

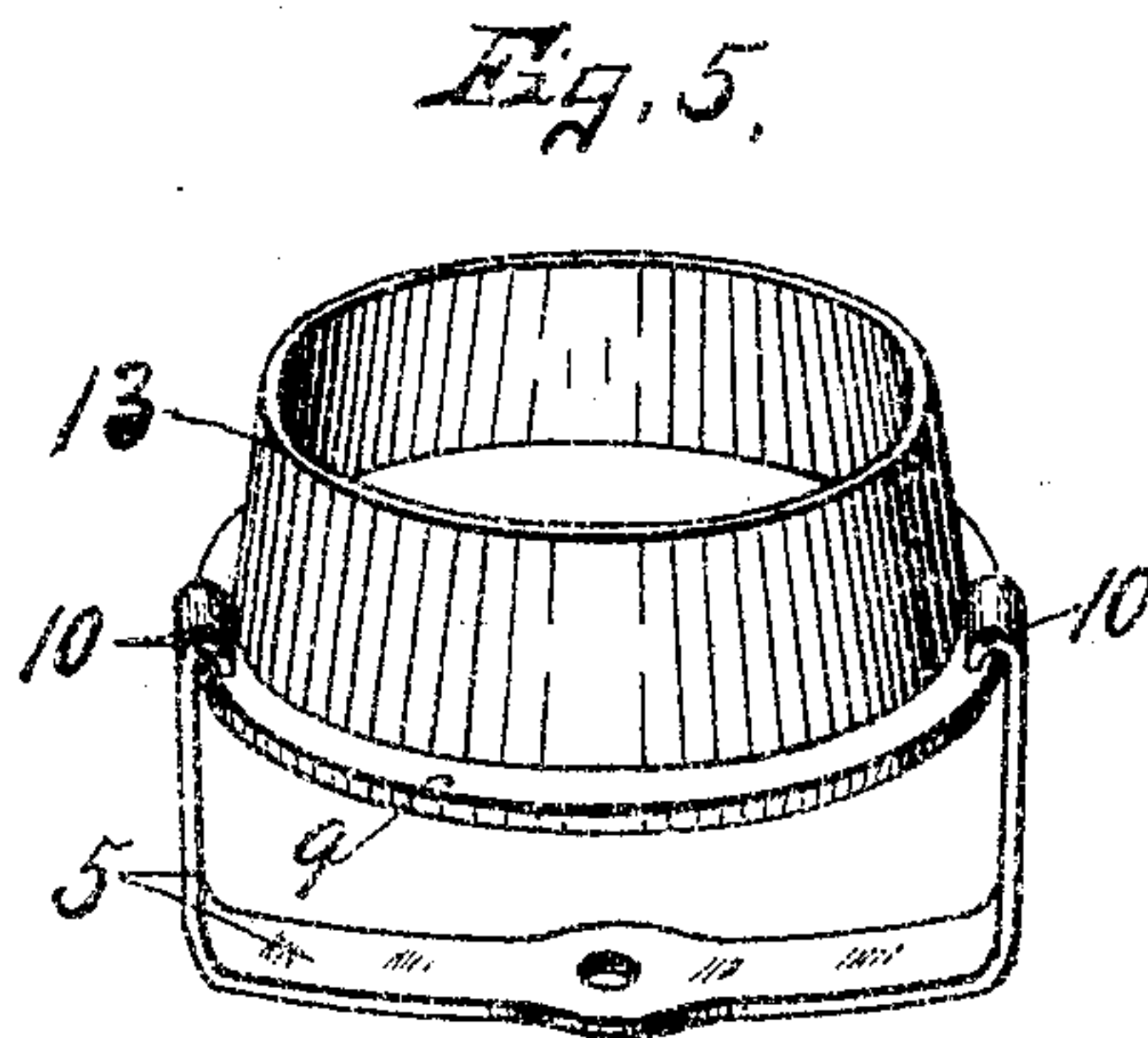
