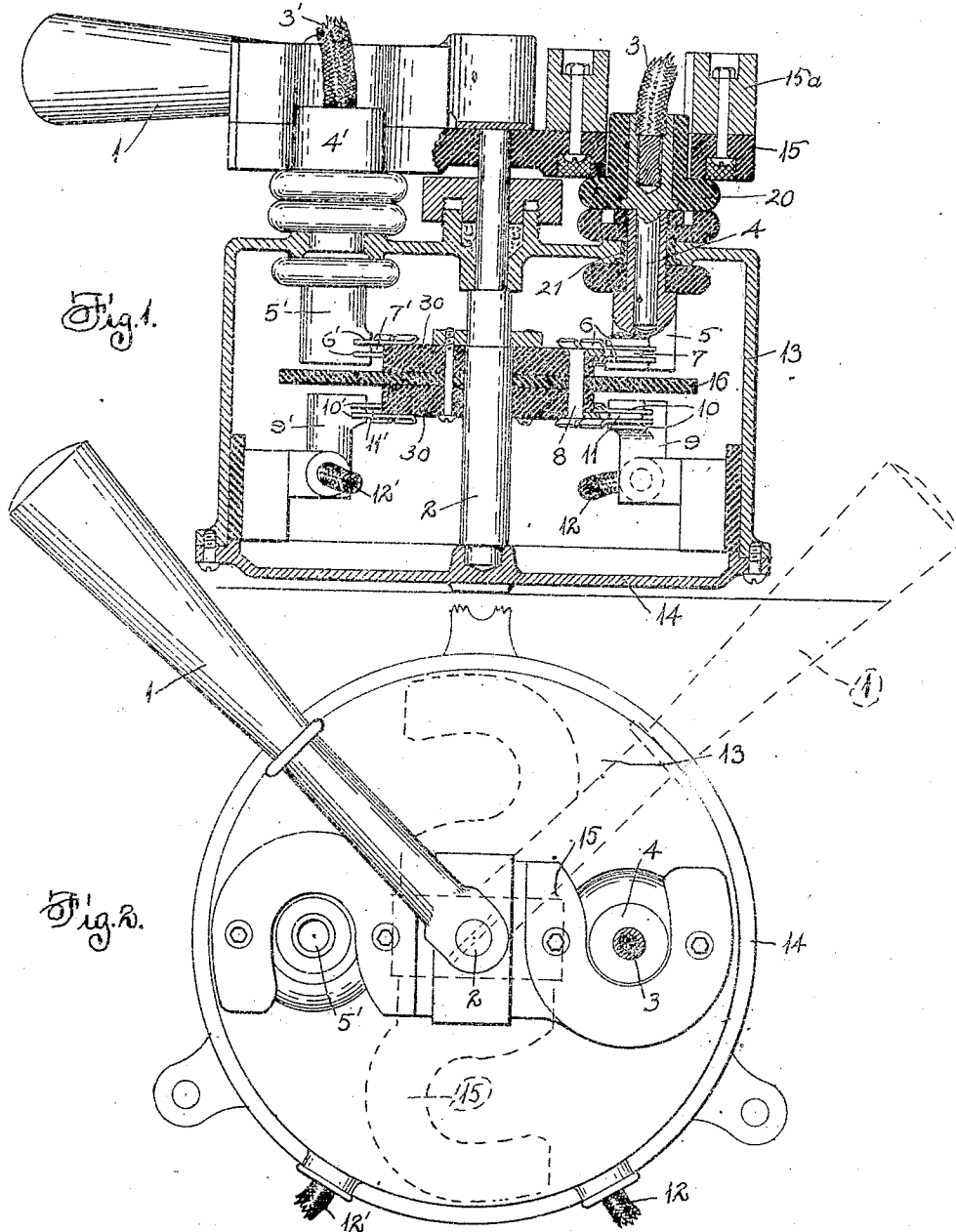


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ELECTRICAL SWITCH.
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1,006,148.

Patented Oct. 17, 1911.



Witnesses:
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UNITED STATES PATENT OFFICE.

CARLTON L. TERRY AND PITT TOWNSEND, OF CLEVELAND, OHIO.

ELECTRICAL SWITCH.

1,006,148.

Specification of Letters Patent.

Patented Oct. 17, 1911.

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To all whom it may concern:

Be it known that we, CARLTON L. TERRY and PITT TOWNSEND, citizens of the United States, residing at Cleveland, in the county of Cuyahoga and State of Ohio, have invented certain new and useful Improvements in Electrical Switches, of which the following is a specification.

This invention relates to electrical switches, and has for its special object to provide a nonsparking switch or connecting device, by means of which branch circuits may be connected or disconnected without arcing between contacts. This object is effected by providing a structure in which the plugs of the branch lines cannot be inserted or removed while the main circuit is closed, the switch actuating device carrying a member which prevents disconnection or connection of the branch circuits when the switch is closed.

Various other advantages of construction will be apparent from the following description and accompanying drawings.

In the drawings—Figure 1 is a central vertical section of the switch receptacle and attaching parts. Fig. 2 is a plan view thereof, one of the branch plugs being removed from its socket.

