

(No Model.)

3 Sheets—Sheet 1.

J. E. MEEK.
ELECTRIC SWITCH.

No. 568,450.

Patented Sept. 29, 1896.

Fig. 1.

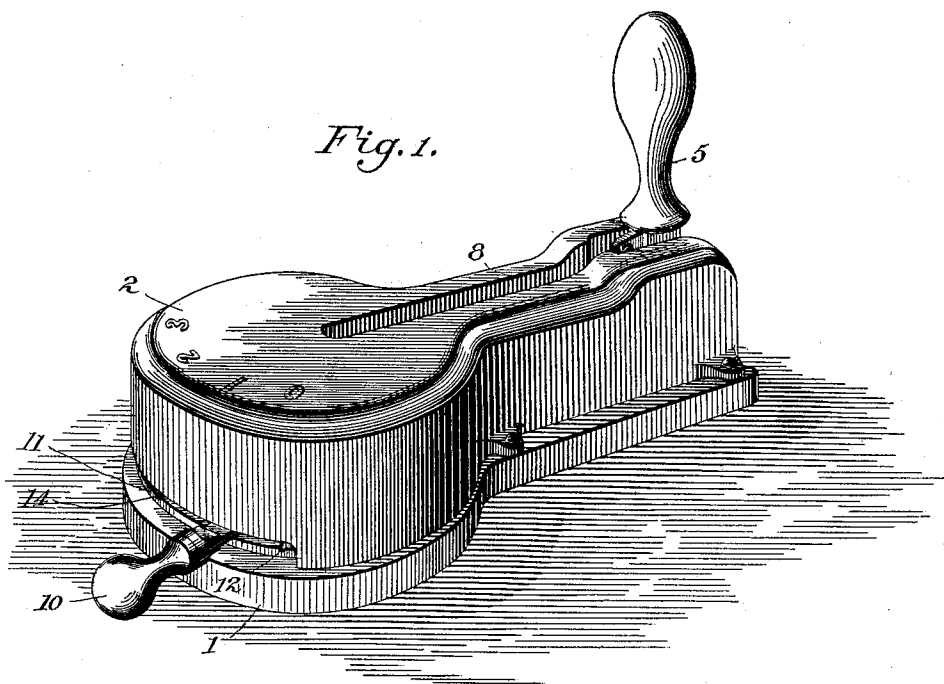
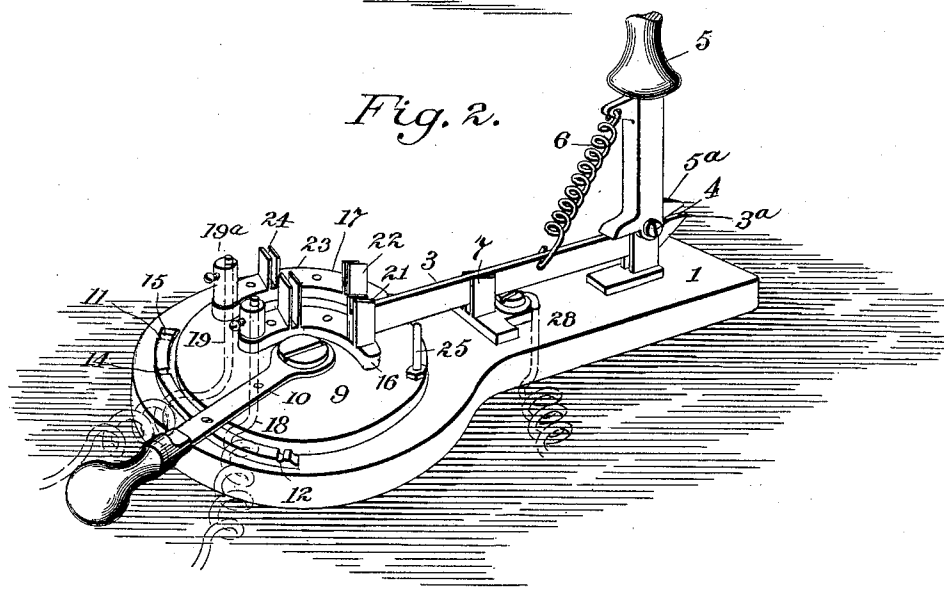


Fig. 2.



