J. L. MOORE.

PULL SOCKET FOR ELECTRIC INCANDESCENT LAMPS.

APPLICATION FILED NOV. 17, 1909.

970,255. Patented Sept. 13, 1910.

Fig: 1.

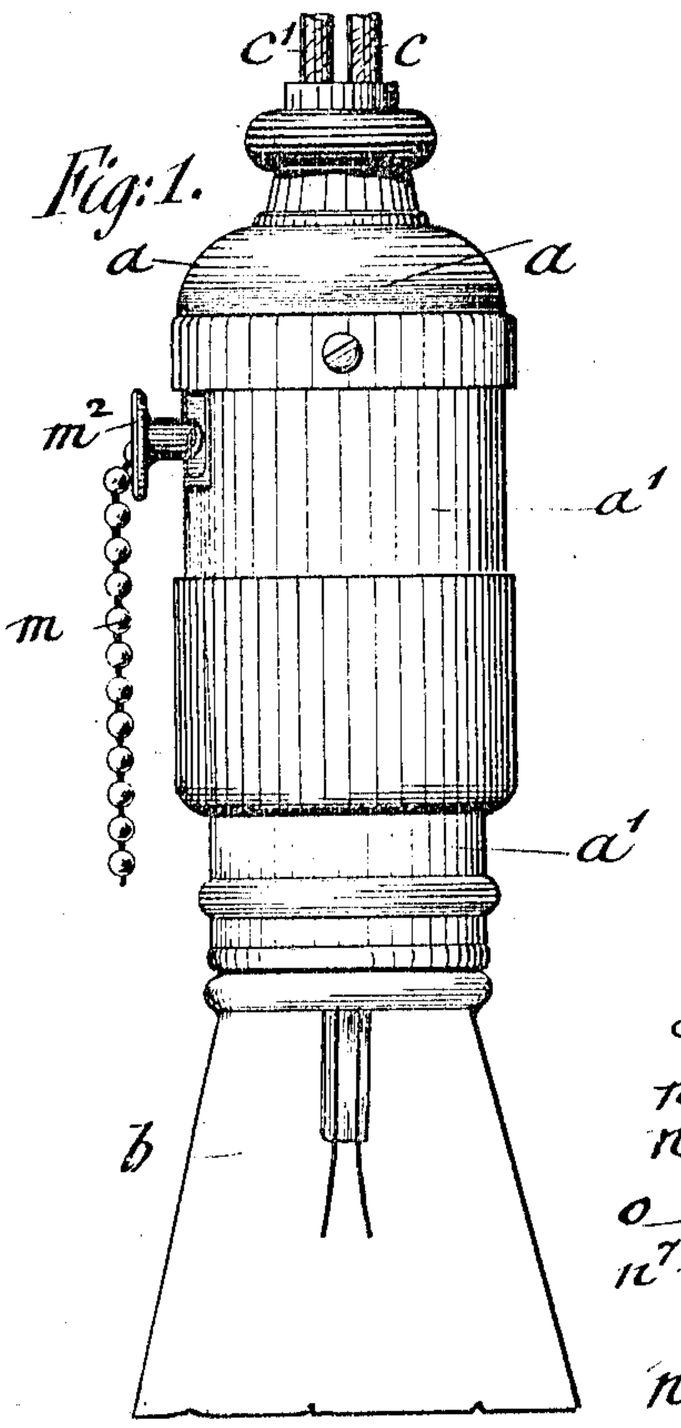



Fig: 2.

