Oct. 10, 1950 F. KRAL 2,525,138

CRYSTAL HOLDER

Filed July 18, 1946

Fig. 1

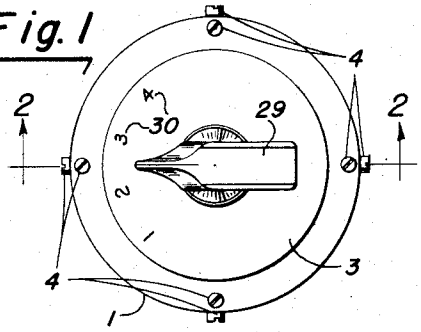


Fig. 6

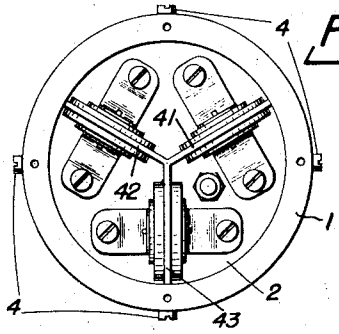
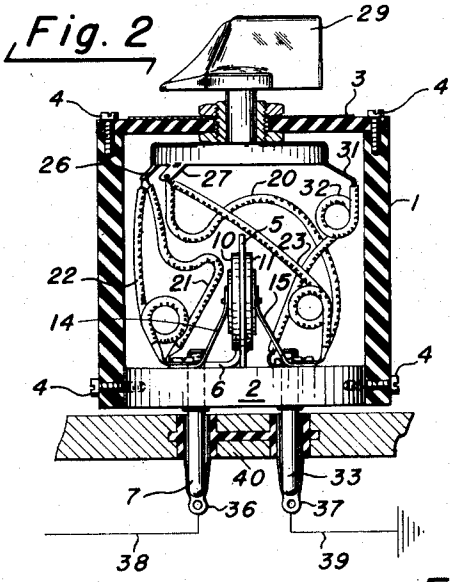


Fig. 2



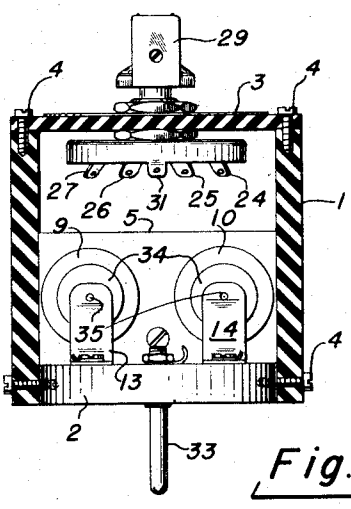
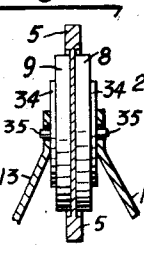


Fig. 3

Fig. 7



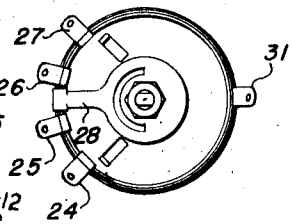
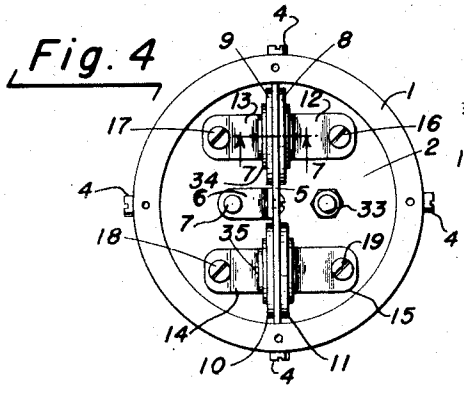


Fig. 5

Fig. 4



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Patented Oct. 10, 1950 2,525,138

UNITED STATES PATENT OFFICE

2,525,138

CRYSTAL HOLDER

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Application July 18, 1946, Serial No. 684,617

7 Claims. (Cl. 171—327)

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This invention relates to multi-crystal holder and switch units, and more specifically to a compact and novel assembly for mounting a number of crystals in a single plug-in unit, provided with switch means for instantly selecting any one of the crystals which it may be desired to use in the circuit in which the unit is plugged in.

It has heretofore been necessary, when switching from one crystal to another in a circuit, to either remove the one from its holder and replace it by the other, or, if each is mounted in an individual holder, to remove one holder and replace it by the other. This involves a great amount of time and requires care in the selection of the particular crystal desired, each time a change is required.

The object of the present invention is to make changing of crystals in a circuit easy and instantaneous, with a minimum possibility of error in selection.

A further object is to construct a simple crystal holder and switch unit of the plug-in type, wherein several crystals are compactly arranged and connected through a selective switch in parallel to the plug posts, for quick switching from one crystal to another whenever desired.

A further object is to provide a plastic insulator plug housing having a pair of plug-in posts and a series of spring clamp brackets for mounting crystals therein, one side of said brackets having a common connection to one of said plug-in posts, the other sides of the brackets being insulated from each other and connected selectively thru a switch in the top of said housing to the other post, the switch having indications showing which crystal is in the circuit in the different switch positions.

