Jan. 31, 1928.

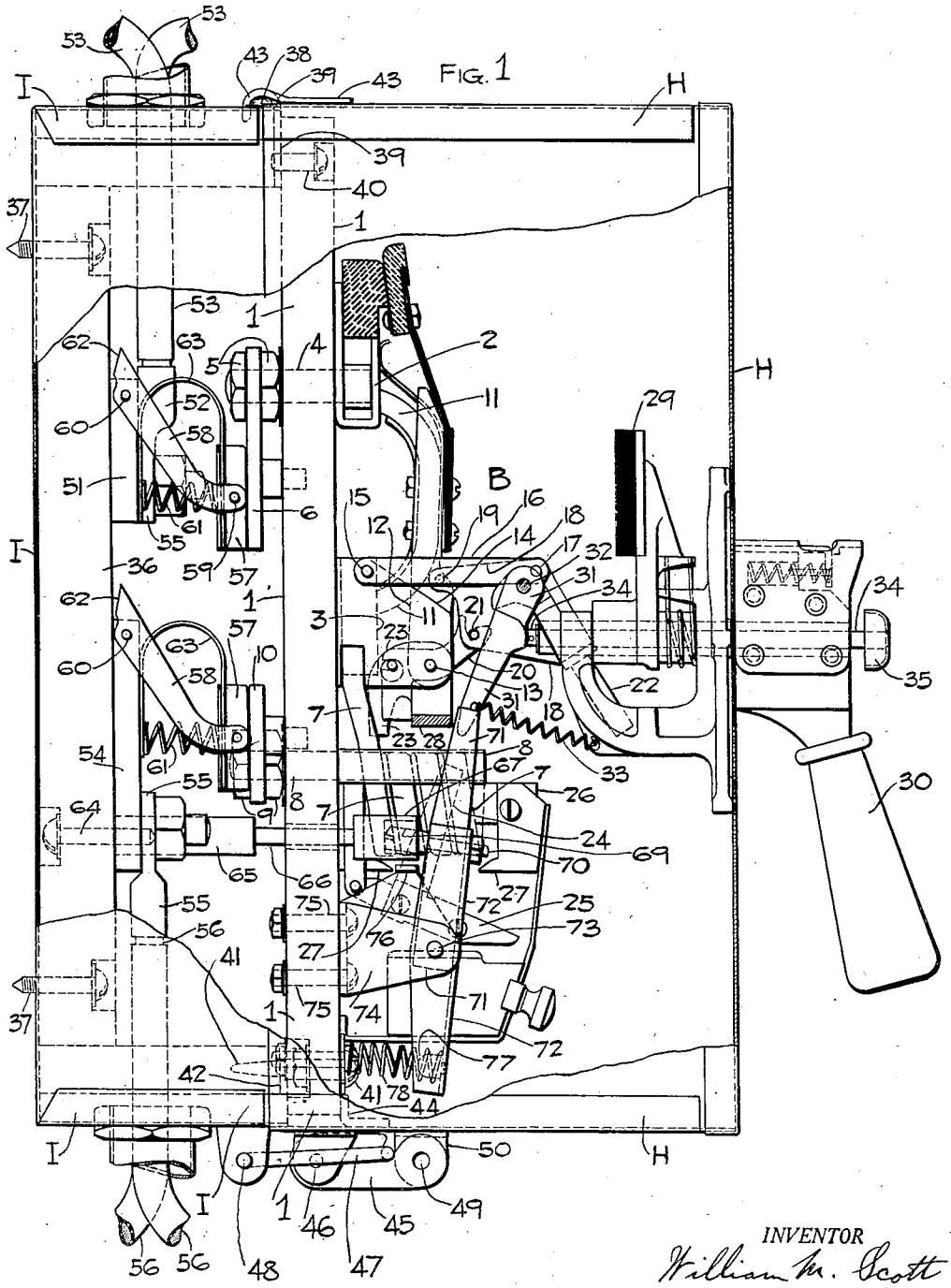
1,657,688

W. M. SCOTT

SWITCHING MECHANISM

Original Filed May 14, 1924 3 Sheets-Sheet 1

FIG. 1



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SWITCHING MECHANISM

Original Filed May 14, 1924 3 Sheets-Sheet 2

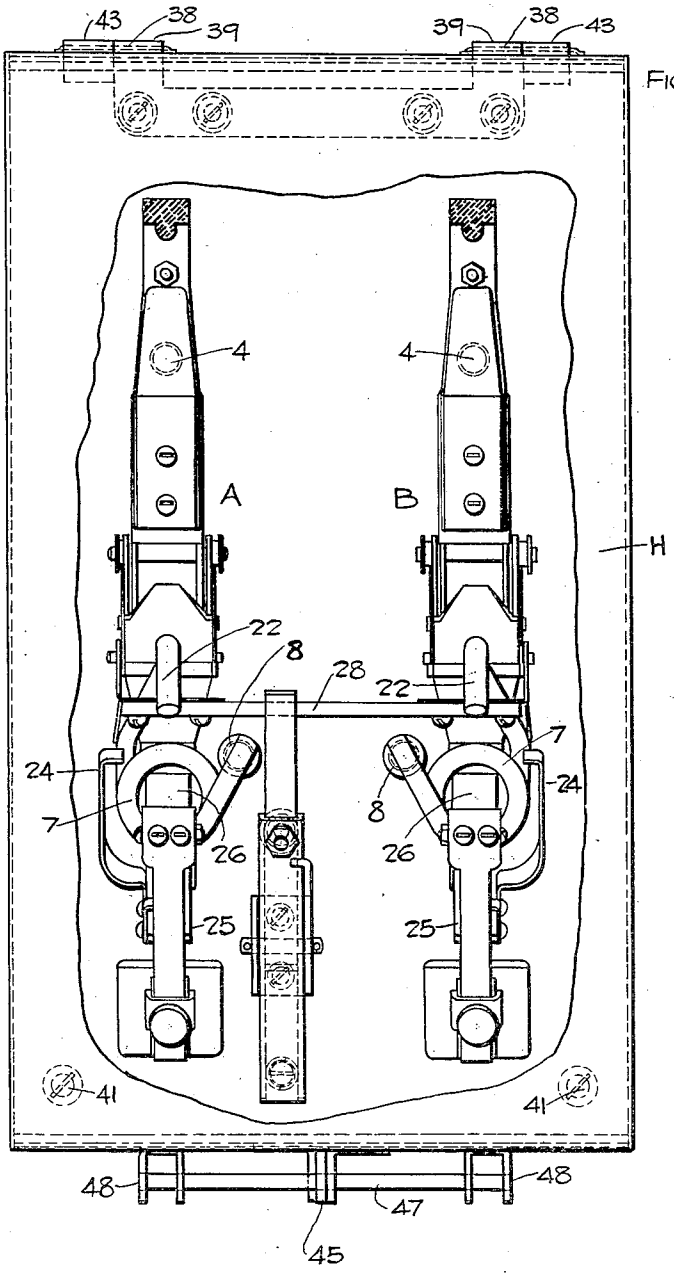


FIG. 2

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SWITCHING MECHANISM

Original Filed May 14, 1924 3 Sheets-Sheet 3

FIG. 3

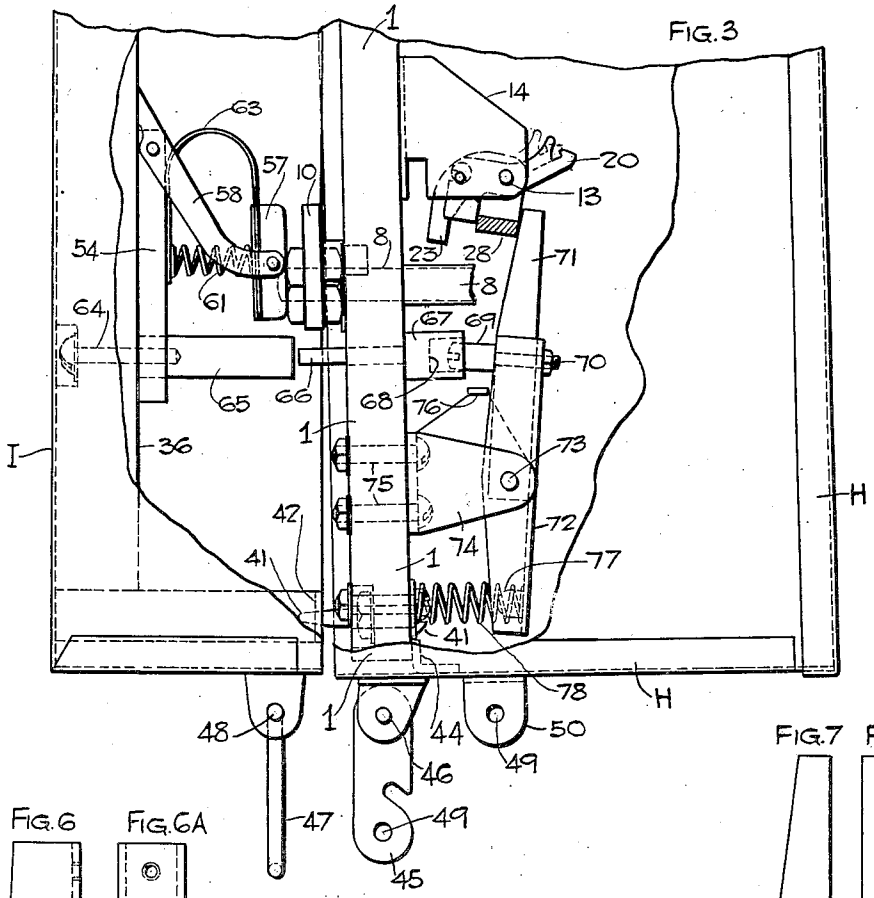


FIG. 6

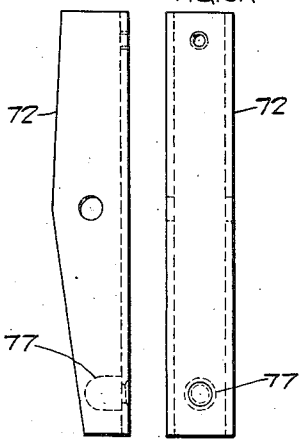


FIG. 6A

FIG. 4

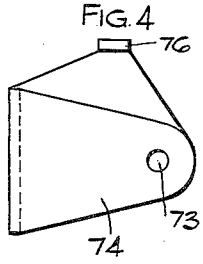


FIG. 5

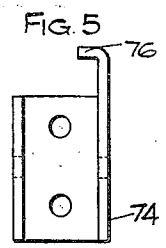


FIG. 7 FIG. 8

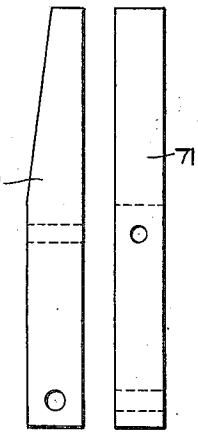


FIG. 12

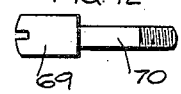


FIG. 10

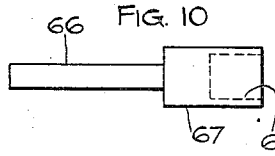


FIG. 11

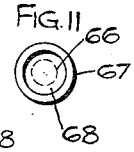
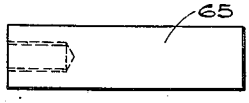


FIG. 9



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Patented Jan. 31, 1928. 1,657,688

UNITED STATES PATENT OFFICE.

WILLIAM M. SCOTT, OF TREDYFFRIN TOWNSHIP, CHESTER COUNTY, PENNSYLVANIA.

SWITCHING MECHANISM.

Application filed May 14, 1924, Serial No. 713,161. Renewed December 10, 1927.

