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2,463,542

SKELETON CORD GRIP

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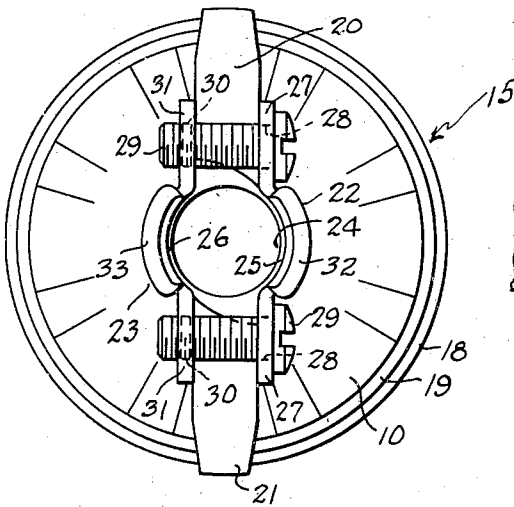


Fig. 1.

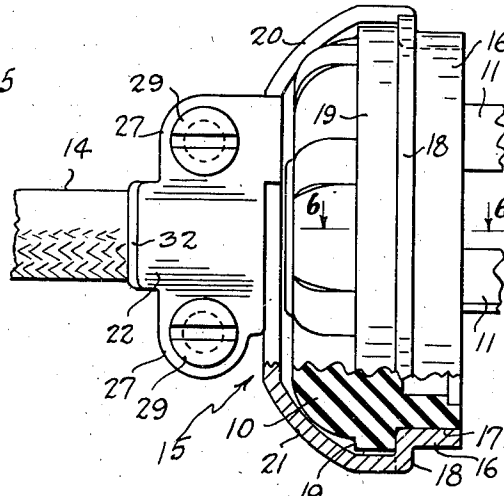


Fig. 2.

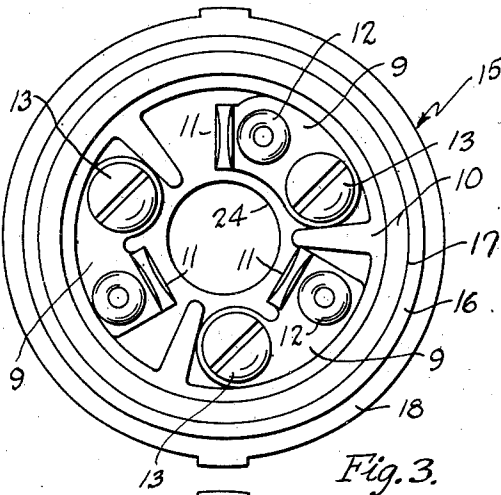


Fig. 3.

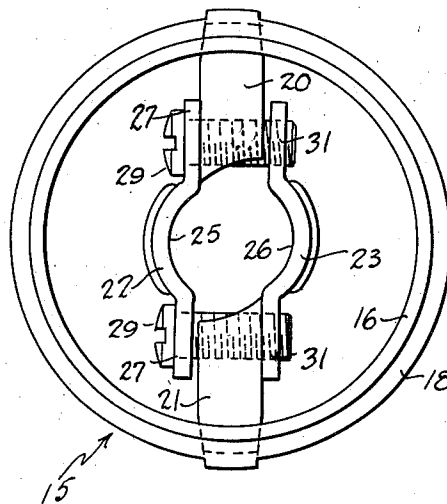


Fig. 5.

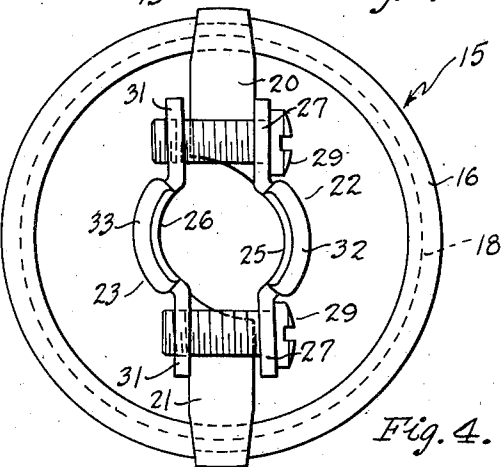


Fig. 4.

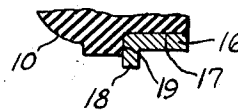


Fig. 6.

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SKELETON CORD GRIP

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This invention relates to a cord grip for relieving the strain of the conducting cord upon the connections to contacts of electrical connectors, such as attachment plugs and the like.

