May 19, 1970 H. J. BAMERT 3,512,501

CONTAINER WITH A TAPE-SHAPED MATERIAL

Filed Nov. 15, 1966 2 Sheets-Sheet 1

Fig.1a

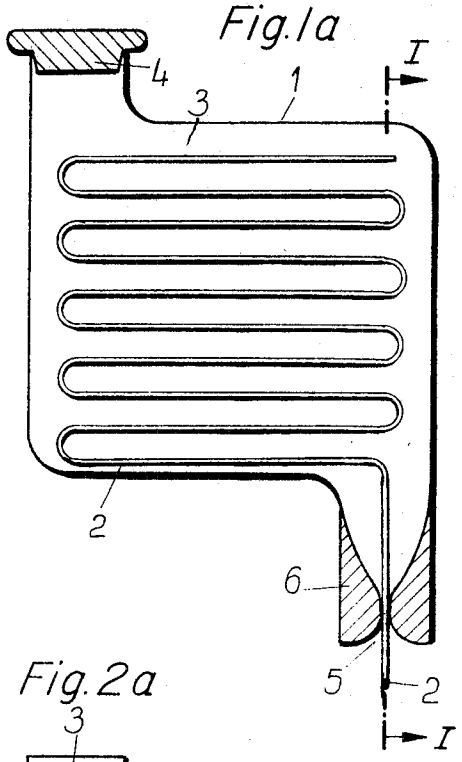


Fig.1b

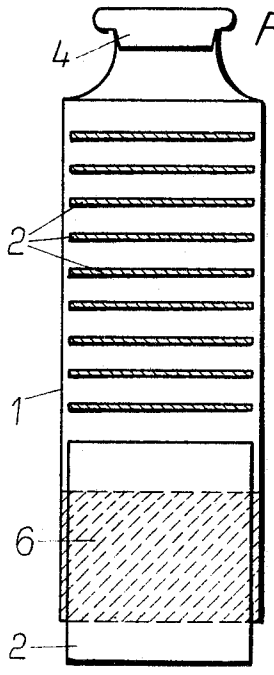


Fig.2a

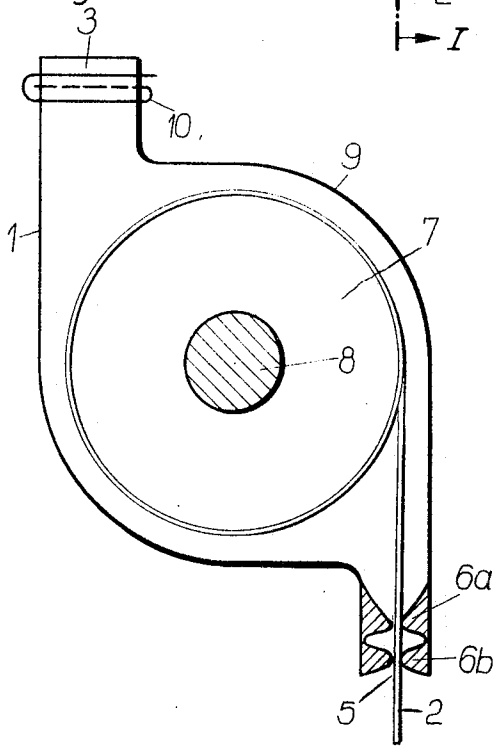
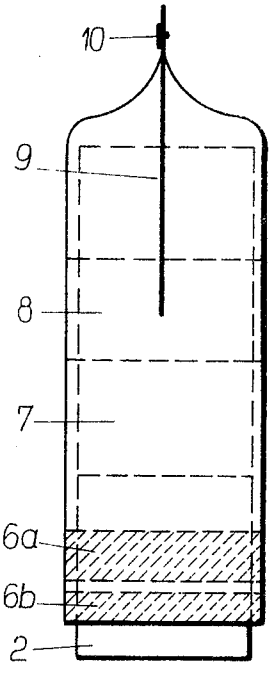


