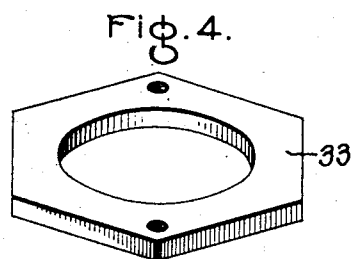
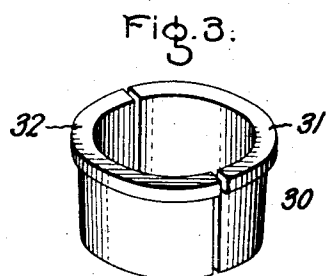
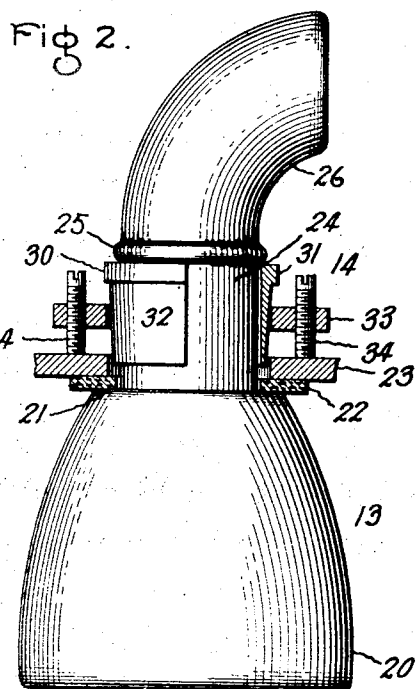
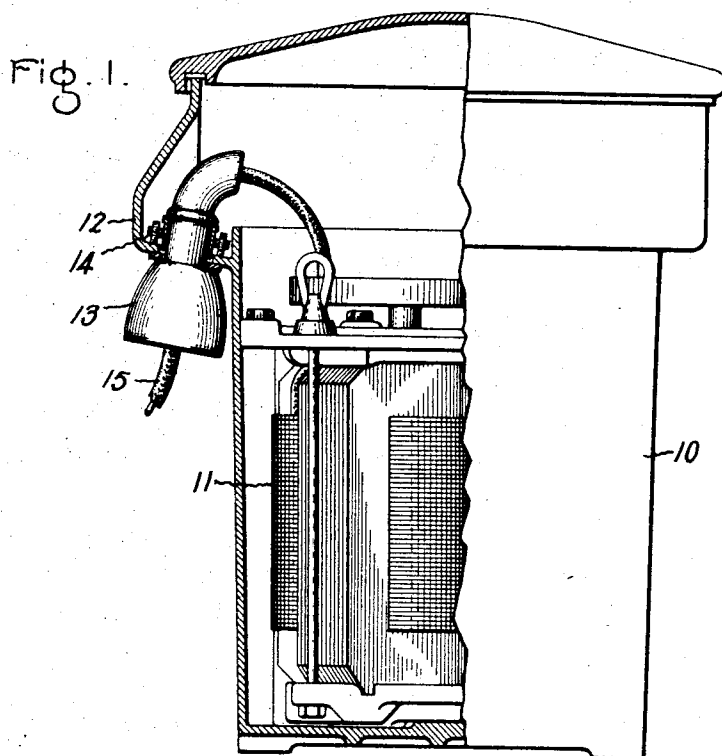


May 13, 1924.

1,494,293

I. H. SCLATER
ELECTRICAL APPARATUS
Filed Feb. 15, 1921



Inventor:
Ivanhoe H. Sclater,
by *Albert G. Durro*
His Attorney

UNITED STATES PATENT OFFICE,

IVANHOE H. SCLATER, OF PITTSFIELD, MASSACHUSETTS, ASSIGNOR TO GENERAL ELECTRIC COMPANY, A CORPORATION OF NEW YORK.

ELECTRICAL APPARATUS.

Application filed February 15, 1921. Serial No. 445,226.

To all whom it may concern:

Be it known that I, IVANHOE H. SCLATER, a citizen of the United States, residing at Pittsfield, in the county of Berkshire, State of Massachusetts, have invented certain new and useful Improvements in Electrical Apparatus, of which the following is a specification.

My invention relates to electrical apparatus, and particularly to encased electrical apparatus which have depending bushings in pockets or overhanging portions of the side walls of the casing through which conductors enter the casing.

The object of my invention is to provide an improved arrangement of parts whereby such bushings may be readily secured in place or removed from the wall of the casing.

