

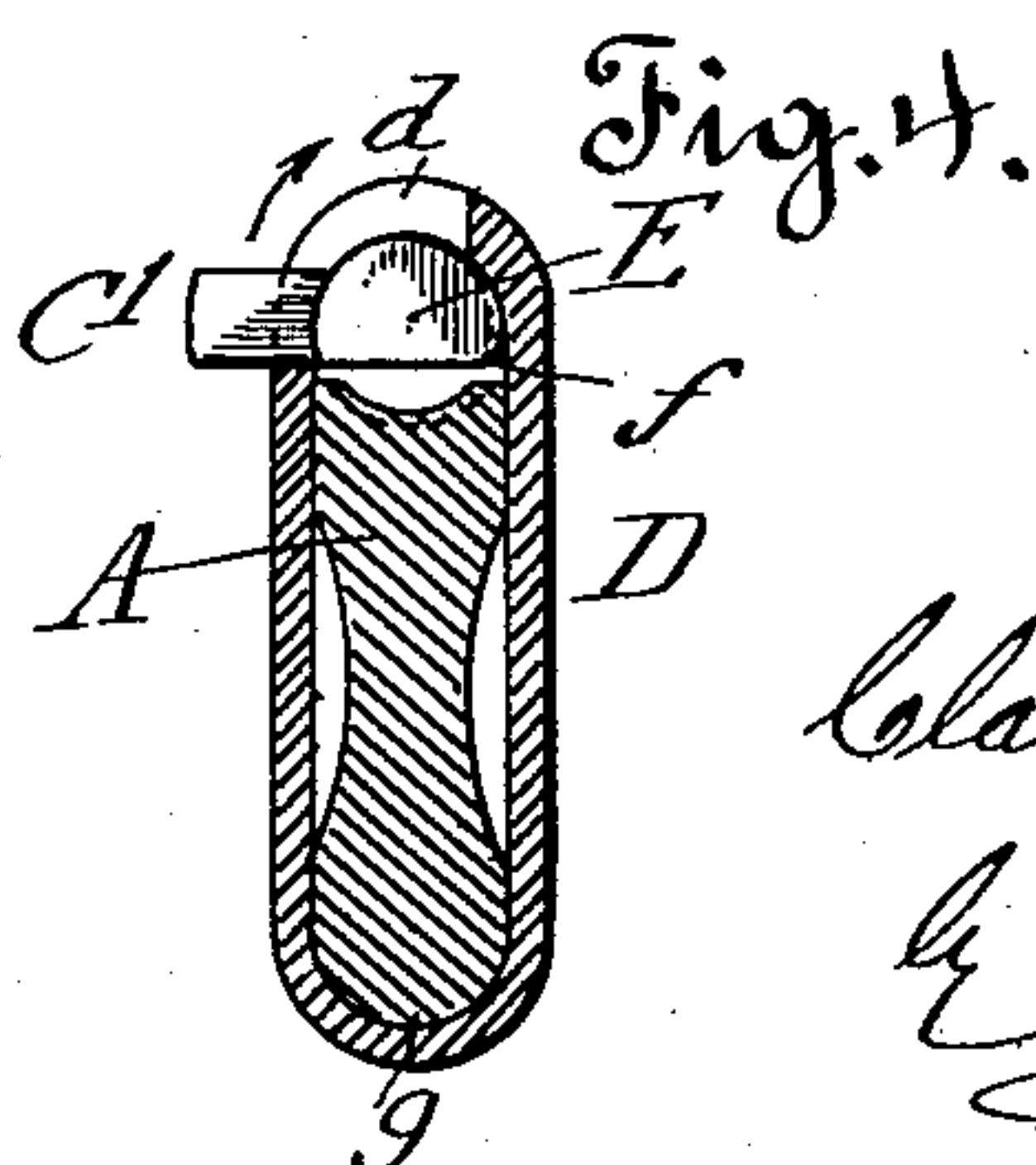