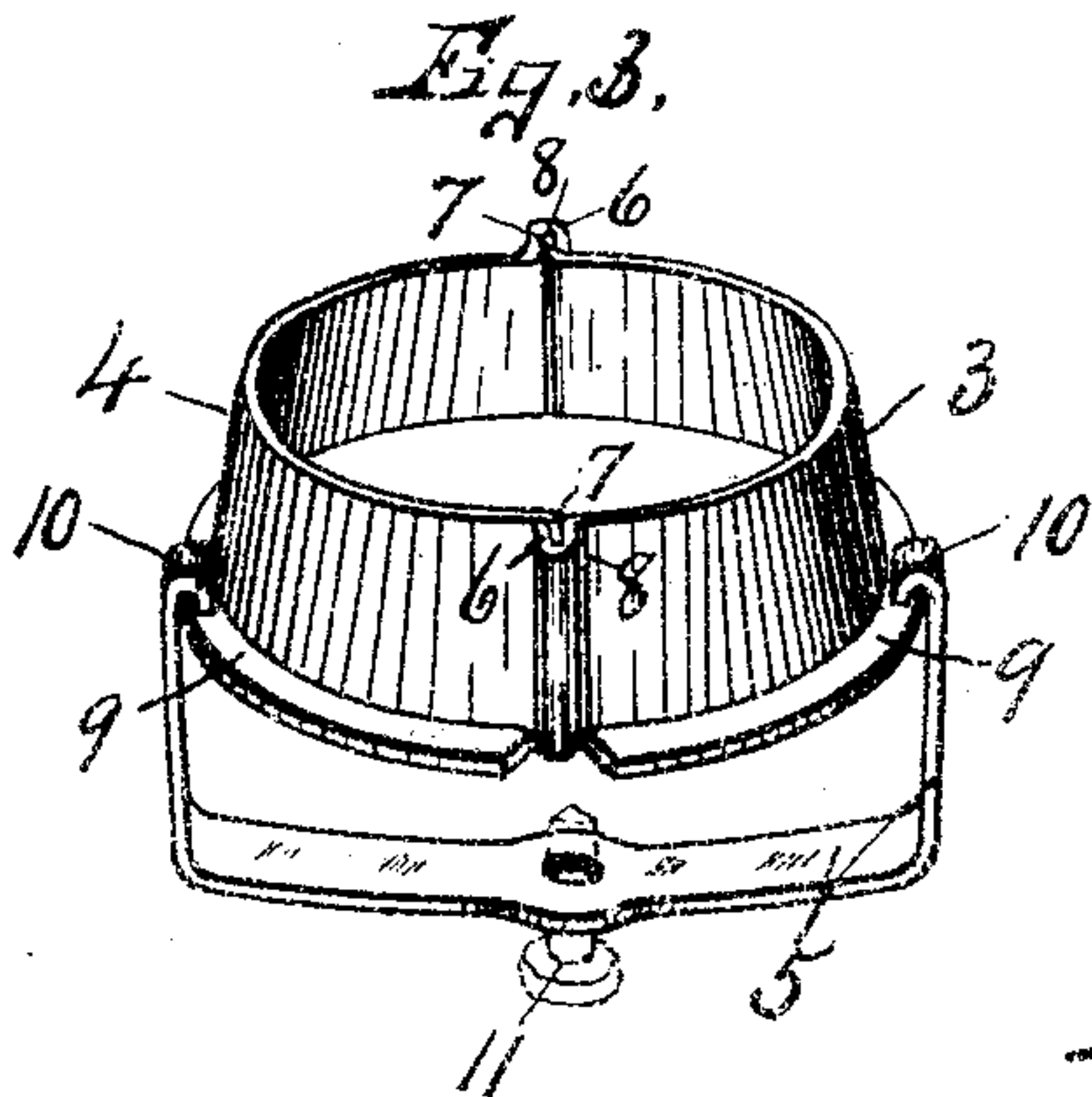
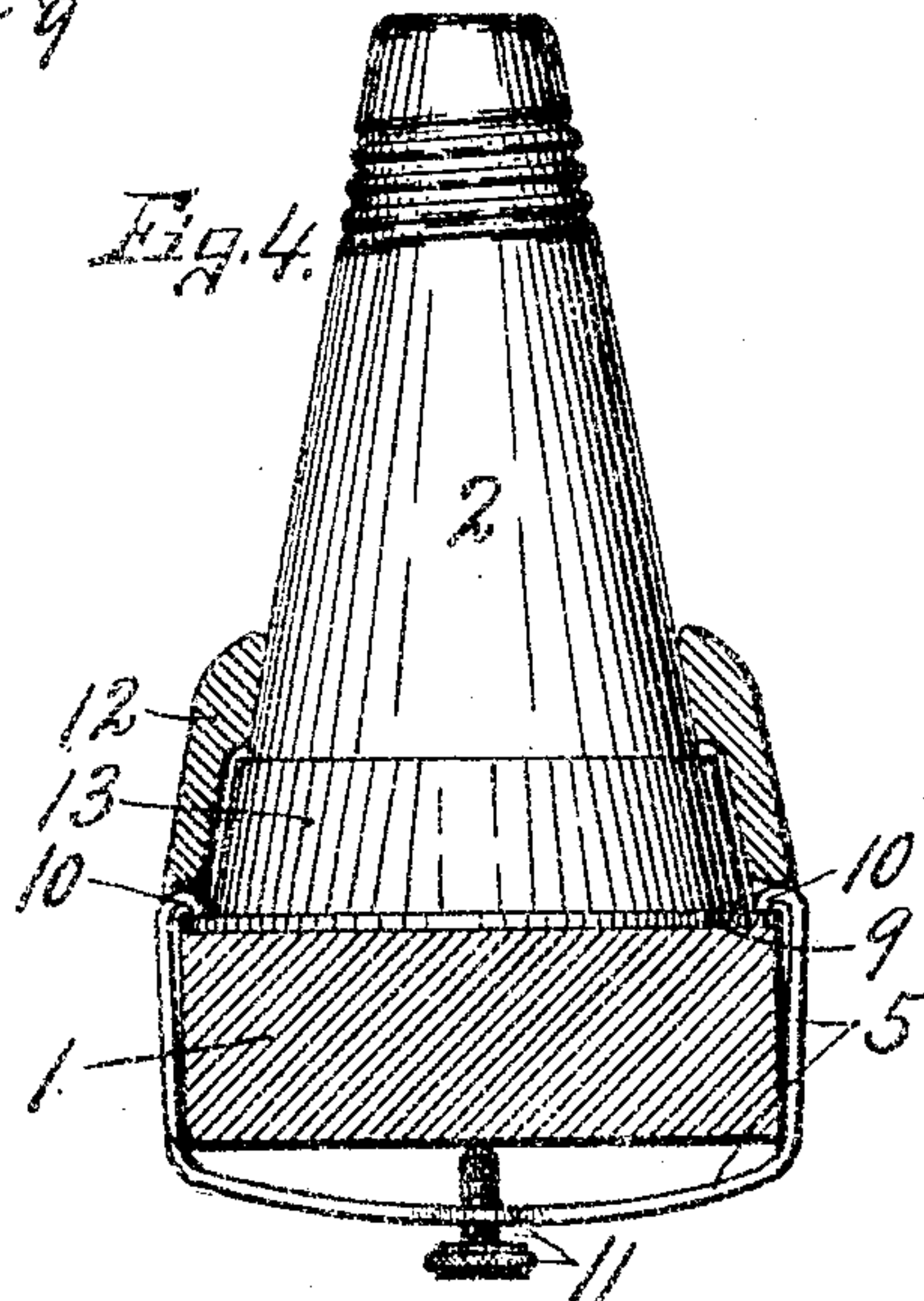
