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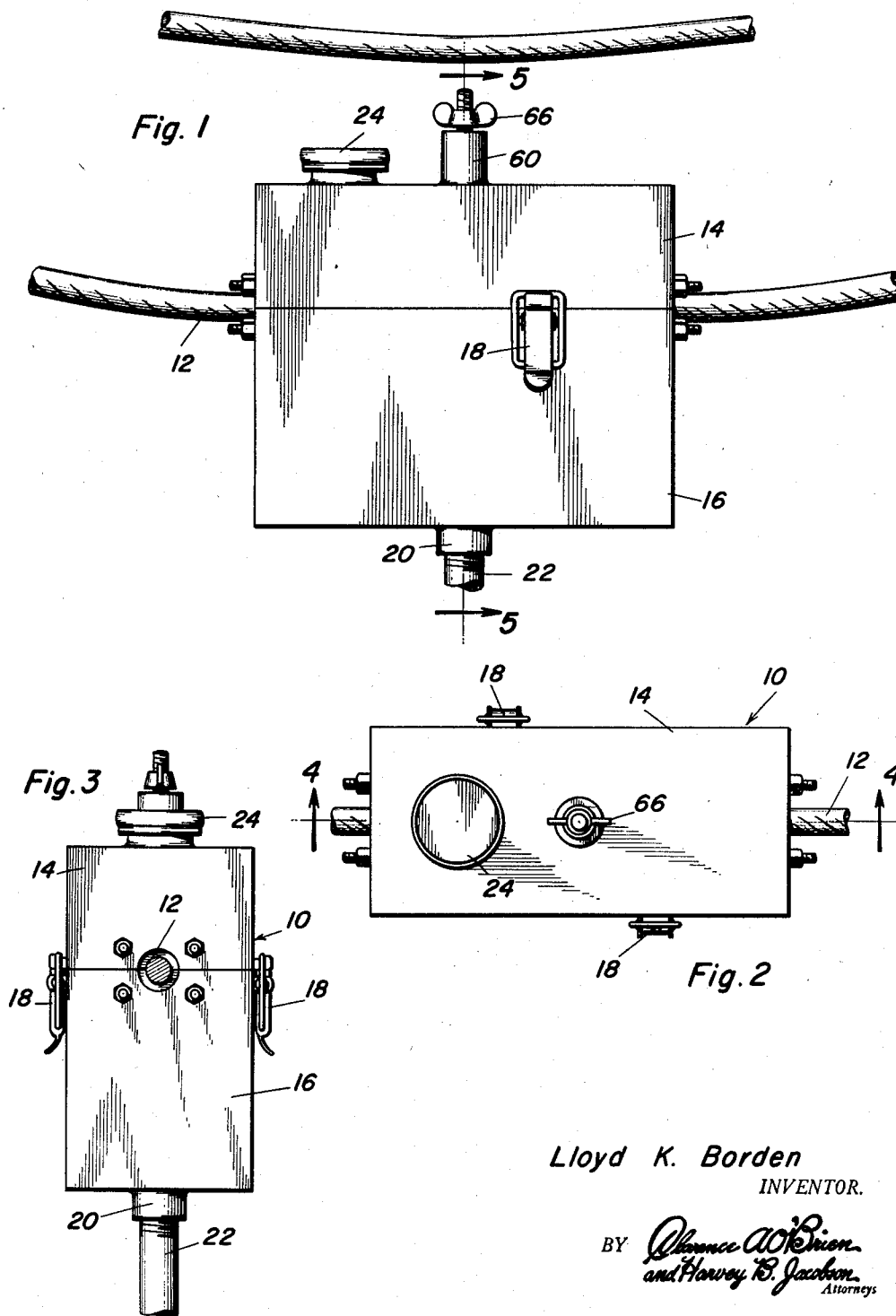
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CABLE LUBRICATING DEVICE