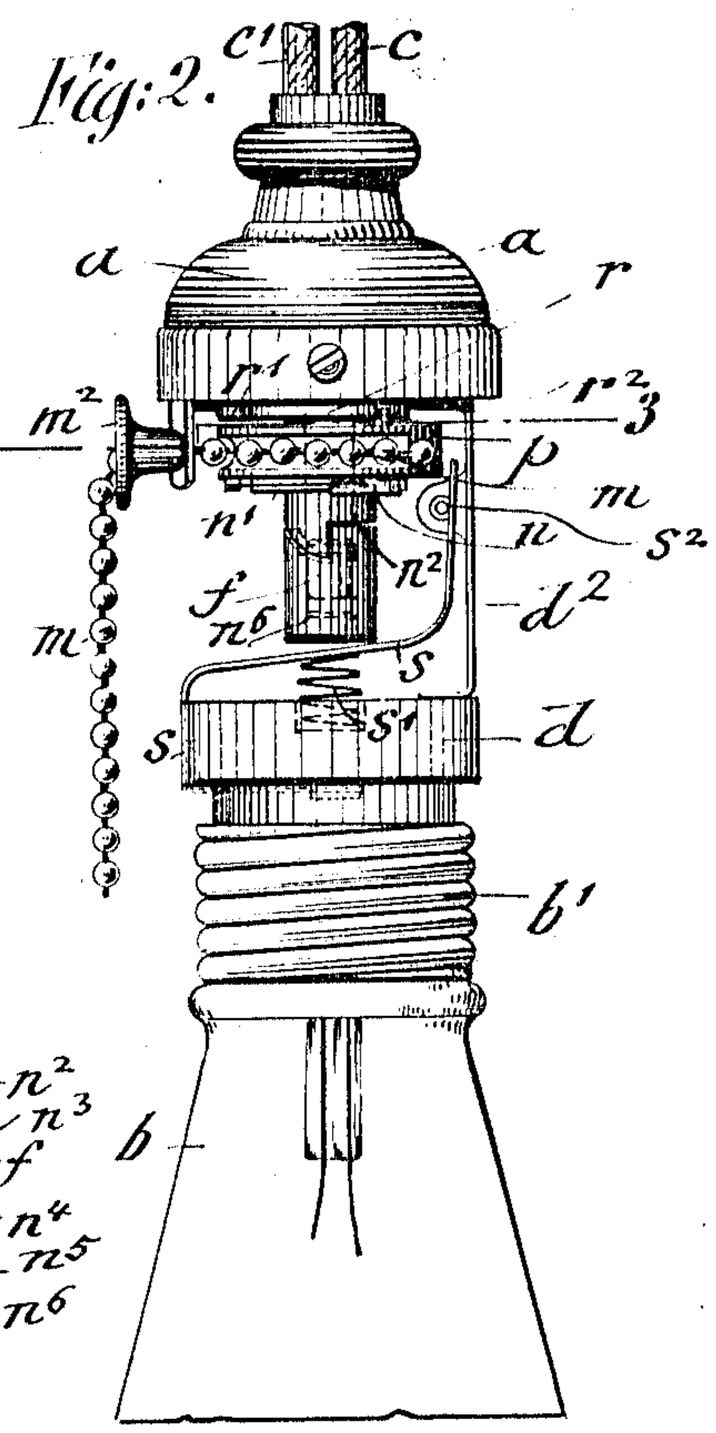



Fig: 5.

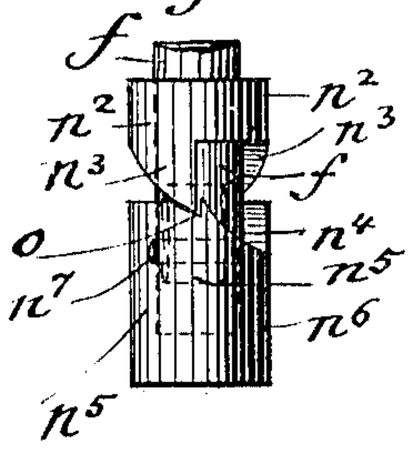



Fig: 3.

