Oct. 20, 1953 W. T. ALLEN 2,656,437

CIRCUIT BREAKER

Filed July 31, 1951 2 Sheets-Sheet 1

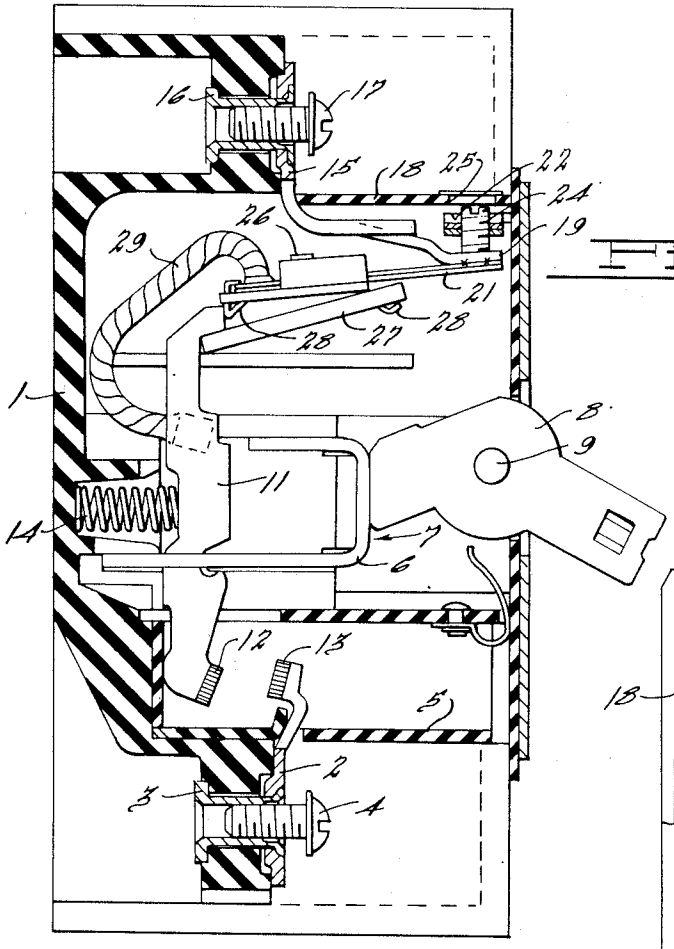


Fig. 2.

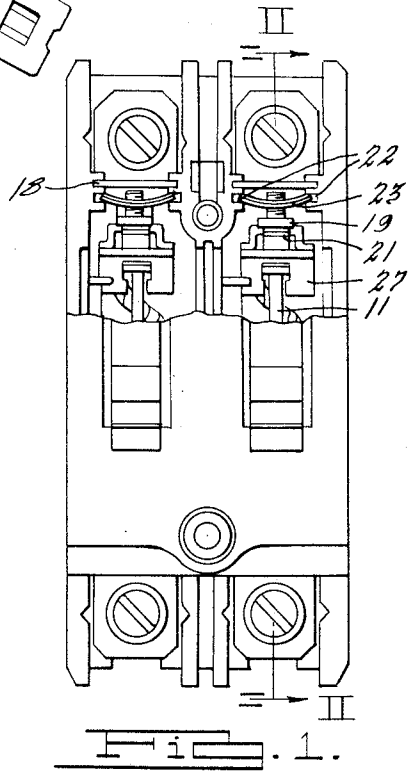


Fig. 1.

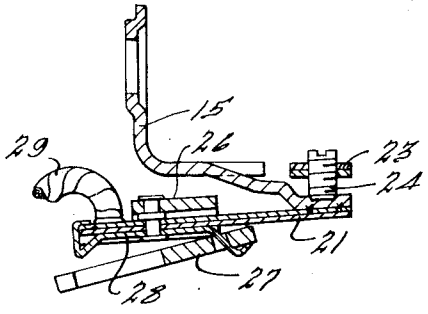


Fig. 3.

INVENTOR.
Wallace T. Allen
BY Myron T. Seibold
ATTORNEY.

