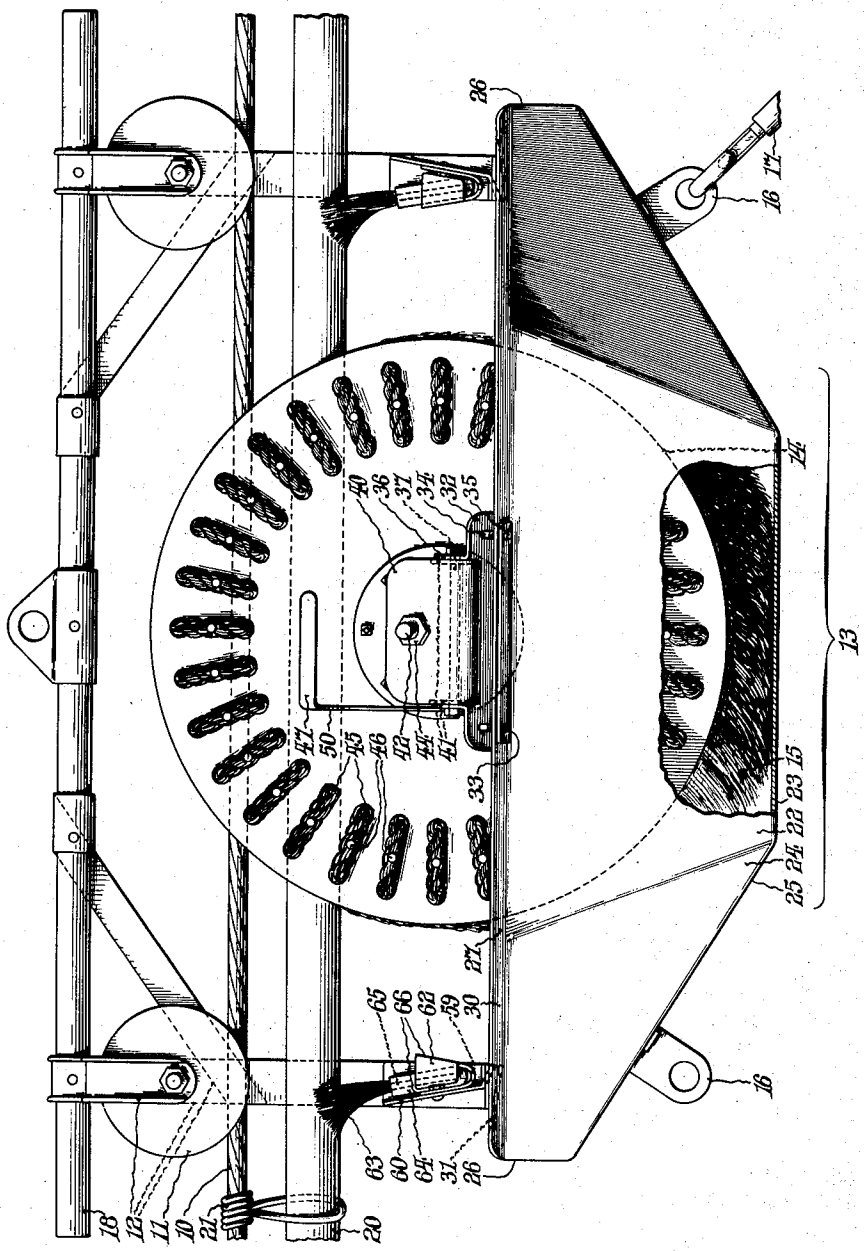
Sept. 8, 1953 C. J. REIGH 2,651,288

LIQUID APPLYING DEVICE FOR CABLES, WIRES, AND THE LIKE

Filed Feb. 16, 1951 2 Sheets-Sheet 1

FIG. 1



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FIG_3_

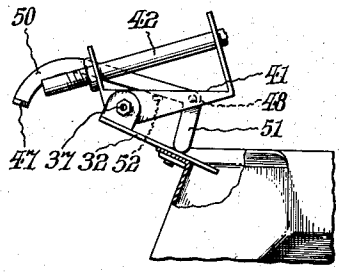


FIG_2_

FIG_4_

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LIQUID APPLYING DEVICE FOR CABLES, WIRES, AND THE LIKE

Clarence J. Reigh, Altoona, Pa.