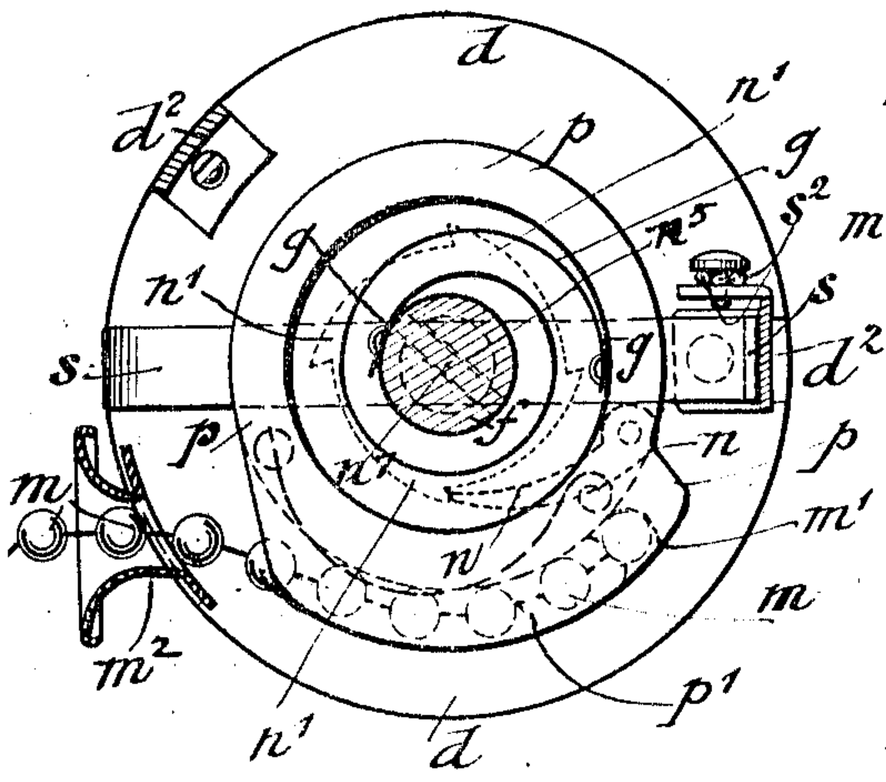
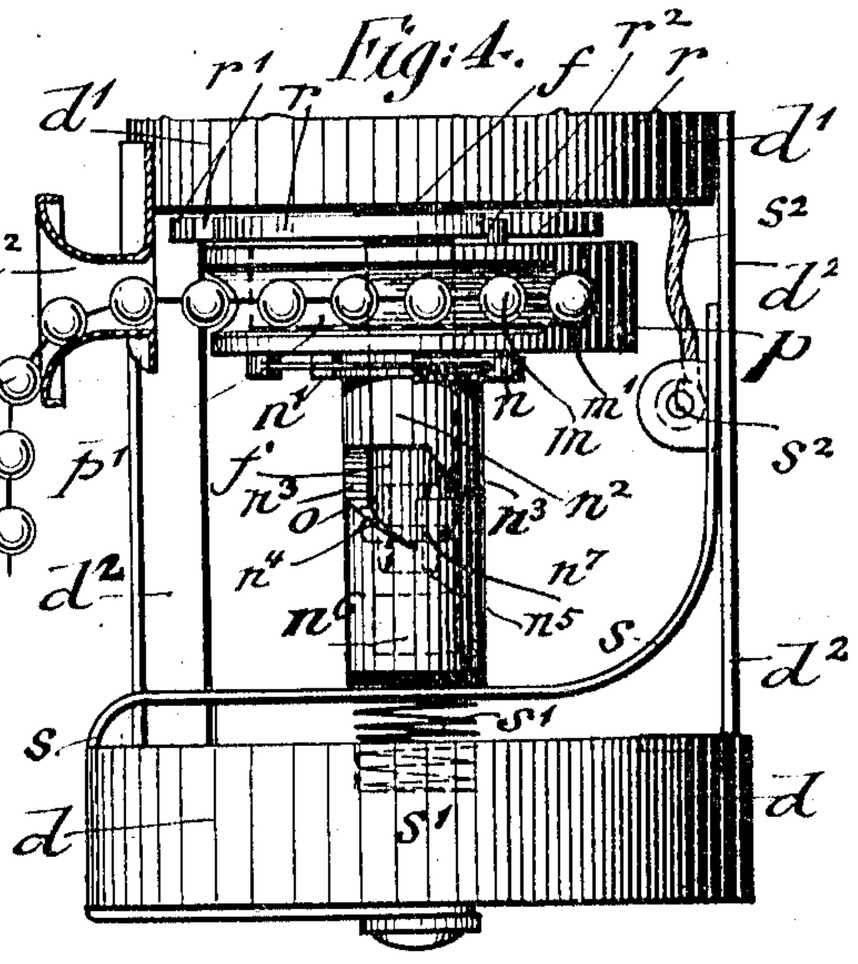



