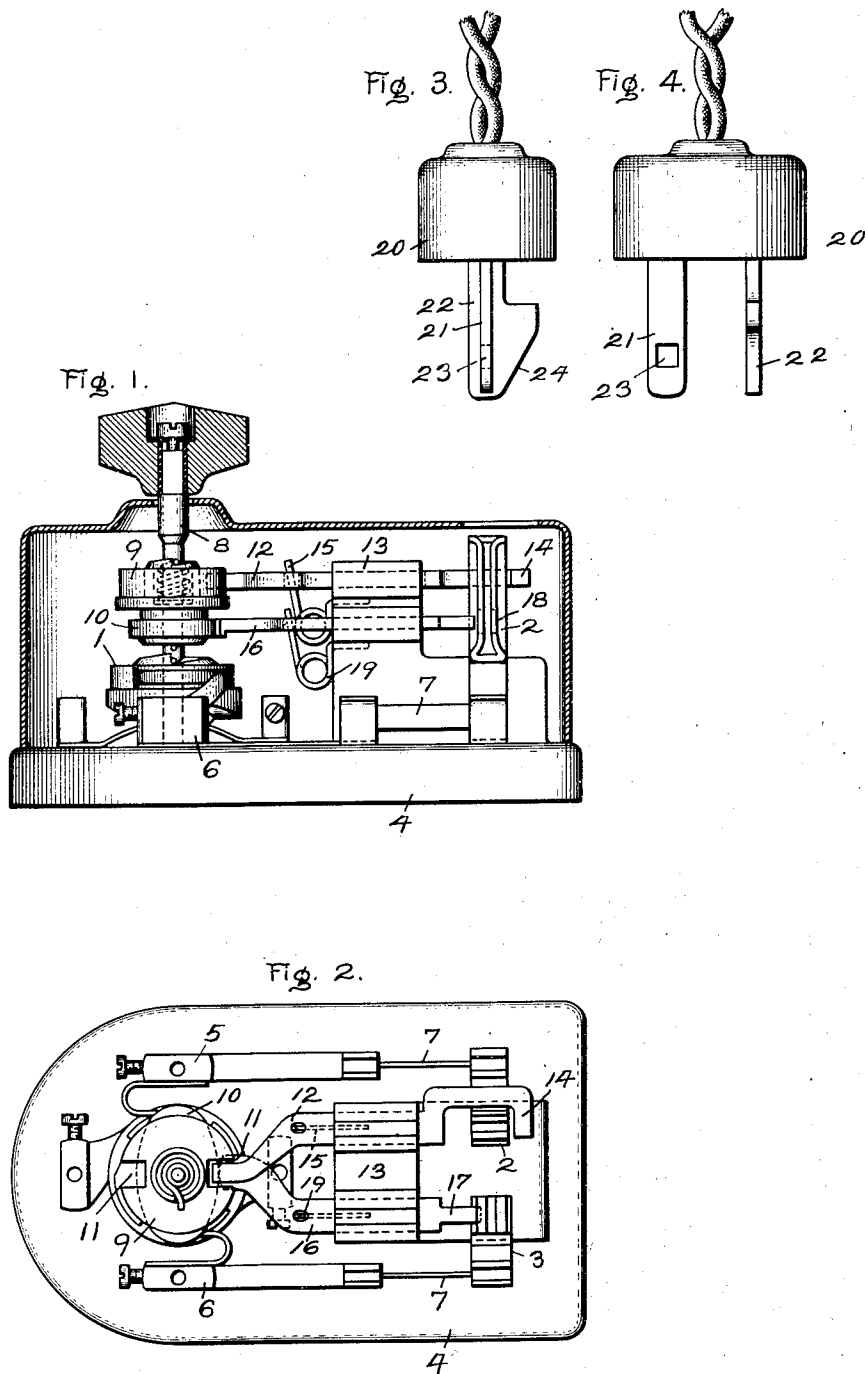


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COMBINED SWITCH AND BRANCH PLUG.
APPLICATION FILED JULY 29, 1909.

1,019,455.

Patented Mar. 5, 1912.
2 SHEETS—SHEET 1.



WITNESSES:

Lester H. Palmer.
J. Ellis R. R.

INVENTOR
FRITZ GRAF.