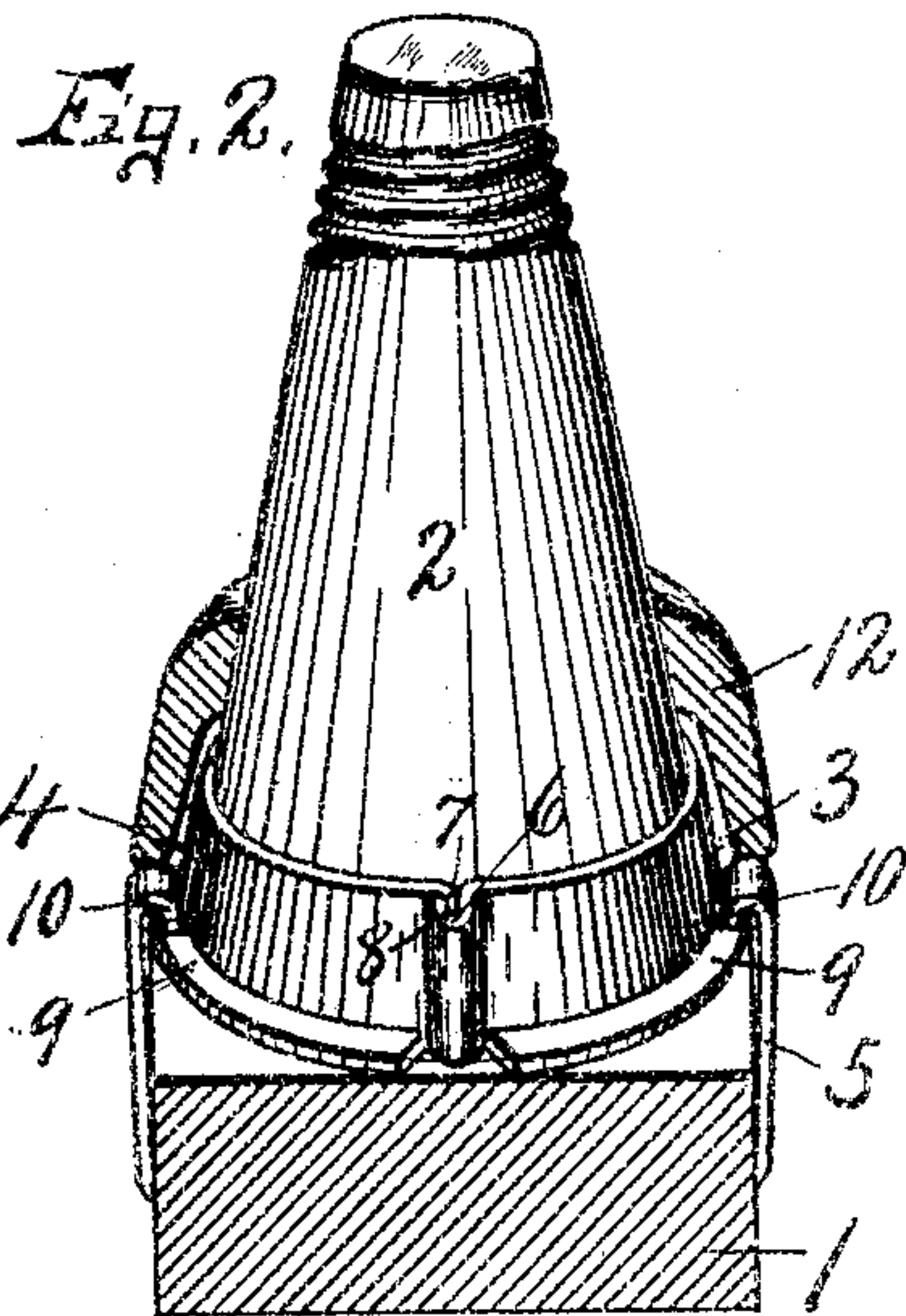
