Sept. 2, 1969 S. T. DEAKIN 3,465,283

ELECTRICAL PLUG CONTACTS

Filed April 10, 1967

Fig. 1.

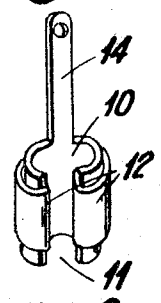


Fig. 3.

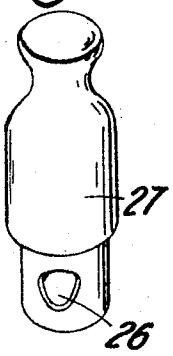
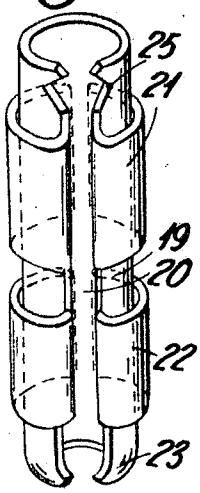


Fig. 2.



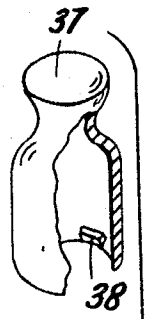
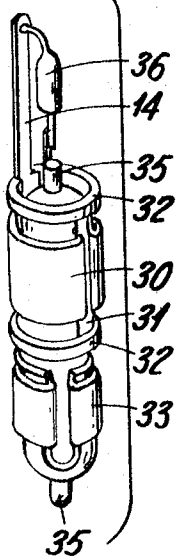
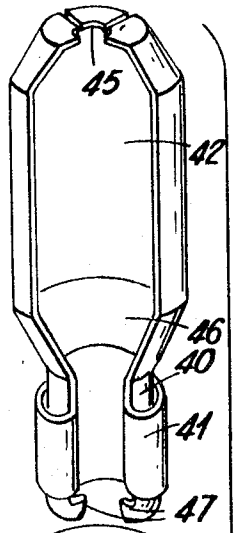


Fig. 4.





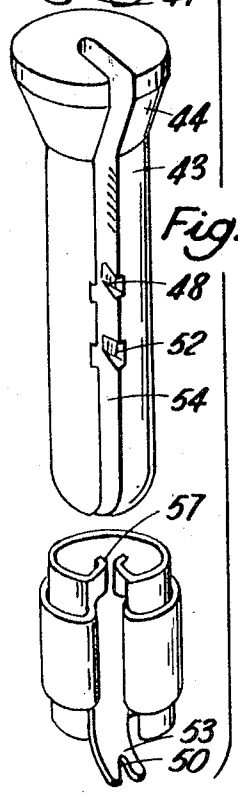


Fig. 5.

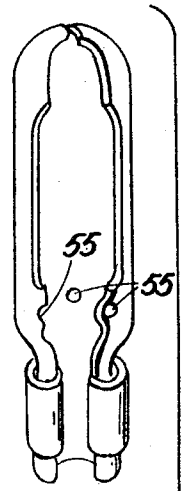
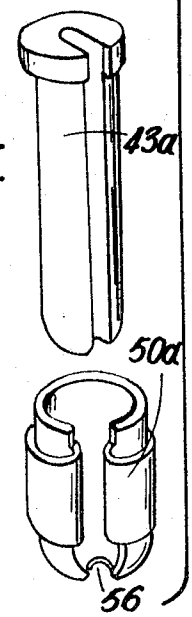


Fig. 6.



Inventor
Stanley Thomas Deakin
by John P. Chandler
his Attorney

United States Patent Office

3,465,283

Patented Sept. 2, 1969

3,465,283

ELECTRICAL PLUG CONTACTS

Stanley Thomas Deakin, Farlington, England, assignor to Sealectro Limited, Farlington, Portsmouth, England, a British company

Filed Apr. 10, 1967, Ser. No. 629,567
Claims priority, application Great Britain, Apr. 13, 1966, 16,225/66
Int. Cl. H01r 11/22, 13/50
U.S. Cl. 339—150 2 Claims

ABSTRACT OF THE DISCLOSURE

An electric plug contact comprises a split tube with resilient ears, forming the contact surfaces, folded back from the edge of the split to lie around the outside of the tube. Two or more such contacts may be held on an insulating stem. The contact, or one of them, may receive a diode or other electrical device.

The invention relates to electrical plug contacts and provides a plug contact comprising a piece of resilient sheet or strip metal bent to tubular form with a longitudinal opening or joint along one side and having at one, and preferably each, side of the opening or joint a portion of the strip or sheet bent back to lie around, but spaced from, the external surface of the tube to provide a resilient radially deformable contact surface.

In one form of the invention the tube has, along its length, two or more independent portions bent back as aforesaid to provide independently deformable contact surfaces.

The invention also provides an electrical plug having a contact as above defined surrounding, and carried by, a stem of insulating material. There may be two or more such contacts along the stem and electrically insulated from one another or electrically connected through an electrical device such as a lamp or a diode. The contact or contacts may be attached to the stem by inwardly projecting tongues or protuberances on the tube engaging in slots or recesses in the stem or vice versa.

