

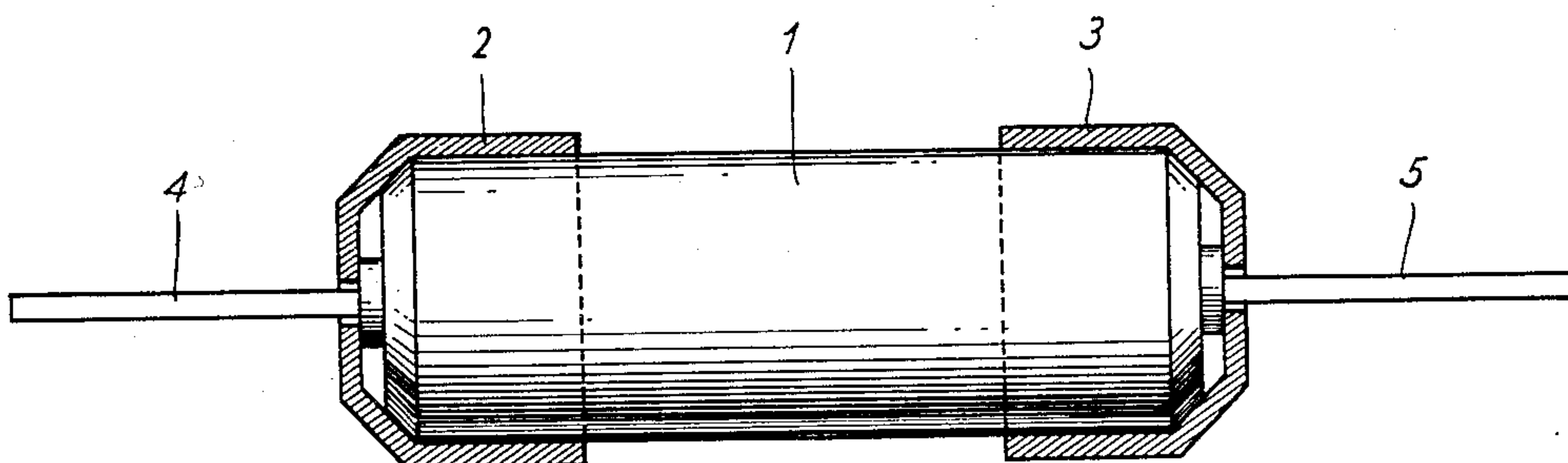
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CONDENSER

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## UNITED STATES PATENT OFFICE

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## CONDENSER

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6 Claims. (Cl. 175-41)

This invention relates to a rigid condenser for radio purposes. For this purpose condensers of particularly low capacity, for example, of the order of magnitude of  $1\mu\text{F}$ , which should have a value that can be determined accurately are often necessary. It is common practice to constitute them by a substantially plate-shaped piece of dielectric provided on both sides with electrodes applied by projection or in any other suitable manner. This suffers from the limitation that the capacity often differs from the desired value. This difficulty was obviated by balancing the capacity of the condensers after manufacture until the desired value was achieved, for example, by removal of portions of the electrodes. This occupies considerable time and is costly since comparatively circuitous measurements are necessary. In addition, comparatively considerable wastage ensues in this manner since an excessive portion may easily be removed from the electrode. In addition, various condensers are known consisting of a tubular piece of insulating material. The electrodes may be constituted by screws inserted in the hoods and having an adjustable relative spacing. Alternatively, the electrodes may be arranged axially, the tube serving as the dielectric. In this case, the capacity can be altered by moving one of the electrodes inwards or outwards. These constructions are, however, comparatively complicated and costly.

The invention has for its object to manufacture a condenser for radio purposes which is simple and can be manufactured with great accuracy.

According to the invention, a condenser is composed of a rod of insulating material serving as the dielectric and having its ends provided with metal hoods. The hoods are preferably applied by pressure so as to obtain a rigid body to which connecting wires can be secured in a simple manner.

It should be mentioned that condensers constituted by a piece of insulating material with electrodes arranged at the ends are known per se from the high tension industry where they serve for the potential distribution or as insulators or the like. Such condensers are, however, not very suited for radio purposes inter alia by reason of their large dimensions.

The insulating rod is preferably made of ceramic material having a high dielectric constant. For such rods use may be made of material containing rutile, that is to say, titanium dioxide or a similar material having a high dielectric constant.

It has been found that the condenser according to the invention can be manufactured with great accuracy so that subsequent adjustment is unnecessary after manufacture.

In order that the invention may be clearly

understood and readily carried into effect one embodiment thereof will now be described more fully with reference to the accompanying drawing.

Referring to the single figure of the drawing, the dielectric 1 is preferably formed as a solid cylinder. Hoods 2 and 3 are secured in such manner, for example, by pressure, that there are practically no air gaps. The latter would bring about a heavy fall of the capacity. The hoods have secured to them in the usual manner connecting wires 4 and 5. The condenser is made from a very few component members. In wholesale manufacture the capacity may easily be maintained up to a few percent within the desired value. If a different capacity is desired, this may be achieved in a very simple manner by a different choice of the length of the core or of the properties of the material.

In one embodiment in which a capacity of  $2\mu\text{F}$  was desired the length of the core was 13 mms. and the diameter 4 mms. The height of the hoods was 4 mms. and the dielectric constant  $E=80$ . In the case of  $E$  being equal to 40 the capacity was found to be  $0.9\mu\text{F}$ .

I claim:

1. A low capacity condenser for radio purposes, which is constituted by a small rod of dielectric material and by two metal hoods secured by pressure to the ends and serving as electrodes.

2. A low capacity condenser as claimed in claim 1, wherein the dielectric material is titanium dioxide having a high dielectric constant.

3. A low capacity condenser as claimed in claim 1 wherein the dielectric material contains rutile.

4. A low capacity condenser for radio purposes which comprises a rod of dielectric material both ends of which are beveled, two metallic hoods with beveled ends secured by pressure to the ends of said rod and serving as electrodes.

5. A low capacity condenser for radio purposes which comprises a rod of dielectric material both ends of which are beveled, two metallic hoods with beveled ends secured by pressure to the ends of said rod and serving as electrodes, and an aperture in the ends of each hood having a connection wire secured thereto.

6. A low capacity condenser for radio purposes which comprises a rod of dielectric material, the length of which is substantially thirteen millimeters and the diameter of which is four millimeters, two metallic hoods with beveled ends secured by pressure to the ends of said rod and serving as electrodes, and an aperture in the ends of each hood having a connection wire secured thereto.

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