Aug. 16, 1938. C. C. GILLICAN 2,127,402

METHOD OF PACKAGING ROSIN

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FIG. 1.

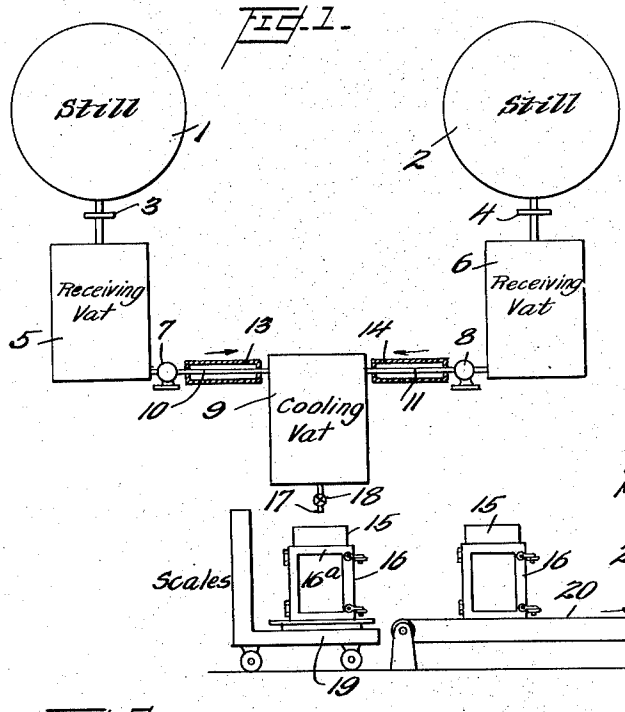


FIG. 3.

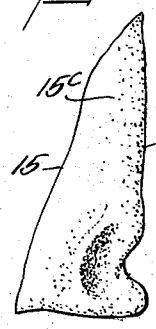


FIG. 4.

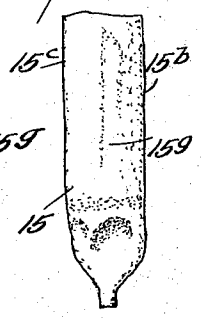
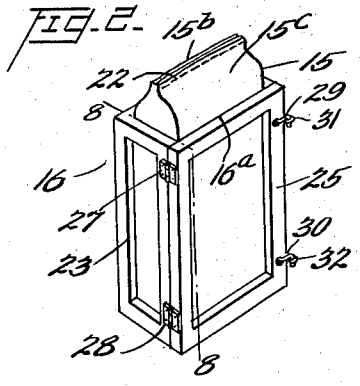


FIG. 2.



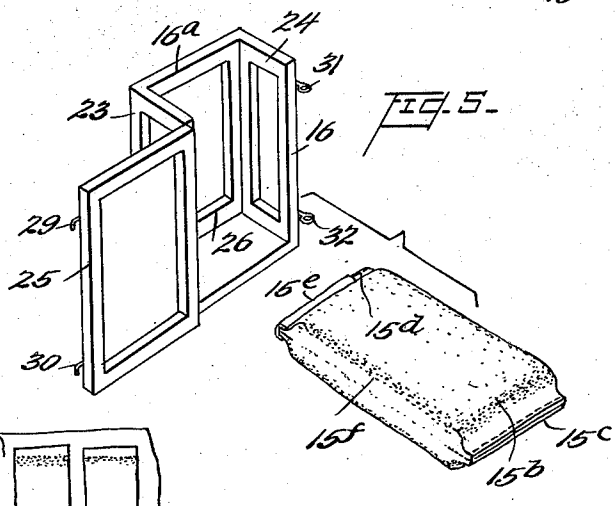


FIG. 5.

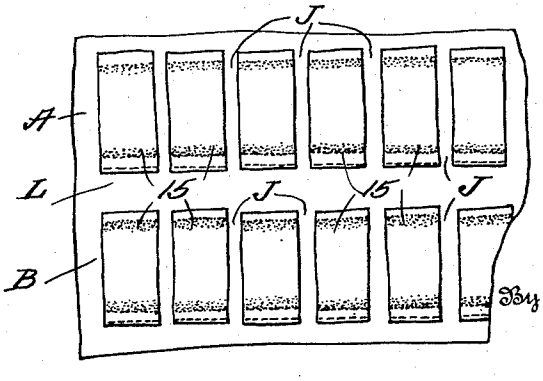


FIG. 6.

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FIG. 7.

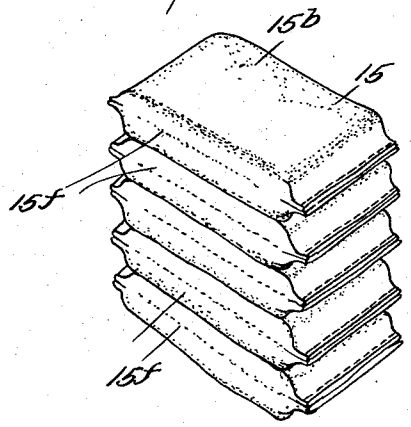


FIG. 8.

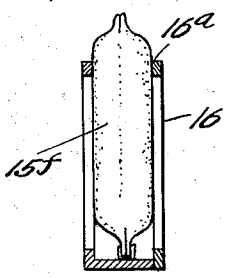


FIG. 10.

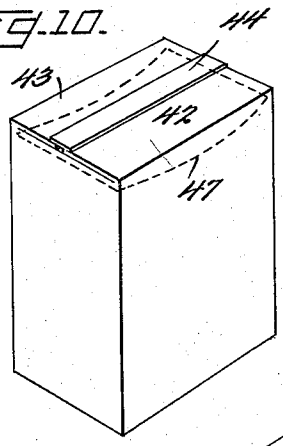


FIG. 11.

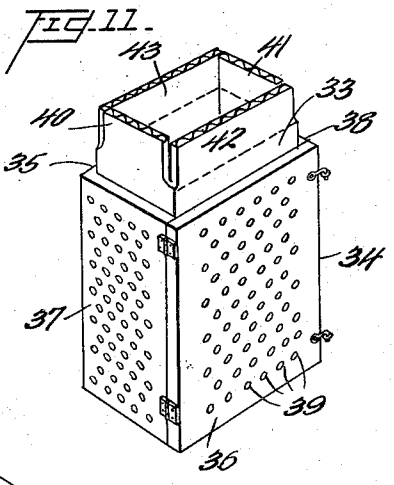
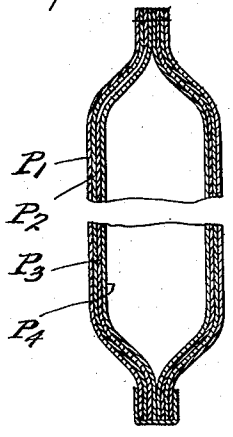


FIG. 9.



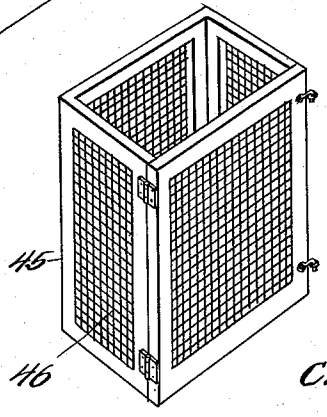


FIG. 12.