WITNESSES:

N. H. Humphrey
Wm. B. Smith.

INVENTOR

John Emory Meek
BY A. H. Smith
his ATTORNEY

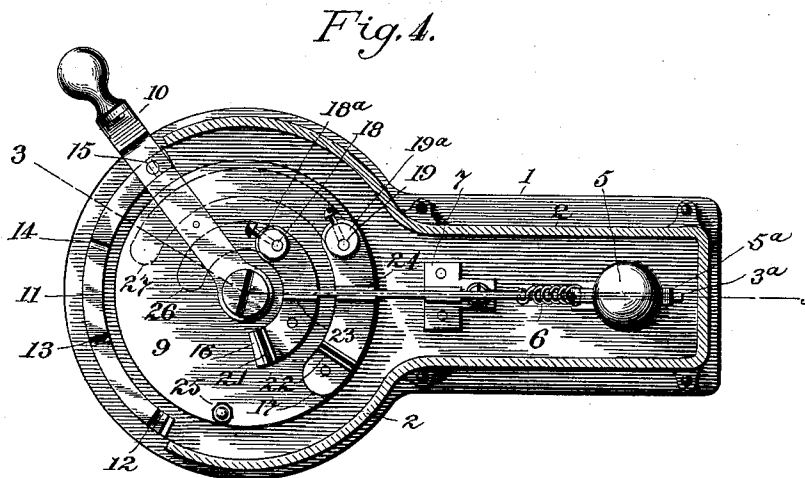
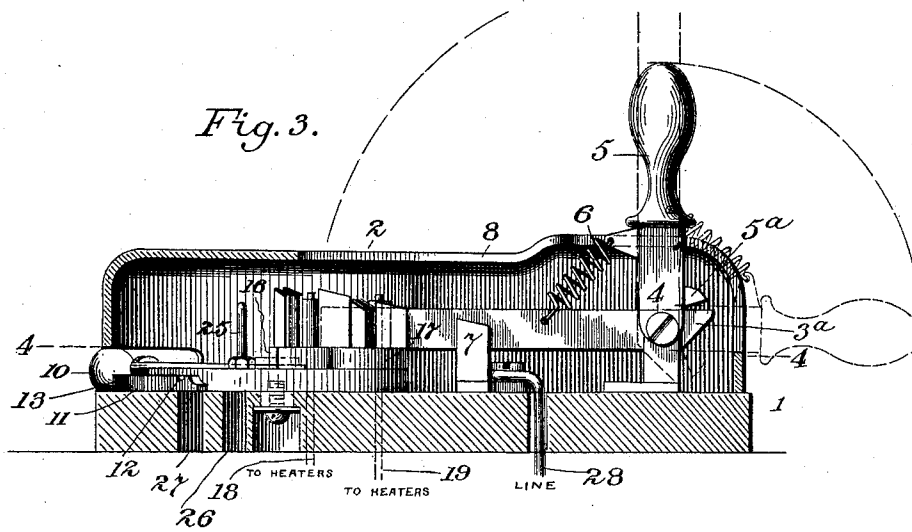
(No Model.)

3 Sheets—Sheet 2.

J. E. MEEK.
ELECTRIC SWITCH.

No. 568,450.

Patented Sept. 29, 1896.



WITNESSES:

W. H. Humphreys,
Wm. L. Smith.

INVENTOR

John Emory Meek
BY A. Parker Smith
his ATTORNEY

(No Model.)

3 Sheets—Sheet 3.

J. E. MEEK.
ELECTRIC SWITCH.

No. 568,450.

Patented Sept. 29, 1896.