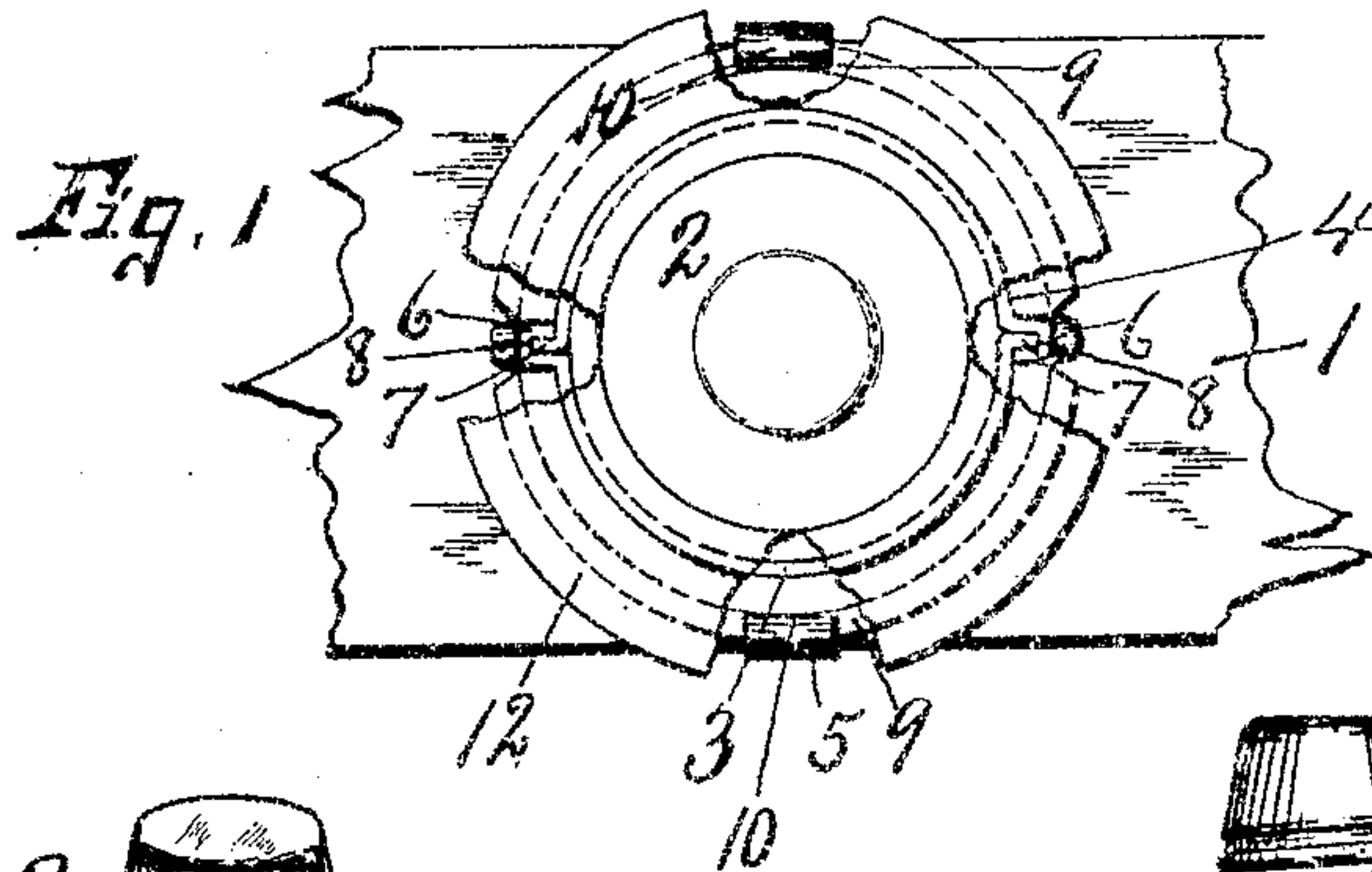
No. 778,420.

