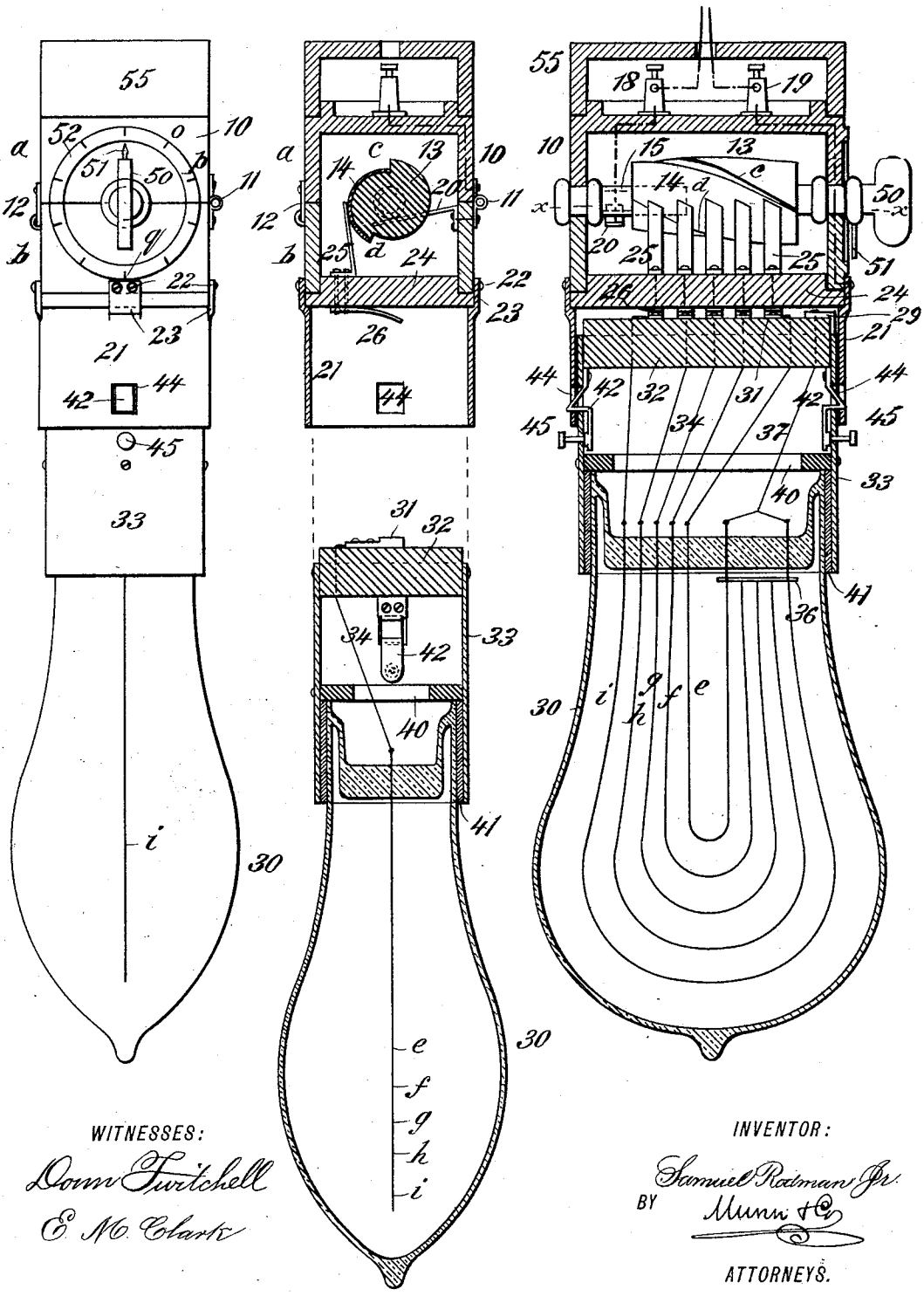
(No Model.) 3 Sheets—Sheet 1.

S. RODMAN, Jr.

INCANDESCENT LAMP SOCKET.

No. 414,922. Patented Nov. 12, 1889.

Fig. 1. *Fig. 2.* *Fig. 3.*



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INCANDESCENT LAMP SOCKET.

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Fig. 4.

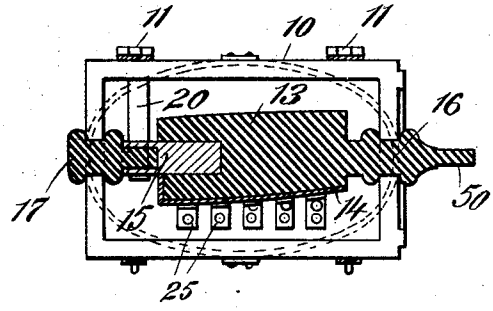


Fig. 6.

