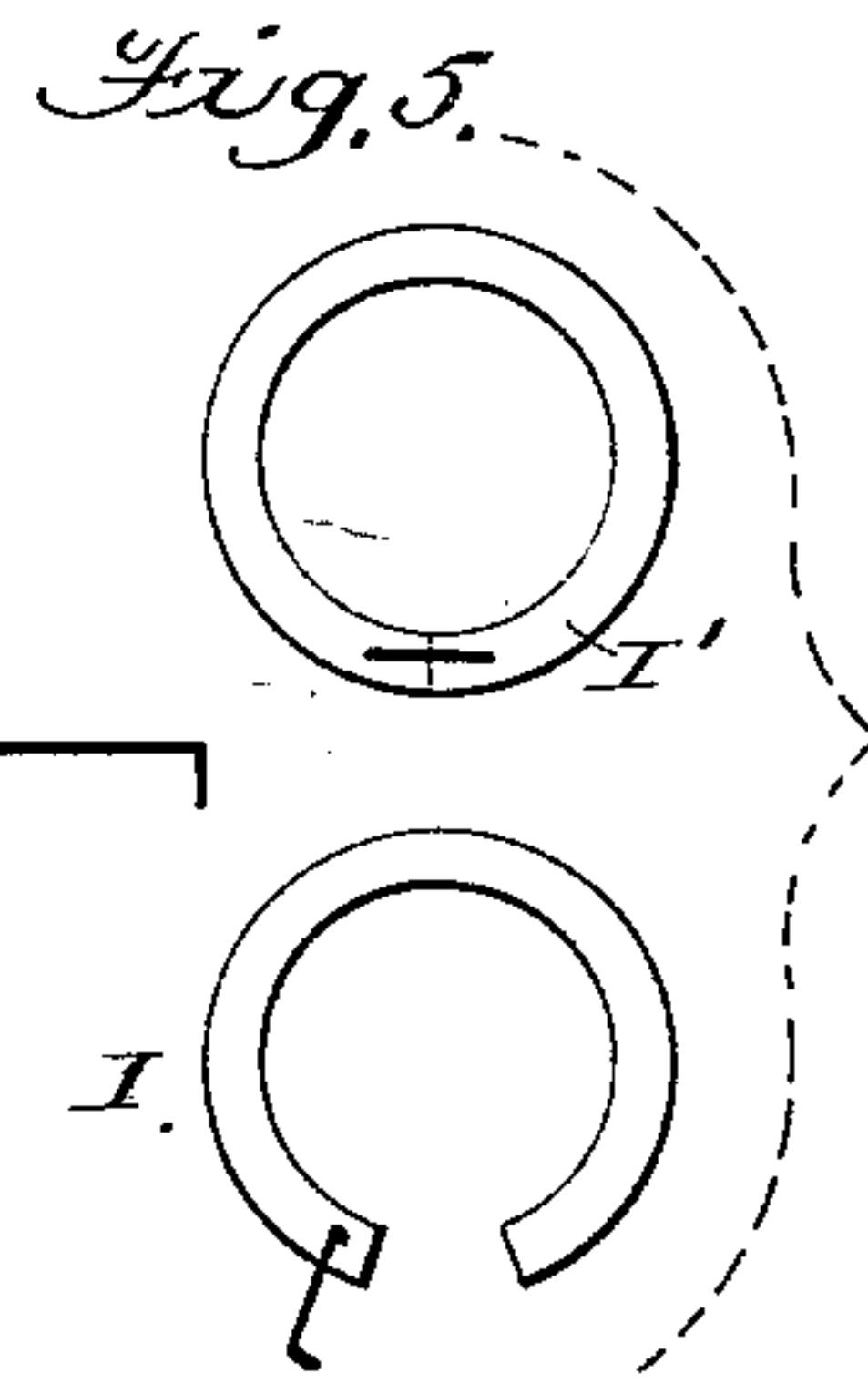
