

(No Model.)

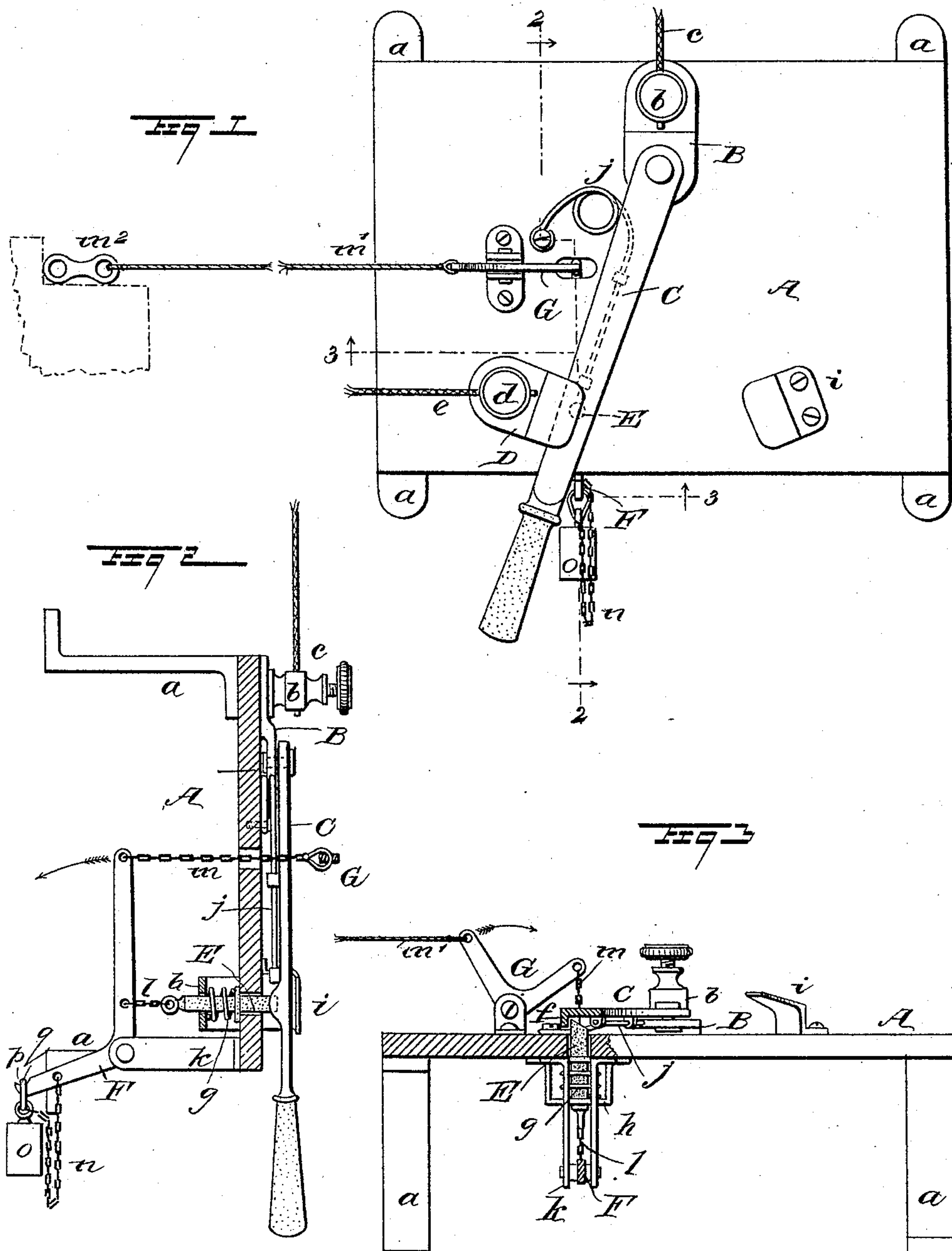
J. G. HARTEL, Dec'd.

F. L. HARTEL, Administratrix.

ELECTROMAGNETIC SWITCH.

No. 528,430.

Patented Oct. 30, 1894.



WITNESSES:

H. Walker
C. Sedgwick

INVENTOR

J. G. Hartel
BY Munn & Co.
ATTORNEYS.

UNITED STATES PATENT OFFICE.

JOHN GEORGE HARTEL, OF KEOKUK, IOWA; FLORENCE L. HARTEL ADMINISTRATRIX OF SAID JOHN G. HARTEL, DECEASED.

