United States Patent

[11] **3,573,559**

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Chicago, Ill.

[54] **INTERLOCKING FUSE AND SWITCH SYSTEM FOR DISTRIBUTION OF ELECTRIC POWER**
18 Claims, 10 Drawing Figs.

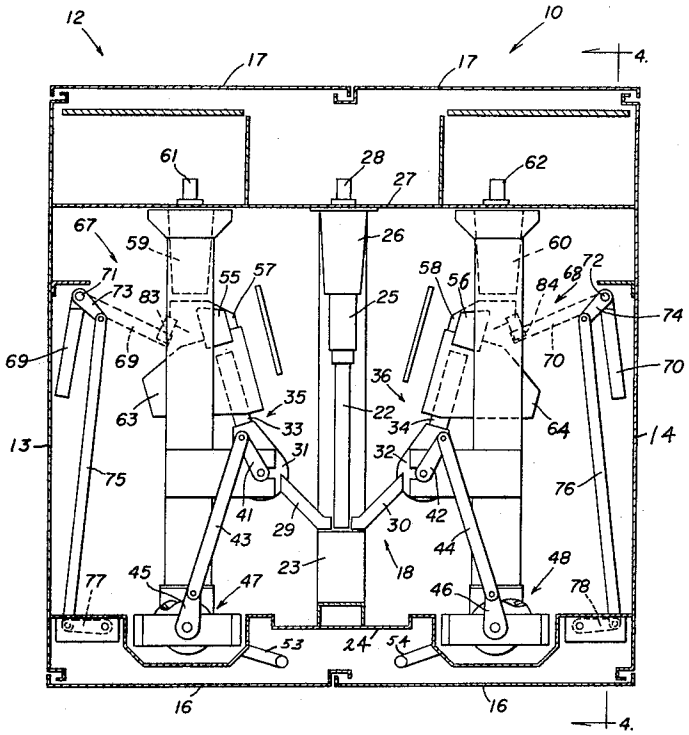
[52] **U.S. Cl.** ..... **317/114,** 200/50 AA
[51] **Int. Cl.** **H02b 1/18,** H02b 11/14
[50] **Field of Search** 200/50.15, 50.2; 337/210; 317/114, 116

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Primary Examiner—Lewis H. Myers
Assistant Examiner—Gerald P. Tolin
Attorney—Robert R. Lockwood

ABSTRACT: For distribution of electric power metal enclosed drawer-mounted fuses are provided having manually operated switches commonly connecting them to a loop feeder circuit. Manually operated grounding switches connect the switch contacts to ground. Interlocks prevent opening of the fuse drawer when the loop feeder switches are closed, closure of the loop feeder switches when the fuse drawer is open, grounding of the switch contacts when the loop feeder switches are closed, and closure of the loop feeder switches when the switch contacts are grounded.



