

No. 746,577.

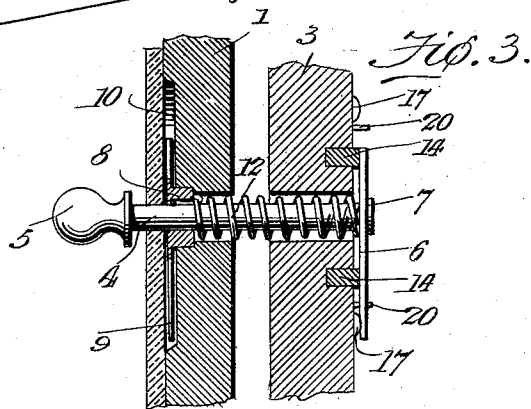
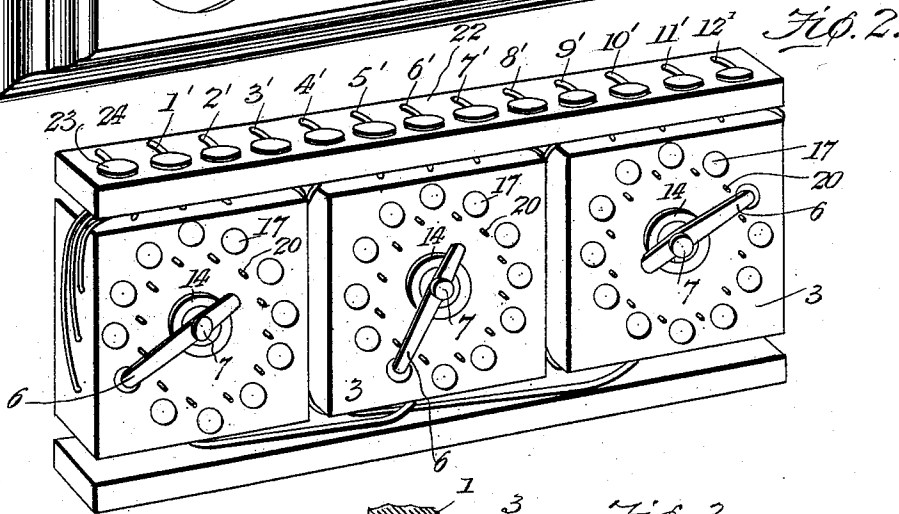
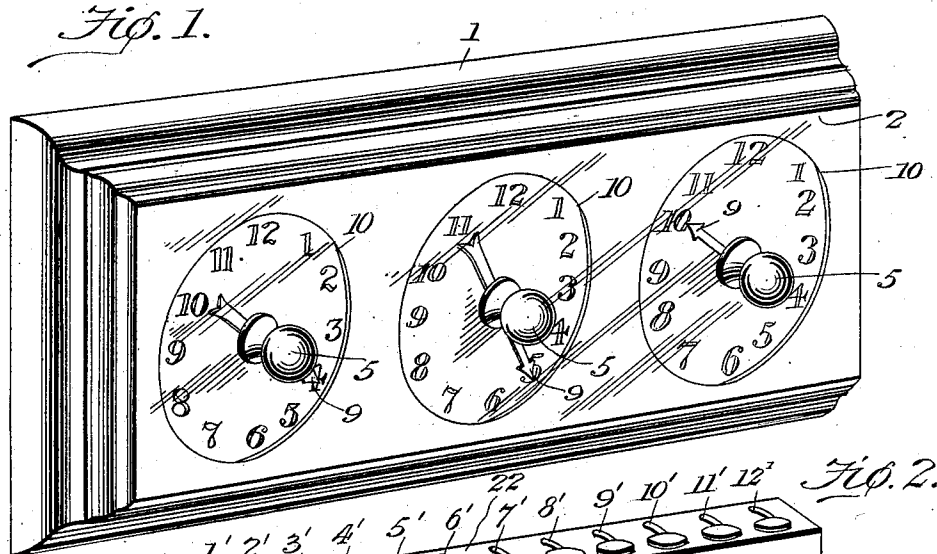
PATENTED DEC. 8, 1903.

A. RIVENBURGH.
ELECTRIC SWITCH.

APPLICATION FILED MAR. 6, 1903.

NO MODEL.

2 SHEETS—SHEET 1.



Witnesses
E. J. Stewart
J. W. Parker

Alvin Rivenburgh Inventor
 by *C. A. Snow*
 Attorneys

A. RIVENBURGH.
ELECTRIC SWITCH.

APPLICATION FILED MAR. 6, 1903.