Fig: 4.

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# UNITED STATES PATENT OFFICE.

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## PULL-SOCKET FOR ELECTRIC INCANDESCENT LAMPS.

970,255. Specification of Letters Patent. Patented Sept. 13, 1910.

Application filed November 17, 1909. Serial No. 528,500.

*To all whom it may concern:*

Be it known that I, JOHN L. MOORE, a citizen of the United States of America, residing in New York, in the borough of Manhattan, county and State of New York, have invented certain new and useful Improvements in Pull-Sockets for Electric Incandescent Lamps, of which the following is a specification.

This invention relates to an improved pull-socket for electric incandescent lamps which is operated by means of a metallic chain depending from the lamp, and by which the lamp is switched in or out of circuit in a very convenient and reliable manner; and for this purpose the invention consists of a pull-socket for electric incandescent lamps the construction of which will be fully described hereinafter and the novel features of which will be finally pointed out in the claims.

In the accompanying drawings, Figure 1 represents a side-elevation of my improved pull-socket for electric incandescent lamps, Fig. 2 is a side-elevation of the same, with the exterior covering or shell removed, Fig. 3 is a horizontal section on line 3, 3, Fig. 2, Fig. 4 is a side-elevation of the pull-socket mechanism shown in Fig. 2, drawn on a larger scale and showing the parts in position when the lamp is switched into the circuit, and Fig. 5 is a detail side-view of a portion of the pull-socket mechanism, showing it in locked position after the lamp is switched in.

Similar letters of reference indicate corresponding parts throughout the several views.

In the drawings *a* represents the casing, which is provided with a shell $a^1$ of insulating material.

*d* is the lower insulating block, $d^1$ the upper insulating block, both of disk shape, and $d^2$, $d^2$ are standards by which the two insulated disks are connected. *c*, $c^1$ are the conducting-wires by which the current is conducted to the filament of the incandescent electric lamp. To the under-side of the lower insulating disk *d* is applied a threaded shell into which the socket $b^1$ of the incandescent lamp *b* is inserted in the usual manner.

To the upper insulating block $d^1$ is attached a fixed center-post *f*. On the center-post *f* turns loosely a pulley *p*, which is provided with a groove $p^1$ in which is guided a metallic chain *m*, the end of which is attached by a socket, pin or other suitable fastening device $m^1$ to the pulley, said chain passing through a trumpet-shaped guard $m^2$ which is attached to the upper insulating block $d^1$, and from which the chain depends a sufficient length so as to permit the convenient grasping and pulling of the chain. Any suitable construction of metallic chain may be used for operating the grooved pulley *p*, but the chain illustrated in Figs. 2 and 4, consisting of balls and links, is preferred on account of its strength and flexibility. To the under-side of the pulley *p* is pivoted a spring-actuated pawl *n*, which serves to engage the teeth of a ratchet-wheel $n^1$, which turns loosely on the fixed post *f*, the pawl and ratchet-wheel following the turning motion of the pulley *p* when the chain *m* is pulled. Between the upper insulating block $d^1$ and the adjacent face of the pulley *p* is interposed a disk-shaped plate *r* provided with two projections $r^1$ against which an upwardly-extending pin $r^2$ on the upper face of the pulley *p* abuts and by which the motion of the pulley is limited. The ratchet-wheel $n^1$ is provided with four teeth, so that each actuation of the pulley by the metallic chain produces a quarter turn of the ratchet-wheel and pulley.

