United States Patent [19]

Kasa

[11] **3,782,654**

[45] **Jan. 1, 1974**

[54] **POWER CORD SLACK TAKEUP REEL**

[76] Inventor: **Joseph Kasa,** 3615 Rocky River Dr., Cleveland, Ohio 44111

[22] Filed: **Sept. 13, 1971**

[21] Appl. No.: **179,855**

[52] **U.S. Cl.** ..... **242/100.1,** 191/12.2 R

[51] **Int. Cl.** **B65h 75/34**

[58] **Field of Search** ..... 242/100.1, 107.1, 242/60; 191/12.2 R

[56] **References Cited**

UNITED STATES PATENTS

1,199,790	10/1916	Holcomb	242/60
1,186,131	6/1916	Repogle	242/100.1
2,635,828	4/1953	Lacy	242/100
2,865,071	12/1958	Clemens	242/100.1
2,952,420	9/1960	Von Horn	242/100.1
2,956,758	10/1960	Pleiss	242/100.1
3,208,121	9/1965	Price	242/100.1 X
3,587,991	6/1971	Stark	242/55.16

FOREIGN PATENTS OR APPLICATIONS

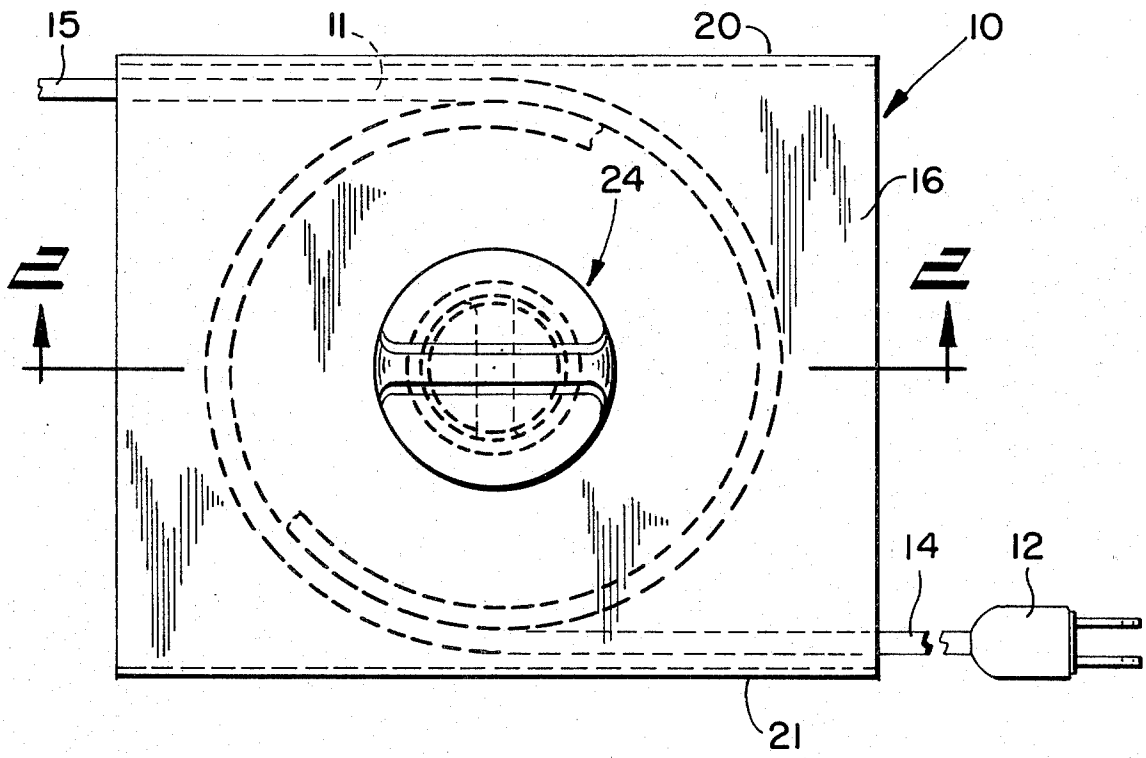
127,608	4/1948	Australia	242/100.1

Primary Examiner—George F. Mautz
Assistant Examiner—John M. Jillions
Attorney—Oberlin, Maky, Renner & Otto

