B. D. HORTON.

ELECTRICAL SWITCH.

APPLICATION FILED MAR. 22, 1913.

1,194,386.

Patented Aug. 15, 1916

2 SHEETS—SHEET 1.

Fig. 1.

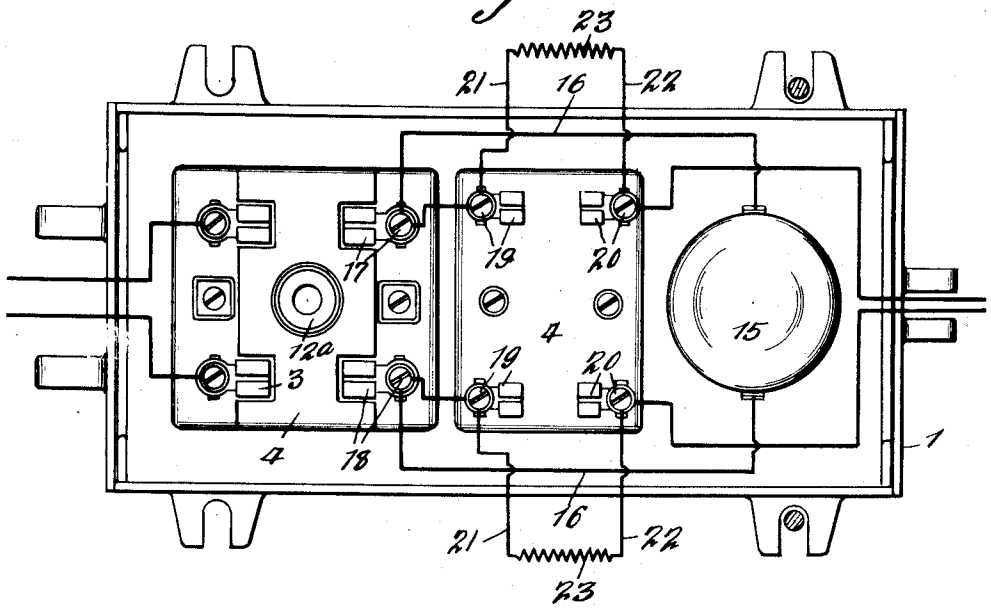
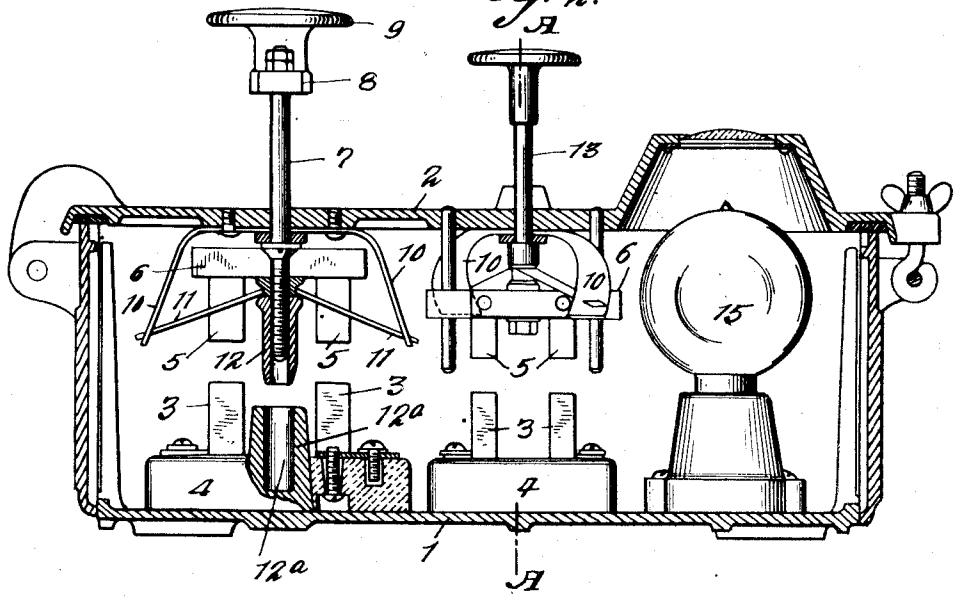


Fig. 2.



