

Jan. 27, 1942.

W. T. DAVIS

2,270,997

IRON CORD HOLDER

Filed Nov. 16, 1939

Fig. 1.

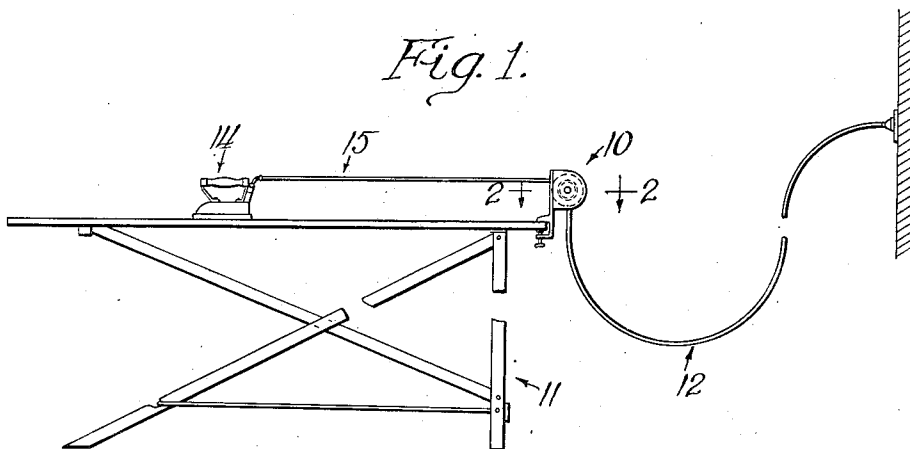


Fig. 2.

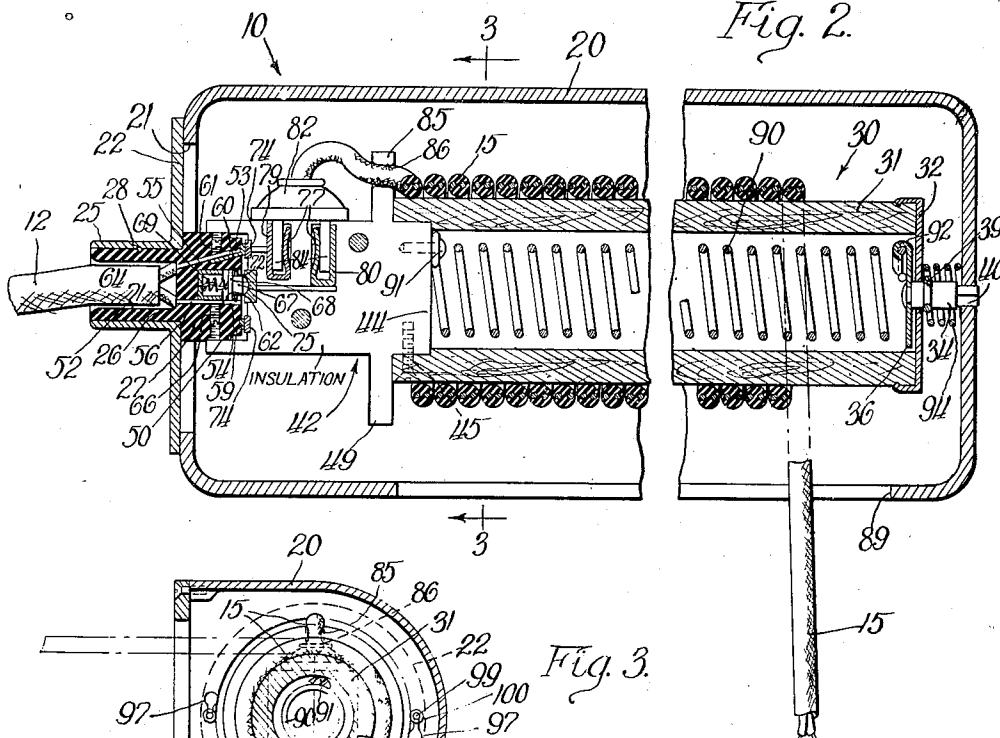
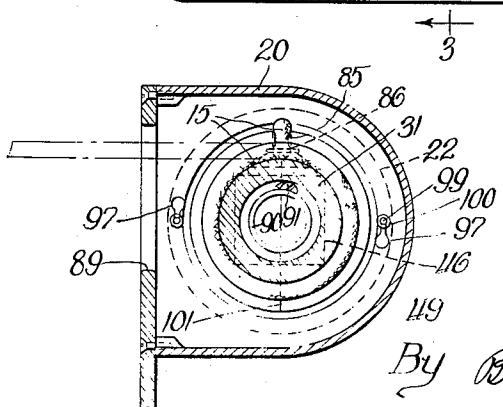


Fig. 3.