[57] **ABSTRACT**

An article of manufacture for storage of electric power cords and the like and for removal of excess slack therein for safety and aesthetic purposes consisting of a semi-rigid plastic housing having a winding shaft releasably secured therein with a plate retained by the shaft, dividing the housing into upper and lower sections, the electric cord adapted to be passed through the housing and to be wound about the shaft in adjacent coils of concentric turns. Another embodiment of the invention is in a single coil layer form with slightly greater dimensions to accommodate substantially the same length of wire slack.

7 Claims, 5 Drawing Figures



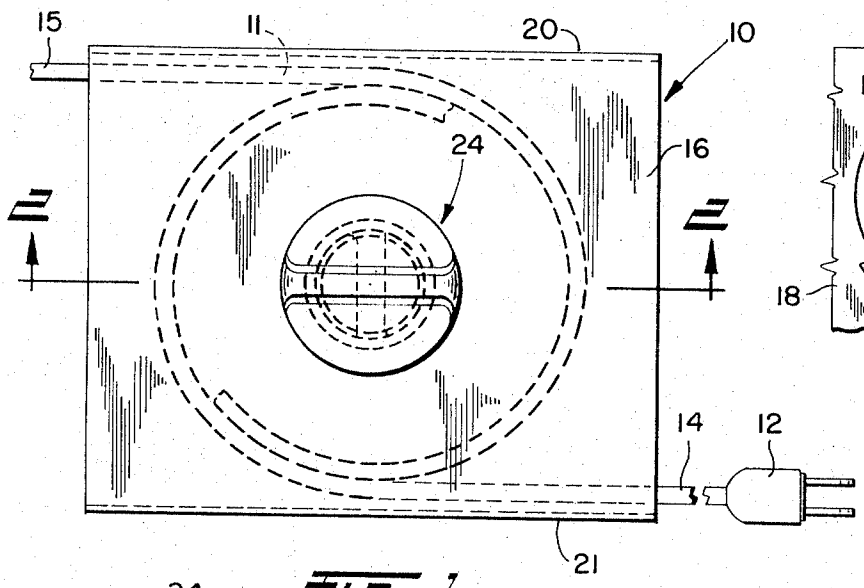


FIG. 1

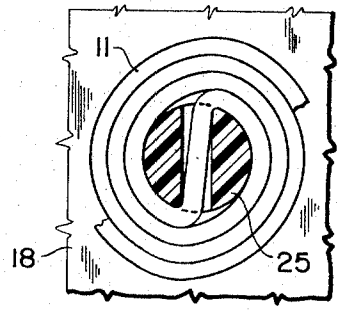


FIG. 3

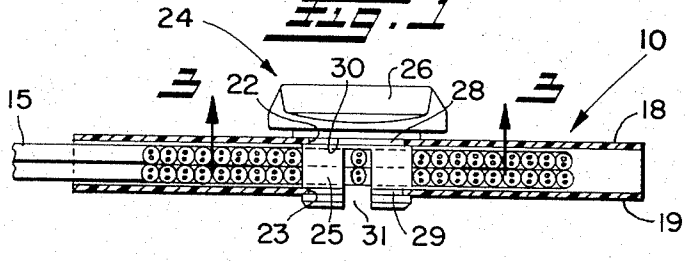


FIG. 2

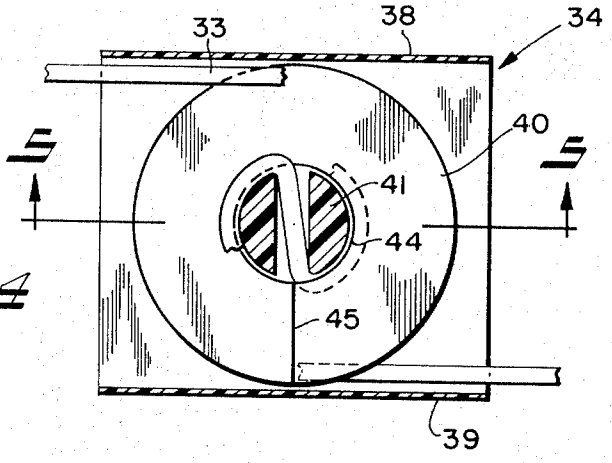


FIG. 4

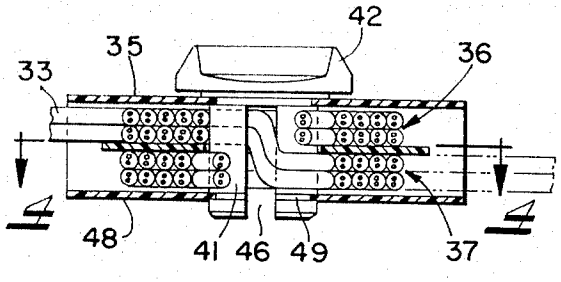


FIG. 5

INVENTOR.
JOSEPH KASA

Oberlin, Maky, Donnelly & Renner
ATTORNEYS

POWER CORD SLACK TAKEUP REEL

This invention relates to reels, wire winding devices and the like and more particularly to a very simplified low cost article of manufacture suitable for removal of slack in the power cords of conventional appliances and extension cords, preventing dangling wires and the like and promoting a more aesthetic appearance.

Many different forms of cord storage and winding devices are known in the prior art, most being suited for industrial applications with little consideration given to devices of this type which are suitable for domestic use primarily for obviating the inconvenience of dangling wire cords and the like. One form of such apparatus has been noted consisting of a two piece structure with relatively rotatable upper and lower housing sections, formed of rigid bakelite or the like and which may be utilized with extension cords or the power cords for lamps or other household appliances. Little consideration however has been given to the attractiveness of such device nor to the convenience of operation of same, requiring that the housing members be completely separated so that the power cord can be inserted therein, requiring the maneuvering of the components into proper location for reassembly of the device. Such item is bulky, relatively heavy and formed of rigid material subject to fracture when stepped upon for example, presenting almost as much interference and distraction as the dangling cords which it has replaced.

