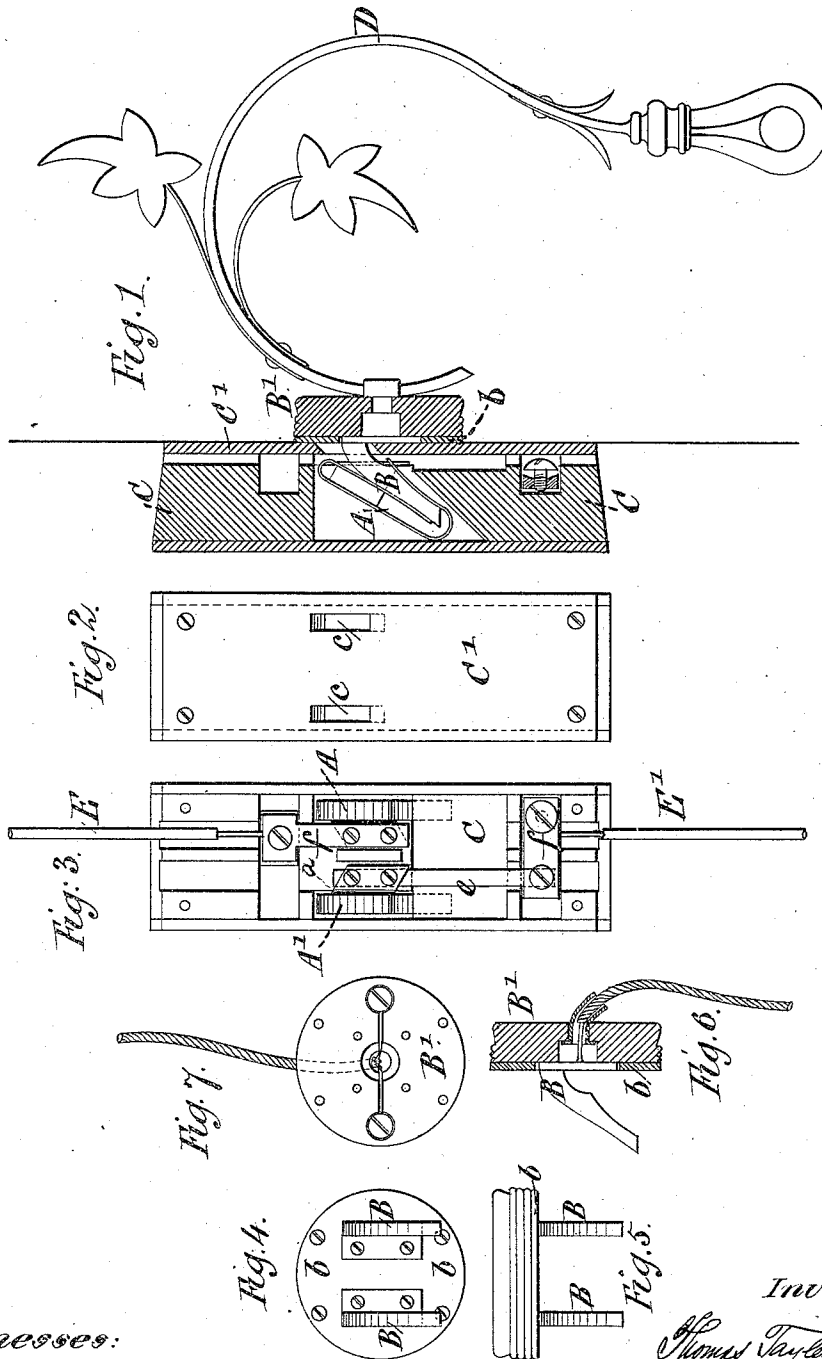


(No Model.)

T. T. SMITH.  
ELECTRIC CIRCUIT CONNECTION.

No. 311,616.

Patented Feb. 3, 1885.



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# UNITED STATES PATENT OFFICE.

THOMAS TAYLER SMITH, OF LONDON, ENGLAND.

## ELECTRIC-CIRCUIT CONNECTION.

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*To all whom it may concern:*

Be it known that I, THOMAS TAYLER SMITH, of 4 Circus Place, Finsbury, in the city of London, England, architect, have invented certain new and useful Improvements in Electric Couplings, of which the following is a specification.

This invention relates to an improved construction of coupling for electrical purposes, the object in view being to enable the electric conductor or conductors conveying the current to one or more lamps, or along a flexible cord, to be rapidly and safely brought into connection with the line or main wires, and to facilitate the attachment or detachment of electric-lamp brackets or supports, whether flexible or rigid, at various spots, as desired.

