

No. 682,710.

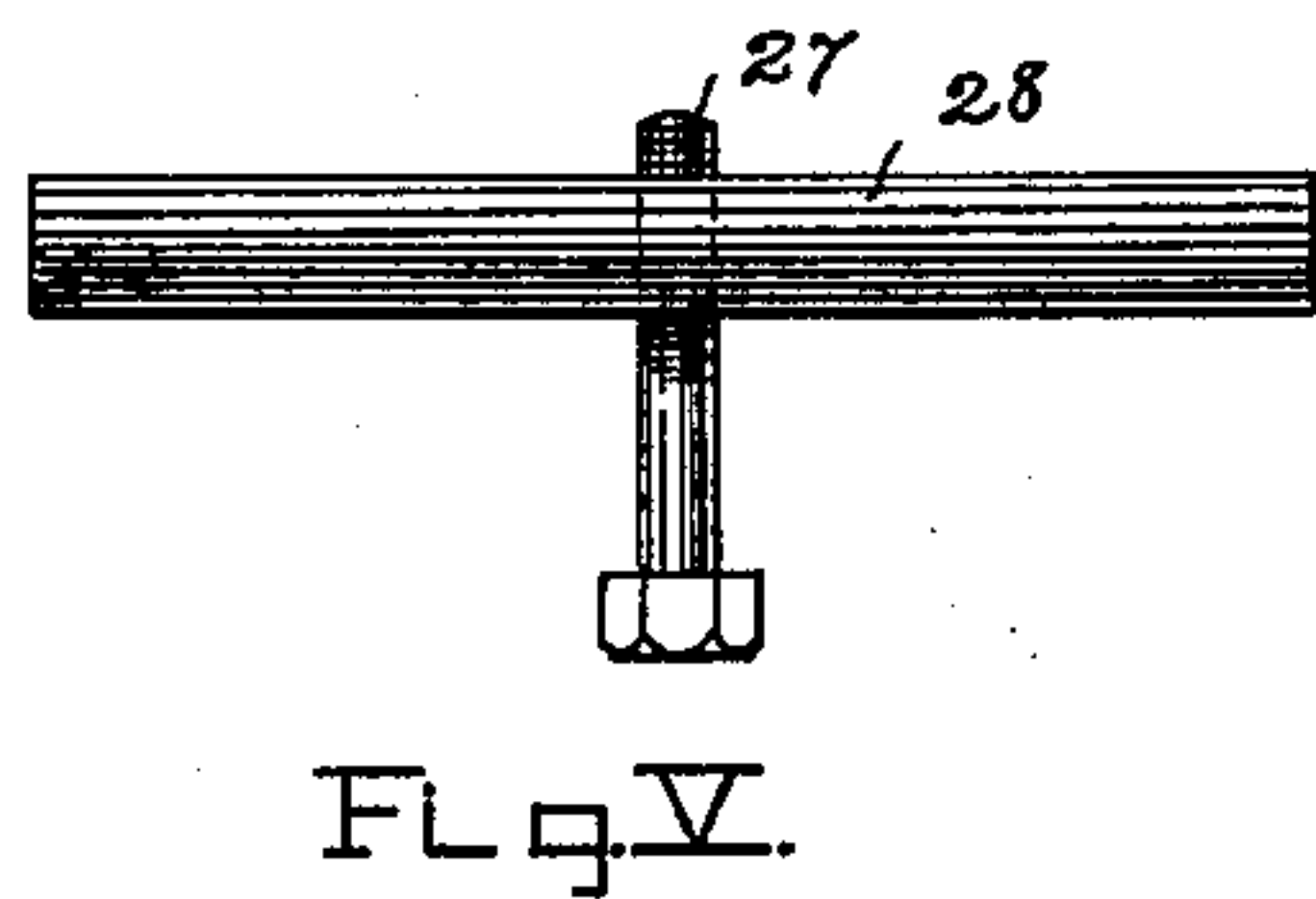