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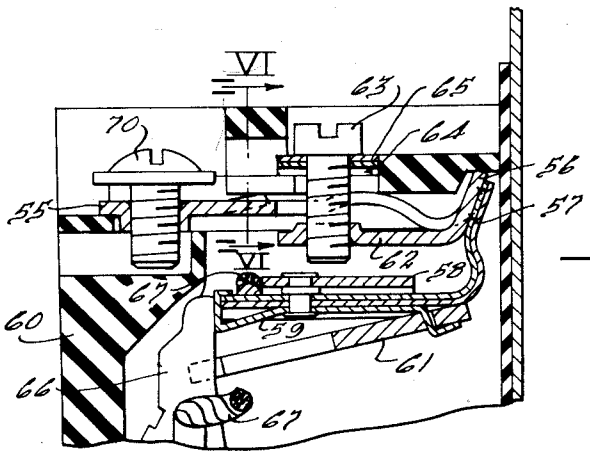


Fig. 5.

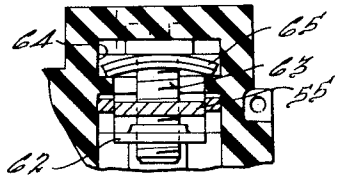


Fig. 6.

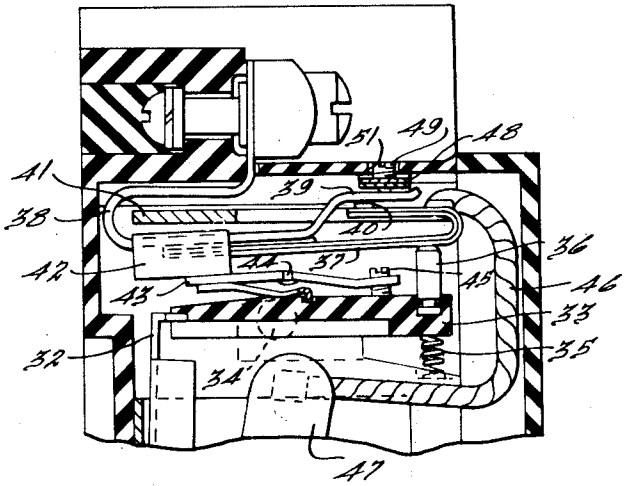


Fig. 4.

INVENTOR.
Wallace T. Allen.
BY Myron J. Seibold
ATTORNEY.

Patented Oct. 20, 1953 2,656,437

UNITED STATES PATENT OFFICE

2,656,437

CIRCUIT BREAKER

Wallace T. Allen, Dearborn, Mich., assignor to Square D Company, Detroit, Mich., a corporation of Michigan

Application July 31, 1951, Serial No. 239,471

10 Claims. (Cl. 200—116)

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This invention relates, in general, to automatic electric circuit interrupters operable to prevent abnormal current flow. More particularly, this invention relates to an electric circuit interrupter having a plurality of thermally responsive elements for effecting automatic interruption of current flow in response to predetermined conditions.

It is common practice to supply modern electric circuit interrupters with a bimetallic member which flexes upon the occurrence of abnormal thermal conditions within the circuit interrupter to effect automatic opening of the electric circuit therethrough. The calibration of certain such devices is effected at the place of manufacture by adjusting the amount which one end of the bimetallic member overlaps a latched member, or by adjusting the amount of overlap between means controlled by the bimetallic member and the normally latched member, this adjustment being accomplished at a predetermined ambient temperature. An adjusting screw is frequently provided to adjust this overlap to the desired amount. After the calibration is effected, and after the device is put in service, it is obvious that the bimetallic member will flex not only due to heat generated by current flow through the interrupter, but will also flex upon changes in the ambient temperature. In many applications of such a device, it is undesirable to have the trip characteristic of the circuit interrupter vary greatly with changes in ambient temperature.

It is, therefore, one object of the present invention to provide a simple, effective and inexpensive means for lessening the effect of ambient temperature changes on the current-time trip characteristics of automatic electric circuit breakers.

Another object of the present invention is to provide an improved and inexpensive mechanism for accomplishing the automatic adjustment of electric circuit interrupters for the effects of ambient temperature changes.

