

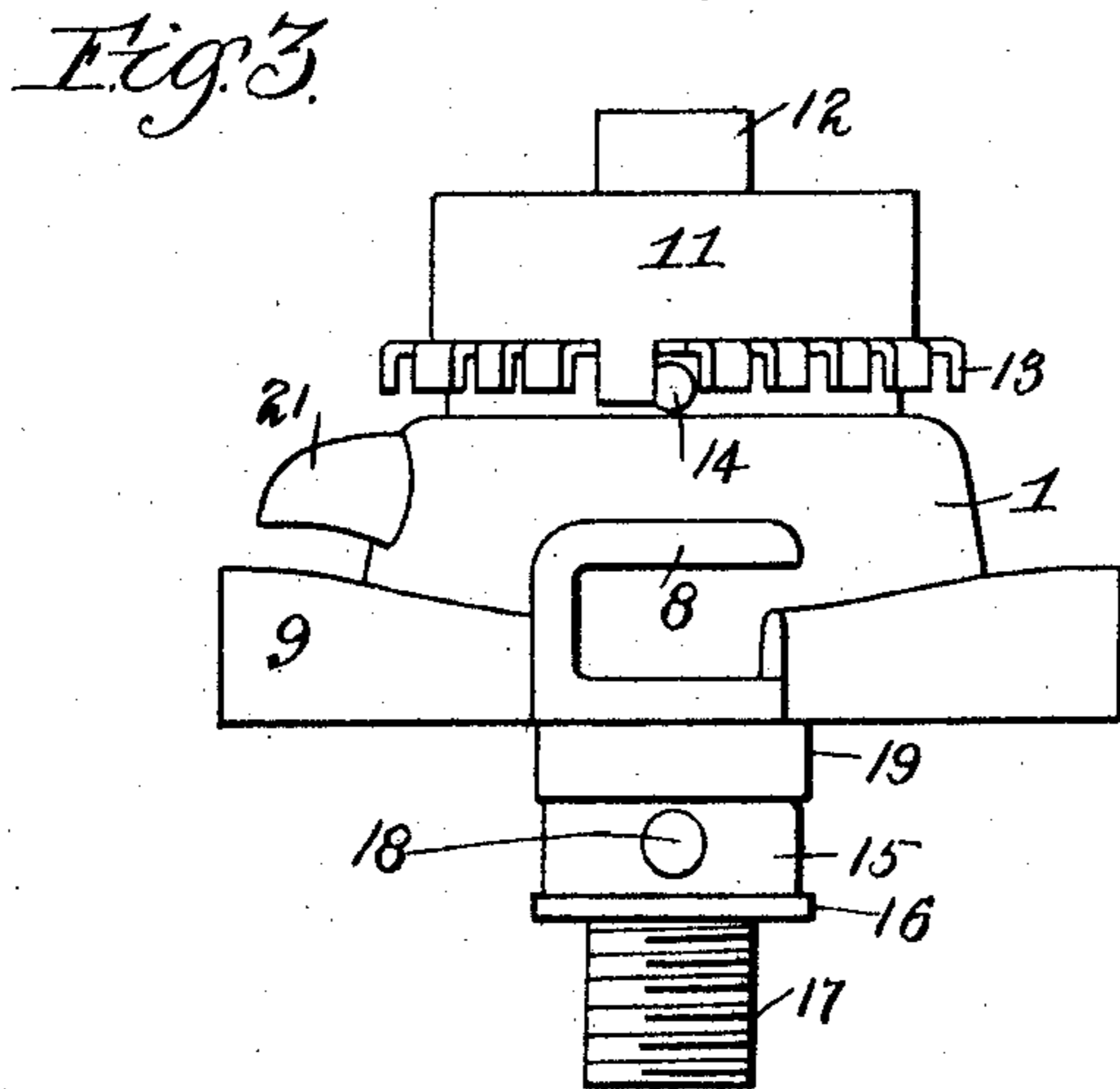