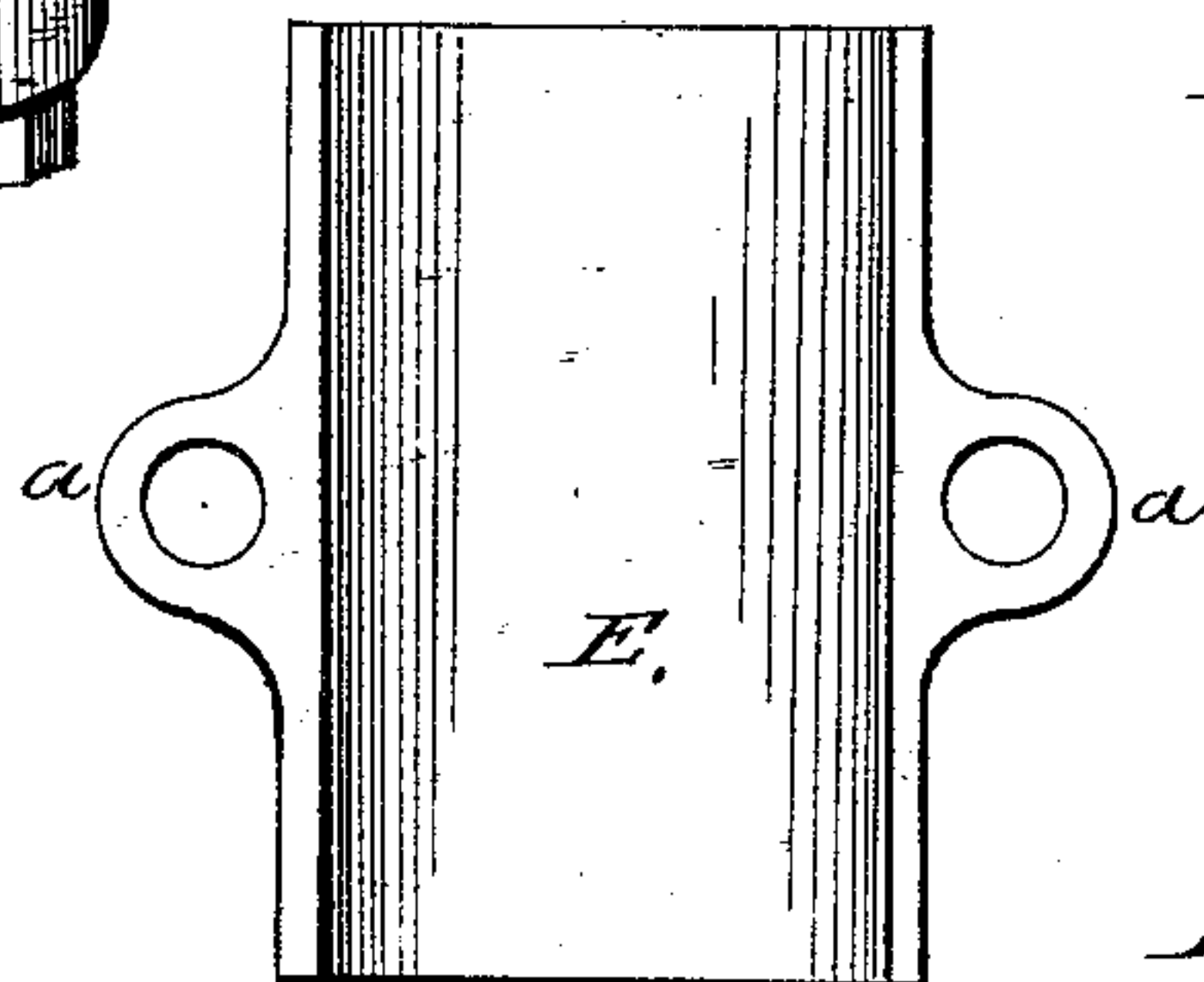
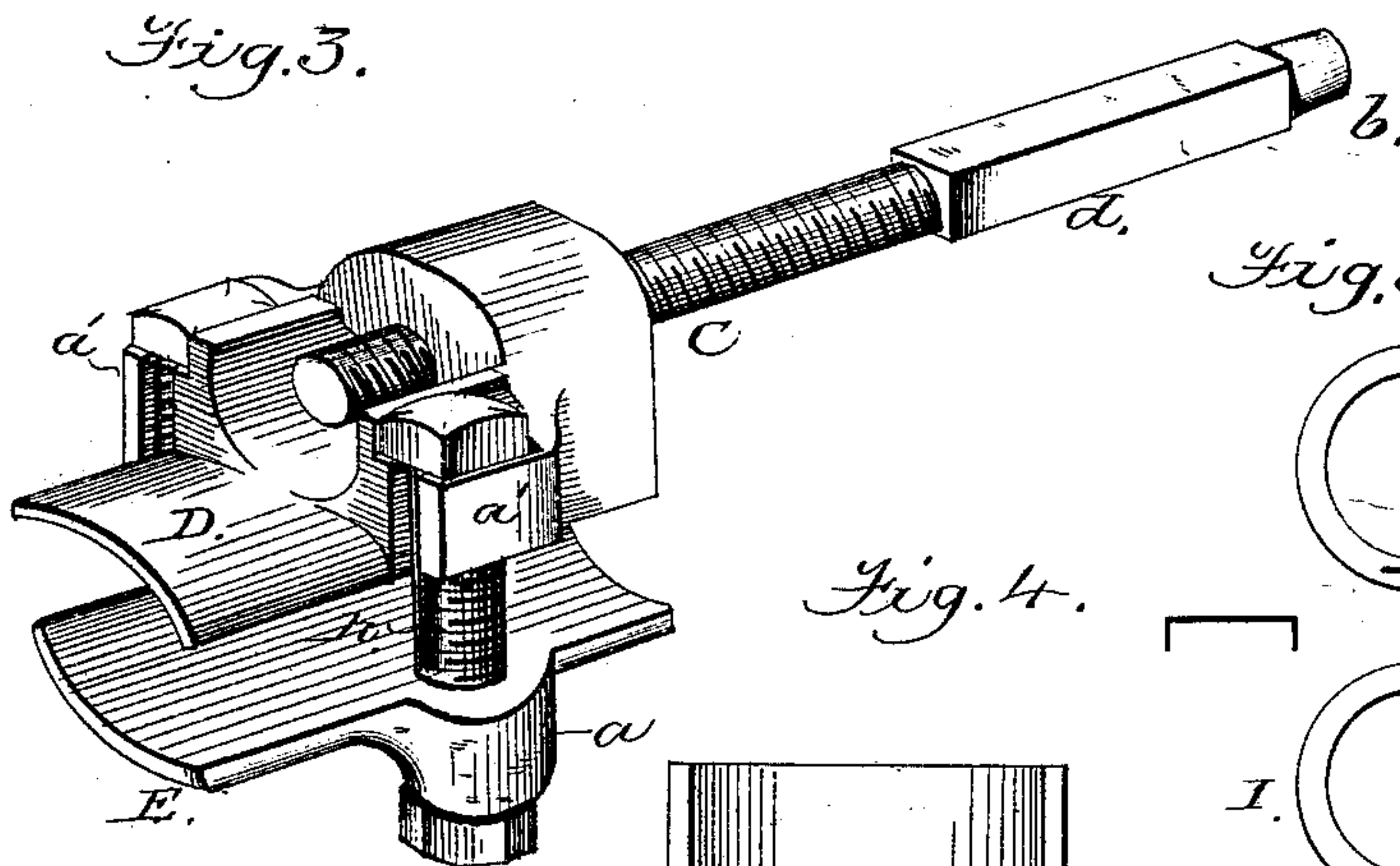