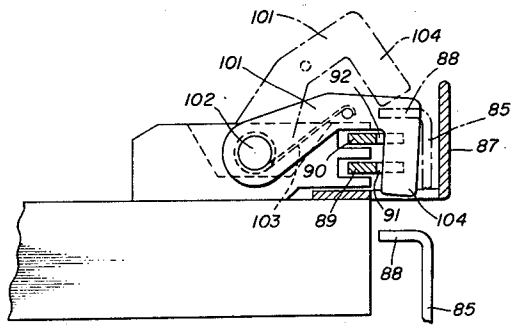


FIG. 1

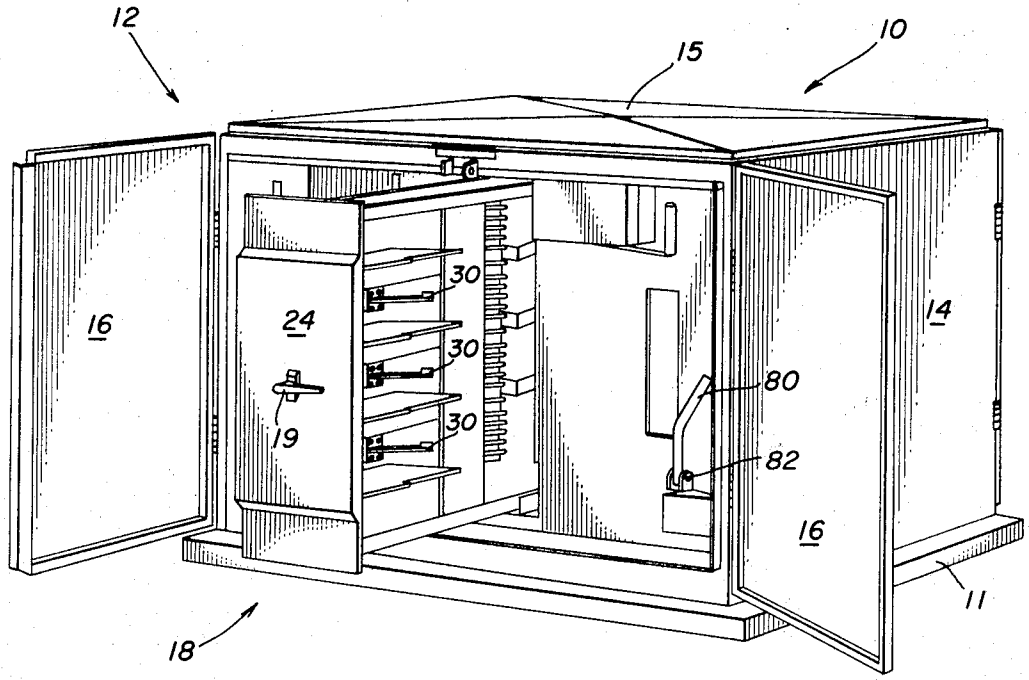

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FIG. 2

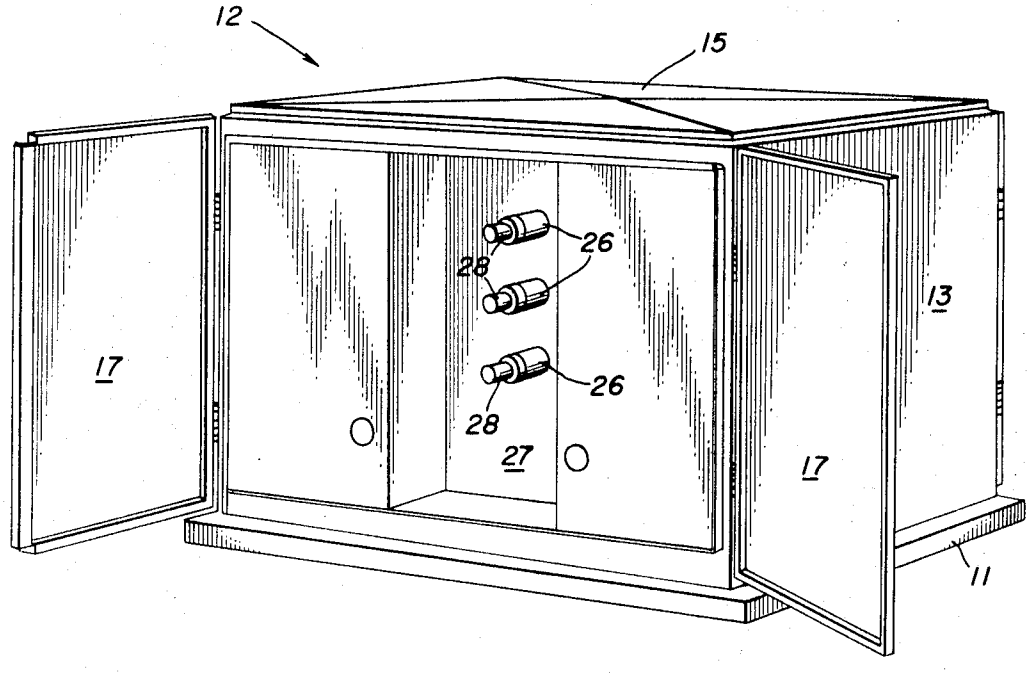

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FIG. 3

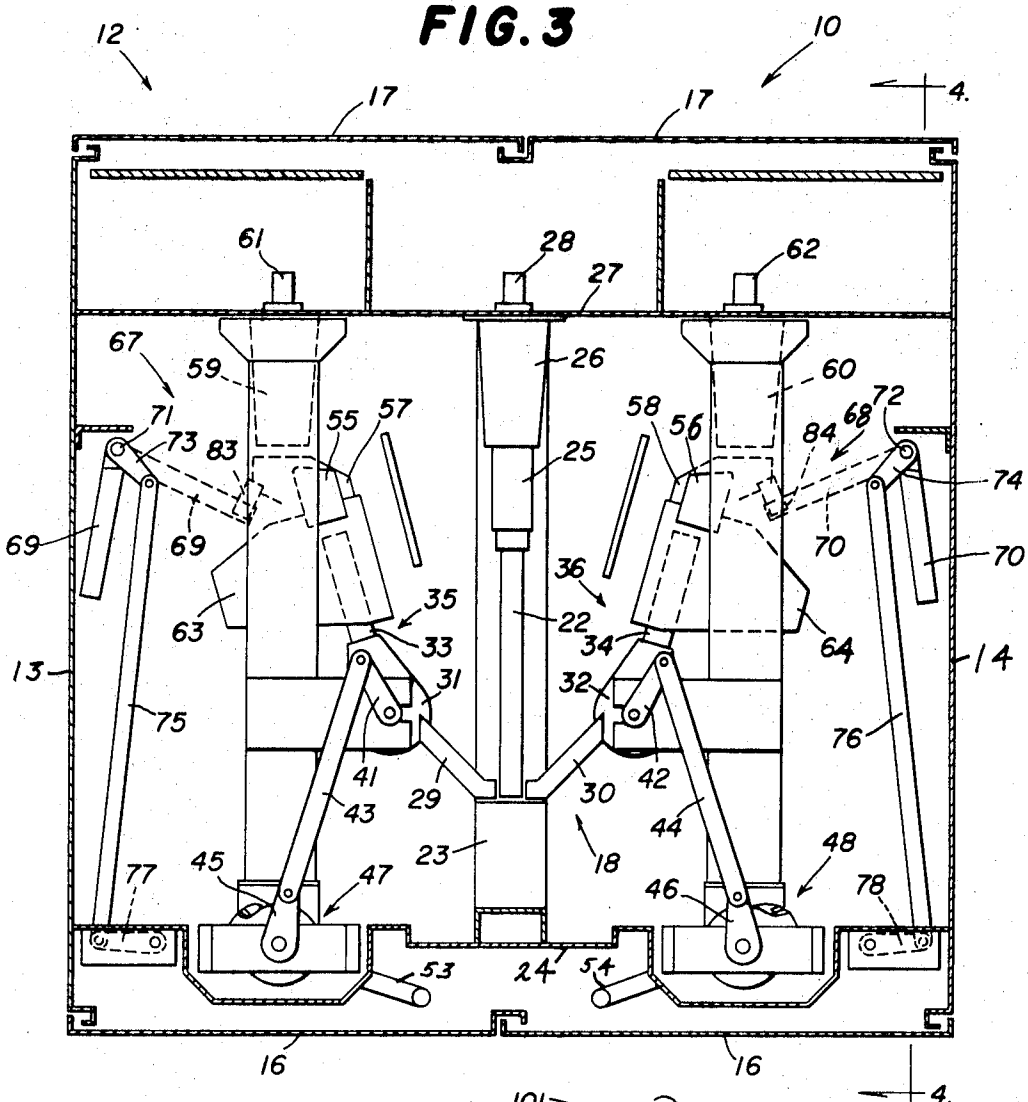

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FIG. 10

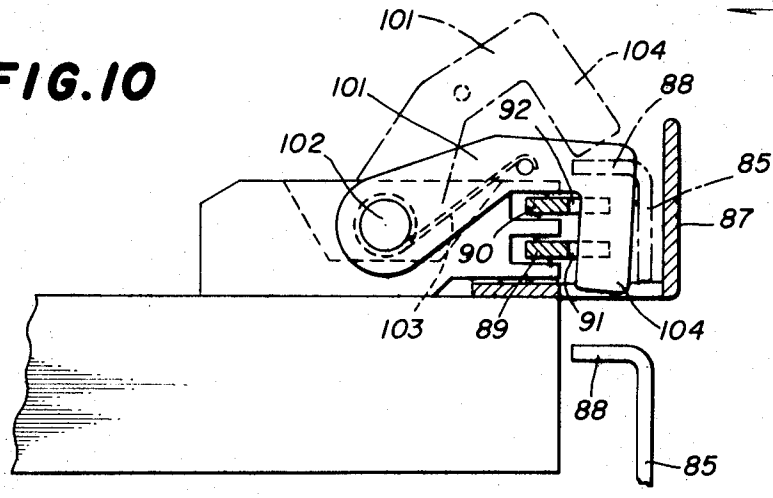

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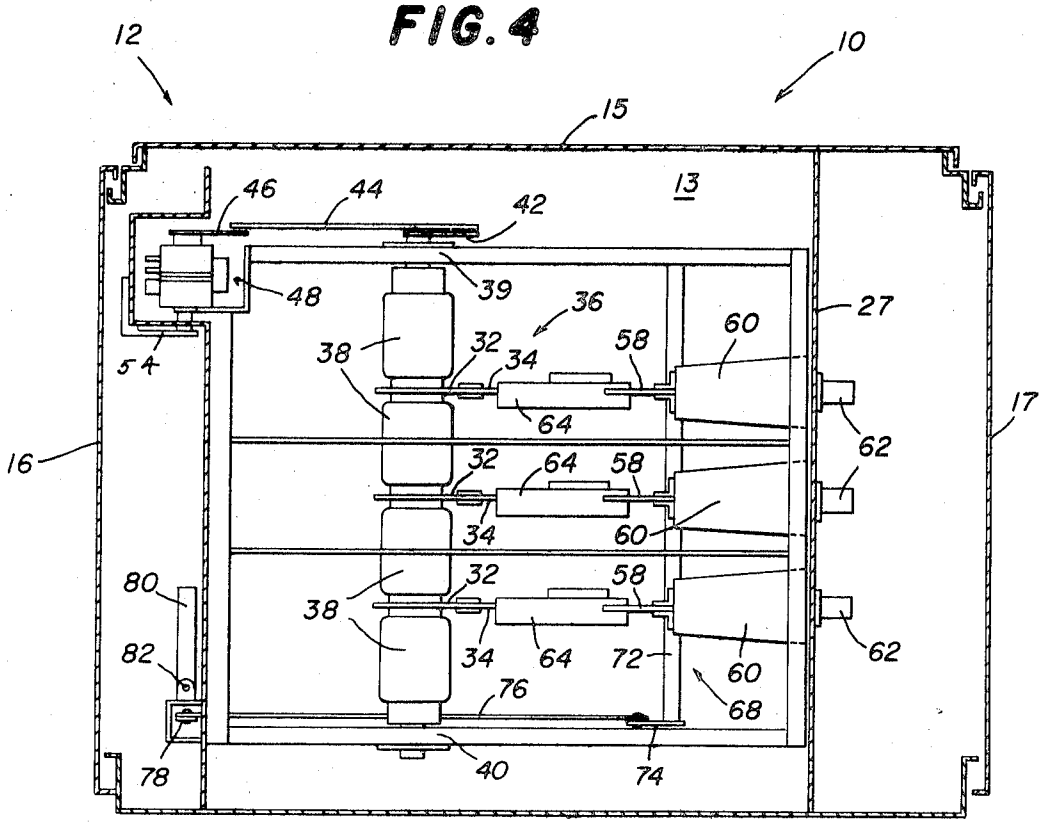

