts or poles of carriages with the running-gear, and commonly known by the name of "thill-couplings," the object of the present invention being to simplify their construction by reducing the number of parts necessary to form an effective coupling, relieving it of screw-nuts and making the bolt and spring self-retaining, all as will be hereinafter fully described.

In the drawings, Figure 1 is a side view, partly in section, of a portion of the thill or shaft coupling and axle. Fig. 2 is a top or plan view of the same parts. Fig. 3 shows a vertical section on the line *x x* of Fig. 2. Fig. 4 is a perspective view of the spring, and Fig. 5 is a similar view of the bolt and its retaining-spring.

A represents the axle of the carriage; B, the clip surrounding it and forming a part of the coupling. This clip is secured upon the axle by means of the plate B′, which passes under it and receives the two rounded and threaded ends of the clip, to which are then applied the screw-nuts *a a*, thus firmly securing the coupling to the axle.

Projecting from each side of the clip are the ears *b b*, perforated near their outer ends with an opening for the reception of the bolt C, by which they are connected with the shaft-strap D. The end D′ of this shaft-strap is circular, but has the hole for the bolt placed eccentrically, so that when the shafts are raised the end D′ shall press against and increase the tension of the spring E. This spring has a curved end, *c*, which bears upon the end D′ of the shaft-strap, while a lateral step or offset, *c′*, rests upon the plate B′, thus retaining the spring in place without other assistance. The spring may be readily removed when desired by applying pressure upwardly to the extension or arm *c″*. It will also be observed that the peculiar shape of this spring E allows it to be inserted into its place without removing the bolt which connects the clip-ears and shaft-strap D by simply forcing it into its seat from above; and, further, that its peculiar form will allow it to be applied to many of the thill-couplings now in use without essential change.

The head *d* of the bolt C is T-shaped, one end, *d″*, projecting a short distance above the ears of the clip, and forming a bearing-surface against which the hammer or other implement acts when it is desired to drive the bolt out. The opposite end is drawn out so as to form the spring *d′*, which, when the parts are in place, passes under the ears *b b*, and the rounded end of the shaft-strap, with its upwardly-curved end *e*, bearing against the lower side of one of the ears, as shown in Fig. 3 of the drawings. By this means the bolt C is prevented from coming out, except when sufficient force is applied to overcome the tension of the spring, which never occurs in ordinary use. The bolt is also held firmly against the lower side of the orifice in the ears through which it passes, thus preventing it from rattling, while it is evident that it may be readily disengaged whenever it is desired to remove or change the shafts.

The spring E, seated upon the plate B′, with its back against the clip between the ears, presses against the rounded end of the shaft-plate and prevents all unnecessary movements, thus making a perfect anti-rattling device, the whole forming a strong, simple, and serviceable coupling, free from the defects so common in the thill-connections ordinarily used.

Having thus described my invention, I claim as new, and desire to secure by Letters Patent, the following:

1. In a thill-coupling, the spring E, provided with curved end *c*, step *c'*, and arm *c''*, in combination with the axle-clip and rounded end of the shaft strap, as specified.

2. In a thill-coupling, the T-headed bolt C, provided with spring-extension *d'*, having curved end *e*, in combination with the shaft-strap and ears *b b* of the axle-clip, as set forth.

In testimony whereof I affix my signature in presence of two witnesses.

WM. H. BRACE.

Witnesses:
H. W. SMITH,
F. H. SMITH.