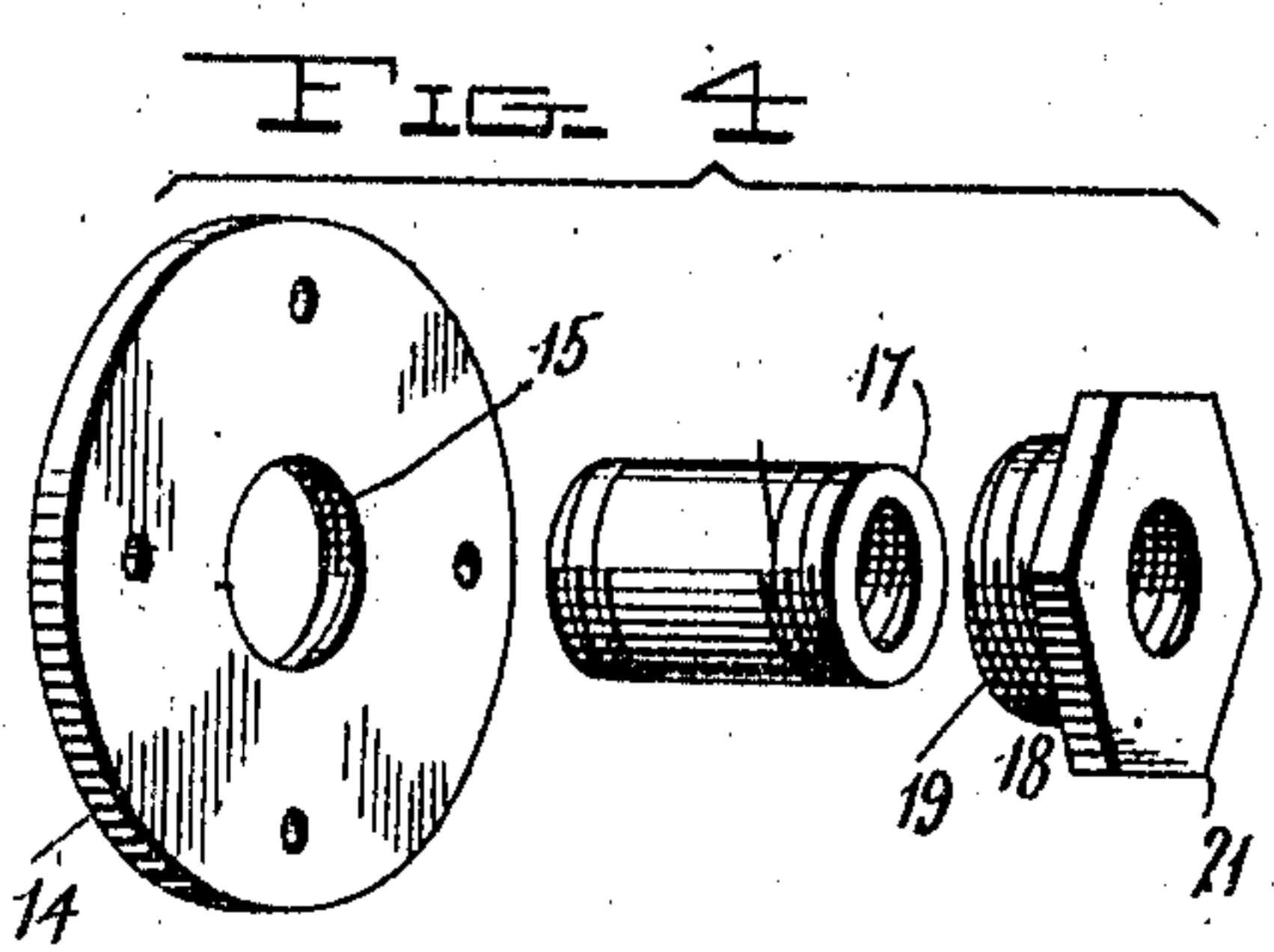