My invention relates to switching mechanism including automatic circuit breakers, utilizable for various purposes, more particularly for controlling circuits carrying current for power, lighting and other purposes.

In accordance with my invention, switching mechanism is restrained or locked in normal position, generally circuit-closing position, and released or tripped in response to movement of the switching mechanism as a unit with respect to another fixed structure which may be a support or housing.

Further in accordance with my invention there is in circuit with a switch unit or automatic circuit breaker unit a non-automatic or manually operated switching mechanism which may not be opened until the switch unit or automatic circuit breaker unit has been tripped; and more particularly the non-automatic switching mechanism may not be opened until the switch unit or automatic circuit breaker unit has been tripped in response to relative movement as between the switch unit or automatic circuit breaker unit and some other structure.

My invention resides in apparatus of the character hereinafter described and claimed.

For an illustration of some of the various forms my invention may take, reference is to be had to the accompanying drawings, in which:

Fig. 1 is a side elevational view, partly in vertical section, of apparatus embodying my invention.

Fig. 2 is a front elevational view of structure shown in Fig. 1, with a portion of the front housing wall broken away.

Fig. 3 is a fragmentary side elevational view of structure shown in Fig. 1 in tripping position.

Figs. 4 and 5 are respectively side and end views of a bracket which supports a tripping member.

Figs. 6 and 6a are respectively side and front views of the holder for a tripping member.

Figs. 7 and 8 are respectively side and front views of a tripping member.

Fig. 9 is a side view of a stud comprised in the mechanism controlling a tripping member.

Figs. 10 and 11 are respectively side and front views of a co-acting member comprised in the mechanism controlling a tripping member.

Fig. 12 is a side view of a member carried by a tripping member.

Referring to Figs. 1, 2 and 3, 1 is a base of insulating material on whose front is secured switching or automatic circuit breaker mechanism. In the example illustrated the switching mechanism is a "double arm" automatic circuit breaker comprising two poles A and B, Fig. 2, connected in series with each other in the same circuit and independently movable to circuit-closing or normal position. The two arms of the circuit breaker mechanism are similar and therefore a description of one will suffice for both.

