

No. 626,065.

Patented May 30, 1899.

W. E. HOLMES.
INSULATOR.

(Application filed Feb. 16, 1899.)

(No Model.)

FIG. 1

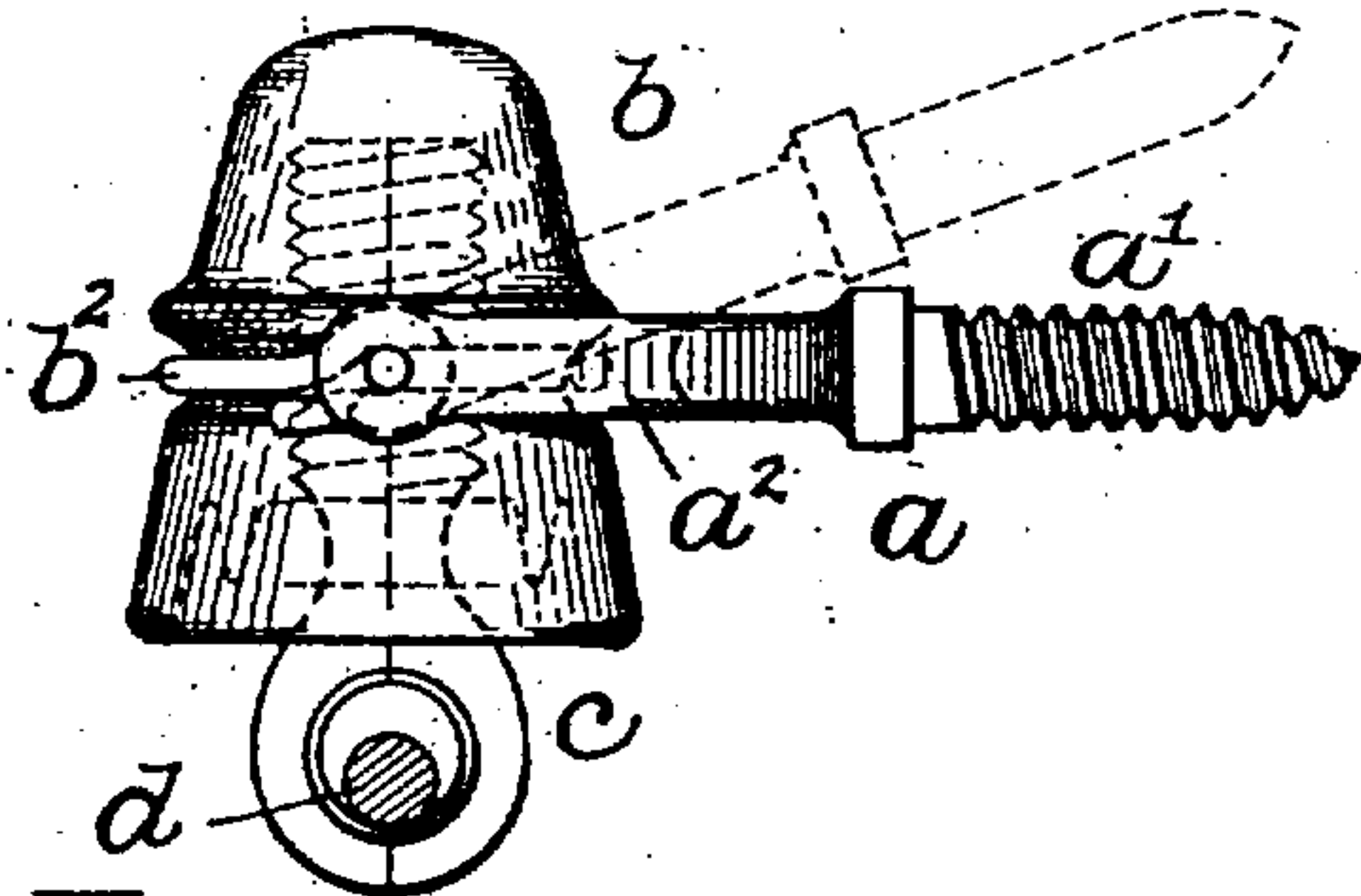


FIG. 2.

