July 29, 1941. T. W. GANGLOFF 2,251,047

METHOD OF MARKING ARTICLES

Filed Jan. 6, 1939

Fig. 1.

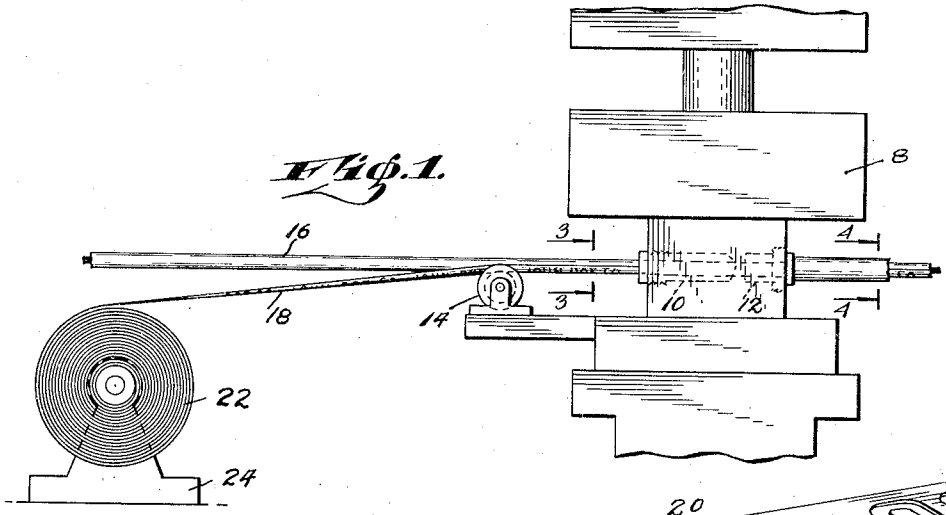


Fig. 2.

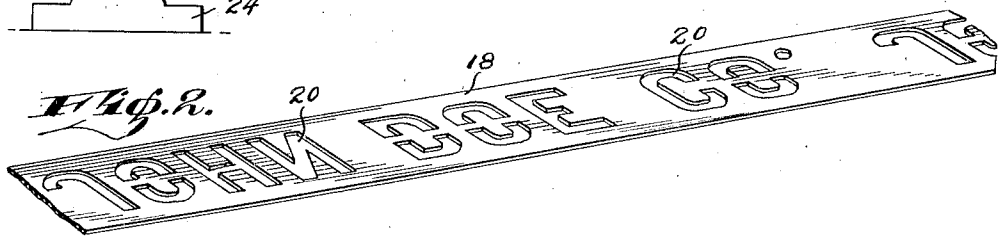


Fig. 3.

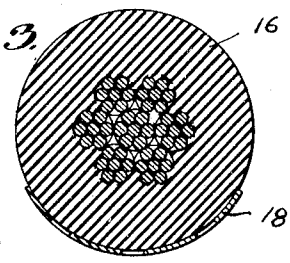


Fig. 4.

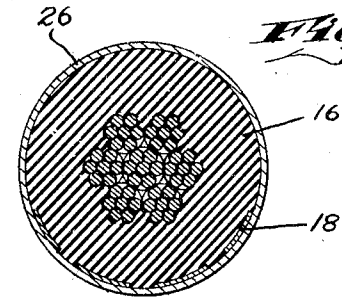




Fig. 5.

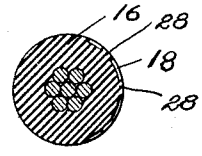


Fig. 6.

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METHOD OF MARKING ARTICLES

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Application January 6, 1939, Serial No. 249,561

1 Claim. (Cl. 18—53)

This invention relates to an improved method of marking the surface of articles and is particularly directed to the marking of names, designs, symbols, etc. on the surface of rubber jacketed cables, rubber cord, and other articles made of or having an outer coating or covering of rubber, rubber compound, synthetic rubber, thermoplastics, or like substances.

The present invention provides for marking the surface of articles of the character mentioned by feeding a strip of material, having the desired marking stenciled therein, through a lead press together with and in superimposed relation to the article to be marked whereby the stencil is forced into and the material of the article is forced through the perforations of the stencil. After the cable has been cured the lead sheath and the strip of material are removed leaving the lettering or design embossed on the surface of the cable, with the outer surface of the design flush with the outer surface of the main body of the article due to the fact that the stencil is forced into the material of the article. Inasmuch as a stencil strip is employed for marking, it will be appreciated that the surface of the letters or other design will have the same appearance as the surface of the main body of the article, the lead of the sheath not only contacting the body of the article but contacting the surface of that part of the material of the body of the article which is extruded through the stencil.

Articles of the character indicated have heretofore been marked by feeding the article, enveloped in a metallic strip having the markings embossed therein, to a lead press. This method involves cutting and forming the metallic strip around the article by suitable mechanism and its reclamation and remelting, the total expense of which is considerable.

By such method the markings project beyond the surface of the article instead of lying flush with the surface of the article, as will be appreciated.

