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CONDENSER DISCHARGER SWITCH

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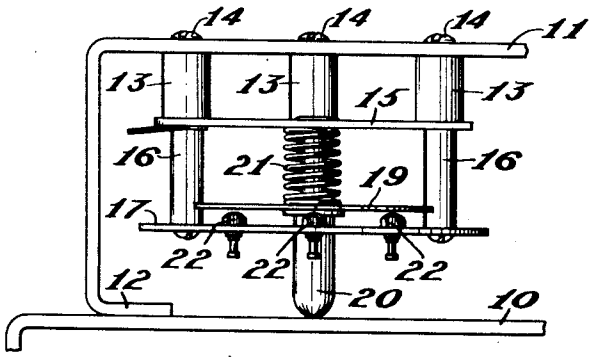


Fig 1

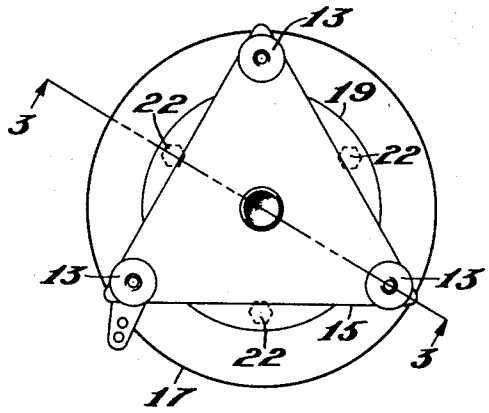


Fig 2

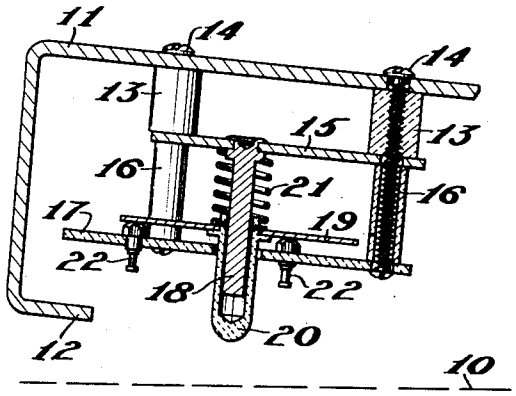


Fig 3

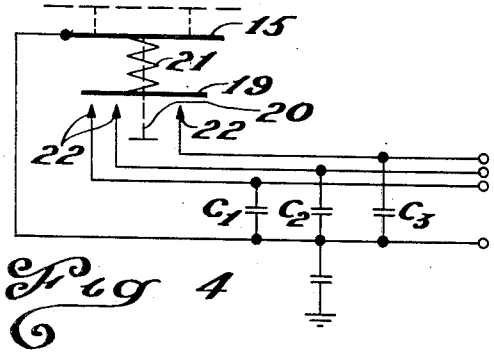


Fig 4

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CONDENSER DISCHARGER SWITCH

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Application September 5, 1952, Serial No. 308,014

2 Claims. (Cl. 200—16)

This invention relates in general to discharging devices and in particular to a safety mechanism for preventing accidental electrical shock.

It is an object of this invention to provide a safety device for removing the charge on condensers when a chassis is removed from its mounting.

It is an object of this invention to provide an automatic discharge device which will assure the discharge of condensers when a chassis is removed from its mounting.

Further objects, features and advantages of the invention will become apparent from the following description and claims when considered in view of the drawings, in which:

Figure 1 is a side view of the discharge device of this invention,

Figure 2 is a top view of the apparatus of this invention.

Figure 3 is a sectional view taken on line 3—3 of Figure 2, and

Figure 4 is a schematic illustrating the shorting device in a particular discharge circuit.

Figure 1 discloses a plate **10** which might, for example, be a mounting plate upon which one end of a chassis **11** is supported by an arm **12**. The chassis **11** might carry thereon, for example, a communication receiver or transmitter or other electrical device which contains high voltage condensers that are dangerous to personnel.