In Fig. 1 is shown the arm B comprising the main terminal blocks 2 and 3 secured to the front face of the base 1, the former by the stud 4 extending through the base to the rear where there is threaded upon the stud the nuts 5 between which is held the supplemental or rear circuit breaker terminal 6. The terminal 3 is connected to one end of the overload coil 7 whose other terminal connects to the stud 8 extending through the base 1 to the rear thereof where there are threaded upon the stud 8 the nuts 9 between which is held the second supplemental or rear circuit breaker terminal 10. Adapted to engage and bridge the terminals 2 and 3, to close the circuit, is the movable laminated contact member 11 carried by the arm 12 pivoted at 13 to the bracket 14 secured upon the base 1. Pivoted to the bracket 14 at 15 is the toggle link 16 to which is pivoted at 17 the toggle link 18 pivoted at 19 to the arm 12, the links 16 and 18 forming a toggle which is undertravelled in the circuit closing position illustrated and there restrained or locked, to restrain or lock the member 11 in circuit closing position, by the latch 20 engaging the pin or roller 21 carried by the member 18 which also carries the pin 22 for actuating the toggle mechanism to move the bridging member 11 to circuit closing position. The latch 20 is pivoted at 13 on the bracket 14. Pivoted concentrically with the latch 20 at 13 is the latch actuator 23 adapted to be engaged and actuated, and thereby actuate the latch 20 to trip the circuit breaker, by the member 24 secured upon the armature 25 of the electromagnet comprising the coil 7, iron core 26 and pole pieces 27.

The two latch actuators 23 of the two arms A and B are connected by the transversely extending bar 28 so that upon attraction of either armature 25 both circuit breaker arms are tripped in response to overload.

Carried by the front wall of the front housing H is the insulating member 29 rotatable in opposite directions by the operator's handle 30 to engage the members 22 to re-set the circuit breaker arms in succession. Carried by the front wall of the housing H is a tripping member 31 pivoted at 32 and biased to the position indicated in Fig. 1 by the spring 33. A plunger rod 34 is operable from the exterior of the housing by pressing upon the button 35 to actuate the member 31 to operate the bar 28 and trip both circuit breaker arms manually.

I is the rear housing, of sheet metal or the like, having therein the rear base 36 which and the housing I are secured to any suitable wall or support by the screws 37. Upon the upper front edge of the housing I are disposed pivot pins 38 with which engage the hook hinge members 39 secured by screws 40 to the base 1, whereby the base and the circuit breaker structure carried thereby is pivoted upon the rear housing. At its lower end the base 1 carries the tapered dowel ended screws 41 which enter holes in the members 42 upon the housing I, whereby when the base 1 is swung upon its hinges to the position indicated in Fig. 1 the dowels 41 enter the holes in the members 42, guiding the base 1 to proper location with respect to the housing I.

At the upper rear edge of the housing H are secured the hook hinges 43 which hinge upon the aforesaid hinge pins 38 on housing I, whereby the housing H is pivoted concentrically with the base 1 upon the housing I.

Secured to the bottom of the housing H adjacent its rear edge are the lugs 44 adapted to engage the front face of the base 1 and move it to position indicated where the base and the housing H are both held in fixed position with respect to the housing I by the toggle mechanism comprising the toggle link 45 pivoted to the housing H at 46, and the toggle link 47 pivoted to the housing I at 48. The link 47 engages in a slot in the link 45 and in the position indicated in Fig. 1 the toggle links are over-travelled thereby locking the base 1 and housing H to the rear housing I. Through the apertures 49 in the link 45 and the lug 50, carried by the housing H, may be inserted the hasp of a padlock.

Upon the rear base 36 is secured the terminal 51, one for each breaker arm, and to the terminals 51 are secured the terminals 52 of the supply (or consumption) circuit conductors 53 of the fixed or permanent conductor system extending into the interior of the housing I. Similarly there is secured to the rear base 36 a terminal 54, one for each breaker arm, and to these terminals are secured the terminals 55 of the consumption (or supply) circuit conductors 56 forming part of the permanent or fixed conductor system and extending into the interior of the housing I. Yieldingly supported upon each terminal 51 is a contact block 57 abutting against and making electrical connection with the supplemental circuit breaker terminal 6. The contact block 57 is, in the example illustrated, pivoted to a link 58 at 59 and the link in turn is pivoted at 60 to the terminal 51. A spring 61 forces the contact block 57 toward the terminal 6 and its movement is limited by the end 62 of the link 58 engaging with the base 36. High conductivity electrical connection is maintained between each terminal and its contact block 57 by the flexible conductor 63. Similarly each lower terminal 54 co-acts with a yielding contact block 57 engaging and electrically connecting with a lower supplemental circuit breaker terminal 10.