It is therefore a primary object of the present invention to provide a new form of cord reel apparatus which is especially suited to domestic utilization in being lightweight, readily applicable to existing power cords and the like and attractive in appearance.

It is another object of this invention to provide improved cord reel apparatus which consists of a two part structure of relatively inexpensive components, suitable for mass manufacture at low cost and which in use accommodates a great length of cord slack without introducing an additional hazard in use.

It is a still further object of this invention to provide improved cord reel apparatus which is more convenient to use than known devices of this type requiring only a partial disassembly of same for insertion of a power cord and the like and in which the components are readily in view for easy reassembly of same.

To the accomplishment of the foregoing and related ends, the invention, then, comprises the features hereinafter fully described, the following description and the annexed drawings setting forth in detail certain illustrative embodiments of the invention, these being indicative, however, of but a few of the various ways in which the principles of the invention may be employed.

In the drawings:

FIG. 1 is a plan view of a first embodiment of the invention shown in association with a section of a power cord;

FIG. 2 is a cross-sectional view of the first embodiment of the invention taken along the lines 2—2 of FIG. 1;

FIG. 3 is a partial cross-sectional view taken along the lines 3—3 of FIG. 2 showing the coils of the power cord about the winding shaft;

FIG. 4 is a sectional top view of a second embodiment of the invention showing the divider plate and the threading of a power cord therethrough; and

FIG. 5 is a sectional side view of the second embodiment of the invention taken generally through the center of the structure.

Referring now to FIGS. 1–3 there is shown a first embodiment of the invention consisting of the cord reel **10** shown in association with a power cord **11** which might be the conventional zip cord used for extension cords or for appliance power cords having a male plug **12** attached at one end **14** and an outlet receptacle (not shown) at the other end **15**, the latter alternatively leading to a utilization device such as a household lamp and the like. While the plastic covered zip cord type of power cord **11** is indicated in the drawings it will be apparent that the apparatus of the invention is suited to practically any type of electric power cord and in fact to wire, rope and the like which are sufficiently flexible to be wound about a shaft for takeup or pay-out purposes.

