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POLE COATING APPARATUS

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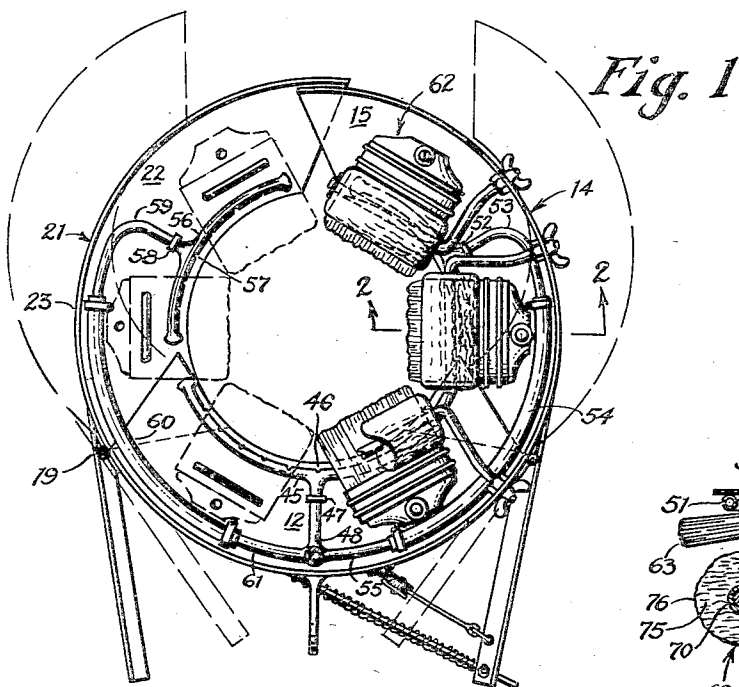


Fig. 1

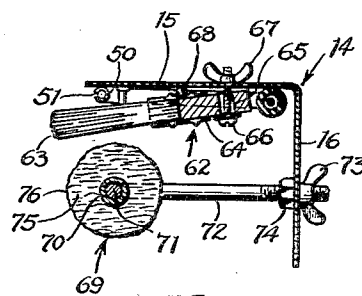


Fig. 2

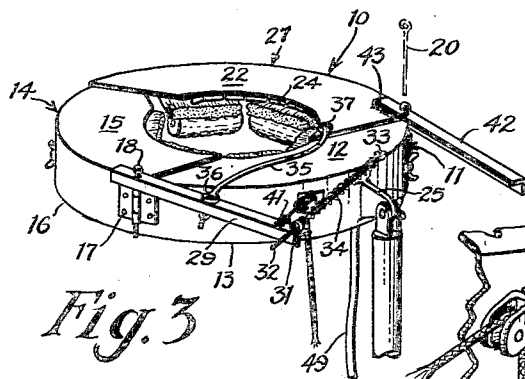


Fig. 3

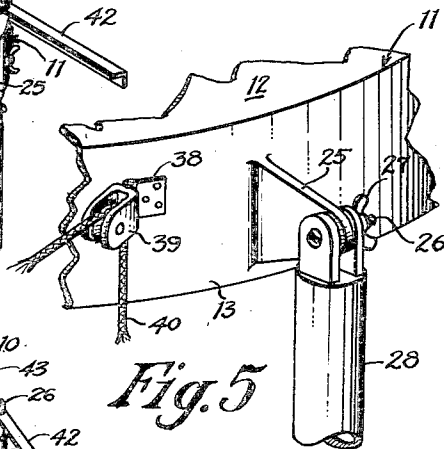


Fig. 5

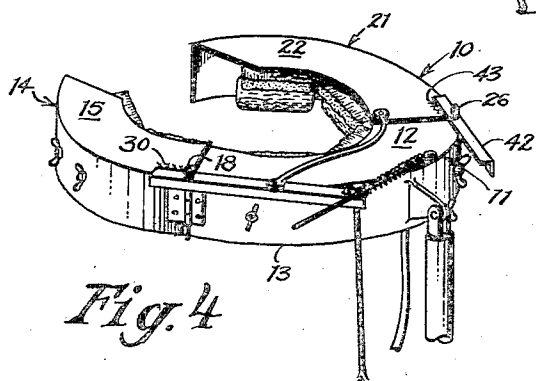


Fig. 4

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POLE COATING APPARATUS

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4 Claims. (Cl. 118—208)

This invention relates to coating and more particularly to an apparatus for facilitating the painting or coating of poles, such as those commonly used for supporting electric power and telephone lines.

