The present invention is directed to an electrical cord straightening device that includes a first portion including at least a first pair of grooves, and a second portion including at least a second pair of grooves substantially parallel to the first pair of grooves. The first portion may be coupled to the second portion by a hinge mechanism. The first pair of grooves and the second pair of grooves may be dimensioned for receipt of an electrical cord. In the present invention the first portion and the second portion may include multiple pairs of grooves that are dimensioned for receipt of electrical cords of varying gauges. In the present invention at least the first and second pair of grooves may include at least one ball bearing in each of the pair of grooves to facilitate sliding the straightening device down the electrical cord.
ELECTRICAL CORD STRAIGHTENING DEVICE

CROSS-REFERENCE TO RELATED APPLICATIONS

This application claims the benefit of U.S. Provisional Application No. 60/993,319 filed Sep. 10, 2007, which is hereby incorporated by reference in its entirety.

BACKGROUND OF THE INVENTION

1. Technical Field

The present invention relates to wire straightening devices, and more particularly to devices for straightening electrical cords.

2. Related Art

The advent of electricity has enabled numerous modern conveniences. However, many electrical appliances that are used in everyday life require an electrical connection to a source of electricity. This connection usually takes the form of an electrical cord from the appliance to a power outlet. Due to the amount of electrical appliances, in particular personal electrical appliances, i.e. hair dryer, electric razor, etc., and the regularity with which these appliances are used, the electrical cords for these appliances often times become bent, kinked and/or tangled. A tangled mess of electrical cord(s), whether from one appliance or multiple appliances, is inconvenient, unsafe and interferes with operation of the appliance(s) by a user. Therefore, what is needed is a way to effectively and safely straighten electrical cords.

SUMMARY OF THE INVENTION

In order to overcome the problems identified above, the present invention provides an electrical cord straightening device that includes a first portion including at least a first pair of grooves, and a second portion including at least a second pair of grooves substantially parallel to the first pair of grooves. The first portion may be coupled to the second portion by a hinge mechanism. The first pair of grooves and the second pair of grooves may be dimensioned for receipt of an electrical cord.

In accordance with the present invention the first portion and the second portion may include multiple pairs of grooves that are dimensioned for receipt of electrical cords of varying gauges. In accordance with the present invention at least the first and second pair of grooves may include at least one ball bearing in each of the pair of grooves to facilitate sliding the straightening device down the electrical cord.

In accordance with an exemplary embodiment of the present invention, an apparatus is provided that may include a first portion that may include a first end, a second end, and at least a first set of grooves between the first end and the second end, and a second portion operatively coupled to the first portion and that may include at least a second set of grooves positioned substantially parallel to the first set of grooves. The first portion may be movable relative to the second portion between an open position and a closed position.

In accord with the exemplary embodiment of the invention, the first set of grooves may include a first groove and a second groove positioned substantially parallel to the first groove.

In accord with the exemplary embodiment of the invention, each groove of the first set of grooves and the second set of grooves may have a substantially equal cross-sectional size.

In accord with the exemplary embodiment of the invention, the first portion and second portion may be operatively coupled by a hinge mechanism.

In accord with the exemplary embodiment of the invention, the second set of grooves may include a first groove and a second groove positioned substantially parallel to the first groove.

In accord with the exemplary embodiment of the invention, the apparatus may also include a latch mechanism configured to hold the first portion to the second portion in the closed position.

In accord with the exemplary embodiment of the invention, the first set of grooves and the second set of grooves may be dimensioned for receipt of an electrical wire.

In accord with the exemplary embodiment of the invention, the first portion may further include a third set of grooves, and the second portion may further include a fourth set of grooves positioned substantially parallel to the third set of grooves, and the first set of grooves and the second set of grooves may be dimensioned for receipt of a first electrical wire of a first gauge, and the third set of grooves and the fourth set of grooves may be dimensioned for receipt of a second electrical wire of a second gauge.

In accord with the exemplary embodiment of the invention, the first portion includes at least one finger groove configured to facilitate use of the apparatus.

In accord with the exemplary embodiment of the invention, the first set of grooves and the second set of grooves may be configured to substantially straighten an electrical wire when the first portion is in the closed position.

In accord with the exemplary embodiment of the invention, the apparatus may include at least one ball bearing positioned in the first set of grooves.

In accord with the exemplary embodiment of the invention, the first groove and the second groove may be recessed on a top surface of the first portion, and wherein a surface positioned between the first groove and the second groove is lower than the top surface of the first portion.