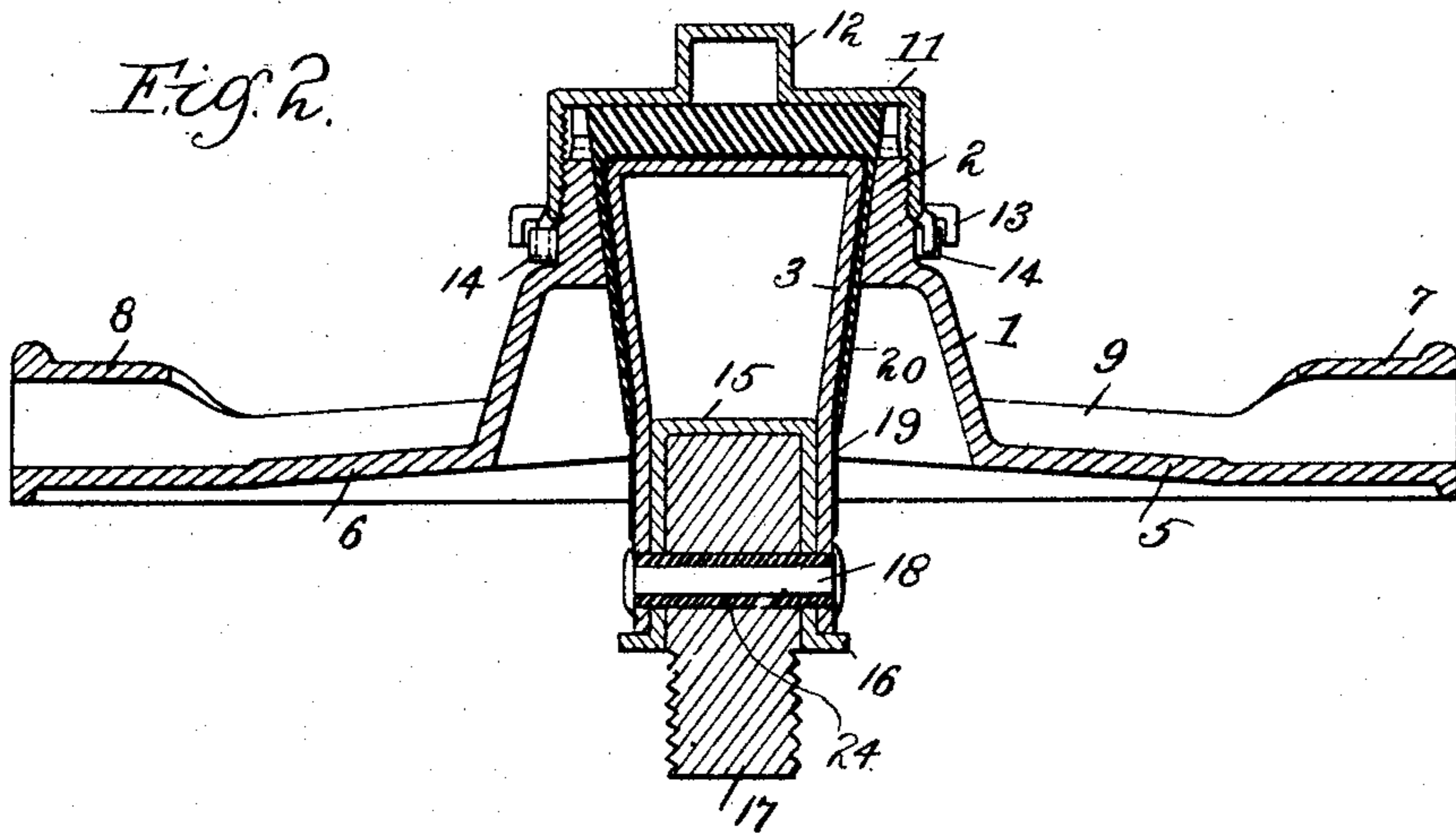