Referring specifically to the drawings, 13 indicates an air tight switch box which may be filled with oil if desired. The switch shaft 2 projects into this box through a gland in the top, and is provided with a handle lever 1 for operation. The branch circuit cables are indicated at 3 and 3', and these terminate respectively in plugs 4 and 4', arranged to be inserted in sockets 5 and 5' in the casing. The plugs have heads of insulation 20, and the sockets are bushed with insulation 21. Attached to the respective sockets are opposite brush contacts or members 6 and 6' which receive the upper knives 7 and 7' connected by rivets 8 to the lower knives 11 and 11' which contact with the lower brushes 10 and 10' attached to the sockets 9 and 9' for the main cables 12 and 12'. The knives are mounted upon blocks of insulation 30 secured to the shaft 2, and an insulating plate 16 projects from the shaft between the upper and lower brushes for the purpose of preventing arcing between the main and branch terminals. The circuit is opened and closed by turning the shaft 2 to connect or disconnect the plates from the brushes.

14 is a removable lid for the switch box.

The outer end of the shaft 2 has mounted thereon a locking member 15 consisting of bent arms of insulating material projecting oppositely from the shaft, the insulation being strengthened by metallic segments 15^a. These locking arms are of proper size and shape to engage over the flanges 20 of the heads on the plugs when said plugs are in place, as shown in full lines in Figs. 1 and 2, and the arrangement is such that when in this position the switch is closed. The locking engagement of said arms over said plugs prevents the removal of the plugs until the switch is turned to open position, as shown in dotted lines in Fig. 2. Furthermore the plugs cannot be inserted until the switch is turned to open position. Accordingly arcing incident to the insertion or removal of the plugs when the switch is closed is prevented, and hence the device may be safely used in mines and other places where danger of ignition of gas exists.

What we claim as new is:—

1. The combination of a switch casing having sockets therein, connecting plugs adapted to fit into said sockets, a switch lever adapted to open and close the switch, and swinging arms operatively connected to said lever and engageable with said plugs to prevent insertion or removal of the plugs when the switch is closed.

2. The combination of a switch box having sockets therein opening through the wall of the box, connecting plugs adapted to fit into said sockets, a switch shaft extending through the wall of the box and provided with a handle, and a locking member carried by said shaft, outside of the casing, and engaging the plugs to lock the same in the sockets when the switch is closed.

3. The combination of a switch box having sockets therein, a switch lever, connecting plugs fitting into said sockets and having heads, and a swinging locking member operatively connected to the lever and turning therewith and engageable with the heads to lock the plugs in the sockets when the switch is closed.

4. The combination of a switch box having sockets for attaching plugs opening through the wall thereof, a switch lever including a shaft extending into the box between the sockets, and arms operatively connected to the lever outside of the box and arranged to swing over the sockets, when the

switch is closed, to prevent insertion or removal of the plugs.

5 5. The combination of a switch box having terminals therein, connecting plugs adapted to engage said terminals, a switch shaft extending through the wall of the box and provided with a handle, and a locking member carried by said shaft, outside of the casing, and engaging the plugs to lock the same in engagement with the terminals when the switch is closed.

15 6. The combination of a switch box having terminals therein, a switch shaft, connecting plugs engaging said terminals and having heads, and a swinging locking member carried by the shaft and turning therewith and engageable with the heads to lock the plugs in engagement with the terminals when the switch is closed.

20 7. In a device of the class described, the combination of a flame proof casing, switch contacts within the casing, a shaft within the casing and operable from a point outside, a switch arm mounted on the shaft and adapted to engage the switch contacts to connect them, a terminal connected to one of the switch contacts, a conductor plug adapted to engage the terminal, and a locking arm connected to the shaft and adapted to engage the plug to lock it in engagement with the terminal when the switch arm is in engagement with the contacts.

30 8. In a device of the class described, the combination of a flame proof switch, a shaft for operating the switch, a terminal connected to the switch, a conductor plug adapted to engage the terminal, an arm connected to the shaft and provided with a fork having prongs adapted to engage the plug to hold

it in engagement with the terminal when the switch is in closed position. 40

9. In a device of the class described, the combination of a casing, a switch in the casing, a switch operating device, conductor terminals within the casing connected with the switch, connecting plugs adapted to engage the terminals and a movable device outside of the casing for holding the plugs in or out of engagement with the terminals, and a means operably connecting the said holding device with the switch operating device, whereby the holding device is maintained in operative position when the switch is closed. 45 50

10. The combination of a switch box having a terminal therein, a connecting plug adapted to engage said terminal, a switch shaft extending through the wall of the box and provided with a handle, and a locking member carried by said shaft, outside of the casing, and engaging the plug to lock the same in engagement with the terminal when the switch is closed. 55 60

11. The combination of a switch box having a terminal therein, a switch lever, a connecting plug engaging said terminal and having a head, and a swinging locking member operatively connected to the lever and turning concentrically therewith and engageable with the head to lock the plug in engagement with the terminal when the switch is closed. 65 70

In testimony whereof, we do affix our signatures in presence of two witnesses.

CARLTON L. TERRY.
PITT TOWNSEND.

Witnesses:

HARRY A. THOMPSON,
C. V. LLOYD.