Sept. 10, 1957 D. G. PORTMAN ET AL 2,806,098

ENCLOSED CIRCUIT INTERRUPTER OPERATING MECHANISMS

Filed Jan. 13, 1955

3 Sheets-Sheet 1

Fig.1.

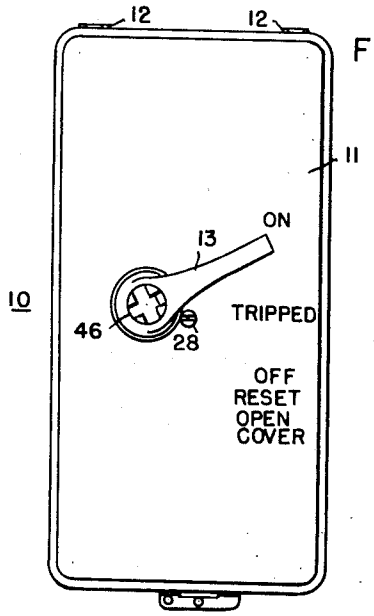


Fig.2.

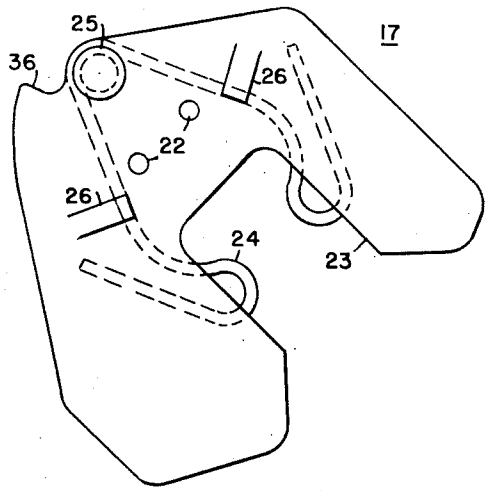


Fig.3.

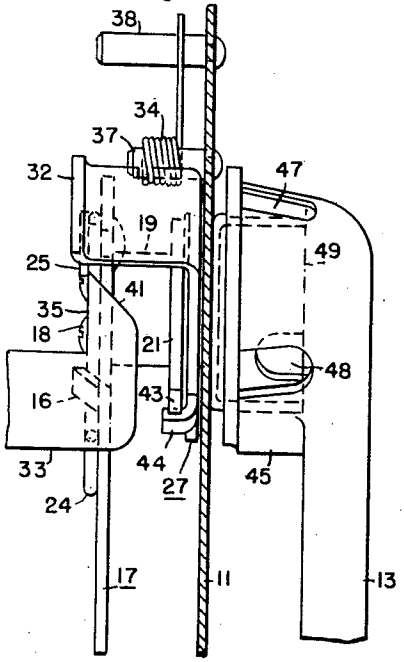
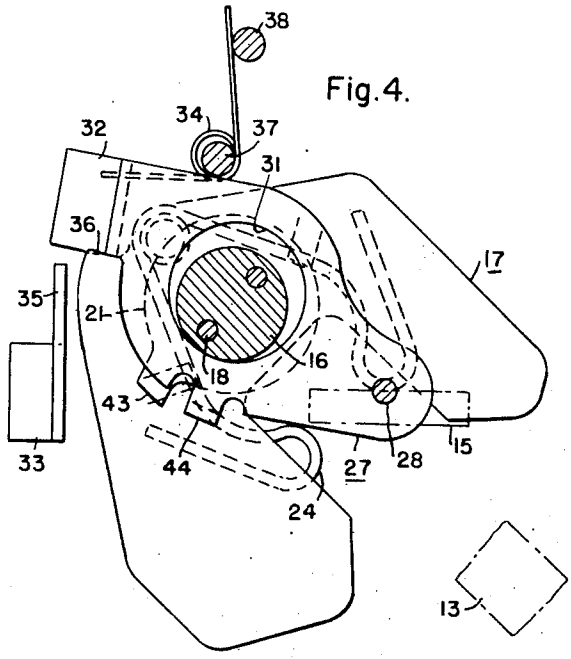


Fig.4.



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ENCLOSED CIRCUIT INTERRUPTER OPERATING MECHANISMS

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Fig.5.

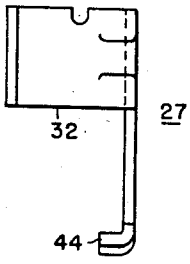


Fig.6.

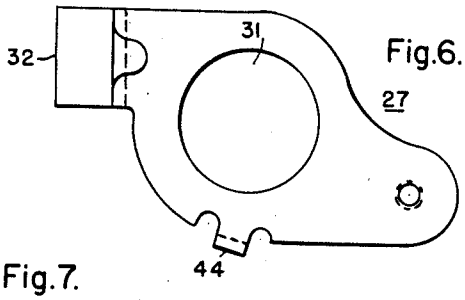


Fig.7.

