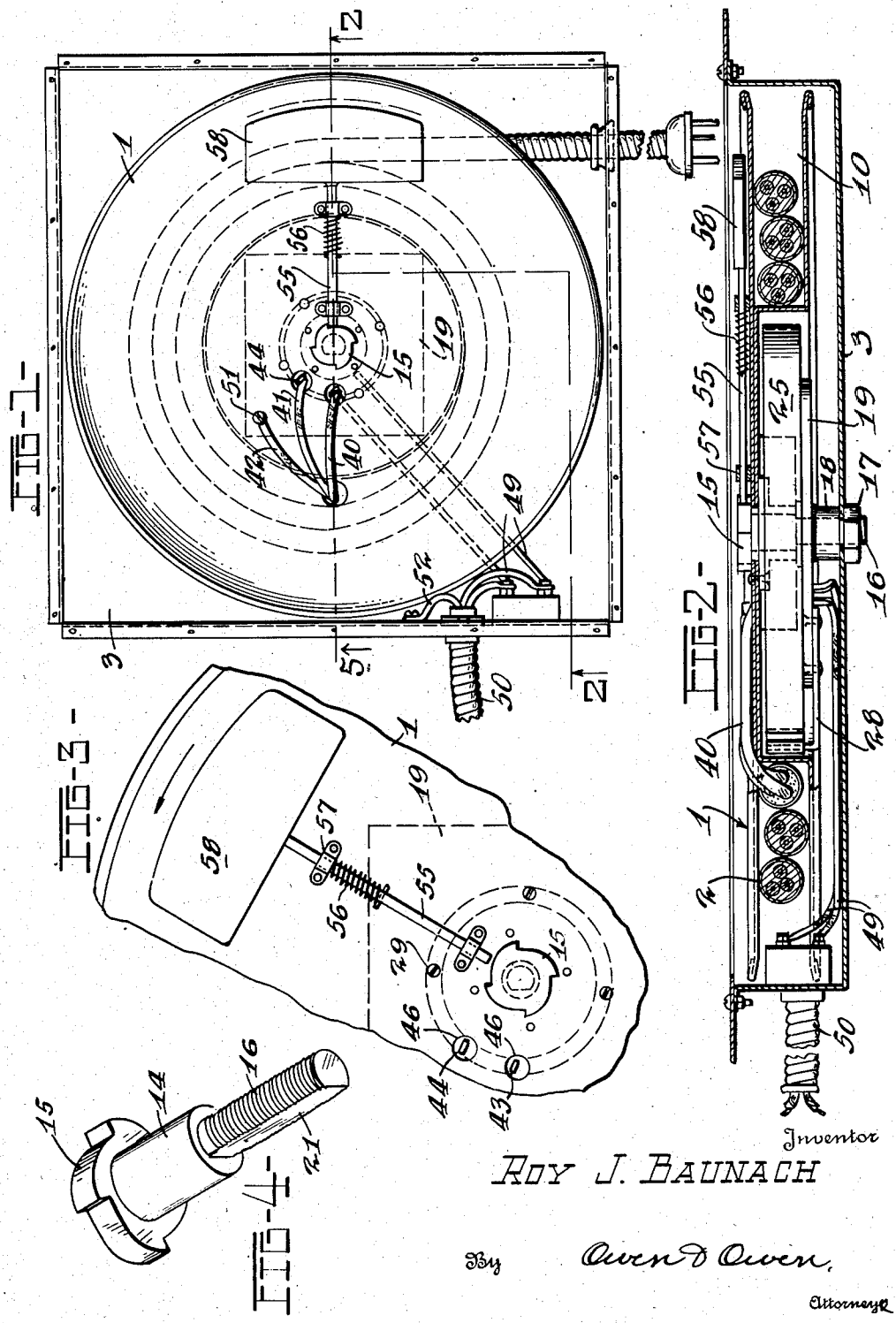
Oct. 23, 1945. R. J. BAUNACH 2,387,556

RETRACTING CORD REEL

Filed Jan. 10, 1944 2 Sheets-Sheet 1



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FIG-5-

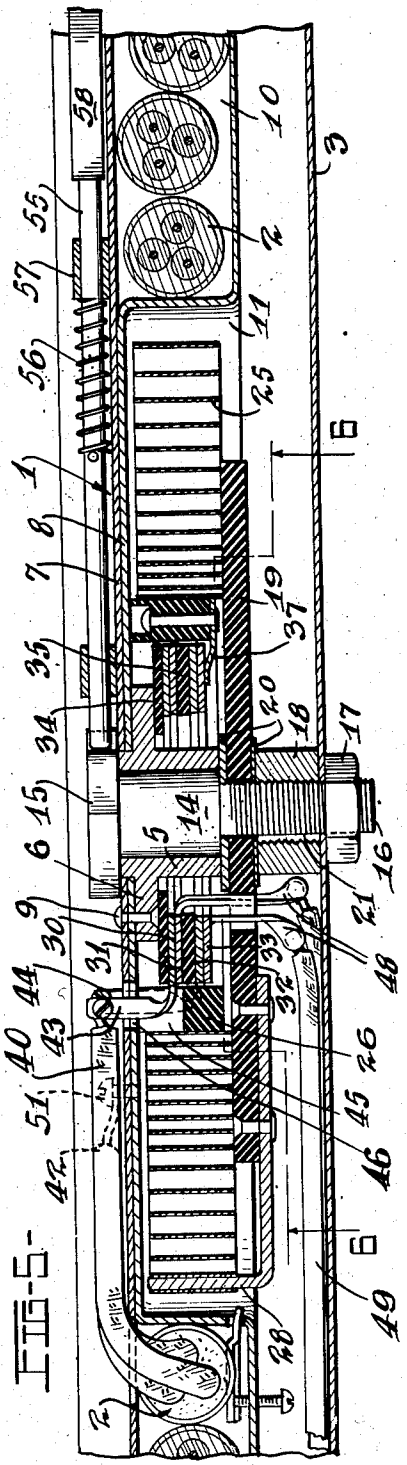
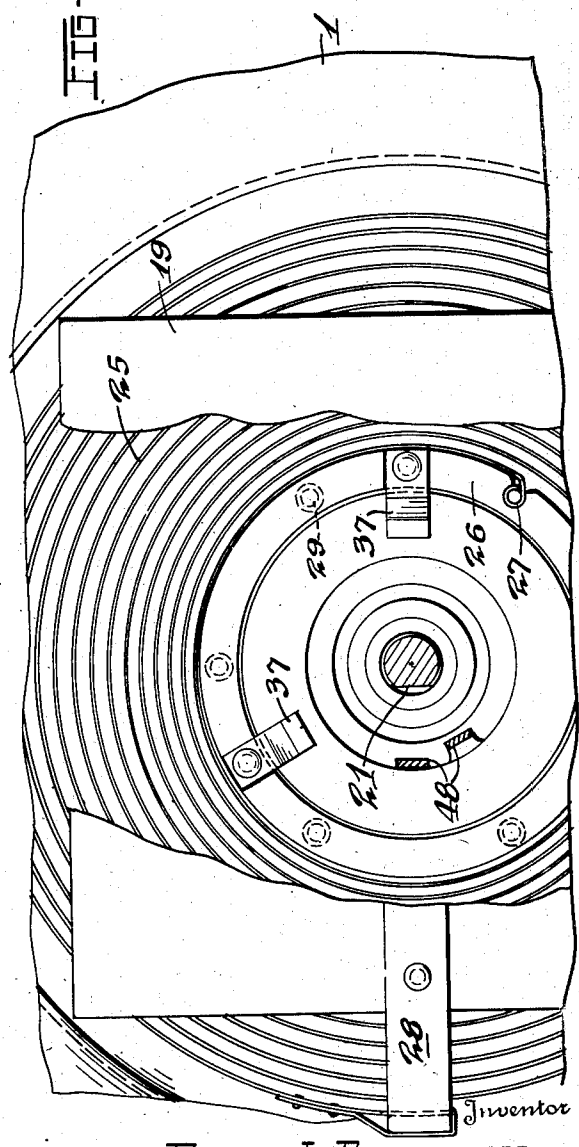


FIG-6-



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RETRACTING CORD REEL

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Application January 10, 1944, Serial No. 517,669

3 Claims. (Cl. 191—12.2)

This invention relates to cable retracting reels, and particularly to those for holding electric cords wherein the cord wires at their inner ends, relative to the reel, have suitable connection with associated electric elements.

The primary object of the invention is the provision of a simple and improved reel of the class described wherein the reel may be of quite narrow construction with its parts compactly arranged and with a retracting spring and the slip contacts for the cord wire connections disposed interiorly of the reel.