NO MODEL.

2 SHEETS—SHEET 2.

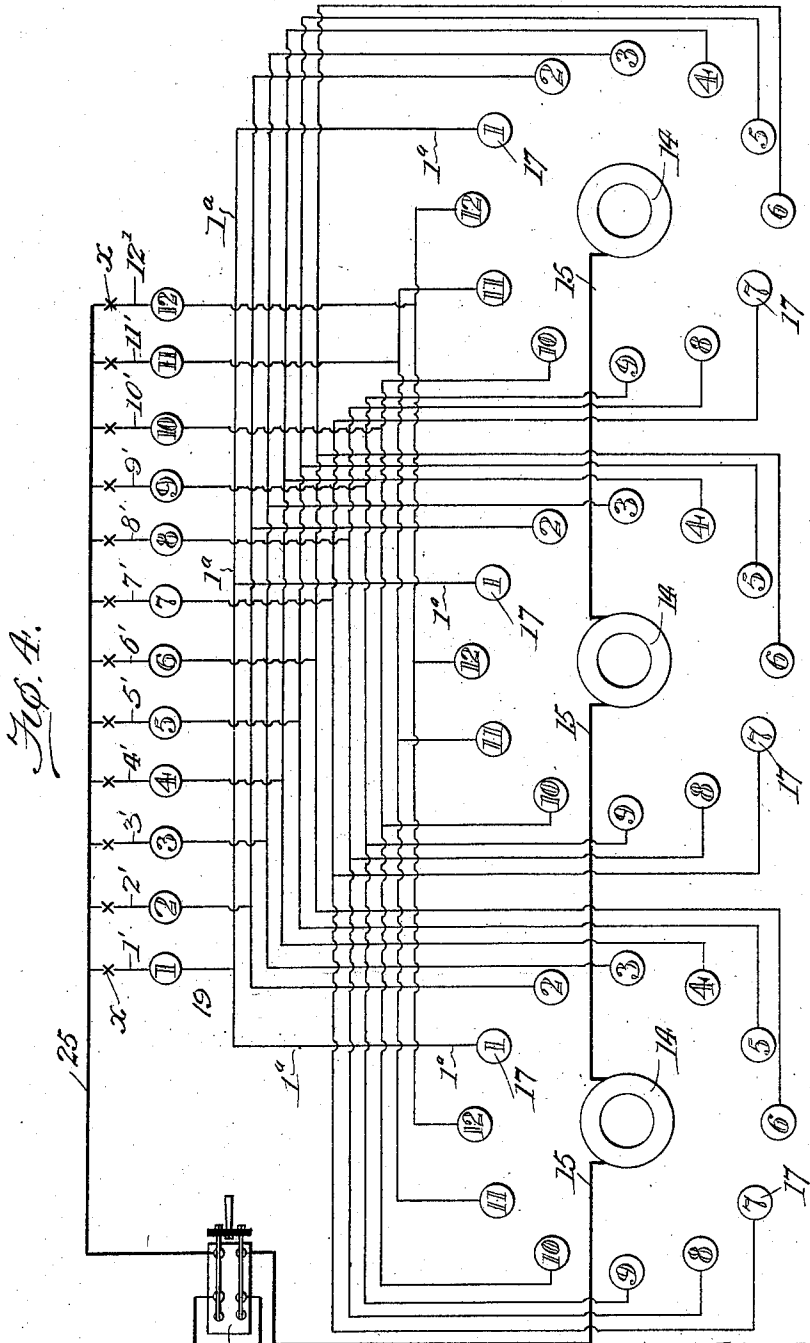


Fig. A.

Witnesses
E. Stewart
Geo. Parsons

by *Alvin Rivenburgh* Inventor
C. Snow & Co.
 Attorneys

UNITED STATES PATENT OFFICE.

ALVIN RIVENBURGH, OF GREENFIELD, IOWA.

ELECTRIC SWITCH.

SPECIFICATION forming part of Letters Patent No. 746,577, dated December 8, 1903.

Application filed March 6, 1903. Serial No. 146,560. (No model.)

To all whom it may concern:

Be it known that I, ALVIN RIVENBURGH, a citizen of the United States, residing at Greenfield, in the county of Adair and State of Iowa, have invented a new and useful Electric Switch, of which the following is a specification.

This invention relates to certain improvements in electric switches, and particularly to that class for controlling lamp-circuits.