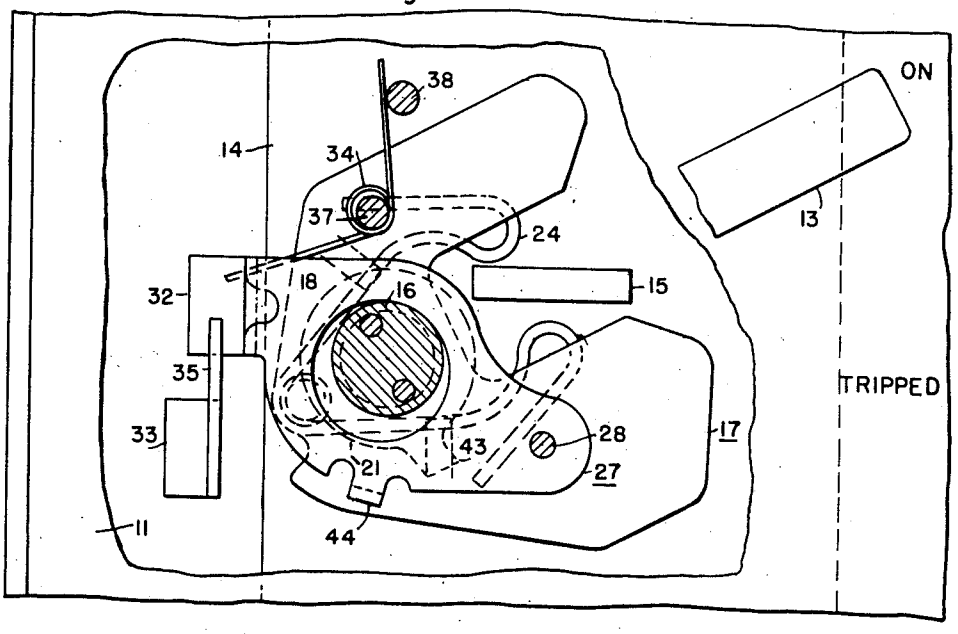


Fig.8.

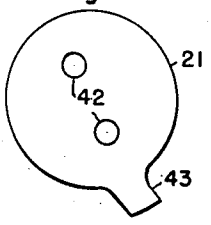
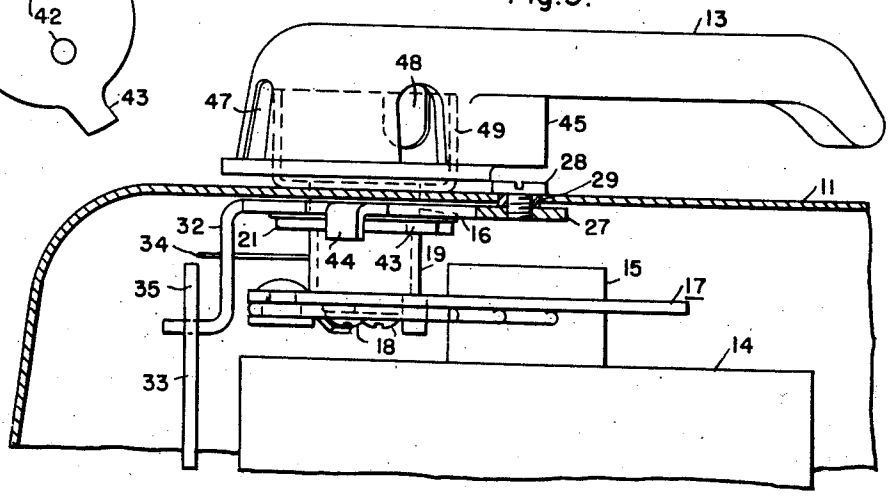


Fig.9.



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Fig.10.

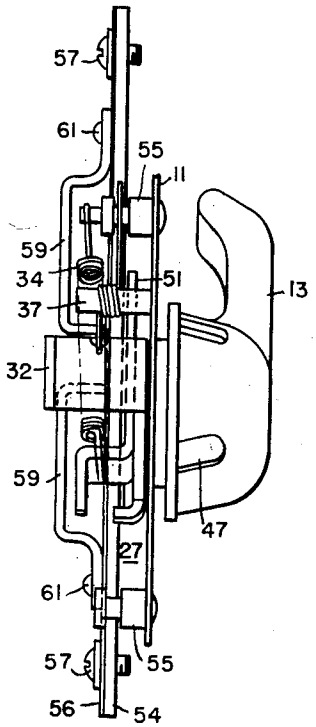


Fig.11.