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2,127,402

UNITED STATES PATENT OFFICE

2,127,402

METHOD OF PACKAGING ROSIN

Charles Crum Gillican, Homerville, Ga.

Application May 21, 1938, Serial No. 209,346

17 Claims. (Cl. 226—47)

The present invention relates to the packaging of resins, either natural or synthetic, and more particularly to the packaging of rosin produced from any of the prior art materials and any of the prior art methods. The present invention is applicable to gum rosin, or to a rosin produced by steam distillation or destructive distillation of wood.

In my prior application, Serial No. 174,677, I have described a method of packaging rosin in paper containers and particularly bags, said method comprising broadly, introducing the liquid heated rosin in the paper container, correlating the temperature at which the rosin is poured into the container with the absorption characteristics of the container material, and maintaining the temperature within such a range as to facilitate pouring while inhibiting any substantial absorption of the rosin by and through the container to thereby inhibit the tendency of the container to stick to the solidified rosin.

In accordance with the invention herein set forth, any tendency of the container material to stick to the solidified rosin is substantially eliminated by providing in conjunction with the temperature control herein set forth, a container, the contact surface of which has substantially no fibers protruding therefrom. When rosin sets in contact with paper or other cellulose material, the surface of which has fibers protruding therefrom, the rosin solidifies intermingled with the protruding fibers with the result that difficulty may be experienced in removing the bag from the rosin. Further, any tendency towards absorption is minimized when the surface of the paper is substantially free of protruding fibers. One manner of providing a paper free of protruding fibers is to calender the paper to provide what is known as a "hard surface". Such a surface will have practically no fibers sticking up to act as a binder for binding the rosin to the paper surface, and as stated, the absorption capacity of the paper for the rosin will be greatly reduced.

In conjunction with the employment of a paper having a surface of the character described, it is proposed to maintain the temperature of the rosin within such a range as to facilitate pouring while inhibiting any substantial absorption of the rosin by and through the paper container. If the temperature of the liquid rosin is maintained too high, it will exhibit a marked tendency to be absorbed by the cellulose base container, as for example, a paper pulp container, irrespective of the character of the container surface. In other words, the hotter the rosin the greater the tendency of the rosin to penetrate through the paper pulp or cellulose base container.

It is desired to point out that in practicing the present invention one of the steps thereof is to inhibit the absorption of the rosin by and through the cellulose base container, as for example, a paper container, by maintaining the temperature of the rosin within such a range that it chills soon after pouring into the cellulose base container, or at least begins to chill adjacent its contact area with the paper container to what may be termed a "pasty condition". When the rosin assumes this state, absorption of the rosin by and through the container is substantially minimized.

Experiments have shown that for each particular kind of paper and for each particular kind of rosin, there is a temperature range wherein any substantial absorption of the rosin by and through the container is substantially inhibited, and, therefore, it is not desired to be closely held to any particular temperature range, but to functionally state the relationship as above set forth.

When packaging rosin produced as hereinafter described, it is desirable that the temperature of pouring should not exceed about 350° F. When this temperature is exceeded, or greatly exceeded as hereinafter pointed out, there is a tendency for the rosin to soak through the paper container, even if the container is a multi-ply bag, as herein set forth.

Further, it may be pointed out that the introduction of hot liquid rosin in a paper container and subsequent solidification therein, is substantially impossible if the temperature of the hot rosin is too high, since a high temperature will dry the paper container and make it brittle. This will reduce the tensile strength of the container with the result that the container will tear and deteriorate on even slight handling. Therefore, stated functionally, the temperature of the rosin should be maintained within such a range as to facilitate pouring while substantially inhibiting such drying out of the paper after the rosin is introduced therein as will cause the container material to become brittle, and have its tensile strength reduced, and for rosin produced as hereinafter set forth, the temperature of packaging to avoid drying out of the container material, should not exceed 350° F. and preferably should be around 300° or 315° F.

When using containers having a surface of the character herein set forth and controlling the temperature to inhibit absorption, the rosin may form a thin rosin film on the innermost surface

of the bag, but there is no substantial absorption for this thin film appears on the inner surface of the bag but is not absorbed by and through the multi-ply surfaces of the bag. The container with this film shows no substantial tendency to stick to the in situ solidified rosin.

In the more specific form of the present invention, the paper container is a multi-ply bag. The advantage of using a multi-ply bag, as for example, a four (4) or five (5) ply bag, is that the container is of adequate tensile strength without the rigidity of a single ply container or bag of the same weight and/or thickness. In other words, a paper bag made of one sheet to give the same tensile strength would be more rigid and less flexible, and the bag would be, therefore, susceptible to greater tearing in filling. It also appears that a multi-ply bag facilitates the elimination of deformations in the bag and thereby inhibits absorption of the rosin by the bag. It may be pointed out that in packaging the rosin, a flow space is left in the rosin package after the bag has been closed, and that the flow of the rosin in the bag is initiated to assist in taking out deformations in the bag. In this connection, a multi-ply bag, because of its flexibility, greatly facilitates the elimination of deformations in the bag and thereby inhibits absorption of the rosin by the bag.

When using the multi-ply bag, the inner ply may have a surface with no fibers protruding, as for example, a calendered surface, and the outer ply may have a similar surface or surfaces grading from a hard surface to a semi-hard surface, or a non-hard surface. In other words, it is of particular importance that the surfaces of the first ply, or of the first and second plies, have no protruding fibers in order to inhibit the intermingling of the fibers with the solidified rosin and the tendency of the bag to stick to the rosin.

In the preferred form of the invention it is, therefore, proposed to use a multi-ply bag, the inner ply of which is substantially free of protruding fibers and feed to a bag of this character hot rosin at a temperature to facilitate pouring while reducing any tendency of the rosin to dry out the paper and cause the same to be brittle, the temperature of pouring also being such as to inhibit any substantial absorption of the rosin by and through the paper container.

It is also proposed, in accordance with the present invention, to introduce the rosin into a bag or container of the character hereinde-scribed, close the bag while leaving a flow space therein for the rosin, and thereafter initiate flow of liquid rosin in the closed bag to cause the bag to flatten out, whereby deformations in the bag are substantially eliminated and the tendency of the rosin to be absorbed by the bag material and to be broken while handling is substantially prevented.

As stated, this flow space is preferably present in a bag of the multi-ply type, and when the flow of the rosin is initiated, any tendency of the bag to crush and wrinkle is substantially reduced or eliminated. In general, it may be stated that the rosin is introduced into a bag disposed in a supporting frame and the filling of the bag with the rosin is stopped short of the open end of the bag. The bag thereafter is closed and removed from the frame before the rosin is cooled and solidified to any substantial extent. Where a bag of the gusset type is employed it is then placed on one of its broad sides, whereby the rosin content of the bag flows and substantially eliminates any deformations in the bag to thereby minimize the tendency of the rosin to be absorbed by the bag and to be broken during handling.

Another step in the packaging of the rosin is arranging the bags and contents of the bags after they have been closed and removed from the supporting frames adjacent each other with air channels therebetween to allow air currents to pass through the channels and thereby quickly cool the bags, and further to prevent adjacent bags from touching each other. If the bags do touch each other, this induces to some extent absorption of the rosin by the bag, this possibly being due to a local concentration of heat.

