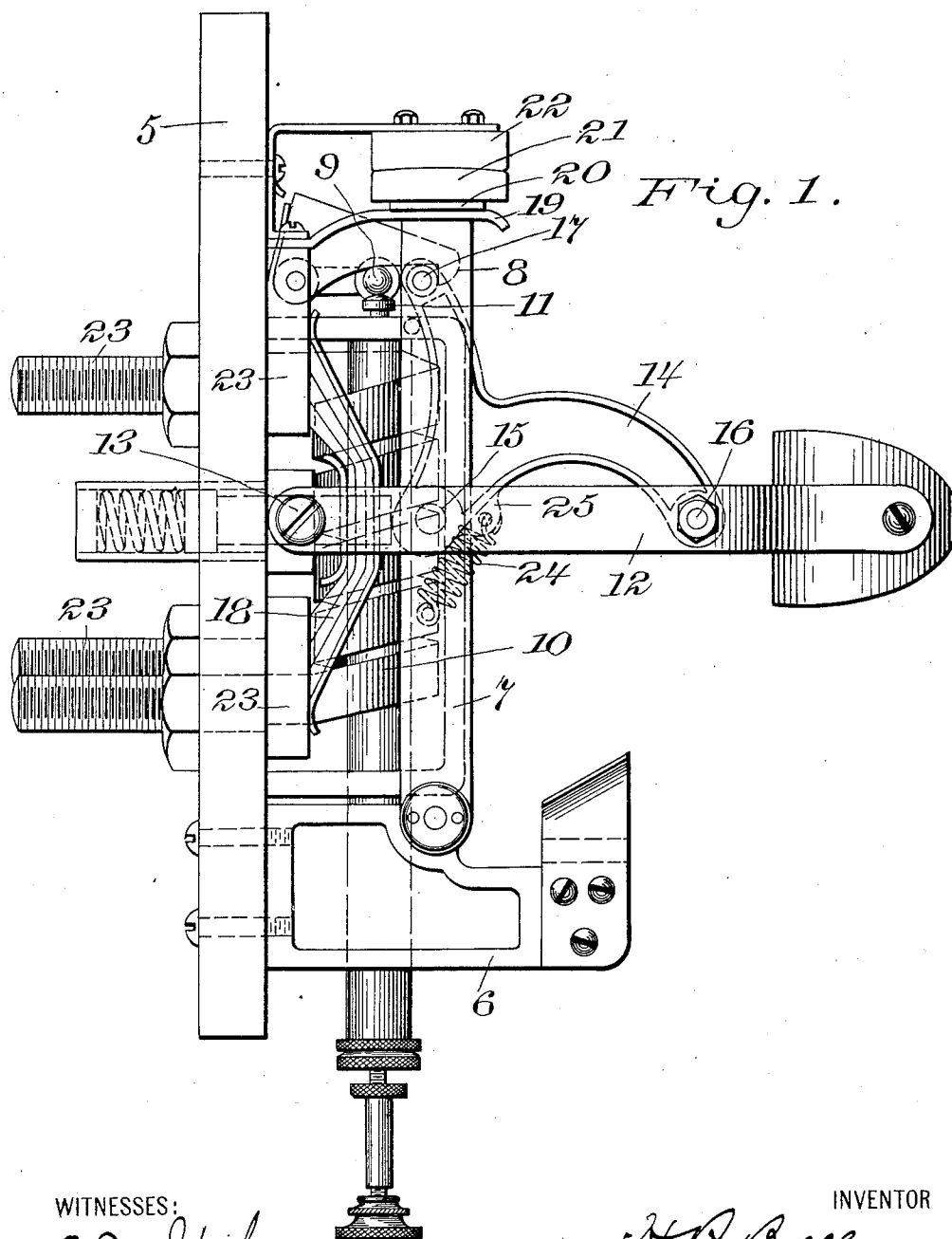


H. P. BALL.
CIRCUIT BREAKER.

APPLICATION FILED JAN. 29, 1902.

NO MODEL.

2 SHEETS—SHEET 1.



WITNESSES:

C. E. Stecher.
W. H. Humphrey.

INVENTOR

H. P. Ball

BY

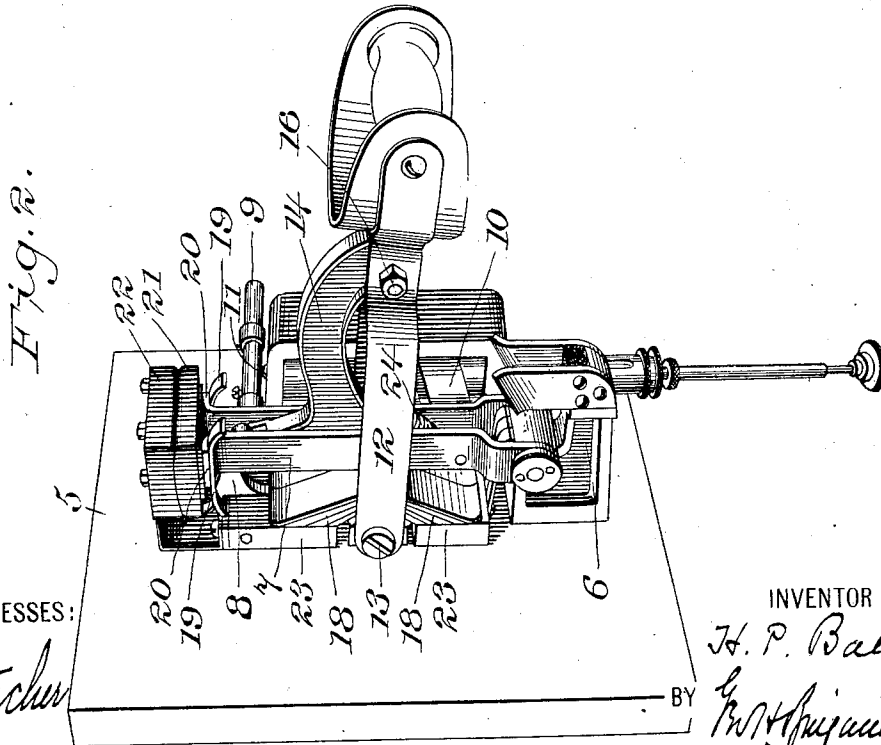
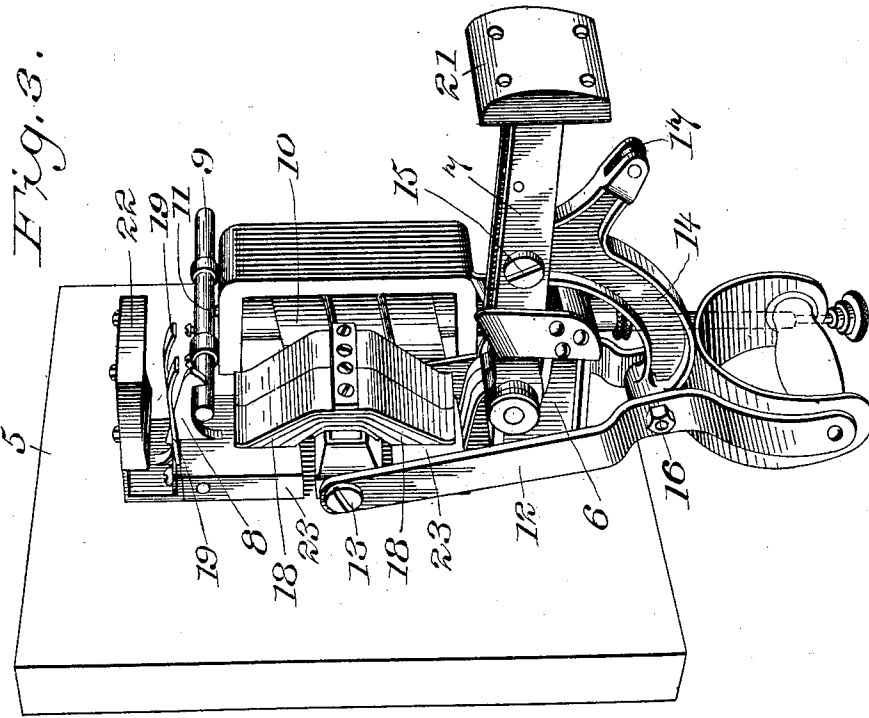
Geo. H. Brumby
ATTORNEY

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UNITED STATES PATENT OFFICE.

HENRY PRICE BALL, OF NEW YORK, N. Y., ASSIGNOR TO GENERAL INCANDESCENT ARC LIGHT COMPANY, OF NEW YORK, N. Y., A CORPORATION.

CIRCUIT-BREAKER.

SPECIFICATION forming part of Letters Patent No. 732,253, dated June 30, 1903.

Application filed January 29, 1902. Serial No. 91,745. (No model.)

To all whom it may concern:

Be it known that I, HENRY PRICE BALL, a citizen of the United States, residing at New York city, county and State of New York, have invented certain new and useful Improvements in Circuit-Breakers, of which the following is a specification.

My invention relates to certain improvements in the circuit-breaker described in my former patent, No. 686,918, dated November 19, 1901, and which improvements consist, first, in providing an operating-handle for the switch-blades which will exert a gradually-increasing leverage upon the switch blade or blades, and thereby enable the circuit-breaker, especially in large sizes, to be more readily closed than is the case where a handle of the type described in my former patent is employed; second, in providing an extra pair of spring-contacts adapted to be bridged by the switch-blade before the main contacts are bridged by the independent bridge-piece.

The accompanying drawings will serve to illustrate my invention, and in which similar numerals indicate like parts.

Figure 1 is a side elevation. Figs. 2 and 3 are views in perspective looking from the left and respectively showing the circuit-breaker closed and open.

In my former patent, No. 686,918, dated November 19, 1901, I have described and claimed the general features of construction of the circuit-breaker, and it will therefore only be necessary in the present application to describe the circuit-breaker generally and then point out the various improvements which I have made therein.