Another object of the present invention is the provision of an automatic electric circuit breaker having a thermally responsive member operable to effect interruption of current flow through the circuit breaker together with improved means for maintaining the predetermined position of the thermally responsive member with respect

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to a latched member as the surrounding temperature varies.

Another object of the invention is the provision of an automatic electric circuit breaker having a bimetal operable to effect automatic interruption of the current flow through the circuit breaker and an adjusting screw for effecting the initial calibration of the circuit breaker by positioning the bimetal, and having a second bimetal for effecting bodily movement of the adjusting screw upon changes in the surrounding temperature to effect a compensating action which overcomes the tendency of the first bimetal to vary in position upon changes in ambient temperature.

Another object of the present invention is the provision of a new and improved mechanism for automatic electric circuit interrupters which will effect the automatic opening of the electric circuit through the circuit interrupter at a predetermined current value substantially independent of variation in ambient temperature.

Other objects and features of the invention will be readily apparent to those skilled in the art from the specification and appended drawings illustrating certain preferred embodiments in which:

Figure 1 is a front elevational view of an automatic electric circuit breaker constructed in accordance with the invention, with part of the front cover broken away to show internal parts.

Figure 2 is an enlarged sectional view along the line II—II of Figure 1.

Figure 3 is a sectional view through the terminal member and current responsive device of Figure 2.

Figure 4 is a sectional view illustrating a second type of circuit breaker constructed in accordance with the present invention.

Figure 5 is a sectional view of a second modified form of a circuit breaker incorporating a second embodiment of the present invention.

Figure 6 is a sectional view along the line VI—VI of Figure 5.

Referring to Figures 1 through 3, there is shown a circuit breaker having an insulating base 1 upon one end ledge of which is mounted a conducting strap 2 by means of a hollow spun over rivet 3, in which there is threaded a terminal stud 4. The conducting strap 2 extends within the hollow portion of the base 1 through an end

opening which is closed by means of an insulating plate 5, the interior of the conducting strap 2 carrying a stationary contact 13.

Guided within the base for rectilinear movement toward and away from the back of the base is a generally U-shaped member 6 having a flat forward surface 7 which cooperates with an interior camming surface upon a manually operable handle 8, mounted for pivotal movement upon internal shaft 9. Upon the longer leg of the element 6 is pivotally mounted, by interengaging notches, a contact bar 11 carrying at one end a movable contact 12 cooperating with the stationary contact 13. A compression spring 14 is disposed between the bottom of the base and the contact bar 11 so as to bias the bar away from the bottom of the base, and for rotation about its engagement with the element 6.

Upon a ledge at the end of the base opposite to the conducting strap 2 there is mounted a second conducting strap 15, by means of a hollow spun-over rivet 16 into which is threaded a terminal screw 17. The conducting strap 15 extends within the base 1 through an end opening closed by an insulating plate 18, the strap 15 having an angularly displaced portion 19 at its interior end upon which there is mounted, as by welding, one end of a bimetal 21. In opposing wall portions of base 1 are disposed slots 22 into which are fitted the ends of a curved bimetal 23, having therein a threaded aperture through which extends an adjusting screw 24. The high expansion side of bimetal 23 is inwardly disposed. An opening 25 is provided in the insulating plate 18 whereby access to the head of adjusting screw 24 may be had, this opening being closed by suitable means after the calibration of the circuit breaker has been effected.

Upon the bimetal 21 there is mounted a stationary magnetic yoke 26 and a resilient element 28, one end of element 28 pivotally mounting a magnetic armature 27, which cooperates with yoke 26 upon the occurrence of heavy overloads, the other end of element 28 being formed as illustrated in Figures 2 and 3 and serving to latch one end of bar 11. A conducting flexible lead 29 interconnects the bimetal 21 and the contact bar 11.

This overcurrent mechanism is more fully explained in the copending application of John G. Jackson, Serial No. 776,528, filed September 27, 1947, now Patent No. 2,579,673, dated December 25, 1951 for Circuit Breaker.