Application February 16, 1951, Serial No. 211,263

7 Claims. (Cl. 118—108)

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This invention relates to apparatus for applying fluid to an elongate body, and more particularly concerns a device for applying a coating of liquid to pipes, cables, wires and the like.

It has long been recognized that the painting or coating of cable and similar elongate bodies is a difficult and tedious operation. While machines have been proposed for accomplishing the rapid application of paint to cables, these devices have proved generally unsatisfactory in that they are incapable of applying a smooth coating rapidly to the entire exposed surface of the cable; they have a tendency to pass by certain areas of the cable without coating them and to apply an excessively thick coating to other areas. Moreover many cables are hung together in groups wherein one cable is supported by hangers from another cable, and the presence of such hangers and other oversize objects interferes with or completely prevents the efficient operation of the cable coating mechanism. Moreover it has been necessary frequently to disconnect the cable coating device from the cable being coated so that the coating device may be passed around adjacent poles or other uprights which serve to support the cables. This is a cause of annoyance, delay, and expense.

It is accordingly an object of the invention to provide a simple efficient device for applying a coating to an elongate body such as a pipe, cable or the like. It is another object of the invention to provide a continuous cable coating device adapted to be drawn along the cable. A still further object of the invention is to provide a cable coating device having capacity to apply a fluid coating to a plurality of cables in a single pass. Still another object is to provide a device of the character indicated having capacity to expand and contract to accommodate relatively bulky articles connected to the cables, without requiring removal from the cables. It is a still further object of the invention to provide a cable coating apparatus having capacity to tilt to pass around the poles or uprights adjacent to the cable, upon which the cable is supported. Further objects and advantages of the invention, including the simplicity of the same, and the ease with which it may be operated, will appear in further detail hereinafter and in the drawings whereof:

Fig. 1 represents a side elevation of one embodiment of cable coating apparatus in accordance with this invention. In this figure the device is suspended from a pair of associated cables, and part of the apparatus is broken away and shown in section in order to disclose important details;

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Fig. 2 represents a front end elevation of the apparatus of Fig. 1, the cable being shown in section;

Fig. 3 represents a fragmentary end elevation similar to Fig. 2, showing the details of construction of one portion of the apparatus; and

Fig. 4 represents a fragmentary view in perspective of one end of the receptacle which constitutes another portion of the apparatus, as viewed from within the receptacle, portions of the device being removed for the sake of clarity.

In summary, the foregoing and other objects of the invention are accomplished by the provision of apparatus for coating cable with a fluid, comprising a receptacle for the coating fluid, means for suspending said receptacle below said cable, and rotary liquid applicator means non-vertically supported in said receptacle, said applicator means extending within the receptacle and above the top of said receptacle, said applicator means also being pivotally mounted for swinging movement toward and away from said cable and normally bearing against said cable by reason of its own weight.

It will be appreciated that the apparatus represented in the drawings constitutes one preferred embodiment of the invention which may be modified in many particulars without departing from the scope of the invention.

Having reference now to the drawings, the embodiment of the invention selected for illustration is suspended from the messenger cable 10 by suspending means including the wheels or rollers 11 and the rigid brackets 12 which are interconnected by the longitudinal bar 18 and are attached to one side only of the receptacle 13. Pivotally mounted to both sides of the receptacle 13 are the rotary discs 14 to which the swabs 15 are affixed. Apertured connector plates 16 are affixed to the bottom of the receptacle 13 providing means for attaching the pull-rope 17 whereby the apparatus may be drawn along the cable by an operator stationed on the ground or at some other place below the cable. As the apparatus is moved along the cable the discs 14 are rotated by reason of friction drag of swabs 15 against the messenger cable 10 and the main cable 20 suspended therefrom by the hangers 21. Thus the paint or other fluid in the reservoir is lifted by rotation of the swabs 15 which overlap one another to substantially fill the space intervening the respective rotary discs 14. The fluid is thus applied to the cables 10 and 20, as well as to the hangers 21.