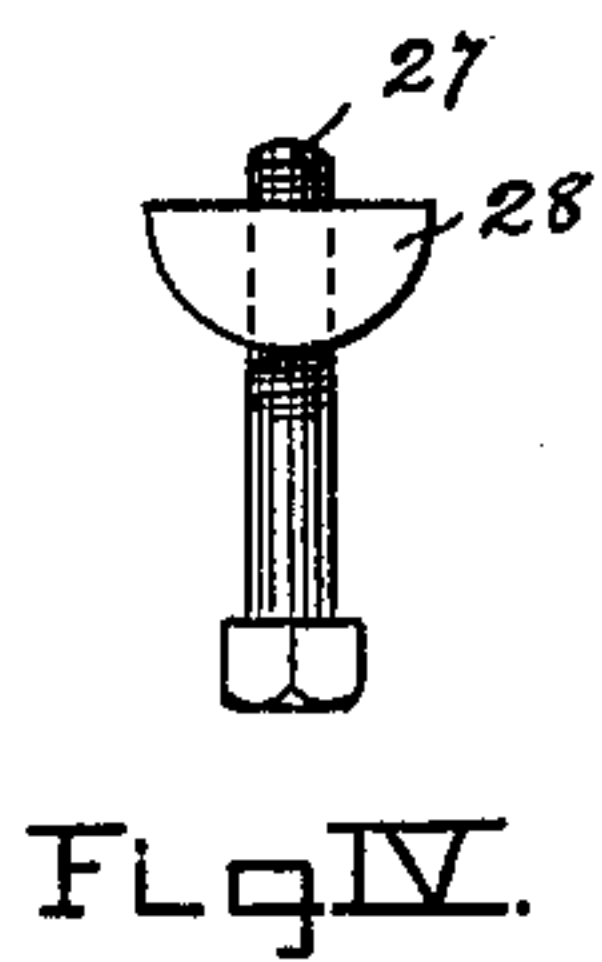
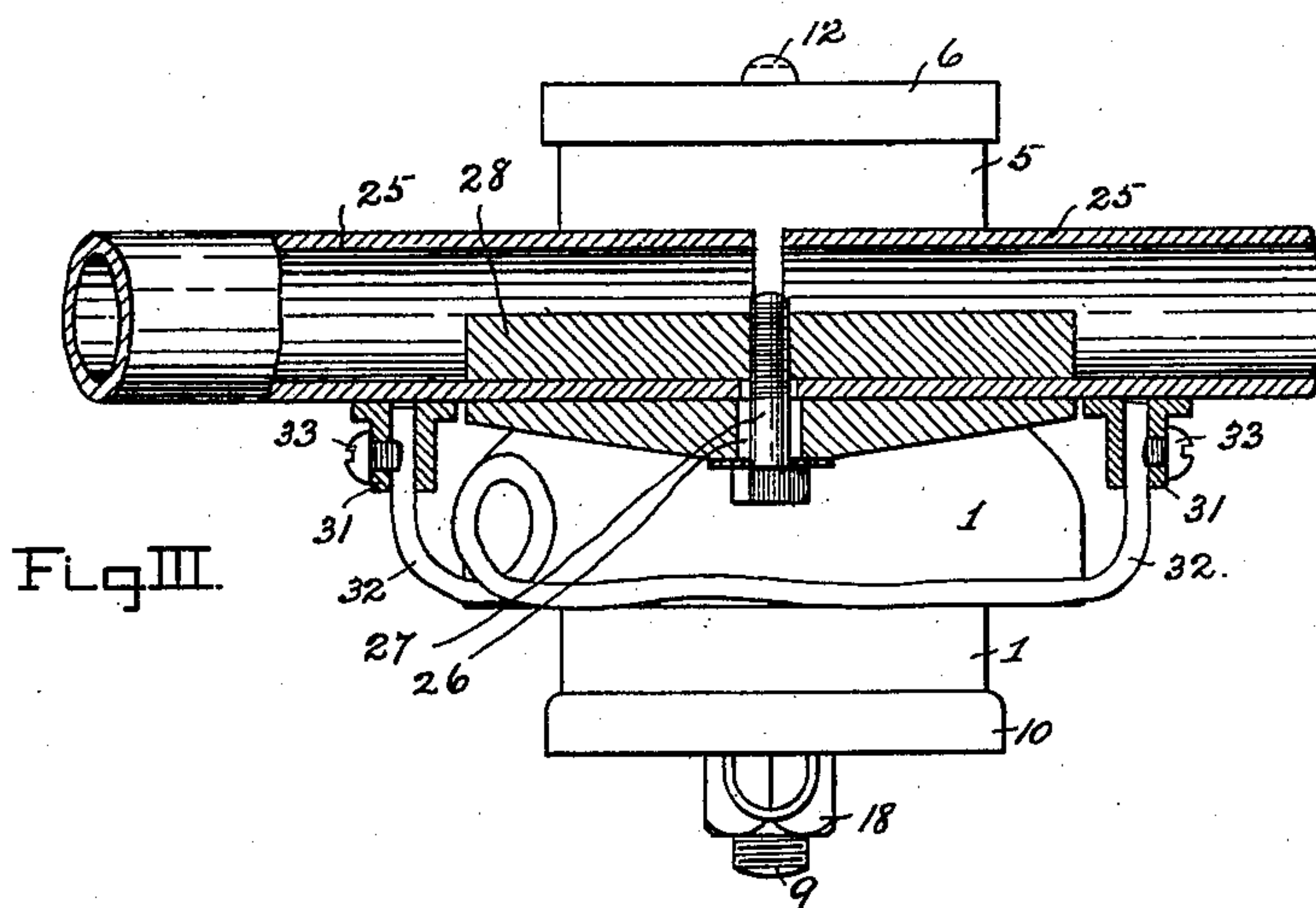