Fig.2b



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Fig.3a

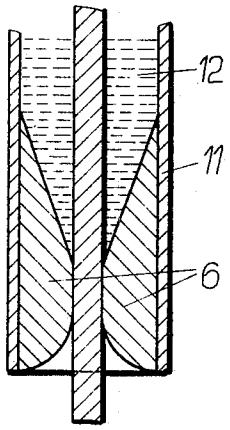


Fig.3b

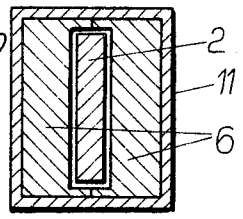


Fig.4a

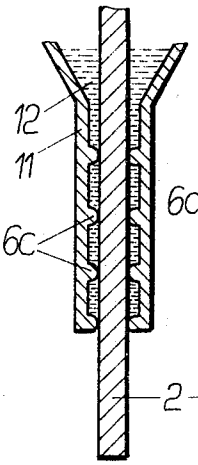
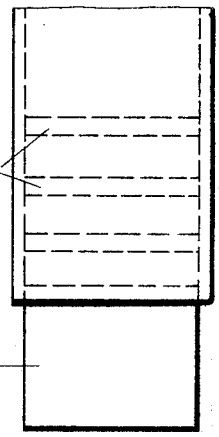


Fig.4b



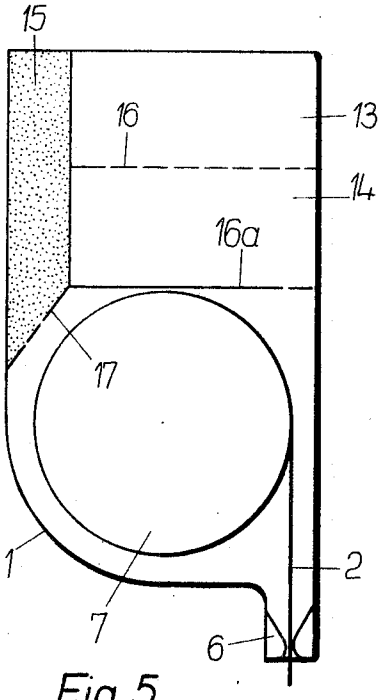


Fig.5

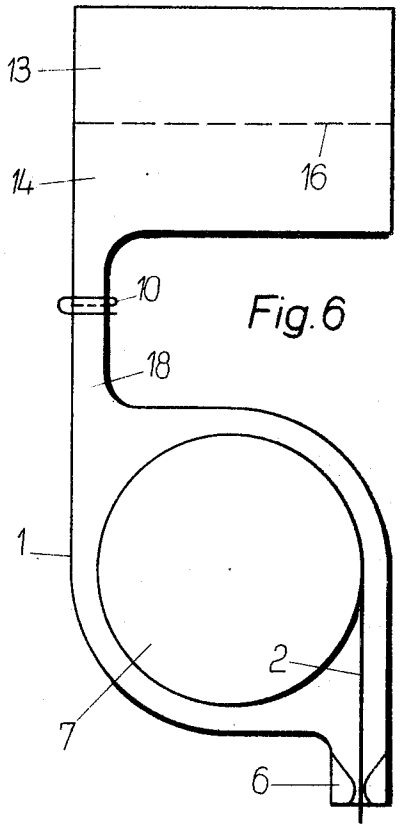


Fig.6

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CONTAINER WITH A TAPE-SHAPED MATERIAL

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Int. Cl. B05c 3/12
U.S. Cl. 118—405 9 Claims

ABSTRACT OF THE DISCLOSURE

A container for a roll of coatable flexible tape for its withdrawal by unwinding and by simultaneously applying a coating compound, comprising tape storage means to store said roll of tape and permitting unwinding of said tape; coating storage means to separately store said coating compound; a conduit channel between said tape storage means, and coating outlet means aligned in such a manner that the coating covers said tape during its discharge upon opening of said seal; a tubular extension extending tangentially from the periphery of said tape storage means, said tubular extension including a tape outlet.

The present invention relates to a container, containing a stack of tape-shaped material. With respect to the invention, however, it is not so much important that the material has a rectangular cross-section. In fact, the material in the container may have any arbitrary cross-sectional shape and may, for example, also be circular, so that it might be more appropriate to speak of a cord-shaped material. Therefore, if in the description hereinbefore, reference is made to a tape-shaped material, this may equally well refer to materials having other than rectangular cross sections.

In the art, tape-shaped material is used in many cases for covering parts of equipment or devices for the purpose of insulating them against their surroundings. This may concern a corrosion protection with respect to the surrounding medium, i.e. with respect to the atmosphere or aggressive chemicals, or else an electrical, thermal or any other insulation.

The tape-shaped material is applied to the parts to be protected or insulated, in the form of a single- or multi-layer wrapping. In order to fill-in the unavoidable joints or seams between the individual wrapping layers lying next to and on top of each other, and in order to effect the mechanical fixing of the individual layers to each other and to the wrapped part, the tape-shaped material is first of all coated with a liquid agent either prior to or during the wrapping process. This liquid agent hardens subsequently to the application of the wrapping tape. Applications are conceivable, however, in which the coating compound can remain liquid.

