

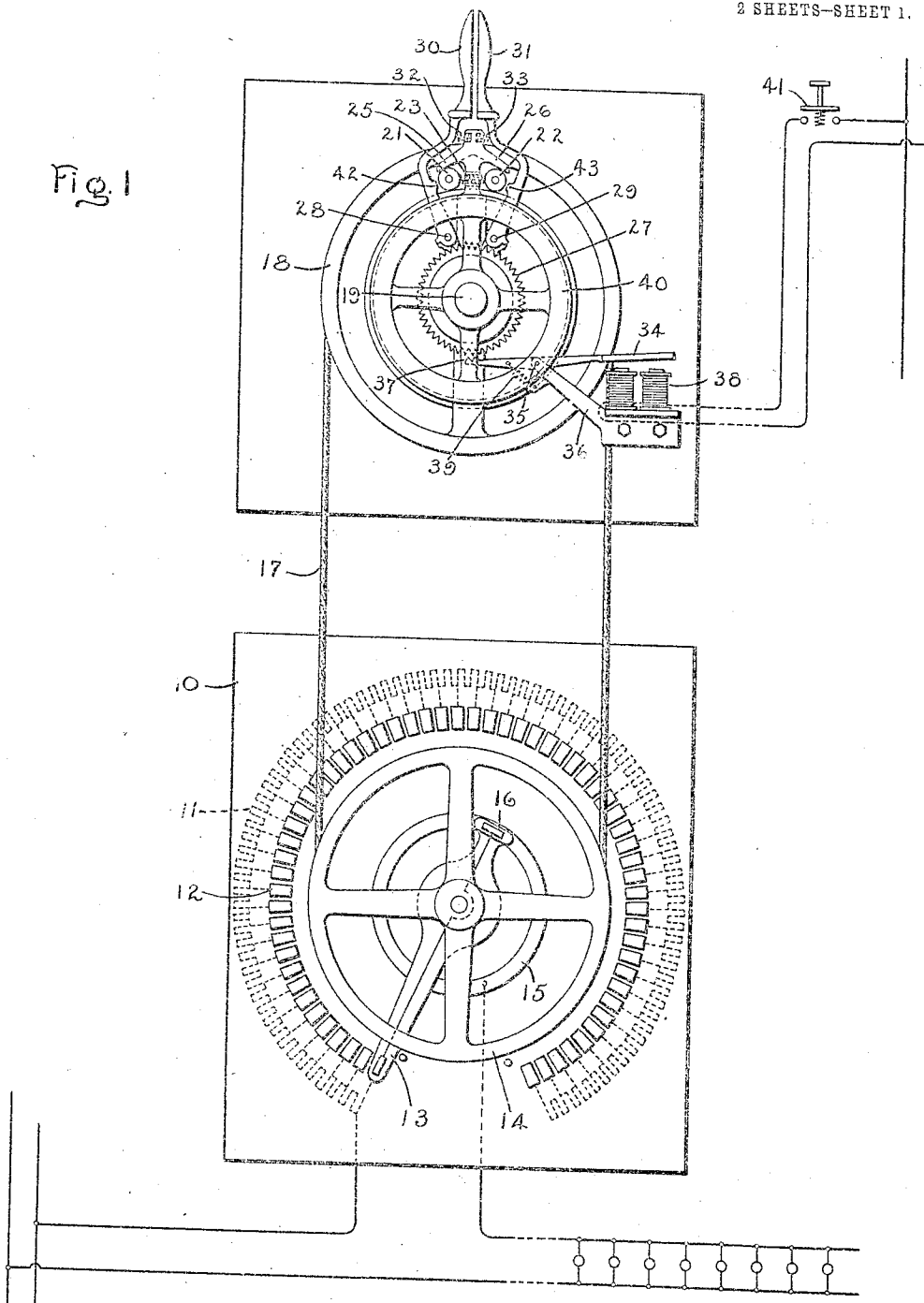
F. KÄSTNER.
CIRCUIT CONTROLLING DEVICE.
APPLICATION FILED FEB. 17, 1908.

1,028,360.

Patented June 4, 1912.

2 SHEETS—SHEET 1.

Fig. 1



WITNESSES:

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2 SHEETS—SHEET 2.