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FIG. 5

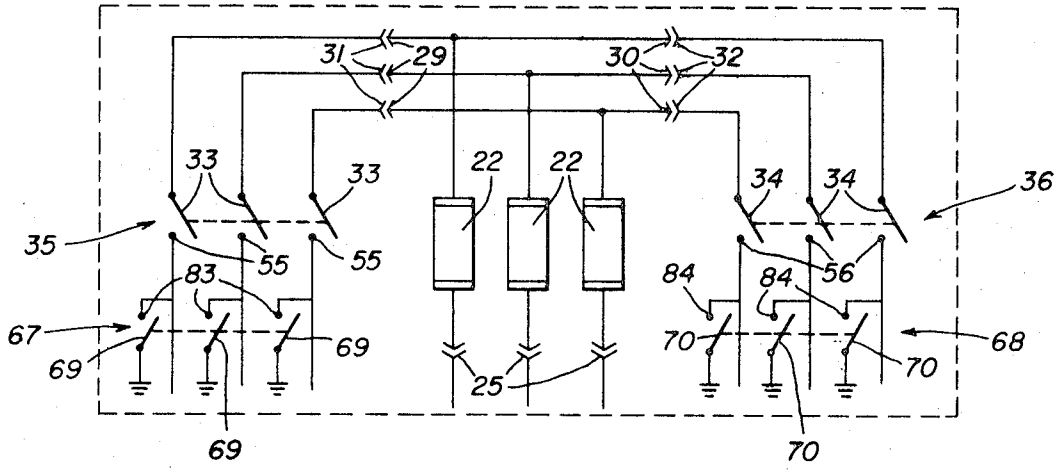

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FIG. 6

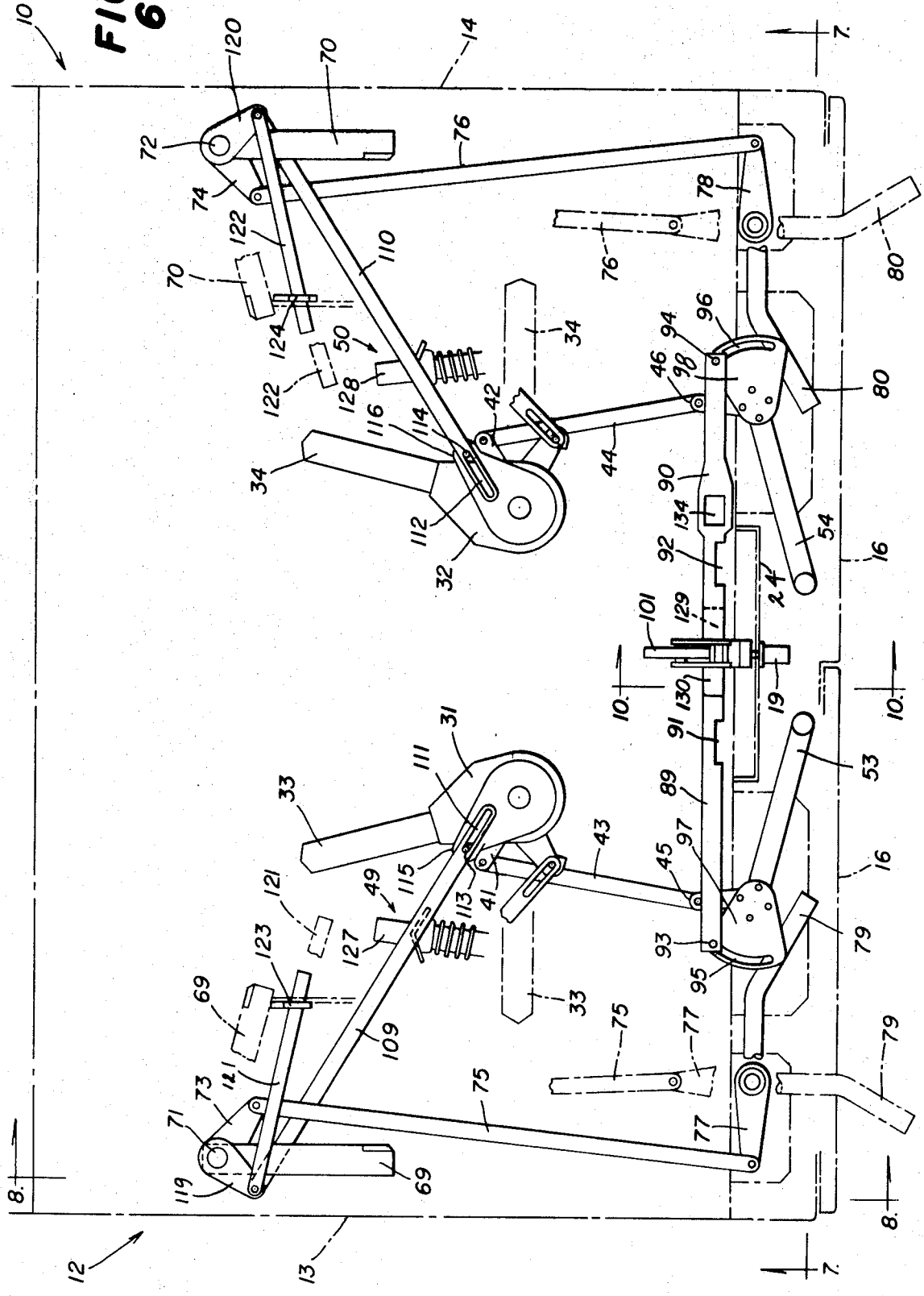