The housing **16** comprises a length of semi-rigid plastic conduit of generally rectangular cross-section having an upper wall **18** and the lower wall **19** and a pair of side walls **20, 21** the latter being of a dimension only slightly greater than the width of the power cord **11** to be accommodated. The housing **16** is preferably made of polyethylene being sufficiently rigid to maintain its shape but being flexible enough so that when deformed the passage therethrough may be sufficiently wide to accommodate the passage of the male plug **12** of the power cord and/or the outlet portion thereof. This type of conduit is commercially available in extended lengths and need only be selected for appropriate dimensions and cut to a proper length, preferably being only slightly longer than wide as the coils of the power cord **11** therein will assume substantially circular configuration.

Circular apertures **22, 23** are formed in the upper and lower walls **18, 19,** one above the other, for receipt of the winding means **24** of the apparatus, such winding means **24** consisting of a shaft **25** with a knob **26** thereon, the latter being shaped for grasping and turning to wind the power cord **11** into the housing **16.** The shaft **25** and knob **26** are preferably formed of rigid acrylic plastic in a one piece configuration, the shaft **25** being long enough to extend through the upper and lower walls **18, 19** of the housing, serving both to retain the desired configuration of the housing **16** and to form an arbor for winding of the power cord **11.**

The shaft **25** further includes upper and lower annulus grooves **28, 29** adjacent either end to seat the upper and lower walls **18, 19** respectively to allow rotation of the shaft **25** and to maintain separation of the walls **18, 19** of the housing. The remainder of the shaft **25** therefore is of slightly greater diameter than that of the circular apertures **22, 23** in the upper and lower walls **18, 19.** The housing **16** is preferably of thin wall construction so as to be readily deformed in order to be slipped out of or into the annular grooves **28, 29** for insertion or removal of the power cord **11** from the cord reel **10.** The lower surface **30** of the knob **26,** which is preferably circular, is contiguous with the upper annular groove **28** of the shaft **25** serving to engage the upper wall **18** of the housing.

A diametrically extending slot **31** is included in the shaft **25** having an open lower end and extending approximately to the upper annular groove **28** being of a sufficient width to readily receive various sizes of power cords therein while not substantially affecting

the strength of the shaft. As noted previously the dimension of the side walls **20, 21** of the housing **16** is such as to restrict the turns of the power cord **11** about the shaft **25** into a concentric coil, the upper and lower walls **18, 19** of the housing serving as guide means for such purpose.

Thus in operation of the cord reel **10** the bottom wall **19** of the housing **16** may be disengaged from the lower annulus groove **29** by pressing inwardly on the side walls **20, 21** of the housing and deforming the aperture **23** in the lower side wall **19** to allow the latter to be slipped over the lower portion of the shaft **25** whereby the housing may be further deformed to provide a relatively large passage therethrough for threading of the power cord plug **12** and the like. For most purposes the cord reel **10** is slipped over the power cord **11** associated therewith to approximately the central portion of the latter or to any point therealong at which the slack is desired to be removed. The power cord **11** is then merely placed into the slot **31** within the shaft **25** and the lower wall **19** of the housing depressed over the bottom end of the shaft to reengage with the lower annular groove **29,** to be retained thereby, assuming the general shape depicted in FIGS. **1–3.** While holding the housing **16** stationary the knob **26** may be rotated manually so as to wind the power cord **11** about the shaft **25** in a concentric coil as depicted in FIG. **3** with the oppositely extending lengths of the power cord **11** interleaved with one another, the ends **14, 15** of the power cord preferably extending in opposite directions as depicted in FIG. **1.** In this manner then, the power cord **11** may be wound within the housing **16** until the full capacity is attained, that is when the side walls **20, 21** engage the power cord and restrict the further winding of same, a housing **16** of only several inches in width between side walls **20, 21** providing sufficient capacity for taking up a full extension cord and easily the usual amount of slack encountered with conventional appliances.