In one form of the invention, the package is a substantially symmetrical one having broad flat sides and narrow partially rounded sides, thereby facilitating stacking and shipment.

The present invention will be disclosed in connection with the following drawings, in which:

Figure 1 is a diagrammatic side view showing the packaging of rosin from the primary cooling vat together with associated auxiliary mechanism.

Figure 2 is a perspective view of the rosin bag assembled with the supporting frame after it has been filled and sewed.

Figure 3 is a side view more or less diagrammatically illustrating the deformation occurring in the bag when rosin is introduced into the same.

Figure 4 is an end view illustrating the deformation occurring in the bag when the latter is positioned in the supporting frame and rosin is introduced into the bag.

Figure 5 is a combined perspective view of the supporting frame after the latter has been opened and the rosin bag removed from the supporting frame for subsequent cooling and solidification.

Figure 6 is a diagrammatic view showing the manner in which the bags are assembled for cooling.

Figure 7 shows a stack of bags in storage.

Figure 8 is a longitudinal cross sectional view on the lines 8—8 of Fig. 2.

Figure 9 is a cross sectional view illustrating the multi-ply character of the preferred bag of the present invention.

Figure 10 is a perspective view of a carton used for packaging rosin.

Figure 11 is a perspective view of a modified form of the invention, showing a carton in its supporting frame, and

Figure 12 is a perspective of a modified rosin supporting frame.

Referring to the drawings, and more specifically to Figure 1, rosin is distilled in stills 1 and 2, said stills being preferably heated by direct flame.

When the material being distilled, as for example, an oleo resin, reaches a predetermined temperature, approximately 210° F. the turpentine and the water present starts to distill over. The turpentine and water is condensed usually by means of a worm condenser immersed in a cooling bath, and the condensate is then passed into a gravity separating tank where the water and turpentine separate into two layers, the water being the bottom layer and the turpentine being the upper layer. The distillation in stills 1 and 2 is continued until practically all of the water present in the material undergoing distillation is distilled off. Additional water is add-

ed when the same is necessary. There remains after distillation in the stills 1 and 2 molten rosin. It may be stated that usually after about 30 minutes, most of the original water present in the oleo resin has been removed. The still temperature at the beginning of the distillation step is around approximately 210° to 215° F. depending upon the character of the resin being distilled. This temperature is gradually increased until after about 30 minutes has elapsed, the temperature of distillation is between approximately 220° and 230° F. when treating virgin oleo resin, and approximately 230° to 250° F. when treating old oleo resin. As stated, about one-half hour after the start of distillation, water is introduced into stills 1 and 2, the function of the water being to facilitate the distillation of the turpentine from the oleo resin. As the distilling step progresses, the distillation temperature is increased until towards the end of the distillation the temperature varies approximately between 290° to 350° F., the preferable upper temperature being about 315° F. For some purposes, it is quite desirable to have a high melting point rosin and in order to produce the same, it is necessary to substantially eliminate turpentine and water, and this may be attained by heating to approximately 350° F.

While the distillation is desirably carried out under atmospheric pressure, it may be carried out under superatmospheric pressure, or even under a vacuum, and if a vacuum is used, high melting point rosins may be produced at lower temperatures.

In operating stills 1 and 2, about 4000 pounds of oleo resin is charged in each still. The period of distillation averages about two and one-half (2½) hours; thereafter the tail gates 3 and 4 are opened and the rosin is allowed to pass to receiving vats 5 and 6, said vats preferably containing straining means, although the straining means may be extraneous of the vats. From the vats 5 and 6, the rosin is pumped by means of pumps 7 and 8 to a cooling vat 9. The conduits 10 and 11 for conveying the rosin to the cooling vats are provided with steam jackets 13 and 14 to facilitate the flow of the rosin.

From the cooling vat 9 the rosin passes to a paper bag 15, said paper bag being supported in a frame 16, the bag being adapted to receive the liquid rosin from the conduit 17 provided with a valve 18. The supporting frame 16 carrying the bag 15 is positioned on scales 19 so that when the bag has received its proper amount of rosin, which usually varies between 90 and 100 pounds, the supporting frame and bag can be removed from the scales to the adjacent conveyor 20. It is to be noted that the upper portion 15*a* of the bag projects above the top edges 16*a* of the supporting frame 16. The open end top portion of each bag travels along the conveyor 20 and passes under a stationary sewing machine head 21 which sews the walls 15*b* and 15*c* together adjacent the end edges of the bag. The bag just before it passes under the sewing machine head 21 is open at its top end, and the operator abuts the broad side walls 15*b* and 15*c* together adjacent their upper end portion so as to facilitate the passage of the so abutted end portion of the bag through the sewing machine head. The bag is thereby sealed by virtue of a sewed seam 22. The bag is then removed from the supporting frame 16 and cooled, as will be more specifically hereinafter pointed out.

The bag 15, shown in the drawings, illustrates one form of bag suitable for carrying out the present invention. It is formed preferably of relatively stiff paper, or an analogous material, which while having substantially little elasticity or yield, is flexible. The preferred characteristics of the bag have been heretofore set forth. Very satisfactory results have been obtained when the bag was a multi-ply bag made of kraft paper of forty (40) pound or fifty (50) pound weight, the bag having four (4) or five (5) plies. Bags of this character are manufactured by the Bagpak Inc. of New York city, under the item Nos. 4–210 and H—237, said item numbers referring to the four (4) ply Bagpak bag. The bag is preferably one having a surface with no protruding fibers or stated differently a hard surface produced by calendering. The bag is sewed together at its lower end by stitching 15*d* and may be provided at its bottom end with a reinforcing strip 15*e*, said strip being folded over the lower bag end and secured to the side walls by paste or the like. The strip extends above and below the stitching at the lower end of the bag. While stitching the bag has been set forth as the preferred method of closing the bag, it is obvious that the bag may be closed in other ways, as for example, by stapling the end and side walls of the bag together, or any other equivalent mechanical means. It is within the province of the present invention to seal the open end of the bag by any appropriate sealing means.

While it has been stated that it is preferred to use bags formed of multi-ply material, such as kraft paper having a calendered or hardened surface, such bags being a commercial article now on the market, it is not desired in the broad aspects of the invention to be limited to the use of a multi-ply bag. In other words, it is recognized that while it may not be the best form of the invention, that the invention may be carried out by using a bag composed of a single sheet of paper having the requisite tensile strength. Other materials similar to paper may be used, provided said materials have the characteristics typified by the paper of the present invention. In the preferred form of the invention, the bags utilized are gusseted and these gussets project inwardly when the bag is in a flat state, but upon opening of the bag, unfold and form the narrow side walls 15*f* and 15*g*, the broad sides being identified by the numerals 15*b* and 15*c*. Here again, while the best manner of carrying out the invention is to utilize the gusseted bags, it is recognized that the invention may be carried out by using a non-gusseted bag, as for example, a square ended bag.

While it has been stated that in the preferred form of the invention the bag, carton or other container will be provided with a surface having substantially no fibers protruding therefrom, as for example a calendered hard surface, it is recognized that the container may be made of a composite material, as for example, an outer bag without the especially prepared surface, and an inner bag having the especially prepared surface, or a single bag, for example, may have applied thereto an insert or a coating which will function to produce a surface in which fibers are absent and so prevent the intermingling of the fibers with the solidified rosin, thereby eliminating the tendency of the bag to stick to the rosin. When using the composite bag, the outer sheet of the composite bag may to some extent absorb the rosin, but, of course, this is prevented by the use of the insert of the character herein set forth.