As is well known, wooden poles common with other wooden structures are subject to deterioration from exposure to the elements and from various insects and the like and consequently, it is common practice to preserve such poles and prolong the life thereof by coating the same with a suitable material such as paint. While it is a relatively simple operation to coat such poles prior to setting the same in the ground after the same have been set and cross bars and the like attached thereto, it is an extremely difficult and time consuming operation to paint or coat the same, since this usually requires that the painter climb the pole and paint the same from the top down. Obviously, much time and effort could be saved if it were possible to paint the entire pole from the ground, regardless of cross arms and other obstructions mounted thereon.

Heretofore, numerous devices for painting poles and the like from the ground have been proposed and utilized, but many of these devices required the use of halyards already installed or the installation of such halyards on the pole in order to raise and lower the painting device. Obviously, if it were necessary to climb a pole to install halyards for supporting and raising and lowering the painting device, it would be substantially as simple, to paint the pole at that time, rather than to install the halyards and thereafter use a painting device.

Furthermore, many of these prior art devices were only suitable for painting an unobstructed portion of the pole and could not be operated from the ground in such a manner that cross arms and other obstructions could be avoided and at the same time paint the entire pole.

Many of the prior art devices of this nature were also extremely cumbersome and relatively heavy and in certain instances, such devices were provided with power operated means for engaging the surface of the pole to propel the device up and down such pole. Obviously, coating devices of this nature are relatively expensive and in many instances, made the painting operation more costly than would be the case if the same were manually painted.

It is accordingly an object of the invention to provide a pole coating device which may be conveniently manufactured from relatively lightweight materials and which may be conveniently manipulated by a single person standing on the ground.

A further object of the invention is the provision of a pole coating device which may be entirely controlled by an operator standing on the ground who may open and close the device at will, and apply the same to a pole above or below the cross arms or other obstructions mounted thereon and thereafter coat such pole by merely moving the device up and down the same.

A still further object of the invention is the provision of a pole coating device in which paint or other coating

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materials may be supplied to the device through a flexible conduit from a supply container located on the ground.

Another object of the invention is the provision of a pole coating device in which the paint or other coating material is applied to the surface of the pole and spread by means of brushes and fabric covered rollers.

Another object of the invention is the provision of a pole coating device which is readily and automatically adapted to coating poles of varying diameters.

A further object of the invention is the provision of a pole coating device in which all of the paint or coating material utilized is applied to the surface of the pole thereby preventing waste and reducing the cost of the pole painting operation to a minimum.

Further objects and advantages of the invention will be apparent from the following description taken in conjunction with the accompanying drawing wherein:

Fig. 1 is a bottom plan view of a pole coating apparatus constructed in accordance with this invention and showing the same in pole engaging position in full lines, and in open position in broken lines;

Fig. 2, a fragmentary sectional view on the line 2—2 of Fig. 1, and showing the relative arrangement of one of the paint headers, brushes and rollers;

Fig. 3, a view in perspective showing the painting apparatus of this invention in closed position, such as the same would occupy when painting or coating a pole;

Fig. 4, a view similar to Fig. 3, but showing the pole painting or coating apparatus in open position to be applied to a pole; and

Fig. 5, a fragmentary view in perspective showing the manner of attaching the supporting rod to the device, as well as the manner of attaching a pulley for guiding the control rope.

With continued reference to the drawing there is shown a pole coating device constructed in accordance with this invention and which may well comprise a hood 10 having an open bottom and a top and sidewall, which hood may well comprise a fixed arcuate segment 11 having a top wall 12 and an arcuate sidewall 13. Pivotaly mounted on one end of fixed arcuate segment 11 is a movable arcuate segment 14 having a top wall 15 and an arcuate sidewall 16 constituting a continuation of the sidewall 13 of fixed arcuate segment 12. The arcuate segment 14 is attached to the fixed arcuate segment 13 by a hinge 17 which may be provided with a removable hinge pin 18 for permitting convenient disassembly of the apparatus.

Secured to the opposite end of the fixed arcuate segment 11 by a suitable hinge 19 having a removable hinge pin 20 for convenient disassembly, is a second movable arcuate segment 21 provided with a top wall 22 and an arcuate sidewall 23 which also constitutes a continuation of the arcuate sidewall 13 of the fixed arcuate segment 11.

As will be seen from an inspection of Fig. 3, the top walls 15 and 22 of the movable arcuate segments 14 and 21 respectively are provided with portions which overlap the top wall 12 of the fixed arcuate segment 11 when the movable segments are in closed position to form a closed, generally circular hood having a central opening 24 of a diameter slightly greater than the normal diameter of a pole to be painted. The free ends of the movable segments 14 and 21 also have overlapping portions in both the top walls and the sidewalls to thereby provide a substantially closed hood when in closed position.