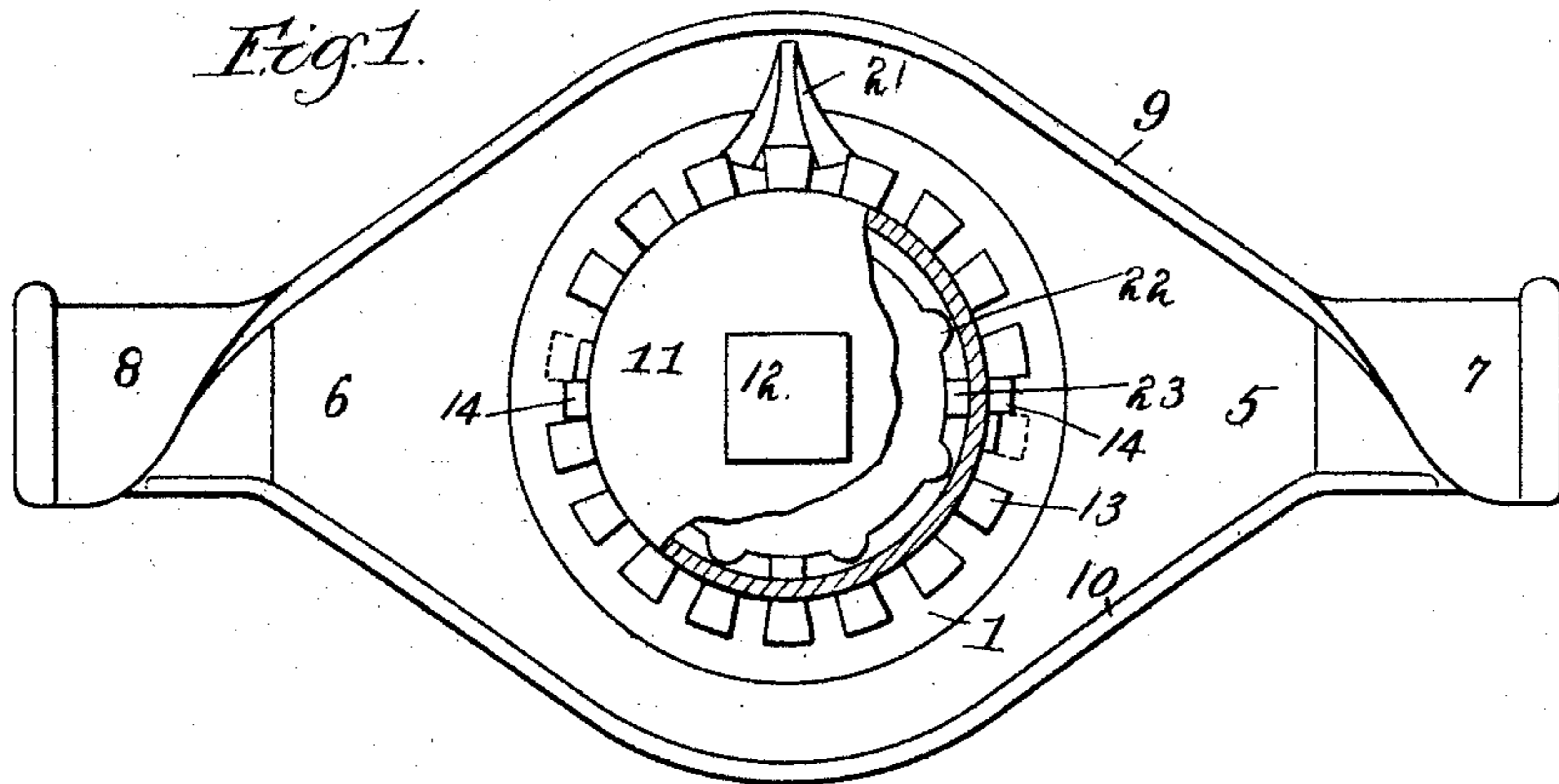
No. 632,733.

