A. L. LOUCKS

METHOD OF CLEANING LEAD-SHEATHED CABLES

Filed May 23, 1946
METHOD OF CLEANING LEAD-SHEATHED CABLES


Application May 23, 1946, Serial No. 671,838

2 Claims. (Cl. 134—5)

This invention relates to methods of cleaning lead-sheathed cables.

In the manufacture of lead-sheathed cables, a cable core is advanced through a lead extrusion press, which extrudes a hot lead sheath over the cable core, and the cable is immediately wound upon a take-up reel. In order to prevent the hot lead of the portion of the sheath of one turn of the cable on a take-up reel from sticking to those of turns in contact therewith, lubricating material, such as tallow, or the like, is sometimes applied to the lead sheath as it emerges from the lead press and before the cable is wound on the reel. If coverings are subsequently to be applied adhesively to the lead-sheathed cable, it is essential to remove the tallow previously applied thereto because the tallow lessens the effect of adhesive material which is applied to the cable. In the past, only laborious and complicated methods of removing the tallow from lead-sheathed cables have been known.

An object of the invention is to provide new and improved methods of cleaning lead-sheathed cables.

A method constituting one embodiment of the invention includes the steps of continuously advancing a lead-sheathed cable having tallow, or the like, thereon, covering the cable with a hot thermoplastic cement to melt the tallow, and wiping the tallow and the cement off of the lead-sheathed cable. A coating of cement then may be made to the cleaned lead-sheathed cable without interference in the adhesiveness thereof from the tallow.

An apparatus by means of which methods embodying the invention may be practiced, includes means for covering a lead-sheathed cable having tallow, or the like, thereon with a hot thermoplastic cement, a tight wiper for wiping the cement and the tallow from the cable, and means for coating the wiped portion of the cable with thermoplastic cement.

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

Fig. 1 is a fragmentary, front elevation of a portion of an apparatus for accomplishing a method forming one embodiment of the invention;

Fig. 2 is a fragmentary, front elevation of another portion of the apparatus;

Fig. 3 is an enlarged, top plan view of a portion of the apparatus with portions thereof broken away;

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

Fig. 5 is an enlarged view of an element of the apparatus.

Referring now in detail to the drawings, a lead-sheathed cable 20, having tallow, or the like, covering all or a part of the periphery thereof, is advanced from a supply reel 21 mounted on a supply stand 22 through a bellmouth 23 and a cleaning and flooding tank 24. Associated with the flooding tank 24 is an electric motor 25, which drives a pump 19 (Fig. 4) to pump hot thermoplastic cement, or other adhesive material, such as asphalt, upon the cable through troughs 26 and 27 (Fig. 3). The hot cement applied to the cable by the trough 26 melts the tallow, and a tight wiper 28 wipes the cement and the melted tallow from the periphery of the cable. The hot cement flowing through the trough 27 then covers the wiped periphery of the cable and the excess thereof is wiped from the cable by a relatively loose wiper 29. The tallow and any other meltable substance on the cable is completely removed therefrom by the hot cement applied by the trough 26 and the wiping action of the wiper 28 so that the tallow does not prevent adhesion between the cement applied to the cable by the trough 27 and the cable.

The cable 20 passes from the flooding tank 24 to a tape applicator 30, which is disclosed and claimed in my copending application Serial No. 671,835, filed May 23, 1946, now matured as Patent No. 2,494,930, dated January 10, 1950. The tape applicator 30 applies an insulating tape 31 formed of thermoplastic material longitudinally to the cable. Other coatings then are applied over the tape 31 as disclosed in the above-mentioned copending application. The cable 20 is advanced through the above-disclosed apparatus by a capstan (not shown), which is disclosed in the above-mentioned copending application.

The cleaning and flooding tank 24 includes a screen 40 (Fig. 4) for supporting drums of thermoplastic cement upside down therein in a steam-jacketed melting chamber 41. The heat in the steam-jacketed melting chamber 41 melts the cement in the drums so that the cement flows through the screen into the bottom portion of the steam-jacketed melting chamber 41, which heats the cement to a high temperature. An externally controlled valve 42 may be opened to permit the cement to flow by gravity from the melting chamber 41 into a steam-jacketed circulating chamber 43. The cement is pumped from the circulating chamber 43, pumped upwardly into the troughs 26 and 27 (Fig. 3) through the pump 19 (Fig. 4), which
includes impellers 45-45. The cement flows through the trough 26 onto the cable 20 and completely covers the cable. The hot cement melts the tallow on the periphery of the lead-sheathed cable 20 upon contact therewith, and the coated portion of the cable 20 is advanced through the tight wiper 28.