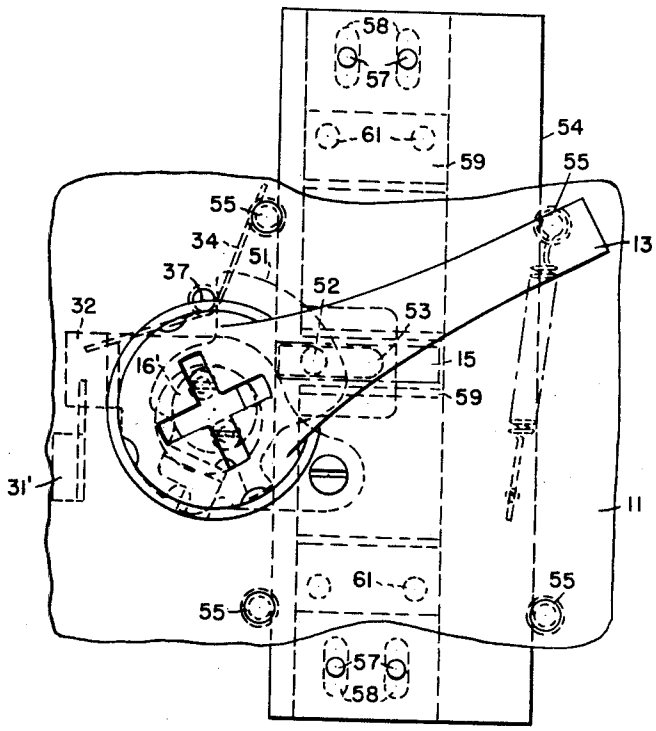
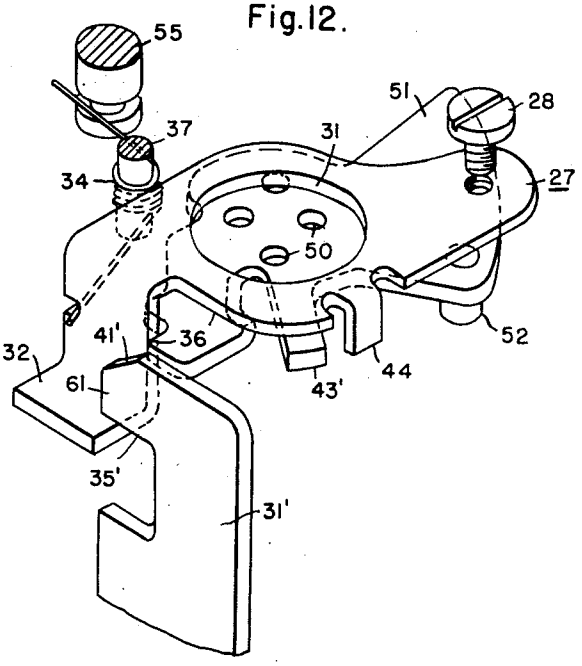


Fig.12.



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2,806,098

ENCLOSED CIRCUIT INTERRUPTER OPERATING MECHANISMS

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Application January 13, 1955, Serial No. 481,622

13 Claims. (Cl. 200—50)

Our invention relates, generally, to operating mechanisms for circuit interrupters which are enclosed in cabinets and, more particularly, to interlocking devices for operating mechanisms of the general type described in Patent No. 2,550,125 issued August 24, 1951, to A. E. Schueler and H. T. Walton. In the aforesaid patent there is described an operating mechanism having an interlocking device which normally functions to prevent the cover of the cabinet from being opened while the external operating handle is in the "on" position and the contact members of the circuit breaker enclosed in the cabinet are closed. The present invention is an improvement on the structure disclosed in the aforesaid patent by which the circuit breaker can not be closed before the cover is fully closed and without the cover being locked to the cabinet, thereby making it impossible for the cover to be opened while the breaker is closed as is possible where the breaker may be closed before the cover is locked.

Accordingly, an object of our invention is to provide an interlocking device which will prevent the cover of a cabinet that encloses a circuit interrupter from being opened while the interrupter is closed.

Another object of our invention is to provide an interlocking device which must be fully engaged with its cooperating locking member in the cabinet before the circuit interrupter can be closed by means of the external operating handle on the cabinet.

A more general object of our invention is to provide an interlocking device for an enclosed circuit interrupter operating mechanism which shall be simple and efficient in operation and which may be economically manufactured and installed.

Other objects of our invention will be explained fully hereinafter or will be apparent to those skilled in the art.

In accordance with one embodiment of our invention, an interlocking member, which moves with the external operating handle of the operating mechanism for an enclosed circuit interrupter, cooperates with an interlocking latch to prevent closing the circuit interrupter by means of the external operating handle unless the interlocking latch is fully engaged with a locking member in the cabinet. Thus, the interlocking device prevents opening the cover while the circuit interrupter is closed.