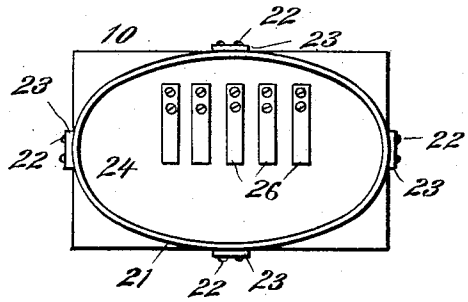


Fig. 5.

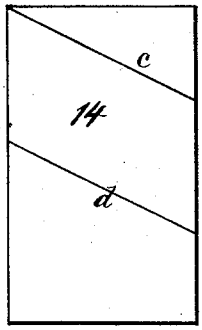


Fig. 7.

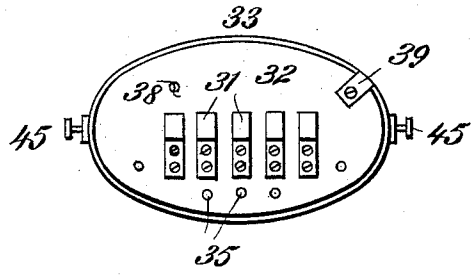
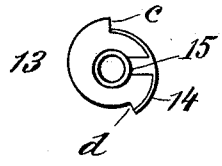


Fig. 8.



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Fig. 9.

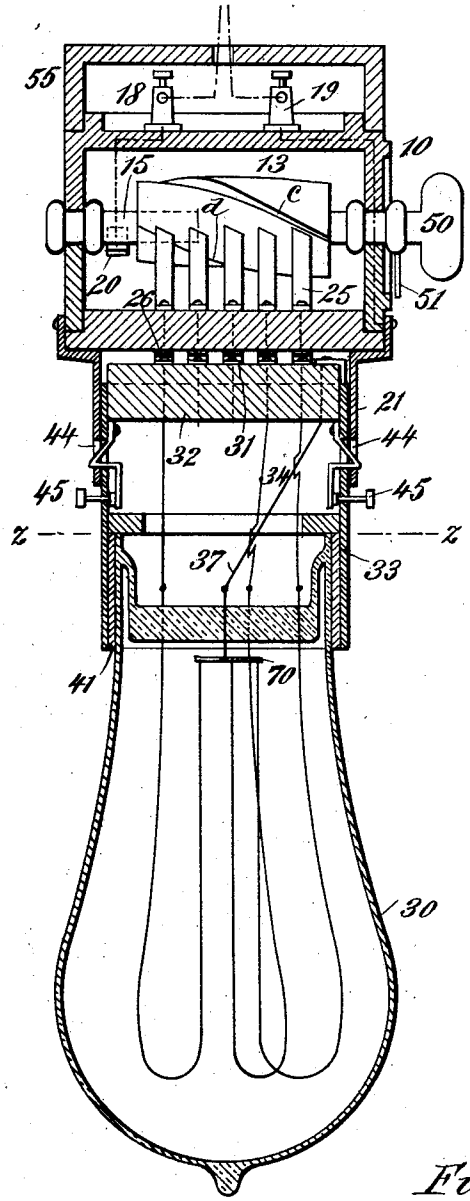


Fig. 10.

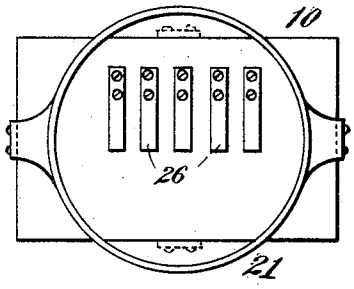


Fig. 11.

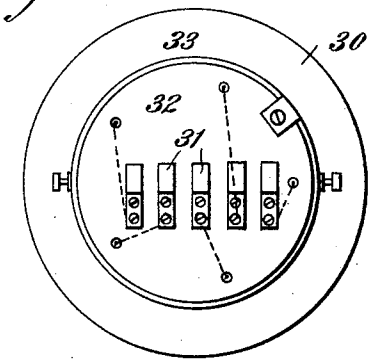


Fig. 12.

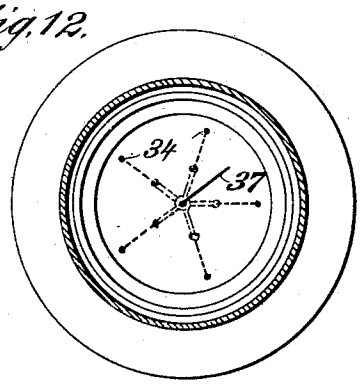
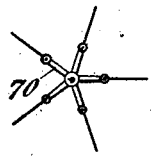


Fig. 13.