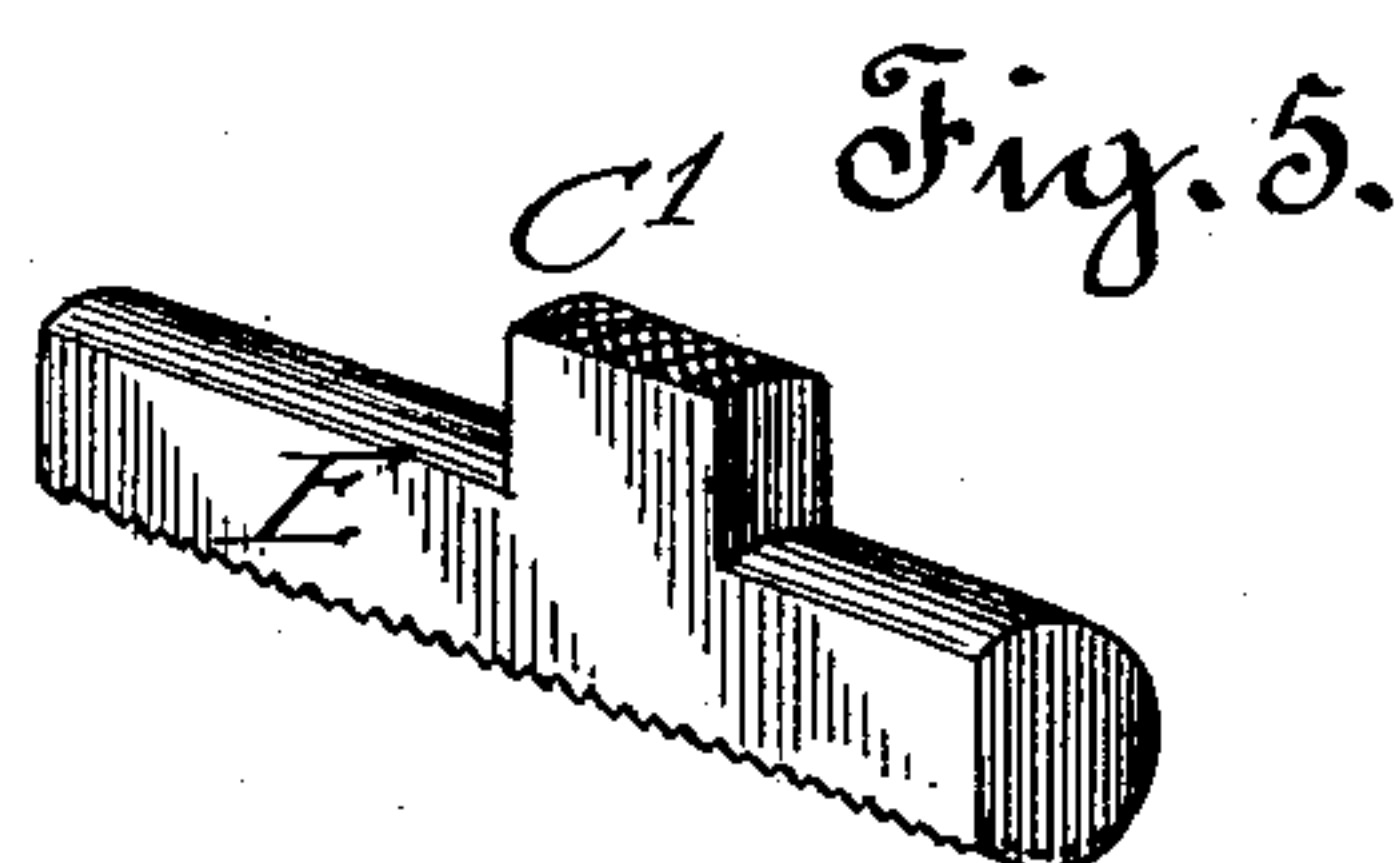
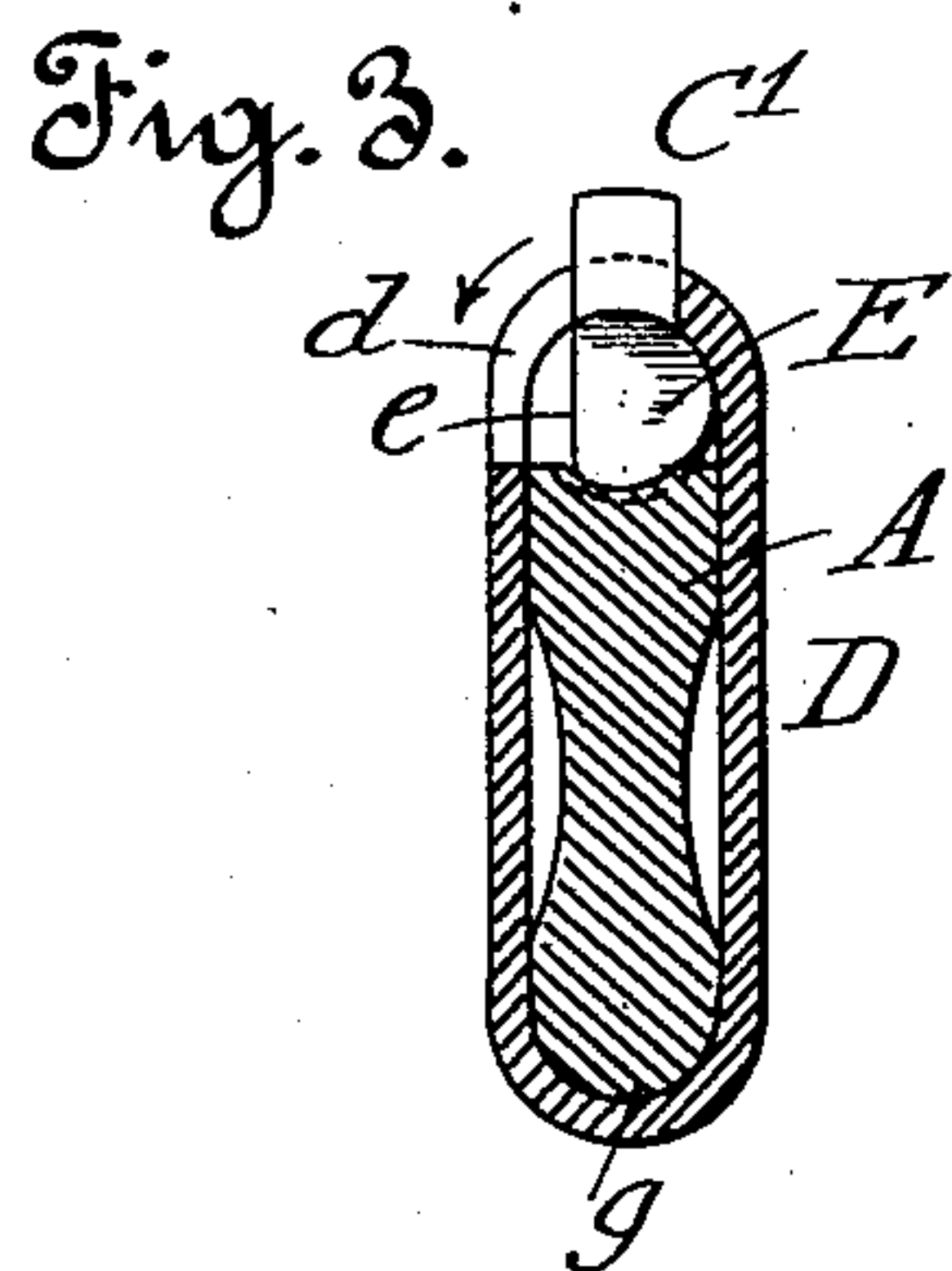