In certain cord grips now commonly used, the clamping portion of the grip clamps the cord in a plane substantially normal or at right angles to the clamp supporting arms which are shaped around the connector body. Thus, when the clamps are tightened around the cord, the arms tend to crush the plastic connector body between them, causing undue breakage. Also, as in this arrangement the arms bend about spaced axes parallel to the planes of the clamps when drawn up, this action shifts the clamps out of parallelism so they tend to bind on the clamping screws and to grip the cord on one end more than on the other, and they therefore do not grip the cord uniformly across the width of the clamps.

One object of my device is to so construct the clamps with relation to the supporting arms that no undue strain is placed on the connector body when assembled.

Another object is to provide a device in which the clamping grips remain substantially parallel and their grip on the cord is substantially uniform for the whole width of the clamps.

A further object of the device is to accomplish the above objects and still provide a simple and efficient cord grip which will relieve the strain on the wire connectors within the cord connector, and which will prevent fraying of the end of the cord.

With these and other objects in view I have devised the construction illustrated in the accompanying drawing forming a part of this specification. It is, however, to be understood the invention is not limited to the specific details of construction and arrangement shown, but may embody various changes and modifications within the scope of the invention.

In the drawing:

Fig. 1 is a top view of my device attached to a cord connector body;

Fig. 2 is a side view looking from the right of Fig. 1, showing a cord clamped by my device and with a section removed to show a detail;

Fig. 3 is a bottom view of the device attached to a cord connector body;

Fig. 4 is a top view of the device removed from the connector body;

Fig. 5 is a bottom view of the device removed from the connector body; and

Fig. 6 is a partial section taken substantially on line 6—6, Fig. 2.

For illustrative purposes I have shown my device in use with a three wire male cord connector or attachment plug cap comprising a connector or cap body 10 and three contact blades 11 attached to the body by means of molded inserts 12 passing through the base plates 9 and riveted

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or turned over in the usual manner, and each contact blade having a binding screw 13, as a means for connecting the conductor wires of cable or cord 14 to the contact blades 11. It is to be understood, however, that my device is not limited to use solely with this connector or cap body illustrated, but may be used with any suitable cord connector, plug attachment, or the like.

The cord grip 15 constructed preferably of metal, or suitable plastic or other material, comprises a ring shaped member 16, the inside diameter of which is of a size to fit snugly over the substantially circular lower portion 17 of the connector body 10. The top of the ring 16 is turned over at substantially right angles to the ring 16 to form an annular flange 18 which butts against an annular ridge 19 on the connector body 10, as at 19, Fig. 6. Projecting upwardly from the flange 18 at diametrically opposite points on the flange, so that they are located in a plane extending diametrically of the cap, are two arms or straps 20 and 21, supporting the clamps or grips 22 and 23 which are formed upwardly at an angle substantially perpendicular to the straps 20 and 21 and at one side edge thereof, so that they face one another at a position immediately above the circular cord opening 24 in the connector body 10. The faces of the clamps 22 and 23 are curved inwardly or concaved as at 25 and 26 to substantially fit the shape of the conductor wire cable or cord 14 clamped between them. As a means for tightening the clamps 22 and 23 around the cord 14, a pair of lugs 27 with holes 28 is provided on the clamp 22 to receive the screws 29, which screw into tapped holes 30 in the lugs 31 on the clamp 23. By tightening the screws 29 the clamps 22 and 23 move toward each other on a plane substantially parallel to the straps 20 and 21 clamping the cord 14 between them. It is clear, however, that as the clamps 22 and 23 move parallel to the straps 20 and 21, or in the general direction of the planes of these straps, the position of the straps is not changed with relation to the connector body 10 and thus there is no danger of the straps being forced against the body or crushing the connector body as the clamps 22 and 23 are tightened around the cord 14. In other words, movement of the clamps shifts the arms or straps 20 and 21 edge-wise, or in the planes of these straps, which is substantially normal to the diametrical plane in which the arms are located, so that they are not pressed against the body member 10. They therefore cannot apply any pressure to the body to crush or break it. This arrangement, therefore, overcomes the objection of the old type, where the straps are moved toward or against the body when the clamps are tightened, with the result that they apply pressure to the body which often crushes or breaks it. The upper edges of the curved portions 25 and 26 of the clamps 22 and

23 are rolled outwardly, as at 32 and 33, to prevent the edge from biting into the cord 14 when it is secured between the clamps.