PATENTED DEC. 27, 1904.

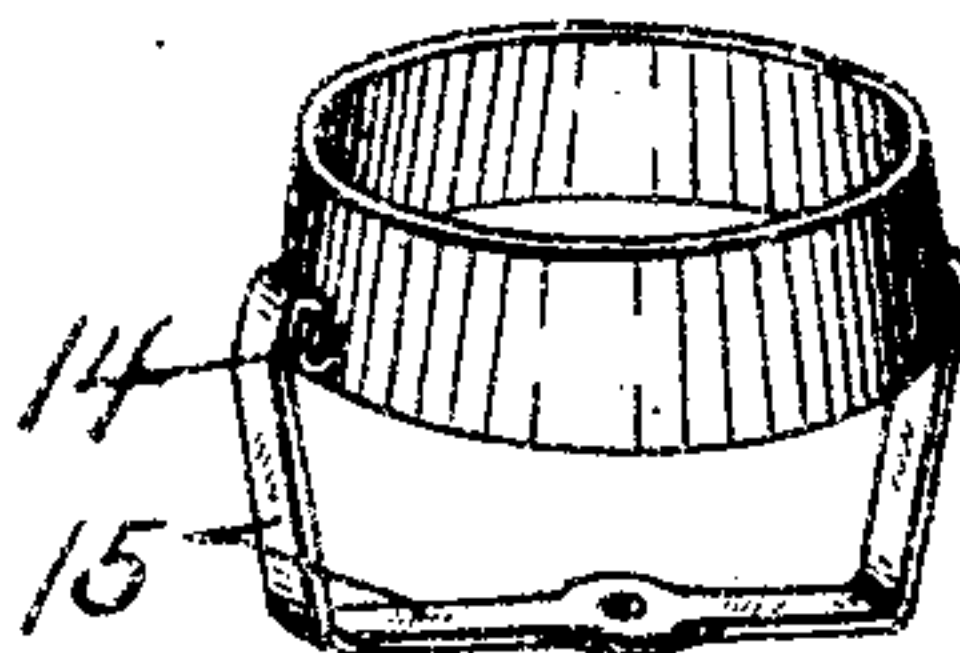
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DEVICE FOR ATTACHING INSULATORS TO CROSS ARMS.