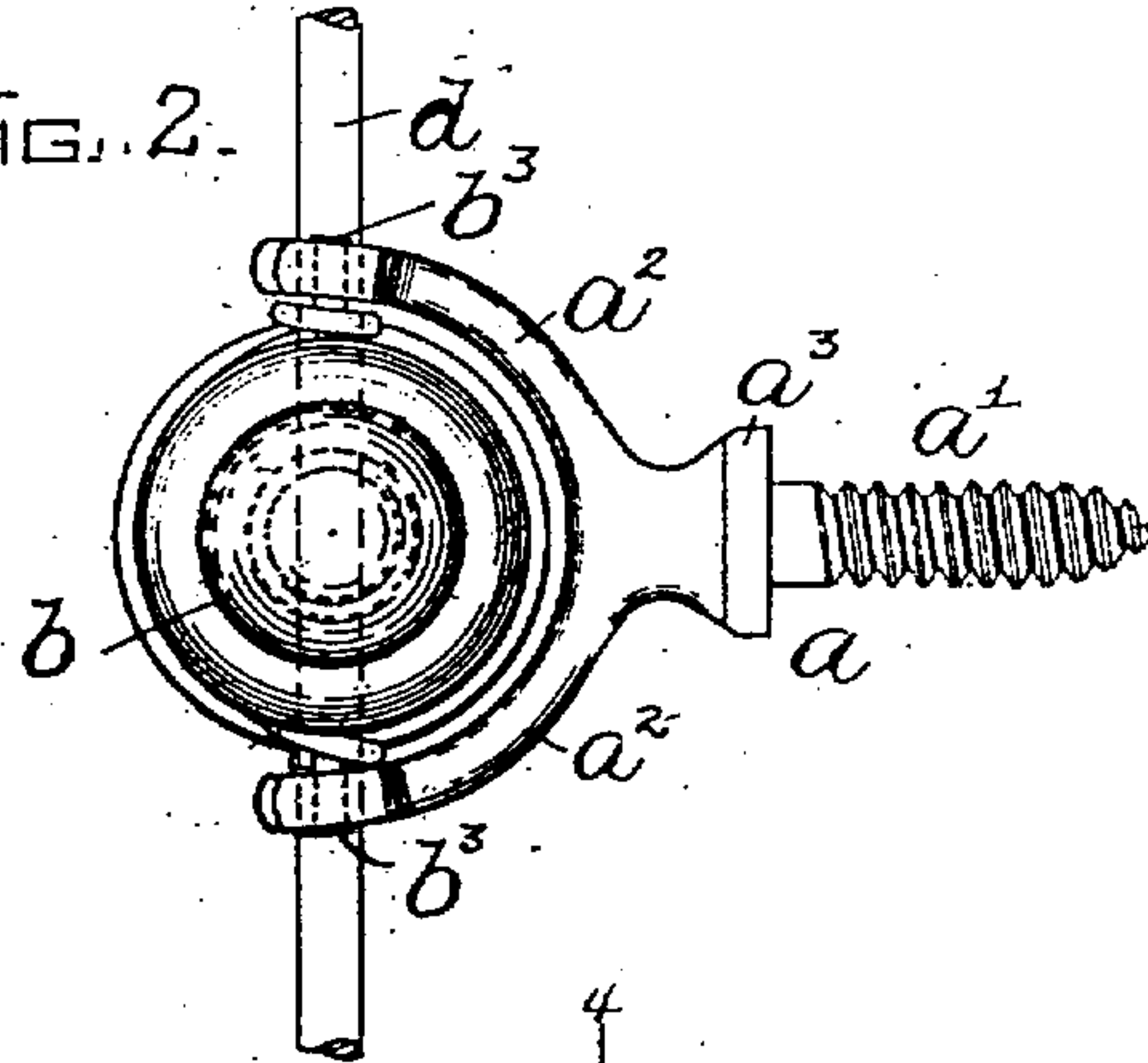


FIG. 4.

