

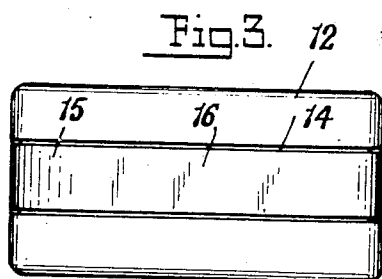
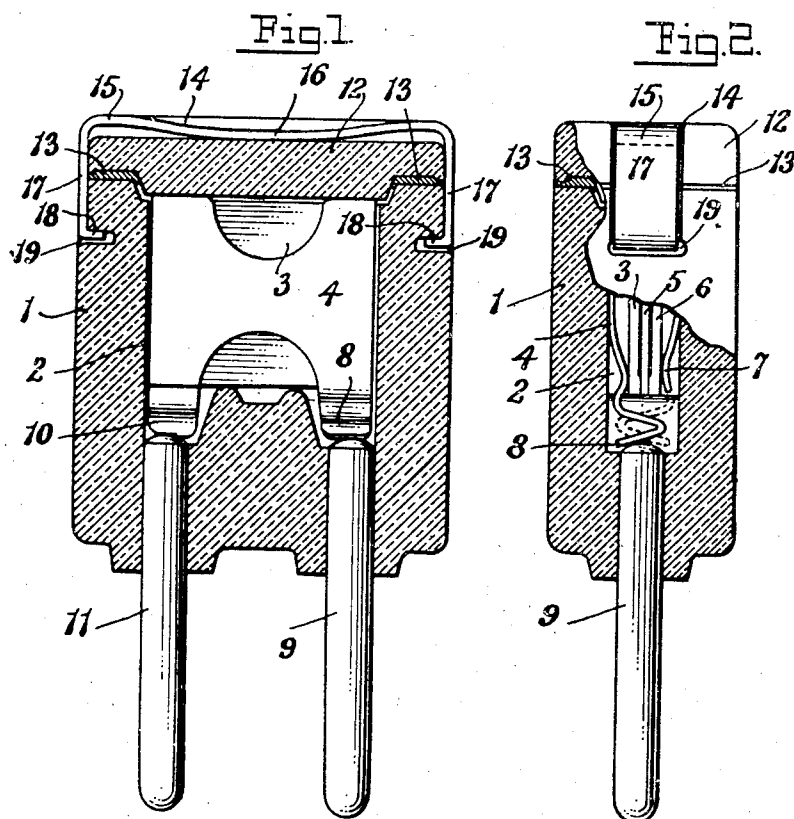
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CASING FOR PIEZOELECTRIC CRYSTALS

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## CASING FOR PIEZOELECTRIC CRYSTALS

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5 Claims. (Cl. 171-327)

1 This invention relates to the construction of casings or containers, and particularly to articles of this character which are constructed of glass, glass-and-mica mixtures, ceramics and other molded products, and especially those of insulating material. Casings of this kind are widely employed to house electrical apparatus and parts thereof, and the invention specifically relates to a housing for piezo-electric crystals and associated parts.

One of the problems to be contended with in the construction of casings of this character is the prevention of moisture entering into the casing and particularly through the joint between the cover and body of the casing. Since the materials used for the bodies and covers of casings of this character are usually of insulating material, such as glass, glass-and-mica mixtures, ceramics and numerous other molded materials, the difficulty of securing a moisture-tight joint between parts of the casing will be apparent.

The primary object of the present invention, is to provide means by which a cover may be securely affixed in position on a body portion to firmly hold it in place and attain a moisture-tight joint between the cover and the body of the casing.

In the accompanying drawing, wherein an illustrative embodiment of the invention is disclosed, Fig. 1 is a sectional view through a casing constructed in accordance with the invention and provided with the improved means for holding the cover member in place; Fig. 2 is a side view of the casing, with parts broken away and in section, to disclose construction, and Fig. 3 is a plan view of the casing.

With reference to the drawings, 1 indicates the body of the casing which may be composed of any non-metallic material, preferably of molded insulation such as glass, glass-and-mica mixture, or any other satisfactory thermoplastic. The shape and disposition of the body of the casing is largely dependent upon the apparatus or parts which are to be accommodated within it. The casing shown is intended for the reception of a quartz crystal 5 and its associated parts such as the electrodes 3 and 6 and spring plates 4 and 7, all of which are maintained in the recess 2 in the body 1 of the casing. The spring plates 4 and 7 establish contact respectively with the embedded pins 9 and 11 through the spring tongues 8 and 10 extending from the spring plates.

