

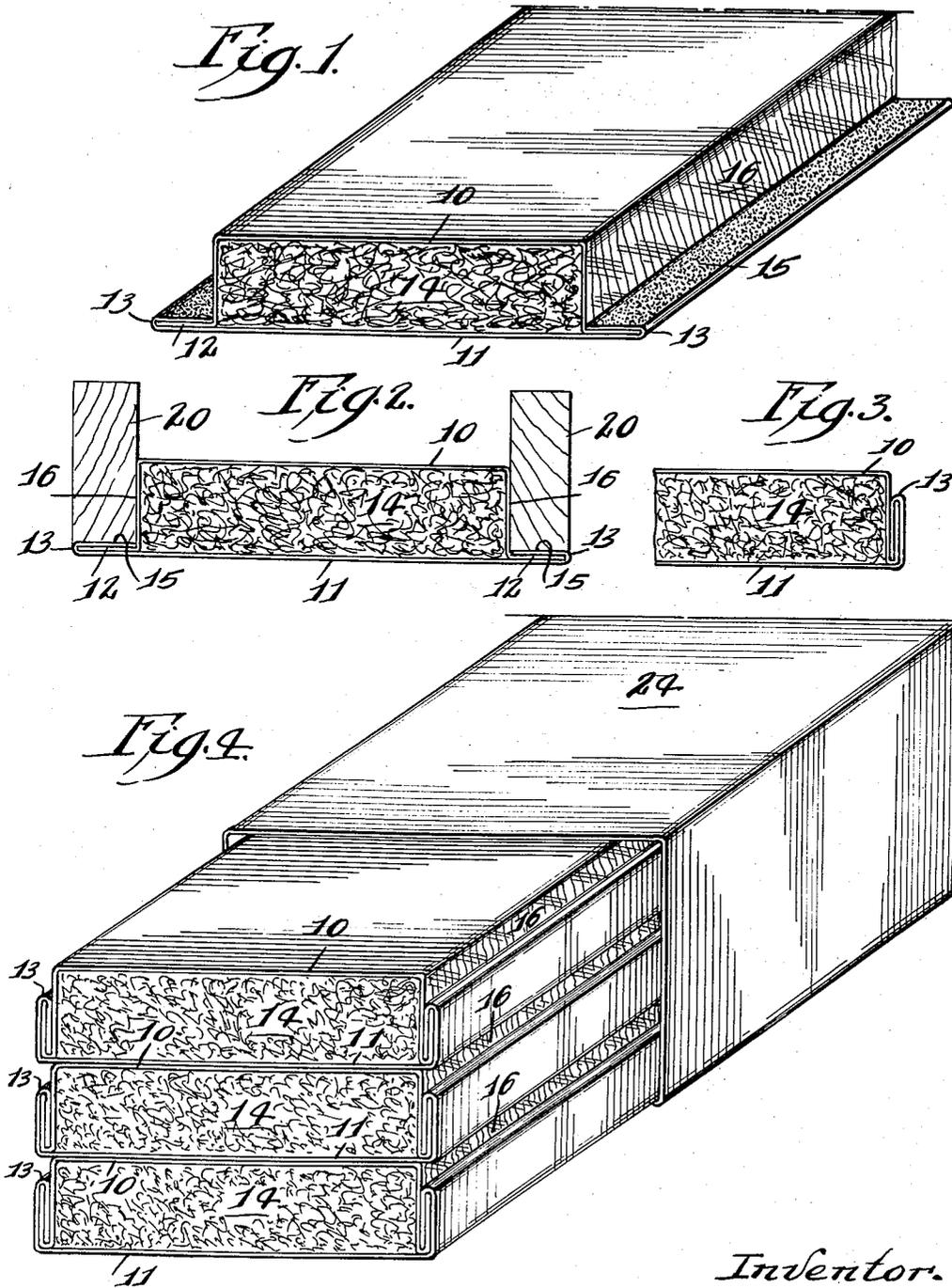
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PACKAGING OF INSULATING BLANKETS

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## PACKAGING OF INSULATING BLANKETS

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The inventions relate to an improved package of insulating blankets, the method of forming such package, and an improvement in the construction of the mineral wool blanket itself which is essential to the method of packaging hereof.

Mineral wool blankets as produced and sold are of various thicknesses, which may be two, three, four or six inches, or any other desired thickness, and normally they are encased, that is at least on the top and bottom faces and side edges in a tubular paper wrapper or container. Commonly, such tubular wrappers provide at one face of the encased blanket outwardly extending flanges in the plane of the surface of the unit, which flanges are suitably nailed, tacked or stapled to adjacent studs for securing the blankets in place. A plurality of individual units are packaged under compression in a tube with the compression of the blankets for insertion into the tube being applied normally to the flat top and bottom faces of the blanket. With such method of packaging of the units as referred to, it is common that the outwardly extending, attaching flanges become folded up against the sides of the units with some folded in one direction, some in the other direction, some partly in one direction and partly in the other, and some crushed or crumpled and more or less folded on themselves. The result is that when the package is opened, to apply the units it is usually necessary to straighten out the flanges before undertaking the rather tedious and relatively slow operation of tacking or otherwise securing the flanges to the faces of adjacent studs.