APPLICATION FILED APR. 29, 1903.



*Fig. 6.*



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# UNITED STATES PATENT OFFICE.

FRED M. LOCKE, OF VICTOR, NEW YORK.

## DEVICE FOR ATTACHING INSULATORS TO CROSS-ARMS.

SPECIFICATION forming part of Letters Patent No. 778,420, dated December 27, 1904.

Application filed April 29, 1903. Serial No. 154,793.

*To all whom it may concern:*

Be it known that I, FRED M. LOCKE, of Victor, in the county of Ontario, in the State of New York, have invented new and useful Improvements in Devices for Attaching Insulators to Cross-Arms, of which the following, taken in connection with the accompanying drawings, is a full, clear, and exact description.

This invention relates to a device for attaching insulator-pins or insulators to cross-arms and similar supports.

In the manufacture of insulators for high-voltage electric currents it is customary to build up the insulator by assembling a series of insulating-sections one upon the other and mounting the same upon a tapering centering pin or support, which pin is adapted to be secured directly to the cross-arm or other convenient support provided therefor. These pins are generally formed with a flaring base and are usually secured to the cross-arm by a bolt which is passed through an aperture in the arm and clamped thereto by a suitable nut whereby the insulator-pin and insulators mounted thereon are held in a fixed position.

The object of the improvement hereinafter described is to provide a simple device for attaching the insulator-pin or insulator to any part of the cross-arm or other support without necessitating the perforating of the arm or the employment of clamping-bolts passed through the arm.