In Figure 2, the parts are shown in the manually disengaged position. If the handle 8 is rotated in a counterclockwise direction, a cam surface of lesser diameter will be presented to the surface 7 of the rectilinear movable element 6 so that this element will be moved forwardly of the breaker under the action of spring 14. As this movement occurs, the contact bar 11 will pivot about its engagement with the lower end of the element 28 until contact 12 engages contact 13 to complete the circuit through the breaker. For return to the manual "off" position, the handle is rotated in a clockwise direction and the parts then reassume the position of Figure 2.

With the contacts engaged, upon the occurrence of a moderate overload through the circuit breaker, the bimetal 21 will be heated by the passage of current therethrough. Bimetal 21 will flex in a direction to bodily move the latching end of element 28 off the latching end of the contact bar 11, which then rotates under its pivotal mounting upon the longer leg of the element 6 under the bias of spring 14 and in a clockwise direction, to move contact 12 to disengaged position.

With the contacts in the closed position, upon the occurrence of a heavy overload or short circuit, the armature 27 is attracted to the yoke 26 in a shorter time than would be required for the heating and flexing of the bimetal 21. In magnetic tripping the armature 27, when attracted to the yoke 26, engages the lower latching end of the element 28 to move this end relative to the bimetal 21 to effect unlatching of the contact bar 11 and hence rotation thereof, as previously described, to the contacts disengaged position.

To reset the parts after an automatic operation, the handle 8 is rotated in a clockwise direction beyond the "off" position whereupon the element 6 is moved back toward the back of the breaker, this movement effecting rotation of contact bar 11, as well as bodily movement thereof, so that the contact bar rotates in a counterclockwise direction to again place its latching end in back of the lower latching end of the element 28. After resetting, the movement of the operating handle in counterclockwise direction will again close the contacts to complete the electrical circuit through the breaker.

After the parts of the circuit breaker are assembled within the base, the latching end of element 28 overlaps bar 11 an amount substantially in excess of that shown in Figure 2. Calibration of the circuit breaker is then effected by pressing a suitable instrument through the opening 25 and effecting the rotation of adjusting screw 24. This adjusting screw, which is threaded into a suitable aperture in curved bimetal 23, will exert a force upon the portion 19 to effect its movement inwardly toward the interior of the circuit breaker. Bimetal 21, one end of which is welded to portion 19, will therefore also be moved, the fixed portion of bimetal 21 moving toward the interior of the circuit breaker with the portion 19, while the free end of bimetal 21 moves back away from the interior of the circuit breaker, the latching end of element 28 moving backward until a desired degree of overlap between this latching end of latch 28 and the latching end of contact bar 11 is achieved. After this operation is effected, the opening 25 is closed by suitable means to prevent further rotation of the adjusting screw 24.

As has been previously indicated, the bimetal 21 is affected by changes in ambient temperature. If, for example, the ambient temperature rises, bimetal 21 will tend to deflect in such manner that the latching end of element 28 would be moved backwardly along the contact bar 11 so that the amount of overlap between the latching end of element 28 and the bar 11 would be decreased. Conversely, if the ambient temperature decreases, the bimetal 21 would tend to deflect in such a manner that the overlap between the latching end of element 28 and contact bar 11 would tend to increase. It is obvious, therefore, that the current-time relationship to effect automatic opening of the circuit breaker would vary with such temperature variations.

The present invention is directed to compensating for such variations due to ambient temperature changes. Upon an increase in ambient temperature, the curved bimetal 23, the high expansion side of which is disposed nearest to the bimetal 21 will tend to become straight, and in this movement will bodily carry the adjusting

screw 24, threaded therein, away from the portion 19 to which the bimetal 21 is affixed. Portion 19 will tend to follow the movement of screw 24 due to the inherent resiliency of this portion. The bimetal 21, which is fixed to the portion 19, will obviously move with that portion, the opposite end of bimetal 21, however, moving in a direction which tends to increase the overlap between the latching end of element 28 and the latching end of bar 11. The combined effects of the movement of the main bimetal 21 and the movement of the curved bimetal 23 will be such that the overlap between the latching end of the element 28 and the latching end of contact bar 11 will tend to remain substantially unaffected by the ambient temperature change, or at least the effect of ambient temperature change will be lessened. Upon a decrease in ambient temperature, the main bimetal 21 and the curved bimetal 23 will, of course, again act to compensate one for the other so that the amount of overlap between the latching end of element 28 and the latching end of contact arm 11 will again remain approximately the same, so that the circuit breaker will again interrupt current flow with a current-time relationship more closely approximating original calibration than if no ambient compensation were provided.