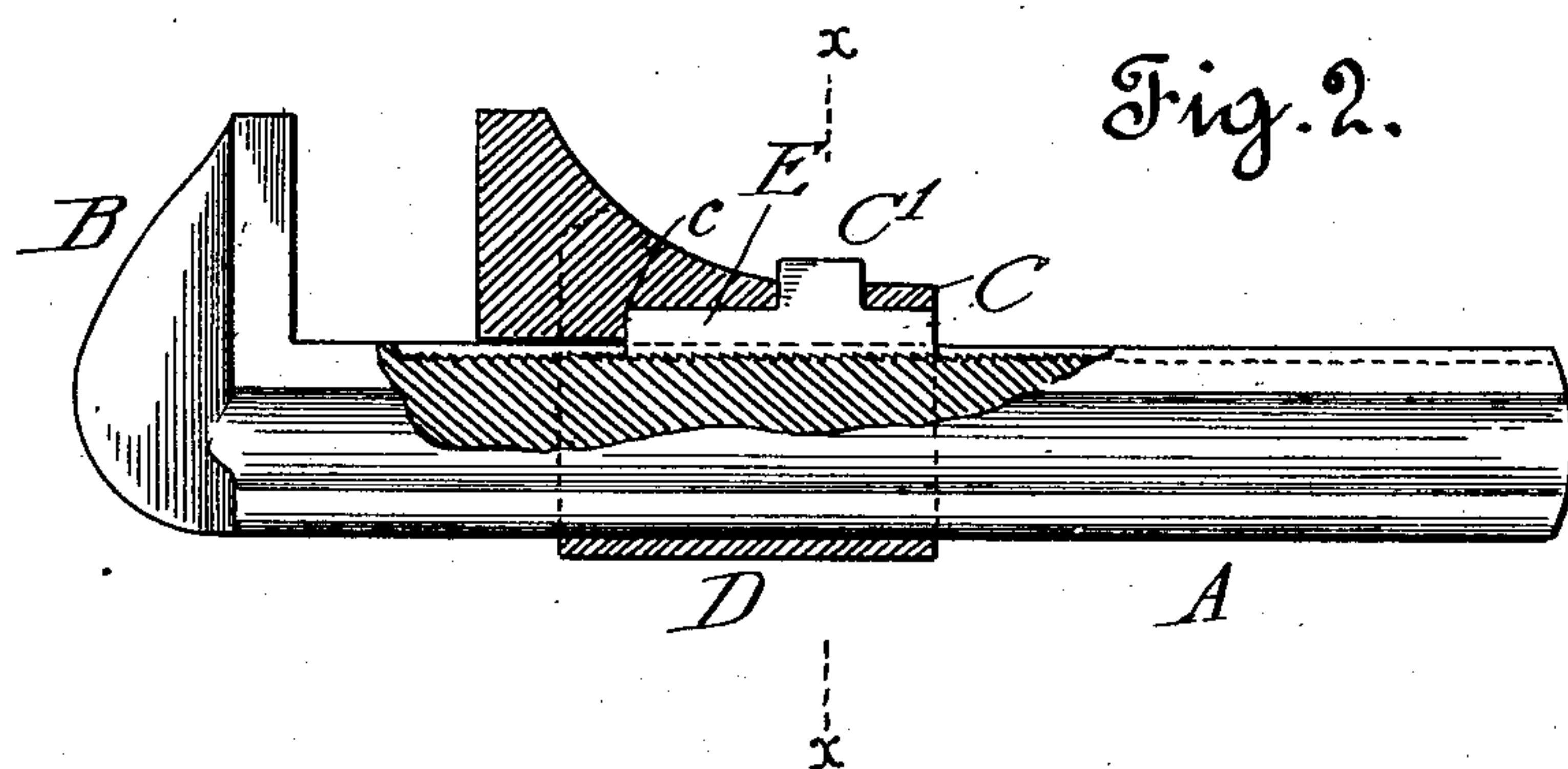