Patented Sept. 12, 1899.

J. W. MEAKER.  
INSULATOR FOR TROLLEY WIRE SUPPORTS.

(Application filed Sept. 11, 1896.)

(No Model.)



Witnesses.

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# UNITED STATES PATENT OFFICE.

JOHN W. MEAKER, OF WAUKEGAN, ILLINOIS

## INSULATOR FOR TROLLEY-WIRE SUPPORTS.

SPECIFICATION forming part of Letters Patent No. 632,733, dated September 12, 1899.

Application filed September 11, 1896. Serial No. 605,479. (No model.)

*To all whom it may concern:*

Be it known that I, JOHN W. MEAKER, a citizen of the United States, residing in Waukegan, Lake county, State of Illinois, have  
5 invented certain new and useful Improvements in Insulators for Trolley-Wire Supports, of which the following is a specification, reference being had to the accompanying drawings, in which—

10 Figure 1 is a plan view, part being broken away. Fig. 2 is a longitudinal vertical section. Fig. 3 is an end view.

My invention relates to insulators for trolley-wire supports, and has for its object to  
15 provide certain new and useful improvements which will increase the efficiency of the insulator, such improvements consisting in means for shedding the water at a point remote from the bolt; an improved shell for  
20 supporting the bolt, means for locking the cap on the shell, improvements in the bolt itself and in the non-conducting covering therefor, means for preventing the bolt from turning in its seat, and certain other details  
25 which will be hereinafter pointed out.

That which I regard as new will be set forth in the claims.

In the drawings, 1 indicates a shell which has a central conical bearing 2 to receive a  
30 conical bolt 3. The shell 1 is provided with wings 5 6, having overturned ears 7 8, respectively, which receive the usual cross-wires, such wires passing around the shell 1 in the usual manner.

35 In order to provide for shedding water at a point remote from the bolt, the wings 5 6 slant downward from the shell toward their ends, and flanges 9 10 are formed along the edges of the wings from end to end, as shown  
40 in Fig. 1. By this construction water falling upon the insulator flows naturally around the shell and off at the ends of the wings 5 6 in the gutters formed by the flanges 9 10.

11 indicates a cap, which in its best form  
45 is stamped out of a piece of sheet metal and is provided with an upward projection 12 of irregular shape, so that a clamp may be applied thereto for turning the cap and screwing it upon the shell, suitable screw-threads  
50 being provided. The cap 11 at its lower edge is provided with a series of lugs 13, as best

shown in Figs. 1 and 3, said lugs being bent outward and downward, as shown in Fig. 2.

14 indicates one or more fixed projections  
extending outward from the shell 1, as shown 55  
in Fig. 2, and being of such size that the downwardly-projecting ends of the lugs 13 will normally clear them, as shown in Fig. 2. By bending in the ends of the lugs 13 they  
60 may be caused to engage the projections 14, as indicated in Fig. 2, thereby preventing the cap from being unscrewed. In my former patent for insulator, dated October 15, 1895, No. 547,931, I have described and claimed a  
65 construction somewhat similar for preventing the unscrewing of the cap. In that case, however, the lugs project radially and are not bent down. The present construction is superior to that of my former patent, for the  
70 reason that with my present improvement the cap need not be screwed down tightly in order that the lugs may be used to lock it, as they may be so used at any point after the cap has been screwed down far enough to  
75 permit the lower ends of the lugs when bent in to engage the fixed projections, whereas in my former construction it was necessary to screw the cap down almost to its lowermost point before the lugs became operative.

The bolt 3 in its best form is made of a piece  
80 of sheet metal drawn to suitable shape by dies. The upper closed end of the bolt is conical, the lower portion thereof being cylindrical, as shown in Fig. 2.

15 indicates a thimble, of suitable insulat- 85  
ing material, having a flange 16 at its lower end, said thimble being adapted to be fitted into the lower end of the bolt 3, the flange 16 bearing against the lower end of said bolt.

