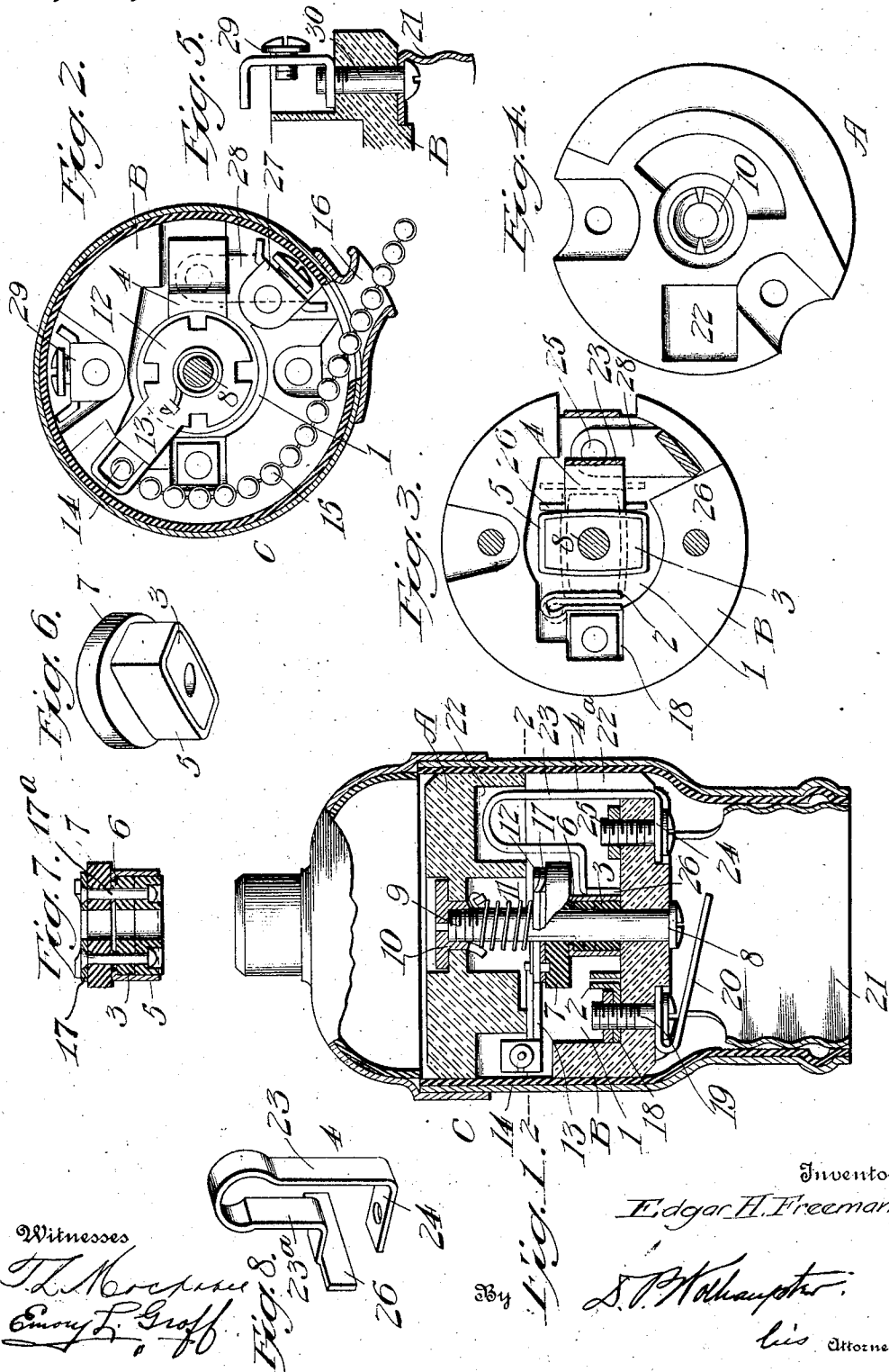


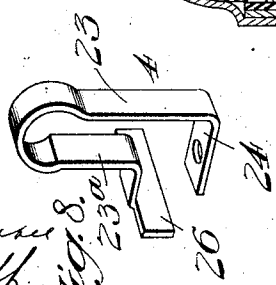
E. H. FREEMAN.
ELECTRICAL PULL SOCKET.
APPLICATION FILED JUNE 2, 1911.

1,009,401.

Patented Nov. 21, 1911.