BRIEF DESCRIPTION OF THE DRAWINGS

Having thus described the invention in general terms, reference will now be made to the accompanying drawings, which are not necessarily drawn to scale, where:

FIG. 1a shows an isometric view of an embodiment of the electrical cord straightening device according to the present invention with multiple pairs of grooves;

FIG. 1b shows a cross-sectional view of the embodiment of the electrical cord straightening device shown in FIG. 1a;

FIG. 2 shows an embodiment of the electrical cord straightening device according to the present invention;

FIG. 3 shows a single portion of the electrical cord straightening device according to the present invention in which the pair of grooves includes ball bearings;

FIG. 4a shows an isometric view of a portion of an embodiment of the electrical cord straightening device;

FIG. 4b shows an isometric view of a portion corresponding to the portion of the electrical cord straightening device shown in FIG. 4a; and
FIG. 5 shows an exemplary embodiment of the electrical cord straightening device combined with a hair brush.

DETAILED DESCRIPTION OF THE INVENTION

The present invention now will be described more fully hereinafter with reference to the accompanying figures, in which exemplary embodiments of the invention are shown. The invention may, however, be embodied in many different forms and should not be construed as limited to the embodiments set forth herein. Like reference numerals refer to like elements throughout.

FIGS. 1a and 1b shows an exemplary embodiment of the present invention. The present invention is directed to a device 1 that can be used for straightening electrical cords, such as those cords found on common household appliances. However, it is understood that the present invention is suitable for straightening all types of electrical cords and wires. Many electrical cords for appliances include two conductors of similar size surrounded by an insulating material, i.e., rubber, joined together, and divided by additional insulating material at the point where the insulated conductors are joined together. The cross-section configuration of such electrical cords is generally two substantially circular regions on opposing sides of a thin rectangular region. The configuration is similar to that of a shotgun.

The embodiment of the present invention shown in FIGS. 1a and 1b includes a first portion 10 and a second portion 12 positioned substantially opposite to the first portion 10. The first 10 and second 12 portions shown in FIG. 1 have a generally semi-circular shape, but it is understood that various shapes may be suitable for the present invention. The first 10 and second 12 portions each include at least one pair of grooves 15 that are dimensioned for receipt of an electrical cord. The first portion 10 includes a first set of grooves 15, and the second portion includes a second set of grooves 15. Each set of grooves 15 may include two grooves. For example, set of grooves 15 includes a first groove 25 and a second groove 35 separated by a raised region 17. Each groove 25, 35 of the set of grooves 15 has a substantially semi-circular-section shape. The set of grooves 15 on the first portion 10, and the set of grooves 15 on the second portion 12 are substantially parallel to each other.

As shown in FIGS. 1a and 1b, the electrical cord straightening device 1 may include multiple pairs of grooves, and accordingly size grooves on the first portion 10 are substantially parallel to the same size grooves on the second portion 12. The first 10 and second 12 portions may be coupled together by a hinge mechanism 14. The hinge mechanism allows the first 10 and second 12 portions to swing away from each other in a clam-shell like fashion. On the opposing side as the hinge mechanism 14, the electrical cord straightening device may include a latching mechanism 16 that is configured to secure the first 10 and second 12 portions together when the electrical cord straightening device is in a closed position. The latching mechanism 16 may be any sort of device that can securely fasten the first 10 and second 12 portions together, such as a latch, strap or clip.

Still referring to FIGS. 1a and 1b, in the closed position corresponding sets of grooves 15, 15' on the first 10 and second 12 portions form a pair of channels that are dimensioned for receipt of a two-conductor electrical cord, such as those used for household appliances. The raised region 17 separating each groove 25, 35 of the second set of grooves 15 do not meet with the raised region 17 on the opposing first set of grooves 15' to allow space for the insulating material found between the two conductors of the electrical cord. Therefore, when the electrical cord straightening device 1 is in the closed position, as shown in FIG. 1 for example, the electrical cord fits snugly into the channels defined by the sets of grooves 15, 15'.

In operation, the electrical cord straightening device 1 is swung open, i.e. the first 10 and second 12 portions are swung away from each other by way of the hinge mechanism 14, and an electrical cord is placed in a set of grooves corresponding to the gauge of the electrical cord. The electrical cord straightening device 1 is then closed by bring the first 10 and second 12 portions together, and may be secured together by the latching mechanism 16. The electrical cord straightening device 1 is then drawn down the length of the electrical cord, which acts to remove kinks and bends from the electrical cord, thereby straightening the electrical cord.