Filed Aug. 29, 1956

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2 Sheets-Sheet 2

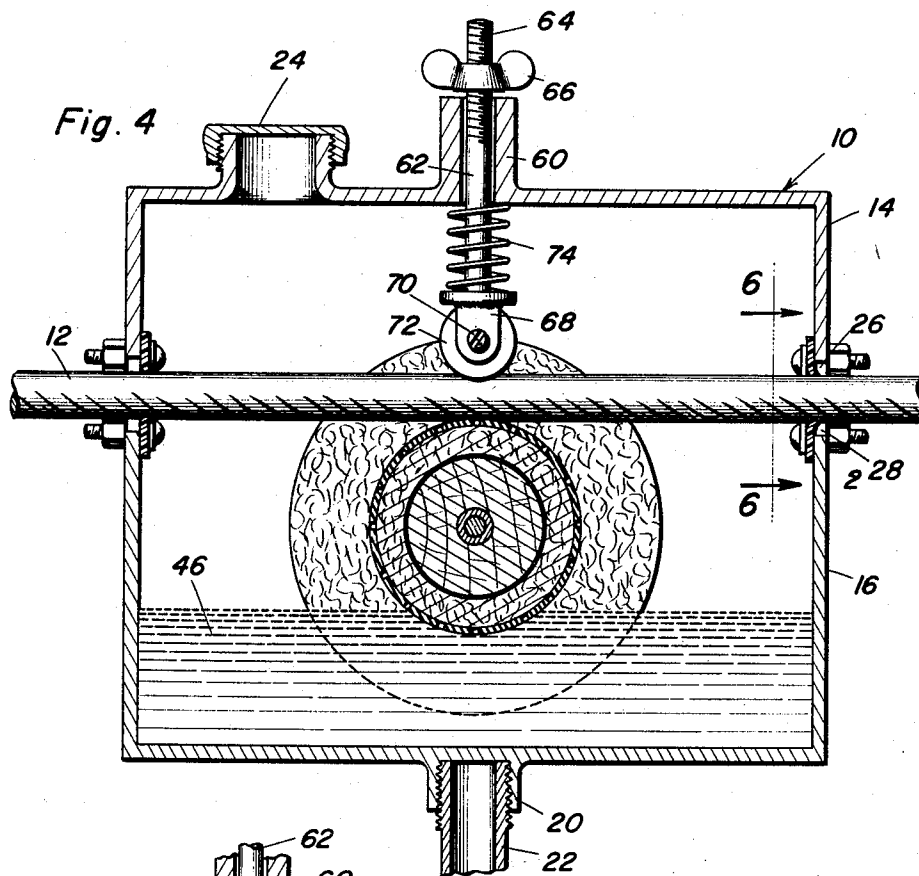


**Fig. 5**

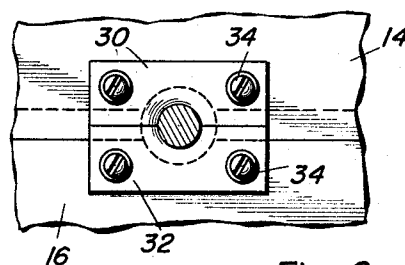
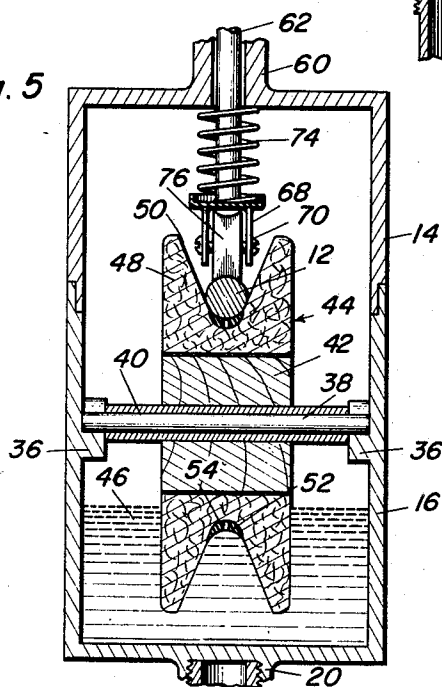


**Fig. 6**

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## CABLE LUBRICATING DEVICE

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5 Claims. (Cl. 118—234)

This invention comprises a novel and useful cable lubricating device and more generally pertains to a device for applying a liquid coating to elongated rod-like elements.

The primary purpose of this invention is to provide an apparatus for effectively applying a liquid coating to an elongated rod-like element such as a wire, rod, cable, rope or similar member.

A further object of the invention is to provide a coating applying device in accordance with the preceding object which may be easily and readily applied to and removed from a rod-like element such as a cable.