Other objects and advantages of the invention will be apparent from the following description, and from the accompanying drawings, in which—

Figure 1 is a top plan view of a reel embodying the invention mounted in an enclosing casing; Fig. 2 is an enlarged section on the line 2—2 in Fig. 1; Fig. 3 is an enlarged detail of a fragmentary top face portion of the reel showing the ratchet feature with the ratchet disengaged; Fig. 4 is an enlarged perspective view of the ratchet wheel and its mounting stud; Fig. 5 is an enlarged fragmentary central vertical section on the line 5—2 in Fig. 1, and Fig. 6 is a fragmentary section on the line 6—6 in Fig. 5.

Referring to the drawings, 1 designates the reel, 2 the cable winding thereon, and 3 the casing or housing in which the reel and its operating parts are disposed. The reel, its mounting and cable wire connections, in the present instance, are designed particularly for use in connection with portable food conveyors wherein several electrical heating elements are provided, and it is desirable to have the extension cord therefor retracted within the conveyor unit when it is not in use or is being moved. In such case, the reel is preferably mounted in the bottom portion of the unit to rotate in a horizontal plane.

The reel 1, in the present instance, comprises a hub sleeve 5 (Fig. 5) having a radial annular flange 6 near its upper end, and two radially extending body flanges 7 and 8, which latter are of disk-form and may be of sheet metal and have their inner portions secured together in side abutment and fitting over the inner end of the hub sleeve 5 against the flange 6 to which they are fixedly attached by rivets 9, or in any other suitable manner. The outer edge portion of the body flange 8 extends laterally from the flange 7 and then radially in spaced relation to the flange 7, and cooperates therewith to form an annular radially opening rim channel 10 within which the cord 2 may wind. This channel is of narrow form, and, in the present instance, is only slightly greater in width than that of the cable. It is thus apparent that the reel includes a hub portion, a channel rim portion and an intermediate web portion, with the latter at one side of the reel and cooperating with the hub and rim to form a recess or space 11 which is open, in the present instance, at the bottom side of the reel or toward the casing 3.

The hub sleeve 5 is rotatably mounted on a stub shaft 14 having at its free or upper end a ratchet wheel 15 and at its lower end a threaded stud 16, which latter is projected through an opening in the casing 3 and is provided at the outer side of the casing with a clamping nut 17. The shaft 14 forms a shoulder at the inner end of the stud 16. A spacing collar 18 and anchor plate 19, with washers 20, are clamped between said shoulder and the casing 3 by a tightening of the nut 17 on the stud 16. The hub sleeve 5 is retained between the ratchet 15 and the adjacent washer 20. The stud 16 has a flat side 21 (Fig. 4) which engages a flat side in the openings of the casing 3 and plate 19 through which it projects, thus preventing any relative turning of the stud, plate and casing.

A coiled spring 25 is mounted in the reel space 11 between the web portion of the reel and the anchor plate 19 and is attached at its inner end to an anchor ring 26, as at 27 (Fig. 6), and at its outer end to a finger 28 fixed to and projecting radially from an edge portion of the plate 19. The spring is tensioned to yieldingly exert a turning movement in cable winding direction on the reel. The ring 26 is concentric to and spaced outwardly from the hub sleeve 5, is secured to the reel web by screws 29, and is of dielectric material, as is also the plate 19.

Within the annular space between the hub sleeve 5 and anchor ring 26 are disposed two sets of side contacting electric brush rings 30, 31 and 32, 33, and two electrical insulating rings 34 and 35, with the former spacing the rings 30, 31 from the hub flange 6 and the latter spacing the two sets of rings. The several brush and insulating rings are held in frictional engaging assembled relation by a plurality of fingers 37, which are attached to and project inwardly from the free edge of the anchor ring 26 and have their free ends in yielding engagement with the outer set of rings 32, 33, thus acting to hold the ring assembly against the hub flange.

The electric cable 2 customarily used in connection with food conveyor units, or the like, includes a plurality of conductor wires, in the present instance three, two being live circuit wires

and the third a ground wire. In the illustrated arrangement, 40 and 41 are the live wires and 42 the ground wire. The wires 40 and 41 are connected, respectively, to fingers 43 and 44 projecting, respectively, from the brush rings 30 and 32. The fingers 43 and 44 project through respective registering openings 45 and 46 in the anchor ring 26 and the web portion of the reel and connect with the respective wires 40 and 41 at the top side of the reel. Each of the brush rings 31 and 33 has a finger 48 projecting downwardly from its inner edge through a registering opening in the plate 19 and connecting with a respective lead wire 49 extending to the different electrical elements of the unit with which the reel is associated. The wires 49 extend from the casing through a cable sheath 50. The ground wire 42 of the cable 2 is connected at 51 to the web portion of the reel, while the companion ground wire 52 of the unit (Fig. 1) is attached to the casing 3. The electrical circuit for the ground wires 42, 52, is completed through the reel 1, hub sleeve 5, shaft 14, stud 16 and casing 3, all of which are of suitable electrical conductive material.