To wire the device, the clamps 22 and 23 are spread to receive the cord 14 between them. The cord 14 is then inserted between the clamps and into the opening 24 in the connector body. The ends of the wires in the cord 14 are connected to the contacts 11 by means of the binding screws 13, and the clamps 22 and 23 are then screwed together by means of the screws 29, so that the cord or cable 14 is clamped between them. It can be seen that at no time during the assembly are the straps 20 and 21 squeezed together so as to crush the connector body between them. It can also be seen that my device securely clamps the cord 14 so as to relieve the strain on the connections of the lead wires to the contacts 11. As the movements of the clamps 22 and 23 shift the straps 20 and 21 edgewise or in the planes of these straps they maintain the same relative positions with respect to the insulating body 10 instead of being shifted toward this body, as in the old forms of these devices, which old arrangements apply pressure to the body and often crush or break it.

Having thus set forth the nature of my invention, I claim:

1. In a device of the character described an electrical connector comprising a body of insulating material provided with an annular shoulder spaced from its inner end and an opening for a conductor cord, electrical contacts to which the conductors of the cord may be connected, a cord grip comprising a ring embracing the body and seated against said shoulder, substantially flat arms secured to the ring and extending inwardly therefrom over the body from opposite sides, each arm being provided with a clamp to grip the cord with the clamps extending in opposite directions from the respective arms in a plane substantially parallel to the diametrical plane in which the two arms are located, ears on each clamp, and screws through the ears for drawing the clamps against the opposite sides of a conductor cord in said opening and arranged to shift the clamps in a direction edgewise of the arms so that these arms move edgewise and in a direction substantially normal to the diametrical plane of the arms.

2. In combination, an electrical connector including a body member of insulating material provided with an annular shoulder spaced from one end, electrical contacts mounted in the body, said body being provided with an opening for passage of a conductor leading to said contacts, a cord grip comprising a ring embracing the body and seated against said shoulder, a pair of arms of greater width than thickness secured to the ring at opposite sides of the body and curved inwardly over the body toward each other in substantially a diametrical plane through the axis of the body, each arm terminating in a concaved clamp to grip the cord and with the clamps extending in opposite directions from their respective arms in a plane substantially parallel to said diametrical plane, opposed ears on the clamps, and screws through the ears for clamping the clamps on opposite sides of a conductor cord and in a direction edgewise of the arms.

3. A separable electric fitting comprising a plug member of insulating material provided with an opening for a conductor cord leading to contacts mounted in said member, a strain relief fitting comprising a ring embracing the member,

a pair of arms extending inwardly over the outer portion of the member toward the opening from the ring at opposite sides of the member, a concaved clamp connected to each arm at one end of the clamp only, said clamps extending in opposite directions from the respective arms opposed to each other on opposite sides of the opening and in planes substantially parallel to the plane in which the arms are located, and clamping screws connecting the clamps to clamp them on opposite sides of a cord in said opening and arranged to move the clamps in a direction substantially normal to the plane in which the arms are located.

4. A separable contact fitting comprising a plug member including a body of insulating material provided with an opening for a conductor cord leading to contacts mounted in said body, a strain relief fitting comprising a ring embracing the body, a pair of arms of greater width than thickness connected to the ring on opposite sides of the body and extending outwardly and inwardly over the outer portion of the body toward said opening, a concaved clamp on each arm, said clamps being opposed to each other on opposite sides of the opening and extending in opposite directions from their respective arms in planes substantially parallel to the plane in which the arms are located, and clamping screws connecting the clamps to clamp them on opposite sides of a cord in the opening and arranged to move the clamps in a direction edgewise of the arms.

5. A skeleton cord grip of the character described comprising a ring adapted to embrace the insulating body of a separable contact fitting, a pair of arms curved laterally and inwardly toward each other from diametrically opposite sides of the ring, a concaved clamp for a conductor cord on the free end of each arm, said clamps being opposed to each other and arranged in planes substantially parallel to the plane in which the arms are located and extending in opposite directions from their respective arms in the general direction in which the arms are curved, and screws connecting the clamps to clamp them on opposite sides of a conductor cord and arranged to shift the clamps in a direction transverse to the plane in which the arms are located.

6. A skeleton cord grip of the character described comprising a ring adapted to embrace the insulating body of a separable contact fitting, a pair of substantially flat arms extending from opposite sides of the ring and curved laterally and inwardly toward each other, said arms each terminating in a concaved grip connected at one end to its arm and extending in the same direction the arm is curved, said grips being opposed to each other and arranged in planes substantially parallel to the plane in which the arms are located, and screws connecting the clamps to clamp them on opposite sides of a conductor cord and arranged to shift the clamps in a direction edgewise of said arms.

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