One of the principal objects of the invention is to provide a switch for use in house-wiring and the like where flat rates are charged for service, the rate being based on a number of lamps which may be turned on or off at any time by the user or may be kept burning all the time without additional charge. One of the principal objections to service of this kind is that in an ordinary dwelling-house or the like it is necessary to employ a large number of lamps in order to properly light the place, and this if charged for at a flat rate would be much more expensive than the service where a meter is employed. To overcome this objection, I provide a switch having under its control any desired number of lamps—say twelve lamps, for instance—any of which may be turned on, the construction of the switch being such as to prevent the user from burning more than a predetermined number at one time. If three lamps are charged for, the user may turn on any three lamps at one time, or if the four-lamp rate be charged he may burn any four at one time, so that the light may be distributed in accordance with the desire of the user without increase in cost to the company or person supplying the electrical energy.

With these and other objects in view the invention consists in the novel construction and arrangement of parts hereinafter described, illustrated in the accompanying drawings, and particularly pointed out in the appended claims, it being understood that various changes in the form, proportions, size, and minor details of the structure may be made without departing from the spirit or sacrificing any of the advantages of the invention.

In the accompanying drawings, Figure 1 is a perspective view of an electric switch con-

structed in accordance with the invention looking from the front face of the switchboard. Fig. 2 is a similar view looking from the rear. Fig. 3 is a transverse sectional elevation through one of the switch members. Fig. 4 is a diagram illustrating the system of wiring connections.

Similar characters of reference are employed to indicate corresponding parts throughout the several figures of the drawings.

The movable members of the switch are supported on a suitable base or in an inclosing casing 1, which may be formed of wood, vulcanized fiber, rubber, or the like, the front of the switch being preferably covered with a panel 2 of glass or equivalent transparent material. To the rear of the base or in the inner portion of the casing is secured a number of blocks 3, three being shown in the present instance, or the number may be increased or diminished with the number of lamp-circuits to be controlled. The blocks 3 are each provided with a central opening for the passage of a switch-spindle 4, which extends out through an opening in the panel 2 and is provided with a terminal operating-knob 5. To the inner or rear end of the spindle is secured a switch member 6, which may be formed of spring metal, said switch being confined in place on the spindle by a nut 7, adapted to the threaded rear end of the spindle. The inner end of the spindle or that end adjacent to the front face of the switch passes through a collar 8, seated in a suitable opening at the front of the switchboard and carrying an arrow or pointer 9, which extends parallel with the switch 6 and indicates the position of the latter on a dial 10, provided with suitably-spaced indicating-marks, which may be in the form of numerals or alphabetical or other characters arranged in consecutive order, these in the present instance taking the form of numerals from "1" to "12," inclusive, and designating the number of lamps which may be disposed at any desired point. The inner face of the collar 8 and the adjacent face of the switch 6 are connected by a helical tension-spring 12, which surrounds the spindle 4 and so arranged as to permit outward or rearward movement of the switch when the operating-knob 5 is de-

pressed for the purpose. When pressure on the knob is released, the switch 6 is drawn in and closes the circuit through any desired lamp.

5 On the rear face of the block 3 is placed a metallic ring 14, concentric with the spindle and connected to the wire of the main line, the several rings 14 of the block being connected in series by a wire or other conductor
10 15, leading from a main cut-out 16. The ring is engaged by the shoulder-arm of the switch 6 and conveys the current therefrom to any selected lamp-circuit.

15 On the rear face of each block 3 are arranged a number of contact-blocks 17 of a number equal to the number of indicating-marks on the dial and disposed one in alignment with the other, and these contact-blocks are connected to the lamp-circuits and are engaged by the outer ends of the switch 6 in order to convey the current from the rings 14 through said blocks and thence to the lamp.

20 In order to prevent any direct rotative movement of the spindle and the sliding of the switch member over the contacts 17, as well as to prevent the possibility of placing the switch in contact with two adjoining blocks, an annular row of pins 20 is employed in each block, and each of said pins is disposed in a
30 radial line between the radial lines in which two adjacent contact-blocks 17 are disposed. The ends of the pins project beyond the surface of the blocks and engage the sides of the switch 6, so as to prevent direct rotative
35 movement of said switch until the knob is depressed and the switch forced inwardly and rearwardly against action of the spring 12. When this is done, the spindle may be turned until the arrow or pointer 9 is opposite the
40 desired number on the dial, after which the knob may be released and the switch will come into contact with the ring and the selected contact 17, closing the circuit through the desired lamp.