The wiper 28 includes a wiping block 50 (Fig. 5) having a hole 51 therein of such a size that the block 50 fits tightly over the lead-sheathed cable. The wiping block 50 is formed of semi-hard rubber and is also provided with a slit 52 extending from an outer edge thereof to the hole 51. The slit 52 permits the wiping block 50 to be placed over the cable transversely with respect thereto, the cable passing through the slit 52. A thong 55 holds the wiping block 50 tightly upon the cable 20, and an expandable snugger block 56 (Fig. 4) having a clearance hole 57 therein holds the wiping block 50 against movement with the cable 20 as the cable is advanced therethrough. The wiping block 50 wipes substantially all of the thermoplastic cement from the cable 20, and the cement carries off the melted tallow and any other foreign substances which might be on the periphery of the cable so that the periphery of the cable is cleaned. Hence, the cement applied to the cable in the trough 27 adheres uniformly to the periphery of the lead-sheathed cable. The melted tallow becomes dispersed in the cement, and it is small enough in quantity relative to the quantity of the cement that when the tallow is dispersed in the cement, the tallow does not affect the adhesiveness of the cement with respect to the cable. However, unless the tallow were wiped from the periphery of the cable, it would separate the cement from the cable and then would have a deleterious effect upon the coating of the cable with the cement.

The cement applied in the trough 27 covers the cable 20 in excess of that actually needed, and the wiper 28, which is identical with the wiper 28 except that wiper 29 does not fit so tightly over the cable, wipes only the excess cement from the cable and leaves a cement coating of the desired thickness on the cable. The thermoplastic tape 31 (Fig. 2) then is applied to the cement-covered cable by the tape applicator 30 as described in the above-mentioned copending application.

The method described hereinabove serves to effectively clean tallow and other foreign substances from the periphery of the lead-sheathed cable 20 as an incident to applying cement to the cable. Hence, no elaborate cleaning equipment and materials are required. The apparatus is highly effective in cleaning and covering cables and is simple in construction and operation so that initial and maintenance costs of the apparatus are relatively low.

What is claimed is:

1. The method of cleaning lead-sheathed cables, which comprises continuously covering with molten asphalt a lead-sheathed cable having on the periphery thereof a lubricant softenable by molten asphalt and miscible therewith to loosen the lubricant on the cable, and wiping the molten asphalt and the lubricant substantially completely from the cable.

2. The method of cleaning lead-sheathed cables, which comprises continuously advancing such a cable having tallow on the periphery thereof by a bath of molten asphalt, whereby the tallow is loosened on the cable, and removing the asphalt and the tallow from the cable.

ALTON L. LOUCKS.

REFERENCES CITED

The following references are of record in the file of this patent:

UNITED STATES PATENTS

<table>
<thead>
<tr>
<th>Number</th>
<th>Name</th>
<th>Date</th>
</tr>
</thead>
<tbody>
<tr>
<td>1,210,722</td>
<td>Sultzer</td>
<td>Jan. 2, 1917</td>
</tr>
<tr>
<td>1,736,623</td>
<td>Hollinscl</td>
<td>Sept. 3, 1929</td>
</tr>
<tr>
<td>1,731,843</td>
<td>De Graaff</td>
<td>Oct. 15, 1929</td>
</tr>
<tr>
<td>1,994,802</td>
<td>Adams</td>
<td>Mar. 19, 1935</td>
</tr>
<tr>
<td>2,093,411</td>
<td>Bowden et al.</td>
<td>Sept. 21, 1937</td>
</tr>
<tr>
<td>2,305,005</td>
<td>Henry</td>
<td>Dec. 15, 1939</td>
</tr>
<tr>
<td>2,340,077</td>
<td>Sherrill</td>
<td>Jan. 25, 1944</td>
</tr>
<tr>
<td>2,389,728</td>
<td>Gillis et al.</td>
<td>Nov. 7, 1945</td>
</tr>
<tr>
<td>2,393,678</td>
<td>Graham</td>
<td>Jan. 29, 1946</td>
</tr>
</tbody>
</table>