By the use of my invention I am enabled to permanently assemble the insulating-sections upon the centering-pin before the same is applied to the cross-arm, and the complete insulator and its supporting-pin may be then speedily and economically secured to any part of the cross-arm without previously preparing the centering-pin or cross-arm for the reception of the clamping-bolt which is usually employed to hold the centering-pin in position, the broad object being to provide a tapering collar which is adapted to engage the flaring base of the insulator-pin or insulator and is clamped to the cross-arm or other support by a suitable yoke hereinafter described.

In the drawings, Figure 1 is a top plan of a portion of the cross-arm and insulator-pin, showing my improved device for attaching

the parts to each other, an auxiliary insulating-collar being also shown, but partly broken away for disclosing the underlying parts of the clamping-collar. Fig. 2 is a perspective view of the parts seen in Fig. 1, the auxiliary insulating-collar being shown in section. Fig. 3 is a perspective view of the detached clamping device. Fig. 4 is an elevation of a slightly-modified form of clamping-collar for attaching the insulator-pin to the cross-arm. Fig. 5 is a perspective view of the clamping device seen in Fig. 4. Fig. 6 is a perspective view of a further modified form of clamping device.

Similar reference characters indicate corresponding parts in all the views.

In order to demonstrate the practicability of my invention, I have shown a cross-arm 1 and a tapering insulator-pin 2, which is provided with a flaring base and is adapted to be supported upon or clamped to the cross-arm.

The clamping device for attaching the insulator-pin to the cross-arm, as seen in Figs. 1 to 3, inclusive, preferably consists of a tapering collar composed of semi-annular sections 3 and 4, which are interlocked at their meeting edges and are clamped to the cross-arm by a suitable yoke 5.

As seen in the drawings, the sections 3 and 4, which form the collar, are substantially identical in form and are each provided at their meeting edges with interlocking shoulders 6 and 7, the shoulder 6 being formed by bending one of the meeting edges outwardly and then inwardly for forming a groove 8, while the adjacent meeting edge of the other section is bent outwardly for forming the tongue or shoulder 7, which fits within the groove 8 and serves to lock the two parts of the collar together firmly to prevent lateral displacement or separation of said parts when assembled upon the base of the centering-pin.

The collar-sections just described may both be stamped or pressed in the same form or die and may be assembled or interlocked with each other and slipped over the reduced end of the insulator-pin, or if the insulators are attached to the insulator-pin they may be brought together and interlocked around the base of the pin without removing the insula-



tors from said pin. These sections 3 and 4 are provided with outwardly-projecting base-flanges 9, which are formed by bending portions of the lower edges of the collar-sections outwardly, so as to provide a convenient bearing for the yoke 5. This yoke preferably consists of a U-shaped bar, which is separate from the collar-sections 3 and 4 and is adapted to be slipped over the cross-arm either from the end or from the bottom, the free ends of the arms of the said U-shaped bar being bent inwardly for forming engaging shoulders 10, which bear upon the upper faces of the flanges 9. The lower portion of the bar extends across the lower face of the cross-arm and is usually provided with a threaded aperture for receiving a clamping-screw 11, which engages the lower face of the cross-arm. It is now apparent that by rotating the screw 11 in one direction the shoulders 10 are drawn firmly against the flanges 9 and that the screw thereby draws the clamping-collar into close engagement with the flaring base of the pin, and therefore locks the pin to the cross-arm, while, on the other hand, when it is desired to shift the position of the insulator-pin or to remove the same it is simply necessary to rotate the screw 11 in the opposite direction to release the yoke 5 from engagement with the flanges 9, whereupon the whole device, together with the insulating-pin, may be moved longitudinally of the cross-arm and then reclamped in the desired position; or if desired to remove the insulator the yoke 5 may be moved out of engagement with the collar, which latter may then be moved upwardly and the sections detached from each other, thereby releasing the insulator-pin.

In order to protect the collar from the elements and also to prevent the arcing leaking of the current from the wire to the pin or cross-arm, I provide a second collar 12, of insulating material, which fits over the insulator-pin and around the collar-sections 3 and 4, so as to substantially inclose the greater portion of the latter collar, as seen in Figs. 1 and 2, the collar of insulating material fitting closely upon the insulating-pin above the sections 3 and 4, so that the skirts of the insulating-collar hang over and around said sections.