It is within the province of the present inven-

tion to provide a multi-ply bag, the inner ply of which has its inner surface, which is adapted to receive the hot rosin, coated with a coating material which will prevent the bag from sticking to the rosin, said coating material, however, should be one which is not hygroscopic, as the absorption of moisture by the coating would tend to weaken the tensile strength of the bags, and entirely prevent the packaging of rosin in cellulose base bags.

As hereinbefore stated, the bag 15 is placed in the supporting frame 16 and the bag and supporting frame is placed on the scale 19 to receive the liquid rosin from the conduit 17. The frame 16 comprises open side members 23 and 24 and open front and rear members 25 and 26. These openings in the frame members are highly desirable as the liquid rosin in the bag 15 is thereby subjected to cooling by virtue of partial contact with the air during the time the bag is on the scales 19 and is passing on the conveyor for the purpose of sewing, and just prior to the time the bag is removed from the supporting frame 16 to allow for further cooling and solidification.

As shown specifically in Figures 2 and 5, the front member 25 of the supporting frame 16 is in reality a hinged door hinged respectively at 27 and 28. The front member 25 is further provided with fastening means for preventing said member from being opened until the proper opening time arrives. As shown, the door member 25 is provided with hooks 29 and 30 adapted to fit into the eyes 31 and 32 fastened upon the side wall 24. The bags which have been found most satisfactory to carry out the present invention are about 36 inches long and are provided with an inturned gusset, the total inturn on each side of the broad side walls of the bag being about 1⅞ of an inch, this inturned gusset being adapted to form narrow side walls of approximately three (3) inches when the bag is opened preparatory to filling with rosin.

The bag 15 is placed in the supporting frame 16, the latter being on the scale 19, and about one foot of the bag protrudes from the frame top edges 16*a*. The valve 18 is then opened and the liquid or molten rosin passes into the bag, and the latter is filled to about the level of the top edges 16*a* of the container 16. In practice, the bag is actually filled with liquid rosin to about an inch or two inches above the top edges 16*a*. If the bag is filled too full, there is a tendency for the rosin to lick that portion of the broad sides 15*b* and 15*c* of the bag, which is above the top edges 16*a* of the supporting frame 16. This introduces difficulties in sewing, as if the abutting faces of the side walls have rosin along the portion which is to be sewed, the sewing is extremely difficult and the closure is not properly made. Of course, this difficulty can be overcome by waiting until the rosin has cooled and solidified and then peeling the rosin off from the sides 15*b* and 15*c* adjacent the portion which is to be sewed.

Further, it is quite desirable to fill the bag 15 to just above the top edges 16*a* of the frame 16, since if the bag 15 is filled to a higher point than the top edges 16*a*, there is a tendency for the bag to give away on one side and allow the rosin to spill. As previously pointed out, the abutting side walls at or adjacent the top edges thereof are sewed together and the filling of the bag to the point indicated facilitates the sewing of these abutting sides. It is further desirable that after the bag is sewed, there be a considerable space between the top surface of the rosin and the sewed end of the bag so that the rosin may flow for the purpose hereinafter pointed out.

It is highly desirable that the sewed bag 15 with its rosin content be removed from the supporting frame 16 as soon as possible, as it is not desired in the preferred form of the invention, to allow the rosin to cool and solidify to any substantial extent in the supporting frame. It may be pointed out that when the bag 15 is filled with rosin, while the bag is in the supporting frame 16, the weight of the rosin causes the bag to crush and wrinkle, as shown in Figures 3 and 4, and this is objectionable, since it is undesirable that the rosin solidify with the bag in this wrinkled, creased and deformed shape. If the rosin does solidify with the bag in the deformed state, above referred to, there is a tendency during the handling of the bag, for the lower crushed portion of the bag and the rosin therein to break off, due to an irregular formed rosin body and to the formation of easy lines of cleavage. From this standpoint, it is quite necessary that the creased and deformed bag and rosin content be converted into a regular formation. Another reason for removing the creases and deformations in the bag and rosin content, is that the bags possessing such deformities do not stack well. Further, if the bag and its contents are allowed to cool and solidify into a crushed and deformed state adjacent the bottom end of the bag, there is a very substantial tendency for the rosin to soak through the bag, and this is highly objectionable, as it makes it difficult for the bag to be removed from the rosin adjacent the portions where the rosin has soaked through the bag.

It may be further pointed out that the paper bag acts as an insulator for the rosin, and if the rosin does not soak through the bag, the bag with its rosin content may be exposed to the sun's rays and for a substantial length of time there is no softening of the rosin content of the bag. On the other hand, if the rosin is absorbed by the bag, the insulating qualities of the bag are greatly diminished and the ability of the rosin to withstand softening when exposed to the sun's rays is materially decreased. It may be further pointed out that when the rosin soaks through the bag, there is a material loss of rosin.

It has been ascertained that in order to remove the creases and cause the rosin and bag to assume the normal contour, such as shown in Figure 5, that the bag must be removed quite promptly from the supporting frame 16. In other words, the rosin when it is initially passed into the bag 15, has a sufficiently high temperature to maintain the rosin in a liquid state. While some cooling occurs during the time the rosin passes from the scales 19, then along the conveyor belt 20, where it is sewed and is finally removed from the conveyor 20, it is highly undesirable that the rosin content cool and solidify to such an extent as to prevent removal of the creases and deformation at the crushed lower portion of the bag. The supporting frame 16 together with the bag 15, after the bag has been filled with rosin and the abutting sides of the bag have been sewn together adjacent its top portion, is removed as an entity from the conveyor 20 and taken to a convenient cooling yard or shed. Immediately thereafter the front door 25 of the supporting frame is opened and the bag 15 is removed from the supporting frame and placed on any even medium which will absorb heat. Since the rosin is in a liquid state and the pressure of the rosin is evenly distributed throughout the container,

the deformed lower portion of the bag assumes a rounded contour, such as shown in Figures 5 and 7, and moreover, the creases are removed. Further, the distribution of the rosin produces a flat package facilitating easy storage by using a minimum of space. The flat shaped package facilitates the stacking of the packages preparatory to shipment, and further during shipment prevents the package from moving around, and in this way reduces breakage to a minimum. These bags stack readily in a box car or a truck.

Successive packages 15 are laid side to side with a small space between the narrow side walls of successive packages to allow for complete cooling and solidification of the rosin content of the bag. The manner of assembling the bags for cooling on a medium which will absorb heat, such as a concrete floor, is diagrammatically illustrated in Figure 6. A series of bags are disposed in row A and another series of bags are disposed in row B, with a lane L between the rows of bags, this lane being for the purpose of allowing workmen to pass between successive rows of bags. It is to be noted that the bags are not laid on the cooling floor with the narrow sides of any two bags touching, because this does exert a tendency for the rosin to be absorbed by the bag sides even if poured at a temperature at which it would not ordinarily be absorbed by the bag material. In other words, by assembling the bags with an air passage adjacent successive narrow bag sides, air currents are allowed to circulate between the successive bags and assist in cooling the rosin content of each bag. While the spacing of the successive bags about one inch apart has given satisfactory results, it is obvious that this spacing distance indicated by J in Figure 6, may be substantially increased without departing from this phase of the present invention.

