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CONTACT PLUG WITH FLEXIBLE CONTACT LAMINATIONS

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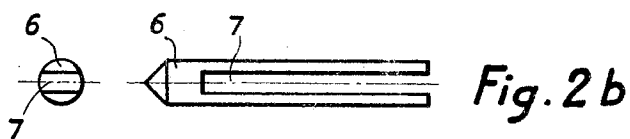
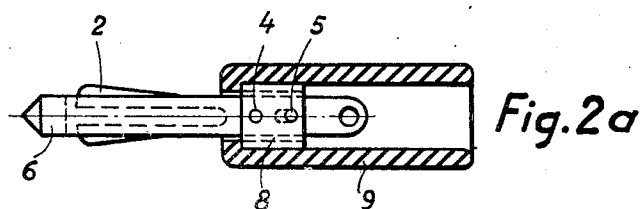
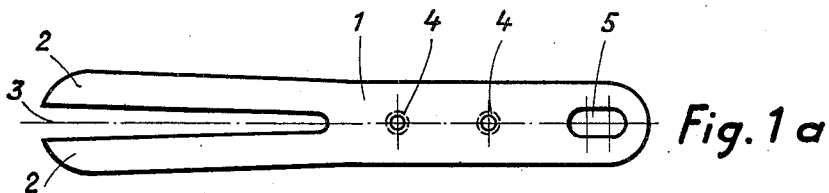


Fig. 2c

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CONTACT PLUG WITH FLEXIBLE CONTACT LAMINATIONS

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2 Claims. (Cl. 173-363)

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The present invention relates to a contact plug so formed that good contact always is obtained when the plug is inserted into a contact jack of the same dimensions as the plug, the construction thereby being such that great mechanical stability is obtained.

A contact plug which is to be inserted into a jack without flexible parts must always be flexible in itself in order to obtain perfect contact against the inner walls of the jack. Such a contact plug generally consists of a round metal pin being slit in its longitudinal direction in such a way that a pair of flexible contact surfaces are obtained. Such plugs are frequently used for strong current purposes but they entail the inconvenience that the slit parts of the pin easily may be broken and that the spring action in general is bad. Perfect contact with a low, constant resistance is not always obtained which particularly for weak current purposes may be injurious. Many constructions of so-called banana plugs for weak current purposes are known the inherent faults of which are more or less conspicuous. Contact between the inner walls of the jack and the conductor secured to the contact plug is generally produced by flexible contact springs being riveted to a centre pin in the contact prong which easily gives rise to a variable contact resistance. Most often also the mechanical stability leaves a great deal to be desired.

The contact plug according to the invention consists of a number of oblong metal laminations arranged close to each other and of a width mainly corresponding to the inner diameter of the contact jack into which the plug is to be inserted. They are further of suitable thickness and provided with a slot in that part of the laminations intended to be inserted into the jack. In this way the disadvantages of the prongs hitherto known are avoided at the same time as the plug may be formed in such a way that it answers great claims from a mechanical point of view. One or more laminations are provided with a soldering lug or corresponding contact device (set screw or the like) for connection of a wire. The slit part of the laminations is of a width somewhat exceeding the inner diameter of the jack, into which the plug is to be inserted and has a spring action in the plane of the lamination. A suitable contact pressure may be produced by choice of the width of the plate on each side of the slit. A great number of individual contact possibilities are obtained since the plug is provided with a plurality of

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laminations. Sufficient mechanical stability may be obtained as a plurality of laminations are arranged close to each other thus making it possible to utilize the comparatively high moment of inertia of the flexible parts of each lamination. In order to obtain good mechanical stability for forces perpendicular to the plane of the laminations the assembly of laminations is arranged in a slot of a pin, the diameter of which is somewhat smaller than the diameter of the jack into which the contact plug is to be inserted. The different parts are fixed to one another at the non-flexible parts of the laminations, for instance by soldering, welding, by means of a metal ring, or the like. The contact device obtained in this way may as usual be provided with an insulating barrel.

The invention will be described more closely with reference to the annexed figures. Figs. 1a and 1b show contact laminations as seen from above and from the side. Fig. 2a shows an assembled contact plug and Figs. 2b and 2c a metal pin into which the laminations may be inserted. Each lamination in Figs. 1a and 1b consists of an oblong metal sheet 1 provided with a slot 3, two legs 2 thereby being formed on each side of the slot. The width of the lamination at the slot is as mentioned before somewhat wider than the inner diameter of the jack, into which the plug is to be inserted, the width otherwise being somewhat narrower than this diameter or at most equal to same. The laminations are in the embodiment shown provided with a soldering lug with a hole 5 for connection of a conductor. The lamination is further provided with a couple of stampings 4 intended to keep the separate laminations in right position when they are arranged close to each other as shown in Fig. 1b. The laminations are inserted with their slit part into a metal pin 6 shown in Figs. 2b and 2c in the slot indicated by 7. By pressing a bushing 8 in Fig. 2a over the metal pin and the laminations at the stampings 4 the different parts are rigidly fixed to one another. The slot 7 is of course dimensioned so as to allow the laminations to have a spring action although they can not be bent aside. The bushing 8 is in a common manner provided with an external thread by means of which it is kept in the insulating barrel 9.

In such a plug a great number of individual contact points are obtained at the tongues 2 on the separate laminations which all are in direct metallic contact with a wire soldered to the lug. It has been proved that perfect contact always is obtained even with very heavy oxidation of the

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contact surfaces produced in an artificial manner on account of the great number of small contact surfaces each having relatively high contact pressure.

The construction of the contact plug is in no way limited to the embodiment above described. The laminations may be welded or soldered together or in any other way connected to each other and it is of course not necessary to provide the plug with the metal pin 6. Further it is not necessary that the slot 3 in the laminations is made open at its one edge in order to obtain two free legs 2. If some material is left at the edge a greater stiffness is obtained at the flexible parts of the lamination.

We claim:

1. In a contact plug adapted to be inserted in a jack socket, a plurality of elongated metal laminations arranged in a juxtaposed relationship, each of said laminations having a lengthwise slot in an end portion thereof, a metal pin of a smaller diameter than the width of said laminations, said pin having a slot therein receiving said assembled laminations, and means maintaining unslotted end portions of the laminations in fixed relation to each other and in fixed relation to said pin.

2. In a contact plug adapted to be inserted in

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a jack socket, a plurality of elongated metal laminations arranged in juxtaposed relationship, each of said laminations having a lengthwise slot in an end portion thereof, a metal pin of a smaller diameter than the width of said laminations, said pin having a slot therein receiving said assembled laminations, and a bushing embracing the pin and unslotted end portions of the laminations.

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