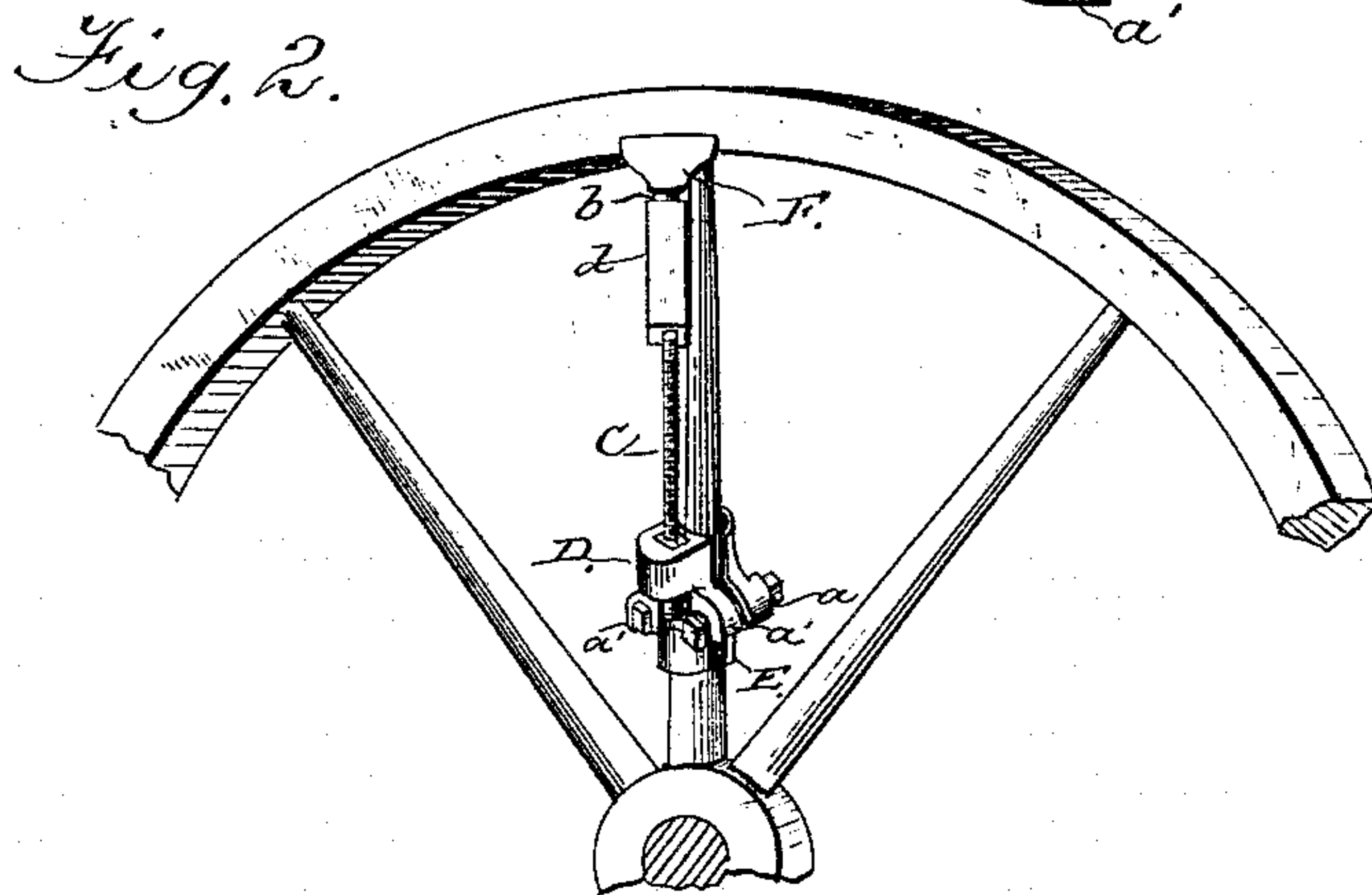