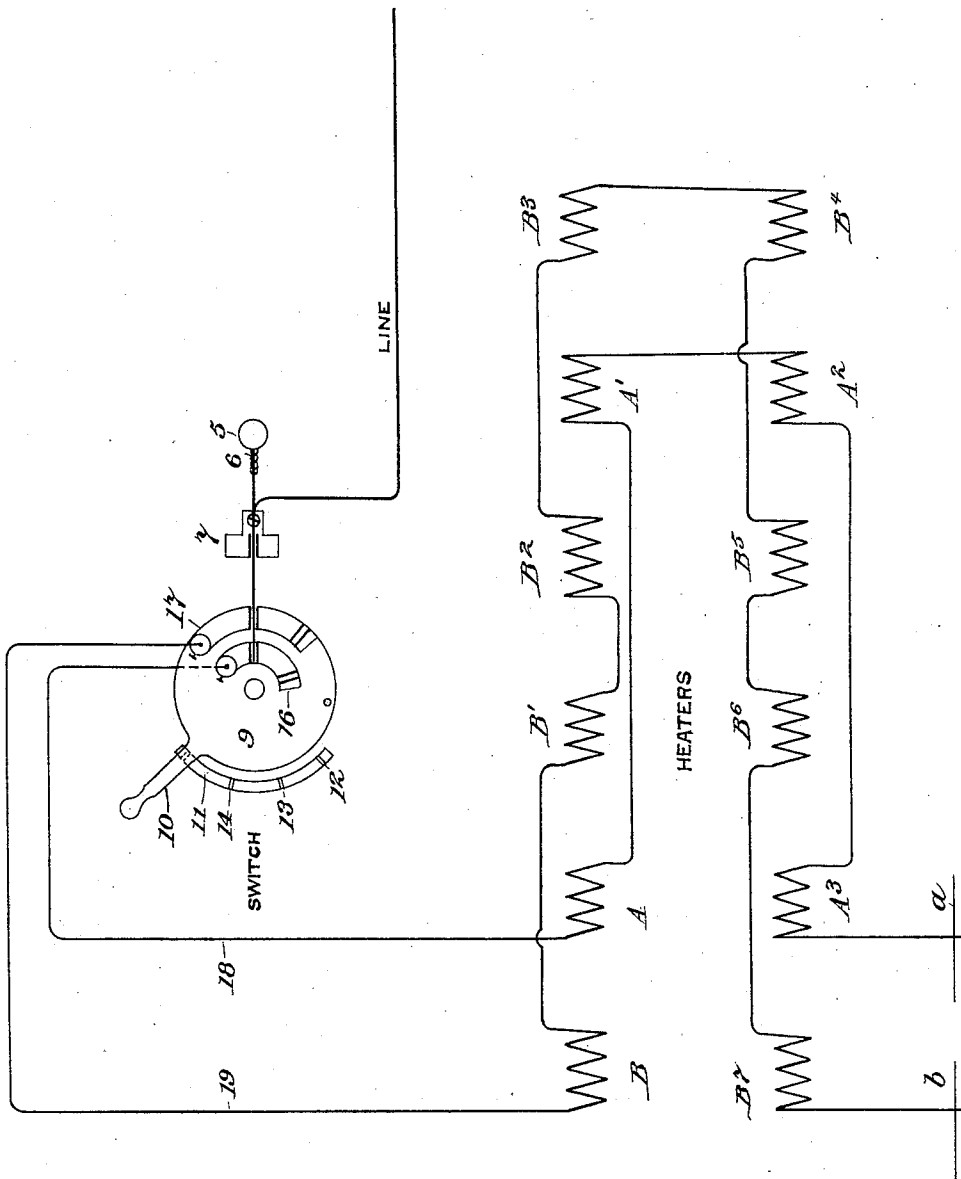


Fig. 5.

WITNESSES:

N. H. Crompton,
Wm. L. Smith.

INVENTOR

John Emory Meek
BY *P. Parker Smith*
his ATTORNEY

UNITED STATES PATENT OFFICE.