It has been the practice in the manufacture of encased electrical apparatus, such as transformers in which the voltage across the conductors leading thereto does not exceed a few thousand volts, to use depending bushings projecting through pockets or overhanging portions of the wall located near the top of the casing. In this manner bushings can be used which are made weatherproof and oil tight in an inexpensive manner, as well as permitting the use of imperforate covers for the casings which are easy and cheap to manufacture.

Prior to my invention it has been customary to seal all such bushings in place by the use of some sealing and insulating compound which is applied in a heated molten state but solidifies into a hard rigid binder when cold; thus yielding a construction which is both weather tight and oil tight. This construction, however, involved an arrangement from which the depending bushing could be removed only with difficulty.

In the practice of my invention, this difficulty is entirely obviated since I make use of an improved clamping device adapted to secure the depending bushing in place in an oil tight and weather tight manner without the aid of any insulating compound and without impairing the electrical properties of the bushings. My clamping device is preferably accessible only from within the casing housing the electrical apparatus, and is readily removable to permit the withdrawal of the bushing intact.

For a more complete understanding of the

nature and objects of my invention, reference should be had to the following detailed description taken in connection with the accompanying drawing in which:

Fig. 1 is a view partly in section and partly in side elevation of a transformer casing equipped with my invention; Fig. 2 is an enlarged view showing more clearly the application of my improved clamping device to secure a bushing in place; while Figs. 3 and 4 show details.

Referring now to the drawing, and to Fig. 1 in particular, 10 denotes a casing for a transformer shown therein at 11. The casing is here shown as provided with a pocket 12 in which the bushing 13 is secured by means of a clamping device 14 of my invention.

As shown more clearly in Fig. 2, the bushing 13 has a large external bell or petticoat 20 designed to provide the necessary creepage from its conductor (shown at 15 in Fig. 1) to the casing or ground. This petticoat 20 has a shoulder 21 designed to fit against a gasket 22 of a material adapted to yield an oil tight joint with the portion of the casing wall shown at 23.

The bushing 13 has a constricted neck 24 adapted to pass through the opening in the wall at 23, which neck has a beaded portion or projection 25 arranged to cooperate with the clamping device 14 and may have an upper curved portion as shown at 26.

My clamping device comprises a tapered collar 30 composed of separable parts 31 and 32 which are adapted to fit about the neck 24 and engage with the bead 25. The nature of the parts 31 and 32 are clearly shown in Fig. 3. An annular member 33 is provided which may be drawn up by set-screws 34, disposed at suitable points about its periphery, to engage with the tapered sides of the separable parts of the collar 30 when in place. Two set-screws 34 are shown which engage with the wall 23 and force the annular member 33 to engage about midway with the tapered wall of collar 30 and thereby force it to grip firmly the neck 24 of the bushing and draw it firmly up against the gasket 22; engagement with the bead 25 by the collar 30 preventing its slipping on the neck 24 while performing this function.

In order to remove the bushing 13 when held in place by means of the clamping de-

vice of my invention, it is merely necessary to rotate the screws 34 until the annular member 33 drops from its position engaging with the collar 30 down onto the wall 23 when the separable members 31 and 32 may be picked out from engagement with the neck 24 of the bushing. The collar 30 thus having been removed in parts, the bushing 13 is without support and may be readily withdrawn from the opening in the casing wall at 23. The bushing of course is secured in place by reversing this process.

Having now described an embodiment of my invention which is at present the best means known to me for carrying the same into effect, I would have it understood that this is merely illustrative and that I do not mean to be limited thereby to the precise details shown, nor restricted in the choice of recognized equivalents except as defined in my claims hereunto annexed.

What I claim as new and desire to secure by Letters Patent of the United States, is:—

1. In an electrical apparatus, the combination with a casing provided with an opening in its side wall, of a bushing adapted to be secured therein in depending position and having a shoulder and constricted neck, a

split collar upon said neck, and means for causing said split collar to grip the neck and draw said shoulder toward the wall.

2. In an electrical apparatus, the combination with a casing provided with an opening in its side wall, of a bushing adapted to be secured therein in depending position and having a constricted neck between a shoulder and a projection, a tapered collar upon said constricted neck, and means surrounding and engaging said collar to cause it to draw said shoulder toward the wall.

3. In an electrical apparatus, the combination with a casing provided with an opening in its side wall, of a bushing adapted to be secured therein in depending position and having a shoulder and constricted neck, a gasket interposed between said wall and shoulder, a tapered collar composed of separable parts adapted to grip said neck, and a surrounding member having means for forcing the same up into engagement with said collar and to draw said bushing into place.

In witness whereof, I have hereunto set my hand this 10th day of Feb., 1921.

IVANHOE H. SCLATER.