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UNITED STATES PATENT OFFICE.

SAMUEL RODMAN, JR., OF THE UNITED STATES ARMY.

INCANDESCENT-LAMP SOCKET.

SPECIFICATION forming part of Letters Patent No. 414,922, dated November 12, 1889.

Application filed February 19, 1889. Serial No. 300,483. (No model.)

To all whom it may concern:

Be it known that I, SAMUEL RODMAN, Jr., a lieutenant in the United States Army, residing at New Bedford, in the county of Bristol and State of Massachusetts, but at present stationed at Newport, in the county of Newport and State of Rhode Island, have invented a new and Improved Electric Incandescent Lamp, of which the following is a full, clear, and exact description.

The main object of my invention is to produce an electric incandescent lamp wherein the power or intensity of the light may be varied at will; and to the end named the invention consists of certain novel constructions, arrangements, and combinations of elements, to be hereinafter fully described, and specifically pointed out in the claims.

Reference is to be had to the accompanying drawings, forming a part of this specification, in which similar figures and letters of reference indicate corresponding parts in all the views.

Figure 1 is a side view of my improved electric incandescent lamp, the parts being shown as they appear when all of the filaments are out of circuit. Fig. 2 is a central cross-sectional view of the same, the view being taken on the minor axis of the lamp-body, the parts being shown as they appear when all of the filaments are in circuit. Fig. 3 is a sectional view taken on the major axis of the lamp, the position of the parts being the same as in Fig. 2. Fig. 4 is a sectional plan view on line *x x* of Fig. 3. Fig. 5 is a diagram showing the development of the key-cylinder surface upon a plane surface. Fig. 6 is an inverted plan view of the fixture-socket. Fig. 7 is a plan view of the lamp-socket. Fig. 8 is a view of the left-hand end of the key-cylinder. Fig. 9 is a central sectional elevation of a modified form of lamp, this construction, however, being the one which I prefer to employ. Fig. 10 is an inverted plan view of the modified fixture-socket. Fig. 11 is a plan view of the lamp-socket. Fig. 12 is a cross-sectional view on line *z z* of Fig. 9, and Fig. 13 is a diagram illustrating the arrangement of the carbons.

In the drawings, 10 represents a key-box, formed from sections *a* and *b*, that are united by a hinge-joint 11 and held together by hooks or other fastening devices 12, the box being made of any proper non-conducting material. Within the box 10 there is mounted a cylinder 13, said cylinder being formed with spiral shoulders *c* and *d* and carrying a metallic plate 14, which extends from the shoulder *c* to the defining edge of the shoulder *d*, this plate being placed in electric communication with a metallic plug 15, that is fitted into the left-hand end of the cylinder 13. The cylinder proper and its trunnions are made of non-conducting material, the right-hand trunnion 16 being, if desired, integral with the cylinder-body, while the left-hand trunnion 17 is provided with a projection which fits in a recess formed in the end of the plug 15.

To the top of the box 10 there are secured two binding-posts 18 and 19, the post 18 being in electric communication with a brush or tongue 20, which bears against the extending portion of the plug 15, and the post 19 is in electric communication with a socket 21, that is secured to the box 10, said socket being of a proper form and size to receive the lamp-socket. The socket 21 could be secured to the box in any desired manner, but I prefer to establish the connection by means of screws 22, which pass through lugs or ears 23, that extend upward from the socket-body.

To the upper side of the bottom 24 of the box 10, I connect a number of spring-tongues 25, which bear against the peripheral face of the cylinder 13, there being as many of these tongues as there are filaments in the lamp, and to the under side of the bottom 24, I secure a like number of spring-tongues 26.

In the specific construction illustrated I arrange five filaments *e*, *f*, *g*, *h*, and *i* within the globe 30, one end of each of these filaments being electrically connected with contact-plates 31, that are secured to the upper face of a block 32, said block being held within the upper end of a lamp-socket 33, the wires 34, by which the connection just referred to is established, passing from the globe through apertures 35, that are formed in the block 32. The other ends of all of the filaments are connected by a wire 36, which is supported by two wires that pass through the crown of the globe, said two wires in turn being connected to a wire 37, that is led up through an aperture 38, formed in the block 32, and thence into a contact-plate 39, that is made integral with or placed

in connection with the socket 33. Within the socket 33, I place a ring 40 of insulating material, which serves as a stop or limit block when the globe is introduced, and at the same time prevents the plaster filling 41 from entering the socket to an extent such that it might interfere with spring-catches 42, mounted within the socket 33 and arranged to enter apertures 44, formed in the socket 21, the spring-catches entering the said apertures when the lamp-socket is forced upward into the fixture-socket, and in order that the catches may be thrown from engagement with the socket 21, I provide each catch with a push-button 45, so that by pressing on the buttons the catches may be thrown inward and the lamp disconnected from the fixture-socket.

