Sept. 30, 1947. H. A. BREEDING 2,428,195

ADJUSTABLE CAM FOR ELECTRIC CIRCUIT CONTROLLERS

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Fig. 1.

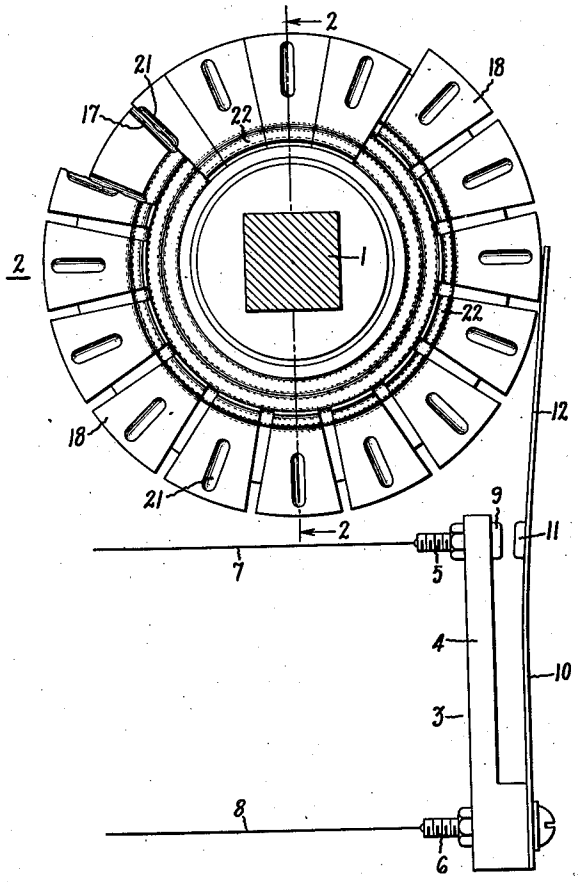
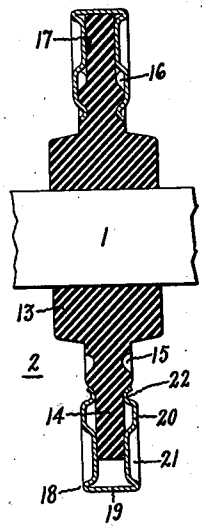


Fig. 2.



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ADJUSTABLE CAM FOR ELECTRIC CIRCUIT CONTROLLERS

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5 Claims. (Cl. 74—568)

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In certain applications where a series of cams are used to actuate circuit closers in a desired sequence and for predetermined time intervals, it is desirable to be able to adjust readily the relative positions of the cams to vary the sequence and the length of the cams to vary the time intervals. One such application is in connection with traffic signals where a number of cams are mounted side by side on a shaft to form a drum controller and the shaft is turned either continuously or step by step to effect the opening and closing of circuit closers actuated by the cams, the circuit closers in turn operating the traffic signal lamps. Such a controller is shown, for example, in the patent to Reid 2,236,297, March 25, 1941, assigned to the same assignee as is my present application.

The object of my invention is to provide an improved adjustable cam and for a consideration of what I believe to be novel and my invention, attention is directed to the following specification and to the claims appended thereto.

In the drawing, Fig. 1 is a side elevation, partly broken away, of an adjustable cam embodying my invention and Fig. 2 is a sectional view taken on line 2—2, Fig. 1.

Referring to the drawing, 1 indicates a shaft which may be rectangular in cross section and on which are mounted a series of cams 2 which actuate circuit closers 3. As shown in the present instance, the circuit closer comprises a block of insulating material 4 having terminals 5 and 6 to which are connected lead wires 7 and 8, the terminal 5 having a contact head 9 and the terminal 6 having connected thereto a contact strip 10 having a contact head 11 adapted to engage contact head 9 and a free end 12 which rides on the surface of the cam.