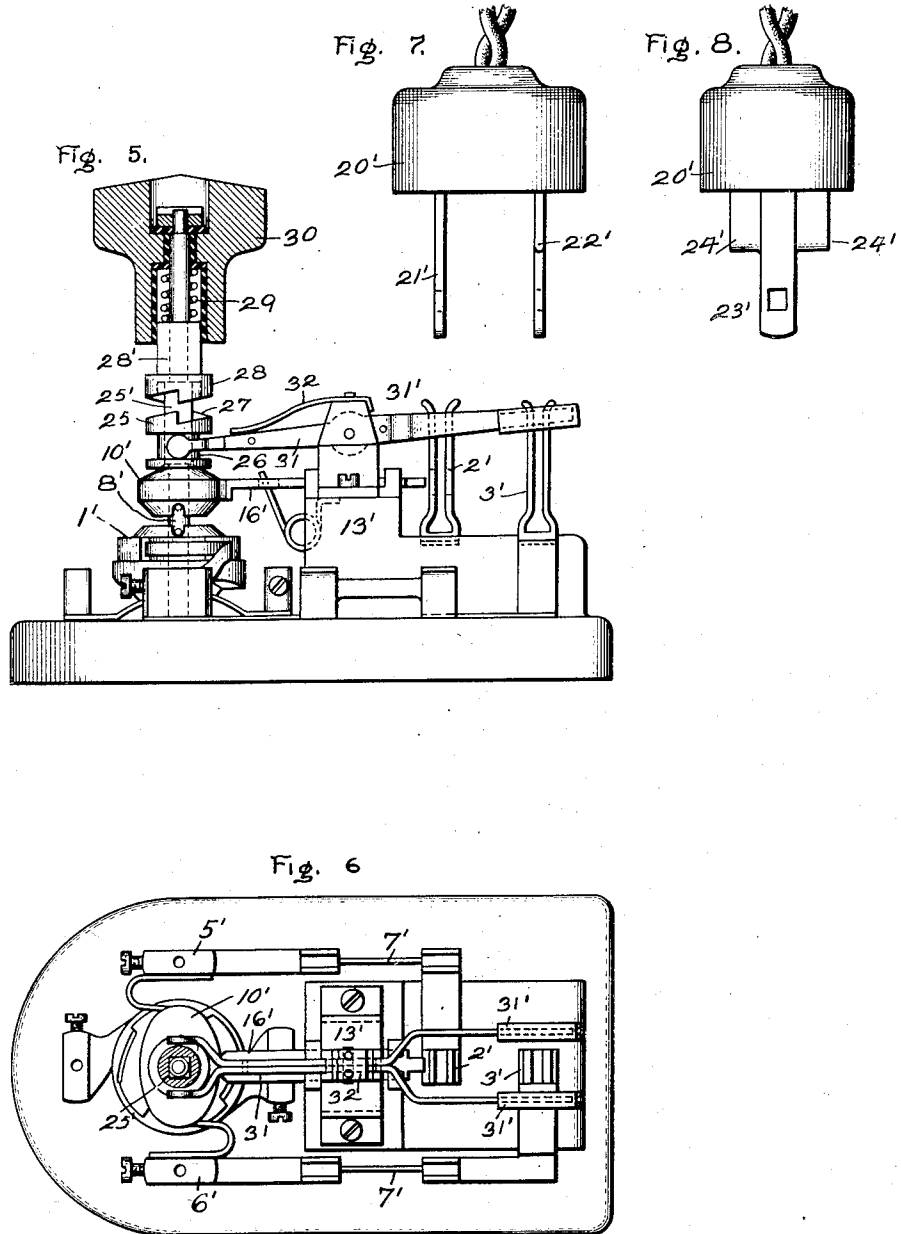
BY *Alfred H. Davis*
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INVENTOR
 FRITZ GRAF.
 BY *Alfred Davis*
 ATT'Y.

UNITED STATES PATENT OFFICE.

FRITZ GRAF, OF PANKOW, GERMANY, ASSIGNOR TO GENERAL ELECTRIC COMPANY, A CORPORATION OF NEW YORK.

COMBINED SWITCH AND BRANCH PLUG.

1,019,455.

Specification of Letters Patent.

Patented Mar. 5, 1912.

Application filed July 29, 1909. Serial No. 510,316.

To all whom it may concern:

Be it known that I, FRITZ GRAF, a subject of the Emperor of Germany, residing at Pankow, Germany, have invented certain new and useful Improvements in Combined Switches and Branch Plugs, of which the following is a specification.

The present invention relates to combined switches and branch plugs, and has for its object the provision of a device of this character which may be used on power and similar circuits of considerable volume of current without danger of the contacts becoming injured by reason of arcing of contacts or danger to the operator.

The present invention consists in providing a combined switch and branch plug with means for positively preventing the switch from being closed until the branch plug has been inserted in its contacts; also for preventing the branch plug from being withdrawn until the switch is being thrown to open position.