Yet another object of the invention is to provide a coating applying device in conformance with the preceding objects wherein the liquid coating may be applied effectively to a cable or other rod-like element under a controlled pressure for thereby impregnating the element therewith.

These together with other objects and advantages which will become subsequently apparent reside in the details of construction and operation as more fully hereinafter described and claimed, reference being had to the accompanying drawings forming a part hereof, wherein like numerals refer to like parts throughout, and in which:

Figure 1 is an elevational view showing one suitable embodiment of the coating applying device in accordance with this invention applied to one flight of an endless cable for effectively coating the same;

Figure 2 is a top plan view of the coating device of Figure 1;

Figure 3 is an end elevational view of the device shown applied to a cable for coating the same;

Figure 4 is a vertical central longitudinal sectional view, taken upon an enlarged scale substantially upon the plane of the section line 4—4 of Figure 2 and showing the manner in which a cable is coated by the device;

Figure 5 is a vertical transverse sectional view taken upon an enlarged scale substantially upon the plane indicated by the section line 5—5 of Figure 1; and

Figure 6 is a detail view taken substantially upon the plane indicated by the section line 6—6 of Figure 4 in vertical transverse section.

The novel coating applying device in accordance with this invention comprises a liquid coating container indicated generally by the numeral 10 and which in the drawings is illustrated as operatively associated with an elongated rod-like element 12 which may comprise a rope, cable or rod, and while this element is generally circular in cross-section, it is evident that with suitable adaptations of the coating applying element as will be apparent hereinafter, that elongated elements of other cross-sectional shapes may be effectively treated by this apparatus.

The container 10 comprises complementary upper and lower sections 14 and 16 respectively, which as shown in Figures 1 and 3 are adapted to be detachably secured

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together as by a conventional snap fastener 18. Conveniently the lower section may be provided with an internally threaded depending boss 20 whereby the device may be mounted upon a handle or standard 22 as desired. Further, the upper section 14 may be provided with a filler cap 24 whereby the liquid coating material may be supplied to the interior of the same.

As will be best apparent from Figures 4 and 6, the mating edges of the end walls of the upper and lower sections of the container are provided with complementary upper and lower recesses 26 and 28 which thus define openings along the mating edges of the two sections through which the cable 12 or other elongated member to be treated by the device may be slidably received. Notched packing members 30 and 32 which may be in the form of flexible plates or the like are secured as by fastening screws 34 to the end walls of the two sections of the container and serve to prevent the escape of lubricant during sliding passage of the elongated member 12 through the container.

Referring now to Figure 5 it will be seen that the side walls of the lower section 16 of the container are provided with inwardly projecting aligned tubular bosses 36 in which is secured an axle 38 upon which a sleeve or bushing 40 is rotatably mounted. Journaled upon the bushing is the hub portion 42 of an applicator roller 44 for applying the coating material to the member 12. As will be readily apparent from Figures 4 and 5, the coating material indicated by the numeral 46 is disposed in the lower section 16 of the container whereby the lower portion of the applicator roller will be immersed therein for conveying the coating material to the member 12 to be treated thereby.

Preferably the pulley 44 upon its hub portion 42 is provided with a circumferentially grooved annulus 48 comprising a pulley or sheave, and which preferably is of a material capable of absorbing the liquid coating, such as sheepskin or the like, the same being provided with the circumferentially extending groove 50 which as illustrated may be of V-shaped contour. Alternatively, however, the groove may be U-shaped or of any other desired cross-sectional shape corresponding to the cross-sectional shape of the element 12 to be treated by the device.

Preferably the bottom of the groove 50 is provided with a soft rubber ring or lining 52 provided with suitable apertures 54 disposed in circumferentially spaced relation. The purpose of these apertures will be subsequently apparent.

As will now be apparent from Figure 4, the two openings in the end walls of the casing for receiving the elongated member 12 are tangent to the bottom of the top portion of the groove 50, whereby the elongated element 12 during its sliding passage through the container will rest in the bottom of the groove upon the resilient lining 52.

A pressure means is provided for applying any desired controllable pressure upon the member 12 for holding the same tightly against the resilient lining 52 and in the bottom of the groove 50 of the applicator roller. For this purpose the upper portion of the upper section 14 is provided with an upstanding tubular boss 60 in which is slidably received a rod 62 screw threaded in its upper end as at 64 for the reception of a wing nut 66. The lower end of the rod carries a bifurcated support 68 in which is journaled as by a pivot pin 70 a pressure roller 72. A compression spring 74 encircles the rod 62 and resiliently urges the pressure roller 72 downwardly into the groove 50 of the applicator roller and against the upper surface of the member 12 received therein.