In order to support and conveniently manipulate the pole coating apparatus of this invention from the ground, there may be provided an ear or other suitable bracket 25 projecting from the sidewall 13 of the fixed arcuate segment 11 and pivotaly secured to this bracket 25 by any suitable means, such as a bolt 26 and wing nut 27, is a rod 28 which may, if desired, be of hollow lightweight con-

struction and which may be provided with joints for permitting the application or removal of additional sections in order to make such rod 28 any desired length whereby manipulation of the device of this invention may be facilitated at any desired height above the ground. The bolt 26 and wing nut 27 provides a means for adjusting the hood 10 angularly with relation to the rod 28 and sufficient friction is provided by this connection to securely hold the hood 10 in such adjusted position. Normally, however, for most painting operations the hood 10 would be disposed at substantially right angles to the axis of the rod 28.

In order that the movable segments 14 and 21 may be opened and closed from a remote point, such as the ground, there may be provided an actuating arm 29 secured to the movable segment 14 by welding or the like, as shown at 30, the arm 29 projecting outwardly and rearwardly of the hood 10 and being provided adjacent its end with an eye 31 for slidably receiving a bar 32 which in turn is pivotally mounted at 33 on the fixed arcuate segment 11. Disposed around the bar 32 between the point 33 and the eye 31 is a compression spring 34 which serves to urge the arm 29 outwardly, as shown in Fig. 3, and the movable arcuate segment 14 to closed position. In order that the movable arcuate segment 21 will operate in conjunction with the arcuate segment 14, a link 35 is pivotally connected at 36 to the actuating arm 29 and at 37 to the movable arcuate segment 21.

Mounted on the sidewall 13 of the fixed arcuate segment 11 by a suitable hinge 38 is a pulley 39 and trained over this pulley 39 is a flexible element such as a rope 40 which is attached at its end 41 to the actuating arm 29 and is of sufficient length to extend to the ground when the hood 10 is disposed at the top of a pole to be painted.

The rope 40 may be utilized to open the movable arcuate segments 14 and 21 when the hood 10 is in an elevated position above the ground and as will be seen from an inspection of Figs. 3 and 4, a downward pull on the rope pulley will operate to move the actuating arm 29 inwardly by swinging the arcuate segment 14 outwardly and at the same time, through the link 35 swinging the arcuate segment 21 outwardly to the positions shown in Fig. 4 and in broken lines in Fig. 1. Release of the rope 40 will permit the compression spring 44 which was compressed by the opening operation to urge the actuating arm 29 outwardly and thereby close both the movable segment 14 and the movable segment 21.

In order to provide for convenient opening and closing of the movable segments 14 and 21 when the apparatus is on the ground or at a convenient manual operating height thereabove, there may be provided a second actuating arm 42 secured to the movable arcuate segment 21 by welding or the like, as shown at 43, the actuating arm 42 extending rearwardly in the same manner as actuating arm 29 and when it is desired to open and close the hood 10, it is only necessary to grasp each actuating arm 29 and 42 in each hand of the operator and move such arms toward each other to open the movable segments 14 and 21 and thereafter such segments will be closed by the compression spring 34 or such action may be augmented by spreading the arms 29 and 42 apart manually.

Secured beneath the top wall 12 of the fixed arcuate segment 11 is an arcuate header 45 which extends throughout the length of the fixed arcuate segment 11 and is provided with a plurality of orifices 46. The header 45 is secured by a suitable coupling 47 to an inlet fitting 48 which may be attached to a flexible conduit 49 extending to a suitable source of paint or other coating material disposed on the ground and which may be forced under pressure through the conduit 49 to the fitting 48 and therefrom to the header 45. Secured to the under side of the top wall 15 of the movable arcuate segment 14 is an arcuate header 50 provided with orifices 51 which

header 50 is connected by a coupling 52 and a pipe 53 to a flexible conduit 54 which in turn is connected to a pipe 55 extending from a supply fitting 48. Similarly there is provided an arcuate header 56 mounted on the underside of top wall 22 of movable arcuate segment 21, and header 56 is provided with a plurality of orifices 57. The header 56 is connected through a coupling 58 and a pipe 59 with a flexible conduit 60 which in turn is connected to a pipe 61 with the supply fitting 48. The flexible conduits 54 and 60 permit relative movement of the movable arcuate segments 14 and 21 without destroying the supply connection between the source of paint or other coating material and the headers 50 and 56 mounted in the movable arcuate segments 14 and 21.