It will be clear also that the pay-out of the power cord **11** from such coiled condition may be readily accomplished by means of this cord reel **10** merely by relatively extending the two ends **14, 15** of the power cord either by manually grasping both and pulling away from the housing **16** or by fixing one end of the power cord and pulling on the other. In either event engagement of the side walls **20, 21** of the housing **16** with the power cord **11** will prevent rotation of the housing but will allow a rotation of the shaft **25** and thus an unwinding of the power cord therefrom. Preferably the seating of the upper and lower walls **18, 19** of the housing in the upper and lower annular grooves **28, 29** is of a sufficiently tight friction fit so as to prevent inadvertent or undesired uncoiling of the power cord.

Referring now to FIGS. **4** and **5,** the second embodiment of the cord reel **34** is depicted in which a housing **35** of slightly smaller dimensions than the first embodiment is utilized to accommodate substantially the same length of slack of power cord **33** by means of a side-by-side disposition of concentric coils **36, 37** of the power cord. In this embodiment of the invention the side walls **38, 39** of the housing are of relatively greater dimension to accommodate the two coils **36, 37** of power cord together with a divider plate **40** which separates the housing **35** into upper and lower sections. A similar shaft **41** and knob **42** arrangement is employed as in the first embodiment of the invention, the shaft **41** again being long enough to extend through the upper and lower walls of the housing **35** for retaining the shape of same and for winding of the coils **36, 37** of the power cord thereon.

The divider plate **40** as seen most clearly in FIG. **4** is a circular plate of semi-rigid plastic material dimensioned to fit loosely within the housing **35.** The divider plate **40** includes a central aperture **44** therein, the diameter of the aperture being only slightly greater than the diameter of the shaft **41** so as to be readily slipped thereover but to be retained in place thereby with little or no movement. The divider plate **40** further includes a slit **45** extending radially from the aperture **44** to the edge of the plate allowing the latter to be flexed into a spiral configuration for insertion of the power cord or for passage of a plug or the like. Within the housing **35,** however, the divider plate **40** assumes and retains a flat configuration.

Thus it may be seen that the power cord **33** is threaded through the upper section of the housing **35,** into the slot **46** in the shaft **41** and the aperture **44** in the divider plate **40** downwardly into the lower section of the housing **35,** emanating therefrom as indicated in phantom lines in FIG. **4.** Such threading of the power cord **33** is most expeditiously performed by dismantling the reel by slipping the lower wall **48** of the housing **35** over the bottom end of the shaft **41** followed by sliding the divider plate **40** over the lower portion of the shaft **41** and subsequent removal from the housing **35.** The power cord **33** may then be inserted through the aperture **44** in the divider plate via the slit **45** and simultaneously through the passage of the housing **35** to the desired point along the cord at which the slack is to be removed, the divider plate **40** and the power cord **33** therewith then reinserted within the housing and slipped over the shaft **41** allowing the power cord to pass through the slot **46** therein. The lower wall **48** of the housing is then simply popped back into place in the lower annular groove **49** of the shaft **41** although the cord reel assembly may still then be slipped along the power cord.

Turning of the winding knob **42** while holding the housing **35** stationary then causes the power cord **33** to be wound into two adjacent concentric coils **36, 37,** the left-hand end of the power cord **33** as viewed in FIG. **4** forming the upper coil **36** and the right-hand end forming the lower coil **37** with the divider plate **40** therebetween and the upper and lower walls of the housing **35** guiding the power cord. Pay-out of the power cord **33** is accomplished in a similar manner as the first embodiment merely by pulling apart the ends of the cord, the side walls **38, 39** of the housing **35** preventing rotation of the latter.