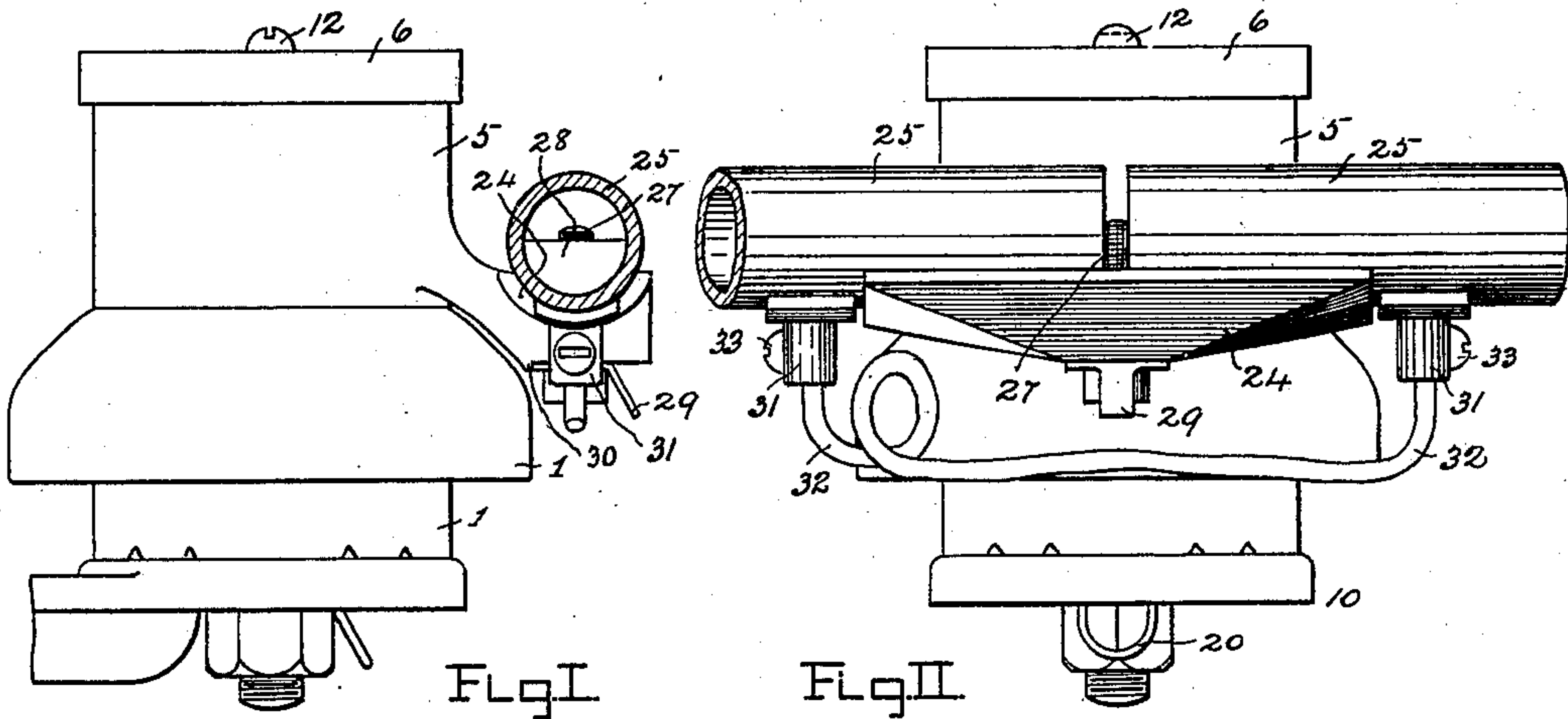
Patented Sept. 17, 1901.