To this end the coupling consists of a pair of protected spring terminals, sockets, or shoes inclosed within a perforated insulating-case adapted to be embedded in a wall, skirting-board, or other surface, so that the perforations are accessible, and of a pair of metal hooks of peculiar form mounted or set obliquely on a block of insulating material and connected, respectively, with the flow and return wires of the conductor, by which the current is conveyed to and from the lamp or lamps or elsewhere, the said hooks being of a size and form to enter the perforations in the insulating-case containing the terminal sockets or shoes and make efficient metallic contact therewith.

This improved detachable electric coupling is illustrated in the accompanying drawings.

Figure 1 is a vertical section of the coupling with the parts in position, shown, by way of example, as adapted to the bracket of an electric lamp. Fig. 2 is the guard-plate or cover, concealing the spring-terminals from sight and protecting them from accidental touch. Fig. 3 is a front view of the spring-terminals and their insulating block or base, the guard-plate or cover being removed. Figs. 4, 5, and 6 show the insulated metallic hooks in front, plan, and side views, respectively; and Fig. 7 is a plan of the insulating-block, preferably employed to carry the metal hooks, the said metal hooks being removed to show more clearly the

connection between the flow and return wires in a flexible conductor or cord and the screws underneath the metallic hooks.

A A' are the spring terminals, sockets, or shoes for the reception of the metal hooks B B, which, it will be seen, bear a fanciful resemblance to a human foot. These spring-terminals are each made of a strip of metal securely mounted on or within a box or block of wood or other insulating material, C, suitably recessed. The springs A A' are each preferably formed out of a strip of metal having a lateral flange or projection, *a*, midway of its length, by which it can be secured in place on or within its insulating-block, as by this construction both ends of the strip are free to be bent round, as shown in Fig. 1, and a double spring-socket is obtained, affording a broad contact-surface and a secure grip for its corresponding metal hook, B, on the insulating-block B'.

The preferred mode of connecting the spring-terminals A A' with the main or lead wires is shown in Fig. 3; but it is evident that these wires may enter the insulating case or block C in other directions.

E E' are the flow and return wires or lead-wires, connected, respectively, with the spring-terminals A A'.

*e* is a fusible safety-plug or bridge-piece, and *f f* are metal plates provided with binding-screws, for securely clamping the exposed ends of the insulated flow and return wires, and connecting them with their respective spring-terminals. It will be seen that the metal portions of each terminal are entirely insulated from those of the other, and the whole are concealed from sight by a cover or guard-plate, C', also of insulating material, having two small perforations or apertures, *e e*, formed in it for the admission of the metal hooks B B. These insulated metallic hooks, when fitted, as shown in Fig. 1, to the back of a lamp-bracket, are brought into electrical connection with the lamp-sockets or carbons by means of insulated wires leading from the said sockets or carbons of the lamp or lamps on one end of the lamp bracket or support D, through the hollow stem or stems of the lamp

bracket or support, and united to the insulated metallic hooks at the other end or base of the lamp bracket or support; hence, when the current is switched on in the main or lead wires, a light may be obtained by inserting the hooks B B through the apertures in the guard-plate C', and allowing them to slip into place in their respective spring-terminals.

The hooks B B are preferably constructed as shown in Figs. 4, 5, and 6—that is to say, they are slightly taper, have broad bases for attachment to the block or bracket-back B', and beveled ends. This construction facilitates the disengagement of the hooks from their spring-sockets. When fully inserted in the spring-terminal sockets, these hooks are firmly gripped between the broad spring-surfaces, and remain in efficient contact with the said spring-surfaces; but after they have been withdrawn a slight distance the springs tend to eject the hooks automatically. This is especially useful when the coupling is combined with a flexible conductor or cord containing both the flow and return wires, suitably insulated, as should the cord or conductor become caught or accidentally pulled the coupling will be instantly disengaged, whereas otherwise the lamp or other object to which the flexible cord or conductor conveys the current would be liable to be dragged down or broken or injured.

It will be obvious that the form of the bracket or lamp-support to which the pair of hooks are attached may be greatly varied, and may be rigid or flexible, according to the use to which the lamp is to be put, and also that the number of lamps on a bracket or support may vary greatly.

The uses of such a secure and efficient and yet rapidly-detachable coupling are manifold; but they are more especially adapted to the internal lighting of houses by incandescent or other electric lamps, in which case a number of insulating-cases, each containing a pair of the protected spring-terminals A A', are embedded in the wall or fixed at various convenient spots—such as in or against the architraves of the doors and windows, or in or on the skirting-boards or floor of the rooms or corridors—in fact, wherever a light or supply of current is likely to be required.