It is highly desirable in carrying out the present invention that the temperature of the rosin be sufficient to enable the rosin to be easily pourable and insufficient to cause the rosin to be absorbed by the bag 15 to any substantial extent. Since fairly pure rosin, that is rosin that does not have much turpentine or water left therein, has a softening point of around 158° F., it is desirable that the rosin should not be cooled lower than about 150° F. In other words, the rosin, in order to carry out the present invention, must run and even if a minor proportion of the rosin is solid, there will be a mixture of solid and liquid which is pourable. When operating with a fairly pure rosin, the rosin or resin would ordinarily be delivered to the receiving vats 5 and 6 at a temperature varying between 290° and 325° F. Under some circumstances, the temperature may be somewhat higher or somewhat lower. The rosin after passage to the cooling vat 9 is preferably allowed to cool to a temperature which will inhibit or minimize the absorption of the rosin by the bag material, as hereinbefore stated.

Employing a four (4) or five (5) ply paper container made of kraft paper, it has been ascertained that it is preferable to cool the rosin to between about 240° F. and 275° or 315° F. Working within this temperature range, and with the kraft paper bag, preferably one having no fibers protruding therefrom, as before set forth, it has been ascertained that the use of this temperature range inhibited any substantial absorption of the rosin by the paper. This temperature range is the preferred temperature range at which the present invention may be carried out, although the invention, in its broadest aspect, may be carried out with rosin having a temperature between 150° and 350° F. It is exceedingly difficult to express the limits of the invention in terms of actual temperature, and, moreover, it is not necessary. This aspect of the invention resides in correlating the temperature at which the rosin is poured with the absorption characteristics of the bag or carton material, so that at the temperature utilized, there is no substantial absorption of the rosin by and through the bag. This is the difficulty that must be overcome and the criterion has been herein set forth, whereby the desired inhibition of absorption by the paper bag is attained. As a rule, however, the higher the temperature, the greater the tendency of the paper bag to stick to the solidified rosin, this introducing some difficulty in the removal of the paper bag from the solidified rosin.

In actual operation, the pouring operation may be started at about 260° F. or 275° F. or even as high as 315° F. and inasmuch as the cooling vat has about 2,500 to 3,000 pounds of rosin present, the filling of the respective bags is finished at approximately a temperature of about the softening point of the rosin. In other words, the filling operation is started at the maximum temperature compatible with the character of the bag employed and the temperature decreases as successive bags are filled, the lower temperature being, as stated, in the neighborhood of the softening point of the rosin, or just a little below. There is an advantage in utilizing lower temperatures of pouring, as the colder the rosin is poured, the higher the poundage content of the bag for a given volume. There is also the advantage that the bags will cool and solidify more quickly.

It may be pointed out that the preferred container or bag of the present invention has substantially symmetrical end portions, thus greatly facilitating stacking and transportation of the bags. In order to produce this symmetrical package the original bag is a sharp end bag having the abutting end portions of the large side members sewed together as indicated in Figure 8, the latter figure showing the bag after it has been filled with rosin. It is recognized that the present invention may be practiced by using a flat bottom bag, but since rosin is a rather heavy commodity, and since it is desirable to pack it in packages weighing from 90 to 100 pounds apiece, the element of security so necessary in a package of this kind is to a material extent absent in the square bottom bag. In other words, a square bottom bag is not as sturdy and reliable as a gussetted bag, and in addition has the disadvantage of forming an unsymmetrical bag, introducing difficulties in storing and transportation.

Occasionally from the bags 15 when laid on one of the large flat sides, there is a minute seepage of rosin from the sewn end of the bag. This seepage can be eliminated by contacting the sewn end of the bag with a minute quantity of water, just sufficient to cool the rosin. This solidifies the rosin and seals up any open crevices.

Instead of packing the rosin in bags, the rosin may be packaged in a carton 33, such as shown in Figure 10. This carton may be made of any suitable material having the non-absorptive properties herein set forth, the inner surface of the material having substantially no fibers protruding therefrom. It has been stated that the carton may have the composite material, for example, the body of the carton, made up of corrugated board and provided with 100% kraft liners which have been calendered to provide a hard surface.

or the carton may be provided with, instead of liners, an integral inner surface in which no fibers are present to intermingle with the solidified rosin. Preferably, the carton is supplied with an integrally closed bottom. However, if desired, the bottom member may be of a flap type, and then it is necessary to seal the bottom members in any suitable manner. The carton is first inserted in a supporting frame similar to frame 16 except that the side walls of the supporting frame are constructed to prevent the carton walls from bulging outwardly. The supporting frame may have solid walls although as hereinafter pointed out, semi-open walls may be used, the walls preventing the bulging out while at the same time facilitating cooling. It is desirable that the side walls of the supporting frame function to prevent the side walls of the carton from bulging out because the carton 33 should preferably remain in the supporting frame until the rosin solidifies. As stated, if the supporting frame has completely open side walls, then there will be a tendency for the rosin as it solidifies to bulge out the walls of the carton. Similarly, if the carton 33 with its rosin content is removed from the supporting frame prior to the substantially complete solidification of the rosin, the sides of the carton will bulge out due to the action of the liquid rosin.

The carton 33 is allowed to remain in its supporting frame for a period of from approximately 12 to 18 hours, depending on the temperature of the atmosphere. The above figure is simply illustrative, and is not by way of limitation, as obviously the time of cooling and solidification of the rosin will depend on the characteristics of the rosin, the temperature of the cooling medium, and to some extent the conductive characteristics of the carton material. After the carton 33, the latter containing a charge of about 100 pounds, has completely cooled and solidified, the top portion of the carton is closed and the carton is ready for shipment.

When a carton is employed to receive the liquid rosin, it is placed in a supporting frame 34, said frame being provided with front and rear walls 35 and 36 and side walls 37 and 38. These walls are provided with apertures 39 to facilitate the cooling of the rosin in the carton 33. The side walls of the supporting frame function to prevent the carton from bulging outwardly during the time the rosin is cooling in the carton. It is desirable that the side walls of the supporting frame function to prevent the side walls of the carton from bulging out because the carton 33 should preferably remain in the supporting frame until the rosin solidifies. If the carton 33 with its rosin content is removed from the supporting frame 34 prior to the substantially complete solidification of the rosin, the sides of the carton will bulge out due to the action of the liquid rosin.

The carton 33 is allowed to remain in the supporting frame 34 for a period of from approximately twelve (12) to eighteen (18) hours, depending on the temperature of the atmosphere, and the temperature at which the rosin may be initially introduced into the carton. The above figure is simply illustrative and is not by way of limitation, as obviously the time of cooling and solidification of the rosin will depend on the characteristics of the rosin, the temperature of the cooling medium, and to some extent the conductive characteristics of the carton material. It is desired to point out that rosin is a poor conductor of heat. After the carton 33 containing a charge of about one hundred (100) pounds, has been completely cooled and solidified, the top, front and rear flaps 40, 41, 42 and 43 are closed and a sealing strip 44 placed across the closed front and rear flaps so as to seal the closure space between the adjacent inner edge walls of the flap members 42 and 43. The carton is then ready for shipment.