JOHN EMORY MEEK, OF NEW YORK, N. Y., ASSIGNOR TO THE H. W. JOHNS MANUFACTURING COMPANY, OF SAME PLACE.

ELECTRIC SWITCH.

SPECIFICATION forming part of Letters Patent No. 568,450, dated September 29, 1896.

Application filed March 20, 1896. Serial No. 584,121. (No model.)

To all whom it may concern:

Be it known that I, JOHN EMORY MEEK, a citizen of the United States, residing at New York, in the county of New York and State of New York, have invented certain new and useful Improvements in Electrical Switches; and I do hereby declare the following to be a full, clear, and exact description of the invention, such as will enable others skilled in the art to which it appertains to make and use the same.

My invention relates to electrical switches, and has special reference to the production of a compact switch for handling currents of considerable tension and volume. In switches of this kind the recognized form of construction is what is known as the "knife-switch," in which a swinging knife-blade slips down between V-shaped spring contact-pieces or jaws and thereby insures a positive contact. In switches controlling a number of circuits the pivoting of the knife-blade so as to command a number of different contacts would require quite a bulky arrangement, and to avoid this and thereby render the switch of compact construction I have invented the apparatus described, in which the contact-pieces for the various work-circuits are mounted upon a rotating table, which revolves under the knife-blade. The preferred form of construction is that shown in the accompanying three sheets of drawings.

Figure 1 is a perspective view of the switch with the cover on. Fig. 2 is a similar view with the cover removed. Fig. 3 is a vertical longitudinal section on line 3 3 of Fig. 4. Fig. 4 is a plan view of the switch, showing the cover in section on a line 4 4 of Fig. 3. Fig. 5 is a diagrammatic view of the work-circuits and switch.

Throughout the drawings like reference-figures refer to like parts.

1 is the base of the switch, of any insulating non-conducting material. 2 is a cover for the same, which is screwed to the base, as shown in Fig. 1. This cover has a slot 8, through which the swinging knife-blade 3 of the switch may pass. This knife-blade is pivoted to the switch-base at 4 and controlled by the handle 5, which is also pivoted thereto and has a spring connection 6 with the

knife-blade. The handle has a toe 5^a, which, after the handle has oscillated a certain distance, positively engages the projection 3^a on the knife-blade and positively lifts the knife-blade from engagement with the stationary contact-piece 7, which is mounted on the switch-base and connected with the wire 28, bearing the supply-current.

9 is a rotating table of insulating material centrally pivoted to the switch-base, as shown in Fig. 3. 10 is a radially-projecting handle, which is attached to said table, but has a spring movement in a vertical direction.

11 is an arc-shaped piece attached to the switch-base, and over which the spring-handle 10 slides. This arc-shaped piece is provided with a number of notches according to the number of work-circuits to be controlled, which notches are marked 12, 13, 14, and 15 in the drawings.

On the table 9 are also mounted strips of metal 16 and 17, which are insulated one from the other, but connected with the work-circuits by wires 18 and 19, which are held in the binding-posts 18^a and 19^a. On the metal strip 16 are two contact-pieces 21 and 23. On the strip 17 are two contact-pieces 22 and 24.

25 is a safety-peg fixed in the insulating-table at a proper distance from the contact-piece 21 and insulated from the strips 16 and 17.

26 and 27 are arc-shaped openings in the switch-base, through which the wires 18 and 19 move freely as the revolving table 9 is oscillated back and forth.

This switch is primarily designed to be used in cutting in and out the different sections of a car-heater, and such an arrangement of car-heaters is shown in diagram in Fig. 5. There are shown in all twelve heaters, four of which, A A' A² A³, are connected to wire 18, while the other eight, B B' B² B³ B⁴ B⁵ B⁶ B⁷, are connected with the wire 19. The two circuits are grounded by connection to the car-wheels or otherwise in the same manner as the motor-current is grounded. The respective ground connections are indicated at a and b, Fig. 5.