A limited number of detachable lamps or conductors leading to lamps, each fitted with a pair of the insulated metallic hooks, B B, adapted to engage with the protected spring-terminals, is also provided, and these lamps or the conductors conveying the current can be rapidly attached where required, thus affording as efficient an illumination and as much convenience as two or three times the number of fixed or non-detachable lamps or lamp supports, (such as are now ordinarily used,) since the brackets, with the lamps on them, when fitted with the coupling-hooks B B, can be shifted, as desired, from place to place, and be temporarily attached at any

point where a pair of the spring-terminals is fitted, a light being obtained (when the current in the main wires is passing) in the act of fixing the bracket in position. A further advantage of this arrangement is that, when the lamp-brackets or conductors having the insulated hooks attached are removed from their terminal-sockets, no unsightly fixtures are left exposed to view, but merely a few apertures of small size, which are scarcely noticeable.

For brackets of large size and great weight I may relieve the strain on the hooks and spring-terminals by a loop on the bracket and a pin in the wall, in which case, and when used with vertical lamp-standards, the hooks may be replaced by pins; but for all ordinary purposes the coupling above described will afford very secure support to the lamp-bracket or conductor, and make efficient electrical contact at the same time. When pushed fully home, the hooks B B rest on the edges of the apertures *c c* in the insulating guard-plate or cover C, which is capable of secure attachment to the case or block of insulating material.

The better to insulate the hooks B B from one another, a disk of insulating material, *b*, Fig. 4, suitably slotted to fit around their bases, is passed over them, and secured by screws to the block or bracket-back B', on which the said hooks are attached.

When this coupling is used in combination with a flexible cord or conductor containing both the flow and return wires, suitably insulated, it is desirable to protect the said cord from chafing against the edges of the aperture in the coupling rose or block B' by means of a sheath of soft rubber, having a flange to prevent it slipping through the said aperture.

In the case of a portable electric hand-lamp in which the current is conveyed by a flexible cord wound around a winch or reel, this coupling affords a very convenient means for putting the wires of the flexible cord in connection with the fixed wires of the main or branch circuit, the protected spring-terminals being fixed at the desired point, and the flexible conductor being united to a pair of the terminal hooks or pins mounted on a suitable insulating-block.

Having now described the nature of my said invention, I wish it to be understood that I claim—

1. The combination, with a lamp bracket or support, D, for one or more electric lamps, suitably-insulated conductors for conveying the current to the lamps on the end of the said bracket, and a pair of metal hooks or pins, B B, insulated the one from the other and connected, respectively, with the said conductors, of a pair of suitably-insulated spring-terminals, A A', inclosed within a case or block, C, and a guard-plate or cover, C', having slots or apertures *c c* to admit the hooks B B, substantially as and for the purpose set forth.

2. The combination, with the wires of an

electric conductor and a pair of insulated metal hooks or pins, B B, mounted or set upon a supporting-block, B', of a pair of spring-metal terminals connected, respectively, with the main or lead wires and forming elastic sockets for the reception of the said hooks, the said sockets being insulated the one from the other and so mounted as to be protected from touch, when in use, by a case, C, and covering-plate, C', having apertures *c c*, formed in it to admit of the insertion of the hooks or pins B B, substantially as set forth.

3. An electric coupling consisting of a case or block, C, on or within which are mounted a pair of insulated spring-metal terminal sockets or shoes, A A', protected, when in use, from touch by an insulating guard-plate or cover, C', having slots or apertures *c c* formed in it, in combination with a pair of insulated metal hooks, B B, mounted or set obliquely on a block or base, B', and adapted to enter the slots or apertures *c c* and make metallic contact with the spring-terminals within the case or block C, as set forth.

4. The combination, with one pair or set of conducting-wires, E E', and a box or case, C, containing a pair of insulated spring-terminal

sockets or shoes, A A', and having apertures or slots *c c* formed in it, of a flexible cord or cords containing both the flow and return wires, suitably insulated, and a pair of insulated metal hooks or pins, B, mounted or set obliquely on a rose or block, B', as and for the purpose set forth.

5. In an electric coupling, the combination with the tapering metal hooks B B, mounted obliquely on a rose or block, B', of a box or case, C, having apertures or slots *c c*, surrounded by insulating material formed in it of a size to receive and firmly support the bases of the said hooks, and containing insulated spring-terminal sockets A A', the springs and hooks being so shaped that when pushed fully home the metal hooks will be firmly gripped and held, but when somewhat separated the springs will tend to eject the said hooks and facilitate the disengagement of the coupling.

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