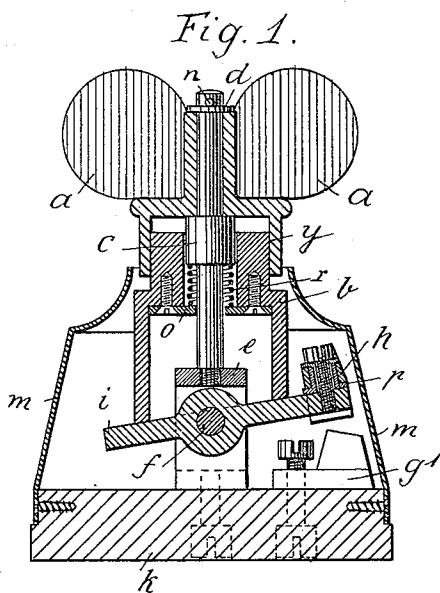
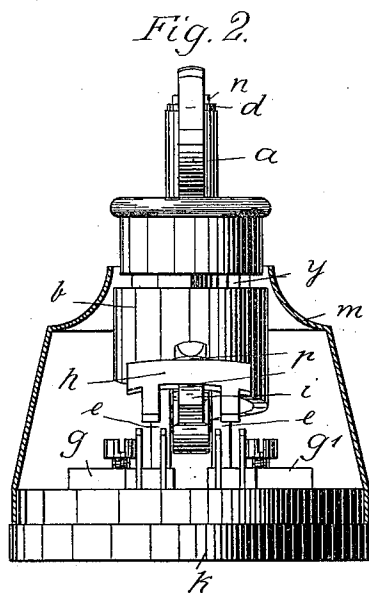
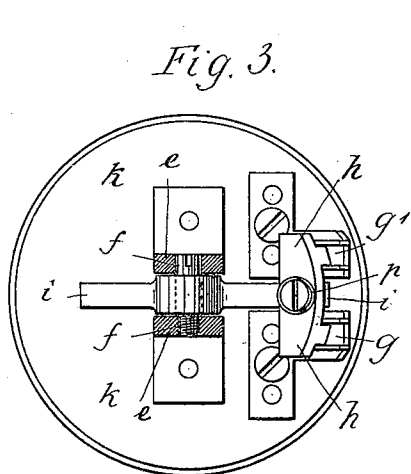
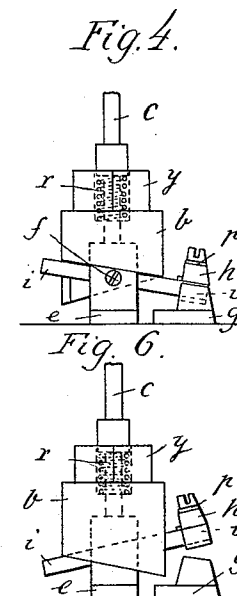
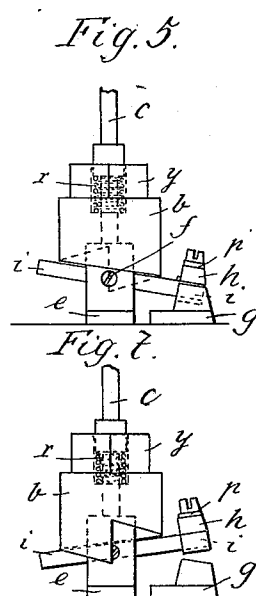


(No Model.)

T. MARCHER.
CIRCUIT CLOSER.

No. 438,167.

Patented Oct. 14, 1890.



Witnesses:
Eustace Hopkins.
Paul Hulick

Inventor:
Thomas Marcher
by
Attorney: R. D. Dyer
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UNITED STATES PATENT OFFICE.

THOMAS MARCHER, OF NEUMARKT, NEAR NUREMBERG, ASSIGNOR OF ONE-HALF TO FERDINAND ERNECKE, OF BERLIN, GERMANY.

CIRCUIT-CLOSER.

SPECIFICATION forming part of Letters Patent No. 438,167, dated October 14, 1890.

Application filed January 7, 1890. Serial No. 336,462. (No model.) Patented in England October 21, 1889, No. 16,586, and in Germany August 14, 1889, No. 51,301.

