Sept. 26, 1933. F. J. WATTS 1,928,581

SNAP TERMINAL

Filed Feb. 27, 1931

Fig. 1.

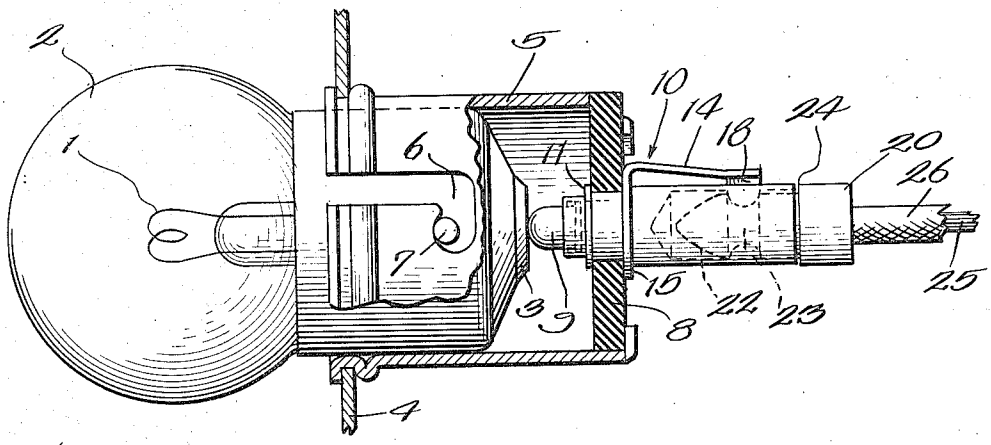


Fig. 2.

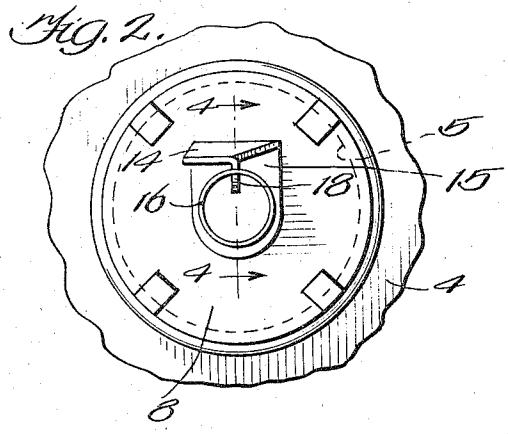


Fig. 3.

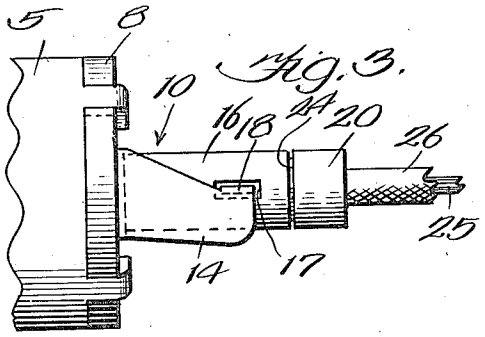
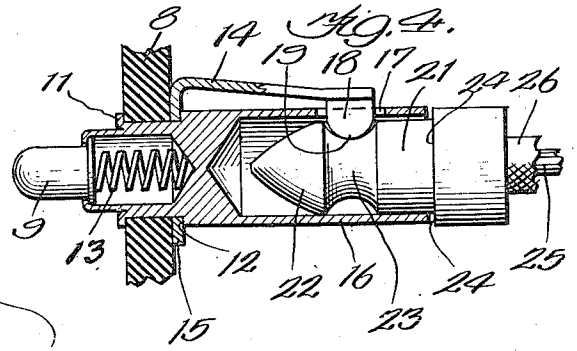


Fig. 4.



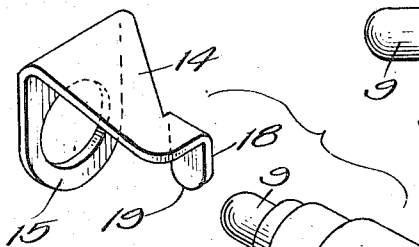
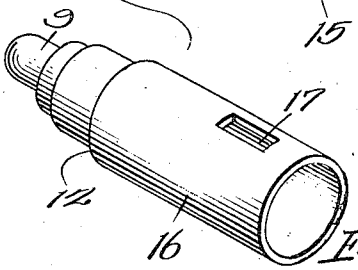


Fig. 5.



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UNITED STATES PATENT OFFICE

1,928,581

SNAP TERMINAL

Felix J. Watts, Bronson, Mich., assignor to Harry A. Douglas, Bronson, Mich.

Application February 27, 1931. Serial No. 518,648

2 Claims. (Cl. 173—363)

This invention relates to so-called snap terminals more particularly for electrical conductors, and among other objects, aims to provide an improved terminal construction for current conducting elements.

The invention is of particular service in providing a snap terminal connection between a rigid current conducting element and a current conducting wire.

My invention is desirably inclusive of two metallic interengaging members, one member embodying a plug and the other member embodying a rigid jack adapted to receive said plug, the jack having a member resiliently connected thereto for yieldingly gripping the plug.

Another object of the invention is to reduce the voltage drop between the interengaging members.

The invention may be understood by reference to the illustrative construction shown in the accompanying drawing, in which—

Figure 1 is a view in side elevation, partially in section, showing current conducting elements with my invention applied thereto;

Figure 2 is a rear end view of the structure of Figure 1;

Figure 3 is a partial elevation of the structure of Figure 1 but rotated ninety degrees;

Figure 4 is a sectional view taken on the line 4—4 of Figure 2; and

Figure 5 is a view showing some parts in separated relation.