Both the material for the tape and the coating compound are selected in accordance with the purpose which they are supposed to serve. Thus, for example, the tape-shaped material may consist of any arbitrary insulating material, such as plastic, rubber, glass foil, etc., or else also of porous materials, such as paper and fabrics of natural or artificial, organic or inoganic fibres, or cords of such material. The tape-shaped material may also be composed of different substances, e.g. in different layers. The coating compound may consist of solutions of insulating materials, such as rubber or bitumen, tar-like substances, plastic solutions, lacquers, hard-setting resins, etc. In this case there may also be concerned mixtures, if necessary with an addition of solid, powdered substances, e.g. for acting as a thickener.

In this way, for instance, there is effected the insulation and sealing of high-voltage cable sleeves and dividing boxes (potheads), the application of bandages to high-voltage machines, and the insulation of air-cooled transformers. In the same way there is effected the sealing of corrosion-protection layers at the parts of poles intended to be lowered into the ground, and at the parts of floating derrick platforms coming into contact with seawater, and at roof-pole type ducts, and in chemical process engineering, parts are protected against the effects of aggressive substances. This catalogue of examples of practical application, however, is in no way supposed to be considered as being complete.

Up to now the liquid coating compound, in the course of wrapping the respective article or device with the tape-shaped material, had to be applied with the aid of a brush, which not only required the continuous interruption of the wrapping process, but also showed a number of other disadvantages. This practice not only caused the danger of soiling the surroundings by dripping coating compounds, but was also hard to carry out at difficultly accessible parts, because for the purpose of applying the coating compound, a portion of the tape was required to be held in a freely tensioned manner.

These disadvantages are avoided by the present invention. According to the invention there is proposed a container, containing the tape or tape- or cord-shaped material. The container is sealed to be impervious to liquids. The container comprises a charging or feed opening with a cap closure. Liquid coating compound is filled through this feed opening. The container further comprises an outlet opening for discharging the tape-shaped material, this outlet being provided with a coating compound stripping device.

The tape-shaped material is arranged in a meander-shaped fashion inside the container or else is wound to the shape of a roll. The liquid coating compound is inserted through the feed or charging opening which is provided with a cap closure. When the entire tape-shaped material is completely surrounded by the liquid inside the container, this material is readily coated when being led out of the outlet or discharge opening. Excess liquid coating compound is removed with the aid of the stripping device, so as to achieve uniformly coated surfaces. When wrapping the item or article to be insulated, the complete container is led around the article or item until the latter is completely wrapped. In the course of this the coating compound no longer need be applied to the tape with the aid of a brush or the like, and it is also no longer necessary for a large portion of the tape to be held in a freely tensioned manner.

If, in accordance with a further embodiment of the invention, the container is designed in such a way as to comprise a special chamber containing the liquid coating compound, then also the filling of the coating compound into the container may be dispensed with. In this case it is still possible to dose the amount of coating compound with respect to the amount of tape shaped material in a suitable way, so as to avoid an unnecessary consumption of coating compound. The invention will now be explained in detail with reference to the accompanying drawings showing exemplified embodiments of the invention as well as advantageous modifications thereof.

FIG. 1*a* is a schematic longitudinal cross-section through a container holding a tape-shaped material arranged in meander fashion;

FIG. 1*b* is a schematic cross-section along the line I—I of FIG. 1*a*;

FIG. 2*a* is a schematic longitudinal cross-section through a different embodiment of the container for a roll of tape;

FIG. 2*b* is a schematic side view of the container of FIG. 2*a*;

FIG. 3*a* is an enlarged longitudinal section of the tubular extension and stripping device of the invention;

FIG. 3*b* is a cross-section through the stripping device of FIG. 3*a*;

FIG. 4*a* is an enlarged longitudinal section of a modified tubular extension and stripping device;

FIG. 4*b* is a side view of the tubular extension and stripping device of FIG. 4*a*;

FIG. 5 is a schematic longitudinal cross-section of a different embodiment of the invention, having separate compartments for coating ingredients;

FIG. 6 is a schematic longitudinal cross-section of a further modified embodiment having a hose-like conduit between the coating storage compartments and the tape storage compartment.