As before stated, the binding-post 19 is in electric communication with the socket 21, and as the socket 33 is also in electric communication with the socket 21 it follows that the conductor 37, to which one end of all the filaments is connected, is in electric communication with the post 19. To the right-hand trunnion 16 of the cylinder 13, I secure a thumb-piece 50 and a pointer 51, a dial 52 being arranged in connection with the pointer.

From the construction above described it will be seen that when the cylinder 13 is turned so that all of the tongues 25 will bear against that section of the cylinder-face that is between the face of the shoulder *d* and the edge of the shoulder *c* all of the filaments will be out of circuit, and it is when the parts are in this position that the pointer will be as shown in Fig. 1; but if the cylinder be turned to the right the tongue 25 (shown upon the left in Fig. 3, said tongue being connected to the filament *i*) will pass from the section of the cylinder just referred to and onto the helical plate 14, thus bringing the filament *i* into circuit, the pointer 51 at this time pointing to the division *o* upon the dial 52. A further turn of the cylinder will carry it to a position such that the next tongue—that is, the tongue connected to the filament *h*—will bear against the plate 14, and then the pointer will point to the division *p*, and so on until all five of the filaments are thrown into circuit, the pointer 51 at this time pointing to *q*. After all the filaments have been thrown into circuit, as just described, any further advance of the cylinder will act to cut out first the filament *i*, then the filament *h*, and so on until all of the filaments have been cut out of circuit and the pointer has returned to the position in which it is shown in Fig. 1.

In the construction illustrated in Figs. 9, 10, 11, 12, and 13 I arrange the carbons so that they extend radially from a central support 70, each carbon being connected to said support and to a wire which is sealed near the edge of the lamp-neck, the globe in this case being round in cross-section. By this arrangement I obviate the difficulty due to the warping of the filaments and more effectually space them.

By means of the arrangement above described it will be seen that with a lamp provided with five filaments I am able to secure nine different degrees of light; with a lamp embodying six filaments there would be eleven degrees of light obtainable, the number of degrees being expressed by the formula $2n-1$, n representing the number of filaments employed.

In practice I prefer to provide the box 10 with a cap or cover 55, but of course this is not essential. To insure a proper action, the filaments of the lamp should all be of practically the same voltage, and although I prefer that the filaments should be of varying power, still all might have the same candle-power.

The switch proper, described herein in connection with a lamp embodying a number of filaments, might of course be employed in connection with a system of lamps located in a room, dwelling, or district, and it will of course be understood that the indicator arranged in connection with the switch could be employed to indicate the number of lamps in the circuit and the position of such lamps in any given district, the indicator also serving to indicate the candle-power that is being developed, the power of each filament or lamp being known.

One great advantage arising from the construction above described is that the life of the lamp is materially increased, inasmuch as the lamp may be used until all of the filaments have given out by using, in a lamp having a certain number of filaments of the same candle-power, one filament at a time until it is burned out, and so on until all are burned out.

Although specific constructions have been described in the foregoing specification, I desire it to be distinctly understood that any mechanical construction by means of which the broad idea set forth could be carried into practice could be used without departing from the spirit of my invention.

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

1. The combination, with a series of light-producing agents, of a switch-cylinder provided with a continuous spiral contact-plate, spring-tongues which bear against the cylinder, and connections between the tongues and the light-producing agent, substantially as described.

2. The combination, with a series of light-producing agents, of a switch-cylinder formed with a spiral shoulder, a contact-plate carried by the cylinder adjacent to said shoulder, spring-tongues which bear against the cylinder, and connections between the tongues and the light-producing agents.

3. The combination, with a series of light-producing agents, of a switch-cylinder formed

with spiral shoulders, a contact-plate mounted between said shoulders, spring-tongues which bear against the cylinder, and connections between the tongues and the light-producing agents, substantially as described.

4. In an electric incandescent lamp, the combination, with a series of filaments, of plates to which one end of each of the filaments is connected, spring-tongues carried by the fixture-socket and arranged to bear upon the plates, other spring-tongues connected to the first-named tongues, a cylinder-key against which the second set of tongues bear, and a spiral contact-plate carried by the key-body, substantially as described.

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Witnesses:
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LEANDER K. CARR.