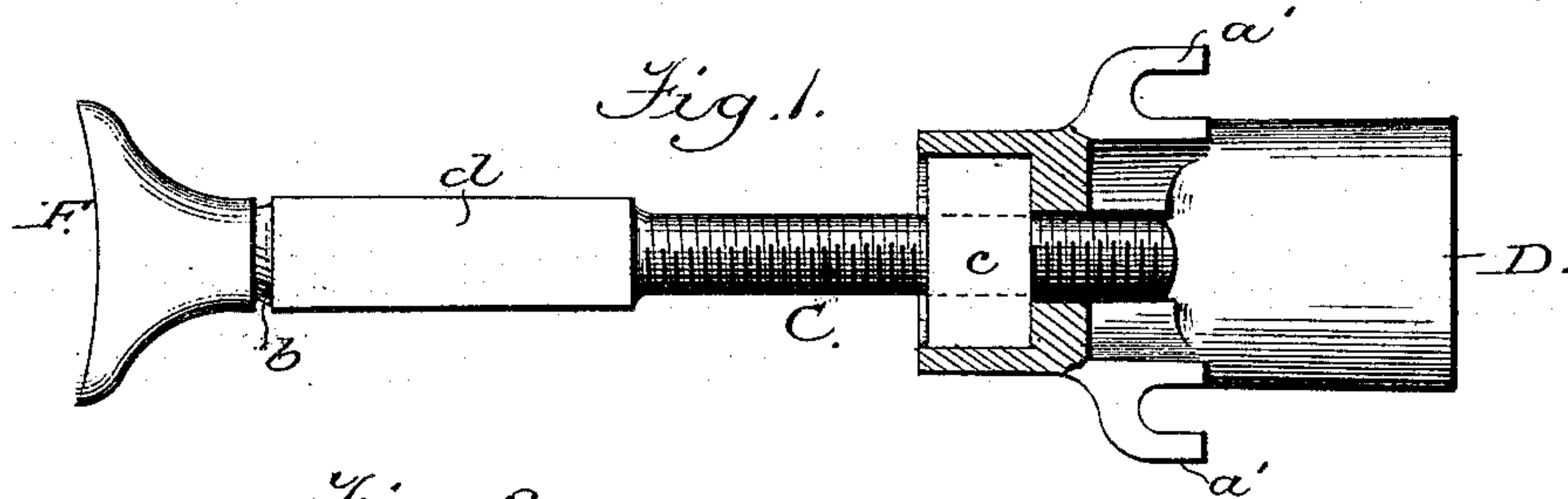