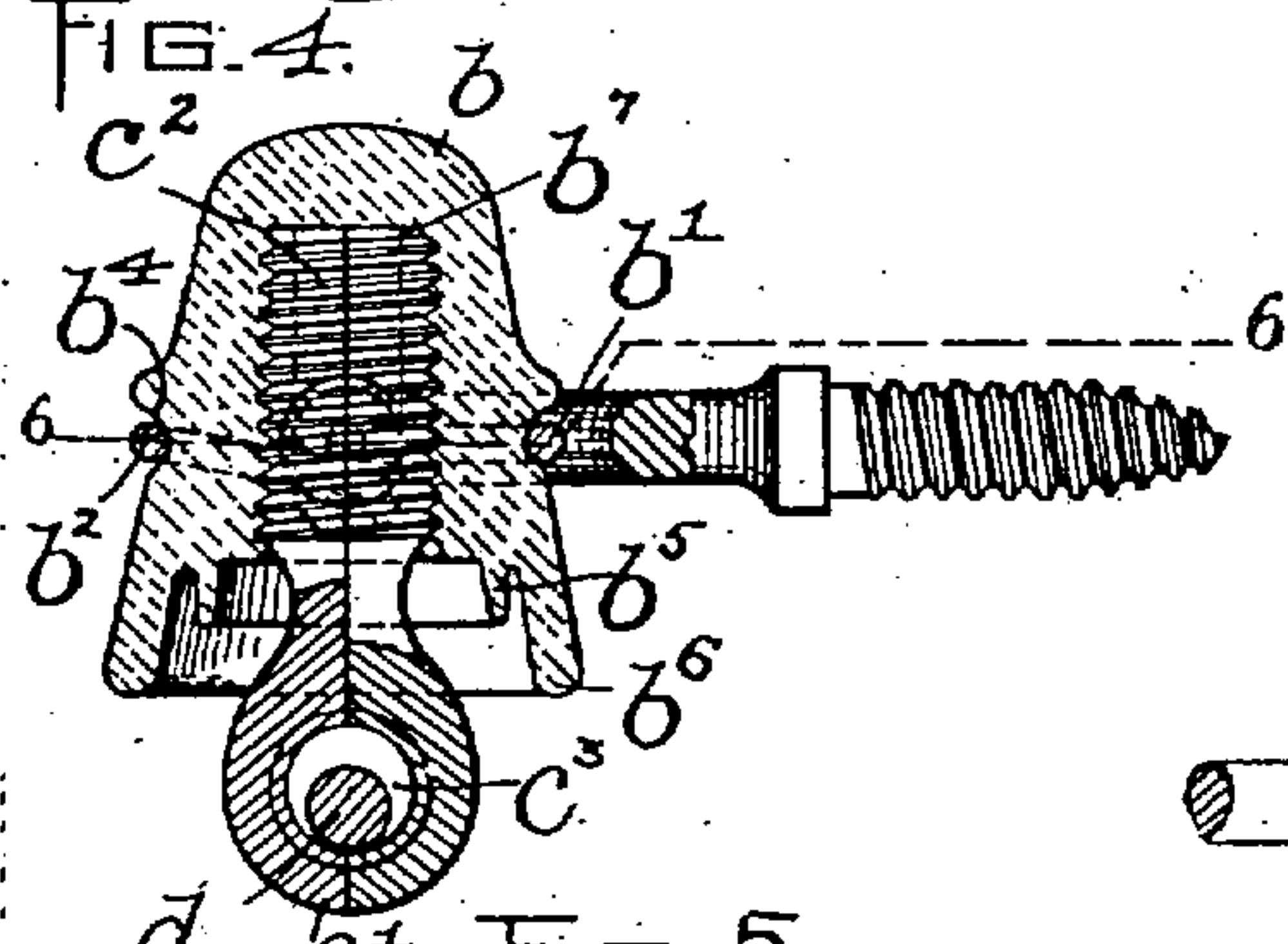


FIG. 3

