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RHEOSTAT

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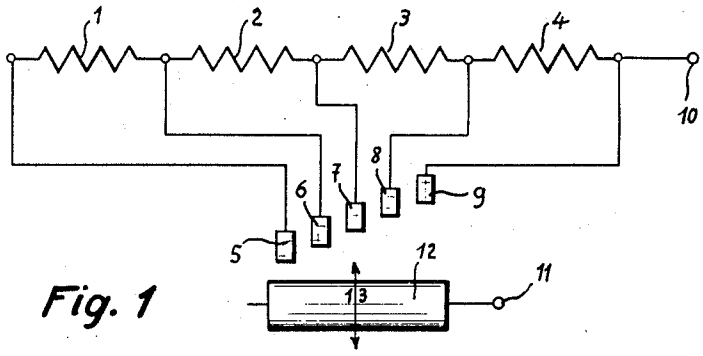


Fig. 1

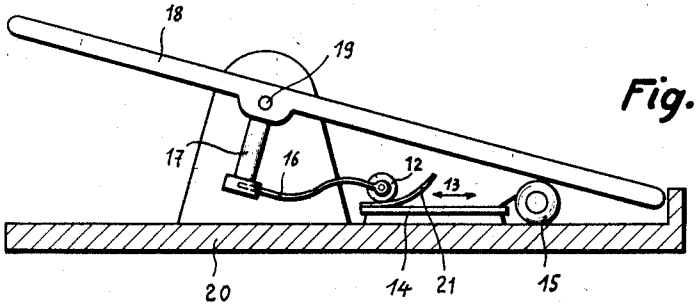


Fig. 2

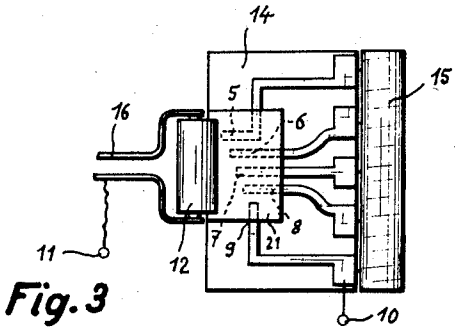


Fig. 3

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1 Claim. (Cl. 338—158)

The present invention relates to a rheostat comprising a series of contact studs with which there co-operates a sliding contact.

This rheostat is characterized by the fact that the said contact studs are disposed side-by-side and staggered in relation to one another in the direction of movement of the sliding contact, the dimension of the latter, measured perpendicularly to its direction of movement, corresponding to the space occupied by all the contact studs, also measured perpendicularly to this direction.

The accompanying drawing illustrates by way of example one constructional form of the subject of the invention.

Figure 1 is a diagrammatic plan view of the rheostat,

Figure 2 is an axial section through the rheostat provided with a pedal control, and

Figure 3 is a plan view of the rheostat.

The illustrated rheostat may be employed for any purpose, notably for starting an electric motor, such for example as the motor of a sewing machine.

It comprises four series-connected resistances numbered from 1 to 4, and four contact studs 5 to 8, each connected to the input of one of the resistances 1 to 4. The rheostat comprises in addition a fifth contact stud, designated by 9, which is directly connected to the output terminal 10. The input terminal 11 is connected to a sliding contact 12 moving translationally in the direction of the arrow 13.

The five contact studs 5 to 9 are staggered in relation to one another in the direction 13 of the movement of the sliding contact 12. The width of the latter, measured perpendicularly to the direction 13, is slightly greater than the space occupied by the five studs, also measured perpendicularly to the direction 13.

When the sliding contact approaches the studs, it first comes into contact with the stud 5, thus placing the four-resistances 1 to 4 in circuit. In continuing its forward movement, it comes into contact with the stud 6, thus placing the resistance 1 out of circuit, and then with the studs 7, 8 and 9, whereby it successively places out of circuit the resistances 2, 3 and 4.

By reason of this general arrangement, the total travel of the sliding contact may be kept very small, it being independent of the space which it is convenient to provide between the studs and depending only, apart from the number of studs, upon the distance by which they are

staggered with respect to one another. This distance may be made smaller than the minimum space which must be provided between the studs for reasons of operating reliability.

In the constructional form illustrated in Figures 2 and 3, the sliding contact is a roller and the studs form part of a printed circuit. However, these terms, which are commonly accepted in the field of electrical apparatus, have been retained here.

The studs 5 to 9 form part of a circuit printed on a thin board 14 having a rigid base. The set of windings 1 to 4 is mounted on a common spool 15 situated behind the board 14. The board constitutes a rolling surface for the sliding contact 12 formed of a rotative cylinder or roller mounted in a resilient stirrup 16 connected to the input terminal 11 of the rheostat. The end of the said stirrup is let into a support 17 fixed to a pedal 18, which is in turn rockably connected at 19 to a frame 20. The rocking movements of the pedal 18 about the pin 19 produce the movements of the cylinder 12 in the direction of the arrow 13. Owing to the resilience of the stirrup 16, the cylinder is maintained in contact with the board 14.

It is to be noted that a metal sheet 21, preferably of copper, is disposed between the roller 12 and the contacts 5 to 9. This metal sheet is fixed at one of its edges to the base plate 14 on which the contacts 5 to 9 are printed. The said metal sheet is produced by rolling, and it is so disposed that the rolling direction corresponds to the direction of movement of the roller 12. Owing to this arrangement, it tends to curl and consequently to remain in spaced relation to the contact by virtue of its own resilience. In advancing in the direction of the resistances 15, the roller applies the said sheet 21 progressively against each of the contacts 5 to 9, the electrical contact thus established being better than if the roller moved directly on the said studs.

The invention is not limited to the constructional form described and illustrated. The number of studs could be varied, and the studs could be of small surface, so that the contact is broken on one stud when the sliding contact passes on to the next stud.

Instead of forming an independent winding, the resistances could be printed directly on the board 14.

What I claim is:

In a rheostat comprising a series of contact studs and a sliding contact consisting of a cylinder rolling over said studs which are disposed side by side and are staggered in relation to one another in the direction of movement of said contact cylinder, in such a rheostat, a flexible metal sheet tending resiliently to curl, disposed between the contact cylinder and said studs, and which is applied against said studs by said contact cylinder.

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