The receptacle 13 is in the form of a boat having side walls 22 extending concavely upwardly

from the bottom 23. Angled guide walls 24 are affixed to side walls 22, and upwardly inclined front and back bottom pieces 25 are sealed thereto. The relatively small substantially vertical front and back walls 26 are welded to the elements 24, 25. Angled flanges 27 extend along the tops of the side walls 22 and bumper flanges 30, constituting extensions of flanges 27, are affixed to the tops of angled guide walls 24. The bumper flanges 30 are rounded and serve as bumpers guiding the entire receptacle 13 around the poles or other uprights from which the cables 10, 20 are suspended. The splash plates 31 are extended across the forward and rear ends of the receptacle as illustrated in Fig. 4, and are welded to the flanges 30 and front walls 26. Splash plates 31 are bent slightly into V-formation, as appears in Fig. 2.

In the apparatus illustrated in the drawings, means are provided for mounting the rotary discs 14 non-vertically with capacity to swing toward and away from the cable. Inclined rest plates 32 are adjustably secured to flanges 27 by means of screws 33 extending through slots 34 and threaded to the lip plates 35 disposed against side walls 22 and flanges 27. Brackets 36, formed integrally with rest plates 32, have apertures through which the longitudinal shafts 37 are extended. A swinging carriage having apertured side walls 40 and triangular front and back walls 41 is pivotally mounted on each longitudinal shaft 37, which extends through aligned holes in the front and back walls 41. Transverse shafts 42 extend through the aligned apertures in side walls 40 and are rotatably supported thereby. Each transverse shaft 42 has a threaded surface portion 43 spaced from the shaft ends, for engagement with spacer nut 44. At its inner end each transverse shaft 42 is secured to a rotary disc 14. Each rotary disc 14 has spaced pairs of radially aligned holes through which individual pieces of fibrous material 45 such as rope, cordage, bristles or the like are threaded to form the swabs 15 on the inner face of rotary disc 14. The pieces of fibrous material 45 are attached to the outer faces of rotary discs 14 by nails 46.

It will be observed that the applicators which include rotary discs 14 and swabs 15 are tilted toward one another from the vertical, and are normally yieldably maintained against the cables 10, 20 by reason of their own weight. The swabs 15 extend from the bottom of the receptacle 13 upwardly to a level above the cable to be coated with fluid, and have capacity to apply fluid in excess to the cables 10, 20 and to the hanger 21.

Means are provided for swinging one of the rotary discs 14 outwardly to provide free space for insertion of the cables 10, 20 initially into the machine, and to support the disc 14 at rest in such position. From Fig. 2 of the drawings it will be observed that brackets 12 extend upwardly only from the right hand side of the receptacle 13, and that free space is provided above the left hand side of receptacle 13 for swinging the disc 14 about shaft 37. Thus there is provided, in connection with the left hand rotary disc 14, a handle 47 mounted on handle carrying arm 50 pivoted at 48 to back wall 41 for swinging such disc upwardly and outwardly about its longitudinal shaft 37. The lever operated by handle 47 consists essentially of the handle carrying arm 50 and a relatively short lever arm 51 the free end of which is rounded and bears against, and slides along, the upper surface of stationary rest plate 32 to swing the transverse shaft 42 upwardly and outwardly, or counterclockwise about longitudinal shaft 37, as viewed in Figs. 2, 3, when handle carrying arm 50 is similarly swung counterclockwise. By swinging the handle carrying arm 50 through an arc of 90 degrees the lever arm 51 is swung to a perpendicular position relative to rest plate 32, as indicated in Fig. 3, and serves as a rest support for the disc 14 thus swung outwardly for insertion or withdrawal of the cables 10, 20. Movement of the arm 50 about its pivot 48 is limited by a lug 52 formed integrally with back plate 41. However, handle-carrying arm 50 may be swung further counterclockwise about longitudinal shaft 37 and, acting through the lug 52, swings the disc 14 further counterclockwise. Thus the parts eventually assume the positions represented in dot-dash lines in Fig. 2, the receptacle 13 as well as the swab 15 being then fully accessible for inspection, cleaning, and the like. The plain or unthreaded end of the transverse shaft 42 bears against the under surface of the lip plate 35, supporting the disc 14 and swab 15 in such position.