Inventor:
Walter Thomas Davis
By Brown, Jackson, Poetche, Diermer
Attys.

UNITED STATES PATENT OFFICE

2,270,997

IRON CORD HOLDER

Walter Thomas Davis, Evanston, Ill., assignor of
one-half to Joseph Fisher, Evanston, Ill.

Application November 16, 1939, Serial No. 304,673

2 Claims. (Cl. 191—12.4)

My invention consists of a device for reeling up an electric conductor and taking up slack in the conductor as the appliance on which it is used is moved from place to place.

My invention has particular application to a device for reeling the conductor cord of an electric flatiron.

In the use of an electric flatiron the conductor cord of the iron is often in an objectionable position when it lies across the ironing board after the iron is moved out and the cord is extended. When the iron is then moved back it is often necessary to remove the cord manually. It is therefore an object of my invention to provide a device which will reel up the conductor cord of an electric flatiron on the back stroke of the iron. The tension of the device is sufficient only to reel up the cord and it does not produce any effect on the iron as it is being used.

Another object of the invention is to provide a simple device in which the conductor cord commonly supplied with an electric iron may be attached to the device, hence keeping the number of special parts at a minimum.

Another object of the invention is to provide a device which will prevent any twisting or kinking of an electric conductor cord.

Another object of the invention is to provide a device which will admit of easy and simple disassembling, insertion of the iron cord and reassembling again.

Other objects and advantages of the invention will be apparent from the following detail description taken in connection with the accompanying drawing in which:

Figure 1 is an elevational view of an ironing board with my improved reeling device attached thereto and an iron attached to the reeling device;

Figure 2 is a horizontal section of the reeling device itself taken on the line 2—2 of Figure 1 and looking in the direction indicated by the arrows; and

Figure 3 is a vertical section of the device taken on the line 3—3 of Figure 2 and looking in the direction indicated by the arrows.

Referring now to Figure 1, my reeling device is indicated at 10 and is shown secured to an ironing board 11. A conductor cord 12 is supplied attached to the device and is shown inserted in a wall plug from which current is obtained. An iron 14 is shown on the ironing board and the electric conductor cord 15 attached to it is of the type usually supplied with an iron and is

easily attached to the reeling device. The details of how these parts are assembled and attached will be seen later as the description proceeds.

The device as seen in Figure 2 consists of a housing 20 with an opening 21 in one end thereof, the opening 21 being covered by a detachable cover plate 22. Cover plate 22 is provided with a flange or out-turned cylindrical portion 25 centrally thereof and integral therewith. Within the cylindrical portion 25 is an insert of insulation 26 having a shank portion formed to fit snugly within the cylindrical portion 25 and having an enlargement 27 on the inside of the cover plate 22 and toward the inside of the housing 20. A pin 28 is inserted through the cylindrical portion 25 and the insert 26 to hold the latter securely within the former.

The reel upon which the conductor cord of the iron is to be reeled is shown generally at 30 and consists mainly of a cylinder 31 of wood or other suitable material, which extends the greater part of the length of the housing 20. At one end of the cylinder 31 is a cover plate 32 which closes that end of the cylinder and provides a support for the reel in the housing 20. At the center of the cover plate 32 and on the axis of the reel is an opening in which is inserted a spindle 34 which is carried by the cover plate 32 and which serves as a trunnion to support one end of the reel as will be seen later. On the inner end of spindle 34 and inside the cover plate 32 is a plate 36 which is riveted to the spindle 34 and secured thereto so that it will not rotate on the spindle. This plate holds the spindle 34 in position in the cover plate 32 and also serves as an anchor for a torsion spring, which will be described later. Encircling the spindle 34 just outside the cover plate 32 is a split ring 39 which fits in a groove in the spindle 34 and serves to prevent it from falling into the inside of the cylinder 31. The main part of the spindle 34 is circular so that the reel 30 may rotate thereon, but at its outer end it has a reduced, squared portion 40 which fits a corresponding squared opening in the end of the housing 20 and is securely held therein against rotation.

