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APPARATUS FOR COATING ARTICLES

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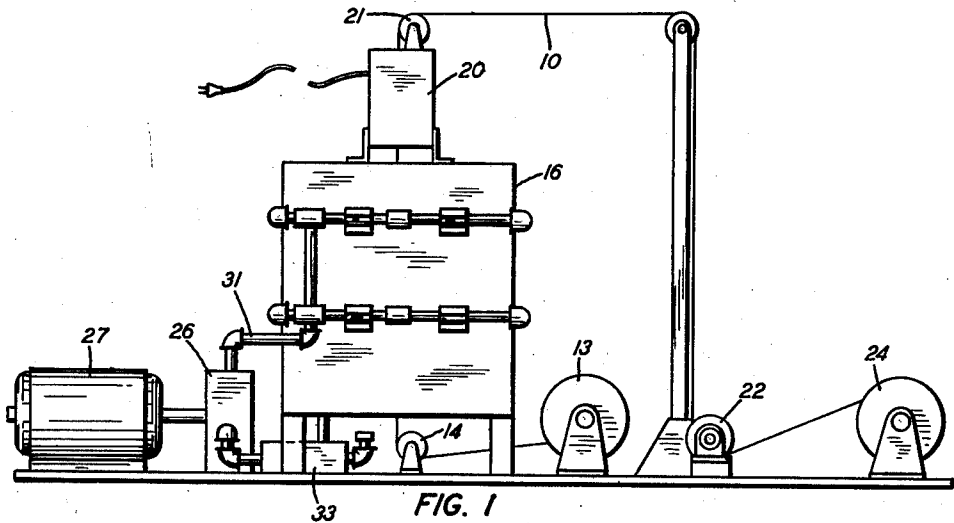


FIG. 1

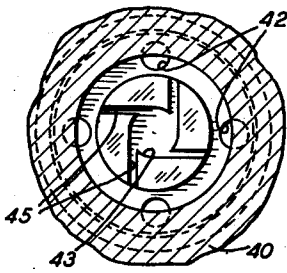


FIG. 4

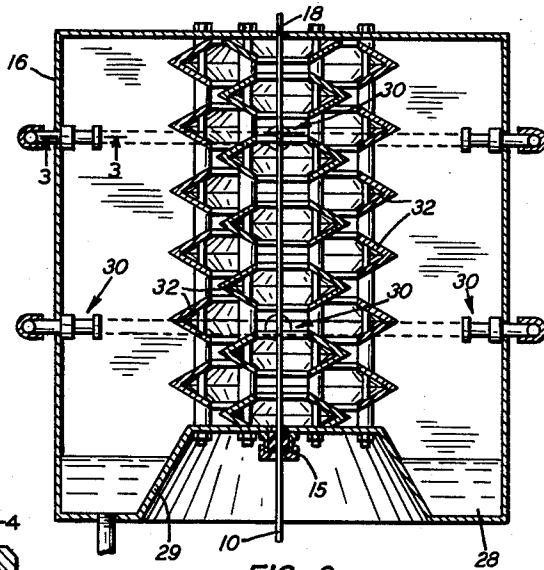


FIG. 2

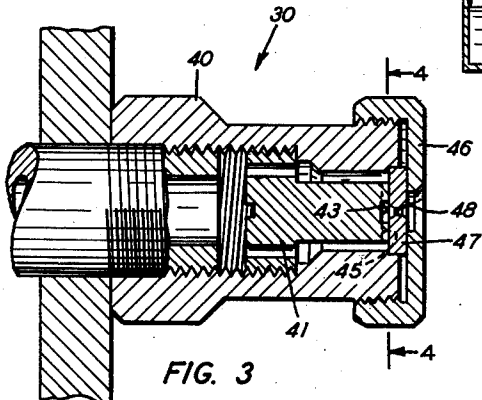


FIG. 3

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1 Claim. (Cl. 118—325)

1

This invention relates to apparatus for coating articles, and more particularly to apparatus for painting covered conductors.

In applying coatings to articles, for example, in applying paint to insulated conductors, it is essential to cover the portions of the articles to be painted completely with paint but it is undesirable to use more paint than is needed to just cover the articles. Sometimes articles are painted with brushes, but this method of painting requires large quantities of paint per unit area painted and does not coat articles uniformly. Air sprays also have been used to paint articles, but in this method of painting, much of the spray misses the article to be painted, thereby wasting paint. A further method of painting consisted of immersing an article in a bath of paint, withdrawing the article and wiping as much of excess paint applied to the article as possible. The latter method also uses more paint than is needed for coverage and does not coat the articles uniformly.

An object of the invention is to provide new and improved apparatus for coating articles.

A further object of the invention is to provide new and improved apparatus for painting covered conductors.