It will be clear that all of the components of either of the cord reels **10, 34** are easily in view and the partial disassembly and reassembly of same can be readily performed with a highly simplified threading procedure. Similarly, it will be appreciated that with the many colors available in the plastics art the housings **16, 40** may be selected to be compatible with various interior designs of domestic dwellings and may in fact be translucent to allow some view of the interior of the housings **16, 40** for appreciation of the length of power cord available for different applications. Various configurations of the winding knobs **26, 42** are also possible depending on the aesthetic effect desired.

If desired a rectangular divider plate may be employed in place of the circular plate **40**, in this arrangement preferably including an angled slit therein rather than the radially oriented slit **45** of the circular plate. This has been found to present less interference with and abrading of the power cord **33** and it will be clear that rotation of the rectangular plate is prevented by abutment with the side walls of the housing.

The embodiments of the invention in which an exclusive property or privilege is claimed are defined as follows:

1. Apparatus for taking up slack in electric power cords and the like, comprising a housing in which the slack in the cord is to be wound, said housing comprising a one piece length of semi-rigid, flexible plastic conduit of generally rectangular cross-section having substantially parallel upper and lower walls separated by two opposed side walls, the space between said upper and lower walls being of a dimension only slightly greater than the width of the cord, each said upper and lower wall having a centrally located aperture therein, a shaft extending through said apertures and rotatably supported in said housing, said shaft having a larger diameter than said apertures except for a pair of spaced annular grooves therein that releasably engage said upper and lower walls at said apertures, said shaft having a slot therein for receipt of the power cord intermediate its length and within said housing, said plastic housing being capable of inwardly directed manual flexure to deform said upper and lower apertures whereby at least one of said upper and lower walls may be disengaged from said shaft and the dimension between the upper and lower walls increased to permit threading of the cord through said slot in said shaft and out of the housing with the disengaged wall then being reconnected to said shaft, and means for rotating said shaft to wind the threaded power cord thereabout, said upper and lower walls being operative dimensionally to guide said cord into a coil of concentric turns about said shaft.

2. Apparatus as set forth in claim **1** wherein said rotating means comprises a knob rigidly attached at one end of said shaft, being disposed outside said housing and adapted to be grasped for manually turning said shaft.

3. Apparatus as set forth in claim **2** wherein said knob and said shaft are an integral plastic member, said knob being contiguous with one of said annular grooves for retaining said upper housing wall.

4. Apparatus for taking up slack in electric power cords and the like, comprising a housing in which the slack in the cord is to be wound, said housing comprising a one piece length of semi-rigid, flexible plastic conduit of generally rectangular cross-section having substantially parallel upper and lower walls separated by two opposed side walls, each said upper and lower wall having a centrally located aperture therein, a divider plate disposed within said housing between said upper and lower walls to divide the housing into two sections, the space between said divider plate and each said upper and lower wall being of a dimension only slightly greater than the width of the cord, a shaft extending through said apertures and rotatably supported in said housing, said shaft having a larger diameter than said apertures, said shaft having a slot therein for receipt of the power cord intermediate its length in said housing, said housing being capable of inwardly directed manual flexure to deform said upper and lower apertures whereby at least one of said upper and lower walls may be disengaged from said shaft and the dimension between the upper and lower walls increased to permit threading of the cord sequentially from one section of said housing through said slot into said other section of said housing and out of the housing, with the disengaged wall then being reconnected to said shaft, and means for rotating said shaft to wind the power cord thereabout, said divider plate in conjunction with said upper and lower walls being operative dimensionally to guide said cord on winding into adjacent coils in said two sections of said housing.

5. Apparatus as set forth in claim **4** wherein said divider plate includes an aperture therein, said shaft projecting through said divider plate aperture for retaining said divider plate within said housing, the power cord adapted to be threaded through said divider plate aperture.

6. Apparatus as set forth in claim **5** wherein said divider plate is circular and includes a slit therein adapted to be deformed to accommodate threading therethrough of electric power cord plugs and the like, and is dimensioned for rotation upon said shaft within said housing.

7. Apparatus as set forth in claim **6** wherein said housing is of thin wall construction and is sufficiently flexible to allow the threading of electric power cord plugs and the like therethrough.

* * * * *