Referring to Figure 4, there is illustrated therein the mechanism of the present invention as employed in conjunction with a current responsive tripping device illustrated more fully in the patent to Olav Maseng, No. 2,378,648 for Electric Switch, issued June 19, 1945. As indicated therein, there is a trip lever biased for rotation by a spring, a latch being provided to hold the trip lever against this spring bias. When the latch is moved by the current responsive mechanism, the trip lever is rotated to effect the opening of the electrical circuit through the circuit breaker. One or more poles may be controlled by the latch.

Referring to Figure 4, this trip lever is indicated by the numeral 32, the spring biasing the trip lever for rotation (in a clockwise direction) not being shown. The latch for the trip lever is indicated at 33, this latch being pivotally mounted at 34 and biased toward a position to engage the trip lever by a spring 35. A pin 36 projects from one end of latch 33 and engages a generally U-shaped bimetal 37 which has one leg thereof longer than the other. The elongated leg of bimetal 37 is welded to a connector 38 of a conducting metal which has a projection extending through an end wall of the breaker base where it is mounted to an end ledge thereof. The interior portion of connector 38 has an angularly offset part 39, the shorter leg of bimetal 37 and this part 39 being separated by an insulating button 40 mounted to this shorter leg. To the shorter leg there is also connected a flexible lead 46 which electrically connects the bimetal 37 to a contact carrying arm 47. Upon the occurrence of sustained overload currents, bimetal 37 flexes such that the legs thereof tend to spread apart. The short leg of bimetal 37 cannot move outwardly due to the position of part 39, so that the force of the bimetal's flexure is applied to pin 36 which effects rotation of latch 33, the latching end of which will move off of trip lever 32 to effect consequent release of the trip lever. As explained in the aforementioned patent, release of lever 32 effects opening of the circuit or circuits through the circuit breaker.

A magnetic tripping device is provided to supplement the action of bimetal 37, and this comprises a stationary magnetic piece 41 and a U-shaped armature 42 carried on an arm 43. The arm 43 is pivoted at 44 and carries at one end an adjustable screw 45 which engages the latch 33 and effects its movement on heavy overloads when armature 42 is attracted to piece 41 to effect the release of trip lever 32.

To calibrate this circuit breaker, there is provided a curved bimetal 48 (similar to bimetal 23 in Figures 1 through 3), the ends of which are disposed in suitable opposed slots in the circuit breaker base, bimetal 48 having a threaded hole centrally disposed therein in which an adjusting screw 49 operates. The high expansion side of bimetal 48 forms the inwardly facing surface thereof. A suitable hole 51 is provided in the end wall of the circuit breaker so that access to the head of screw 49 may be had, this hole being closed after calibration has been effected. As screw 49 is rotated to move it inwardly through the threaded hole in bimetal 48, the end of screw 49 engages and effects the inward movement of part 39 of connector 38. Bimetal 37 is, in turn, moved inwardly. Pin 36, which abuts against bimetal 37, is also moved inwardly and thereby effects partial rotation of latch 33 until the desired degree of overlap between latch 33 and trip lever 32 is achieved.

Upon variations in ambient temperature, both bimetals 37 and 48 will flex. Upon an increase in ambient temperature, flexure of bimetal 37 will tend to move pin 36 against the bias of spring 35, thus tending to effect the release of trip lever 32. The flexure of bimetal 48, however, will carry adjusting screw 49 bodily outwardly away from part 39 which will, due to its inherent resiliency, follow the adjusting screw. The resultant effect of these two movements will be that the overlap between latch 33 and trip lever 32 will remain substantially the same, so that the current-time relationship remains substantially the same or at least has less change than normally.