In the accompanying drawings forming a part of this specification, Figure 1 is a longitudinal section of the casing of a combined switch and branch plug showing the parts in their normal positions prior to the insertion of the plug; Fig. 2 is a plan view of the same with its cover removed; Figs. 3 and 4 are respectively end and side elevations of the plug; Fig. 5 is a side elevation with parts in section of a modified form of combined switch and branch plug; Fig. 6 is a plan view of the same; and Figs. 7 and 8 are respectively side and end elevations of the plug used with the construction shown in Fig. 5.

In the construction shown in Figs. 1 and 2, the switch 1 and plug contacts 2, 3 are mounted upon an insulating base 4 with the opposite switch contacts 5 and 6 connected respectively to the plug contacts 2 and 3 through fuse connections 7. The switch may be of any well-known construction, and therefore is not described here.

Upon the shaft 8 of the switch are mounted two plates 9 and 10. In the plate 9 are formed two opposite notches 11 for engagement, when the switch is in open position, of the inner end of a sliding rod 12 carried in a guide 13 supported on the base 4 with its outer end 14 bent and extending to the far side of the contact 2. Said rod is nor-

mally forced inwardly by a spring 15 supported on the guide 13. The plate 10 is in the form of an elliptical cam and engages the inner end of a sliding rod 16 carried in the guide plug 13 and its outer end 17 normally resting adjacent the inner edge of the stationary contact 3 and adapted, when the switch is turned into closed position, to pass through aperture 18 formed in the said contact. The rod 16 is pressed inwardly against the cam plate 10 by a spring 19.

A plug 20 is provided with two contact fingers 21 and 22 disposed in planes at right angles to each other. The contact 21 is parallel sided and provided with a square aperture 23 near its lower end for the reception of the outer end 17 of the sliding rod 16, and contact 22 is provided with an inclined edge 24 adapted to engage the bent end 14 of the sliding rod 12 and retract the latter as the plug is forced home into its contacts 2 and 3. Upon the sliding rod 12 being detracted from a notch 11 in plate 9, the switch is free to be rotated into a closed position and this rotation operates through the cam-shaped plate 10 acting upon the sliding rod 16 to project the end 17 into the apertures 18 and 23 thereby locking the plug against withdrawal while the switch remains in closed position.

In the modification shown in Figs. 5 and 6, the shaft 8' of the switch is provided with a cam plate 10' which operates on a sliding rod 16' as in the device above described, but instead of a plate 9 a clutch member 25 is provided on a squared portion 25' of the shaft 8' having a peripheral groove 26 and engaging teeth 27 at its upper edge adapted to engage a correspondingly-shaped clutch member 28 slidable on a round portion of the shaft 8' and provided with a squared shank 28' extending into a corresponding recess in the thumb piece 30. A spring 29 is provided between the upper end of the clutch member 28 and the thumb piece 30 to yieldably hold the clutch member 28 against the upper end of the squared portion 25' of the shaft 8'. The clutch member 25 is engaged by a pivoted member 31 fulcrumed upon the guide block 13' and having a bifurcated arm 31' extending on opposite sides of the contact 3', while the inner end of the pivoted member is normally held depressed by a spring 32.

The branch plug 20' is provided with contacts 21' and 22' arranged in parallel planes. Contact 21' is a counterpart of the contact 21, Figs. 3 and 4, while contact 22' is provided with shouldered offsets 24'. When the branch plug is inserted in its stationary contacts 2' and 3', the shoulders of the offsets engage the bifurcated end of the pivoted member 31 and force the same downwardly and raise the inner end thereof and with it the clutch member 25 into engagement with the clutch member 28 so that the switch handle 30 is positively clutched to the switch 1' permitting the latter to be rotated into closed position and the branch plug to be locked into engagement by the sliding rod 16' as in the construction hereinbefore described.

I do not desire to restrict myself to the particular form or arrangement of parts herein shown and described, since it is apparent that they may be changed and modified without departing from my invention.

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

1. The combination with an attachment plug and its stationary contacts, of a switch in circuit with said contacts, and control-

ling means for said switch actuated by said plug.

2. The combination with an attachment plug and its stationary contacts, of a switch in circuit with said contacts, and means for preventing the closing of said switch until said plug has been brought into engagement with its stationary contacts.

3. The combination with an attachment plug and its stationary contacts, of a switch in circuit with said contacts, and a device having means at one end to disable said switch and means at the other end whereby it may be engaged and controlled by the attachment plug.

4. A combined switch and attachment plug provided with means for preventing closure of the switch until after insertion of the plug, and means for preventing removal of plug until after opening of the switch.

In witness whereof, I have hereunto set my hand this 9th day of July, 1909.

FRITZ GRAF.

Witnesses:

MAX HAMBURGER,
OSKAR SINGER.