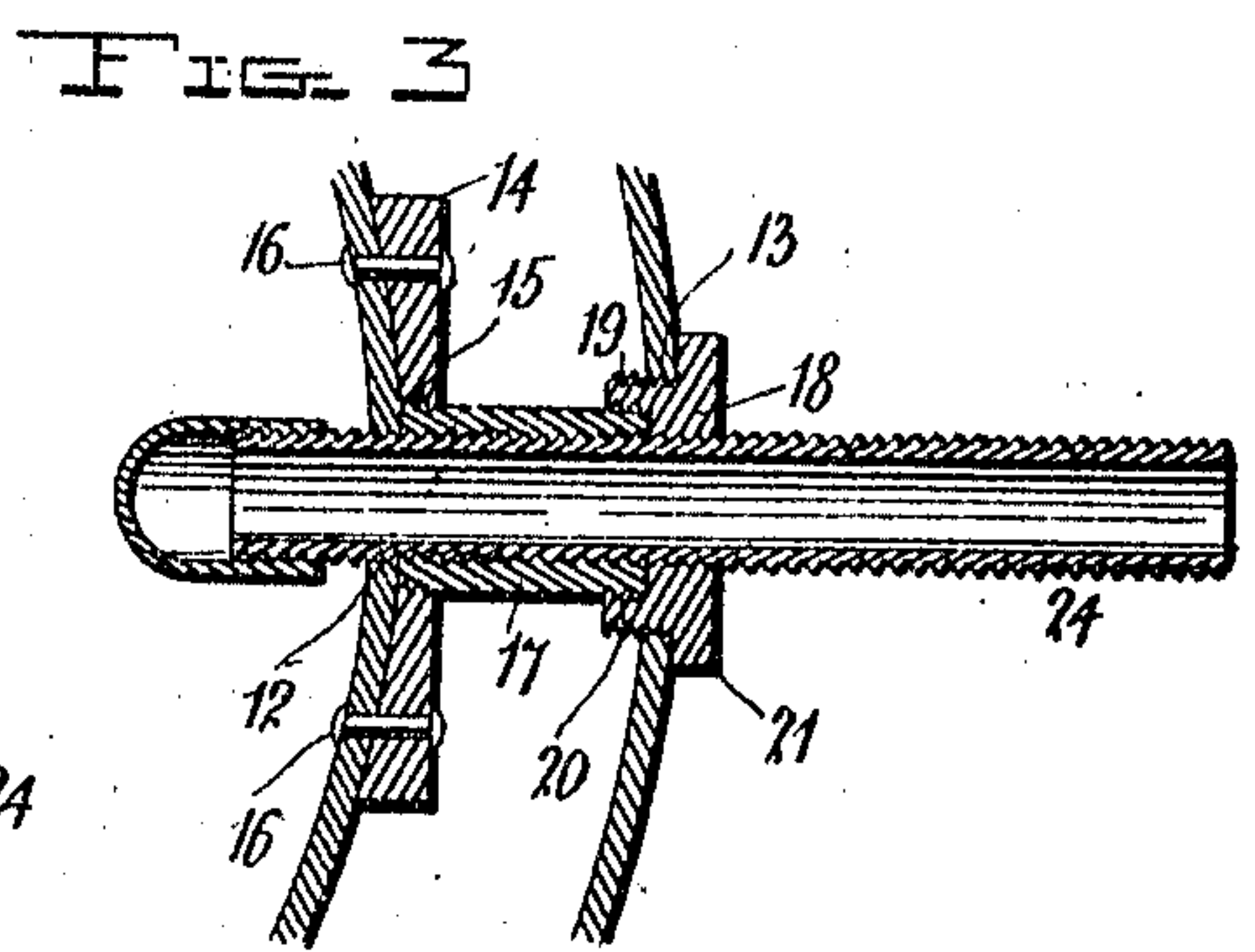
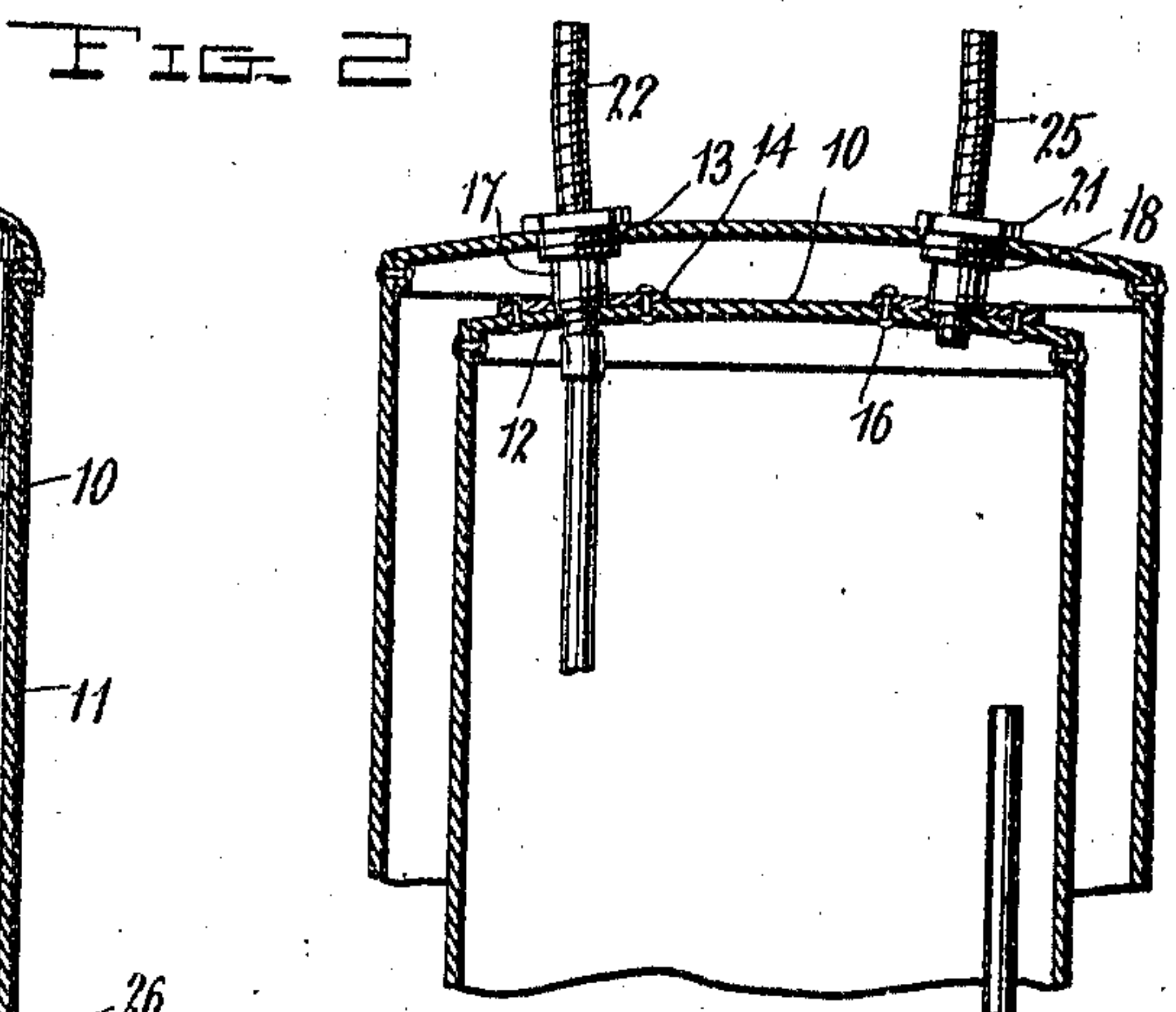