In view of the fact that swabs 15 have capacity to apply excess coating liquid to the cables 10, 20 and hangers 21, means are provided for removing such excess liquid and returning it to the receptacle 13. Inclined support plates 60, each provided with a pair of spaced vertical slots 61, are fixed to the top of splash plates 31 and to brackets 12. A brush holder cup 62 is adjustably attached to each support plate 60 by means of screws. Slots 61 permit the adjustment of the brush holder cups 62 vertically toward and away from the cable 20. Each brush holder cup 62 is provided at its bottom 59 with drainage holes. A brush having bristles 63 mounted in base 64 is positioned free of attachment in cup 62. Drainage channels 65 extend through each brush base 64, extending from top to bottom thereof, providing for drainage of the excess liquid absorbed by the bristles 63 and for return of such liquid to the receptacle 13.

It will be appreciated that the brushes having bristles 63 and bases 64, as well as the holders 60, are provided in matched pairs at both ends of receptacle 13. Moreover each brush holder cup 62 has equally inclined front and back walls 66 whereby the proper inclination is provided for the brush bases 64 for either direction of travel of the apparatus along the cable.

From the foregoing description, the operation of the apparatus will be readily apparent. The receptacle 13 is filled with paint or other liquid to be applied to the cable, and the apparatus carried by the operator up a pole or upright to the level of the cable. Handle 47 is manipulated and swung to the rest position represented in Fig. 3 of the drawings, swinging the corresponding disc 14 outwardly to present free space for insertion of cable, and the entire apparatus is lifted and swung to place the rollers 11 on top of cable 10. Handle 47 is then manipulated in reverse, returning the disc 14 to the position represented in Fig. 2, the discs 14 and swabs 15 then resting against the cables 10, 20 by reason of their own weight. By means of the tow rope 17 the operator draws the entire device in either direction along the cable. By reason of the friction drag of the cable against swabs 15 the discs 14 are rotated simultaneously, and in proportion to the length of cable actually coated. The rotating swabs 15 are immersed in the liquid in receptacle 13 and continuously lift such liquid as the disc 14 rotates, applying excess liquid to the cables

and hangers. The excess liquid applied to the upper cable **10** and to the hangers **21** flows by gravity to the bottom of lower cable **20**, and is removed by bristles **63** and returned to receptacle **13** through channels **65** and holders **62**.

As the cable coating operation progresses the receptacle **13** passes by the poles or uprights which support the cable above the earth. Even though the cable may be close by the pole, the inclined faces **24** and bumper flanges **30** provide guide means whereby the entire apparatus is tilted by contact with the pole or upright for passage by the pole on said cable. The liquid in the receptacle **13** constitutes shiftable ballast maintaining the balance of the cable coating apparatus as it is tilted, and returning it to the vertical after the pole or upright is passed. Brush bases **64** are manually removable for any supplemental painting desired, or for cleaning receptacle **13** with solvent after use.

It will be appreciated that it is of advantage to provide the rotary applicators heretofore described for applying the liquid to the cable being coated, and to maintain such rotary applicators in a non-vertical position causing each applicator to bear upon the cable being coated by reason of its own weight, thereby exerting consistent, balanced pressure upon the cable. In accordance with such construction the liquid applicators are yieldably mounted for swinging movement toward and away from the cable and are automatically adaptable to permit passage of hangers or other sizable objects which are frequently encountered in coating cable. As the cable coating machine encounters such sizable objects the applicators yield to the necessary extent under the influence of the objects without interruption of the flow of cable coating liquid. The applicators return or fall inwardly against the cable by reason of their own weight when the bulky object is passed.

It is also important to provide liquid-applying means having capacity to convey the liquid in excess quantities to the elongate body being coated, thereby assuring complete coverage of the exposed surface, and to provide means for removing such excess liquid and returning it to the liquid receptacle after it has been applied. In such manner a smooth and even coat of liquid of proper thickness is applied to the entire exposed surface of the body being coated.