The same result will be reached when, upon a decrease in ambient temperature, both bimetals 37 and 48 flex, the flexure of one bimetal compensating for the flexure of the other so that the circuit breaker will interrupt current flow when the magnitude of that current reaches the predetermined value.

In Figures 5 and 6 there is illustrated a modified form of the present invention as it is applied to the circuit breaker of the general type illustrated and described in the patent of John G. Jackson, No. 2,302,551, issued November 17, 1942, for Circuit Breaker. There is illustrated therein an insulating base 60, upon one end wall of which is disposed a terminal member 55 of a conducting material, a terminal screw 70 being provided to facilitate the electrical attachment of conductors to member 55. The member 55 has a curved upper portion 56 which has welded thereto a main bimetal 57 of generally L shape. To the bimetal 57 there is affixed a magnetic core 58 and a resilient latch 59, one end of latch 59 supporting a movable pivoted armature 61, the opposite end of latch 59 serving as a latching surface normally maintaining a movable contact carrier 66 in the position illustrated in Figure 5. (It will be seen that the overcurrent mechanism illustrated in Figure 5 is substantially the same as that shown in Figures 1–3.) The base 60 is provided with opposing slots 64 which receive the ends of an ambient temperature compensating bimetal 65 of U shape, the high expan-

sion side of this bimetal being outwardly disposed. Bimetal 65 is provided with a centrally disposed unthreaded hole through which extends an adjusting screw 63, the high expansion side of bimetal 65 normally abutting against the undersurface of the head of screw 63. The terminal member 55 has a pressed out portion 62 having a threaded hole therein in which the adjusting screw 63 operates. A movable contact carrier 66 is connected to the main bimetal 57 by a flexible lead 67.

In both thermal and magnetic tripping of the circuit breaker illustrated in Figure 5, the operation of the tripping mechanism itself is the same as that previously described for the operation of the tripping mechanism of the circuit breaker illustrated in Figures 1 through 3, so this description of operation will not be repeated.

After the parts are assembled within the base in approximately the position illustrated in Figure 5, the calibration of the circuit breaker is effected by rotation of adjusting screw 63 in a direction to effect the application of an outwardly pulling force on the pressed out portion 62. As this rotation progresses, increased force is applied to the portion 62 and the latching end of latch 59 moves backwardly along carrier 66 until the desired overlap between the latching end of latch 59 and the latching end of the contact carrying arm 66 is achieved.

Upon an increase in ambient temperature, the compensating bimetal 65, the high expansion side of which abuts against the head of screw 63, will assume a less rounded configuration, tending to move away from the head of screw 63, whereby the portion 62 will move toward its unstressed position, carrying screw 63 inwardly. As portion 62 effects this movement, the main bimetal 57 will tend to move in a direction to increase the overlap between the latch 59 and the movable contact arm 56. Concurrently, the main bimetal 57 will, upon this increase in ambient temperature, tend to unlatch these parts. The resulting movement of the resilient latch 59 relative to the moving contact arm 66 will therefore be substantially eliminated inasmuch as both of the bimetals 57 and 65 by flexing will tend to compensate one for the other.

Upon an increase in ambient temperature, it will be seen that both of the bimetals 57 and 65 will flex in directions opposite to those described in the preceding paragraph, the result of these movements being that the overlap between latch 59 and contact arm 66 will again remain substantially the same. It will be seen, therefore, that the result of the movements of the two bimetals both upon increases and decreases in ambient temperature will be that the current which is required to effect automatic interruption of the electrical circuit through the circuit breaker will remain substantially the same.

From the foregoing descriptlon of the construction and operation of embodiments of the present invention, it will readily appear that there has been provided a simple, inexpensive and reliable means for accomplishing ambient temperature compensation, in whole or in part, of automatic electric circuit interrupters. It will further be seen that the present invention has produced mechanisms which may be employed in known circuit breaker structures to accomplish the purposes set forth without substantial changes in the present structure of these devices.

While certain preferred embodiments of the invention have been specifically disclosed, it is understood that the invention is not limited thereto, as many variations will be readily apparent to those skilled in the art and the invention is to be given its broadest possible interpretation within the terms of the following claims.