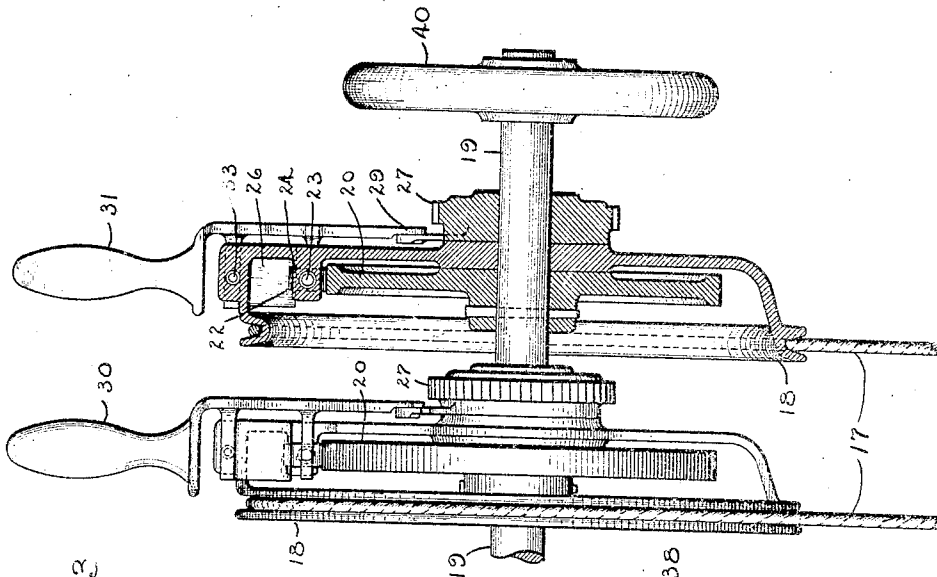


Fig. 3

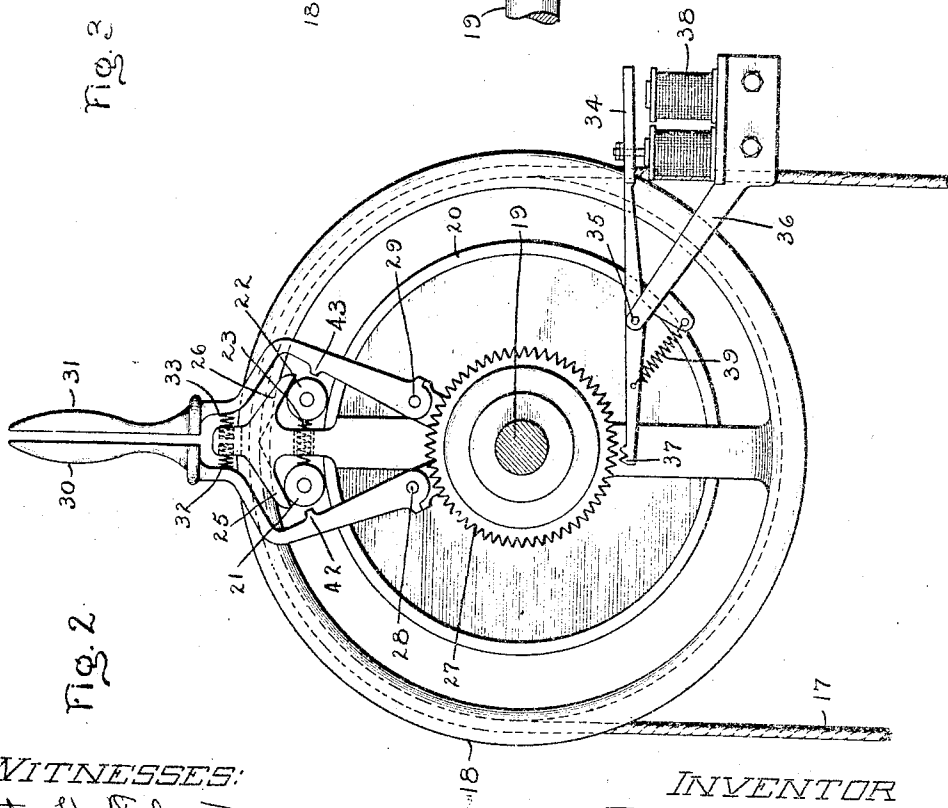


Fig. 2

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UNITED STATES PATENT OFFICE.

FRANZ KÄSTNER, OF BERLIN, GERMANY, ASSIGNOR TO GENERAL ELECTRIC COMPANY
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CIRCUIT-CONTROLLING DEVICE.

1,028,360.