To the ratchet-wheel $n^1$ is applied a sleeve $n^2$, which is provided at its lower end with recesses forming inclined teeth $n^3$ that extend into corresponding recesses $n^4$ of an adjacent socket $n^6$, which slides loosely on the lower end of the fixed post *f*, and which rests by its lower end upon a flat curved contact-spring *s* that extends diametrically across the lower insulating block *d*. The socket $n^6$ is guided by means of a pin $n^7$ which extends diametrically through a slot $n^5$ in the post *f*, the ends of the pin being upset so as to prevent the detachment of the sliding socket $n^6$, as shown in Fig. 5. The teeth $n^3$ of the rotary sleeve $n^2$ press the socket $n^6$ in downward direction when the sleeve $n^2$ is turned by the actuation of the pulley and the intermediate pawl and ratchet-wheel mechanism, so that the socket $n^6$ is moved in downward direction on its guide-pin $n^7$, until the teeth $n^3$ arrive at the upper ends of the inclined recesses of the socket $n^6$ and engage notches *o* in the upper edge of the socket $n^6$, as shown in Fig. 5, and lock thereby the sleeve $n^2$ in position, so as to prevent its return during the return motion of the pulley and pawl on the

same. The guide-pin $n^7$ and slots $n^5$ secure the straight motion of the socket $n^6$ on the fixed post $f$. One end of the contact-spring $s$ is attached to the circumference of the block $d$, while the middle portion of the spring passes below the lower end of the sleeve $n^6$ and is pressed against the same by a helical spring $s^1$ that is arranged in a socket of the lower insulating block $d$ vertically below the middle portion of the spring $s$ and the lower end of the sliding socket $n^6$. The upper free end of the contact-spring $s$ is normally held out of contact with the adjacent standard $d^2$, as shown in Fig. 2, but it is pressed into contact with the standard $d^2$ when the pulley is turned under the influence exerted by the metallic chain and the lower sliding socket $n^6$ is moved in downward direction by the action of the pawl and ratchet mechanism on the upper rotatable sleeve, as shown in Fig. 3. In this position the current is conducted from the positive conducting-wire $s^2$ to the standard $d^2$ and contact-spring $s$ to the filament of the lamp and the lamp lighted. On the release of the metallic chain, a spiral spring $g$, which is applied at its inner end to the fixed center-post $f$ and at its outer end to a pin on the pulley, as shown in Fig. 3, returns the latter into the normal position, together with the pawl $n$, but leaves the sleeve $n^2$ in position in the notches $o$ and the socket $n^6$ in its lowermost position, as shown in Fig. 4.

When it is desired to extinguish the lamp, the metallic chain is pulled again and the pulley turned on its axis, together with the pivoted and spring-actuated pawl, which latter engages the next tooth of the ratchet-wheel and turns the same, together with its sleeve, through an angle of 90°, so that the teeth of the sleeve move along the upper edge of the socket and permit the latter to rise under the action of the spring $s^1$, whereby the pressure on the contact-spring $s$ is released and the same returned to its normal position, as shown in Fig. 1. The current is thereby prevented from passing to the lamp and the same is cut out of circuit.

From the foregoing it appears that one pull of the chain places the lamp in circuit, while the next pull of the chain cuts it out of circuit. The mechanism which produces this result is simple, durable and reliable, and forms a very effective pull-socket device for placing an incandescent electric lamp into and out of circuit.

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

1. In a pull-socket for electric incandescent lamps, the combination of an insulating block, a post secured to said block, a rotatable sleeve on the post and having teeth projecting therefrom, means for rotating said sleeve with a step-by-step movement, a sliding socket on said post and having notches adapted to be engaged by said teeth as said sleeve is rotated, whereby said socket is moved toward and away from said sleeve, and a switch operated by the movement of said socket.