The time of the cooling of the carton in the supporting frame may be greatly accelerated by placing the carton after filling on a conveyor which passes through a refrigerating chamber, regulated to quickly bring the temperature of the rosin down from around 240° to 280° F. to its point of solidification.

One form of carton which may be used in carrying out the present invention is that manufactured by the Mengel Co. of Louisville, Ky., said carton having a bursting resistance of 200 pounds per square inch and comprising a corrugated board of about $\frac{1}{32}$ of an inch in thickness, the corrugated board being provided with a kraft liner of approximately 1/64 of an inch thick, and an outer cover board of about 3/64 of an inch thick. Preferably, the kraft liner is one that does not have any fibers protruding from its surface, and more specifically, is a calendered kraft product, to thereby provide a hard surface.

The above specifications are merely given as illustrative of the characteristics of a suitable carton and are not to be taken by way of limitation. It is obvious that the thickness of the corrugated sheet itself, the inner kraft liner preferably provided with a hardened surface, and the outer board may be varied. These three elements are securely glued together to form the composite carton. The inner kraft lining for the front and rear walls, the side walls and the bottom member, may be an integral continuous sheet, thereby avoiding seams through which the rosin may percolate into the corrugated members. Here again, the kraft liner, whether it is integral or formed of side sheets, front and rear sheets, and a bottom sheet, may have its hard surface in which fibers adapted to intermingle with the rosin are absent, provided for by a suitable container coating non-hygroscopic to the atmosphere and substantially chemically inert with respect to the rosin. In this connection it may be stated that any prior art coating material which is non-hygroscopic to the atmosphere and substantially chemically inert with respect to the rosin at the temperature of pouring and solidification may be used.

Instead of using a supporting frame, such as shown in Figure 11, the pouring and cooling and solidification steps may be carried out while the carton 33 is positioned in a supporting frame 45, as shown in Figure 12. The supporting frame 45 on all its sides is provided with a heavy reinforced mesh wire 46, the wire having sufficient strength to prevent the carton sides from bulging out upon introduction of the rosin into the carton, said mesh sides simultaneously affording contact with the colder atmospheric air in order to facilitate cooling and solidification.

The previous discussion of the temperature at which the liquid rosin is poured and the effect of the temperature of the rosin to the container material is equally applicable to the packaging of rosin in a carton.

The temperature of pouring has an influence on the symmetrical solidification of the rosin block. Due to the fact that the rosin cools in the carton in layers, when the rosin is finally

cooled, there is a cup in the top surface of the rosin and the higher the temperature at which the rosin is poured the greater the tendency for the upper surface layer of the rosin block to cup. It is preferred from this standpoint to keep the temperature of pouring less than 280° F. as this reduces the amount of cupping. The lower limit will be governed by practical considerations and it will suffice to state that the lower the temperature of pouring the less will be the tendency to cup and if the temperature of pouring could be reduced, considering practical operation, to approximately at or near the softening point of the rosin, there would be substantially no cupping of the upper surface layer of the rosin. Therefore, from the standpoint of cupping, the lower the temperature of pouring, the less the cupping.

When the packages are stacked one upon the other, there is an air space between the top cover members 42 and 43 of the carton and the cupped surface 47 of the rosin, and there is a tendency for the cover members 42 and 43 to be crushed. Therefore, in accordance with the present invention, this tendency to cupping and the tendency of the packaged rosin to create difficulties in stacking may be controlled by controlling the pouring temperature of the liquid rosin, the lower the pouring temperature, the less the cupping, and the least difficulty there will be experienced in packaging.

While in the preferred form of the invention a relatively stiff but flexible paper bag is used or a carton is used, said materials being physically and chemically non-reactive with the rosin or resin at a temperature varying between 150° and 350° F. and preferably between 150° and 240° to 280° F., or even higher, as around 315° F., it is within the province of the present invention to use any container as a cellulose base, as for example, a paper base or a paper pulp base. It is recognized there may be mixed with the cellulose base constituents other ingredients, but these ingredients should also be inert relative to the hot liquid or molten rosin. The container material must not char at the temperature of the molten rosin, or in any manner have its tensile strength reduced by contact with the molten rosin. Preferably, there should be little or no chemical interaction with the molten rosin.

In one aspect, the present invention comprises packaging any hot liquid material into an open relatively stiff cellulose base container sufficiently flexible to have its shape changed by the flow of the hot liquid material in the container, said container preferably being a multi-ply material to increase the flexibility while retaining adequate tensile strength to the container, closing the container while leaving a flow space therein for the hot liquid material, and then initiating flow of the hot liquid material in said closed container to induce a change of shape in said container and to substantially eliminate deformations therein and the tendency of the liquid material to be absorbed by the container material. The above may be applied to resins, synthetic or naturally occurring, such as rosin.

While the invention is particularly applicable to a container which is adapted upon closing to flatten out upon the flow of hot liquid rosin therein, it may be broadly applied to any stiff but flexible container which is adapted to have its shape changed by initiating a flow of the rosin in the closed container.

While it has been stated that for rosin produced as herein set forth the pouring temperature should vary between 240° and about 280°, it is recognized that this upper limit may be somewhat departed from and still come within the spirit of the present invention. The upper limit may be extended to around 290° to 315° but when the temperature rises the absorption of the rosin begins to increase and for the best results with rosin of the character herein set forth, the temperature should be within the range of 275° to 280° or 295° F. In other words, when the upper limit is set forth as about 280° it is intended by this expression to indicate that there may be some variation either below or above 280°.

It may be pointed out that the relatively stiff but flexible container is preferably a bag having a coating material applied to its inner surface, or if a multi-ply bag is used, the inner surface of the bag in contact with the rosin may have a waterproof coating thereon chemically inert to the rosin at the temperature of pouring of the rosin. This will broadly provide a method of packaging rosin wherein the hot liquid rosin is introduced into a cellulose bag container of the carton type or the flexible bag type the surface of which has a coating of the character specified, which will function to prevent the rosin from being absorbed by the container material. This coating will also function to provide a rosin contact surface in which no fibres are present capable of intermingling with the rosin. When the rosin is introduced into a carton or bag having such a surface the temperature is maintained within a range of 280° to 300° to inhibit the tendency of the container to stick to the rosin.

It may be pointed out that in the preferred form of the present invention the multi-ply bag has an important function in eliminating deformations in the bag. The multi-ply bag is more adaptable to eliminate deformations in the bag than a single ply bag having the same strength as the multi-ply material. In fact, the use of a multi-ply bag gives sufficient flexibility with the desired tensile strength to assist in the removal of the deformations in the bag which in turn minimizes the tendency of the rosin to be absorbed by the bag and to be broken during handling.

From the above, it will be seen that the present invention comprises introducing hot liquid resin into a relatively stiff but flexible cellulose base container, which is more desirably a multi-ply container, for the reasons above set forth, and that the rosin contact surfaces of the container are free of protruding fibers, or as pointed out, are calendered, said bag being capable of having its shape changed by distribution of the liquid rosin therein, closing the bag while leaving the rosin-content thereof free to change the shape of the bag when the latter is placed in a rosin-flow position adapted to induce a change in the shape of the bag and to substantially eliminate deformations in the bag to thereby minimize the tendency of the rosin to be absorbed by the bag and to be broken during handling, and cooling and solidifying the rosin-content of the bag or container. This procedure may be practiced together with the step of maintaining the temperature of the rosin within such a range that the drying out and embrittling effect on the bag is minimized and the rosin shortly after pouring begins to chill adjacent its contact area with the bag to a pasty condition.