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UNITED STATES PATENT OFFICE.

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ELECTRICAL PULL-SOCKET.

1,009,401.

Specification of Letters Patent. Patented Nov. 21, 1911.

Application filed June 2, 1911. Serial No. 630,952.

To all whom it may concern:

Be it known that I, EDGAR H. FREEMAN, a citizen of the United States, residing at Trenton, in the county of Mercer and State of New Jersey, have invented certain new and useful Improvements in Electrical Pull-Sockets, of which the following is a specification.

This invention relates to the subject of electrical pull sockets for electric incandescent lamps, wherein a pull chain or equivalent flexible pull connection is employed for operating the socket switch to make and break the electrical circuit through the lamp. To this end the invention contemplates a novel construction of pull switch which entirely dispenses with the ratchet-commutator so commonly employed, and which commutator involves the idea of ratchet inclines either on the porcelain of the socket body or on a rotating member, said inclines ultimately presenting metal contact faces and insulating faces that provide for the make and break of the circuit. In place thereof, the present invention proposes to utilize a pull switch employing a rotary rectangular switch block having a snapping action to secure a quick break of the circuit, in combination with a simple form of ratchet operating mechanism, and an insulator between the two, which insulator is utilized to transmit motion to the switch parts while at the same time thoroughly insulating the switch proper from the pull chain operating mechanism. Besides the improved construction is of such a character as to admit of direct metallic connection between the pull chain and the pull lever of the operating mechanism.

A special object of the invention is to provide a novel and practical construction of switch block in combination with the insulator between the same and the operating mechanism and also to provide a novel form and arrangement of snapping spring for the switch block that secures ease, certainty and reliability of operation.

I do not confine myself, in carrying out the above objects, to the precise details of construction of the various parts of the socket, but a preferred and practical embodiment is shown in the accompanying drawings, in which,

Figure 1 is a longitudinal sectional view of a pull socket involving the present in-

vention. Fig. 2 is a cross-sectional view thereof on the line 2—2 of Fig. 1, showing in elevation the pull lever operating mechanism for the switch. Fig. 3 is a sectional view on the line 2—2 of Fig. 1, omitting the socket casing and the pull lever operating mechanism, and showing by full and dotted lines the "off" and "on" positions of the switch block. Fig. 4 is an inside plan view or elevation of the upper insulating block of the socket body. Fig. 5 is a detail sectional view showing one of the wire terminal connections with the screw shell of the socket. Fig. 6 is a detail in perspective of the rotatable switch block and the insulator disk connected therewith. Fig. 7 is a sectional view of the part shown in Fig. 6. Fig. 8 is a detail in perspective of the long snapper spring for the switch block of the switch proper.

Like references designate corresponding parts in the several figures of the drawings.

A pull socket, constructed in accordance with the present invention, includes in its organization the usual external socket casing C, the interior insulator socket body, the socket switch, and the switch operating mechanism. In the present invention the particular construction of the socket insulating body is unimportant except for the provision of housing the switch and insulating it from the operating mechanism and the wire terminals. Hence for illustrative purposes there is shown in the drawings a socket body consisting of two suitably connected blocks A and B of porcelain or equivalent insulating material. The socket switch may be conveniently located within a housing chamber 1 recessed into the inner side of one of the insulating blocks, which may be the lower block B shown in the drawings, and, as above indicated, is intended to be completely insulated from its operating mechanism and from the terminal plates to which the wire ends are connected.

The switch proper, arranged within the housing chamber 1, essentially consists of a contact spring 2, a rotary switch block 3, and a snapper spring 4 for snapping the block in a direction for effecting a quick break of the circuit, and also for assisting in holding the switch block in both positions.

The rotary switch block 3 consists of a rectangular body, preferably of insulating