ELECTROMAGNETIC SWITCH.

SPECIFICATION forming part of Letters Patent No. 528,430, dated October 30, 1894.

Application filed December 2, 1893. Serial No. 492,574. (No model.)

To all whom it may concern:

Be it known that I, JOHN GEORGE HARTEL, of Keokuk, in the county of Lee and State of Iowa, have invented a new and Improved Electromagnetic Switch, of which the following is a specification, reference being had to the annexed drawings, forming a part thereof, in which—

Figure 1 is a front elevation of my improved electro-magnetic switch. Fig. 2 is a vertical transverse section taken on line 2—2 in Fig. 1, and Fig. 3 is an inverted plan view, partly in section, on the line 3—3 in Fig. 1.

Similar letters of reference indicate corresponding parts in all the views.

The object of my invention is to construct a switch for use in connection with electric motors, to prevent motors from being burned out when the current comes into the wire after having been interrupted.

My invention consists in a switch held in a closed position by a spring-actuated catch, a releasing mechanism connected with the catch, and an armature placed on the field magnet of the motor and connected with the releasing lever, all as will be hereinafter more fully described.

The baseboard A, to which the working parts of the switch are attached, is supported by brackets *a* attached to the wall or other fixed support. To the baseboard is secured a metal plate B to which is pivoted the switch lever C. A binding post *b* is attached to the plate B for receiving the electrical conductor *c*. To the baseboard A is secured a contact piece D, which is provided with a binding post *d* for receiving the conductor *e*, and in the baseboard A is inserted a catch E which engages the flange *f* on the under surface of the switch lever C. The catch E is pressed upward into engagement with the lever C by a spiral spring *g* which rests in a stirrup *h* attached to the back of the baseboard A, the said catch being provided with a collar which rests upon the spring.

To the baseboard A is attached a stop *i* which lies in the path of the switch lever C, and the said lever is provided with a spring *j* which tends to press it toward the stop *i*. In an arm *k* projecting rearwardly from the baseboard A, is pivoted an angled lever F, the longer arm

of which extends approximately parallel with the baseboard A, and is connected near its fulcrum with the spring-pressed catch E, by the short chain *l*, and to the free end of the lever F is attached a chain, wire or cord *m*, which passes through the baseboard A, and is connected with one arm of the right angled lever G. The other arm of the said lever is connected by a cord *m'* with a soft iron armature *m*². To the shorter arm of the lever F is connected one end of a chain *n*, the other end of which is attached to the weight *o*. The end of the shorter arm of the lever F is furnished with a notch *p* for receiving the ring *q* attached to the weight *o*.

When the motor is running normally the current passes through the conductor *c*, *e*, and the lever C. The armature *m*² rests upon some magnetized portion of the motor, upon one of the poles of the field magnet, for example, and the weight *o* is suspended from the shorter arm of the lever F. When the current ceases in the motor circuit, the field magnet of the motor becomes weakened or demagnetized and the armature *m*² is released, allowing the levers G and F to tilt on their pivots. A slight movement of the lever F releases the weight *o*, which falls until checked by the chain *n*. The momentum of the weight moves the lever F still farther, withdrawing the catch E from the lever C, thus releasing the said lever, when the spring *j* carries the lever C away from the contact piece D, thus breaking the circuit.

Should the current be again restored to the circuit it cannot pass the switch. Consequently the motor when required for use must be started by the aid of the starting box in the usual way, after returning the switch lever C to its original position.

Having thus described my invention, I claim as new and desire to secure by Letters Patent—

1. The combination with an electric motor, of a pivoted, spring-pressed lever, forming part of an electric circuit, a contact or stop forming part of such circuit, a trip catch for holding the lever normally engaged with such contact, a pivoted weighted lever, a tension device connecting the latter with the catch, an armature, and means for connecting it

with the weighted lever, as shown and described, to operate as specified.

2. The combination in an electro-magnetic switch, of a spring actuated switch-lever in
5 the circuit of a motor, a spring catch for holding said switch lever against a contact, a pivoted lever connected with the catch and a weight normally held detachably on an arm

of said lever, an armature and flexible connection between it and the aforesaid pivoted lever, all substantially as shown and described.

JOHN GEORGE HARTTEL.

Witnesses:

MELVIN EVERETT JUSTICE,
WILLIAM CAREY HOWELL.