It will be appreciated that, although the invention has been described in detail with reference to one embodiment thereof, it may also be practiced by substituting a wide variety of modifications or equivalents for the elements shown and described herein. All such modifications, including reversals of parts and the use of certain features independently of the use of other features, are within the spirit and scope of the invention as defined in the appended claims.

Having thus described my invention, I claim:

1. Apparatus for coating an elongate body with a fluid, comprising a receptacle for the coating fluid, means for suspending said receptacle below said elongate body, and a pair of rotary liquid applicator discs supported at opposite sides of said body at an angle to the vertical in said receptacle, each of said applicator discs extending from within the receptacle to a point above the top of said receptacle, each of said applicator discs also being pivotally mounted for swinging movement toward and away from said elongate body and toward and away from one another, and each said applicator disc normally bearing against said elongate body by reason of its own weight.

2. Apparatus for coating cable with a fluid, comprising a frame, rollers on said frame adapted to be mounted for travel along the top of said cable, a self balancing fluid container fixed to said frame and thereby suspended below said rollers, applicator carriages mounted on said receptacle at each side of said cable each with capacity for movement about a pivot substantially parallel to said cable, a shaft mounted on each applicator carriage and extending substantially transversely of said cable, and a rotary applicator on each said shaft, each rotary applicator extending into the fluid in the fluid container and upwardly and inwardly at an angle against a side of the cable, and normally bearing against the cable by reason of its own weight.

3. Apparatus for coating a continuous elongate body suspended from a series of uprights comprising a receptacle for the coating fluid, means for suspending said receptacle from said elongate body, means for moving said receptacle along said elongate body, said receptacle having a front end of restricted area and sloping side walls extending outwardly from said front end rearwardly to the receptacle body, said sloping side walls serving to guide the receptacle around said uprights as the apparatus proceeds along the elongate body, and rotary liquid applicator means supported at an angle to the vertical in said receptacle, said applicator means extending within the receptacle and above the top of said receptacle, said applicator means also being pivotally mounted for swinging movement toward and away from said cable and normally tilted inwardly, said applicator means having an upper portion that extends toward said cable and bears against said cable by reason of its own weight.

4. Apparatus for applying fluid to an elongate body such as pipe, wire, cable, or the like, comprising a receptacle, a rigid frame member extending upwardly from one side only of said receptacle, there being free space free of any fixed frame member on the other side of the receptacle, rollers attached to said frame above the receptacle, said rollers being engageable on top of said elongate body for suspending the receptacle directly below the elongate body, a pair of matched rotary fluid applicators disposed substantially upright but tilted toward one another within said receptacle and pivoted to opposite sides thereof for swinging movement toward and away from said elongate body, and lever means attached to the applicator at said other side of said receptacle with capacity to swing said applicator outwardly away from said rollers through said free space for inserting the elongate body below said rollers.

5. Apparatus for swabbing cable comprising a fluid receptacle, spaced brackets fixed to and extending upwardly of said receptacle, rollers on said brackets directly above said receptacle, a pair of opposed longitudinal shafts supported by the sides of said receptacle, applicator carriages pivoted to each of said shafts, transverse shafts mounted on each of said applicator carriages free to rotate about axes disposed transversely of said receptacle, and rotary applicators on each of said transverse shafts, said rotary applicators normally tilting toward one another with their upper portions contacting one another over the top of said cable and their lower portions

spaced apart from one another and extending within said receptacle.

6. Apparatus for coating cable with a fluid comprising a receptacle for the coating fluid, means for suspending said receptacle below said cable, rotary liquid applicator means supported at an angle to the vertical in said receptacle, said applicator means extending within the receptacle and above the top of said receptacle and above the top of said cable, said applicator means also being pivotally mounted for swinging movement toward and away from said cable and having capacity to apply fluid in excess to the top and sides of said cable, brush mounting means fixed to the front and rear of said receptacle, said mounting means including upwardly divergent front and back walls, and a brush having a body portion disposed between said front and back walls with capacity to tilt forwardly and rearwardly, said brush having bristles extending upwardly from said body portion and contacting the bottom of said cable to remove excess coating fluid therefrom.

7. The apparatus defined in claim 6, wherein fluid directing means are provided forming drain passages in the brush body portion and in the mounting means, for returning the excess coating fluid to the receptacle.

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