material, and designed to be externally incased in a brass or equivalent metallic contact sheath 5, which may be suitably held upon the rectangular body by any suitable means. A preferable construction is shown in the drawings and consists in forming the sheath 5 at one edge with an intumed holding flange 6, which may be held between the body of the block 3 and one side of the rotatable insulator disk 7, which is suitably fastened to the block 3, or may be formed integral therewith, according to manufacturing requirements. The rotatable switch block 3 is loosely mounted upon a center stationary supporting spindle 8 which extends centrally through the insulating socket blocks of the socket body and preferably has associated with one threaded terminal 9 thereof a tension device 10 for the retracting spring 11 which is operatively connected with the oscillating ratchet member 12 carried with and by the swinging pull lever 13, to the outer end of which pull lever is suitably connected, as at 14, one end of the pull chain 15, working through the pull chain guide 16, arranged in a convenient place for guiding the chain in its movements in and out of the socket casing. The lever ratchet member 12 is loosely hinged on the stationary center spindle 8 and is yieldingly held in operative relation to a rotating ratchet member or disk 17, which is suitably fastened upon one side of the insulator disk 7, the latter therefore acting as an intermediate coupling and insulator between the pull lever operating mechanism and the rotary switch block 3 of the pull switch, it being observed that the several assembled elements 3, 5, 6, 7 and 17 are preferably secured together by the common fastenings 17^a which fastenings are rivets or equivalent devices.

As above indicated, the rotary rectangular switch block 3 coöperates with the contact spring and the chamber 1. This contact spring is preferably of a double form, the free arm of which is engaged by the block 3 and the other arm of which is connected with an attaching plate 18 engaged by the combined fastening and conducting screw 19 which extends through the lower insulating block 3 and also serves to hold in place the center spring contact spring 20 which is disposed within the bottom portion of the screw contact shell 21 of the socket.

The snapper spring 4 for the rectangular switch block 3 is specially designed and is of practical importance. This spring is of extra length and is arranged parallel to the axis or spindle 8 for the switch block. The said spring consists of a single piece of spring metal looped into an approximate U-form and lying in a chamber formed by the separate recesses 22 and 22^a in the inner side

of the insulating blocks A and B. One leg 23 of the said spring extends about one edge of the lower block B and is formed with a securing foot or flange 24 held to the said block by a fastening screw 25 or equivalent fastening means. The other leg 23^a of the spring 4 is free to yield and is formed at its terminal with a flat bearing plate or head 26 that is held under spring pressure against the rotatable switch block 3. The pressure of this bearing plate 26 is exerted in line with the center of the axis of the switch block so that at each quarter turn of the block the said plate 26 acts as a detent therefor, while the ratchet operating mechanism is resuming a fresh starting position. At the same time, as an end of the block 3 commences to pass off of the springs 2 and 3, the latter spring takes up the movement and quickly snaps the block around to the full line position shown in Fig. 3, thus securing the quick break.

One of the wire terminal plates 27 is fitted to the insulating block B and has a metallic conducting plate connection 28 with the snapper spring 4. The other wire terminal plate 29 is held in place by the combined fastening and conducting screw 30, which also connects with the screw shell contact 21.

The details of the mounting and guiding of the pull lever and its chain are unimportant to the present case, since said details are fully disclosed in and covered by my related application filed Jan. 28, 1911, Serial No. 605,208.

I claim:—

1. A pull socket comprising a body, a snap switch including a rotary switch block, snapping means for the block, an insulator disk pull chain operating means including a ratchet member arranged upon one side of said insulator disk, a metallic contact sheath incasing the switch block and held clamped between the latter and the insulator disk, and fastening means for holding the switch block, the insulator disk and said ratchet member in assembled relation.

2. A pull socket comprising a body, a snap switch including a rotary insulating switch block, snapping means for the block, an insulator disk, pull chain operating means including a ratchet element arranged at one side of the disk, a metallic sheath incasing the switch block and having a flange held between the block and the insulator disk, and common fastening devices extending through the switch block, the insulator disk, and the ratchet block.

3. A pull socket comprising a body, a snap switch including a rotary rectangular switch block, and a snapper spring consisting of a doubled spring plate housed within the switch body and exposed longitudinally thereof parallel with the axis of the block,

one leg of said plate having a fastening connection with the body and the other leg having at its free terminal a flat bearing plate engaging the switch block laterally.

- 5 4. A pull socket comprising a body, a snap switch including a doubled contact spring, a rotary rectangular switch block, and a doubled snapper spring, the latter having at its free terminal a bearing plate for engagement with the switch block, and operating means, including a pull chain, an insulated coupling connecting the operating means with the switch block, a center plug

contact having electrical connection with said contact spring, a wire terminal having electrical connections with the snapper spring, the screw shell contact, and a wire terminal plate having electrical connection with the screw shell contact. 15

In testimony whereof I hereunto affix my signature in the presence of two witnesses. 20

EDGAR H. FREEMAN.

Witnesses:

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Copies of this patent may be obtained for five cents each, by addressing the "Commissioner of Patents, Washington, D. C."