

(No Model.)

J. R. TRIGWELL.

VELOCIPÈDE.

No. 368,360.

Patented Aug. 16, 1887.

Fig. 1

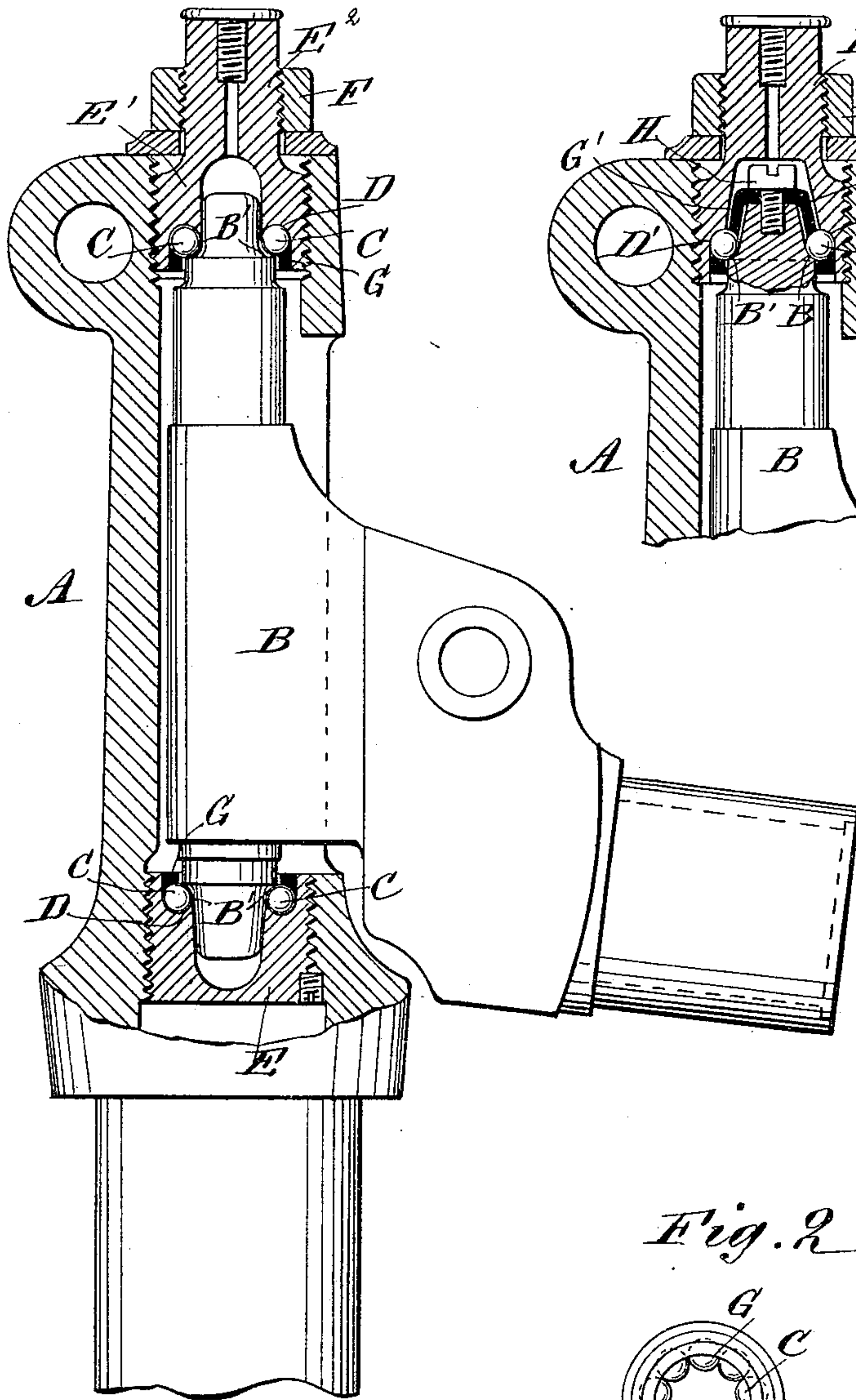


Fig. 4

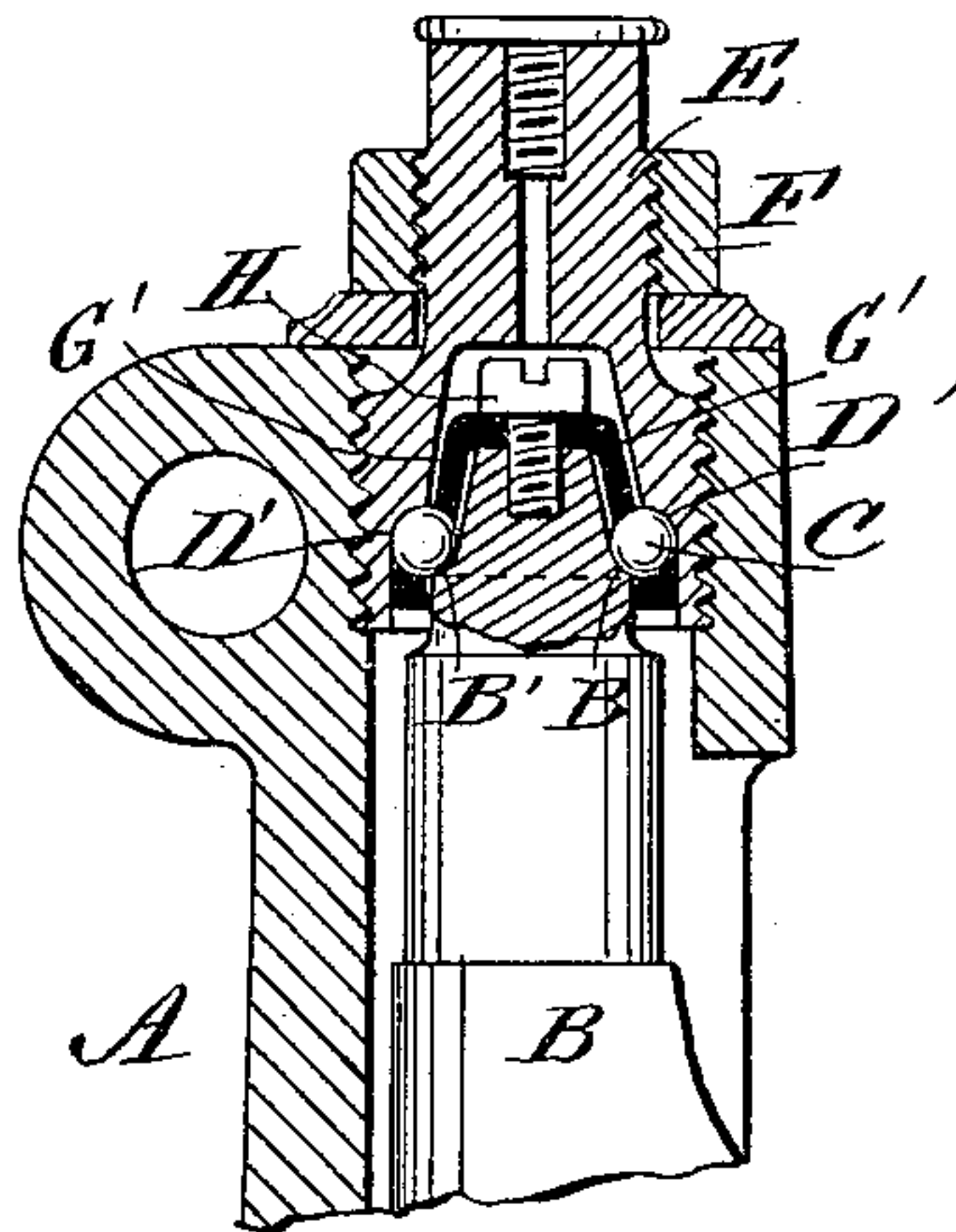


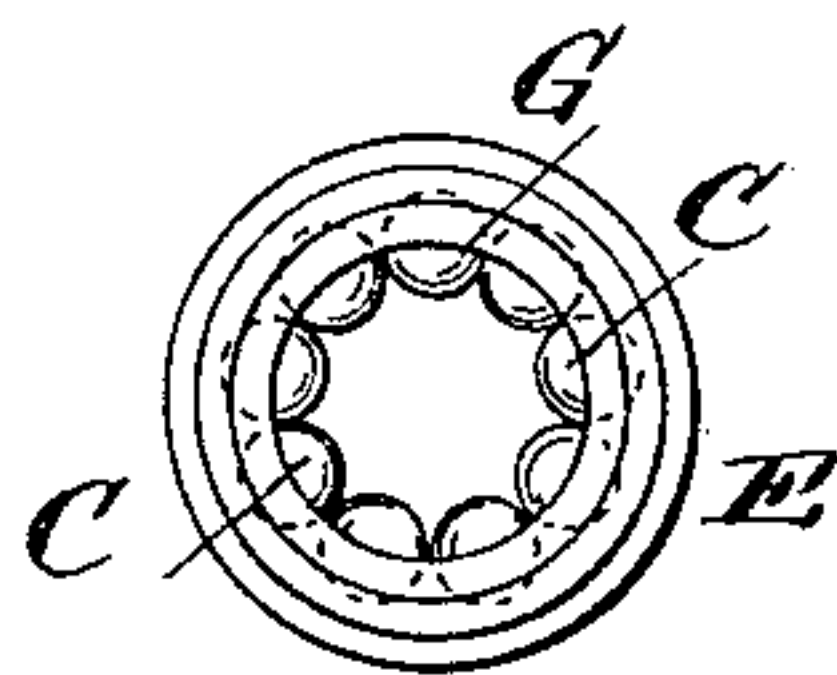
Fig. 5



Fig. 3



Fig. 2



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VELOCIPED.

SPECIFICATION forming part of Letters Patent No. 368,360, dated August 16, 1887.

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To all whom it may concern:

Be it known that I, JAMES RICHARD TRIGWELL, of Brixton Rise, London, England, have invented a certain new and useful Improvement in Velocipedes, of which the following is a specification.

The object of my improvement is to provide a device for confining the anti-friction balls of ball-bearing steering-joints of velocipedes to their seats when the neck and head are disconnected, whereby the balls can be conveniently introduced or removed at will.

I will first describe in detail a ball-bearing steering-joint embodying my improvement, and then point out the nature of the said improvement in a claim.