There may be a connecting tag at one end of the tube and the tag may be bent inwardly to extend to, or nearly to, the axis of the tube for attachment of a central wire.

Some specific embodiments of the invention will now be described, by way of example, with reference to the accompanying drawings in which:

FIGURE 1 is a perspective view of a single plug contact,

FIGURE 2 is a perspective view of a double contact or shorting pin,

FIGURE 3 shows an insulating stem or finger grip for the contact of FIGURE 2,

FIGURE 4 shows a plug incorporating two contacts and an electrical device, the figure including a cover shown detached,

FIGURE 5 shows, separated, the parts of an alternative form of plug, and

FIGURE 6 is a similar view of a third form of a plug.

Referring first to FIGURE 1 the contact is formed by bending a blank of sheet or strip metal (e.g. beryllium copper) to tubular form **10** leaving an opening or gap **11** and reversely bending two ears or extensions **12** to overlie the outside of the tubular portion but spaced slightly therefrom. The ears extend round to the back of the tube to leave a gap between the ears of a width about equal to that of the gap **11**. The ears provide resilient contact surfaces for engagement in a socket and

may be compressed without substantial deformation of the tube **10**. A connection tag **14** extends from one end of the tube.

FIGURE 2 shows a double contact which may be used as a shorting pin in a selector board such as that described in British patent specification No. 934,627, the two contact parts engaging respectively in the socket contacts of the two sets. The double contact has a single tubular portion **19** with an opening **20** and two pairs of contact ears **21**, **22** each as in FIGURE 1, the ears of each pair being compressible independently of the ears of the other pair. The lower end of the tubular portion is domed at **23** and the upper end is notched at **25** to receive and hold a projection **26** on an insulating stem or finger grip **27** (FIGURE 3).

The plug shown in FIGURE 4 comprises a contact **30** as in FIGURE 1 mounted on an insulating stem **31** and retained between ribs **32** on the stem. There is also a contact **33** on the stem, this contact being similar to the portion **22**, **23** of FIGURE 2. The contact is held by soldering to a centre conductor **35** moulded in the stem. At the upper end there is a lamp or diode **36** having connections to the conductor **35** and the tag **14**. A resilient plastic cover **37** is provided and is held in place by projections **38** snapped under the upper rib **32**. The plug may be used in a board as described in British patent specification No. 934,627 to connect the lamp or diode into a circuit.

In the construction shown in FIGURE 5 there is a tubular portion **40** with ears **41** as described above. The tubular portion is extended and enlarged to provide a housing **42** for a diode or other device. An insulating stem **43** with a head **44** is inserted into the portion **40**, before folding over of the end **45**, and the head **44** seats on the part **46**. Tags **47** on the end of the tubular portion engage in recesses **48** in the stem to hold the stem in place. On the lower end of the stem there is a second contact **50** which is held by tags **57** engaging in notches **52**. This contact has a connection tag **53** bent inwardly to lie under the end of a groove **54** in the stem. In use a connecting wire from a device within the housing is threaded down the groove and soldered to the tag **53**.

The construction shown in FIGURE 6 is similar to that just described except that the insulating stem **43***a* is held by three stake points or pips **55** produced after assembly and the contact **50***a* is retained on the stem by the connecting wire soldered to the end of the contact at **56**.

Although the above plugs may, as stated, be used in a selector board of the construction disclosed in British specification No. 934,627 in which the socket contacts are resilient, they are also suitable for use in selector boards in which the socket contacts have little or not resilience.

I claim:

1. An electric plug comprising a stem of electrical insulating materials and two tubular plug contacts threaded over the stem and spaced apart along the length of the stem, the contacts each comprising a thin walled cylindrical metal tube with a longitudinal gap along one side and two resilient ears attached to the edges of the gap and extending partway around the outside of the tube in spaced relation thereto towards the opposite side thereof and at least one of the contacts having at least one internal tongue engaging in a recess in the stem to hold the contact in place thereon.

2. An electric plug comprising a stem and two tubular plug contacts threaded over a part of the stem, the contacts each comprising a thin-walled cylindrical metal tube with a longitudinal gap along one side and two resilient ears attached to the edges of the gap and extending partway around the outside of the tube in spaced relation

thereto towards the opposite side of the tube from the said gap, and at least one of said tubes and said stem having cooperating means retaining the tube against relative axial movement comprising a projection on one of the parts engaging in the recess of the other.

References Cited

UNITED STATES PATENTS

3,208,029 9/1965 Leslie.

FOREIGN PATENTS

1,363,070 4/1964 France.
539,571 9/1941 Great Britain.
645,423 11/1950 Great Britain.

MARVIN A. CHAMPION, Primary Examiner
P. A. CLIFFORD, Assistant Examiner

U.S. Cl. X.R.

339—18, 147, 252