Specification of Letters Patent.

Patented June 4, 1912.

Application filed February 17, 1908. Serial No. 416,242.

To all whom it may concern:

Be it known that I, FRANZ KÄSTNER, a subject of the King of Saxony and of the Emperor of Germany, residing at Berlin, Germany, have invented certain new and useful Improvements in Circuit-Controlling Devices, of which the following is a specification.

This invention relates to devices for controlling electric circuits and has for its object the provision of means whereby one or more resistance devices may be operated and controlled to affect the circuit in a reliable, simple and efficient manner.

My invention relates more specifically to devices for controlling circuits containing a plurality of translating devices, such for instance as lamps.

My invention finds a specific application in stage lighting in which a number of lighting circuits are to be controlled either independently or in unison from a remote point. It has been the practice heretofore in devices of this sort, which are commonly known as theater dimmers, to employ a common driving shaft to which the regulating levers are connected. In order to disconnect one of these levers from the shaft it must necessarily be done with one hand while the other hand operates the main drive shaft. Usually moreover the levers are so situated that the stage or part of the theater, which is lighted, cannot be seen and it is therefore difficult to arrange the lights in a satisfactory manner.

One of the objects of my invention is to make it possible to connect and disconnect the operating levers by a magnetic device controlled by push buttons. These push buttons may be arranged at a convenient point in proximity to the operating handle of the main driving shaft so that the operation will be performed in a very simple manner.

In the accompanying drawings in which I have shown my invention embodied in concrete form, Figure 1 is a front elevation of my device showing the circuit connections; Fig. 2 is a front elevation of the operating mechanism; and Fig. 3 is an end elevation of the same, partly in section.

In Fig. 1, I have shown only one lighting circuit but it should be understood that I do this merely for purposes of convenience since any number may be employed as found

desirable. In this figure 10 is a regulator of any well known type comprising a resistance 11 connected to studs 12 and a controlling arm 13 operated by means of a wheel or sheave 14. Circuit connection is made to the arm by means of a segment 15 with which the arm makes contact at 16. The particular type of rheostat or regulator, however, forms no part of my invention, and may be of any desired type. The operating mechanism for this rheostat is located at a remote point and operates the rheostat by means of a rope or cable 17 passing over the shaft 14 and driven by the sheave 18. This sheave 18 is one of a number mounted loosely upon a common drive shaft 19 and is flared outward as shown so as to receive the clutch mechanism on its inner side. A clutch member or disk 20 is keyed to the shaft adjacent the hub of the sheave and has a flat face adapted to be engaged by rollers 21 and 22. These rollers normally rest upon the face of the wheel 20 and are pressed apart by means of a spring 23 mounted on a projection 24 on the wheel. At a point adjacent the rollers the wheel is provided with beveled surfaces 25 and 26, which project downward so as to engage the rollers as shown. The arrangement is thus such that if the disk is turned in one direction, roller 21 will be wedged between the surface 25 and the surface of the disk 20 and act as a driving member between the disk and the wheel, while if the disk is turned in the opposite direction, the roller 22 will perform a similar function. A ratchet wheel 27 is loosely mounted upon the shaft 19 and has pivoted thereto at 28 and 29, respectively, the two levers 30 and 31 constituting an operating handle. These levers are bent around the rollers and beveled surfaces as shown, and their outer ends are spaced apart by means of springs 32 and 33 mounted at the outer end of a projection on the handle. The ratchet wheel is adapted to be engaged and locked in place by means of a lever 34 pivoted at 35 to a bracket 36. The lever is provided at one end with teeth 37 which are adapted to lock the ratchet wheel in place while the opposite end is formed into an armature cooperating with the electromagnetic device 38. When the magnet is energized the ratchet wheel will be locked, and when it is deenergized a spring 39 will withdraw the toothed arm

and release the ratchet wheel. Any number of these operating mechanisms may be arranged upon the shaft depending upon the number of circuits to be controlled.