To all whom it may concern:

Be it known that I, THOMAS MARCHER, engineer, a subject of the Emperor of Austria-Hungary and a resident of Neumarkt, near Nuremberg, in the Kingdom of Bavaria, German Empire, have invented certain new and useful Improvements in Circuit-Closers, (for which I have obtained a patent in England, No. 16,586, dated October 21, 1889, and applied for in Germany on August 14, 1889, No. 51,301,) of which the following is an exact description.

In order to make my invention more clear, I refer to the accompanying drawings, in which similar letters denote similar parts throughout the several views.

Figure 1 is a vertical section of my contact-closer. Fig. 2 is a side elevation with the cover *m* in section. Fig. 3 is a sectional plan. Figs. 4, 5, 6, and 7 are elevations showing the various positions of the closer.

The object of my invention is to prevent any possibility of a middle position of a circuit-closer. Closers made on my principle are forced always to be in one extreme position or the other; and, although this effect results from the working of a spring, the handle for operating the circuit-closer is not affected—that is to say, forced to turn round under the influence of the spring. The operator may therefore turn the handle to connect or disconnect the current either slowly or quickly; but the connection or interruption only takes place at a given point in each turn of the handle, and is consequently sudden, thus preventing any effusion of sparks.

To the vulcanite base-plate *k* is screwed the bridge *e*, in which the tumbler *i* is pivoted on pin *f*.

The spindle *c* is turned down and screwed into the hole in the top of the bridge up to its shoulder. Spindle *c* has a collar in the middle. On spindle *c* slides the cylinder *b*, for operating the tumbler. The lower end of cylinder *b* is cut off in form of a screw-thread, as may be clearly seen in Fig. 7 of the drawings. Two points in the circumference of the lower end of cylinder *b* rest on the tumbler *i*. The upper end *y* of the cylinder is formed to

a four-sided nut and bored out to slide over the collar of spindle *c*. Underneath the collar of spindle *c* and encircling the spindle is a spiral spring *r*. This spring presses on a plate *o*, screwed onto the upper inside end of the cylinder, and has the tendency to press the cylinder down onto the tumbler.

a is the key for operating the circuit-closer, and fits over the four-sided nut *y*, being fixed to spindle *c* by means of a washer *d* and split pin *n*.

To one end of the tumbler is attached by means of a screw insulated by a bush *p*, of some non-conducting material, the contact-piece *h*. On falling the contact-piece *h* completes the circuit by connecting the two poles *g* *g'*. The conducting-wires may be secured in any suitable manner to the contact-pieces *g* and *g'*.

m is a protecting cover for the circuit-closer.

The operation of the closer takes place in the following manner: The circuit is shown connected in Fig. 4. By turning the key the tumbler will remain in the same position, the cylinder only rising and compressing the spring *o*. As soon as the vertical surface in the end of the cylinder has passed the end of tumbler the spring *r* presses the cylinder down on the other end of tumbler, and consequently the current is disconnected, as in Fig. 6. On turning the key farther round, as in Fig. 7, the tumbler snaps back and connects the current as soon as the cylinder has reached the position in Fig. 4.

Having thus fully described and ascertained the nature of my said invention, what I desire to secure by Letters Patent of the United States is—

1. A pivoted tumbler, circuit-terminals co-operating therewith, and a hollow rotary downwardly spring-pressed cylinder having a screw-thread on its under side for actuating the tumbler.

2. The vertical spindle, a hollow cylinder rotarily mounted thereon, having a screw-thread on its underside, a spring for pressing the cylinder downward, a pivoted tumbler actuated thereby, and circuit-terminals co-operating with the tumbler.

3. In an electric switch, the combination of the tumbler *z*, pivoted in bridge *e*, the co-operating terminals *g g'*, the spindle *c*, mounted in bridge *e*, the hollow cylinder *b*, mounted
5 upon and guided by spindle *c*, the lower end of cylinder spirally cut for actuating tumbler *z*, the upper end of cylinder *b* keyed for engagement with the handle *a*, and the spring *r*, pressing cylinder *b* into engagement with

tumbler *z*, the whole supported on base-plate *ro*, substantially as described.

In witness whereof I have hereunto set my hand in presence of two witnesses.

THOMAS MARCHER.

Witnesses:

MAX WECHS,

ANT. STÖTTUCH.