Secured to the front face of the rear base 36 by screw 64 is the stud 65, shown separately in Fig. 9. Extending freely through a hole in the base 1 is the stud 66 having at its front end the enlargement 67 having the cup or recess 68, separately illustrated in Figs. 10 and 11. The stud 66 abuts against the stud 65, and engaging loosely in the recess 68 is the head 69 of a screw 70, shown separately in Fig. 12, and secured to the tripping member 71, of insulating material, shown separately in Figs. 7 and 8, secured in the trough-shaped metal member 72, shown separately in Figs. 6 and 6a, pivoted at 73 in the bracket 74, shown separately in Figs. 4 and 5, secured by screws 75 to the front of the base 1, and provided with a lug or stop 76 for limiting the counterclockwise movement of the tripping member 71, as viewed in Figs. 1 and 3.

Carried by and disposed within the channel-shaped member 72 is the stud 77 for positioning one end of the helical spring 78 whose other end abuts against the base 1, the spring 78 being normally held in compression by the thrust of the screw head 69 upon the bottom of the recess 68 in the member 67 whose stem 66 thrusts against the stud 65 carried by the rear base 36.

The upper end of the tripping member 71 is disposed adjacent the aforesaid tripping bar 28.

When the parts are in the normal position indicated in Fig. 1, the engagement of the stud or stem 66 against the stud 65 holds the tripping member 71 in the position indicated away from or out of engagement with the tripping bar 28. However when the toggle links 45 and 47 are disconnected from each other, as indicated in Fig. 3, the base H may be swung in counterclockwise direc-

tion upon its pivot, thereby withdrawing the holding lug 44 from the base 1 which is now free to rotate upon its pivot in counterclockwise direction, under the influence of the springs 61 thrusting outwardly against the supplemental circuit breaker terminals 6 and 10.

When the base 1 is swung to the position indicated in Fig. 3, either by the action of the aforesaid springs 61, or in their absence by other means or manually, the stud 66 moves toward the left through the base 1, because of movement from the stud 65, thereby withdrawing pressure of the member 67 from the screw head 69, thereby allowing the spring 78 to force the tripping member 71 in counterclockwise direction about its pivot 73, thereby engaging the bar 28 and thereby actuating the latches 20 of both breaker arms A and B, tripping them, and causing or allowing them to fly to open circuit position.

Accordingly in response to relative movement of the switching or circuit breaker unit with respect to another structure, as its support or rear housing I, the switch or circuit breaker mechanism is automatically tripped, as is desirable for various reasons and purposes, particularly to insure that the circuit breaker mechanism is in open position when it is removed from the circuit in which it has been connected. This tripping of the circuit breaker mechanism insures that upon removal or movement of the front housing H the circuit breaker mechanism is in open circuit position when it becomes accessible to an attendant or operator.

It is furthermore true of the structure described that upon movement of the housing H away from another structure, as its support or rear housing I, the switch mechanism is automatically tripped by the member 71, as soon as the holding and locking mechanism for the housing H is released.

More particularly when the front housing is moved from or with respect to another structure, as its support or rear housing I, the switching or circuit breaker unit also moves with respect to such other structure, as its support or rear housing I, thereby causing tripping of the switching or circuit breaker mechanism.

In the structure above described the base 1, or in general the switch or circuit breaker unit, and its housing H are independently movable, and are movable together with respect to the support or rear housing I and in response to such movement the circuit breaker mechanism is tripped.

Apparatus of the character above described is particularly adaptable to systems in which the separable connections are effected between supplemental switch or circuit breaker terminals, as 6 and 10 and co-acting contacts, as 57, forming a part of the fixed or permanent wiring of the conductor system.

In the arrangement of Fig. 1 the toggle mechanism 45, 47 holds and locks the parts in operative position in opposition to the force exerted by the spring 78, and in addition in opposition to the forces exerted by springs 61.

Each supplemental circuit breaker terminal 6 and 10 forms with its co-acting contact 57 a switch, non-automatic or manually operated, in series with the switch unit or automatic circuit breaker. There are, accordingly, two such non-automatic switches in series with each arm A and B of the switch unit of automatic circuit breaker mechanism. The switch unit or automatic circuit breaker mechanism must be and is tripped before either or both of the switches 6, 57 or 10, 57 is opened. In Fig. 1 relative movement as between the switch or circuit breaker unit and the co-acting structure, housing I, causes the switch unit or automatic circuit breaker to be tripped before such relative movement effects or permits opening of either or both of the switches 6, 57, or 10, 57.

The arrangement described is, therefore, in effect a manually operated or non-automatic switch in series with a switch unit or automatic circuit breaker unit which must first be tripped before the non-automatic or manually operated switch may be opened.

What I claim is:

1. The combination with a switch unit comprising a movable contact member and means for restraining it in normal position, of a fixed structure with respect to which said unit is movable, and means responsive to movement of said unit with respect to said structure for actuating said restraining means.