Referring in detail to the figures of drawing, I have shown for purposes of illustration a current conducting element such as the filament 1 of an incandescent lamp 2. The filament 1 is electrically connected to a lamp contact 3 on the base of the lamp and to a ground upon the sheath of the lamp base (these connections not being here shown). The lamp 2 is shown located upon a fixed mounting 4, for example, by means of a socket 5 which is appropriately secured to the mounting 4 and which is provided with a bayonet slot 6 adapted to receive the bayonet pin 7 on the base of the lamp. The socket 5 is also provided with an insulating contact carrier 8 which is rigidly secured to the rear of the socket by appropriate means. The contact carrier 8 carries a terminal contact 9 which in this instance is spring pressed to effect mechanical and electrical connection with the lamp 2. In the exemplified construction, the terminal contact 9 is carried by the contact carrier 8 through the intermediation of the metallic current conducting member 10 which is secured to the insulating carrier 8 centrally thereof.

The terminal contact 9 is in electrical connection with the member 10 being connected thereto by any appropriate means. The member 10 may be secured to the carrier 8 as by being provided with an annular flange 11 and an annular shoulder 12 between which the carrier may be clamped. The base of the member 10 may be conveniently recessed to provide a spring chamber for the coiled spring 13 which presses upon the terminal contact 9.

The member 10 has a member resiliently connected thereto and in the illustrative construction such resiliently connected member is represented by a leaf spring 14 of uniform thickness which has its base 15 clamped between the shoulder 12 and the carrier 8. The member 10 has a rigid cylindrical portion constituting a jack 16, the leaf spring 14 embodying a relatively wide body portion lying along side thereof. The body portion of the spring where it joins the base 15 is desirably as wide as the base and as here shown is wider than the jack itself and tapers therefrom, thus providing a powerful spring action relatively to the size of the jack which minimizes the voltage drop between the interengaging members. In the forward end of the cylindrical jack 16 is provided a short and narrow aperture 17 for the reception of the free end of the leaf spring 14. The free end of the spring 14 is turned at right angles to the body of the spring to form a short and narrow detent 18 which is adapted to be normally projected into the bore of the jack through the aperture 17 which is substantially the same size as the detent but permitting movement of the detent therein, thus detracting as little as possible from the uniformly cylindrical character of the jack and affording a stronger structure than would otherwise be possible. The extremity 19 of the detent 18 is desirably of arcuate formation for a purpose presently described, and is disposed in a plane extending along the longitudinal axis of the jack and passing through said axis, the extremity of the free end of the spring being offset from said plane. The spring 14, except at its base 15, is desirably spaced, as shown, in all directions and at all times from the jack 18, thus guarding against any interference of the jack with the free action of the spring.

A metallic member 20 is adapted to interengage with the metallic member 10, each of the members 10 and 20 thus providing a terminal for a current conducting element and when assembled

together providing an electrical connection between said elements. In this instance, the member 20 includes a plug 21 which is desirably formed with the tip 22 and is provided with the annular groove 23 at the base of the tip. Interengagement between the members 10 and 20 is effected by inserting the plug 21 into the jack 16, which snugly receives the plug, the groove 23 in the plug being adapted to receive the arcuate extremity 19 of the detent 18 which is snapped over the tip 22.

The tip 22 is desirably relatively long as shown, so as to provide a pronounced camming action between it and the detent 18. This pronounced camming action permits interengagement of the members 10 and 20 to be effected with relatively less force than is required to disengage the said members, thus guarding against accidental breaking of the connection.

The member 20 is desirably provided with a shoulder 24 which limits the insertion of the plug 21 into the jack 16 to an extent just sufficient to permit the detent 18 to be received in the groove 23, thus guarding against incorrect interengagement of the members 10 and 20 and preventing chattering of the members.

The member 20 as here shown constitutes a terminal for the current conducting wire 25, the insulation 26 of said wire being appropriately skinned back from the end thereof and that end secured, as by soldering, in a suitable cavity provided in the member 20. So constructed and arranged the wire 25 and member 20 are free to rotate with respect to the member 10 without breaking the electrical connection therebetween.

The invention is not limited to the specific details of construction here shown for illustration but such changes may be made as fall within the scope of the following claims without departing from the invention.

I claim:

1. In a snap terminal, the combination with a uniformly cylindrical plug receiving jack; of a leaf spring clamped to the base of said jack, said leaf spring embodying a body portion substantially as wide as the diameter of the jack lying along side the jack and a relatively short and narrow detent portion at the free end of the body portion, said detent portion being turned at right angles to the body portion of the spring and having an arcuate extremity, the width of said detent being substantially the thickness of said body portion; and a short and narrow aperture in the jack for the reception of the detent portion of the spring and of substantially the size of the detent portion but permitting free movement of the detent therein.

2. In a snap terminal, the combination with a uniformly cylindrical plug receiving jack; of a relatively strong leaf spring having a perforated base clamped between one end of the jack and a carrier therefor, said leaf spring embodying a body portion of uniform thickness angular to said base and lying alongside the jack spaced therefrom, said body portion where it joins the base being as wide as the diameter of the jack and gradually tapering toward the free end of the spring, said free end having a portion turned at right angles to provide a relatively short and narrow detent disposed in a plane extending in the direction of the longitudinal axis of the jack and passing through said axis, the extremity of the free end of the spring being laterally offset from said plane; and a narrow rectangular aperture in the jack extending in the direction of the said axis for the reception of the detent, said aperture being slightly longer and wider than the detent for free movement of the detent therein.

FELIX J. WATTS.