For a better understanding of the nature and objects of the invention, reference may be had to the following detailed description, taken in conjunction with the accompanying drawings, in which:

Figure 1 is a reduced view, in plan, of a cabinet for enclosing a circuit interrupter, the cabinet having an external operating handle for actuating the interrupter;

Fig. 2 is a view, in plan, of an actuating plate for the operating mechanism which is disposed inside the cabinet;

Fig. 3 is a view, partly in section and partly in side elevation, of the operating mechanism and interlocking device;

Fig. 4 is a view, partly in section and partly in plan, of the operating mechanism and interlocking device;

Fig. 5 is a view, in side elevation, of the interlocking latch utilized in the interlocking device;

Fig. 6 is a view, in plan, of the interlocking latch;

Fig. 7 is a view, partly in plan and partly in section, of the operating mechanism, the external operating handle being in the "on" position;

Fig. 8 is a view, in plan, of the interlocking disc utilized in the interlocking device;

Fig. 9 is a view, partly in section and partly in end elevation, of the operating mechanism and interlocking device, the external operating handle being in the "on" position;

Fig. 10 is a view, in side elevation, of a modification of the operating mechanism and interlocking device;

Fig. 11 is a view, in plan, of the modified structure; and

Fig. 12 is a view, in perspective, of the interlocking device.

Referring to the drawings, and particularly to Fig. 1, the structure shown therein comprises a generally rectangular metal cabinet **10** having a cover **11** attached to the cabinet by hinges **12**. The cover **11** has an external operating handle **13** rotatably mounted thereon. As will be described more fully hereinafter, the handle **13** is utilized for operating a switch or circuit breaker **14** mounted inside the cabinet **10**.

The circuit breaker **14** may be of the type described in Patent No. 2,047,739, issued to H. J. Lingal, July 14, 1936, and assigned to the assignee of the present invention. The circuit breaker **14** is provided with contact members (not shown) and an operating mechanism for opening and closing the contact members by means of an operating member **15**. As described in the aforesaid patent, the circuit breaker is also provided with a tripping mechanism which is operable in response to predetermined overload currents to effect automatic opening of the contact members.

As previously mentioned, the contact members of the circuit breaker may be manually opened and closed by oscillatory movement of the operating member **15** which is actuated by movement of the external operating handle **13**. As indicated in Fig. 1, the operating handle **13** may be moved to an "on" position to close the contact members of the circuit breaker **14**. The handle **13** may be moved to an "off" position to open the contact members of the circuit breaker. The handle **13** is automatically moved to a "tripped" position when the contact members of the circuit breaker are opened by the overload tripping mechanism. The handle **13** may be moved to a "reset" position and then to the "on" position in order to reclose the contact members of the breaker after they have been opened by the tripping mechanism. As will be described more fully hereinafter, the handle **13** may be moved to an "open cover" position in order to permit the opening of the cover **11** of the cabinet **10**.

As shown most clearly in Figs. 7 and 9, the handle **13** has a short shaft **16** which extends through the cover **11**. An actuating plate **17** is attached to the inner end of the shaft **16** by means of screws **18** which extend through a spacing member **19** and an interlocking member or disc **21** into the inner end of the shaft **16**.

The actuating plate **17** may be of the general type described in Patent No. 2,137,872, issued November 22, 1938, to J. J. Bogaerts and asigned to the assignee of the present invention. As shown most clearly in Fig. 2, the plate **17** is provided with holes **22** for receiving the screws **18** for attaching the plate to the shaft **16**. The plate **17** has a generally rectangular slot or notch **23** therein for receiving the operating member **15** of the circuit breaker **14**.

As described in the aforesaid Bogaerts patent, a generally V-shaped spring **24** is attached to the plate **17** by

means of a rivet 25. The arms of the spring 24 engage the operating member 15, thereby providing sufficient resiliency to prevent breakage of the operating member 15 by sudden movement of the external operating handle 13. Integral projections 26 are provided on the plate 17 for retaining the spring 24 in its proper position with respect to the opening 23 in the plate 17. The two arms of the plate 17 on opposite sides of the opening 23 have sufficient width to engage the top of the operating member 15 and prevent closing of the cover unless the handle 13 is in proper position to cause operating member 15 to be positioned within the slot 23 as the cover is being closed. The arms of the spring 24 constitute a disengageable connection between the actuating plate 17 and the operating member 15. The connection is engaged as the cover is being closed before the cover reaches its fully closed position.

As explained hereinbefore, it is desirable to provide an interlocking device to prevent opening the cover 11 while the contact members of the circuit interupter 14 are closed. In the present structure an interlocking latch 27 is pivotally attached to the cover 11 by means of a screw 28 which extends through a bearing 29 in the cover 11. The screw 28 is threaded into and fixed to the latch 27 in order that the latch may be actuated by means of the screw for a purpose which will be explained more fully hereinafter. The latch 27 has a clearance opening 31 therein for the shaft 16 to permit the latch to be moved relative to the shaft.