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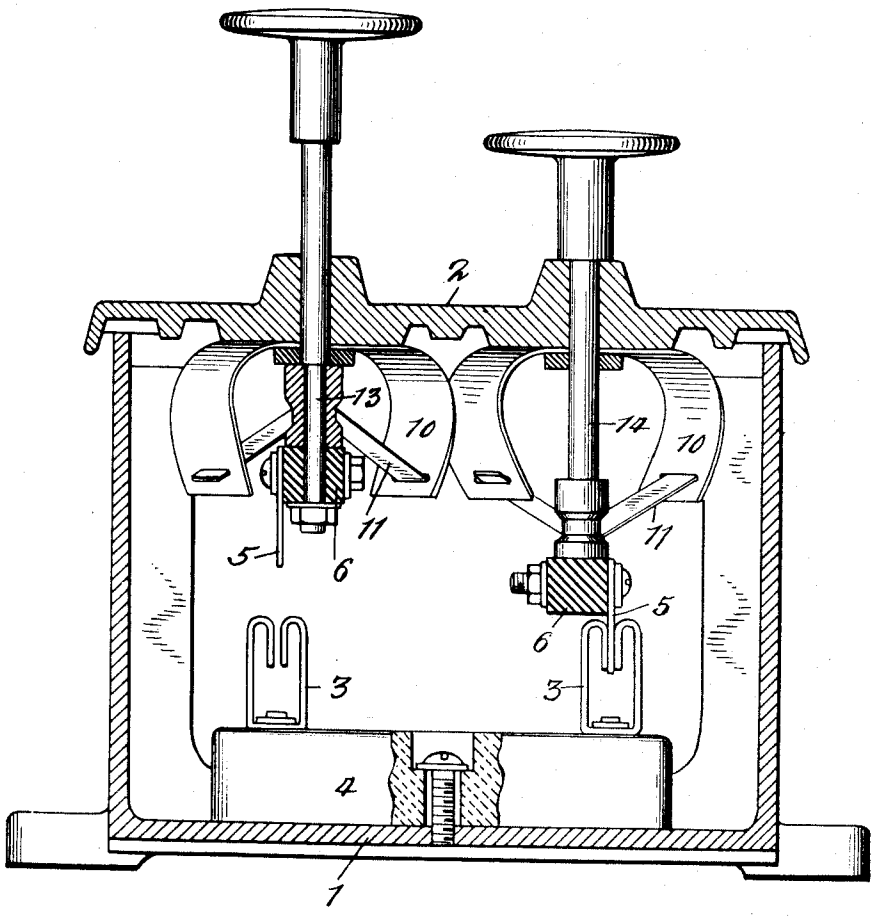
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2 SHEETS—SHEET 2.

Fig. 3.



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ELECTRICAL SWITCH.

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Application filed March 22, 1913. Serial No. 756,067.

To all whom it may concern:

Be it known that I, BRYSON D. HORTON, a citizen of the United States, residing at Detroit, in the county of Wayne and State of Michigan, have invented certain new and useful Improvements in Electrical Switches, of which the following, taken in connection with the accompanying sheet of drawings, is a full, clear, and concise description.

My present invention relates more specifically to electrical switches of that type commonly known as protected or armor-clad switches, consisting of an iron casing or housing within which are mounted the switch contacts and operating mechanism, suitable means being provided exteriorly of the casing to operate such mechanism.

My present invention comprehends a switch of this general type, designed to control large capacity heating irons, or, for such other service as may require a variable amount of current.

Referring to the accompanying drawings, in which I have illustrated one preferable embodiment of my invention, I will proceed to describe the same in detail.

Figure 1 is a top plan view of a switch embodying my invention, the cover of the receptacle being removed. Fig. 2 is a cross-sectional view of said switch with the cover in closed position, and the contacts in their "off" or retracted position. Fig. 3 is a view taken on line A—A of Fig. 2 showing one resistance switch in its "on" position and the other resistance switch in its "off" position.

In detail, 1 indicates a metal casing or housing provided with a hinged cover 2. Within the metal housing is provided a double pole switch mechanism and two single pole resistance switch mechanisms, each of the switches being independently operated, as will be presently understood, and all of the switches being adapted to be connected in circuit with each other. The independent operation of the switches provides means whereby variable electric potential may be obtained, as may be required or desired, in such an instance as cited in heating large capacity heating irons, etc.