In the drawings the general construction of the circuit-breaker consists of a suitable switchboard or supporting-plate 5; 6, a bracket projecting from the switchboard and carrying a pivoted switch-blade 7; 8, latch which serves to hold the switch-blade in a closed position; 9, pivotally-supported insulated bar under latch; 10, magnet within which is a loose armature, (not shown,) which in its upward movement coacts with the pin 11 under the insulated bar 9 and serves to lift the latch 8 and release the switch-blade 7.

In my former patent the handle for closing

the switch-blade was shown and described as attached directly to or forming a part of the switch-blade. In my present construction the handle consists of the independent lever 12, pivotally secured to the supporting-plate 5 at 13, and the bent or shaped lever 14, pivotally secured to the switch-blade 7 at 15 and to the lever 12 at 16.

In my former patent the latch 8 coacted with a transverse pin in the switch-blade 7 60 to hold the switch-blade in the locked position. In my present construction the latch 8 coacts with the transverse pin 17 in the forward end of the bent lever 14.

It will be understood that by reason of the construction of the levers 12 and 14 as the lever 12 is carried upward into a horizontal position the pressure exerted upon the switch-blade 7 and through the switch-blade upon the main bridge-piece of the device 18 will be constantly increased until the latch 8 engages with the pin 17 in the bent lever 14.

Referring now to the second feature of my improvement. Connected to the supporting-plate 5 are the springs 19. These springs are in the path of movement of the switch-blade 7, and when the switch-blade 7 is moved forward they coact with the contacts 20 on the upper end of the switch-blade and under the carbon contacts 21, which coact with the spring-supported carbon contacts 22. The object of these springs is to insure contact between the switch-blade 7 and the circuit-terminals before the main terminals 23 are bridged by the bridge-piece 18.

24 is a spring connected at one end to the switch-blade 7 and at the other end to a lug 25 on the bent lever 14, which spring is adapted to exert tension upon the lever 14 when the switch is closed, thereby aiding in the downward movement of the lever 14 when this lever is released by the upward movement of the latch 8.

Having thus described my invention, I claim—

1. In an automatic circuit-breaker, the combination of contact-blocks, a reciprocating bridge device, a pivoted switch-blade arranged independent of the bridge device, contacts with which said switch-blade coacts, a latch, 100

and a lever device separate from the bridge device and adapted to exert an increasing pressure upon said bridge device and switch-blade, from the open to the closed position, and to coact with said latch to hold said parts in a closed position.

2. In an automatic circuit-breaker, the combination of a supporting-base, a pivoted switch-blade, a latch, a lever pivoted to said base, and a bent lever pivotally connected to said first-named lever and to said switch-blade and carrying a device which will coact with said latch to lock said switch-blade and levers in the closed position.

3. In an automatic circuit-breaker, the combination of a supporting-base, contact-blocks on said base, a reciprocating bridge device, a pivoted switch-blade arranged independent of the bridge device, contacts with which said switch-blade coacts, a lever pivoted to said supporting-base, a bent lever interposed between the first-named lever and the pivoted switch-blade, and a latch adapted to coact with said bent lever to lock the parts in a closed position.

4. In an automatic circuit-breaker, the combination of a supporting-base, contact-blocks, a reciprocating bridge device, a pivoted switch-blade arranged independent of the bridge device, contacts with which said switch-blade coacts, a lever pivoted to the base, a bent lever interposed between the first-named lever and the pivoted switch-blade, a latch for locking the parts in a closed position, and an electroresponsive device adapted to release the latch.

5. In an automatic circuit-breaker, the combination of contact-blocks, a reciprocating bridge device, means separate from the bridge device and adapted to exert an increasing pressure upon said bridge device to force said bridge device into close contact with the con-

tact-blocks, and means for holding said bridge device in a closed position.

6. In an automatic circuit-breaker, the combination of contact-blocks, a reciprocating bridge device, means separate from the bridge device and adapted to exert an increasing pressure upon said bridge device from the open to the closed position, means for locking the bridge device in the closed position, and means for releasing the bridge device to open the circuit-breaker.

7. In an automatic circuit-breaker, the combination of a supporting-base, a pair of vertically-disposed and separated contact-blocks, a horizontally-reciprocating spring bridge device, a pivoted switch-blade independent of the bridge device, contacts with which said switch-blade coacts, a lever pivoted between the contact-blocks, a lever interposed between the first-named lever and the switch-blade, said lever provided with an arm carrying a pin, a latch adapted to coact with said pin, a pivoted bar located under said latch, and electroresponsive means for lifting said bar to release the latch.

8. In an automatic circuit-breaker, the combination of a supporting-base, contact-blocks, a reciprocating bridge device, a switch-blade arranged independent of the bridge device, a pivoted lever separate from the bridge device, and means interposed between said lever, switch-blade and bridge device whereby a constantly-increasing pressure will be exerted upon such parts from the open to the closed position.

In testimony whereof I affix my signature in the presence of two witnesses.

HENRY PRICE BALL.

Witnesses:

J. B. COWEN,
I. WERTHEIMER.