What is claimed is:

1. In a circuit breaker, a base, an element releasable to effect automatic interruption of current flow through the breaker, biasing means for said element, a terminal member mounted on said base and having a portion extending interiorly thereof, a first bimetal having one end rigidly mounted to said portion, the free end of said bimetal normally latching said element but releasing the element upon the occurrence of abnormal current flow, a second bimetal, means mounting said second bimetal, an adjusting screw for effecting the application of pressure to said terminal portion whereby the relationship between said first bimetal and said element may be varied, and means interconnecting said adjusting screw and said second bimetal whereby the screw may be bodily moved upon flexure of said second bimetal to vary the amount of pressure applied to said terminal portion.

2. In a circuit breaker, a base, an element releasable to effect automatic interruption of current flow through the breaker, biasing means for said element, a terminal member mounted on said base and having a portion extending interiorly thereof, a first bimetal having one end rigidly mounted to said portion and having a free end normally latching said element but releasing the element upon the occurrence of abnormal current flow, a second bimetal, means mounting said second bimetal to said base, an adjusting screw for effecting the application of pressure to said terminal portion whereby the relationship between said first bimetal and said element may be varied, and means rigidly connecting said second bimetal and said adjusting screw whereby the amount of pressure said screw applies to said terminal portion varies with flexure of said second bimetal.

3. In a circuit breaker, a base, an element releasable to effect automatic interruption of current flow through the breaker, biasing means for said element, a terminal member mounted on said base and having a portion extending interiorly thereof, a first bimetal having one end rigidly mounted to said portion, means for making said bimetal responsive to current flow through the breaker, a latch mounted to said bimetal and normally latching said element but releasing the element upon the occurrence of abnormal current flow, a second bimetal, means mounting the ends of said second bimetal to said base, an adjusting screw for effecting the application of pressure to said terminal portion whereby the degree of overlap between said latch and said element may be varied, and means rigidly connecting said second bimetal and said adjusting screw whereby the amount of pressure said screw applies to said terminal portion varies with flexure of said second bimetal.

4. In a circuit breaker having a fixed and a movable contact, a base, an element releasable to effect automatic interruption of current flow through the breaker, biasing means for said element, a terminal member mounted on said base and having portions extending interiorly and exteriorly thereof, a first bimetal having one end mounted to said interior portion, means for elec-

trically connecting said first bimetal to one of said contacts whereby said bimetal is in series circuit with said contacts, a latch mounted to said bimetal and normally latching said element but releasing the element upon the occurrence of abnormal current flow, a second bimetal of arcuate shape, means for mounting the ends of said second bimetal, an adjusting screw for effecting the application of force to said interior terminal portion whereby the degree of overlap between said latch and said element may be varied, and means rigidly connecting said second bimetal and said adjusting screw whereby the amount of force said screw applies to said terminal portion varies with flexure of said second bimetal.

5. In a circuit breaker having a fixed and a movable contact, a base, an element releasable to effect automatic interruption of current flow through the breaker, biasing means for said element, a terminal member mounted on said base and having portions extending interiorly and exteriorly thereof, a first bimetal having one end mounted to said interior portion, means for electrically connecting said first bimetal to one of said contacts whereby said bimetal is in series circuit with said contacts, a latch mounted to said bimetal and normally latching said element but releasing the element upon the occurrence of abnormal current flow, a second bimetal of arcuate shape having an aperture extending therethrough, means for mounting the ends of said second bimetal, an adjusting screw extending through said aperture for effecting the application of force to said interior portion of the terminal member whereby the degree of overlap between said latch and said element may be varied, said second bimetal flexing upon variations in ambient temperature to effect the bodily movement of said adjusting screw whereby said circuit breaker is compensated for such variations.