It should be noted, as will be apparent from Figure 5

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that the pressure roller 72 is provided with a circumferentially extending groove 76 whose cross-sectional shape is complementary to that of the element 12 to be engaged by the pressure roller. If desired, the bottom of the groove 76 may be provided with a resilient lining such as the lining 52 of the applicator roller 44.

The operation of the device is as follows: The snap fasteners 18 are released whereby the two sections of the container may be readily clamped upon or removed from the member 12 for applying a liquid coating to the same. With the member 12 disposed in the groove 50 of the applicator roller 44, and the top section 14 applied thereto, the spring 74 will urge the pressure roller against the member 12 thereby applying a resilient pressure to urge the member 12 against the resilient lining 52 of the applicator roller and a similar lining in the pressure roller if the same is provided. By adjusting the wing nut 66, the tension of the spring 74 may be adjusted and thereby any desired pressure may be applied to clamp the member 12 between the pressure roller and the applicator roller. Thereafter, upon travel of the member 12 through the openings in the end walls of the container, the two rollers will be rotated. During this rotation the applicator roller 44 will pick up liquid 44 from the bottom of the container and apply it to the lower surface of the member 12. During this operation the apertures 54 of the resilient lining 52 will be filled with the liquid, and as these apertures successively pass into contact with the underside of the member 12, the pressure of the roller 72 thereagainst will squeeze the lining 52 and by hydraulic action force the liquid under pressure into the strands or pores or surface of the member 12.

The hereinbefore described apparatus is operative to apply a liquid coating of any desired character to various types of elongated rod-like elements. It is especially useful for applying lubricant to rods or cables, or to apply protective coatings to protect such elements from the various deteriorating effects of fluids and arising from different conditions of use.

The foregoing is considered as illustrative only of the principles of the invention. Further, since numerous modifications and changes will readily occur to those skilled in the art, it is not desired to limit the invention to the exact construction and operation shown and described, and accordingly, all suitable modifications and equivalents may be resorted to, falling within the scope of the invention as claimed.

What is claimed as new is as follows:

1. A device for applying a liquid coating to elongated,

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rod-like elements, comprising a container having end walls with aligned openings for sliding passage of a rod-like element therethrough, coating material in said container, an applicator roller journaled in said casing and having a portion thereof immersed in said coating material and having a peripheral groove disposed in substantial alignment with said openings to thereby receive in said groove said element when disposed through said openings to thereby apply coating material to said element upon rotation of said applicator roller, said applicator roller having the peripheral portion thereof containing said groove formed of a liquid absorbent material, a pressure roller journaled in said casing and having a peripheral groove disposed for receiving therein said element and clamping the latter between said rollers, said pressure roller being smaller in width than said applicator roller, whereby said pressure roller may be positioned within the groove of said applicator roller, resilient means urging the pressure roller towards the applicator roller.

2. The combination of claim 1 including means adjustably limiting operation of the resilient means.

3. The combination of claim 1 wherein at least one of said rollers is provided in the bottom of its groove with a resilient lining.

4. The combination of claim 1 wherein at least one of said rollers is provided in the bottom of its groove with a resilient lining, said lining having spaced apertures therein.

5. The combination of claim 1 wherein said container has upper and lower sections removably meeting upon adjacent edges, said openings comprising complementary notches in the adjacent edges of said sections, snap fasteners detachably securing said sections together, complementary packing members secured to each section as said complementary notches for sealing engagement with said element.

#### References Cited in the file of this patent

##### UNITED STATES PATENTS

|           |            |               |
|-----------|------------|---------------|
| 291,247   | Waterhouse | Jan. 1, 1884  |
| 383,728   | Hallowes   | May 29, 1888  |
| 1,023,490 | Beck       | Apr. 16, 1912 |
| 1,213,428 | Simmons    | Jan. 23, 1917 |
| 2,326,670 | Patterson  | Aug. 10, 1943 |
| 2,436,381 | Daman      | Feb. 24, 1948 |
| 2,654,442 | Yakopatz   | Oct. 6, 1953  |