FIG. 2 shows another exemplary embodiment of the present invention. The embodiment shown in FIG. 2 includes first 10 and second 12 portions as discussed with reference to FIGS. 1a and 1b, however the first 10 and second 12 portions are substantially rectangular in their cross-sections. However, it is understood that the cross-sectional shape of the first 10 and second 12 portions is merely exemplary, and that the present invention may include first 10 and second 12 portions of any cross-sectional shape. The embodiment shown in FIG. 2 includes a single pair of grooves 15 on second portion 12, and a single part of grooves 15' on the first portion 10. While the electrical cord straightening device 1 shown in FIG. 2 is shown with a hinge mechanism 14 and latching mechanism 16, it is understood that the electrical cord straightening device 1 may be permanently affixed to the electrical cord for a household appliance. In that embodiment, the first 10 and second 12 portions may be joined together during the manufacturing of the appliance so that the electrical cord straightening device 1 may freely slide down the electrical cord, but cannot be removed. The electrical cord straightening device 1 shown in FIG. 2 may include at least one finger groove 20 on the surface of either the first 10 or second 12 portions opposite the pairs of grooves 15, 15'. It is understood that while the finger grooves 20 are shown in the first portion 10, they may also be located on the second portion 12, or both. The finger grooves 20 may be dimensioned to allow a user to place at least one finger into each finger groove 20 while using the electrical cord straightening device.

FIG. 2 also shows that it is possible to achieve a gap between the raised region 17 on the second portion 12, and the raised region 17' on the first portion 10 by positioning the hinge mechanism 14 and the latch mechanism 16 so that there is a gap between the first portion 10 and the second portion 12. In this manner it is possible to accommodate the insulating material that is found between two conductors of an electrical cord in the electrical cord straightening device 1. This embodiment may allow for a simpler construction of the electrical cord straightening device 1, because the first portion 10 and second portion 12 do not need to be manufactured so that only the raised regions 17, 17' do not meet in the closed position as shown in FIGS. 1a and 1b.

FIG. 3 shows an exemplary embodiment of the invention in which the pair of grooves 15 each includes at least one ball bearing 30. Only half of the electrical cord straightening device 1 is shown in FIG. 3 for clarity. It is understood that the portion shown in FIG. 3 may correspond to either the top portion 10 or the bottom portion 12. In
addition, both or either of the top portion 10 or the bottom portion 12 may include ball bearings 30 in the pair of grooves 15. The ball bearings 30 are positioned in the pair of grooves 15 so that more of the ball bearing 30 is located below the surface of the groove than above. In this manner, the ball bearings 30 are integrated into the grooves and stay in place, but are still free to rotate. The ball bearings 30 act to reduce the stress placed of the conductors and insulation of the electrical cords when the electrical cord straightening device 1 is run down the length of the electrical cord. It is understood that the surfaces of the grooves may be coated with a suitable material in order to reduce the friction between the electrical cord and straightening device, and thereby reduce the stress on the electrical cord. It is understood that the electrical cord straightening device does not straighten the electrical cord by pulling the electrical cord, instead the grooves and more particularly the raised region between the grooves acts to straighten the cord as the straightening device is drawn along the electrical cord.

Fig. 4a and 4b show another exemplary embodiment of the electrical cord straightening device. The device may include a first portion 110 and a second portion 112. The first portion 110 may include one or more pair of grooves 115. Each groove in the pair of grooves 115 may be separated by a raised region 117. The second portion 112 may also include one or more pair of grooves 115 positioned substantially parallel to the pair of grooves 115 on the first portion 110, so that when the first portion 110 and the second portion 112 are brought into a closed position a tunnel is formed by the pair of grooves 115, 115. The hinge mechanism 114, 114' of the embodiment of the electrical cord straightening device shown in Figs. 4a and 4b may be formed integrally with the first portion 110 and the second portion 112.

As shown in Fig. 4a, the second portion 112 may include a protrusion 114 extending from the surface on which the one or more pair of grooves are located. The protrusion may include at least one hole 120 extending from one side of the protrusion 114 to the other side. The protrusion 114 on the second portion 112 may be configured to couple with an indentation 114' on the first portion 110 as shown in Fig. 4b. The side of the first portion 110 that contains the indentation 114' may include a hole 121 that substantially aligns with the hole 120 in the protrusion 114 when the indentation 114' is inserted into the protrusion 114. Holes 120, 121 also a rod or pin (not shown) to be passed through the first portion 110 and the protrusion 114 on the second portion 112 in order to couple the first portion 110 with the second portion 112. This combination allows the first portion 110 and the second portion 112 to operate between an open position and a closed position in a clam-shell like fashion. The edge of the first portion 110 with the indentation 114' may be rounded to facilitate opening and closing of the electrical cord straightening device. The pairs of grooves 115, 115' may also have a tapered edge 122, 122' on at least one side of the first portion 110 and second portion 112 respectively.