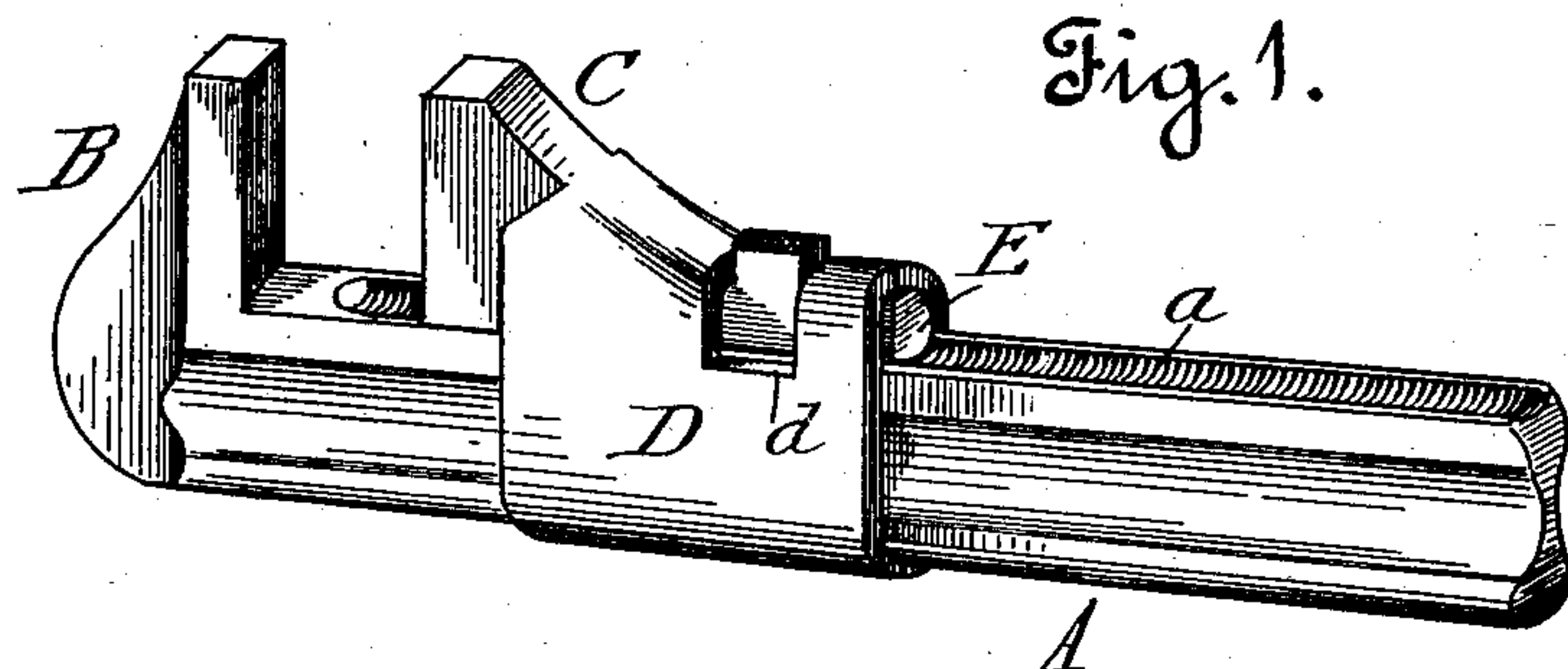
No. 735,734.