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FIG. 7

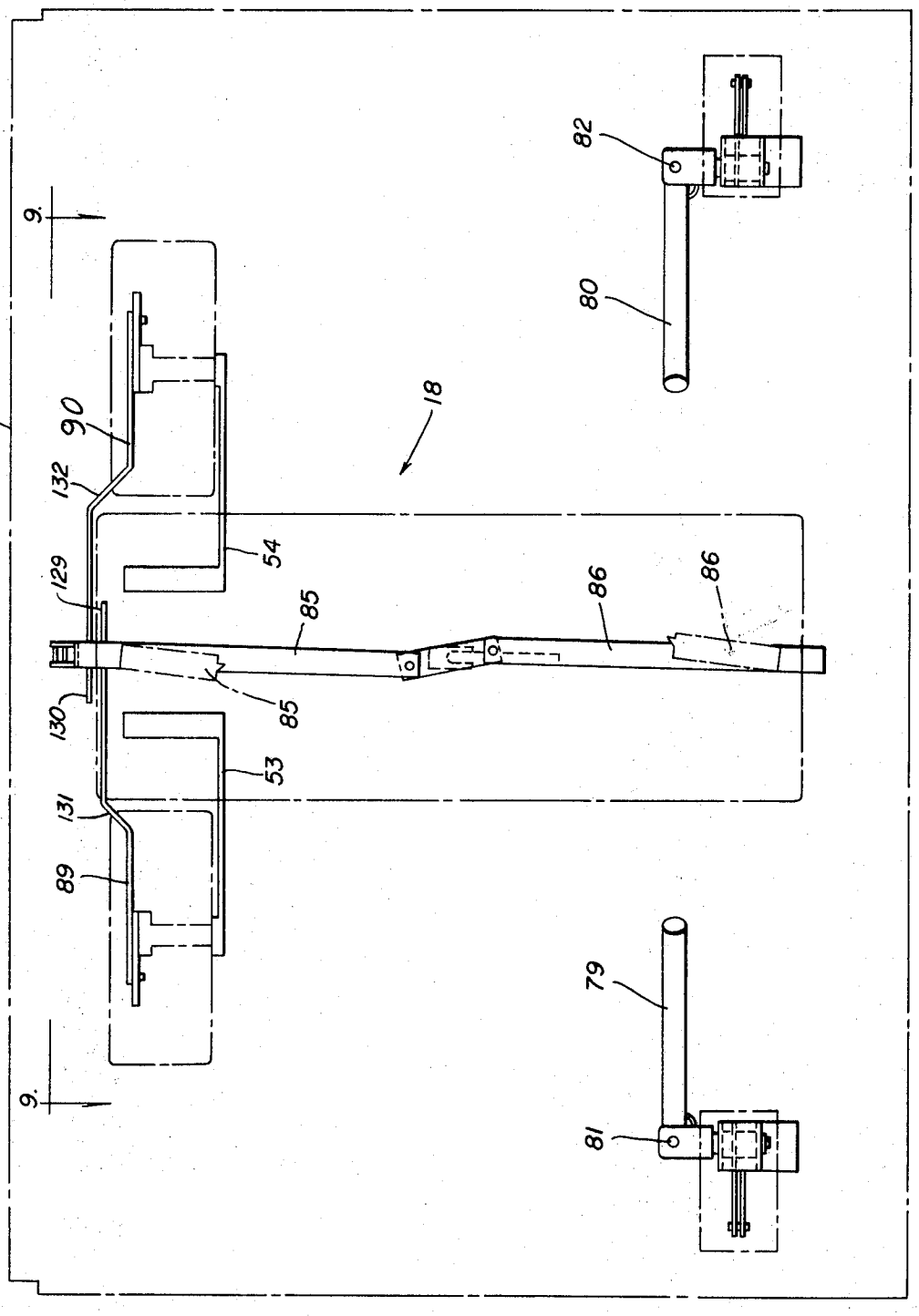


FIG. 8

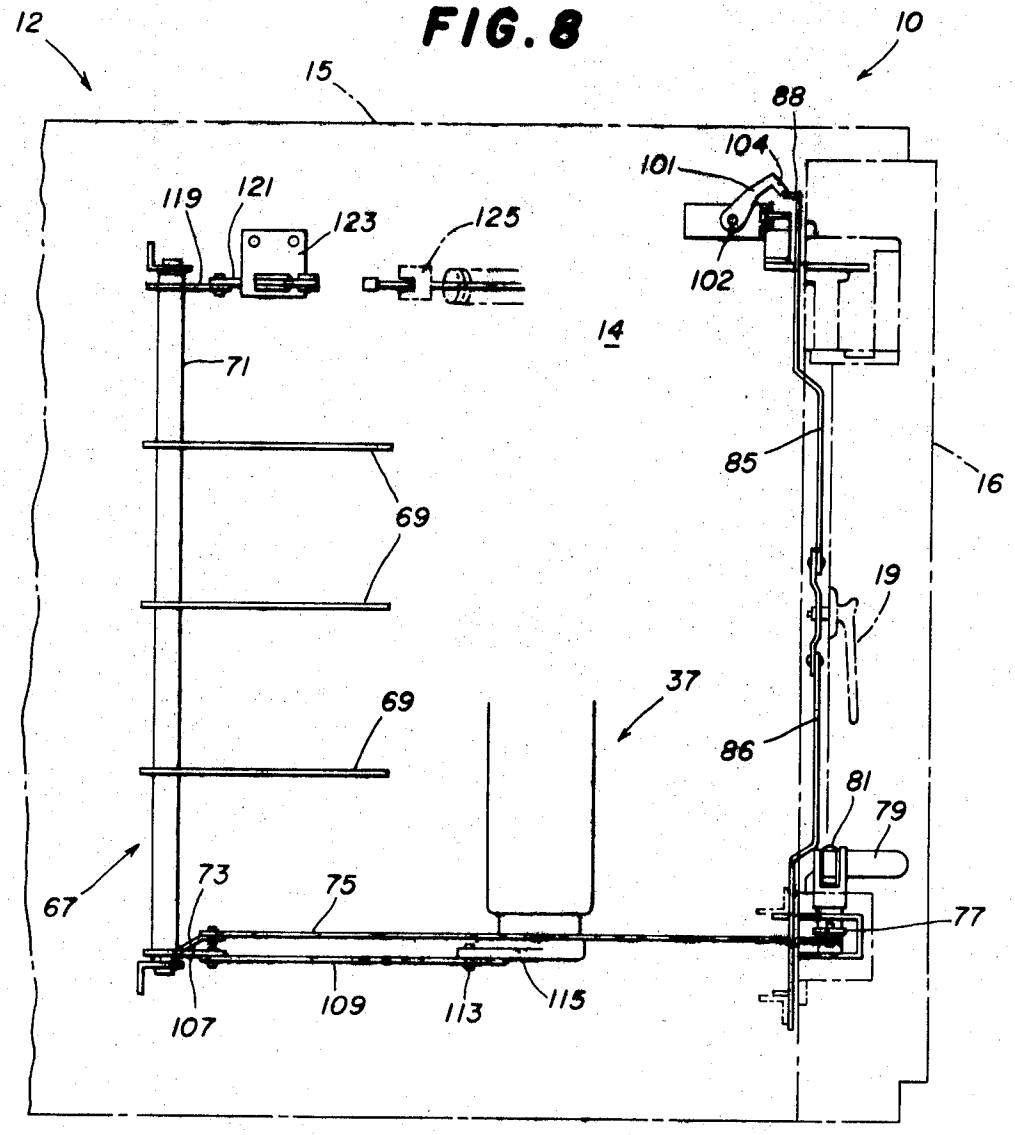
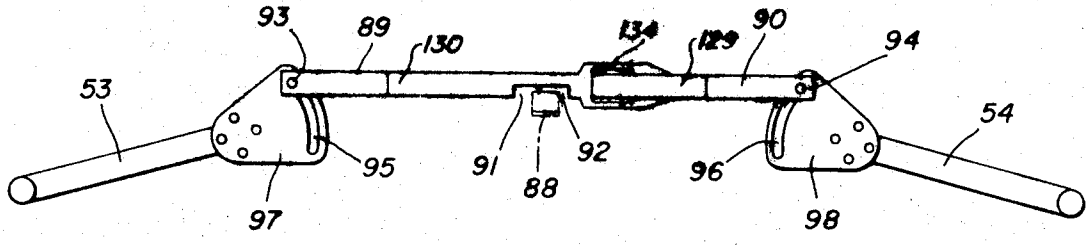