2. The combination with a switch unit comprising a movable contact member and means for restraining it in normal position, of a fixed structure with respect to which said unit is movable, a tripping member movable with said unit for actuating said restraining means, and means comprised in said structure controlling said tripping member to effect tripping of said contact member upon movement of said unit relative to said structure.

3. The combination with a switch unit comprising a movable contact member, means for restraining it in normal position, a tripping member for actuating said restraining means, and means biasing said tripping member toward position for actuating said restraining means, of a fixed structure with respect to which said switch unit is movable, and means comprised in said structure for restraining said tripping member in opposition to said biasing means.

4. The combination with a switch unit

comprising a movable contact member and means for restraining it in normal position, of fixed structure with respect to which said unit is movable, a member for actuating said restraining means, a spring for actuating said last named member, and means comprised in said structure preventing actuation of said member by said spring until said switch unit is moved with respect to said structure.

5. The combination with a switch unit comprising a movable contact member, means for restraining it in normal position, a tripping member for actuating said restraining means, and a spring for actuating said tripping member, of a fixed structure with respect to which said switch unit is movable, and means comprised in said structure for holding said tripping member against actuation by said spring.

6. The combination with a switch unit comprising a movable contact member, means for restraining it in normal position, a tripping member for actuating said restraining means, and a spring for actuating said tripping member, of a fixed structure with respect to which said switch unit is movable, and means comprised in said structure having detached abutting engagement with said tripping member for holding it against actuation by said spring until said switch unit moves with respect to said structure.

7. The combination with a base, and a switch unit carried thereby comprising a movable contact member, means for restraining it in normal position, and a tripping member for actuating said restraining means, of a structure with respect to which said base is pivoted, and means extending through said base and co-acting with said structure and said tripping member for preventing actuation of said tripping member until said base partakes of movement with respect to said structure.

8. The combination with a base and a switch unit carried thereby comprising a movable contact member, means for restraining it in normal position, a tripping member for actuating said restraining means, and means for actuating said tripping member, of a structure with respect to which said switch unit is pivoted, a member extending through said base and co-acting with said tripping member, and a member comprised in said structure against which said last named member abuts for holding said tripping member against actuation until said base moves with respect to said structure.

9. The combination with a base and a switch unit thereon comprising a movable contact member, means for restraining it in normal position, a tripping member for actuating said restraining means, and means for actuating said tripping member, of a structure with respect to which said base is pivoted, an abutment comprised in said structure, a member extending through said base and abutting against said abutment, said last named member having a recess, and a member on said tripping member engaged in said recess for holding said tripping member against actuation until said base moves with respect to said structure.

10. The combination with a base and a switch unit thereon comprising a movable contact member, means for restraining it in normal position, a tripping member for actuating said restraining means and means for actuating said tripping member, of a housing by which said base is carried, circuit conductors extending into said housing and connected to said switch unit, and means disposed in said housing for holding said tripping member against actuation until said base moves with respect to said housing.

11. The combination with a base and a switch unit thereon comprising a movable contact member, means for restraining it in normal position, a tripping member for actuating said restraining means and means for actuating said tripping member, of a housing by which said base is carried, circuit conductors extending into said housing and connected to said switch unit, means disposed in said housing for holding said tripping member against actuation until said base moves with respect to said housing, and means detachably holding said base in position with respect to said housing preventing operation of said tripping member.

12. The combination with a base and a switch unit thereon comprising a movable contact member, means for restraining it in normal position, a tripping member for actuating said restraining means and means for actuating said tripping member, of a housing by which said base is carried, means for detachably holding said base in predetermined position with respect to said housing, and means effecting actuation of said tripping member when said base is moved from said predetermined position.

13. The combination with a base and a switch unit thereon comprising a movable contact member, means for restraining it in normal position, a tripping member for actuating said restraining means and means for actuating said tripping member, of a fixed housing with respect to which said base is movable, and means carried by said housing controlling said tripping member to cause actuation of said restraining means upon movement of said base with respect to said housing.

14. The combination with a base and a switch unit thereon comprising a movable contact member, means for restraining it in normal position, a tripping member for actuating said restraining means and means

for actuating said tripping member, of a fixed housing with respect to which said base is movable, means carried by said housing controlling said tripping member to cause actuation of said restraining means upon movement of said base and housing with respect to each other, and means detachably holding said housing and base in position with respect to each other preventing actuation of said restraining means.

15. The combination with a housing, of a base movable with respect thereto, a spring opposing movement of said base with respect to said housing, a switch unit carried by said base comprising a movable contact member and means for restraining it in normal position, a tripping member for controlling said restraining means, means for detachably holding said base and housing in predetermined position with respect to each other in opposition to said spring, and means controlling said tripping member to cause actuation of said restraining means in response to relative movement of said base and housing with respect to each other when detached from each other.