Fig. 5 shows an exemplary embodiment of the electrical cord straightening device integrated into a hair brush 300. The electrical cord straightening device may include a first portion 210 and a second portion 212 coupled by a hinge mechanism 214. The first portion 210 and the second portion 212 may include at least one pair of grooves, for example pair of grooves 215 on the second portion 212. The pair of grooves 215 may be positioned on the rounded face of the second portion 212, and the hinge mechanism 214 may be positioned on the flat sides of the first portion 210 and the second portion 212. The integration of the electrical cord straightening device onto the hair brush 300 allows a user easy access to the electrical cord straightening device when using common household appliances such as hair dryers and straightening irons. It is understood that the electrical cord straightening device may be integrated into any object, and that the hair brush 300 is merely exemplary.

It is understood that the electrical cord straightening device may be made from any suitable material, and preferably a non-conductive material, such as wood, plastic, vulcanized rubber, or the like.

It is to be understood that all of the present figures, and the accompanying narrative discussions of corresponding embodiments, do not purport to be completely rigorous treatments of the invention under consideration. It is to be understood that the above-described arrangements are only illustrative of the application of the principles of the present invention. Numerous modifications and alternative arrangements may be devised by those skilled in the art without departing from the scope of the present invention.

What is claimed is:

1. An apparatus, comprising:
   - a first portion comprising a first end, a second end, and at least a first set of grooves between the first end and the second end, and
   - a second portion operatively coupled to the first portion and comprising at least a second set of grooves positioned substantially parallel to the first set of grooves, wherein the first portion is movable relative to the second portion between an open position and a closed position.

2. The apparatus of claim 1, wherein each groove of the first set of grooves and the second set of grooves have a substantially equal cross-sectional size.

3. The apparatus of claim 1, wherein each groove of the first set of grooves and the second set of grooves are operatively coupled by a hinge mechanism.

4. The apparatus of claim 1, wherein the first portion and second portion are operatively coupled by a hinge mechanism.

5. The apparatus of claim 1, wherein the first set of grooves comprises a first groove and a second groove positioned substantially parallel to the first groove.

6. The apparatus of claim 1, further comprising a latch mechanism configured to hold the first portion to the second portion in the closed position.

7. The apparatus of claim 1, wherein the first set of grooves and the second set of grooves are dimensioned for receipt of an electrical wire.

8. The apparatus of claim 1, wherein the first portion further comprises a third set of grooves, and the second portion further comprises a fourth set of grooves positioned substantially parallel to the third set of grooves, and wherein the first set of grooves and the second set of grooves are dimensioned for receipt of a first electrical wire of a first gauge, and the third set of grooves and the fourth set of grooves are dimensioned for receipt of a second electrical wire of a second gauge.

9. The apparatus of claim 1, wherein the first portion comprises at least one finger groove configured to facilitate use of the apparatus.
10. The apparatus of claim 1, wherein the first set of grooves and the second set of grooves are configured to substantially straighten an electrical wire when the first portion is in the closed position.

11. The apparatus of claim 1, further comprising at least one ball bearing positioned in the first set of grooves.

12. The apparatus of claim 2, wherein the first groove and the second groove are recessed on a top surface of the first portion, and wherein a surface positioned between the first groove and the second groove is lower than the top surface of the first portion.

13. An apparatus, comprising:
   a first portion comprising a first end, a second end, and at least a first set of grooves between the first end and the second end, and
   a second portion operatively coupled to the first portion and comprising at least a second set of grooves positioned substantially parallel to the first set of grooves, wherein the first portion is movable relative to the second portion between an open position and a closed position, and
   wherein the first set of grooves and the second set of grooves are configured to substantially straighten an electrical wire when the first portion is in the closed position.

14. The apparatus of claim 13, wherein the first set of grooves comprises a first groove and a second groove positioned substantially parallel to the first groove.

15. The apparatus of claim 13, wherein each groove of the first set of grooves and the second set of grooves have a substantially equal cross-sectional size.

16. An apparatus, comprising:
   a first portion comprising a first end, a second end, and at least a first set of grooves comprising a first groove and a second groove positioned between the first end and the second end, and
   a second portion operatively coupled to the first portion and comprising at least a second set of grooves positioned substantially parallel to the first set of grooves, wherein the first portion is movable relative to the second portion between an open position and a closed position, and
   wherein the first groove and the second groove are recessed on a top surface of the first portion, and wherein a surface positioned between the first groove and the second groove is lower than the top surface of the first portion.

17. The apparatus of claim 16, wherein the first set of grooves and the second set of grooves are configured to substantially straighten an electrical wire when the first portion is in the closed position.

18. The apparatus of claim 16, wherein the first set of grooves and the second set of grooves are dimensioned for receipt of an electrical wire.

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