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FIG. 9


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INTERLOCKING FUSE AND SWITCH SYSTEM FOR DISTRIBUTION OF ELECTRIC POWER

This invention is an improvement over the construction disclosed in Harner et al. U.S. Pat, No. 3,339,118, issued Aug. 29, 1967.

When electric power is distributed in locations accessible to the public at voltages of the order of 15 kv. in a loop feeder system, the fuses and switches are housed in a metal enclosure to which access can be had only by authorized personnel. It is essential that such personnel be prevented from coming into contact with energized circuits including loop feeder switches and drawer-mounted fuses connected thereby to the energized loop feeder circuit.

Among the objects of this invention are: To prevent opening of a drawer in which load circuit fuses are mounted and are connected to a loop feeder circuit by loop feeder switches when either of the switches is closed; to prevent closure of either of the loop feeder switches when the fuse drawer is open; to ground the stationary contacts of each of the loop feeder switches only when the loop feeder switches are open; and to prevent closure of the loop feeder switches when the contacts thereof are grounded.

According to this invention fuses for a three-phase feeder circuit are mounted one above the other in a drawer that is slidable in a pad-mounted housing. At one end each fuse has plug-in engagement with contacts stationarily mounted one above the other on the housing and connected to the phase conductors of the feeder circuit. The other end of each fuse has a pair of laterally extending contact arms for individual engagement with the rotating switch blade assemblies of a pair of three-phase disconnecting switches arranged to engage stationary contacts which are connected to the conductors of the respective three-phase loop circuits. The three blades of each switch assembly are mounted for conjoint rotation about a vertical axis. The two axes are located on opposite sides of the fuse drawer. A pair of three-phase ground switch assemblies serves to ground the respective loop circuits. Each ground switch assembly includes three ground switch blades arranged to be operated into and out of engagement with contacts connected to the respective phase contacts of the disconnecting switches.

Operating handles latch and unlatch the fuse drawer and operate individually the disconnecting switch assemblies and the ground switch assemblies. The operating handle for the fuse drawer is rotatable about a horizontal axis centrally of the drawer to shift upper and lower fuse drawer locking links into and out of locking positions. The operating handles for the disconnecting switch assemblies are located near the top of the housing adjacent opposite sides of the fuse drawer and are rotatable about vertical axes to control spring operators which are connected to the disconnecting switch blade assemblies. The operating handles for the ground switch assemblies are located near the bottom of the housing and are spaced from opposite sides of the fuse drawer. They are connected by individual links to the respective ground switch blade assemblies.

An interlocking system prevents opening of the fuse drawer unless both disconnecting switch assemblies are open and prevents closure of either disconnecting switch assembly unless the fuse drawer is closed. This is accomplished through horizontally endwise movable disconnecting switch handle locking links that cooperate with the upper fuse drawer locking link which is shifted by the fuse drawer operating handle. With both disconnecting switch assemblies closed, the upper fuse drawer locking link is prevented from moving to its unlocked position by the disconnecting switch handle locking links. When the disconnecting switch assemblies are opened, notches in the disconnecting switch handle locking links are moved into registry thereby allowing the upper fuse drawer locking link to be moved downwardly and the lower fuse drawer locking link to be moved upwardly to unlock the fuse drawer and permit it to be opened. When the upper fuse drawer locking link occupies the locked position, it holds a spring-biased drop latch in retracted position. On downward movement of the upper fuse drawer locking link, the drop latch moves into the registering notches and prevents endwise movement of the horizontal handle locking links, thereby preventing movement of the disconnecting switch operating handles.

The ground switch assemblies are individually interlocked with the disconnecting switch assemblies to prevent closure of the former when the latter are closed, to permit closure of the former only when the latter are open, and to prevent closure of the latter when the former are closed. Ground switch interlock links interconnect the ground switch blade assemblies and the disconnecting switch blade assemblies respectively, there being slotted connections to the latter which permit closing the ground switch assemblies only when the respective disconnecting switch blade assemblies are open. Additional switch interlock links interconnect the ground switch blade assemblies and overcenter spring operators for the disconnecting switch blade assemblies and prevent overcenter operation thereof to close the disconnecting switch blade assemblies when the respective ground switch blade assemblies are closed.