The latch 27 has an inwardly extending arm 32 thereon which is disposed to engage a locking element 33 attached to the inside of the cabinet 10. As shown in Fig. 7, the arm 32 is biased by a spring 34 into a position in which the arm 32 engages a hook portion 35 of the element 33 when the external operating handle 13 is in the "on" position and the operating member 15 is in the "closed" position of the circuit breaker 14. Thus, the cover 11 normally cannot be opened while the circuit interrupter is closed.

In order to permit the cover to be opened by an authorized person, in the event of failure of the circuit breaker mechanism, the screw 28 may be turned by means of a screw driver to release the interlocking latch 27 from engagement with the element 33. It will be noted that the head of the screw 28 is exposed when the external operating handle 13 is in the "on" position. However, the head of the screw 28 is covered by the handle 13 when the handle is in all other positions.

As shown in Figs. 3 and 4, the interlocking latch 27 is normally released from engagement with the hook 35 on the element 33 when the external operating handle 13 is moved to the "open cover" position. The arm 32 is engaged by a shoulder 36 on the plate 17 to disengage the latch 27 from the element 33. Thus, the cover 11 may be released by movement of the handle only when the handle 13 is moved to the "open cover" position.

As previously explained, the spring 34 normally biases the latch 27 into engagement with the locking element 33 when the handle 13 is moved from the "open cover" position toward the "on" position. The spring 34 is mounted on a pin 37 which extends through the cover 11. One arm of the spring 34 engages another pin 38 and the other arm engages the arm 32 of the interlocking latch 27.

As explained hereinbefore, it has been found that under certain conditions the interlocking latch 27 does not function to prevent opening the cover 11 when the contact members of the circuit interrupter are closed. For example, if the cover 11 is not closed sufficiently to permit the spring 34 to cause the arm 32 of the latch 27 to pass underneath the hook 35 prior to closing the circuit interrupter by means of the external operating handle 13 the interlocking latch cannot prevent opening the cover while the circuit interrupter is closed.

As shown in Fig. 3, the hook portion 35 of the element 33 has a sloping surface 41 over which the arm 32 of the interlocking latch 27 rides during closing of the cover 11. If the cover is completely closed the arm 32 is biased by the spring 34 to a position underneath the hook portion 35, thereby locking the cover closed until it is released by operation of the external handle 13 to the "open cover" position, or it is released by means of the screw 28 as explained hereinbefore. However, if the cover is not completely closed the arm 32 remains in engagement with the sloping portion 41 and the interlocking latch cannot function to retain the cover closed.

In order to overcome this deficiency in the interlocking device we have provided the interlocking member or disc 21 which is disposed between the interlocking latch 27 and the spacing sleeve 19. The disc 21 has holes 42 therein through which the screws 18 extend to attach the disc 21 to the shaft 16 of the handle 13. Thus, the disc 21 moves with the handle 13.

As shown in Fig. 8, the disc 21 is provided with a radially extending projection 43. As shown in Figs. 5 and 6, the interlocking latch 27 is provided with an inwardly extending projection 44. As shown in Figs. 3 and 4, the projection 43 will engage the projection 44 to prevent movement of the external operating handle 13 to the "on" position to close the circuit interrupter unless the arm 32 of the interlocking latch 27 passes underneath the hook 35 to engage the hook portion of the element 33.

As previously explained, the arm 32 cannot pass underneath the hook portion 35 unless the cover 11 is fully closed. Therefore, the cover 11 must be fully closed and the interlocking latch 27 must be fully engaged with the locking element 33 before the circuit interrupter can be closed by means of the external operating handle 13.

As shown in Figs. 7 and 9, when the arm 32 is fully engaged underneath the hook portion 35 of the element 33 the projection 43 on the interlocking disc 21 will clear the projection 44 on the interlocking latch 27, thereby permitting the external operating handle 13 to be moved to the "on" position to close the circuit interrupter. Since the interlocking latch 27 is in engagement with the locking bracket 33 it will function in its normal manner to prevent opening the cover 11 while the circuit interrupter is closed.

It will be noted that the projection 43 will not interfere with projection 44 to prevent releasing the interlocking latch 27 by means of the screw 28, as explained hereinbefore. Furthermore, the projection 43 will not interfere with the projection 44 to prevent manual opening of the circuit interrupter by operating the handle 13 to the "off" position. The projection 43 will interfere with the projection 44 in the event that the arm 32 does not pass underneath the hook portion 35 to fully engage the hook portion. Accordingly, the interlocking disc 21 functions to prevent opening of the cover 11 after the circuit interrupter has been closed by means of the external operating handle.