The cover member for the casing is shown at 12, and the same fits over the open top of the recess 2 to close the same. A gasket 13 is in-

2 terposed between the top edge of the body portion and the under side of the cover member, and when the cover member is seated in place and is urged toward the top of the body portion, the gasket is compressed in the manner shown to provide a seal between the body portion and the cover.

Provided in the top face of the cover member 12 and extending down the sides thereof, is a groove or channel 14 for the reception of a spring clip 15 which fits over the cover and holds it in place on the body portion. In the embodiment shown, the spring clip is made from flat material and has a centrally located inwardly bowed portion 16 which bears downwardly on the top of the cover member and tends to urge it toward the body portion 1, thereby compressing the gasket and attaining a seal between the cover and body of the casing.

At its opposite ends, the spring clip 15 is provided with the downwardly extended parts or arms 17 which have their lowermost terminals inturned as indicated at 18 to enter into the recesses 19 provided in the opposite side walls of the body portion at positions below the cover member.

The normal position and shape of the spring clip 15 is such that when it is fitted in place across the top of the cover member, and the end parts or arms 17 are sprung into engagement with the recesses 19, these parts are under tension, as is the central or inwardly bowed part 16 of the clip. The result is that the clip not only securely holds itself in place in the manner clearly shown in the drawings to thereby hold the cover against displacement, but it also exerts a downward pressure upon the top of the cover member to thereby compress the gasket between the cover member and top of the body portion. Such downward pressure of the cover is also exerted on the spring plates 4 and 7, tending to hold the tongues 8 and 10 thereon firmly against the inner ends of the contact pins 9 and 11. Since the spring clip is under constant tension, it tends to always securely hold the cover in place despite expansion or contraction of the materials of the cover and body under various degrees of temperature.

After the cover has been placed in position and the spring clip has been fitted in place, the upper end portion of the entire casing may, if desired be immersed in a suitable coating material to seal the casing against all possibilities of leakage.

While I have described one embodiment of the invention, it is obvious that the same is not

to be restricted thereto, but is broad enough to cover all structures coming within the scope of the annexed claims. It will be clear that various changes in the structure are possible. For example, the spring clip, while of substantially C-shape formation, may be of other form to suit the contour of the cover member over which it is fitted. Also while said clip is shown to be constructed of flat spring metal, it might also be of round stock, and the groove or channel in the cover member shaped to conform to it. These and other modifications are considered to be contemplated by the described invention.

What I claim is:

1. A casing for crystals and the like comprising, a body portion, a cover fitted over and closing the body portion, a spring clip extending over the top of the cover and urging the cover toward the body portion, said clip having a pair of arm portions extending downwardly on opposite sides of the body portion, the body portion having recesses presenting shoulders located below the lower end of the cover with which the ends of the arm portions engage.

2. A casing for crystals as called for in claim 1, wherein the clip has a centrally located inwardly bowed portion urged resiliently against the top of the cover to force the cover toward the body portion, and wherein the arm portions of the clip each have an intumed end portion in engagement with a recess in the body portion.

3. A casing for crystals and the like comprising, a body portion, a cover fitted on top of the body portion, a gasket interposed between the cover and the body portion, a spring clip having a central part bowed inwardly against the top of the cover to thereby urge the cover toward the body portion and compress the gasket, the clip having downwardly bent ends extending over the ends of the cover, said ends having inbent terminals, and recesses in the side walls of the body portion located wholly below the lower end of

the cover and into which said terminals extend.

4. A casing for crystals and the like comprising, a body portion having a recess for holding a crystal and associated parts, a cover fitted over and closing the recess, said cover being provided with a groove in its top face, a spring clip extending across the top of the cover and located in said groove, said clip having downwardly bent ends, and means on the body portion below the cover for engagement with said ends to hold the clip under tension and cause it to urge the cover toward the body portion.

5. A casing for crystals and the like comprising, a body portion having a recess for holding a crystal and associated parts, a cover fitted over and closing said recess, a sealing gasket interposed between the cover and the body portion, a substantially C-shaped spring clip extending over the top of the cover, the top of the cover being grooved to receive the spring and recesses in the opposite ends of the body portion for engagement with the ends of the spring clip to hold the clip under tension and cause it to urge the cover toward the body portion and to compress the gasket located between the cover and the body portion, the opposite sides of the body portion being grooved to receive portions of said spring.

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