In the drawings: FIG. 1 is a perspective view of pad-mounted switch gear in which the interlocking fuse and switch system of the present invention is embodied, the doors on the front being open and the fuse drawer shown in the open or withdrawn position. FIG. 2 is a perspective view of the pad-mounted switch gear, shown in FIG. 1, the view being taken from the rear with the rear doors being shown in the open position. FIG. 3 is a horizontal sectional view, somewhat diagrammatic in character looking downwardly below the top wall of the metal enclosure shown in FIG. 1. FIG. 4 is a vertical sectional view taken generally along line 4–4 of FIG. 3. FIG. 5 shows diagrammatically the circuit connections for the fuse and switch system in the enclosure shown in FIGS. 1 and 2. FIG. 6 shows diagrammatically certain features of the interlocking fuse and switch system that can be embodied in the housing shown in FIGS. 1 and 2, an overcenter switch operating mechanism being disclosed and the entire arrangement being somewhat diagrammatic in character. FIG. 7 is a vertical view taken generally along line 7–7 of FIG. 6. FIG. 8 is a vertical sectional view taken generally along line 8–8 of FIG. 6. FIG. 9 is a horizontal sectional view taken generally along line 9–9 of FIG. 7. FIG. 10, sheet 2, is a vertical sectional view, at an enlarged scale, taken generally along line 10–10 of FIG. 6.

Referring to the drawings, the reference character 10 designates, generally, interlocking fuse and switch system embodying this invention. It is mounted on a concrete pad 11, FIGS. 1 and 2, and is enclosed in a metallic housing that is indicated, generally, at 12, and forms a support structure for the fuse and switch mechanisms housed thereby, The housing 12 includes sidewalls 13 and 14 and a top wall 15. The front end of the housing 12 is closed by front doors 16. FIG. 1, while the rear end is closed by rear doors 17, FIG. 2. It will be understood that suitable locks are provided for preventing opening of the front and rear doors 16 and 17 except by authorized personnel.

Centrally located between the sidewalls 13 and 14 is a fuse drawer that is indicated, generally, at 18 on the front of which there is a pivoted fuse drawer handle 19. The fuse drawer 18 is arranged to carry fuses 22 which are mounted on insulators 23 which extend rearwardly from a fuse panel 24 which forms the front end of the fuse drawer 18. For a three-phase system, three fuses 22 are provided. For a single-phase system, it will be understood that only a single fuse 22 is employed. The present invention can be utilized for either a single-phase or a three-phase system. The fuses 22 are carried by the insulators 23 at one end and the other ends are arranged to interfit or to plug in stationary contacts 25 which are carried at the inner ends of insulators 26 which extend forwardly from a rear inner wall 27 of the metallic housing 12. This is shown more clearly in FIG. 3. Terminals 28 provide for connection of a load circuit to the stationary contacts 25.

The ends of the fuses 22 which are carried by the insulators 23 are provided with laterally extending contact arms 29 and 30 which are shown in FIG. 3 and diagrammatically in FIG. 5. The contact arms 29 and 30, in the closed position of the fuse drawer 18, have contact engagement with contact plates 31 and 32 on which switch blades 33 and 34 are mounted. The switch blades 33 and 34 form parts of three-phase switch assemblies that are indicated, generally, at 35 and 36. As shown in FIGS. 4 and 8 the switch assemblies 35 and 36 include stacks of insulators 37 and 38 which have the contact plates 31 and 32 therebetween. The stacks of insulators 37 and 38 are pivotally mounted at their upper and lower ends on the support structure 12. FIG. 4 shows the mounting arrangement for the stack of insulators 38. It is pivotally mounted at 39 and 40 at its upper and lower ends. It will be understood that the stack of insulators 37 is similarly pivotally mounted.

For pivoting the switch blades 33 and 34 between the switch-closed and switch-open positions operating arms 41 and 42 are secured to the upper ends of the stacks of insulators 37 and 38. The operating arms 41 and 42 are connected by links 43 and 44 to arms 45 and 46 which are arranged to be rotated with a snap action by spring operators that are indicated, generally, at 47 and 48 in FIGS. 3 and 4. The spring operators 47 and 48 can be constructed as disclosed in Bernatt et al. application Ser. No. 846,694, filed Aug. 1, 1969. Alternatively overcenter spring operators, indicated generally at 49 and 50 in FIG. 6, can be employed for operating the switch blades 33 and 34 with a snap action between switch-closed and switch-open positions. The overcenter spring operators 49 and 50 can be constructed as disclosed in the Harner et al. patent above referred to. Provision is made for manually operating the spring operators 47 and 48 for the overcenter spring operators 49 and 50. For this purpose switch operating handles 53 and 54 are connected to either the spring operators 47 and 48 or the overcenter spring operators 49 and 50 as the case may be. In the switch-closed positions the switch operating handles 53 and 54 occupy the positions shown in FIG. 3. For the switch-open positions they occupy the positions shown in FIG. 9.

The switch blades 33 and 34 are arranged to engage stationary contacts 55 and 56, FIGS. 3 and 5, which are mounted on contact support plates 57 and 58 which are carried by insulators 59 and 60 that extend forwardly from the rear inner wall 27 of the metallic housing 12. Switch terminals 61 and 62 extend from the rear side of the wall 27 to permit connection thereto of the conductors for the loop feeder circuit. Arc chutes 63 and 64 are mounted on the contact support plates 57 and 58 in conjunction with the stationary contacts 55 and 56 for the purpose of extinguishing arcs that may be drawn on separation of the switch blades 33 and 34 from the respective stationary contacts 55 and 56.

As illustrated in FIG. 5, the load circuit through the fuses 22 is energized when either or both of the switch assemblies 35 and 36 are closed. Opening one or the other of the switch assemblies 35 or 36 opens the loop feeder circuit while maintaining the load circuit energized. On opening of both of the switch assemblies 35 and 36, the load circuit through the fuses 22 is deenergized. It is desirable, when the switch assemblies 35 and 36 or either of them are opened to provide for grounding the respective stationary contacts 55 and 56 to the end that the portion of the loop feeder circuit connected thereto can be serviced without danger to operating personnel. For this purpose three-phase ground switch assemblies 67 and 68 are employed. They include three ground switch blades 69 and 70 which are secured to and pivot with metallic shafts 71 and 72 that are pivotally mounted at their upper and lower ends on the metallic housing or support structure 12. At the lower ends of the shafts 71 and 72 operating arms 73 and 74 extend radially as shown in FIGS. 3 and 6. The operating arms 73 and 74 are connected by links 75 and 76 to arms 77 and 78 which are arranged to be pivoted by ground switch levers 79 and 80 which are mounted inside the front doors 16 of the metallic housing 12. In order to permit the ground switch levers 79 and 80 to be swung away, they are pivoted at 81 and 82. The ground switch blades 69 and 70, which are commonly connected to ground, as indicated in FIG. 5, are arranged to engage ground switch stationary contacts 83 and 84, FIG. 3, which are carried by the contact support plates 57 and 58.

In accordance with this invention provision is made for preventing opening of the fuse drawer 18 when either of the switch assemblies 35 and 36 is closed. To this end upper and lower fuse drawer locking links are mounted on the rear side of the fuse panel 24, as shown in FIGS. 7 and 8, and they are connected to be moved upwardly and downwardly by the fuse drawer handle 19 when it is rotated through about 90°. When the fuse drawer 18 is in the closed position and the fuse drawer handle 19 is in the position shown in FIG. 8, the upper and lower ends of the fuse drawer locking links 85 and 86 react against the metallic housing or support structure 12 to prevent opening of the fuse drawer 18. As shown more clearly in FIG. 10 the upper end of the upper fuse drawer locking link 85 in the locked position can react against a crossbar 87 which forms a part of the support structure 12. It is necessary to move the locking link 85 downwardly by pivotal movement of the fuse drawer handle 19 in order that the upper end will clear the crossbar 87 and permit opening movement of the fuse drawer 18. A similar construction is provided for the lower end of the lower fuse drawer locking link 86.