6. In a circuit breaker having a fixed and a movable contact, a base, an element releasable to effect automatic interruption of current flow through the breaker, biasing means for said element, a generally L-shaped terminal member mounted adjacent an end wall of said base and having portions thereof extending interiorly and exteriorly thereof, a first bimetal having one end mounted to said interior portion, means for electrically connecting said first bimetal in series circuit with said contacts, a latch mounted to said bimetal and movable therewith, said latch normally latching said releasable element but freeing said element upon the occurrence of abnormal current flow, a second bimetal of arcuate shape having a threaded aperture extending therethrough, an adjusting screw having threads therein cooperating with said threaded aperture and effecting the application of force to said interior portion for varying the overlap between said latch and said element, said second bimetal flexing upon variations in ambient temperature to effect movement of said adjusting screw to thereby vary the force exerted upon said interior portion, the high expansion side of said second bimetal being so disposed that said latch remains substantially unmoved relative to said releasable element regardless of flexure of said first bimetal due to ambient temperature variations.

7. In a circuit breaker having a fixed and a movable contact, a base, an element releasable to effect automatic interruption of current flow through the breaker, biasing means for said element, a terminal member mounted on said base and having portions extending interiorly and exteriorly thereof, a first bimetal having one end mounted to said interior portion, means for electrically connecting said first bimetal to one of said contacts whereby said bimetal is in series circuit with said contacts, a latch mounted to said bimetal and normally latching said element but releasing the element upon the occurrence of abnormal current flow, a second bimetal of arcuate shape having an aperture extending therethrough, an adjusting screw extending through said aperture with the head abutting against said second bimetal, means for mounting the ends of said second bimetal, said interior portion having an angularly displaced part with a threaded aperture therein in which said adjusting screw operates, rotation of said adjusting screw effecting a pulling force on said part whereby the amount of overlap between said latch and said element may be varied, said second bimetal flexing upon variations in ambient temperature, the high expansion side of said second bimetal being so disposed that said latch remains substantially unmoved relative to said releasable element regardless of flexure of said first bimetal due to ambient temperature variations.

8. In a circuit breaker, a base, stationary and movable contacts, means for effecting automatic separation of said contacts including a movable member and a current responsive element for moving the same, releasable means normally latched by said current responsive element upon the occurrence of abnormal current flow to effect automatic opening of said contacts, a terminal member having one portion projecting within said base, said current responsive element comprising a generally U-shaped bimetal having one leg abutting against the said interior terminal portion, a second bimetal, an adjusting screw mechanically connected to said second bimetal, said screw being rotatable to effect the calibration of said circuit breaker, said second bimetal flexing upon variations in ambient temperature to bodily move said adjusting screw and change the force applied to said interior portion whereby said circuit breaker is compensated for such variations.

9. In a circuit breaker, a base, a terminal member mounted to said base and having a portion thereof extending interiorly of said base, a bimetal electrically and mechanically connected to said terminal member so as to be responsive to current flow through said circuit breaker, said bimetal normally occupying a first position but movable to a second position in response to overload current flow through said circuit breaker, a releasable member released in response to movement of said bimetal from first to second position to effect interruption of current flow through said circuit breaker, adjustable means for applying force to said terminal to determine said first position of said bimetal, and an ambient temperature compensating bimetal mounted to said base and engaging said adjustable means, whereby upon variations in ambient temperature said adjustable means are bodily displaced by said ambient temperature compensating bimetal and the force applied thereby to said terminal member is varied.

10. In a circuit breaker, a base, a terminal member mounted to said base and having a portion thereof extending interiorly of said base, a bimetal electrically and mechanically connected to said terminal member so as to be responsive to current flow through said circuit breaker, said bimetal normally occupying a first position but movable to a second position in response to over-

load current flow through said circuit breaker, a releasable member released in response to movement of said bimetal from first to second position to effect interruption of current flow through said circuit breaker, an adjusting screw for applying force to said terminal to determine said first position of said bimetal, and an ambient temperature compensating bimetal having both ends mounted in said base and having a central portion thereof in engagement with said adjusting screw, whereby upon variations in ambient temperature said adjusting screw is bodily displaced by said ambient temperature compensating bimetal and the force applied thereby to said terminal member is varied.

WALLACE T. ALLEN.

References Cited in the file of this patent

UNITED STATES PATENTS

Number	Name	Date
2,150,013	Von Hoorn	Mar. 7, 1939
2,284,825	Jennings et al.	June 2, 1942
2,416,170	Gano et al.	Feb. 18, 1947
2,579,252	Fisher	Dec. 18, 1951