(No Model.)

H. W. SUTTON.  
Tire Tightener.

No. 234,088.

Patented Nov. 2, 1880.



Attest:

J. Walter Fowler,  
F. M. Higgins

Inventor:

Harry W. Sutton  
By *[Signature]* his attorney



# UNITED STATES PATENT OFFICE.

HARVEY W. SUTTON, OF NEW RICHMOND, OHIO, ASSIGNOR OF ONE-HALF  
TO WM. P. HOUSTON.

## TIRE-TIGHTENER.

SPECIFICATION forming part of Letters Patent No. 234,088, dated November 2, 1880.

Application filed September 10, 1880. (No model.)

*To all whom it may concern:*

Be it known that I, HARVEY W. SUTTON, of New Richmond, in the county of Clermont and State of Ohio, have invented certain new and useful Improvements in a Device for Tightening the Spokes, Fellys, and Tires of Vehicle-Wheels; and I do hereby declare that the following is a full, clear, and exact description of the invention, which will enable others skilled in the art to which it pertains to make and use the same, reference being had to the accompanying drawings, and to the letters of reference marked thereon, which form a part of this specification.

My invention relates to certain improvements in a device for tightening tires and spokes in vehicle-wheels without cutting the tire or removing the wheel; and it consists in a lifting-jack working in clamps secured by bolts to the spoke of the wheel, which operates on a cap arranged to adjust on the end of the screw against the felly in such a manner as to carefully spring the felly off the spoke sufficiently to admit of the adjustment of a washer between the shoulder of the spoke and felly.