Mounted in the hood 10 below the arcuate headers 45, 50 and 56, are a plurality of brushes 62 having bristles 63 directed radially inwardly and in which all of the brushes 62 provide a circular arrangement in which the bristles 63 will engage substantially the entire circumference of the pole to be painted. As best shown in Fig. 2, the base 64 of each brush 62 is provided with an enlarged aperture 65 through which extends a bolt or other suitable fastening element 66 and threadedly received on the outer end thereof above the top wall of each segment is a wing nut 67 which serves to secure the body 64 of the brush 62 in position. It will be noted from an inspection of Fig. 2, that the brushes 62 extend inwardly and are inclined downwardly and the angle of inclination may be determined by a bar 68 secured to the top wall of each segment in a desired position and forming an abutment for the upper surface of the body 64 of each brush 62 and, as will be clear, the position of the bar 68 determines the angle of inclination of the brush 62. When it is desired to clean the brushes 62, it is only necessary to remove each wing nut 67 upon which the brushes can be conveniently removed and cleaned in any desired manner. It is also to be noted that the downward inclination of the brushes permits flow of paint or other coating material toward the tips of the bristles 63 thereby facilitating the application of all paint or coating material ejected from the headers to the pole.

Disposed directly below the brushes 62 in a circular arrangement are a plurality of rollers 69 and, as best shown in Fig. 2, such rollers may well comprise a core 70 which is rotatably mounted on an axle 71, such axle having an angularly disposed portion 72 which extends through an aperture in the sidewall of each arcuate segment and may be secured in place therein by a wing nut 73 engaging the outer surface of such sidewalls. The radial position of the rollers 69 may be adjusted by an abutment nut 74 threadedly received on the angularly disposed portion 72 and likewise, the rollers may be removed for cleaning or other purposes by merely removing the wing nuts 73. Each roller 69 has secured to the core 70 a body 75 and received on the outer surface of the body may be a yieldable covering of fabric or other suitable material 76. Rollers 69 are normally adjusted in such a fashion that all of these rollers will engage the pole to be painted and serve to guide the painting apparatus in up and down movements on the pole.

In operation it is assumed that the flexible conduit 49 is connected to a suitable source of supply of paint or other coating materials utilized, and that sufficient pressure is applied to such source to force the paint or coating material through the conduit 49 and to the headers 45, 50 and 56, secured to the hood 10. Likewise, it is assumed that the brushes 62 and rollers 69 are adjusted in such a manner as to engage and accommodate the particular pole to be painted after which the movable arcuate segments 14 and 21 will be opened by moving the actuating arms 29 and 42 toward each other, either by grasping the same in the hand of the operator or by exerting a downward pull on the rope 40. The painting apparatus is applied to the pole by passing the same radially thereof until the pole is centered in the open-

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ing 24 and it is to be noted, that this operation may take place at any location on the pole, either above or below cross arms or other obstacles thereon, after which the movable segments 14 and 21 are allowed to close with the brushes 62 and rollers 69 in engagement with the surface of the pole. At this time, paint or other coating material is ejected from the arcuate headers 45, 50 and 56 onto the brushes 62 and the device is moved up and down the pole through the medium of the rod 28 held in the hands of the operator standing on the ground, by reason of which the brushes 62 and the rollers 69 serve to spread and distribute the paint or other coating material over the surface of the pole. It is to be noted, that if the diameter of the pole is such that the movable segments are somewhat spread thereby preventing overlapping of the brushes and rollers, that the device may be moved up and down and also rotated on the pole in such a manner as to bring the brushes and rollers into contact with the entire exterior surface thereof. This, of course, results in a smooth and even coating of paint or other material on the surface of the pole and also provides a secure bond between this coating material and the pole.

Obviously, sections may be added to the rod 28 to cover any reasonable height and the apparatus may be opened and closed at any height in order to move the same around cross arms or other obstructions present on the pole. It will also be apparent, that any paint or other coating material dripping from the headers will be caught by the bristles 63 of the brushes 62 and will flow down such bristles, due to the inclination thereof and be applied to the surface of the pole. It will also be seen, that the apparatus may be conveniently dismantled for cleaning or other purposes by removing the hinge pins 18 and 20 to permit complete opening of the hood 10 and likewise, the brushes 62 and rollers 69 may be conveniently removed and washed in a suitable cleaning solution.

By use of this invention, a pole may be completely painted from top to bottom in a relatively short time and by an operator standing on the ground without the necessity for anyone climbing the pole in order to install ladders or any other fixtures thereon and likewise, the apparatus may be of such lightweight construction that no undue fatigue is experienced in utilizing the same. Furthermore, the apparatus of this invention may accommodate and coat poles of varying diameters, it only being necessary to open the hood and apply the same to the pole, after which all surface thereof may be covered by suitable manipulation of the apparatus.