17 indicates a screw bolt or head, which is 90  
adapted to fit into the thimble 15, the screw-bolt, thimble, and bolt 3 being secured firmly together by a rivet 18 passing through them, as shown in Fig. 2. The screw-bolt 17 serves  
95 as a means of attachment for the usual clip or other device by which the trolley-wire is secured to the insulator. The rivet 18 is insulated from the screw-bolt 17 by a sleeve 24, of suitable non-conducting material, which  
100 surrounds it, as shown in Fig. 2, the result being that by said sleeve and the thimble 15 the screw-bolt 17 is insulated from the bolt 3.

The bolt 3 is provided with a double insulator consisting of an inner coating 19 of non-conducting enamel, such as that commonly used on enameled ironware, and an outer coating 20 of gutta-percha, rubber, or other suitable material. The inner coating extends down to near the lower end of the bolt, stopping a short distance above the ends of the rivet 18, while the outer coating covers the upper half, more or less, of the bolt, but does not extend down as far as the inner coating, as illustrated in Fig. 2. By this construction should there be a leak in one of the coatings the other will afford ample protection. Furthermore, the rubber outer covering serves to protect the inner enamel from any shock or jar which might fracture it, and it provides a smoother and more regular surface, so that the bolt may be better fitted to its seat. The upper end of the bolt is arranged to fit snugly into the seat 2, the bolt being held firmly in position by the screw-cap 11, which exerts a downward pressure upon it. By this construction the bolt is not only tightly inclosed and thereby protected from the elements, but by the use of the double insulating covering the danger of leakage is reduced to the minimum.

21 indicates a fixed lug extending from the shell 1 toward the flange 9, as shown in Figs. 1 and 3, the object of which lug is to prevent the cross-wire from becoming displaced.

In order to prevent the bolt from turning in its seat, the outer covering 20 is provided with a series of lugs 22, extending radially at suitable intervals, and the upper face of the shell 1 is provided with vertically-extending lugs 23, adapted to be engaged by the lugs 22 should the bolt be turned in its seat. By placing the lugs 22 23 sufficiently close together the bolt may be prevented absolutely from turning, although in practice I have found that a small number of such lugs may be used, as they suffice to prevent any material movement of the bolt.

I have described my improvements in detail; but it is to be understood that, except as herein specifically claimed, I do not limit my invention to specific details, as many modi-

fications thereof may be made without departing from the spirit of my invention.

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

1. An insulator-bolt having an inner coating of enamel or equivalent material and an outer coating of rubber or other elastic material.

2. An insulator-bolt consisting of a hollow sheet-metal shell and an attaching device carried thereby, substantially as described.

3. An insulator-bolt consisting of a hollow shell open at the bottom, and an attaching device adapted to fit into and to be secured to said shell, substantially as described.

4. An insulator-bolt consisting of a hollow shell open at the bottom, a thimble fitted into said shell, and an attaching device secured in said thimble, substantially as described.

5. An insulator-bolt consisting of a hollow shell open at the bottom, a thimble fitted into said shell, said thimble having a flange 16, and an attaching device secured in said thimble, substantially as described.

6. An insulator-bolt consisting of a sheet-metal shell, a non-conducting thimble fitted thereinto, a screw-bolt fitted into said thimble, and means for securing said parts together, substantially as described.

7. An insulator-bolt consisting of a sheet-metal shell, a non-conducting thimble fitted thereinto, a screw-bolt fitted into said thimble, a rivet securing said parts together, and means for insulating said screw-bolt from said shell, substantially as described.

8. The combination with a shell having laterally-extended wings, of means for conducting water accumulating on said shell away therefrom and discharging it at or near the outer ends of said wings, substantially as described.

9. The combination with a shell, and laterally-extended wings having inclined upper surfaces, of a flange, as 9, substantially as and for the purpose specified.

JOHN W. MEAKER.

Witnesses:

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ALBERT H. ADAMS.