It is a principal object of this invention to provide a package and method of packaging in which the face flanges of a unit are folded up and secured against the sides of the unit whereby, when a plurality are encased in a wrapper as a package, there are no loose flanges to be improperly folded or crumpled, with the result that when the package is opened there will be no necessity for straightening out the flanges and in addition the tedious operation of tacking or stapling the units in place is unnecessary.

A further object of the invention is to provide a unit for packaging, as above described, wherein the inner surface of the face flange, that is, surfaces which contact the faces of the studs between which the unit is positioned are provided with a pressure-sensitive adhesive coating whereby it is only necessary to press the flanges against the face of a stud in order that the units may be secured in place.

Other and additional objects of the invention will be apparent on reading the following description when taken in connection with the accompanying drawings, wherein Figure 1 is a perspective view of a portion of the improved mineral wool blanket;

Figure 2 is a sectional view showing the manner in which the blanket is mounted between adjacent studs;

Figure 3 is a detail end elevation; and

Figure 4 is a perspective illustrating a plurality of the units partially inserted in a packaging tube.

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It was conceived that it would constitute a considerable improvement, in packaging a plurality of mineral wool blankets in a tube under compression, if the face flanges could be prevented from being irregularly folded and crumpled, as such would avoid the necessity of straightening out the side flanges before a unit could be applied.

To accomplish such objective it was concluded that if the face flanges could be folded up against the sides of the units and secured in place there would then be available, units which could be packaged in such manner that the units when removed from the package would have undamaged edge flanges. To secure the face flanges folded up against the sides of the units there has been provided a pressure-sensitive adhesive on the back face of such flange and a release coating applied to the side face of the unit whereby, when the flange is folded up against the side of the unit, it will be adhered but readily releasable for installation of the units. This construction is illustrated in the accompanying drawings.

In the drawings the conventional mineral wool blanket is shown as comprising an encasing sheet 10 which envelops one face and two sides of the mineral wool strip 14, the extreme edges of which are turned outwardly as flanges. A second encasing sheet 11 is applied flatwise to cover the other face of the mineral wool strip 14 and it extends out beyond the ends of the flange 12 of sheet 10. These outwardly extending portions of sheet 11 are then retroverted, as at 13, to enclose flange 12 of sheet 10, and it is, of course, to be understood that sheets 10 and 11 are suitably adhered together by adhesive. The general construction of the unit as just described is that of commercially available insulating units, and those skilled in the art will, of course, understand that facing sheets 10 and 11 are suitably adhered to the surfaces of the mineral wool strip 14 and that various minor modifications of such constructions as described are employed in some cases.

For the purposes hereof, a pressure-sensitive coating 15 is applied to what might be termed the inner face of the outwardly extending flange formed by the envelopment of the flange 12 of sheet 10 by the outer edge portions of sheet 11. Additionally, a coating of release agent is applied to the side faces of the unit, as at 16.

Actually, it is immaterial as to just what pressure-sensitive adhesive 15 is used and what release agent 16 is used, the only requirement being that the coating 15 be a pressure-sensitive adhesive and the coating 16 a compatible release agent.

However, as an example of the coating which may be employed, there can be utilized the pressure-sensitive adhesive of Patent 2,177,627, to Drew, dated October 31, 1939, basically comprised of rubber and rosin, or that disclosed in Patent 2,567,671, to Joesting, dated September 11, 1951, comprised basically of natural rubber, GR-S rubber and terpene resins in various combinations, or that disclosed in Patent 2,789,096, to Bruno et al., dated April 16, 1957.

Various suitable release agents may comprise coating 16, as, for example, a thin, quick-drying lacquer, polyethylene resin, silicone resin, either as an emulsion or in solution, or other more or less similar release materials. If lacquer is used as a release agent it may conveniently be a sprayed, quick-drying lacquer, or if polyethylene resin or silicone resin is used it may be hot-sprayed or hot-rolled, or applied by any conventional procedure. Other release agents, as, for example, a composition of 6.6 lbs. water, 1.3 lbs. sugar and 1 lb. soap; or, 37.5 grams sodium silicate, 37.5 grams soap and 750 grams glycerine may be used. In any case, the release agent will be applied in a conventional manner of applying the composition which is utilized as the release agent.

An obvious advantage of the invention hereof is that

the mineral wool blanket will be actually sealed to the studs to which its flanges are applied by a continuous seal, with the result that vapor leakage at the flanges, such as would occur were they merely tacked or stapled at spaced points, is completely prevented.

Commonly, the encasing sheet 11 is a duplex asphalt-laminated paper or an aluminum foil is laminated to its outer face so as to constitute such sheet a vapor seal but, actually, when the units are applied in the usual manner of tacking or stapling, such vapor seal construction is not actually effective due to vapor leakage under the flanges, whereby water vapor may pass from the inner side of the structure into the stud spaces and there condense. Such vapor seal construction of sheet 11 is, however, effective when the construction of the unit incorporates the features of the invention hereof. Units secured to the studs by the pressure-sensitive adhesive, applied continuously to the face flanges and continuously adhered to the faces of the studs to which the unit is mounted, provides a complete vapor seal or barrier to the transmission of water vapor from one side of the construction to the other side and which is very advantageous, since thereby the condensation of moisture from moisture-carrying air leaking from one side of the installed unit to the other side thereof into the stud spaces is completely prevented.

