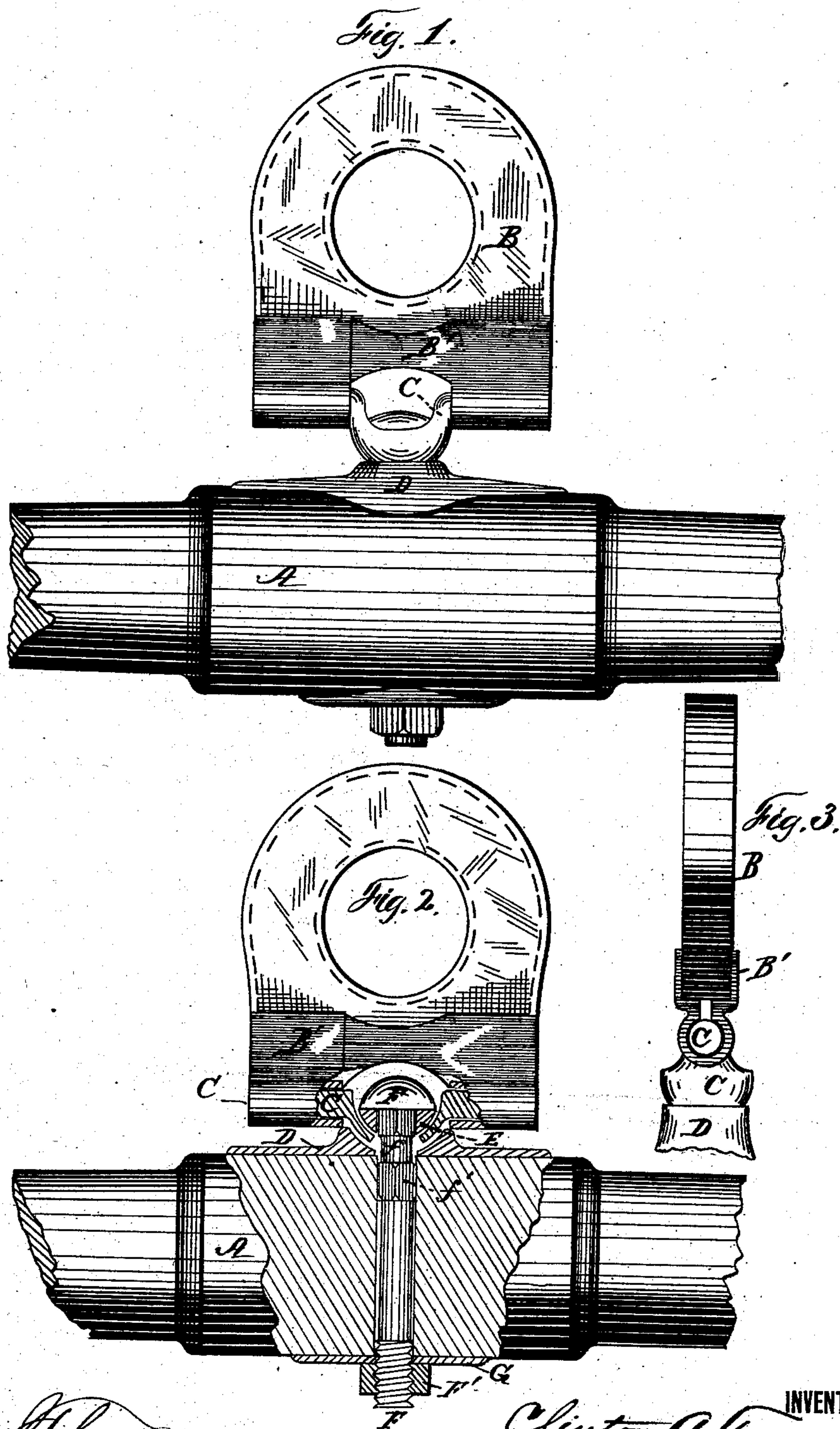


(No Model.)