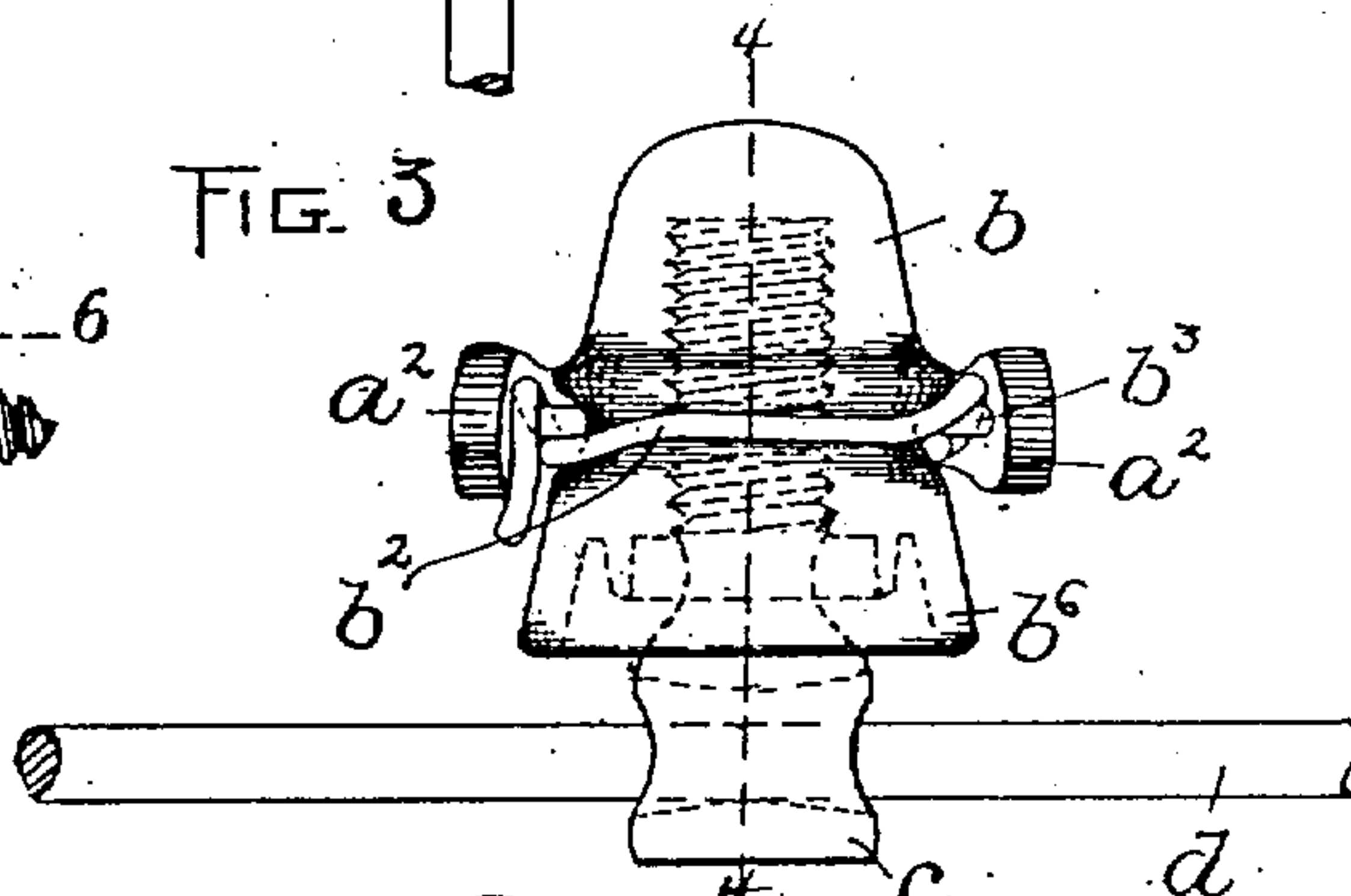


FIG. 5.