The container **1** according to FIG. 1 consists of a suitable material which must be inert with respect to the coating compound. Preferably, the container consists of a material which is capable of being deformed. The tape-shaped material is piled inside the container in a meander-shaped fashion, and is indicated by the reference numeral **2**. At point **3** the container **1** comprises a feed or charging opening which, in the drawing, is shown to be designed as a header or short feed pipe. This feed opening may be closed with the aid of the stopper **4**. The orifice or outlet **5** is arranged in a tubular extension inside which there is also arranged the stripping device **6**, between the parts of which the tape **2** is led through. The stripping device consists of two lobe-shaped portions of a suitable material, for example, a plastic material, with these portions being applied to both sides of the tape throughout the entire width thereof. They may also be pressed against the tape with the aid of suitable means, such as springs, or may rest against one another with the aid of suitable means, so as to be held apart from the tape surface in a defined spaced relation. This entirely depends on the viscosity and the desired thickness of the coating compound on the tape surface. The portions of the stripping device may also be covered with a layer of a sponge-like material or foam plastic, or may consist entirely thereof.

In the type of embodiment according to FIG. 2 the container **1** preferably consists of plastic sheets which are welded to one another along their edges. Inside the container **1** the tape-shaped materialy is wound in the shape of a roll **7** on the core **8**. The roll **7** may be arranged loosely inside the container **1**. In some cases of practical application, however, it may be advantageous to arrange the roll rotatably on a shaft. This shaft, for example, may be firmly connected to the walls of the container. The roll of tape **7** may either have a hollow core, or may also be applied to the shaft without a core. The stripping clip through which the tape **2** is led, is of a two-part design in this particular case, and consists of the pair of clips **6***a* and **6***b*. In FIG. 2 the reference numeral **9** indicates a welding seam by which the portions of the container **1** are joined to one another. In this case the feed opening **3** is closed with the aid of a clip **10**. It is possible, however, to use any other kind of closure or closing device.

FIG. 3, in a sectional elevation, shows one type of embodiment relating to the stripping device. Inside the tubular extension **11** of the container **1** there are arranged the two parts **6** of the stripping device, between which the tape **2** is led through. With the aid of the parts **6** there is effected the stripping of the excessive coating compound **12**. The two parts **6**, as may be taken from the showing of FIG. 3*b*, are provided with sideway extensions with the aid of which they rest against one another, so as to be positioned at a predetermined constant spacing from the surface of the tape **2**.

In FIG. 4 the stripping device is constituted by the ribs **6***c* serving as a thickening or reinforcement of the tubular extension **11** of the container **1**. These ribs preferably extend transversely in relation to the longitudinal direction of the tape-shaped material. They may, however, also extend slantingly, and must not be absolutely straight, but might just as well be angled-off, or may have a waveform shape.

FIG. 5 shows a further advantageous type of embodiment of the invention. Inside the container **1** having the shape of a bag consisting of a preferably transparent or translucent plastics material, the tape-shaped material is arranged in the form of a roll **7**, i.e. inside the lower portion of the bag. The tape **2** is led out through the orifice or outlet which is arranged at the bottom, and inside which there is positioned the stripping device **6**. Above the chamber intended to take up the roll **7**, there are still provided further chambers **13**, **14** and **15** which are constituted, for example, with the aid of welding seams by which the two sheets of plastics forming the container, are welded to one another, just like at the outer edge.

The chambers **15**, **14** and **13** are adapted to contain the components of the liquid coating compound. The welding seams **16**, **16***a* and **17**, or the corresponding chamber walls, respectively, are so designed in the manner known per se, that they can be opened either completely or partly, without establishing a connection towards the outside, in other words: that the bag itself will remain closed. This offers the advantage that the individual components of the coating compound may be stored separately, and may be mixed if so required, without causing any loss of material, and without any soiling or spilling having to be feared. This is of particular importance with respect to components chemically reacting with one another, such as the components of hard-setting or hardening resins of the type known as casting resins. Thus, for example, it is possible for the chambers **13** and **14** to contain the resin or the hardener, respectively. The partition wall **16***a* is opened either completely or partly subsequently to the thorough mixing of the resin and the hardener, and the resinous composition is brought through this opening into the lower chamber containing the roll **7**, for instance, by pressing together the bag at its upper end. In the course of this the bag remains completely closed towards the outside. The chamber **15** may contain a further component of the coating compound which, if so required, may be admixed to the remaining components. As is indicated in FIG. 5, the chamber **15**, for example, contains a powdery or pulverized substance which is admixed to the liquid coating compound either for increasing its viscosity, for improving its insulation ability, or for improving its properties in any other way. To this end it is possible to use e.g. powders or pulverized substances on a silicon dioxide or silica (SiO_2) basis, or silicates.

Of course, the size, arrangement and number of chambers will have to depend on the share or proportion of the individual components in the mixture, and on the order of succession of admixing, and on the number of components. It will be easily understood that it is possible, in this way, to keep in store bags containing properly dimensioned portions of coating compound components and tape. Prior to use, the components can be mixed without any contamination from the outside, and the tape, with a properly dosed layer or film of the liquid coating compound, wrapped onto an article.