PATENTED AUG. 11, 1903.

C. C. ENGLISH.
WRENCH.

APPLICATION FILED SEPT. 19, 1900.

NO MODEL.



Witnesses.

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Inventor.

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UNITED STATES PATENT OFFICE.

CLARENCE C. ENGLISH, OF SAN FRANCISCO, CALIFORNIA.

WRENCH.

SPECIFICATION forming part of Letters Patent No. 735,734, dated August 11, 1903.

Application filed September 19, 1900. Serial No. 30,499. (No model.)

To all whom it may concern:

Be it known that I, CLARENCE C. ENGLISH, a citizen of the United States, residing at San Francisco, in the county of San Francisco and State of California, have invented certain new and useful Improvements in Wrenches, of which the following is a specification.

My invention relates to wrenches; and my object is to provide a strong and simple tool composed of loose parts without rivets or other connecting devices, which can be cheaply constructed, is easily and accurately adjusted, and firmly locked in adjustment.

My wrench comprises a fixed jaw, which also forms the handle, a sliding jaw having a sleeve inclosing the fixed jaw and movable thereupon, and a locking-cam having a bearing in said sleeve and provided with a toothed or milled edge which engages with a correspondingly-formed surface on the fixed jaw.

The invention is illustrated in the accompanying drawings, in which—

Figure 1 is a perspective view of the wrench. Fig. 2 is a side elevation, broken away to show parts in longitudinal section. Fig. 3 is a cross-section on line xx with the jaws locked by the cam. Fig. 4 is a similar cross-section with the jaws released, in position for sliding adjustment. Fig. 5 is a perspective view of the locking-cam.

A represents the handle of the wrench, formed with the fixed jaw B. The surface of the handle adjacent to the jaw and for the whole or a sufficient part of the length is formed with a concave channel which is toothed, threaded, or milled, as shown at a .