My improved adjustable cam comprises a body of insulating or other suitable material having a hub 13 provided with a rectangular opening to fit shaft 1 and a web 14. On its opposite sides, web 14 is provided with a plurality of circumferential grooves, two being shown in the present instance, a radially inner groove 15 and a radially outer groove 16. Also, on opposite sides of web 14 are circumferentially spaced radially extending guide grooves 17 which extend from the periphery of the web radially inward a certain distance. In the present instance, they are shown as extending radially inward to outer groove 16.

Mounted on web 14 is a ring of cam segments 18 each comprising suitable sheet material shaped to provide an outer or end wall 19 adapted to form a part of a cam surface and side arms

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20 integral with the end wall and extending along the web on opposite sides thereof. The cam arms 20 are formed of a suitable spring material so that the arms grip the sides of the web. Arms 20 are provided with inwardly extending ridges or suitably formed indentations 21 which ride in radial guide grooves 17 and with circumferentially formed indentations or beads 22 at their inner ends adapted to fit into grooves 15 and 16. In Fig. 1, two adjacent cam segments are shown as being broken away in order to show more clearly the guide grooves 17.

In the use of my invention, the cam segments are positioned on the web and suitable ones are pushed in to the position shown at the top of Fig. 2 and over an arc of the extent shown in Fig. 1 to form a low place on the cam, while the others are in the position shown at the lower end of Fig. 2 and throughout the remaining arc of Fig. 1 to form a high portion on the cam. They are held in their respective radially spaced positions by the circumferentially formed indentations or beads 22 engaging in the respective annular grooves 15 and 16 and are held against circumferential movement or twisting by the indentations 21 in grooves 17. To change the cam, it is necessary merely to push cam segments in from the position shown at the bottom of Fig. 2 to the position shown at the top of Fig. 2 or to pull them out from the position shown at the top of Fig. 2 to the position shown at the bottom of Fig. 2, the movements being guided by the indentations 21 riding in the radially extending grooves 17. It will be understood, of course, that instead of forming grooves 17 in the web and ridges 21 on the segments, the reverse arrangement may be used, the ridges being formed on the web and the radial grooves in the arms. However, I prefer the arrangement illustrated.

By my invention, I provide an adjustable cam which is relatively simple in structure, capable of being manufactured at low cost and which can be readily adjusted to change the setup of a drum controller without the necessity of removing the cams from the shaft, it being necessary merely to shift the cam segments. The cam segments may be shifted with the fingers or they may be shifted by means of a suitable tool such as a screw driver or other pointed implement.

In accordance with the provisions of the patent statutes, I have described the principle of operation of my invention, together with the apparatus which I now consider to represent the best embodiment thereof, but I desire to have it understood that the apparatus shown is only illus-

trative and that the invention may be carried out by other means.

What I claim as new and desire to secure by Letters Patent of the United States, is:

1. A cam for a drum controller or the like comprising an annular web of insulating material having radially inner and outer annular grooves thereon, and cam segments having side arms of resilient material which fit over the web and tightly grip it between the arms, said arms being provided with beads which fit into said annular grooves for holding the segments in either a radially outward or a radially inward position.

2. A cam for a drum controller or the like comprising an annular web of insulating material having radially inner and outer annular grooves thereon, and cam segments having side arms of resilient material which fit over the web and tightly grip it between the arms, said arms being provided with beads which fit into said annular grooves for holding the segments in either a radially outward or a radially inward position, and interengaging means on the web and arms for guiding the segments radially.

3. A cam for a drum controller or the like comprising an annular web having on opposite sides radially spaced circumferential grooves and radially adjustable cam segments on the web having spring arms which grip the sides of the web and beads adapted to fit into said grooves to hold the segments in adjusted positions.

4. A cam for a drum controller or the like comprising an annular web and cam segments having spring arms between which the web is gripped, said cam segments being slidable radially on the web, and interengaging means on the web and arms for holding the cam segments in selectable radially spaced positions on the web.

5. A cam for a drum controller or the like comprising an annular web and cam segments having spring arms between which the web is gripped, said cam segments being slidable radially on the web, and interengaging means on the web and arms for holding the cam segments in selectable radially spaced positions on the web and for guiding the radial movements of the segments on the web.

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