The other end of the cylinder 31 is provided with a plug of insulation 42 which extends into the cylinder 31 a short distance and which completes the reel 30. The plug 42 is formed of two parts, the plane of the line on which the section of this figure is taken passing through the line of division of the parts. The parts are symmetrical and when the two are fitted together they form a complete unit. The end 44 of the plug which

fits into the cylinder 31 is circular in cross section and is held securely in the cylinder by means of screw 45 which is inserted through the cylinder and into plug 42. The outer end 46 of the plug 42 is square in cross section, and near the end of the plug next to the cylinder 31 is a flange 49 of circular cross section. The outer end of the plug 42 is provided with a bore 50 which fits over the enlargement 27 of insert 26, the enlargement 27 serving as a trunnion supporting the reel and on which the reel rotates.

The insert of insulation 26 is provided with a bore 52 into which the end of the conductor 12 supplying electric current is inserted. The trunnion 27 of the insert 26 is provided with passages 53 and 54 into which the leads 55 and 56 of the conductor 12 are inserted. The inner end of the trunnion 27 is provided with a ring 59 attached to the end face thereof. The ring 59 is provided with a lug 60 formed integral therewith which is bent outwardly and extends into the passage 53. The lug 60 and conductor lead 55 both extend far enough into the passage 53 that there is sufficient surface for them to contact. Screw 61 is threaded in the trunnion 27 and screws down upon the conductor lead 55 tightly so that the lead 55 and the lug 60 are in firm contact. In the center of the trunnion 27 is a bore 62 into which a cup-shaped contact 64 is inserted. The contact 64 is of such size that the outer periphery thereof contacts the lead 56 in the passage 54. Screw 66 is inserted at this point of the trunnion 27 and brings lead 56 into firm contact with contact 64. Within the bore 62 is a contact 67 having its outer end rounded and having at its rear end a flange 68 which is of substantially the same diameter as bore 62. A compression spring 69 is interposed between the contact 64 and the contact 67 biasing the latter outwardly, and a flexible lead 71 is also interposed between the two contacts to bring them into electrical communication. Just inwardly, at the fore portion of contact 67 is a split ring 72 fitted in a groove in the bore 62 to prevent the contact 67 from being forced out of its socket.

Within the bore 50 of the plug 42 is a ring 74 mounted on the face thereof and in a position to contact ring 59 on the face of insert 26, and in the center thereof is another contact 75 which communicates with contact 67. Cut into the squared portion 46 of the plug 42 are two sockets 77 into which are inserted spring contacts 79 and 80 of U-shaped cross section with their open ends toward the surface of the plug. One leg of each of the contacts 79 and 80 is bowed inwardly so that when a fork is inserted into the contacts, the prongs are held in tight contact. Connected between ring contact 74 and spring contacts 79, and between contact 75 and spring contact 80 are leads bringing the corresponding contacts into electrical communication. The spring contacts 79 and 80 are held in place by projections over the top thereof to keep them from falling out of the plug 42, but they may be inserted in place in the sockets 77 when the two parts of the plug 42 are apart.

The operation of reeling the conductor cord 15 upon the reel is performed as follows: The cover plate 22 is detached from the housing 20 and withdrawn, leaving the end of the reel next to it unsupported. The housing 20 is provided with an opening 89 through which one may reach to remove the reel 30 through the opening 21 after the cover plate 22 is removed. When the reel is removed the conductor 15 is reeled upon it by

first inserting prongs 84 of plug cap 82 into the sockets 77 and spring contacts 79 and 80. The conductor cord 15 at a point near plug cap 82 is forced downwardly through passage 85, which is cut into the flange 49. Just below the passage 85 is an enlarged opening 86 in which the conductor rests after it is forced through the passage 85. The object of this reduced passage 85 is to prevent the conductor 15 from easily slipping out of the opening 86 when the conductor is reeled upon the cylinder 31, and also to prevent the plug cap 82 from being pulled out of its socket when the conductor is completely unreeling in using the iron. The conductor may be inserted into the opening 86 when the parts of the plug 42 are assembled and the plug need not be taken apart to insert it. After the plug cap 82 is inserted in the socket provided for it and the conductor inserted in the opening 86, the conductor may then be reeled around the cylinder 31 leaving the other end free. To replace the reel in the housing the free end of the conductor 15 is drawn through the opening 21 and out the opening 89 and the reel inserted, placing the spindle 34 in its socket in the housing 20 and replacing the cover plate 22 on the housing.