C represents the movable jaw which is formed as a part of the sleeve D, which is fitted to a rounded edge g and the sides of the handle, leaving a space adjacent to the channel a . This space forms a bearing for the locking-cam E, which has a toothed, threaded, or milled surface corresponding to that of the channel. The end of the cam abuts against a shoulder c of the jaw C. The cam has a handle C' , which when the parts are assembled projects through a slot d of the sleeve, with a close fit in the slot. In assembling the parts the cam is slipped into the sleeve and the handle allowed to drop through the slot, as in Fig. 4. The sleeve is

then placed upon the handle, and as the flat face e of the cam is adjacent to the channel a the sleeve can be moved freely upon the handle. The parts are locked by turning the cam to the position of Fig. 3, causing its milled surface to engage and bind strongly in the channel a , thereby drawing the sleeve and handle tightly together. The edge of the cam is dressed off slightly, as shown at f , to insure a proper engagement of the milled surfaces, the milling continuing, however, at the same depth around the dressed-off corner. The ease of operation as to adjustment and locking will be apparent, since it is only necessary to turn the cam to position of Fig. 4 in order to render the jaws freely adjustable. It will also be observed that no screws or rivets are employed, the parts being loosely assembled and being self holding and locking. A stop may, however, be used on the handle, if desired, to keep the sleeve from being entirely separated from it. In ordinary use, however, I have not found such a stop necessary.

The strength of the device will also be noted, and particularly the manner in which the shoulder c abuts against the solid cam. The sleeve is preferably made substantially elliptical in cross-section, and the channel in the upper edge of the handle forms substantially a circle with the upper end of the ellipse. In this manner when the cam is rotated between the handle and the sleeve to lock the jaw the sleeve is tightly bound at top and bottom, and as the sides fit snugly against the sides of the handle and the shoulder c abuts against the end of the cam all lost motion is taken up and the parts are held absolutely rigid, and thus the greatest strength is secured when using the wrench.

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

1. A wrench comprising a handle, the lower edge of which is rounded and the upper edge is provided with a milled channel extending longitudinally thereof; one end of the handle being provided with a rigid jaw, a slotted sleeve on the handle, substantially elliptical in cross-section, the forward end of which is provided with a rigid jaw, the channel of the

- handle forming with the upper side of the sleeve a substantial circle, a segmental cam between the handle and the sleeve, provided with a handle which projects through the slot
- 5 in the sleeve, a portion of the surface of the cam opposite the projection being provided with teeth for engaging with the milled channel when the cam is rotated into its locking position.
- 10 2. A wrench comprising a handle, one end of which is provided with a rigid jaw, and its upper edge is provided with a concave milled channel extending longitudinally thereof, a sleeve on the handle, one end of which is pro-
- 15 vided with a rigid jaw, and the other end is slotted and has the inner portion recessed, the wall of the recess forming a shoulder at one end and being concave to correspond with the curvature of the channel, and a substantially
- 20 cylindrical cam in said recessed portion, a portion of the surface of which is provided with teeth to engage with the milled channel when in its operative position, said cam being provided with a handle intermediate of its ends,
- 25 which projects through the slot of the sleeve, the distance of the projection from one end of the cam being such that said end will be

held firmly against the shoulder in the sleeve at all times.

3. A wrench comprising a handle, one end 30 of which is provided with a rigid jaw, and its upper edge is provided with a milled channel extending longitudinally thereof, a slotted sleeve on the handle, one end of which is provided with a rigid jaw, and the inside of the 35 slotted portion is recessed longitudinally, a segmental cam within said recessed portion and provided with a handle projecting through the slot, said cam having a portion of its surface cut away longitudinally and pro- 40 vided with teeth adjacent to said cut-away portion, the cam being cut off slightly at the edge formed by said toothed portion and the longitudinally-cut-away portion whereby a proper engagement of the teeth with the 45 milled channel is insured.

In testimony whereof I have affixed my signature, in presence of two witnesses, this 7th day of September, 1900.

CLARENCE C. ENGLISH.

Witnesses:

L. W. SEELY,
F. M. BURT.