FIG. 6 shows a modified shape of the container according to the invention. Also in this case the tape, in the form of the roll **7**, is arranged inside the lower part of the bag **1**, whereas the components of the coating compound are contained in the other part, i.e. in the chambers **13** and **14** separated, for example, by the partition wall **16** capable of being opened. The two parts of the bag **1** are in communication with one another via the hose-like portion **18**. This hose-like portion **18** is first of all closed, for example, by means of the clip-

shaped member **10** as applied from the outside. Subsequently to the mixing of the two components as contained in the chambers **13** and **14** by opening the partition wall **16**, the mixture is pressed into the lower part of the bag containing the roll **7**, upon removal of the clip **10**. Thereupon the hose-like portion **18** is closed again by re-applying the clip **10**. In this way the coating compound is prevented from being pressed back into the chambers **13** and **14** while performing the wrapping of the tape. In this way there is enabled an improved discharge of the coating compound at the stripping device **6**. This is of a particular advantage in the case of highly viscous coating compounds.

Moreover, for enabling a better handling during the wrapping, the portion of the container may be cut off above the closing clip **10**. Of course, the closure of the hose-like portion **18** may also be carried out in any other suitable way. It would be sufficient, for example, to make a knot in the hose-like portion **18** after the coating compound has been pressed therethrough. To this end, of course, the portion **18** must have a corresponding length and flexibility.

It is also possible to use for both the tape and the container a material other than the material described in the examples hereinbefore. Tapes of metal foil can be used. Likewise, the invention is not restricted to the use of the described coating compounds or materials. Finally, the tape-shaped material may have any arbitrary cross-sectional shape, and may be of a different structure.

What is claimed is:

1. A container for a roll of coatable flexible tape for its withdrawal by unwinding and by simultaneously applying a coating compound, comprising:

(a) tape storage means to store said roll of tape and permitting unwinding of said tape;

(b) coating storage means to separately store said coating compound;

(c) a conduit channel between said tape storage means and said coating storage means, said conduit channel including an openable seal, coating discharge means, and coating outlet means aligned in such a manner that the coating covers said tape during its discharge upon opening of said seal;

(d) a tubular extension extending tangentially from the periphery of said tape storage means, said tubular extension including a tape outlet.

2. A container as claimed in claim **1**, said tubular extension further including a stripping means to control the amount of coating adhering to the tape as it is withdrawn from the tape storage means through said outlet.

3. A container as claimed in claim **2**, said stripping means comprising at least one lobe-shaped stripper element on each side of said outlet, said stripper element being of foamed plastic.

4. A container as claimed in claim **2**, said stripping means comprising at least two rib-shaped stripper elements on each side of said outlet, said stripper elements serving in addition to mechanically reinforce said tubular extension.

5. A container as claimed in claim **1**, said coating storage means being flexible, said tape storage means and said coating storage means being spaced from each other and connected only by said conduit channel, said conduit channel being elongated to provide a operating space between said tape storage means and said coating storage means and access thereto for manual kneading of said storage means.

6. A container as claimed in claim **5**, said coating storage means having the shape of a bag made from plastic sheet.

7. A container as claimed in claim **1**, said coating storage means including a plurality of storage compartments adjoining one another, communicating means defining a breakable seal between said adjoining compartments, said communicating means, upon breaking of said seal, allowing intermixing of the contents of said compartments.

8. A container as claimed in claim **7**, said plurality of storage compartments being designed to separately store different coating components, including a powdered substance, said coating compound being obtainable prior to use by kneading said container.

9. A tape dispenser with a prepacked instantaneously dispensable, coatable tape and coating compound supply means and means to coat the tape with said compound comprising: a tape holding compartment having a substantially cylindrical shape with said tape mounted therein axially on a roll for rotation and unwinding on withdrawal; at least one coating ingredient compartment made of flexible material, said coating ingredient compartment spaced from said tape compartment a distance sufficient to permit manual kneading of said coating ingredient compartment, said at least one coating ingredient compartment charged with at least one ingredient of said coating compound, a conduit channel for advancing at least one coating ingredient from said coating ingredient compartment to said tape holding compartment onto the surface of said tape upon manual kneading of said coating ingredient compartment; said conduit channel interconnecting and spacing said coating ingredient compartment with said tape compartment on one side thereof; conduit sealing means to seal said conduit; a tubular extension with a tape outlet extending from the tangent of said tape container; said compartments with said conduit channel and said tubular extension forming an integral unit, said coating compound and tape charged in said compartments respectively.

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