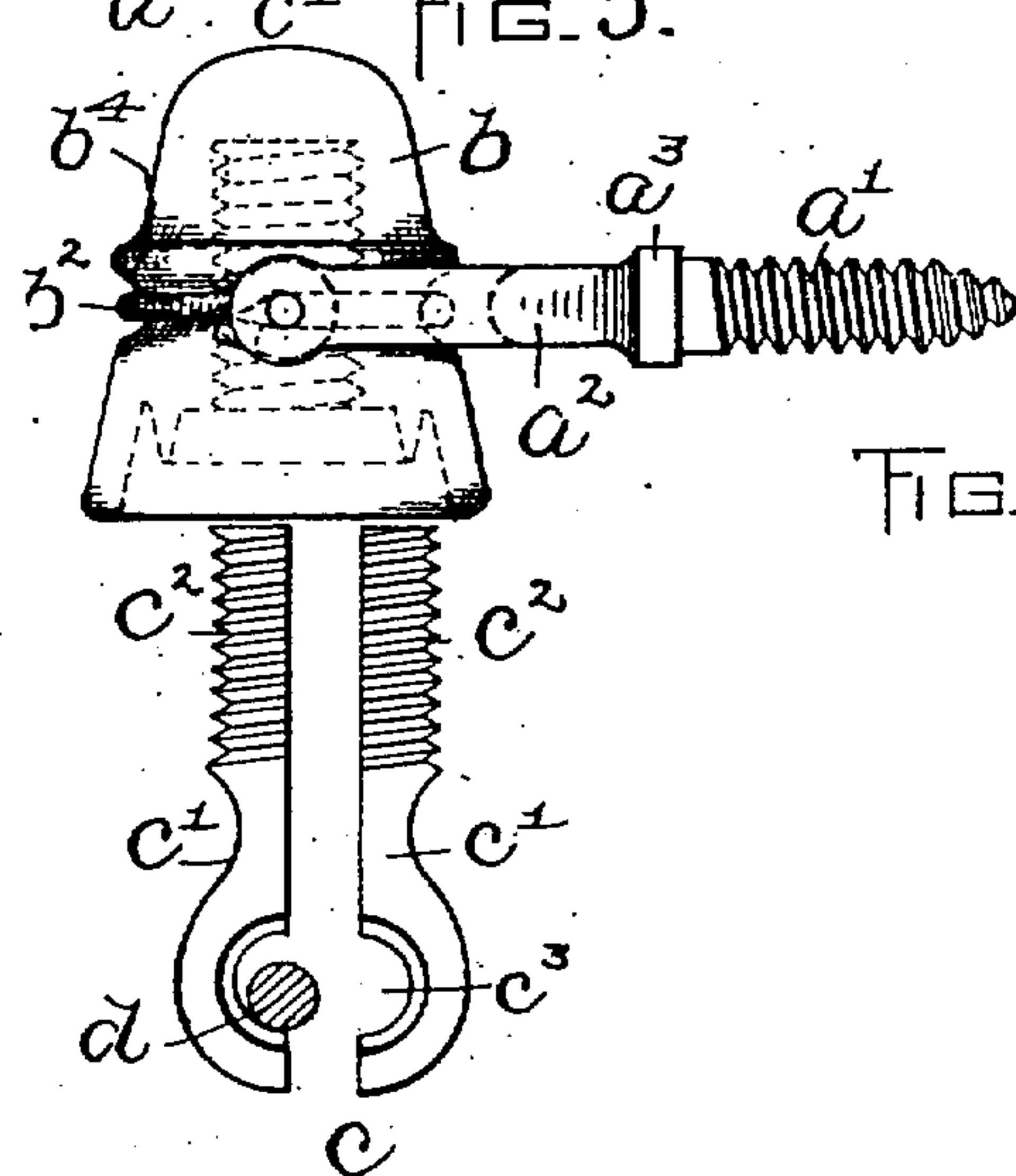