C. A. TOWER.  
Neck Yoke.

No. 238,068.

Patented Feb. 22, 1881.



WITNESSES.  
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# UNITED STATES PATENT OFFICE.

CLINTON A. TOWER, OF SPRINGFIELD, OHIO, ASSIGNOR OF ONE-HALF TO  
JOHN JACOBS, OF SAME PLACE.

## NECK-YOKE.

SPECIFICATION forming part of Letters Patent No. 238,068, dated February 22, 1881.

Application filed November 22, 1880. (No model.)

*To all whom it may concern:*

Be it known that I, CLINTON A. TOWER, of Springfield, county of Clarke, State of Ohio, have invented a new and useful Improvement in Neck-Yokes; and I do declare the following to be a full, clear, and exact description of the same, such as will enable others skilled in the art to which it pertains to make and use it, reference being had to the accompanying drawings, which form a part of this specification.

My invention relates to that class of neck-yokes in which the loop or sleeve of the neck-yoke tree is connected with the pole, either by a swivel-joint alone or by combined swivel and hinged joints.

The object of my invention is to so construct the swivel and hinge joints that, in addition to the usual functions of such connections, a ball-and-socket or universal joint will be produced, thereby affording a greater latitude of movements than heretofore.

In the drawings, Figure 1 is an elevation of a neck-yoke embodying my invention. Fig. 2 is a sectional view of the same. Fig. 3 is a side view of the loop, showing how it is secured to the swivel mechanism.

Referring by letter to the drawings, A is a neck-yoke bar or tree.

B is a pole-loop, preferably, though not necessarily, of leather. Suitable metallic plates B' hinge it to the bar C. The bar C is provided at its middle with a cup-shaped bearing, which sets into the semi-spherical cavity in the plate D.

E is a semi-spherical washer, having an orifice through which the bolt F passes. This bolt is squared at its neck so as to prevent the washer E from turning, and consequently wearing, upon it.

F' is a nut which holds the bolt in place.

G is a wearing-plate between the nut and the wooden bar.

It will be observed that the bolt F is recessed at *f*, so as to permit of a free play of the joint-pieces in their spherical bearings; but below the recess *f* is a squared portion, *f'*, which passes through a square orifice in the plate D.

This holds the bolt against turning, and prevents any liability of the nut F' working loose.

The operation of the device is obvious from the drawings. The loop is permitted to swing, as usual, upon the bar C, and this bar is permitted, as usual, to turn around the bolt; but the ball-and-socket joint gives additional flexibility in every direction, so that no matter from what direction the strain may come it is at once neutralized by the yielding of the ball-and-socket joint.

It will be obvious that an iron ring or collar could be employed in place of a leather loop, either of such devices being well known in neck-yokes.

What I claim is—

1. In a neck-yoke, a pole-loop united with the neck-yoke bar by a ball-and-socket joint, substantially as described.

2. In a neck-yoke, a pole-loop loosely hinged to a cross-bar, which bar is connected with the neck-yoke bar by a ball-and-socket joint, substantially as described.

3. A neck-yoke center swivel consisting of a bar, C, for attachment to a pole strap or ring, and having a cup-shaped bearing at its center, the plate D, with its corresponding cavity, the semi-spherical washer E, and bolt F, substantially as described.

4. In a neck-yoke, the combination of the neck-yoke tree with the pole-loop, and a hinged joint and a universal joint, both serving as connecting media between the pole-loop and the neck-yoke tree, substantially as specified.

5. In a neck-yoke, the combination, with the pole-loop, of the neck-yoke tree, a cross-bar, C, to which the pole-loop is hinged, a bolt passing through the neck-yoke tree, and a universal joint at the connection between said bolt and the cross-bar, substantially as specified.

In testimony whereof I sign this specification in the presence of two witnesses.

CLINTON A. TOWER.

Witnesses:

ED. L. EVANS,  
LEWES PACKHAM.