Reference is to be had to the accompanying drawings, forming a part of this specification, in which similar letters of reference designate corresponding parts in all the figures.

Figure 1 is a vertical sectional view of a velocipede steering-joint embodying my improvement. Fig. 2 is a plan view of the lower ball-bearing of said joint. Fig. 3 is a detail view of the ball-retaining ferrule employed therein. Fig. 4 is a vertical sectional view of the upper portion of a steering-joint embodying my improvement in a modified form. Fig. 5 is a sectional view of the retaining-ferrule employed in the modification.

A designates the steering-head of a velocipede, B the neck on the backbone jointed thereto, E E' bearing-boxes for the neck, held detachably in the ends of the head A, F a lock-nut, and E² an extension of the box E', engaged by the lock-nut F.

Circular seats D, Fig. 1, or D', Fig. 4, are formed in the bearing-boxes E E', and corresponding circular seats on the ends of the neck B for the anti-friction balls C, which are held

between and bear upon said seats on the neck and bearing-boxes when the joint is effected.

A ferrule, G or G', is connected detachably to either the neck or the box-seat of each set of bearing-balls C in such a position that it will, together with the connected seat, loosely confine the greater halves of the balls, so that when the joint is disconnected the balls will be held to the said seat. The balls may at any time be removed or replaced by detaching the ferrule from the seat to which it is connected.

The ferrules G (shown in Figs. 1, 2, and 3) have the form of a ring, and are fitted and held removably in recesses in the bearing-boxes.

The ferrule G' (shown in Figs. 4 and 5) has the shape of a cap, with lateral apertures J, through which the lesser portions of the balls C project, and is connected detachably to the seat B' on the neck by a screw, H, passed through the top of the cap into the end of the neck.

Detachable ferrules in this way may be arranged to confine two or more independent sets of balls.

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

In ball-bearing steering-joints of velocipedes, a retaining device for the anti-friction balls, consisting of a ferrule connected detachably to a seat of the balls and together with said seat loosely confining the greater halves of the balls, substantially as described.

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