The method of operation of my invention is as follows: The handle 5 being pressed to the right, the spring 6 is first put under ten-

sion until the toe 5^A, bearing down on the projection 3^A, positively withdraws the swinging knife-blade 3 from contact with the stationary contact-piece 7. Then the contraction of the spring 6 produces what is known as a "quick break." By pressure on the handle 10, which projects from a slot in the cover 2, as shown in Fig. 1, the rotating table 9 may be moved, so that when the knife-blade 3 descends again one of four things will happen. Either the handle 10 will rest in the notch 12, in which case the knife-blade will swing outside of the safety-peg 25 and the work-circuits will be all disconnected and the table 9 rendered incapable of rotation, or the handle will rest in the notch 13 and the knife-blade engage the contact-piece 21 and the heaters A A', &c., will be thrown into circuit, or the handle will rest in notch 14 and the knife-blade engage with contact-piece 22 and the series of heaters B B', &c., will be thrown into circuit, or the handle will rest in notch 15 and the knife-blade engage with contact-pieces 23 and 24 and both series of heaters will be thrown into circuit. These four positions are indicated by the figures "0," "1," "2," and "3" on the top of the switch-casing, as shown in Fig. 1.

It is evident from the above that varying degrees of heat can be obtained by manipulation of the switch, as described. Thus when the handle is under the figure "0" all heaters will be cut out. When under the figure "1," four heaters will be cut in and a low heat produced. When the handle is under figure "2," eight heaters will be cut in and a medium heat produced. When the handle is under figure "3," all twelve of the heaters will be in circuit and the maximum heat produced. The advantages of my construction are that the desirable form of knife-switch, giving a positive contact and a quick break, can be used to control the several arrangements of circuits shown in a compact form, and at the same time the electric connections are all positive and there are no sliding contacts other than those of the knife-blade with its coacting jaws.

Having therefore described my invention, what I claim as new, and desire to protect by Letters Patent, is—

1. In an electric switch the combination of the swinging knife-blade to which the supply-current is delivered, the rotating table having its axis non-coincident with the pivotal point of the swinging knife-blade and the contact-pieces connected with the work-circuits carried by said table, substantially as described.

2. In an electric switch the combination of the swinging knife-blade, the stationary contact-piece with which the said knife-blade engages, and to which contact-piece the supply-current is delivered, the rotating table having its axis non-coincident with the pivotal point of the swinging knife-blade and the contact-pieces connected with the work-currents carried by said table, substantially as described.

3. In an electric switch the combination of the non-conducting base, the rotating table mounted thereon the contact-pieces mounted on said table, the wires from the work-circuits, which wires lead to the under side of the table, and recesses cut in the non-conducting base to allow said wires to move with the table, substantially as described.

4. In an electric switch the combination of the swinging knife-blade to which the supply-current is delivered, the rotating table of insulating material, having its axis non-coincident with the pivotal point of the swinging knife-blade the contact-pieces connected respectively with two or more work-currents arranged at different circumferential points on the table, means for rotating said table, and spring-catches which arrest said table at each position which brings a contact-piece under the knife-blade, substantially as described.

5. In an electric switch the combination of the non-conducting base, the swinging knife-blade mounted on said base, the stationary contact, also mounted on said base with which said knife-blade engages, and to which said contact-piece the supply-current is delivered, the rotating table mounted on said base, having its axis non-coincident with the pivotal point of the swinging knife-blade the contact-pieces connected respectively with two or more work-circuits arranged at different circumferential points on the table, and the safety-peg also mounted on said table, the radially-projecting spring-handle, by which said table is revolved, and the notched arc-piece over which said spring-handle slides, each notch being so placed that when the spring-handle drops into it, one or more of the contacts on the revolving table will be under the swinging knife-blade, or the safety-peg will engage with said knife-blade, substantially as described.

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

JOHN EMORY MEEK.

Witnesses:

F. S. MILLER,
A. PARKER SMITH.