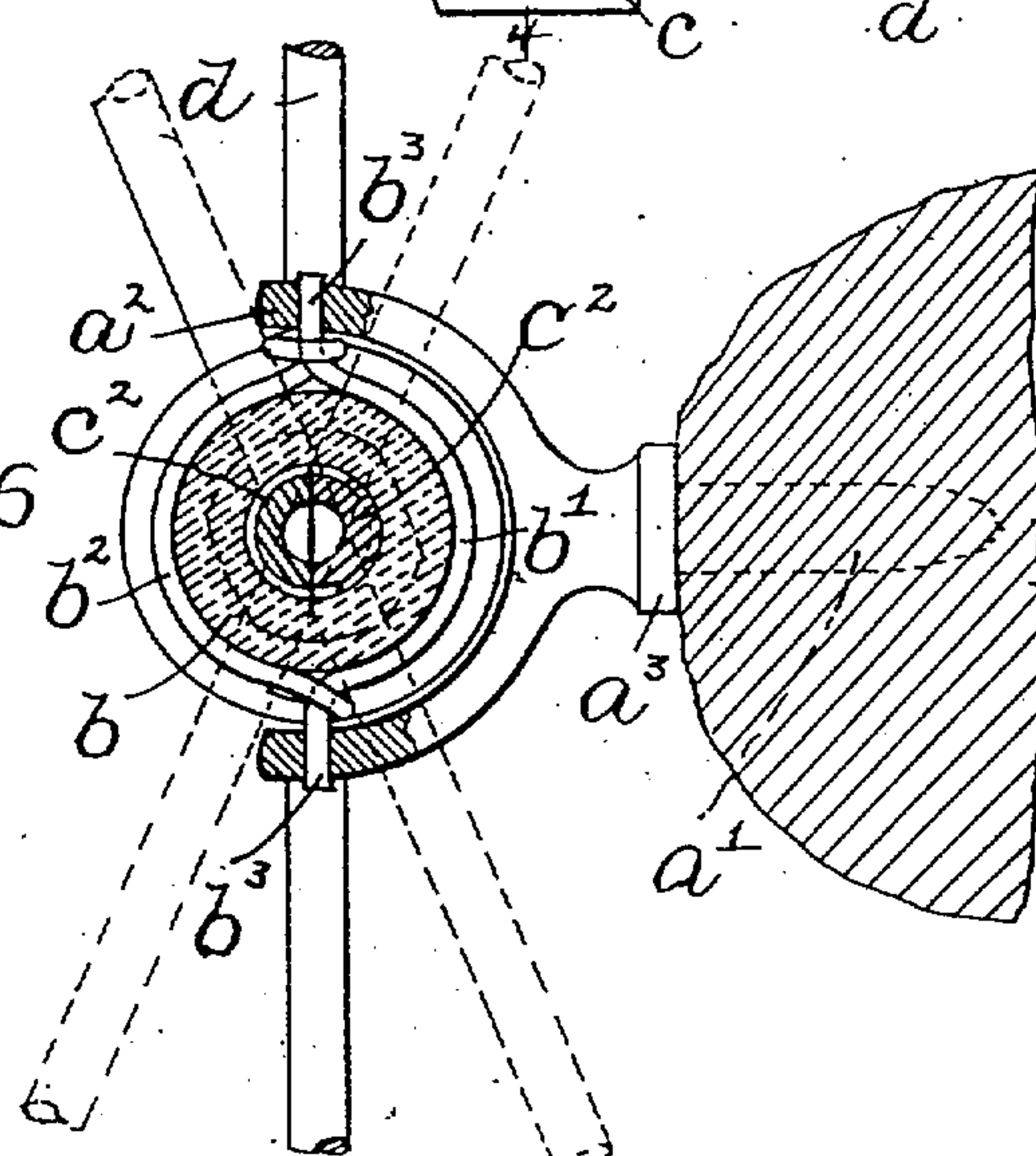