45 Immediately above the several blocks 3 is a strip 22, having at one end a binding-post 23 or like connection, and at the end of the opposite wire 16 of the main line and in advance of this are binding-posts or connecting
50 devices 24, to which are secured the terminals of a plurality of lamp-wires numbered from 1' to 12', inclusive, the several wires being all connected to a common return 25, leading to the main cut-out. In each of the lamp-wires
55 is placed a separate lamp x , or it may be a translating device of different character, and the current may be sent through any three of these lamps by turning the switches in the proper direction.

60 The system of wiring is shown in diagram in Fig. 4, on reference to which it will be noticed that the corresponding contact-blocks 17 on the different blocks 3 are connected together in series—that is to say, all of the contact-blocks 1 or those corresponding to the
65 lamp-wire 1' are connected together by a wire 1^a, so that any one of the switches by con-

necting with the similar contact-block under its control may energize the lamp-circuit 19. In similar manner the several contacts 2 are
70 connected together, and all are connected to the lamp-wire 2', and so on throughout the series of lamps, so that any one switch may control any one lamp-circuit, while under no
75 circumstances can the user keep more than three lights burning at one time.

The construction may be suitably modified by adding to or decreasing the number of blocks for a greater or less lamp rate, so as to control two, three, four, five, or more lamps,
80 and the number of contacts carried by each of the blocks 3 may be increased or diminished in accordance with the number of lamps forming the house system.

The construction of the switch is such as to
85 permit of the energizing of all of the lamp-circuits on special occasions; but for this service it becomes necessary for an employee of the company to remove the switch 6 and secure a disk or the like to the spindle in place
90 of the disk, the disk connecting the ring to all of the contact-blocks 17.

Having thus described the invention, what is claimed is—

1. In an electric switch comprising a plu-
95 rality of sets of contacts, means for electrically connecting corresponding contacts of each set to each other and to independent circuits to be controlled, a main line having terminal contacts adjacent to each set, an in-
100 dependent switch for placing the main-line terminals in communication with a selected contact, and means for preventing engagement of the switch simultaneously with two adjacent contacts. 105

2. In an electric switch, a block having an annular row of contacts, a revoluble switch member for engaging said contacts, pins disposed in the path of movement of the switch, a longitudinally-movable spindle carrying
110 the switch, and means for returning the spindle to initial position and holding said switch in engagement with a selected contact.

3. The combination with a switch, of a block, an annular row of contacts thereon,
115 spacing-pins between the contacts, a longitudinally-movable spindle, a spring normally holding the same in position, and a switch member carried by the spindle and movable to engage any one of the contacts. 120

4. The combination of a switch, of a switch-block, an annular row of contacts thereon, means for connecting the contacts to independent circuits, a ring forming the terminal contact of a line-wire, a centrally-disposed
125 spindle, and a switch carried by the spindle and adapted to place the ring in electrical connection with any one of the contacts.

5. The combination in a switch, of a block, an annular row of contacts carried thereby,
130 spacing-pins between the contacts, a centrally-disposed spindle provided at its outer end with an operating-knob, a contact-ring arranged concentrically of the spindle and

forming the terminal of a line-wire, a switch member carried by the spindle and adapted to place the ring in electrical connection with any selected contact, and a spring surrounding said spindle and normally tending to hold the switch in engagement with said contacts.

6. The combination of the switch-block, a plurality of contacts carried thereby, a dial arranged at the front and provided with designating-marks of a number corresponding to the number of contacts, a spindle having a terminal knob at its front end and provided with a hand or pointer adapted to travel over the dial, a contact-ring concentric with the spindle and forming the terminal of the line-wire, a switch secured to the spindle and adapted to place the terminal ring in electrical connection with any one of the contacts, a spring normally tending to retain the switch in engagement with a se-

lected contact, and pins for preventing direct rotative movement of the switch.

7. A switch system of the class described, comprising a plurality of switch-blocks each provided with an annular series of contacts, means for connecting corresponding contacts of all the blocks, a main line-wire having terminal contacts carried by each block, a plurality of independent circuits connected respectively to the contacts of the several sets, and a return-wire connected to all of the independent circuits.

In testimony that I claim the foregoing as my own I have hereto affixed my signature in the presence of two witnesses.

ALVIN RIVENBURGH.

Witnesses:

NICHOLAS Z. GILLETT,
LAURA MARIE STRAUSSER.