Figure 1 is an elevation of the jack-screw bearing-clamp, showing the cap, the screw, the female screw, and clamp with the lugs. Fig. 2 is the jack complete in use on a spoke of a wheel. Fig. 3 is a perspective of the complete device except the cap. Fig. 4 is an elevation of the concave side of clamp E, showing the sleeves. Fig. 5 shows the washer open and closed, as well as the securing-hasps.

Similar letters of reference indicate corresponding parts.

The lifting-screw C, made any length to admit of its being used on the spoke between the hub and felly of a wheel, has a thread cut more than half its length from one end, and is provided with a square bolt-head, *d*, by which it can be handled and turned with a wrench, and terminates at the other end in an oval or pointed tip, *b*, upon which it revolves in a suitable socket in the cap F. This lifting-screw C enters and works in a female screw, *c*, set or cut into the end of the larger clamping-jaw D, and, together with clamping-jaws

D and E and cap F, makes up the tightening-jack.

The clamp-jaw D, preferably of metal, made as light as its use will permit, is concaved on one face, *f*, the better to adjust to the form of the spoke of the wheel, and has grasping-lugs *a' a'* projecting from its sides, which slip onto bolts *h*, by which the clamp is held in place and secured, and also a female screw or a square socket for a nut, which carries the lifting-screw C in the larger end.

The sister clamp E is also concaved on one face to correspond with the concaved face *f* of clamp D, and has projecting from its sides sleeves *a a*, for the admission of bolts *h h*, by which the clamps are secured together and in place. The sleeves *a a* have square bolt-head sinks to keep the bolts *h* from turning.

F is a small metal cap slightly concaved on top to make it conform to the shape of the inner rim of the felly of a vehicle-wheel, with a bone-socket in the under side, where the end of the screw C is received, forming therewith a pivotal joint. This cap F is placed between the felly of the wheel and the end of the screw of the jack, serving as well the place of a shield to the felly as a lifting-base for the jack.

In arranging my device for use I introduce the jack-screw C into the female screw *c* in the end of clamp D, and insert bolts *h h* in the sleeves *a a*, protruding from the sides of the clamp E, screwing the nuts thereon sufficiently far to hold them. The clamps D and E are adjusted to the spoke of a wheel opposite to each other. The lugs *a' a'* protrude from the sides of clamp D, and are brought down on to and over bolts *h h*. The nuts thereon are screwed up until the clamps are made perfectly secure in place. The cap F is then adjusted on the upper end of screw C, against the inner edge of the felly, and a wrench applied to the bolt-head *d* on screw C until the felly is lifted sufficiently high from the shoulder of the spoke to admit of the adjustment of a washer, I, around the tenon. The washer I is then closed and secured, as seen in Fig. 5, I'. The felly is then lowered into place and the clamp removed by loosening the nuts on bolts *h*. This operation may be continued on con-

secutive spokes until the felly, tire, and spokes are perfectly tight.

The advantages assumed for my jack are, first, by being clamped onto the spoke while  
5 lifting the felly off, the spoke is more firmly set into its mortise in the hub; second, by having but a single screw or leg, the power can be applied at the desired point without obstructing access to the end of the spoke where the  
10 washer is to be inserted.

What I claim as my invention, and desire to secure by Letters Patent, is—

In a single-legged jack for tightening tires, fellies, and spokes of vehicle-wheels, the combination of cap F, slightly concaved on top,

with a bone-socket beneath, lifting-screw C, having a nut-head, *d*, concave-faced clamp D, having grasping-lugs *a' a'* protruding from its sides and a female screw, *c*, in its end, concave-faced clamp E, having sleeves *a a* projecting from its sides, and bolts *h h*, substantially as shown, and for the purpose set forth.

In testimony that I claim the foregoing as my own I hereunto affix my signature in presence of two witnesses.

HARVEY W. SUTTON.

Witnesses:

W. H. BASH,

D. S. VAN PELT.