It will be obvious to those skilled in the art that various changes may be made in the invention without departing from the spirit and scope thereof and therefore the invention is not limited by that which is shown in the drawing and described in the specification, but only as indicated in the appended claims.

What is claimed is:

1. A pole coating apparatus comprising a hood open at the bottom and having a substantially flat top wall and a circular sidewall, a central opening in said top wall, said hood comprising an intermediate arcuate segment, a swingable arcuate segment hingedly mounted on each end of said intermediate segment and a bracket extending from the center of the sidewall of said intermediate segment, a supporting and operating rod adjustably secured to said bracket, an actuating arm secured to one of said swingable segments, a link pivotally connected to said arm and to the other of said swingable segments, an eye on said arm, a bar pivotally mounted on said intermediate segment and slidably received in said eye, a compression spring disposed on said bar between said intermediate segment and said eye, a pulley mounted on said intermediate segment, a flexible actuating element trained over said pulley and attached to said arm, a plurality of brushes detachably secured to the top wall of each segment with-

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in said hood, said brushes being inclined downwardly and extending radially inwardly, an arcuate header mounted in each segment between said brushes and said top wall, orifices in said headers, a paint supply fitting connected to the header in said intermediate segment, a paint supply conduit connected to said fitting, flexible conduits connecting said fitting and the headers in each swingable segment and a plurality of pole engaging rollers disposed below said brushes and adjustably mounted on the sidewall of each segment whereby upon exerting a pull on said flexible element to move said arm and compress said spring and at the same time grasping said rod to hold said intermediate segment stationary, said swingable segments will open to admit a pole to be painted into said central opening and upon release of said flexible element said swingable segments will be closed by said spring to bring said brushes and said rollers into engagement with said pole and upon ejecting paint from said headers on said brushes said hood and brushes carried thereby may be manually manipulated through said rod to spread said paint on said pole.

2. A pole coating apparatus as defined in claim 1, in which a second actuating arm is provided on said second swingable segment whereby said swingable segments may be opened by manually moving said arms toward each other.

3. A pole coating apparatus comprising a hood open at the bottom and having a substantially flat top wall and a circular sidewall, a central opening in said top wall, said hood comprising an intermediate segment, a swingable segment hingedly mounted on each end of said intermediate segment said segments being of substantially equal length, a bracket extending from the side wall of said intermediate segment, a supporting and operating rod adjustably secured to said bracket, an actuating arm secured to one of said swingable segments, a link pivotally connected to said arm and to the other of said swingable segments, an eye on said arm, a bar pivotally mounted on said intermediate segment and slidably received in said eye, a compression spring disposed on said bar between said intermediate segment and said eye, a pulley mounted on said intermediate segment, a flexible actuating element trained over said pulley and attached to said arm, a plurality of brushes detachably secured to the top wall of each segment within said hood, said brushes being inclined downwardly and extending radially inward, a header mounted in each segment between said brushes and said top wall, orifices in said headers, a paint supply fitting connected to the header in said intermediate segment, a paint supply conduit connected to said fitting, flexible conduits connecting said fitting and the headers in each swingable segment and a plurality of pole engaging rollers disposed below said brushes and adjustably mounted on the side wall of each segment whereby upon exerting a pull upon said flexible element to move said arm and compress said spring and, at the same time grasping said rod to hold said intermediate segment stationary, said swingable segments will open to admit a pole to be painted into said central opening and upon release of said flexible element said swingable segments will be closed by said spring to bring said brushes and said rollers into engagement with said pole and upon ejecting paint from said headers on said brushes, said hood and brushes carried thereby may be manually manipulated through said rod to spread said paint on said pole.

4. A pole coating apparatus comprising a hood open at the bottom and having a substantially flat top wall and a circular sidewall, a central opening in said top wall, said hood comprising an intermediate segment, a swingable segment hingedly mounted on each end of said intermediate segment, a supporting and operating rod secured to said intermediate segment, resilient means for biasing said swingable segments to closed position, an actuating element for opening said swingable segments, a plurality of brushes secured to each segment, an arcuate

header overlying the brushes carried by each of said segments, orifices in said headers, means to supply paint to said headers, and a plurality of pole engaging rollers disposed below said brushes and mounted in each segment whereby upon operation of said actuating element and, at the same time grasping said rod to hold said intermediate segment stationary, said swingable elements will open to admit a pole to be painted into said central opening and said swingable segments will be closed by said resilient means to bring said brushes and said rollers into engagement with said pole and upon ejecting paint upon said headers on said brushes said hood and brushes car-

ried thereby may be manually manipulated through said rod to spread said paint on said pole.

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