It will also be obvious that the utilization of this invention will result in a considerable saving in labor and material in connection with the installation of the units. For the erection of these units, provided with the pressure-sensitive adhesive for mounting the units, it is, of course, unnecessary that any tools be used in installing the units, and of course there is the saving that no tacks or staples are required for installation. Particularly there is a saving in the labor of installation in that the mere pressing of flanges against the faces of the studs for securing the units is a much faster operation than that of tacking or stapling the flanges, and particularly so as compared with proper tacking or stapling with the securing means applied closely spaced so that many tacking or stapling operations are required in installing a single unit.

For packaging a plurality of insulating units, a suitable number are stacked one on top of another and are ordinarily compressed by pressure applied normal to the broad faces thereof to approximately half the height of the original stack. Such compressed stack of units is then suitably inserted into a tubular paper sleeve, 24.

In the preparation for the actual procedure of packaging the units, it will, of course, be understood that the face flanges of the units will be folded upwardly at right angles to the face so that the pressure-sensitive, adhesive-coated face is pressed against the side face to which the release agent 16 has been applied, this being illustrated in Figure 3, wherein a side flange is shown as folded upwardly against a side edge of the unit. It will, of course, be understood that the flanges of the unit are all folded in the same direction and that the pressure-sensitive adhesive will adhere sufficiently to the coating of release agent to hold the flanges in such folded position.

In view of the foregoing, it is readily apparent that when a stack of the units is compressed and inserted into a tubular sleeve there are no loose, outwardly projecting flanges to be improperly folded or crumpled when the packaging compression is released which, of course, allows the packaged units to re-expand somewhat and thus draw the enveloping paper tightly against the sides of the stack of units.

From the foregoing it is readily apparent that when a package of these units is opened by slitting the enveloping packaging material, the individual units will re-expand and the outwardly extending face flanges of each unit will be lying against the side faces of the unit and releasably adhered thereto.

To install the units it is merely necessary to pull the

face flanges away from their position against the side faces of the unit, such being readily accomplished as the release agent prevents secure adhesion and the adhesive-coated surface is readily separated therefrom. When the face flanges have been loosened from their packaged position to more or less outwardly parallel to the face of the unit, the unit then may be inserted between studs, such as 20, and by light pressure applied to the outer surfaces of the outwardly extending face flanges, these face flanges will be adhered to the faces of the studs and consequently the unit will be secured in position between adjacent studs 20. Such method of installation of the units is possible due to the fact that the inner faces of the face flanges are provided with a coating of a pressure-sensitive adhesive and are therefore readily adhered to the faces of the studs by a relatively slight application of pressure, and thus there is avoided the necessity of the relatively tedious operation of tacking or stapling the unit in place. While there has been referred to the application of a coating of pressure-sensitive adhesive 15 to the inner face of the flange of the unit, it is to be understood that such erection is given in its broad sense, that is, for example, there may be applied to the inner face of the flange a strip of double-faced or two-faced pressure-sensitive tape, one face of which will adhere to the surface of the flange, leaving the other face available for securing the flange up against the side of the unit for packaging and serving, subsequently, for securing the unit in place between adjacent studs.

The inventions hereof having been disclosed in detail, I claim:

1. A package of heat insulating units comprising a stack consisting of a plurality of like units and a flexible sleeve-form flexible wrapper therefor, the flexible wrapper containing the stack of units under compression, each individual of the units comprising a resilient fibrous body portion of rectangular slab-form and a flexible enveloping container therefor, the enveloping container including outwardly extending flanges on two opposite side edges thereof and in the plane of a face of the unit, a pressure-sensitive adhesive carried by a face of a flange, a release agent carried by the adjacent side face of the enveloping container and the flange folded and retained to the adjacent face of the enveloping container.

2. A package of heat insulating units comprising a stack of encased resilient rectangular slab-form units compressed and enveloped under compression in a tubular wrapper, each unit encased in a flexible wrapper comprising in part outwardly extending flange portions in the plane of a face of the unit, the flanges of the units folded up against the sides of the units and releasably adhered thereto.

3. The method of packaging a plurality of encased elongated mineral fiber insulating units of rectangular cross section and comprising the steps, forming a stack of such units, compressing the stack of units, folding and releasably adhering outwardly extending flange portions of each such units against the side surfaces thereof and encasing the compressed stack of units in a flexible tubular container of cross section greater than that of the compressed stack but less than the cross section of the uncompressed stack.

4. An encased heat insulating unit comprising an elongated body of mineral fiber of rectangular cross section, a tubular flexible encasement containing the mineral fiber body and providing outwardly extending flanges in the plane on a face on the unit, a pressure-sensitive coating of a face of the flanges and a coating of a release agent on the adjacent side face of the body encasement.

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