The double pole switch or the main switch consists of two pairs of stationary contacts 3 of jaw-like formation, all mounted on a block 4 of insulating material, preferably porcelain, which block is fastened to the bottom of the receptacle. The coöperating movable contacts are indicated at 5. These contacts, being four in number are fast to and carried by the cross-head 6, carried by a pair of rods 7, mounted to reciprocate in the cover 2. These rods are connected at their upper ends to a cross-head 8, to which is fastened a convenient knob or operating handle 9. In order to accelerate the "make" and "break" connection between the contacts 5 a band spring 10 is provided, which is made fast to the underside of the cover 2. The depending ends of this band spring are slotted, and into these slots are sprung spring-plates 11. The opposite ends of the spring-plates 11 are of semi-circular formation and are seated against the upper end of the plunger 12. It will be understood that as the plunger is moved, the contacts 5 either make or break their electrical connection, the spring plates 11 causing an expansion of the band spring 10, and as soon as these plates 11 move past the line of their dead center position, the energy or spring tension of the band spring 10 becomes suddenly applied to the head of the plunger 12 thus accelerating its movement, and obtaining a quick make or break between the contacts. When the cover of the receptacle is closed and the circuit is closed through the contacts 3 and 5, the plunger 12 assumes a position within the abutment 12^a. The purpose of this abutment is to prevent the closing of the cover of the receptacle with the switch contacts 5 in their "on" position, an attempt to close the cover with the contacts in this position will be prevented by the plunger 12 engaging the wall of the abutment 12^a.

The single pole resistance switches indicated by the numerals 13 and 14 are of much the same general construction as the main or double pole switch just described, that is the movable contacts and the operating mechanism is attached to and carried by the cover of the receptacle. These switches are also provided with similar means for exteriorly operating the same. The major portion of the description of the main switch can be applied to the resistance switches, and it is thought no additional description will be necessary to a complete understanding thereof.

Within the receptacle and in circuit with the main switch is an indicating lamp 15 connected by leads or wires 16 to the contacts 17 and 18 of the main switch. The

purpose of this lamp is to indicate the relative positions of the main switch contacts, the illumination of the lamp indicating the fact that the main switch is closed. The illumination of the lamp is made visible exteriorly of the iron casing by means of a window 19 provided in the cover for the purpose.

The single pole resistance switches are provided for the purposes of bringing into and cutting out of the main circuit suitable resistances in order to vary the amount of current, as the needs of the particular service may demand. Referring to Fig. 1, the contacts 19 and 20 are connected by suitable leads or wires 21 and 22 to the resistance coils 23. Assuming that the main switch is closed and the resistance switches are opened, the resistances are in the main circuit and upon the closing of the resistance switches, the resistances 23 are short-circuited or cut out. With the resistances short-circuited, the heating iron may be brought up to a full heat very quickly and as the iron heats and reaches the desired temperature, the single pole switches may be manipulated in order to maintain a desired temperature, which, of course, will have to be within the limit of the two sets of resistances, which are capable of being short-circuited to this end. I may, if found desirable, provide a rheostat connected with each of the resistances and by this means obtain a more exact degree of heat, thus making the system more flexible and adaptable to a greater number of specific uses. However, the system described, which provides for three degrees of heat to the heating element will usually be found sufficient.

While I have described one embodiment of my invention, I do not wish to be understood as limiting myself to these precise details, as the same may be varied or departed from and still be within the scope and spirit of my invention.

Having thus described my invention what I claim as new herein and desire to secure by Letters Patent is:

In an electrical switch of the armor-clad type, the combination of a metal casing provided with a hinged unobstructed apertured cover, a plurality of switch mechanisms mounted within the casing comprising fixed contacts mounted upon the base thereof and movably-mounted coöperating contacts carried by the cover thereof and adapted to be exteriorly operated, one of said switch mechanisms constituting a double pole main circuit switch and the other of said switch mechanisms constituting single pole switches, and a lamp in circuit with the switches and mounted upon the base of the receptacle and located in proximity to the aperture in the cover.

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

BRYSON D. HORTON.

Witnesses:
IGNATIUS W. KAHN,
HARRY S. FREEMAN.