As described in the aforesaid Patent 2,550,125, provision is made for locking the operating handle 13 in the "off" position by the use of a plurality of padlocks. The handle 13 has a hub portion 45 with a cross-shaped depression 46 (Fig. 1) therein. The hub 45 is provided with a plurality of spaced apertures 47 in the side and the cross-shaped depression which are disposed to be aligned with apertures 48 in a cup-shaped locking member 49 secured to the cover underneath the hub 45.

When the operating handle 13 is in the "off" position the apertures 47 and 48 are in alignment thereby permitting padlocks to be inserted through the apertures to lock the handle in the "off" position. Thus, each one of several persons working on the circuit controlled by the device can insert his own lock in the handle and be assured that no one else can energize the circuit by mov-

ing the operating handle. As previously explained, the cover is held closed by the interlocking mechanism when the handle is in the "off" position and access cannot be had to the screw **28** to defeat the interlock. Therefore, the interrupter cannot be closed while a lock is in place.

In the modification of the invention shown in Figs. 10, 11 and 12, in which like parts are designated by the same reference characters as in Figs. 1 to 9, a cam-shaped plate **51** is attached to the inner end of the shaft **16'** by means of screws which extend through holes **50**. The plate **51** carries a pin or an antifriction roller **52** which is disposed in a slot **53** in a slidable plate **54**. The plate **54** is supported between grooved studs **55** mounted on the inside of the cover **11**.

An operating plate **56** is adjustably attached to the inner side of the plate **54** by means of screws **57** which extend through elongated openings **58** and are threaded into the plate **54**. Two spaced operating arms **59** are attached to the operating plate **56** by means of rivets **61**. The operating member **15** of the circuit breaker is disposed in the space between the opposing ends of the operating arms **59** when the cover **11** is closed.

Thus, rotation of the handle **13** rotates the cam plate **51** which slides the plates **54** and **56** by means of the pin and slot connection **52—53**. The operating arms **59** engage the operating member **15** to operate the circuit breaker. The connection between the arms **59** and the member **15** is made as the cover is being closed before the cover reaches its fully closed position.

In the present modification, the cam plate **51** has a projection **43'** thereon which cooperates with the projection **44** on the interlocking latch **27** in the same manner as the projection **43** previously described. Thus, the handle **13** cannot be moved to the "on" position to close the circuit breaker unless the arm **32** of the interlocking latch **27** passes underneath the hook **35'** of the locking element **31'** to hold the cover closed.

As shown in Fig. 12, the locking element **31'** has a vertical portion **61** which is long enough that the latch **27** will not begin to move to its normal position until the operating fingers have completely disengaged the breaker operating member as the cover **11** is being opened. The projections **43'** and **44** prevent operation of the breaker in the unlatched position.

From the foregoing description it is apparent that we have provided an interlocking device for mechanism devised for actuating a circuit interrupter which is enclosed in a cabinet by means of an external operating handle on the cabinet. The interlocking device permits the actuating mechanism to function in its normal manner to operate the circuit interrupter but prevents opening of the cover of the cabinet while the circuit interrupter is closed.

Since numerous changes may be made in the above-described construction, and different embodiments of the invention may be made without departing from the spirit and scope thereof, it is intended that all matter contained in the foregoing description or shown in the accompanying drawings shall be interpreted as illustrative and not in a limiting sense.

We claim as our invention:

1. In combination, an enclosed circuit interrupter having a movable operating member supported internally of the interrupter for opening and closing the interrupter, a cabinet in which the interrupter is mounted, an openable cover for the cabinet, an external operating handle rotatably mounted on the cover, an actuating plate movable by the external operating handle and carried on the inside of the cover for movement with the cover as it is opened and closed, a disengageable connection between said actuating plate and said operating member, said connection being engaged as the cover is closed before the cover reaches fully closed position for actuating the operating member of the interrupter, a locking element in the cabinet, an interlocking latch normally engaging the locking element to retain the cover closed, said latch being released from the locking element by moving the external operating handle to a predetermined position, and interlocking means directly engaging the interlocking latch to prevent closing the interrupter by means of the external operating handle after said disengageable connection has become engaged and before the interlocking latch engages the locking element to retain the cover closed, said interlocking latch being releasable from the locking element from outside the cover when the external operating handle is in a predetermined position.

2. In combination, an enclosed circuit interrupter having a movable operating member supported internally of the interrupter for opening and closing the interrupter, a cabinet in which the interrupter is mounted, an openable cover for the cabinet, an external operating handle rotatably mounted on the cabinet, actuating means mounted on the inside of the cover and operated by said external operating handle to actuate the operating member of the interrupter, said actuating means being disengaged from the operating member when the cover is opened, locking means on the cabinet, an interlocking latch carried by the cover and normally engaging the locking means to retain the cover closed, said latch being released from the locking means when the handle is moved to a predetermined position, and interlocking means directly engaging the interlocking latch to prevent closing the interrupter by means of the external operating handle unless the interlocking latch engages the locking means to retain the cover closed, said interlocking latch being releasable from the locking means from outside the cover when the external operating handle is in a predetermined position.