16. The combination with a fixed housing and a base movable with respect thereto, of a switch unit carried by said base and comprising a movable contact member and means for restraining it in normal position, a tripping member controlling said restraining means, means for detachably holding said housing and base in predetermined position with respect to each other, and a member attached to said housing controlling said tripping member to effect actuation of said restraining means when said housing and base move with respect to each other upon detachment from each other.

17. The combination with a base and a switch unit thereon comprising a movable contact member, means for restraining it in normal position, and supplemental terminal structure carried by said base and connected with said switch unit, of a structure with respect to which said base is movable, terminal structure connected with the circuit conductor system and detachably engaged by said supplemental terminal structure, a spring effecting pressure of said terminal structures against each other, means for detachably holding said base and structure to each other, a tripping member controlling said restraining means, and means causing said tripping member to effect tripping of said movable contact member in response to relative movement of said base and structure caused by said spring upon detachment of said base and structure from each other.

18. The combination with a base and a switch unit thereon comprising a movable contact member, means for restraining it in normal position, supplemental terminal structure carried by said base and connected with said switch unit, and a tripping member controlling said restraining means, of a structure with respect to which said base is movable, terminal structure connected with the circuit conductor system and detachably engaged by said supplemental terminal structure, a spring effecting pressure of said terminal structures against each other, a spring for actuating said tripping member, means for detachably holding said base and structure in predetermined position with respect to each other in opposition to said springs, and means responsive to movement of said base and structure with respect to each other upon detachment from each other permitting actuation of said tripping member by said second named spring to trip said movable contact member.

19. The combination with a housing, of circuit conductors therein, a base pivoted on said housing, a switch unit carried by said base and having connection with said conductor, said unit comprising a movable contact member, means for restraining it in normal position, a tripping member controlling said restraining means, and a spring for actuating said tripping member, a second housing pivoted to said first named housing and enclosing said switch unit, means detachably holding said housings and base in predetermined position with respect to each other, and means in said first named housing controlling said tripping member to effect actuation of said restraining means upon movement of said base with respect to said first named housing.

20. The combination with a housing, of circuit conductors therein, a base pivoted on said housing, a switch unit carried by said base and having connections with said conductors, said unit comprising a movable contact member, means for restraining it in normal position, a tripping member controlling said restraining means, and a spring for actuating said tripping member, a second housing pivoted to said first named housing and enclosing said switch unit, means detachably holding said housings and base in predetermined position with respect to each other, and means in said first named housing controlling said tripping member to effect actuation of said restraining means upon movement of said base and second housing with respect to said first named housing.

21. The combination with a support, of a base carried thereby and movable with respect thereto, switching mechanism carried by said base and comprising a movable contact member and means for restraining it in normal position, and means responsive to movement of said base with respect to said support for actuating said restraining means to trip said contact member.

22. The combination with a switch unit and a structure movable relatively to each other, said unit comprising a movable contact member, means for restraining it in normal position, and supplemental terminal structure, terminal structure carried by said first named structure and co-acting with said supplemental terminal structure to form a switch in circuit with said switch unit, and means responsive to relative movement of said first named structure and said switch for actuating said restraining means to trip said movable contact member in advance of separation of said terminal structures of said second switch.

23. The combination with a switch unit and a structure movable relatively to each other, said unit comprising a movable contact member, means for restraining it in normal position, and supplemental terminal structure, terminal structure carried by said first named structure and co-acting with said supplemental terminal structure to form a switch in circuit with said switch unit, means for locking said terminal structures in engagement with each other, and means responsive to relative movement of said first named structure and said switch unit after release of said locking means for actuating said restraining means to trip said movable contact member in advance of separation of said terminal structures of said second switch.

24. The combination with an automatic circuit breaker comprising a movable contact member, means for restraining it in normal position, and electro-responsive means for controlling said restraining means, of a switch in series with said circuit breaker and carrying the same load, and means for controlling said restraining means independently of said electro-responsive means to cause tripping of said movable contact member in advance of opening of said switch.

25. The combination with a housing, of a base carried thereby and movable with respect thereto, switching mechanism carried by said base and comprising a movable contact member and means for restraining it in normal position, circuit conductors extending into said housing and connecting with said switching mechanism, and means responsive to movement of said base with respect to said housing for actuating said restraining means to trip said contact member.

26. In combination, a housing and a switch unit movable with respect to each other, said switch unit comprising a movable contact member and means for restraining it in normal position, a second switch in series with said contact member, and means preventing opening of said second switch until actuation of said restraining means to trip said contact member in response to relative movement of said switch unit and housing with respect to each other.