W. F. JENKINS.

BOND FOR ELECTRIC RAILWAY CONDUCTORS.

(Application filed Feb. 7, 1901.)

(No Model.)



WITNESSES:  
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# UNITED STATES PATENT OFFICE.

WILTON F. JENKINS, OF RICHMOND, VIRGINIA.

## BOND FOR ELECTRIC-RAILWAY CONDUCTORS.

SPECIFICATION forming part of Letters Patent No. 682,710, dated September 17, 1901.

Application filed February 7, 1901. Serial No. 46,406. (No model.)

*To all whom it may concern:*

Be it known that I, WILTON F. JENKINS, a citizen of the United States, and a resident of Richmond city, State of Virginia, have invented certain new and useful Improvements in Bonds for Electric-Railway Conductors, of which the following is a specification.

My invention relates to underground-conduit electric railways; and it consists of novel means for bonding the conductors, and particularly those conductors which are tubular in form.

In bonding as usually carried out difficulty is found in keeping the electrical connection between the lengths of the conductor perfect, and perfect connection is necessary to prevent loss from leakage and damage to property resulting from electrolysis. To obtain perfect connection between the lengths of the conductors by providing in addition to the usual wire bond other bonds of different form, and which should the wire bond fail would be sufficient to preserve the connection between the conductors. The bonds are also so arranged that should a conductor length need replacing it can be readily disconnected and another one substituted for it.

In the drawings which accompany and form a part of this specification, and in which like numerals refer to like parts in the different views, Figures I, II, and III, which are respectively a side elevation, a front elevation, and a vertical section, show the manner in which the lengths of the conductor are supported and bonded. Figs. IV and V show in end elevation and side elevation, respectively, the means by which the internal bond is made.

In Figs. I, II, and III, 1 and 5 are respectively the petticoat and head of the insulator, which insulator is fully described, illustrated, and claimed in an application bearing the Serial No. 46,405 and filed on the same day with this application. Attached to or cast in one with the insulator-casing 5 is a metallic support 24, the upper surface of which is grooved or hollowed out to form a seat for the ends of the conductor lengths, which are indicated in the drawings at 25 25. Through the center of the support 24 there is cut a hole 26. (See Fig. III.) The ends of the conductors 25 25 are clamped to the support 24 by means of the

bolt 27 and the bar 28, the latter being located and being shaped to fit neatly within the ends of the conductor lengths. (See Figs. III, IV, and V.) The shank of the bolt 27 is passed upward through the hole 26 in the support 24 and engages in a threaded hole in the bar 28. Upon the bolt 27 being tightened up the conductor ends are clamped between the bar 28 and the support 24. The hole 26 in the support 24 is slightly elongated to allow for the expansion and contraction of the conductors, and for the same reason the conductor ends are separated, as shown in Figs. II and III. After being tightened up the bolt 27 may be locked by turning down against its head the locking-plate 29, through which plate the bolt 27 passes and one end of which abuts against a shoulder 30 on the lower face of the support 24. It will now be seen that we have two bonds of considerable extent, the support 24 forming an external bond and the bar 28 an internal bond.

31 31 are sockets, preferably brazed to the conductors, and in which the ends of a connecting-wire 32 are secured by means of binding-screws 33. The wire 32, more than one of which can be used, if desired, forms an additional bond between the conductors.

Some of the advantages which the above-described bonding has are as follows: The large area of connection between the conductors and the support 24 and also between the conductors and the bar 28; also, in case a conductor needs renewal the ease with which the bond can be broken, a conductor removed, a new one substituted for it, and the bond reestablished, for to remove a conductor it is only necessary to release that end of the wire 32 which is secured to the conductor which is to be removed and to slacken the bolt 27 until the bar is free. This being done at both ends of a conductor it can be lifted out of its place and a new one readily substituted for it. It should of course be remembered that the support 24, to which the conductors are secured, is insulated, since it forms a part of or is attached to the insulated head of the insulator.

Having now described my invention, what I claim, and desire to protect by Letters Patent of the United States, is—

1. A detachable bond for tubular conduc-



tors, consisting of a support adapted to receive and support the adjacent ends of two conductor lengths and perforated to admit the passage of a bolt, and a nut or clamping-  
5 bar located inside of the tubular conductors and into which the bolt is threaded and screwed, substantially as described.

2. A detachable bond for tubular conductors, consisting of an insulated support adapted to receive and support the adjacent ends  
10 of two conductor lengths and perforated to admit the passage of a bolt, and a nut or clamping-bar removably fitted inside of the tubular conductor ends and into which nut  
15 the bolt is threaded and screwed, substantially as described.

3. A detachable bond for tubular conductors, consisting of an insulated metallic sup-

port adapted to receive and support and establish an electrical connection between the 20 adjacent ends of the two conductor lengths and perforated to admit the passage of a bolt, and a metallic nut or clamping-bar removably fitted inside of and establishing an electrical connection between the adjacent ends 25 of the tubular conductors, and into which nut the threaded part of the bolt is screwed to secure the conductor ends and perfect the bond.

Signed at Richmond, in the county of Henrico and State of Virginia, this 24th day of 30 January, A. D. 1901.

W. F. JENKINS.

Witnesses:

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ARTHUR SCRIVENOR.