The present application is a continuation-in-

part of my copending application, Serial No. 174,677.

The packaging of rosin in cartons is claimed in my copending application, Serial No. 182,584.

The method of packaging rosin comprising introducing hot liquid rosin into a cellulose base container, correlating the temperature at which the rosin is poured into the container with the absorption characteristics of the container material, maintaining the temperature of the rosin within such a range as to facilitate pouring while inhibiting any substantal absorption of the rosin by and through the container to thereby inhibit the tendency of the container to stick to the rosin, is broadly claimed in applicant's co-pending application Serial Number 220,600. In said application there is also claimed the novel package comprising a relatively stiff but flexible multi-ply container having as its essential constituent a cellulose base relatively non-absorptive to rosin at a temperature varying between 150° and 350° F., the container having present in situ solidified rosin, and being characterized by the property of being free from wrinkle areas adapted to cause absorption of rosin by the container and exhibiting little tendency to stick to the solidified rosin.

I claim:—

1. The method of packaging rosin comprising introducing hot liquid rosin into a container provided with an open portion to receive the rosin, said container being capable of having its shape changed by distribution of the liquid rosin therein, the rosin contact surfaces of said container being substantially free of protruding fibers, closing said container while leaving therein a flow of space for the liquid rosin, placing the container while the rosin is in a liquid state in a rosin-flow position adapted to cause the rosin to flow to said flow-space, induce a change in the shape of the container and substantially eliminate deformations in the container to thereby minimize the tendency of the rosin to be absorbed by the container and to be broken during handling, and cooling and solidifying the rosin-content of the container.

2. The method of packaging rosin comprising introducing hot liquid rosin into a relatively stiff but flexible multi-ply container provided with an open portion to receive the rosin, said container being capable of having its shape changed by distribution of the liquid rosin therein, the rosin contact surfaces of said container being substantially free of protruding fibers, closing said container while leaving therein a flow space for the liquid rosin, placing the container while the rosin is in a liquid state in a rosin-flow position adapted to cause the rosin to flow to said flow-space, induce a change in the shape of the container and substantially eliminate deformations in the container to thereby minimize the tendency of the rosin to be absorbed by the container and to be broken during handling, and cooling and solidifying the rosin-content of the container.

3. The method of packaging rosin comprising introducing hot liquid rosin into a relatively stiff but flexible bag having broad sides and provided with an open portion to receive the rosin, said bag having rosin contact surfaces which are substantially free of protruding fibers, the bag being capable of having its shape changed when placed on one of its broad sides by a distribution of the liquid rosin therein, closing said bag while leaving the rosin-content thereof free to change the shape of the bag when the latter is placed on one of its broad sides, placing the bag on one of its sides to substantially eliminate deformations in the bag and thereby minimize the tendency of the rosin to be absorbed by the bag and to be broken during handling, and cooling and solidifying the rosin-content of the bag.

4. The method of packaging rosin comprising introducing hot liquid rosin into a relatively stiff but flexible bag provided with an open portion to receive the rosin, said bag having rosin contact surfaces which are substantially free of protruding fibers, the bag being capable of having its shape changed when placed on one of its broad sides by a distribution of the liquid rosin therein said bag being disposed in a supporting frame, closing said bag while leaving the rosin-content thereof free to change the shape of the bag when the latter is placed on one of its broad sides, removing the bag from the supporting frame while the rosin is in a flow-state, placing the bag on one of its broad sides to substantially eliminate deformations in the bag to thereby minimize the tendency of the rosin to stick to the bag and to be broken during handling, and cooling and solidifying the rosin-content of the bag.

5. The method of packaging rosin comprising introducing hot liquid rosin into a relatively stiff but flexible container provided with an open portion to receive the rosin, said container being capable of flattening out by the distribution of the liquid rosin therein, the rosin contact surfaces of said container being substantially free of protruding fibers, closing said container while leaving therein a flow-space for the liquid rosin, flattening out said container to distribute the rosin-content thereof and to substantially eliminate deformations in the container to thereby minimize the tendency of the rosin to be absorbed by the container, and to be broken during handling, and cooling and solidifying the rosin-content of the container.

6. The method of packaging rosin comprising introducing hot liquid rosin into a cellulose base container, the rosin contact surfaces of which are substantially free of protruding fibers, said container being capable of having its shape changed by a distribution of the liquid rosin therein, correlating the temperature at which the rosin is poured into the container with the absorption characteristics of the container material, maintaining the temperature of the rosin within such a range that the drying out and embrittling effect of the rosin on the container is minimized and the rosin shortly after pouring begins to chill adjacent its contact area with the container to a pasty condition to thereby inhibit any substantial absorption of the rosin by and through the container material and the tendency of the container to stick to the rosin, closing the container, flattening out the container to distribute the rosin-content thereof, and substantially eliminate deformations in the container, and cooling and solidifying the rosin-content thereof.

7. The method of packaging rosin comprising introducing hot liquid rosin into a relatively stiff but flexible cellulose base bag, the rosin contact surfaces of which are substantially free of protruding fibers, said bag being capable of having its shape changed when placed on one of its broad sides by a distribution of the liquid rosin therein, correlating the temperature at which the rosin is poured into the bag with the absorption characteristics of the bag material, maintaining the temperature of the rosin within such a range that the drying out and embrittling effect of the

rosin on the bag is minimized and the rosin shortly after pouring begins to chill adjacent its contact area with the bag to a pasty condition to thereby inhibit any substantial absorption of the rosin by and through the bag and the tendency of the bag to stick to the rosin, closing the bag while leaving the rosin-content thereof free to change the shape of the bag when the latter is placed on one of its broad sides, placing the bag on one of its broad sides to substantially eliminate deformations in the bag, and cooling and solidifying the rosin-content of the bag.

8. The method of packaging rosin comprising introducing hot liquid rosin into a relatively stiff but flexible multi-ply container provided with an open portion to receive the rosin, the rosin contact surfaces of said container being substantially free of protruding fibers, said container being capable of having its shape changed by distribution of liquid rosin therein, correlating the temperature at which the rosin is poured into the container with the absorption characteristics of the container material, maintaining the temperature of the rosin within such a range that the drying out and embrittling effect of the rosin on the container is minimized and the rosin shortly after pouring begins to chill adjacent its contact area with the container to a pasty condition to thereby inhibit any substantial absorption of the rosin by and through the container material and the tendency of the container to stick to the rosin, closing said container while leaving therein a flow space for the liquid rosin, placing the container while the rosin is in a liquid state in a rosin-flow position adapted to cause the rosin to flow to said flow-space, induce a change in the shape of the container and to substantially eliminate deformations in the container, and cooling and solidifying the rosin-content of the container.