3. In combination, an enclosed circuit interrupter having a movable operating member supported internally of the interrupter for opening and closing the interrupter, a cabinet in which the interrupter is mounted, an openable cover for the cabinet, an external operating handle rotatably mounted on the cabinet, actuating means mounted on the inside of the cover and operated by said handle to actuate the operating member of the interrupter, said actuating means being disengaged from the operating member when the cover is opened, locking means on the cabinet, an interlocking latch normally engaging the locking means to retain the cover closed, said latch being disengaged from the locking means when the handle is moved to a predetermined position, and interlocking means secured to the handle and directly engaging the interlocking latch to prevent closing the interrupter by means of the operating handle unless the interlocking latch engages the locking means to retain the cover closed.

4. In combination, an enclosed circuit interrupter having a movable operating member supported internally of the interrupter for opening and closing the interrupter, a cabinet in which the interrupter is mounted, an openable cover for the cabinet, an external operating handle rotatably mounted on the cabinet, actuating means mounted on the inside of the cover and operated by said handle to actuate the operating member of the interrupter, said actuating means being disengaged from the operating member when the cover is opened, locking means on the cabinet, a spring-biased interlocking latch normally engaging the locking means to retain the cover closed, said latch being disengaged from the locking means when the handle is moved to a predetermined position, and interlocking means movable with the handle and directly engaging the interlocking latch to prevent closing the interrupter by means of the external operating handle unless the interlocking latch engages the locking means to retain the cover closed, said spring-biased interlocking latch being releasable from the locking means from outside the cabinet when the handle is in a predetermined position.

5. In combination, a circuit interrupter having a mov-

able operating member for opening and closing the interrupter, a cabinet in which the interrupter is mounted, an openable cover for the cabinet, an external operating handle rotatably mounted on the cover, actuating means carried on the inside of the cover and operated by said handle to actuate the operating member of the interrupter by direct engagement with said operating member, a disengageable connection between said actuating means and said operating member, said connection being engaged as the cover is closed before the cover reaches the fully closed position, locking means on the cabinet, an interlocking latch normally engaging the locking means to retain the cover closed, said latch being disengaged from the locking means when the handle is moved to a predetermined position, and interlocking means movable with the handle and directly engaging the interlocking latch to prevent closing the interrupter by means of the external operating handle after said disengageable connection has become engaged and before the interlocking latch engages the locking means to retain the cover closed.

6. In combination, a circuit interrupter having a movable operating member for opening and closing the interrupter, a cabinet in which the interrupter is mounted, an openable cover for the cabinet, an external operating handle rotatably mounted on the cover, actuating means carried on the inside of the cover and operated by said handle to actuate the operating member of the interrupter by direct engagement with said operating member, a disengageable connection between said actuating means and said operating member, said connection being engaged as the cover is closed before the cover reaches the fully closed position, locking means on the cabinet, an interlocking latch normally engaging the locking means to retain the cover closed, said latch being disengaged from the locking means when the handle is moved to a predetermined position, and interlocking means secured to the handle and directly engaging the interlocking latch to prevent closing the interrupter by means of the external operating handle after said disengageable connection has become engaged and before the interlocking latch engages the locking means to retain the cover closed, said interlocking latch being releasable from the locking means from outside the cabinet when the handle is in a predetermined position.

7. In combination, a circuit interrupter having a movable operating member for opening and closing the interrupter, a cabinet in which the interrupter is mounted, an openable cover for the cabinet, an external operating handle rotatably mounted on the cabinet, actuating means mounted on the inside of the cover and operated by said handle to actuate the operating member of the interrupter by direct engagement with said operating member, locking means on the cabinet, an interlocking latch normally engaging the locking means to retain the cover closed, said latch being disengaged from the locking means by said actuating means when the handle is moved to a predetermined position, and an interlocking member movable with the handle and directly engaging the interlocking latch to prevent closing the interrupter by means of the external operating handle unless the interlocking latch engages the locking means to retain the cover closed.

8. In combination, a circuit interrupter having a movable operating member for opening and closing the interrupter, a cabinet in which the interrupter is mounted, an openable cover for the cabinet, an external operating handle rotatably mounted on the cabinet, actuating means mounted on the inside of the cover and operated by said handle to actuate the operating member of the interrupter by direct engagement with said operating member, locking means on the cabinet, an interlocking latch normally engaging the locking means to retain the cover closed, said latch being disengaged from the locking means when the handle is moved to a predetermined position, and an interlocking member secured to the handle, said interlocking member having a projection thereon directly engaging the interlocking latch to prevent closing the interrupter by means of the operating handle unless the interlocking latch engages the locking means to retain the cover closed.