Within the cylinder 31 is a torsion spring 90 which is secured at one end to the inner end 44 of plug 42 by means of screw 91. The other end of the spring 90 is secured in plate 36, the plate having a lug or ear 92 which is bent over and encircles the end of the spring 90. The plate 36 is fixedly secured to the spindle 34 and since the spindle 34 is secured in the housing 20 against rotation, the plate 36 is also held against rotation. When the iron is drawn out along the board, i. e., in the direction away from the reeling device, the tension of the conductor cord 15 turns the reel 30 in a counterclockwise direction, as viewed in Figure 3. When this is done it turns against the action of the torsion spring 90 and as the iron is moved back toward the reeling device, the action of the torsion spring 90 rotates the reel in the opposite direction back to normal position. This spring is not so strong that it has any great effect on the iron, but is only strong enough to reel the conductor cord 15 on the backward movement of the iron.

In reeling the conductor 15 the free end thereof may be let out to any extent desired when inserting the reel 30 in the housing so that it may be adjusted to any degree of tension, i. e., it may be adjusted so that the reel is under no tension at all for any particular position of the iron to suit the convenience of the user.

Between the end plate 32 and the housing 20 encircling the spindle 34 is a compression spring 94, which reacts between the housing 20 and the end plate 32 and consequently the reel 30 and forces it to the left as viewed in Figure 2. This spring keeps the reel in close engagement with the trunnion 27 of the insert 26 so that the electrical contacts in both these parts are in engagement. Of the two contacts on the face of trunnion 27 one is yieldable because it is impracticable to establish contact between two parts when there are two surfaces on each part to contact. As between the two surfaces which are fixed, close engagement may be established between them, and engagement of the other two surfaces is established due to the fact that one of them is biased against the other by means of a yieldable spring.

In Figure 3 may be seen the means by which the cover plate 22 is detachably secured to the

housing 20. The outer periphery of the cover plate 22 is shown in dotted lines. The housing 20 is provided with two bayonet slots 97 each with an enlarged opening and a narrow slot. On the cover plate 22, for each slot 97 is a shank 99 which has on the end thereof an enlargement 100, which can be inserted through the enlarged portion of the slot 97. The cover plate 22 is turned so that the enlarged projections are positioned just opposite the enlarged portions of the slots 97, inserted, and then turned in a counter-clockwise direction as viewed in Figure 3. The enlargements 100 are then held from passing through the reduced portions of the slots 97 and the cover plate is then held securely on the housing 20.

Also in Figure 3 may be seen the parting line 101 which divides the two parts of the plug 42.

I intend that the particular modification shown and described herein shall not be limiting, but illustrative, and that all variations and arrangements of parts to meet particular conditions shall be within the scope of the appended claims.

I claim:

1. In a device of the class described, a housing, a drum in said housing adapted to have an electric conductor wound thereon, trunnions in said housing for supporting said drum, said drum having an insulation insert through which said drum bears on one of said trunnions, said insert containing electrical socket contact members for reception therein of the prongs of a plug cap on the electric conductor, said insert having a notch for insertion of the body of the electric conduc-

tor therein, said electric conductor at its point of securement in said notch receiving the force at the end of the unwinding operation of said electric conductor, and spring means for biasing said drum in a direction to retrieve said electric conductor into said housing.

2. In a device of the class described, a housing, a drum adapted to have an electric conductor wound thereon, said housing having a large opening for insertion of the drum and a small opening, said large opening accommodating said drum with a conductor wound thereon, a first trunnion carried by said drum and adapted to fit detachably into said small opening and support one end of said drum thereby, the other end of said drum being provided with an insulation insert containing electrical socket contact members for reception therein of the prongs of a plug cap on said electric conductor, said insert having a notch for insertion of the body of the electric conductor therein, a detachable cover plate for said large opening and having a second trunnion, said insert bearing on said second trunnion and thereby supporting the adjacent end of said drum, electrical socket contact members in said second trunnion cooperating with said electrical socket contact members in said insert, said electric conductor at its point of securement in said notch receiving the force at the end of the unwinding operation of said conductor, and spring means for biasing said drum in a direction to retrieve said electric conductor into said housing.

WALTER THOMAS DAVIS.