FIG. 6



WITNESSES:

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UNITED STATES PATENT OFFICE.

WELLES E. HOLMES, OF NEWTON, MASSACHUSETTS.

INSULATOR.

SPECIFICATION forming part of Letters Patent No. 626,065, dated May 30, 1899.

Application filed February 16, 1899. Serial No. 705,637. (No model.)

To all whom it may concern:

Be it known that I, WELLES E. HOLMES, of Newton, in the county of Middlesex and State of Massachusetts, have invented certain new and useful Improvements in Insulators, of which the following is a specification.

This invention has relation to insulators for conductors, such as electric-light, telephone, or telegraph wires; and it has for its object to provide a device of the character mentioned particularly applicable for suspending or supporting the conductors from trees or other objects that are liable to move or sway. When the wires are strung near the branches of trees, the swinging of the latter frequently causes them to rub against the wires and abrade the insulating material thereon. This may be prevented in a certain degree by mechanically connecting the wires to the limbs by insulators; but heretofore this has been impracticable, first, by reason of the difficulty of attaching the wires which have been already strung to the insulators, and, second, because the rigid attachment of the wires to the limbs rendered them unsafe and liable to be broken when the trees were swayed about by storms and high winds.

The present invention provides an insulator which may be secured to the limb or branch of a tree to move therewith when tossed or swayed by the wind, which is formed for attachment to a wire already strung and which has provisions for permitting the wire to move relatively thereto without injury to the wire or the insulating material thereon.

The present invention further provides an insulator in which the parts are capable of movement in various directions, all as illustrated upon the drawings and now to be described in detail.

Reference is to be had to the accompanying drawings, and to the letters marked thereon, forming a part of this specification, the same letters designating the same parts or features, as the case may be, wherever they occur.

Of the drawings, Figure 1 represents in side elevation an insulator embodying my invention. Fig. 2 represents a plan view of the same. Fig. 3 represents a front elevation of the insulator. Fig. 4 represents a vertical section therethrough on the line 4 4 of Fig. 3. Fig. 5 represents the clamping members de-

tached from the insulating-spool for the purpose of clamping the wire therein. Fig. 6 represents a horizontal section on the line 6 6 of Fig. 4.

Referring to the drawings, it will be seen that the insulator consists, mainly, of three parts, the metallic support *a*, the insulating-spool *b*, and the clamp *c*. The support is provided with a screw *a'*, which may be driven into the limb of a tree or into a pole. The other end of the support is bifurcated to provide two arms *a*², which form a semicircle, as shown in Fig. 2, and between the arms *a*² and the screw is a shoulder *a*³, which forms a head for the latter. Trunnioned in apertures in the ends of the arms *a*² is a ring formed in two parts *b'* *b*², of which the part *b'* is in the form of a semicircle and has its ends *b*³ projected radially to form the trunnions. The other half *b*² of the ring is secured in place by bending its ends around trunnions, so as to loosely clasp the spool between it and the portion *b'* of the ring. The part *b'* of the ring is secured in the support when the insulator is ready for use, and after the support has been driven into place by the lineman the spool is clamped to the part *b'* by the other half *b*², which, as will be seen from the drawings, may be a strip of wire.

The spool *b*, which is constructed of any suitable insulating material, such as porcelain or glass, is provided with a groove *b*⁴ to receive the ring, and it is substantially frustoconical, with the top rounded. Its lower portion is formed with the usual skirts *b*⁵ *b*⁶, and it is provided with a threaded socket *b*⁷ for the clamp.

The metallic clamp *c* is formed in two portions *c'* *c'*, which are separable on longitudinal lines, as shown in Fig. 5. At one end the clamp is threaded, as at *c*², to be screwed into the socket *b*⁷ of the spool, and at its other end it is formed with an aperture *c*³ greater in diameter than the conductor *d* to permit the latter to play therein.

Inasmuch as the insulator, as previously stated, is to be used for wires or conductors that have been already strung, it is evident that the parts must be so related that the clamps can be attached to the conductor and then inserted in the spool. This is accomplished by forming the clamp in two separate

portions and mounting the spool rotatably in the support, for it is obvious that the clamp cannot be rotated after it has been engaged with the wire.