Another method of marking which has been suggested comprises feeding the article together with a metallic strip or ribbon through a lead press, the leader of the press being slotted to accommodate the marking strip and provided at its forward end with a projection which provides a groove in the lead jacket for receiving the marking strip. This method, too, is expensive because of the necessity of redesigning the lead press tools, and the necessity of means for forming and salvaging the marking strip.

Various other methods have also been suggested but each has its drawbacks or disadvantages as compared with the method of this invention.

One of the objects of my invention is the provision of a method of marking articles of the character indicated wherein the standard lead press may be employed without any redesigning or modification of the lead press tools and wherein the necessity of bending or forming apparatus to bend or form the marker strip about the article being marked and of salvaging the marking strip are eliminated.

A further object of the present invention resides in the use of flexible material for the marker such as paper, "Cellophane" or similar inexpentive material which for economical reasons need not be reclaimed and which will fall off or peel off when the temporary lead sheath is removed so as to require no separate removal operation after the completion of the marking.

One embodiment of my invention is illustrated in the accompanying drawing, in which:

Fig. 1 is a side elevational view of an article being fed to a lead press for marking in accordance with my invention;

Fig. 2 is a fragmentary perspective view of the marking stencil or marker tape;

Fig. 3 is a sectional view of the article taken on line 3—3 of Fig. 1 with the stencil or marker tape in place;

Fig. 4 is a sectional view taken on line 4—4 of Fig. 1 showing the article after it has passed through the lead press.

Fig. 5 is a plan view of the article after the removal of the vulcanizing temporary lead sheath; and

Fig. 6 is a sectional view taken on line 6—6 of Fig. 5.

Referring to the drawing in detail: 8 designates a conventional lead press used for applying a lead sheath to rubber covered cables and having the usual leader 10 and die 12, respectively. It is to be noted that, as above set out, the leader 10 is of usual construction, i. e., smooth both internally and externally. 14 is a supporting roller for supporting the cable as it moves into the press.

In the drawing I have illustrated a rubber covered cable 16 being fed to the lead press together with a marking tape or ribbon 18 upon which it is superimposed. The marking tape 18 is shown on an enlarged scale in Fig. 2 from which it will be seen that the same is in the form of a stencil, the markings or perforations being designated 20. I have shown the markings in the form of letters,

but it is to be understood that the same may take any other form desired. The stencil is made in advance and is fed to the press from a supply roll 22 which may be mounted adjacent the lead press on a support 24.

The marker 18 from the supply roll 22 and the article 16 are continuously fed to the lead press 8 over the guide roller 14, the press extruding lead into the unobstructed space between the leader and die to form a smooth walled temporary lead sheath or jacket 26 about the assembly. Inasmuch as the leader 10 is of less inside diameter than the diameter of the article 16 plus the thickness of the marker 18 the marker is forced into the surface of the article and the material of the article forced through the perforations of the marker and this action together with the pressure of the lead as it is formed about the moving article and marker and the expansion of the rubber covering during the process of vulcanization insures contact of the material forced through the stencil perforations with the inner surface of the lead sheath.

After the sheathed article leaves the lead press and is vulcanized and the temporary lead sheath and marker removed, the design of the marker will appear in relief in the surface of the article as shown at 28 in Fig. 5, the surface of the design being flush with and having the same finish or gloss as the rest of the surface due to the engagement of the surface of the marking with the smooth interior of the sheath.

The marker 18 which I employ comprises a narrow ribbon or tape of thin paper, cellulose acetate, cellulose hydrate or similar thin non-metallic flexible material. By employing a material of approximately .005'' thick it will be appreciated that no modification is necessary in the lead sheath dies, such as slotting the leader and providing a projection on the leader to slot the lead to accommodate the marker inasmuch as the permissible tolerances in the industry are such that a depression in the outer surface of the article to be marked to the depth of the marker is not objectionable.

By employing such material for the marker it will be appreciated that the same may be destroyed. It should be noted also that the use of such materials is of further advantage in that it strips or peels off with the temporary lead sheath so that no separate operation is necessary for its removal.

While, as above mentioned, the marking ribbon will readily peel off, this action is improved if the ribbon be pretreated with paraffin wax, starch, or a soap solution, or if the ribbon be dusted with talc.

It is to be understood that while I have illustrated my invention in connection with the marking of rubber covered electric cables, I do not wish to be limited to such use inasmuch as the present invention has manifold applications in the marking of various articles.

It is to be understood also that various changes may be made in the method described and apparatus illustrated without departing from the spirit and scope of my invention.

What I claim is:

The method of surface marking rubber insulated cables, wire and the like which method comprises continuously assembling a flexible non-metallic stencil having the desired marking with the rubber insulated cable, wire and the like, and while the rubber is in unvulcanized condition, while continuously feeding this assembly through the smooth walled leader of a lead extrusion press provided with a leader and die, the leader having an internal diameter less than the outside diameter of the rubber article plus the thickness of the stencil, thereby to force the stencil into the surface of the rubber article and to force the rubber into the perforations of the stencil, continuously advancing this assembly through the die of the press while extruding lead between the leader and die tightly to lead jacket the assembly, thereby to prevent outward movement of the rubber through the stencil to beyond the outer surface of the assembly, vulcanizing the sheathed assembly, and thereafter removing the sheath and stencil.

THOMAS W. GANGLOFF.