Mounted to the chassis plate **11** are three insulating stand-offs **13** which are held by bolts **14** or other suitable means. A conducting plate **15** is triangular in shape and is attached to the stand-offs **13** by bolts or other suitable means.

Smaller ceramic stand-offs **16** are connected to the stand-offs **13** and have their opposite ends connected to a ceramic plate **17** which is connected to the stand-offs **16** by bolts or other suitable holding means.

The conducting plate **15** has a pin **18** that extends downwardly therefrom, as best shown in the sectional view of Figure 3. A plate of conducting material **19** is formed with an opening and is received over the pin **18**. An actuating member **20** is attached to the plate **19** and fits over the pin **18**.

A spring **21** is mounted between the plate **15** and the plate **19** and pushes them apart. A plurality of contacts **22** are mounted in the insulating plate **17** and are engageable by the plate **19** when the discharge device is in the up positon, as shown in Figure 3.

Figure 4 discloses the discharge device wherein, by way of example, three condensers C_1, C_2 and C_3 have one of their sides connected, respectively, to one of the contacts **22** and their opposite sides connected to the plate **15**. When the plunger **20** is pushed upwardly the plate **19** is out of engagement with the contacts **22** and the condensers C_1, C_2 and C_3 are effective.

However, when the chassis is raised relative to the supporting plate **10**, the plate **19** is allowed to engage the contacts **22** and thus completes the electrical circuit from the plate **15** to the plate **19** through the pin **18** and the spring **21** to short out the condensers.

In operation, whenever the plunger **20** is in the position shown in Figure 1, the condensers are not shorted and the circuit in which they are mounted will operate in the conventional manner.

However, when the chassis is moved relative to its mounting plate, the plunger **20** will fall downwardly, thus allowing the plate **19** to short the terminals **22**, thus discharging the condensers.

It is seen that this invention provides a safety device for protecting personnel.

Although the invention has been described with respect to a particular embodiment thereof, it is not to be so limited, as changes and modifications may be made therein which are within the full intended scope of the invention, as defined by the appended claims.

We claim:

1. A switch comprising, a chassis, a plurality of insulating stand-offs connected to said chassis, a first transverse plate attached to said stand-offs intermediate their ends, a pin attached to said first transverse plate, an actuating plunger receivable on said pin, a second plate of conducting material attached to said plunger, a third transverse plate of insulating material attached to the ends of said stand-offs, a plurality of contacts mounted in said insulating plate, said second plate supported between said first and third plates and engageable with said contacts, a spring mounted between said first and second plates to bias the plunger downwardly, an arm attached to said chassis, and the end of said plunger extending below said arm so as to disconnect the switch when the chassis is resting on a flat surface and to connect it when the chassis is lifted above the flat surface.

2. A safety switch for discharging condensers in a radio chassis comprising, a plurality of insulating stand-offs attached to said chassis and extending downwardly therefrom, a first transverse plate mounted between said stand-offs intermediate their ends, a pin attached to said first transverse plate, an actuating plunger received over said pin, a second transverse conducting plate attached to said plunger, a third insulated plate connected to the ends of said stand-offs, a plurality of contacts mounted in said insulated plate and engageable with said second transverse plate, a spring means between the first and second transverse plates to bias the plunger downwardly, a downwardly extending arm attached to said chassis and of a length so that when the chassis is resting on a flat surface the second plate is moved out of engagement with the contacts and when the chassis is lifted from the flat surface the second plate is allowed to move downwardly into engagement with the contacts.

References Cited in the file of this patent

UNITED STATES PATENTS

Number	Name	Date
1,862,928	Gebhard	June 14, 1932
1,865,237	Danuff	June 28, 1932
1,928,691	Huddleson	Oct. 3, 1933
2,144,873	Dimond	May 4, 1939
2,165,025	Baldwin, Jr.	July 4, 1939
2,312,243	Evans et al.	Feb. 23, 1943