2. In a pull-socket for electric incandescent lamps, the combination of an insulating block, a center-post secured thereto, a sleeve rotatable upon said post and having downwardly-projecting teeth, means for rotating said sleeve with a step-by-step motion, a socket vertically slidable on said post and having deep notches each having an inclined face and an upright shoulder and adapted to be engaged by said teeth when said sleeve is in one position, said socket having also shallow notches adapted to be engaged by said teeth when said sleeve is in another position, and a switch operated by the movement of said socket.

3. In a pull-socket for electric incandescent lamps, the combination of upper and lower blocks, standards connecting said blocks, a contact carried by one of said standards, a contact-spring carried on the lower block, and normally held out of contact with the contact carried by the standard but adapted to be pressed into engagement therewith, a movable piece having an inclined face and an abrupt shoulder and contacting said spring, a sliding piece adapted to engage said inclined face and cause said movable piece to press said spring against said contact and to permit said spring to snap away from said contact as said sliding piece passes said shoulder, means for moving said sliding piece, conductors leading to said contact-piece and to one end of the filament of the lamp, and a conductor connecting said spring and the other end of the filament.

4. In a pull-socket for electric incandescent lamps, the combination of upper and lower insulating blocks, standards connecting said blocks, a contact carried by one of the standards, a contact-spring carried by the lower block and normally held out of contact with said contact, a vertically movable socket contacting said spring and having a notch forming an inclined face and a shoulder, a rotatable sliding piece adapted to engage said inclined face to press said socket against said spring to cause said spring to contact said contact, said sliding piece being adapted to pass said shoulder to permit said socket to permit said spring to leave said contact, means for moving the sliding piece with a step-by-step motion, a conductor connecting the spring with one end of the filament of the lamp, and conductors connected to said contact and to the other end of the filament.

5. A pull-socket for electric incandescent

lamps, consisting of a casing having insulating blocks, standards connecting said blocks, a fixed center-post on the upper insulating block, a spring-actuated pulley turning loosely on said post, a chain connected with said pulley for actuating the same, a spring-actuated pawl pivoted to the under-side of said pulley, a ratchet-wheel engaged by said pawl and turning loosely on the center-post, a rotatable sleeve on the ratchet-wheel, a sliding socket at the lower end of the center-post below the rotatable sleeve, and a contact-spring attached to the lower insulating block and adapted to be placed in or out of contact with one of the standards connecting the insulating blocks for placing the lamp in and out of contact.

6. In a pull-socket for electric incandescent lamps, the combination of a casing having insulating blocks, a fixed center-post attached to the upper block, a pulley turning loosely on said center-post, a chain connected with said pulley, a spring for returning said pulley into its normal position, stops for limiting the motion of the pulley, a spring-actuated pawl pivoted to said pulley, a ratchet-wheel turning loosely on the center-post, a rotatable sleeve rotating with the ratchet-wheel and provided with inclined teeth, a socket guided on the center-post and having recesses corresponding with the teeth of the rotatable sleeve, a contact-spring extending below the sliding socket, said spring being attached at one end to the lower insulating block and adapted to be placed in or out of contact with one of the standards between the insulating blocks, and a helical spring interposed between the contact-spring and the lower insulating block.

7. A pull-socket for electric incandescent lamps, comprising a casing having insulating blocks, a fixed center-post attached to the upper block, a spring-actuated pulley turning loosely on said post, a chain connected with said pulley for actuating the same, stops for arresting the motion of the pulley when turning in either direction, a sleeve turning loosely on said center-post, a pawl and ratchet mechanism between the pulley and sleeve, said sleeve having inclined teeth, a socket guided on the lower end of the center-post and having recesses corresponding with the teeth of the sleeve and notches adjacent to the upper ends of said recesses for engaging the teeth of the sleeve, and a spring-pressed contact-spring extending below the socket and being placed in or out of contact with the circuit of the lamp by the lowering or raising of the socket by the pull-socket mechanism.

In testimony, that I claim the foregoing as my invention, I have signed my name in presence of two subscribing witnesses.

JOHN L. MOORE.

Witnesses:
PAUL GOEPEL,
HENRY J. SUHRBIER.