9. In combination, a circuit interrupter having a movable operating member for opening and closing the interrupter, a cabinet in which the interrupter is mounted, an openable cover for the cabinet, an external operating handle rotatably mounted on the cover, a slidable actuating plate mounted on the inside of the cover and operated by the handle to actuate the operating member of the interrupter by direct engagement with said operating member, a locking element on the cabinet, a spring-biased interlocking latch normally engaging the locking element to retain the cover closed, said latch being disengaged from the locking element when the handle is moved to a predetermined position, and an interlocking member movable with the handle and directly engaging the interlocking latch to prevent closing the interrupter by means of the external operating handle unless the interlocking latch engages the locking element to retain the cover closed.

10. In combination, a circuit interrupter having a movable operating member for opening and closing the interrupter, a cabinet in which the interrupter is mounted, an openable cover for the cabinet, an external operating handle rotatably mounted on the cover, an actuating plate disposed inside the cabinet to actuate the operating member of the interrupter, a locking element on the cabinet, a spring-biased interlocking latch normally engaging the locking element to retain the cover closed, said latch being disengaged from the locking element when the handle is moved to a predetermined position, and an actuating member secured to the handle for operating said actuating plate, said actuating member having a projection thereon engaging the interlocking latch to prevent closing the interrupter by means of the operating handle when the interlocking latch is disengaged from the locking element.

11. In combination, a circuit interrupter having a movable operating member for opening and closing the interrupter, a cabinet in which the interrupter is mounted, an openable cover for the cabinet, an external operating handle rotatably mounted on the cover, an actuating portion carried at the inside of the cover and movable by the external operating handle to actuate the operating member of the interrupter, a locking element in the cabinet, a latch carried by the openable cover for normally engaging the locking element to retain the cover closed, said latch being movable to disengage from the locking element when the external operating handle is moved to a predetermined position and then permitting the cover to be opened, a blocking portion on said latch carried by the openable cover, a portion movable with the external operating handle engaged by said blocking portion on the latch carried by the cover and preventing movement of the external operating handle to close the interrupter until the latch has moved to engage the locking element in the cabinet to lock the cover closed.

12. In combination, a circuit interrupter having a movable operating member for opening and closing the interrupter, a cabinet in which the interrupter is mounted, an openable cover for the cabinet, an external operating handle rotatably mounted on the cover, an actuating portion carried at the inside of the cover and movable by the external operating handle to actuate the operating member of the interrupter, a locking element mounted in fixed position on one side wall of the cabinet, a latch carried by the openable cover and biased to a position for normally engaging the locking element to retain the cover closed, said latch being movable against its bias to disengage from the locking element on the side wall of the cabinet when the external operating handle is

moved to a predetermined position and then permitting the cover to be opened, a blocking portion on said latch carried by the openable cover, a portion connected at all times to and movable with every movement of the external operating handle, said portion being engaged by said blocking portion on the latch carried by the cover and preventing movement of the external operating handle to close the interrupter during the latter part of the closing movement of the cover until the latch has moved due to its bias to a position to engage the locking element in the cabinet to lock the cover closed.

13. In combination, a circuit interrupter provided with a movable operating member having an end projecting forwardly from the interrupter to be engaged for opening and closing the contacts of the interrupter, a cabinet in which the interrupter is mounted, an openable cover over the front of the cabinet, an external operating handle rotatably mounted on the front of the cover, actuating means carried by the cover at the inside thereof, said actuating means including opposed parts between which the forwardly projecting end of the operating member of the interrupter is positioned when the cover is closed on the cabinet, said actuating means also including material on opposite sides of said opposed parts engageable by the forwardly projecting end of the operating member and having sufficient extent to prevent the cover from being closed if the said end of the operating member is not positioned relative to the actuating means so that said end of the operating member is received between said opposed parts of the actuating means as the cover is closed, said actuating means carried by the cover at the inside thereof being movable by the external operating handle to actuate the interrupter, a locking element mounted in the cabinet independently of the interrupter, a latch carried at the inside of the cover for engaging the locking element mounted in the cabinet independently of the interrupter, said latch carried by the inside of the cover being movable by said actuating means relative thereto to disengage the locking element mounted in the cabinet independently of the interrupter upon movement of the external operating handle to one position in which the contacts of the interrupter are open and said latch moving to engage said locking member to lock the cover to the cabinet when the external operating handle is moved to a position to close the contacts of the interrupter, a blocking portion on said latch carried by the inside of the cover engageable with a part of said actuating means to prevent movement of said actuating means in contact closing direction during the later part of the closing movement of the cover until said latch has engaged said locking member to lock the cover to the cabinet.

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