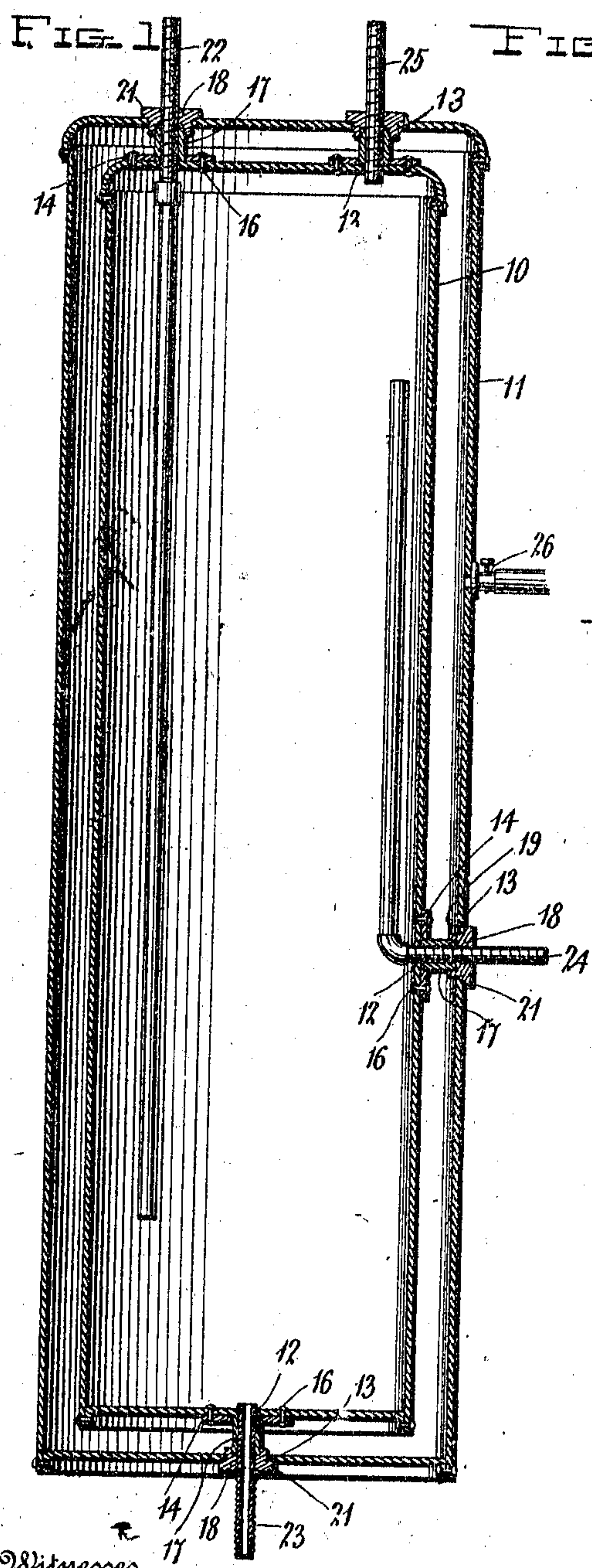