The reel is held in any unwound or cable extended position by the coaction of a spring pressed catch rod 55 with a tooth of the ratchet wheel 15, the rod being normally held in catch engagement with the ratchet wheel by the coiled expansion spring 56, which has one end thrust against a pin or shoulder on the rod and its other end thrust against a guide 57 on the reel side. The rod 55 is provided at its outer end with a weight 58 which, by centrifugal force upon rotation of the reel, overcomes the tension of the spring 56 and moves the rod 55 to released position, as well understood in connection with ratchet mechanisms of this character. It will be understood that an outward pull of the cable will turn the reel sufficiently to cause the rod to ride up on one of the ratchet teeth and that upon releasing the pull on the cable, the reel, under the action of the retracting spring 25, will turn to wind the cable on the reel, and that during this turning movement the weight will act to hold the catch rod in released position, as shown in Fig. 3. During a turning of the reel the movable brush rings 30 and 32 will turn therewith in sliding engagement with the respective stationary rings 31 and 33, thus maintaining a closed circuit connection between the live wires 40 and 41 and the stationary unit wires 49 during any operating movement of the reel. At the same time a closed ground circuit is maintained between the ground wire 42 of the cable 2 and the unit ground wire 52 through the electrical connecting parts of the reel, and its mounting.

I wish it understood that my invention is not limited to any specific construction, arrangement or form of the parts, as it is capable of numerous modifications and changes without departing from the spirit of the claims.

Having thus described my invention, what I claim as new, and desire to secure by United States Letters Patent, is:

1. In a reel of the class described, a stationary mount, a hub sleeve mounted for rotation on said mount, a radially disposed annular web portion fixed to said sleeve and having a rim portion forming an annular radially opening rim channel with the channel at one side of the plane of rotation of said web portion and in overhanging relation to the hub sleeve to provide a space between the rim channel and the sleeve, a ring disposed within said space intermediate the sleeve and rim and anchored to the web portion to rotate therewith, a coiled retracting spring mounted in said space without said ring and anchored at its inner end to the ring and at its outer end to said mount, and electric ring-type brush means mounted in said space between said ring and sleeve, certain of the brush rings turning with the reel and having extensions for the connection of circuit wires thereto and certain other of said rings being stationary relative to said mount and having circuit wire connecting extensions therefrom.

2. In a reel of the class described, a stationary mount, a hub sleeve, a reel body fixed to and projecting radially from said sleeve and forming an annular radially opening cable receiving channel at its outer end in overhanging relation to said sleeve to form a space therebetween, an annular ring of dielectric material fixed to the reel body within said space in concentric relation to the reel axis and in spaced relation to both said sleeve and rim, a coiled spring within said space at the outer side of said ring and attached at its inner end to the ring and at its outer end to said mount, a set of frictionally coacting brush rings mounted in said space between said ring and sleeve and insulated from the sleeve, one ring being stationary relative to the wheel to turn therewith and having an electric circuit wire connection extending without the web portion of the wheel and the other ring being stationary relative to said mount and having a circuit wire connection.

3. In a device of the class described, a stationary mount including a fixed plate, a rotatable reel mounted on said mount above said plate and including a hub sleeve and an annular web portion projecting radially from the sleeve and having a channeled rim for receiving a cable with the channel portion of the rim overhanging the sleeve to form a space therebetween, which space opens downwardly toward said plate and is partially closed thereby, a dielectric ring fixed to said web portion within said space in spaced relation to both the sleeve and the channeled rim, a coiled spring mounted in the outer portion of said space and anchored at its inner end to said ring and at its outer end to said plate, and a plurality of sets of coacting electric brush rings mounted in the inner portion of said space between the dielectric ring and sleeve, the sets being insulated from said sleeve and web portion and from each other, one ring of each set being stationaary relative to the reel to turn therewith and having a cable wire connecting finger and the other brush ring of each set being stationary relative to said plate and having a circuit wire connecting finger projecting therefrom without the plate, and means for retaining the brush rings in assembled relation with the reel.

ROY J. BAUNACH.