5 To secure the parts together, the support is first screwed or driven into place, and the spool is attached thereto by winding the ends of the wire b^2 around the trunnions b^3 . Then the two members of the clamp are clasped about the conductor, as shown in Fig. 4, and
10 their ends are inserted in the socket b^7 , after which the clamp is held stationary and the spool is rotated, so as to draw the threaded portion of the clamp into the socket b^7 .

15 By reason of the large diameter of the aperture c^3 , formed in the lower end of the clamp, the conductor is free to move longitudinally therethrough, or the insulator may be moved relatively to the wire without much
20 danger of abrading the insulation therein. Even should the insulation be stripped from the conductor there is no danger of the current being short-circuited, since the clamp is thoroughly insulated by the spool b from the
25 support a .

The support may be set at practically any angle to the longitudinal axis of the spool, as shown in dotted lines in Fig. 1, whereby it
30 may be driven into any accessible place in the limb of a tree or elsewhere.

The trunnions permit the spool to rock about an axis at an angle to its longitudinal axis of rotation when the limbs of the trees are swayed by the wind, and by mounting the
35 spool so as to turn in the trunnioning-ring it may be swung, as shown in dotted lines in Fig. 6, to accommodate a wire running in any direction relatively to the axis of the trunnions.

40 I do not wish to be understood as limiting myself to any of the details of construction of the parts above described, since it is evident to those skilled in the art to which this invention relates that the spool and the sup-
45 port may be varied in shape to suit any particular requirements and that the clamp may be attached to the spool by means other than the threaded connection.

Having thus explained the nature of the invention and described a way of construct-
50 ing and using the same, although without attempting to set forth all of the forms in which it may be made or all of the modes of its use, I declare that what I claim is--

55 1. An insulator comprising a clamp adapted to loosely engage a conductor, a spool of insulating material having a socket to detachably receive said clamp, and a support for said spool.

60 2. An insulator comprising a support, an insulating-spool, connections between said support and said spool whereby the latter is rotatable about two intersecting axes, and a

clamp for the conductor, said spool being ro-
tatable relatively to said conductor. 65

3. An insulator comprising an insulating-spool, a support for said spool having a forked end, and a ring trunnioned in said forked end, said spool being rotatable in said ring.

4. An insulator comprising an insulating-
70 spool adapted to support a conductor, a support for said spool, and a ring trunnioned in said support, and in which said spool is rotatable; said ring being formed in two separable parts connected together. 75

5. An insulator comprising an insulating-spool, a support, and trunnions for pivotally connecting said spool to said support, said
80 spool being rotatable about an axis intersecting the axis of the trunnions. 80

6. An insulator comprising a support, an insulating-spool carried by said support, and a clamp consisting of non-rotary clamping-
85 jaws mounted in the spool to engage the conductor, said parts being connected whereby said clamp is rotatable about either of two intersecting axes. 85

7. An insulator comprising a bifurcated support, a ring having trunnions journaled in the bifurcated end of said support, an in-
90 sulating-spool rotatably mounted in said ring, and a conductor-clamp having a threaded connection with said spool. 90

8. An insulator comprising a support, an insulating-spool rotatably mounted in said
95 support and having a threaded socket, and a threaded conductor-clamp detachably secured in said socket. 95

9. An insulator comprising a support, an insulating-spool rotatably mounted in said
100 support and having a threaded socket, and a threaded conductor-clamp detachably secured in said socket, said clamp being formed in two separable portions. 100

10. An insulator comprising a support hav-
105 ing an attaching member on one end and forked arms on the other, a spool rotatably secured in said arms, and having a threaded socket located concentrically with its axis of rotation, and a threaded clamp detachably
110 inserted in said socket. 110

11. An insulator comprising a support hav-
ing an attaching member on one end and forked arms on the other, a ring having trun-
115 nions journaled in said arms, an insulating-spool mounted to rotate in said ring, and having a threaded socket, and a threaded conductor-clamp formed of two members separable on longitudinal lines, and detachably
120 inserted in said socket. 120

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

WELLES E. HOLMES.

Witnesses:

A. D. HARRISON,
M. B. MAY.