Although I have described the clamping-collar as consisting of sections 3 and 4 interlocked at their meeting edges, it is evident that this collar may be formed of a single piece, as 13, (seen in Figs. 4, 5, and 6,) which is also provided with a base-flange and attached to the cross-arm by a yoke 5 of substantially the same construction as that seen in Figs. 1, 2, and 3; but instead of providing the collar with an annular flange I may prefer to stamp out a portion of the collar for forming hook-shaped shoulders 14, as seen in Fig. 6, which are adapted to be interlocked with similar shoulders formed upon a yoke 15.

In the use of the clamping device which

forms the subject-matter of my invention I am enabled to construct the insulating-pin solid without the usual socket or center opening, thereby affording greater resistance to the leakage or shunting of a current from the wire to the pin or cross-arm. At the same time this device affords a more expeditious and economical means of attaching the insulators to any part of the cross-arm or other support and also permits said insulator to be more readily removed when desired.

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

1. The combination, with a cross-arm and a tapering insulator-pin of a tapering collar composed of sections inclosing and fitting upon the pin, and means clamped around the cross-arm and engaged with the collar to hold the collar and insulator-pin in place.

2. A cross-arm and an insulator-pin having a flaring base, in combination with a sectional collar having a tapering opening receiving and fitting said base, and a clamping device engaged with the collar-sections and movable on the cross-arm for clamping the collar and insulator-pin in place.

3. The combination with a cross-arm and an insulator-pin having a flaring base, of a metal collar surrounding and fitting upon the base and secured to the cross-arm, and an insulating-collar fitted upon the pin above the metal collar and having a skirt surrounding the upper portion of the metal collar.

4. The combination with an insulator-pin and a support therefor, of a collar fitted upon the base of the pin and clamped to the support, said collar being of less height than the pin, and a collar of insulating material surrounding the first-named collar and engaging the pin above said first-named collar.

5. The combination with a tapering insulator-pin and a support therefor, of a tapering metal collar fitting upon the base of the pin and provided with laterally-projecting shoulders, a yoke clamped around the support and engaged with said shoulders, and a collar of insulating material engaging the pin above the metal collar and having a skirt surrounding the upper end of said metal collar.

6. An insulator-pin having a flaring base and a support therefor, in combination with a tapering collar encircling the base of the pin, means for clamping the collar to the support and a second tapering collar of insulating material encircling the former collar and engaged with the pin above said former collar.

7. A tapering insulating-pin and support therefor, a tapering collar surrounding and fitting upon the base of the pin and provided with laterally-projecting shoulders, a yoke engaged with said shoulders and clamped around the support and means for holding the yoke in operative position.

8. An insulator-pin and support therefor in



combination with a collar composed of sections surrounding and fitting upon the base of the pin and interlocked with each other and means for clamping said collar to the support.

5 9. An insulator-pin and support therefor, in combination with a collar composed of sections surrounding and fitting upon the base of the pin and interlocked with each other, means clamping said collar to the support, and  
10 a second collar of insulating material surrounding the sectional collar.

15 10. In combination with a cross-arm and an insulator-pin mounted upon its upper face and provided with a flaring base, a clamping device having portions thereof tapering and fitting upon the flaring base and other portions extending across the under side of the cross-

arm, a clamping-screw engaged with the lower portion of the clamping device and with the lower face of the cross-arm in substantial 20 alinement with the axis of the insulator-pin, whereby said insulator-pin may be drawn toward the cross-arm, and a collar of insulating material surrounding the portion of the clamping device which encircles the base of the in- 25 sulator and engaged with the pin above the clamping device.

In witness whereof I have hereunto set my hand this 25th day of April, 1903.

FRED M. LOCKE.

Witnesses:

GEORGE A. GILLETTE,  
MERCIE LOCKE.