An apparatus illustrating certain features of the invention may include a chamber through which an article to be coated may be advanced, and means for creating mechanically a suspension of fine particles of liquid in the chamber, whereby the particles of liquid precipitate onto the article to coat it.

A complete understanding of the invention may be obtained from the following detailed description of an apparatus forming a specific embodiment thereof, when read in conjunction with the appended drawing, in which:

Fig. 1 is a fragmentary elevation of an apparatus forming one embodiment of the invention;

Fig. 2 is an enlarged vertical section of a portion of the apparatus shown in Fig. 1;

Fig. 3 is an enlarged, fragmentary, horizontal section taken along line 3—3 of Fig. 2, and

Fig. 4 is an enlarged, fragmentary, vertical section taken along line 4—4 of Fig. 3.

Referring now in detail to the drawing, a covered conductor 10 which is to be coated with paint 28 is advanced from a supply reel 13 around a guide sheave 14, then upwardly through a close-fitting entrance seal 15 into a painting chamber 16. The conductor passes through the chamber 16 and leaves it through an exit opening 18. The conductor 10 is advanced continuously from the

2

chamber 16 through a drier 20 and around a guide sheave 21 by a capstan 22, and is taken up on a takeup reel 24.

A pump 26 driven by an electric motor 27 pumps paint 28 held in a reservoir 33 connected to a catch basin 29 of the chamber 16 to atomizing nozzles 30—30 positioned in the chamber 16. The paint is supplied to the chamber 16 through a supply pipe 31 as needed. The paint 28 is forced through the nozzles 30—30 under high pressure, and the nozzles 30—30 atomize the paint to a fine mist directed toward the portion of the conductor in the chamber 16. The mist is directed toward annular baffles 32—32 positioned between the nozzles 30—30 and the conductor 10. The baffles 32—32 prevent oversized particles of the paint from traveling toward the conductor 10, but permit fine particles of the paint 28 to travel therewith and remain in suspension in the chamber 16. The fine particles contact the covered conductor 10 completely therearound, and deposit thereon in a thin layer which has a uniform thickness over the entire exterior surface of the covered conductor so that excess paint is not required to coat the covered conductor completely.

Each of the nozzles 30—30 includes a tubular housing 40 and an insert 41 having longitudinal passages 42—42, a bore 43 and transverse turbulating passages 45—45 tangential to the bore 43. A cap 46 holds a disc 47 against the insert, and the disc has a small orifice 48 extending therethrough. The nozzles create a very fine mist leaving the orifices illustrated by the orifice 48.

The exit opening 18 is sufficiently large to prevent contact thereof with the coated conductor 10 as the conductor passes therethrough, but is sufficiently small to permit only negligible quantities of the paint mist to drift therethrough out of the chamber. Furthermore, since the opening 18 is located at the top of the chamber 16, gravity aids in preventing escape of the particles from the chamber. The conductor 10 is not contacted mechanically until it has left the drier 20, and is engaged by the guide sheave 21 at which time the paint has been dried on the conductor. The oversized particles of paint caught by the baffles 32—32 drop back into the catch basin 29 in the chamber 16 and return to the reservoir 33.

The fine mist of paint produced by the atomizing nozzles 30—30 and the baffles 32—32 fills the entire upper portion of the chamber 16 so that all portions of the covered conductor 10 are contacted by the mist and covered therewith. In coating the covered conductor with a mist, the coating applied to the covered conductor is very

3

thin and evenly distributed thereon. Hence, no excess paint is required for coating the conductor with the mist. Furthermore, large quantities of the paint are not wasted as in painting apparatus utilizing air sprays, because in creating the mist mechanically by pressure on the liquid forced through the nozzles or mechanical agitation, as distinguished from air sprays, or the like, no pressures tending to force the mist out of the apparatus are created.

What is claimed is:

An apparatus for painting a conductor, which comprises a chamber having a bottom provided with a raised central portion having an entrance opening therein, said chamber also being provided with a top having an exit opening aligned with the entrance opening therein, a seal mounted in the entrance opening permitting a conductor to be advanced therethrough, a group of annular, wedge-shaped baffles of a predetermined external diameter, a plurality of rods secured to the top and bottom of the chamber, a plurality of spacers mounted on the rods and mounting the baffles centrally in the chamber in positions extending in a series from the entrance opening

4

to the exit opening and spaced from one another, a second group of annular, wedge-shaped baffles of an internal diameter greater than the external diameter of the first-mentioned baffles, a plurality of rods secured to the top and the bottom of the chamber in positions outside the first-mentioned baffles, a plurality of spacers mounted on the last-mentioned rods and mounting the baffles of the second group in the chamber in positions covering the spaces between the baffles of the first group, and means positioned in the chamber outside the baffles for projecting a fog of paint toward the baffles.

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