G. C. H. McPHEETERS.
 VACUUM WALL HOT WATER TANK.
 APPLICATION FILED JAN. 20, 1910.

970,095.

Patented Sept. 13, 1910.



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UNITED STATES PATENT OFFICE.

GEORGE C. H. MCPHEETERS, OF PALO ALTO, CALIFORNIA.

VACUUM-WALL HOT-WATER TANK.

970,095.

Specification of Letters Patent. Patented Sept. 13, 1910.

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To all whom it may concern:

Be it known that I, GEORGE C. H. MCPHEETERS, a citizen of the United States, residing at Palo Alto, in the county of Santa Clara, State of California, have invented certain new and useful Improvements in Vacuum-Wall Hot-Water Tanks; and I do hereby declare the following to be a full, clear, and exact description of the invention, such as will enable others skilled in the art to which it appertains to make and use the same.

This invention relates to what are commonly known as kitchen boilers and has special reference to providing a boiler of this description with a vacuum jacket to enable the heat to be retained in the boiler, the vacuum acting in the ordinary manner to insulate the boiler from the outside atmosphere.

One object of the invention is the provision of means adapted to hold a receptacle within a casing and in spaced relation thereto, the means affording communication for inlet and outlet pipes to the receptacle.

Another object of the invention is the provision of spacing means of this character which will also act to retain inlet and outlet pipes in their proper positions.

With the above and other objects in view, the invention consists in general of an inner receptacle, an outer casing in spaced relation thereto, and novel spacers holding said inner receptacle and the casing in spaced relation, said spacers being adapted to afford communication between the receptacle and the exterior of the casing.

The invention further consists in certain novel details of construction and combinations of parts hereinafter fully described, illustrated in the accompanying drawings, and specifically set forth in the claims.