Other and more specific objects will become apparent in the following detailed description of the present device, having reference to the accompanying drawing, wherein:

Fig. 1 is a top plan view of a device made to illustrate one form of the present invention wherein four crystals may be used,

Fig. 2 is a sectional elevation of this device taken at line 2—2 of Fig. 1,

Fig. 3 is a partial sectional view taken in a vertical plane at right angles to that of Fig. 2,

Fig. 4 is a plan view of this device with the cover and switch removed,

Fig. 5 is a bottom view of the switch,

Fig. 6 is a plan view, similar to that of Fig. 4, of an arrangement for the use of six crystals, and

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Fig. 7 is an enlarged sectional detail taken on the line 7—7 of Fig. 4.

The plastic casing may be made of a cylindrical portion 1, cut from a tube of suitable size, a base portion 2, and a cover portion 3, the base and cover portions being circular discs cut from sheet plastic material of suitable thickness. These portions are held together by screws 4, as shown, or may be assembled in any other manner. The plastic may be any insulating material, whether transparent or not, as may be suitable.

In the four-crystal assembly, a plate 5 of conducting material having smooth finished surfaces may be transversely mounted across the center of the cylindrical portion and connected by a conductor bracket 6 to one of the plug-in posts 7 which is passed thru the base portion 2.

Crystals 8, 9, 10 and 11 in Figs. 2 to 4 are held against the surfaces of the plate 5 by spring clamps 12, 13, 14 and 15 respectively, which are mounted on the base portion 2 by screws 16, 17, 18 and 19 and connected by leads 20, 21, 22 and 23, as shown in Fig. 2, to their respective switch posts 24, 25, 26 and 27, the latter two only being seen in this figure (see Fig. 5 for the arrangement of all these posts). The switch has a contact arm 28 (Fig. 5) for selectively contacting any one of these switch posts by turning the knob 29 to the proper position indicated by the indicia numerals 30 (Fig. 1) on the cover portion 3. The switch arm is connected through the switch post 31 and lead 32 to the other plug-in post 33, passing through the base portion 2. Each spring clamp is provided with a disc or crystal electrode such as 34 (Fig. 3), having a central projection guided in a bore 35 in the corresponding spring clamp. These discs have a smooth finished surface for pressing against the respective crystal when mounted in place.

Fig. 2 shows the socket or receptacle 40 for the plug-in posts 7 and 33. The terminals 36 and 37 of the receptacle are connected in the proper way in the circuit by leads 38 and 39.

Fig. 6 shows how a six crystal unit may be made. In this case the diametrically positioned plate 5 is replaced by three integrally formed plates 41, 42 and 43 radially arranged at 120 degree intervals around the casing and joined together to the common post 7 (not shown), which in this case may be integral with and extending from the bottom of plate 42. The other post 33 is connected to the switch as in the other form of plug. The switch in this case, however, will have six contact posts for selecting any one of the

six crystals in a manner similar to that described in connection with the four-crystal unit.

It may be advantageous in some forms of this device to countersink the surfaces of the crystal holder plates **5** or **41**, **42** and **43** to prevent the crystals from slipping out of place under the light pressure of the spring clamps, as shown in Fig. 7.

Other arrangements and numbers of crystals may be accommodated and various obvious modifications made in the design of these holder-switch plugs without departing from the spirit and scope of this invention, as defined in the appended claims.

What is claimed is:

1. In a multi-crystal holder and switch unit, a casing having a base, with a pair of plug-in posts extending therethrough, two or more plates in said casing mounted radially at spaced angular intervals and connected electrically to one of said posts, a crystal mounted flat against each side of each plate, a spring clamp for holding each crystal resiliently against the corresponding plate, a cover for said casing, a switch arm mounted rotatably in said cover for cooperation with a series of contact posts, each electrically connected to one of said spring clamps in said casing, and an electrical connection between said arm and the other plug-in post.

2. A multi-crystal holder and switch unit as defined in claim 1, wherein the electrical connections between the contact posts and the spring clamps are flexible insulated wires.

3. A multi-crystal holder and switch unit as defined in claim 2, wherein said plates are formed integrally.

4. A multi-crystal holder and switch unit as defined in claim 2, wherein the faces of said plates are slightly counterbored to the size of the crystals to prevent the latter from accidentally sliding out of place during operation.

5. A multi-crystal holder and switch unit as defined in claim 2, in which the cover is removable for installation and removal of crystals, a knob with a pointer on the outside of said cover for operating the switch arm, and indicia on said cover for the pointer to show which of the crystals is in the circuit.

6. A multi-crystal holder and switch unit as defined in claim 2, having disc electrodes between said spring clamps and said crystals, held in place by a projection on each disc guided in a bore in each of the spring clamps.

7. A multi-crystal holder and switch unit as defined in claim 2, wherein said casing is made of a transparent tubular plastic with circular base and cover.

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