9. The method of packaging rosin comprising introducing hot liquid rosin into a relatively stiff but flexible cellulose base bag, the rosin contact surfaces of which are substantially free of protruding fibers, said bag being capable of having its shape changed by a distribution of the liquid rosin therein, correlating the temperature at which the rosin is poured into the bag with the absorption characteristics of the bag material, maintaining the temperature of the rosin within such a range that the drying out and embrittling effect of the rosin on the bag is minimized and the rosin shortly after pouring begins to chill adjacent its contact area with the bag to a pasty condition to thereby inhibit any substantial absorption of the rosin by and through the bag and the tendency of the bag to stick to the rosin, closing said bag while leaving the rosin-content thereof free to change the shape of the bag when the latter is placed in a rosin-flow position, placing the bag while the rosin is in a liquid state in a rosin-flow position adapted to induce a change in the shape of the bag and to substantially eliminate deformations in the bag to thereby minimize the tendency of the rosin to be absorbed by the bag and to be broken during handling, and cooling and solidifying the rosin-content of the bag.

10. The method of packaging rosin comprising introducing hot liquid rosin into a relatively stiff but flexible container having broad and narrow sides and provided with a closed bottom and an opening adapted to receive the rosin, the rosin contact surfaces of said container being substantially free of protruding fibers, said container being capable of having its shape changed when placed on one of its broad sides by a distribution of liquid rosin therein, closing said container while leaving the rosin-content thereof free to change the shape of the container when the latter is placed on one of its broad sides, placing the container on one of said broad sides to substantially eliminate deformations in the container and thereby minimize the tendency of the rosin to be absorbed by the container and to be broken during handling, and cooling and solidifying the rosin-content of the container.

11. The method of packaging rosin comprising introducing hot liquid rosin into a relatively stiff but flexible container having broad and narrow sides and provided with a closed bottom and an opening adapted to receive the rosin, the rosin contact surfaces of said container being substantially free of protruding fibers, said container being capable of having its shape changed when placed on one of its broad sides by a distribution of liquid rosin therein, correlating the temperature at which the rosin is poured into the container with the absorption characteristics of the container material, maintaining the temperature of the rosin within such a range that the drying out and embrittling effect of the rosin on the container is minimized and the rosin shortly after pouring begins to chill adjacent its contact area with the container to a pasty condition to thereby inhibit any substantial absorption of the rosin by and through the container material and the tendency of the container to stick to the rosin, said temperature not exceeding 350° F., closing said container while leaving the rosin-content thereof free to change the shape of the container when the latter is placed on one of its broad sides, placing the container on one of said broad sides to substantially eliminate deformations in the container and thereby minimize the tendency of the rosin to be absorbed by the container and to be broken during handling, and cooling and solidifying the rosin-content of the container.

12. The method of packaging comprising introducing hot liquid resin material into an open container sufficiently flexible to have its shape changed by the flow of the hot liquid material in the container, the rosin contact surfaces being substantially free of protruding fibers, closing said container while leaving a flow space therein for the hot liquid resin material, placing said container in a resin-flow position before the contents of the container have cooled and solidified to any substantial extent, said position being adapted to cause the resin material to flow towards said flow space, change the shape of the container and substantially eliminate any deformations present in the container, and cooling and solidifying the resin-content of the container.

13. The method of packaging rosin comprising introducing hot liquid rosin into a relatively stiff but flexible multi-ply cellulose base container, the rosin contact surfaces of which are substantially free of protruding fibers, said container being capable of having its shape changed by a distribution of the liquid rosin therein, correlating the temperature at which the rosin is poured into the container with the absorption characteristics of the container material, maintaining the temperature of the rosin within such a range as to facilitate pouring while inhibiting any substantial absorption of the rosin by and through the container to thereby inhibit the tendency of the container to stick to the rosin, closing said container while leaving the rosin-content thereof

free to change the shape of the container when the latter is placed in a rosin-flow position, placing the container while the rosin is in a liquid state in a rosin-flow position adapted to induce a change in the shape of the container and to substantially eliminate deformations in the container to thereby minimize the tendency of the rosin to be absorbed by the container and to be broken during handling, and cooling and solidifying the rosin-content of the container.

14. The method of packaging rosin comprising introducing hot liquid rosin into a relatively stiff but flexible cellulose base bag, the rosin contact surfaces of which are substantially free of protruding fibers, said bag being disposed in a supporting frame and being capable of having its shape changed by a distribution of the liquid rosin therein, correlating the temperature at which the rosin is poured into the bag with the absorption characteristics of the bag material, maintaining the temperature of the rosin within such a range as to facilitate pouring while inhibiting any substantial absorption of the rosin by and through the bag to thereby inhibit the tendency of the bag to stick to the rosin, closing said bag while leaving the rosin-content thereof free to change the shape of the bag when the latter is placed in a rosin-flow position, removing the bag from the supporting frame while the rosin is in a flow-state, placing the bag while the rosin is in a liquid state in a rosin-flow position adapted to induce a change in the shape of the bag and to substantially eliminate deformations in the bag to thereby minimize the tendency of the rosin to be absorbed by the bag and to be broken during handling, and cooling and solidifying the rosin-content of the bag.

15. The method of packaging rosin comprising introducing hot liquid rosin into a relatively stiff but flexible cellulose base container having a rosin contact surface provided with a coating thereon preventing intermingling of any of the fibers of the coated surface with the rosin, said container being capable of having its shape changed by a distribution of the liquid rosin therein, correlating the temperature at which the rosin is poured into the container with the absorption characteristics of the container material, maintaining the temperature of the rosin within such a range that the drying out and embrittling effect of the rosin on the container is minimized and the rosin shortly after pouring begins to chill adjacent its contact area with the container to a pasty condition to thereby inhibit any substantial absorption of the rosin by and through the container and the tendency of the container to stick to the rosin, closing said container while leaving the rosin-content thereof free to change the shape of the container when the latter is placed in a rosin-flow position, placing the container while the rosin is in a liquid state in a rosin-flow position adapted to induce a change in the shape of the container and to substantially eliminate deformations in the container and thereby minimize the tendency of the rosin to be absorbed by the container and to be broken during handling, and cooling and solidifying the rosin-content of the container.

16. The method of packaging rosin comprising introducing hot liquid rosin into a relatively stiff but flexible cellulose base bag, the rosin contact surfaces of which are calendered and are substantially free of protruding fibers, said bag being capable of having its shape changed by a distribution of the liquid rosin therein, correlating the temperature at which the rosin is poured into the bag with the absorption characteristics of the bag material, maintaining the temperature of the rosin within such a range that the drying out and embrittling effect of the rosin on the bag is minimized and the rosin shortly after pouring begins to chill adjacent its contact area with the bag to a pasty condition to thereby inhibit any substantial absorption of the rosin by and through the bag and the tendency of the bag to stick to the rosin, closing said bag while leaving the rosin-content thereof free to change the shape of the bag when the latter is placed in a rosin-flow position, placing the bag while the rosin is in a liquid state in a rosin-flow position adapted to induce a change in the shape of the bag and to substantially eliminate deformations in the bag to thereby minimize the tendency of the rosin to be absorbed by the bag and to be broken during handling, and cooling and solidifying the rosin-content of the bag.

17. The method of packaging comprising introducing hot liquid resin material into an open container capable of having its shape changed by the distribution of liquid resin therein, the resin contact surfaces of said container being substantially free of protruding fibers, closing said container while leaving the resin-content thereof free to change the shape of the container when the latter is placed in a resin-flow position, placing said container while the resin is in a resin-flow state in a resin-flow position adapted to induce a change in the shape of the container, and substantially eliminate any deformations present in the container, and cooling and solidifying the resin-content of the container.

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