In the accompanying drawings, like characters of reference indicate like parts in the several views, and Figure 1 is a sectional view taken through the preferred form of boiler constructed in accordance with this invention. Fig. 2 is a partial sectional view of a modified form of the boiler. Fig. 3 is an enlarged detail section through one of the spacers. Fig. 4 is detail perspectives of the spacers with the parts separated.

The numeral 10 indicates the inner receptacle and the numeral 11 the casing therefor. This inner receptacle and its casing are held in spaced relation by means of cer-

tain novel spacers. In order to afford entrance to the inner receptacle this receptacle is provided with a plurality of apertures 12 and the casing is also provided with threaded apertures 13 arranged in opposed relation to the apertures 12. Surrounding each of the apertures 12 is a flange 14 having a threaded opening 15 formed centrally thereof and this flange is securely attached to the outside of the receptacle by means of rivets 16. At 17 is a thimble provided with threaded ends one of which is screwed into the threaded opening in the flange 14. Screwed into each of the openings 13 is a sleeve 18 having external threads 19 to engage the threads of the opening wherein the sleeve is screwed and this sleeve is further provided with an internally threaded recess 20 which engages onto the other threaded end of the thimble 17. The sleeve 18 preferably is formed with a wrench receiving head 21 for the purpose of screwing it into place. The thimble 17 is provided with internal threads throughout its length for the purpose of engaging the external threads formed on the ends of certain pipe nipples. These pipe nipples are arranged so that at 22 is an inlet pipe for the cold water, at 23 is an outlet or draw-off pipe for the receptacle, at 24 is a hot water inlet pipe and at 25 is a hot water outlet pipe. The pipes 23 and 24 are connected in the usual manner, not deemed necessary here to be shown, to any form of heater such as a stove water-back, instantaneous heater, or the like. The casing 11 is provided with a suitable opening to receive a valved nipple 26 by means of which the space between the casing and the receptacle may be connected to a vacuum pump.

In the form of the invention shown in Fig. 2 the general construction is the same as that just described with the exception that the two heads are bulged outward and that the spacers are arranged radially of the spherical surfaces thus formed.

By means of this construction it will be observed that the pipes which communicate with the receptacle extend through the tubular spacers and these spacers do not permit the entry of air from outside the casing or the entry of water or steam from the receptacle to the space between the receptacle and casing. When the device has been set up the valved nipple 26 is connected to a vacuum pump and the air exhausted from

between the receptacle and casing. The valve is then cut off and the pump detached, the outer end of the nipple being, if desired, suitably sealed by a plug or cap. It will be obvious from the foregoing that only the small area of the pipes and spacers will afford conductors for the heat within the receptacle so that when the water contained therein is once heated it will remain in this condition for a relatively long period of time. It will, furthermore, be obvious that in the process of heating up this water practically no heat will be wasted and the process will thus be greatly hastened. There has thus been provided a simple and efficient device of the kind described and for the purpose specified.

It is obvious that minor changes may be made in the form and construction of this invention without departing from the material principles thereof. It is not therefore desired to confine the invention to the exact form herein shown and described, but it is wished to include all such as properly come within the scope of the appended claims.

Having thus described the invention, what is claimed as new, is:—

1. In a device of the kind described, an inner receptacle, an outer casing entirely surrounding the inner receptacle and spaced

therefrom, and means to hold the casing in spaced relation to the receptacle, said means comprising a plurality of tubular spacers secured to the inner receptacle and to the casing to prevent access of air or the contents of the receptacle to the space between the casing and receptacle, and inlet and outlet pipes leading through and secured within the spacers.

2. The combination with an inner receptacle provided with a plurality of apertures, and an outer casing spaced from the receptacle and having threaded apertures opposed to the apertures in the receptacle; of a plurality of spacers holding said receptacle and casing in fixed spaced relation, each spacer comprising a flange secured to the receptacle around one of the apertures and provided with a centrally disposed threaded opening, a thimble having threaded ends one of which is engaged in the opening of said flange, and a threaded sleeve screwed into the aperture of the casing and onto the other end of said thimble.

In testimony whereof, I affix my signature, in presence of two witnesses.

GEORGE C. H. MCPHEETERS.

Witnesses:

EDWARD J. MCGOVERN,
F. SCHNEIDER.