At its upper end the upper fuse drawer locking link 85 has a laterally extending portion 88 which is arranged to overlie horizontally movable handle locking links 89 and 90. The handle locking links 89 and 90 have longitudinally extending notches 91 and 92 in their front edges. When the notches 91 and 92 are in registry, as shown in FIG. 10, the laterally extending portion 88 can be moved downwardly therethrough to unlock the fuse drawer 18 and permit it to be opened. When either of the switch assemblies 35 or 36 is closed, the corresponding handle link 89 or 90 occupies the position shown in FIG. 6 and thereby prevents downward movement of the upper fuse drawer locking link 85.

The outer ends of the handle locking links 89 and 90 have pins 93 and 94, FIGS. 6 and 9, which extend through arcuate slots 95 and 96 which are formed in plates 97 and 98 that are arranged to pivot with the respective switch operating handle 53 and 54. This arrangement permits movement of the switch operating handles 53 and 54 for the purpose of charging the springs of the operators 47 and 48 or of the overcenter spring operators 49 and 50 before any movement of the handle locking links 89 and 90 is effected.

With a view to preventing closing movement of the switch assemblies 35 and 36 when the fuse drawer 18 is open, latch 101, FIG. 10, is employed. The latch 101 is pivoted at 102 on the support structure 12 and is biased by a torsion spring 103 to pivot in a clockwise direction to cause a tongue 104, which is an integral part of the latch 101, to move downwardly into the registering notches 91 and 92 as shown by full lines in FIG. 10 to hold the handle locking links 89 and 90 in the position shown in FIG. 9 where they prevent pivotal movement of the switch operating handles 53 and 54 sufficiently far to close the switch assemblies 35 and 36. It will be observed in FIG. 10 that the laterally extending portion 88 of the upper fuse drawer locking link 86 is arranged to engage the distal end of the tongue 104 and to pivot the latch 101 in a counterclockwise direction to lift the tongue 104 out of locking engagement with the notches 91 and 92. In doing this the portion 88 moves upwardly through the registering notches 91 and 92 and into overlying relation with the handle locking links 89 and 90 which prevent downward movement thereof when, as previously described, one of the other of the notches 91 or 92 is displaced from registry with the portion 88.

As pointed out above the ground switch assemblies 67 and 68 should not be operated to their closed positions when the respective switch assemblies 35 and 36 are closed. In order to synchronize such operation, arms are connected to the lower ends of the metallic shafts 71 and 72. One of these arms is indicated at 107 in FIG. 8. Ground switch interlock links 109 and 110 are connected at one end to these arms while the

other ends are provided with slots **111** and **112**, FIG. **6**, through which pins **113** and **114** project from arms **115** and **116** that extend from the lower ends of the stacks of insulators **37** and **38**. When the switch blades **33** and **34** occupy the switch-closed positions, as shown in FIG. **6**, the pins **113** and **114** are located at the inner ends of the slots **111** and **112** and thereby through the links **109** and **110** prevent pivotal movement of the metallic shafts **71** and **72** for closing the ground switch assemblies **67** and **68**. When the switch blades **33** and **34** are pivoted to the switch-open positions shown by broken lines in FIG. **6**, the pins **113** and **114** are located at the outer ends of the slots **111** and **112** and thus permit sufficient endwise movement of the ground switch interlock links **109** and **110** to allow pivotal movement of the metallic shafts **71** and **72** for the purpose of closing the ground switch assemblies **67** and **68**.

Provision is made for preventing closure of the switch assemblies **35** and **36** or either of them when either of the ground switch assemblies **67** and **68** is closed. For this purpose arms **119** and **120**, FIG. **6**, are secured to the upper ends of the metallic shafts **71** and **72**. Links **121** and **122** are pivotally connected to the distal ends of the arms **119** and **120** and are guided for movement by guides **123** and **124** which are suitably mounted on the support structure **12**. The distal ends **125** and **126** of the links **121** and **122** in the closed positions of the ground switch assemblies **67** and **68** extend into the paths of the spring operating tubes **127** and **128** of the overcenter spring operators **47** and **48** and thereby prevent movement past the center positions required for closing the switch assemblies **35** and **36**.

In describing the operation of the interlocking fuse and switch system **10** it will be assumed that the switch assemblies **35** and **36** are in the closed positions as indicated in FIGS. **3** and **6**, that the fuse drawer **18** is closed and that the ground switch assemblies **67** and **68** are open. Under these conditions latch **101** is held in the unlatched position by the laterally extending portion **88** of the upper fuse drawer link **85**. Also the laterally extending portion **88** overlies those portions of the fuse drawer locking links **85** and **86** beyond the notches **91** and **92**, as illustrated in FIG. **6**, with the result that the fuse drawer handle **19** cannot be pivoted to unlock the fuse drawer **18**. The switch operating handles **53** and **54** occupy the positions shown by full lines in FIG. **6**. It is necessary to pivot the switch operating handles **53** and **54** to the positions shown in FIG. **9** in order to open the switch assemblies **35** and **36**. This is accompanied by inward movement of the handle locking links **89** and **90** to the positions as shown in FIG. **9** where the notches **91** and **92** are in registry. This is permitted since inner ends **129** and **130**, FIG. **7**, of the handle rodlike locking links **89** and **90** are in overlying and underlying relation to each other and have offset connecting portions **131** and **132** with the latter having a window **134**, FIGS. **6** and **9**, for receiving therethrough the inner end **129** for guiding the same. Then the fuse drawer handle **19** can be pivoted to the position shown in FIG. **1** to move the fuse drawer locking links **85** and **86** downwardly and upwardly to unlock the fuse drawer **18** from the support structure **12** and permit it to be opened to the position shown in FIG. **1**. Since the switch assemblies **35** and **36** both are opened, no arcing takes place when the fuses **22** are withdrawn from the stationary contacts **25**.

The downward movement of the upper fuse drawer locking link **85** is accompanied by downward movement of the portion **88** through the notches **91** and **92**. Latch **101** then is pivoted in a clockwise direction by the torsion spring **103** to move the tongue **104** into the registering notches **91** and **92** thereby preventing endwise movement of the handle locking links **89** and **90** and pivotal movement of the switch operating handles **53** and **54** from the switch open positions shown in FIG. **9** to the switch closed positions shown in FIG. **6**.

The operation of the ground switch assemblies **67** and **68** is associated with the respective switch assemblies **35** and **36**. For the reasons outlined hereinbefore the switch assemblies **35** and **36** cannot be operated to their open positions as long as the respective ground switch assembly **67** or **68** is in the closed position. Likewise neither of the ground switch assemblies **67** or **68** can be closed if the corresponding switch assembly **35** or **36** is closed.