5 The mode of operation of my device is as follows: When the shaft 19 is turned in any manner, as for instance by means of the hand wheel 40, all of the operating mechanisms mounted upon the shaft will normally
10 operate since each disk 20 will be locked to its corresponding sheave in the manner above described. As the sheave revolves, the operating levers 30 and 31 will be carried with it since they are connected to the disk
15 through the springs 32 and 33 and the rollers 21 and 22. In this way all of the rheostats will be operated together. If, however, it is desired to stop the operation of one of the rheostats, it may be done by pressing a button 41, which will energize magnet 38 and stop the movement of the ratchet wheel 27. This will immediately force one of the rollers 22 or 23, depending upon the
5 direction of rotation, into contact with its corresponding lug 42 or 43 and force it out of its wedged position between the disk and the beveled surface to stop the operation of the shaft. In the meantime the other rheostats may be regulated as before. If it is
30 desired to operate any one of the rheostats alone, it may be done by grasping the levers 30 and 31, which upon being pressed together will force both rollers 21 and 22 out of engagement with the disk and the sheave
35 may then be operated. While I have described my invention as embodying certain structural features, it should be understood that I do not limit my invention to the construction or arrangement of parts shown and described except in so far as it is limited
40 by the scope of the claims annexed hereto.

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

1. The combination with a plurality of
45 rheostats, of a drive shaft, operating mechanisms for said rheostats arranged to be driven by said shaft, means whereby each operating mechanism is clutched to the drive shaft by a relative movement in either di-
50 rection between the mechanism and the shaft, and means for causing said relative movement.

2. The combination with a plurality of
55 rheostats, of a drive shaft, operating mechanisms for said rheostats arranged to be driven by said shaft, means whereby each operating mechanism is clutched to the shaft by a relative movement in either direction between the mechanism and the shaft, and
60 means whereby the mechanism and the shaft are unclutched by stopping the movement of the operating mechanism.

3. The combination with a plurality of
65 rheostats, of a drive shaft, operating mechanisms for said rheostats arranged to be

driven by said shaft, means whereby each operating mechanism is clutched to the shaft by a relative movement in either direction between the mechanism and the shaft, means whereby the mechanism and the shaft are unclutched by stopping the movement of the operating mechanism, and electrically controlled means for stopping the movement.

4. The combination with a plurality of
75 rheostats, of a drive shaft therefor provided with a friction disk for each rheostat, operating mechanism for said rheostats each including a pair of friction rollers for locking the disks to the operating mechanism upon the rotation of the disk in either direction, and means for rotating said disks.

5. The combination with a plurality of
85 rheostats, of a drive shaft, operating mechanisms for said rheostats arranged to be driven by said shaft each comprising a clutch member secured to the shaft, a second member having driving connections with a rheostat, means whereby said members are clutched together by a relative movement be-
90 tween them and an electromagnetically-controlled mechanism for unclutching said members.

6. The combination with a plurality of
95 rheostats, of a drive shaft therefor provided with a friction disk for each rheostat, operating mechanisms for said rheostats each including a pair of friction rollers for locking the operating mechanism to the disk, upon a movement of the latter in either di-
100 rection, means whereby the locking roller is released from the disk by stopping the movement of the operating mechanism, and electrically controlled means for stopping said movement.

7. The combination with a plurality of
105 rheostats, of a drive shaft, operating mechanisms for said rheostats arranged to be driven by said shaft each comprising a clutch member secured to the shaft, a second member having driving connections with the rheostat, means whereby said members are clutched together by a relative movement between them, an operating handle for each of said rheostats, means where-
115 by a relative movement between said handle and said members disconnects the same, and an electromagnetic device for causing a relative movement.

8. The combination with a rheostat, of an
120 actuating mechanism therefor comprising a drive shaft, a clutch member secured thereto, a second member having driving connections with the rheostat, an operating handle movable independently of said members,
125 means whereby a relative movement between said handle and said members effects the driving connection between the members, and an electromagnetic device for causing a relative movement.

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9. The combination with a rheostat, of an actuating mechanism therefor comprising a drive shaft, a clutch member secured thereto, a second member having driving connections with the rheostat, means whereby said members are clutched together by a relative movement between them, an element normally movable with the shaft, means whereby said element effects a disengagement of said members when its movement is stopped, and an electromagnetic device for stopping movement of the element.

10. The combination with a rheostat, of an actuating mechanism therefor comprising a drive shaft, a clutch member secured thereto, a second member having driving

connections with the rheostat, means whereby said members are clutched together by a relative movement between them, a controlling handle normally movable with the shaft, means whereby said handle effects the disengagement of said members when its movement is stopped, and an electromagnetic device for stopping movement of the handle.

In witness whereof, I have hereunto set my hand this twenty-ninth day of January, 1908.

FRANZ KÄSTNER.

Witnesses:

JULIUS RUMLAND,
KARL BREKEBEN.