27. The combination with an automatic circuit breaker comprising a movable contact member, means for restraining it in normal position, and electro-responsive means for controlling said restraining means, of a switch in series with said circuit breaker, means for locking said switch in closed position, and means for preventing opening of said switch until actuation of said locking means to release said switch and until actuation of said restraining means to trip said movable contact member.

28. The combination with a support, of a base carried thereby and movable thereon, switching mechanism carried by said base and comprising a movable contact member and means for restraining it in normal position, a housing enclosing said switching mechanism carried by said support, and means responsive to movement of said base with respect to said support for actuating said restraining means to trip said movable contact member.

29. The combination with a housing, of a base carried thereby and movable with respect thereto, switching mechanism carried by said base and comprising a movable contact member and means for restraining it in normal position, a second housing enclosing said switching mechanism carried by said housing and movable thereon with respect to said base, means responsive to movement of said base with respect to said first named housing for actuating said restraining means to trip said movable contact member, a member on said second housing engaging and abutting against said base to hold it in predetermined position, and means detachably engaging said second housing to hold said base in position preventing actuation of said restraining means by its said actuating means.

30. The combination with a support, of a base carried thereby and movable with respect thereto, switching mechanism carried by said base and comprising a movable contact member and means for restraining it in normal position, a tripping member for actuating said restraining means to trip said contact member, a spring operating upon said tripping member to cause it to actuate said restraining means, means responsive to movement of said base with respect to said support to permit said spring to actuate said tripping member, a housing carried by said support and movable thereon independently of said base, a member on said housing abutting against said base to hold it in predetermined position in opposition to said spring, and means detachably engaging said housing for holding it in position to hold said base in position in which

said tripping member is prevented from actuating said restraining means.

31. The combination with a support, of a base carried thereby and movable with respect thereto, switching mechanism carried by said base and comprising a movable contact member and means for restraining it in normal position, a tripping member for actuating said restraining means to trip said contact member, a spring operating upon said tripping member to cause it to actuate said restraining means, means carried by said support holding said tripping member in opposition to said spring, a housing carried by said support and movable thereon with respect to said base, a member on said housing abutting against said base, and means detachably engaging said housing for holding it in position to hold said base in position in which said tripping member is held in opposition to said spring.

32. The combination with a support, of a base carried thereby, switching mechanism carried by said base and comprising a movable contact member and means for restraining it in normal position, terminal structure carried by said support connected with the circuit conductor system, supplemental terminal structure carried by said base connected with said switching mechanism and detachably engaging said terminal structure, a spring effecting pressure of said terminal structures against each other, a housing enclosing said switching mechanism carried by said support and movable with respect thereto, means detachably engaging said housing for holding said housing and base in opposition to said spring, and means responsive to release of said housing from said holding means causing actuation of said restraining means to trip said contact member.

33. The combination with a support, of a base carried thereby, switching mechanism carried by said base and comprising a movable contact member and means for restraining it in normal position, terminal structure carried by said support connected with the circuit conductor system, supplemental terminal structure carried by said base connected with said switching mechanism and detachably engaging said terminal structure, a spring effecting pressure of said terminal structures against each other, a tripping member, a spring acting on said tripping member to cause it to actuate said restraining means to trip said contact member, a housing enclosing said switching mechanism carried by said support and movable with respect thereto, means detachably engaging said housing to hold it and said base in opposition to said springs, and means responsive to release of said housing from said holding means causing actuation of said restraining means by said second named spring to trip said contact member.

34. The combination with a housing, of a base carried thereby and movable with respect thereto, a plurality of switching mechanisms carried by said base and each comprising a movable contact member, means for restraining it in normal position, and a bar common to said switching mechanisms for actuating their said restraining means, a tripping member, a spring operating upon said tripping member to move it to actuate said bar to actuate said restraining means, terminal structure in said housing connected with the circuit conductor system, supplemental terminal structure carried by said base connecting with said switching mechanisms and detachably engaging said terminal structures, spring means causing said terminal structures to exert pressure against each other, a member in said housing holding said tripping member in opposition to its spring, and means detachably holding said base to said housing, whereby upon release of said base from its said holding means said spring means move said base with respect to said member in said housing to cause actuation of said restraining means to trip said contact members.

WILLIAM M. SCOTT.

CERTIFICATE OF CORRECTION.

Patent No. 1,657,688. Granted January 31, 1928, to

WILLIAM M. SCOTT.

It is hereby certified that error appears in the printed specification of the above numbered patent requiring correction as follows: Page 5, line 89, claim 19, for the word "conductor" read "conductors"; and that the said Letters Patent should be read with this correction therein that the same may conform to the record of the case in the Patent Office.

Signed and sealed this 8th day of May, A. D. 1928.

M. J. Moore,
Acting Commissioner of Patents.

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