I claim:

1. An interlocking fuse and switch system comprising:
- a support structure,
- a drawer slidable on said support structure,
- a fuse carried by said drawer,
- a switch having a switch blade pivoted on said support structure to one side of said drawer,
- contact means interconnecting said fuse and said switch blade,
- a fuse drawer rodlike locking link on said drawer in locked position reacting against said support structure to prevent opening of said drawer,
- a manually operable handle pivoted on said support structure for operating said switch blade between open and closed positions,
- a handle rodlike locking link connected at one end to said handle,
- means mounting said handle rodlike locking link for generally endwise translatory movement transversely of said fuse drawer rodlike locking link to prevent movement thereof to the unlocked position when said handle is in the switch closed position, and
- means for guiding the other end of said handle rodlike locking link for translatory movement as aforesaid.

2. The interlocking fuse and switch system according to claim **1** wherein:
- said switch includes a stationary contact for engagement by said switch blade,
- a ground switch blade is pivoted on said support structure and is arranged in closed position to ground said stationary contact, and
- ground switch rodlike link means between said switch blade and said ground switch blade for preventing closure of the latter when the former is closed.

3. The interlocking fuse and switch system according to claim **2** wherein lost-motion connecting means between said switch blade and said ground switch link means effects movement of the latter only after the former has pivoted to a predetermined position.

4. The interlocking fuse and switch system according to claim **2** wherein means between said handle and said ground switch blade prevent operation of said handle to close said switch blade when said stationary contact is grounded by said ground switch blade.

5. An interlocking fuse and switch system comprising:
- a support structure
- a drawer slidable on said support structure
- a fuse carried by said drawer,
- a switch having a switch blade pivoted on said support structure to one side of said drawer,
- contact means interconnecting said fuse and said switch blade,
- a fuse drawer locking link on said drawer in locked position reacting against said support structure to prevent opening of said drawer,
- a manually operable handle pivoted on said support structure for operating said switch blade between open and closed positions, and
- a handle locking link connected to said handle and cooperating with said fuse drawer locking link to prevent movement thereof to the unlocked position when said handle is in the switch-closed position, said handle locking link having a notch through which said fuse drawer locking link can move to unlocked position only when said handle is in the switch-open position.

6. The interlocking fuse and switch system according to claim **5** wherein lost-motion connecting means between said handle and said handle locking link effects movement of the latter only after the former has pivoted through a predetermined extent.

7. The interlocking fuse and switch system according to claim 5 wherein said fuse drawer locking link has a laterally extending portion for overlying said handle locking link when said handle is in the switch-closed position to prevent opening of said drawer and is movable through said notch when said handle is in the switch-open position.

8. The interlocking fuse and switch system according to claim 5 wherein:

a latch is pivoted on said support structure and is biased to interfit with said notch in said handle locking link to prevent movement of said handle from the switch-open position, and

means on said fuse drawer locking link for engaging said latch to move it out of said notch when said drawer is closed and locked.

9. The interlocking fuse and switch system according to claim 8 wherein:

said fuse drawer locking link has a laterally extending portion for overlying said handle locking link when said handle is in the switch-closed position to prevent opening of said drawer and is movable through said notch when said handle is in the switch-open position, and

said laterally extending portion of said fuse drawer locking link is arranged to engage said latch and hold it in unlatched position when said drawer is closed.

10. An interlocking fuse and switch system comprising:

a support structure,

a drawer slidable on said support structure,

a fuse carried by said drawer,

a switch on each side of said drawer each having a switch blade pivoted on said support structure,

contact means interconnecting said fuse and each switch blade,

a fuse drawer locking link on said drawer in locked position reacting against said support structure to prevent opening of said drawer,

a manually operable handle for each switch blade pivoted on said support structure for operating the respective switch blade between open and closed positions, and

a handle locking link connected to each of said handles and cooperating with said fuse drawer locking link to prevent movement thereof to the unlocked position when either of said handles is in the switch-closed position, each of said handle locking links having a notch through which said fuse drawer locking link can move to unlocked position only when both of said handles are in the switch-open position.

11. The interlocking fuse and switch system according to claim 10 wherein lost-motion connecting means between each handle and the respective handle locking link effects movement of the latter only after the former has pivoted through a predetermined extent.

12. The interlocking fuse and switch system according to claim 10 wherein said fuse drawer locking link has a laterally extending portion for overlying said handle locking links when said handles are in the switch-closed positions to prevent opening of said drawer and is movable through said notches when they are in registry and said handles are in the switch-open positions.

13. The interlocking fuse and switch system according to claim 10 wherein:

a latch is pivoted on said support structure and is biased to interfit with said notches in said handle locking links when they are in registry to prevent movement of said handles from the switch-open positions, and

means on said fuse drawer locking link for engaging said latch to move it out of said notches when said drawer is closed and locked.

14. The interlocking fuse and switch system according to claim 13 wherein:

said fuse drawer locking link has a laterally extending portion for overlying said handle locking links when said handles are in the switch-closed positions to prevent opening of said drawer and is movable through said notches when they are in registry and said handles are in the switch-open position, and

said laterally extending portion of said fuse drawer locking link is arranged to engage said latch and hold it in unlatched position when said drawer is closed.

15. An interlocking fuse and switch system comprising:

a support structure,

a drawer slidable on said support structure,

a fuse carried by said drawer,

a switch on each side of said drawer each having a switch blade pivoted on said support structure,

contact means interconnecting said fuse and each switch blade,

a fuse drawer rodlike locking link on said drawer in locked position reacting against said support structure to prevent opening of said drawer,

a manually operable handle for each switch blade pivoted on said support structure for operating the respective switch blade between open and closed positions,

a handle rodlike locking link connected at one end to each of said handles,

means mounting said handle rodlike locking links for generally endwise translatory movement in overlying and underlying relation to each other transversely of said fuse drawer rodlike locking link to prevent movement thereof to the unlocked position when either of said handles is in the switch closed position, and

means for guiding the other ends of said handle rodlike locking links with respect to each other for translatory movement as aforesaid.

16. The interlocking fuse and switch system according to claim 15 wherein:

each of said switches includes a stationary contact for engagement by the respective switch blade,

a ground switch blade individual to each stationary contact is pivoted on said support structure and is arranged in closed position to ground the respective stationary contact, and

ground switch rodlike link means between each switch blade and the respective ground switch blade for preventing closure of the latter when the former is closed.

17. The interlocking fuse and switch system according to claim 16 wherein lost-motion connecting means between each switch blade and the respective ground switch link means effects movement of the latter only after the former is pivoted to a predetermined position.

18. The interlocking fuse and switch system according to claim 16 wherein means between each handle and the respective ground switch blade prevent operation of the former to close the respective switch blade when the respective stationary contact is grounded by the respective ground switch blade.