July 25, 1944. W. T. DONAHUE 2,354,186

INSULATION PACKAGE

Filed Jan. 14, 1942

Fig. 1.

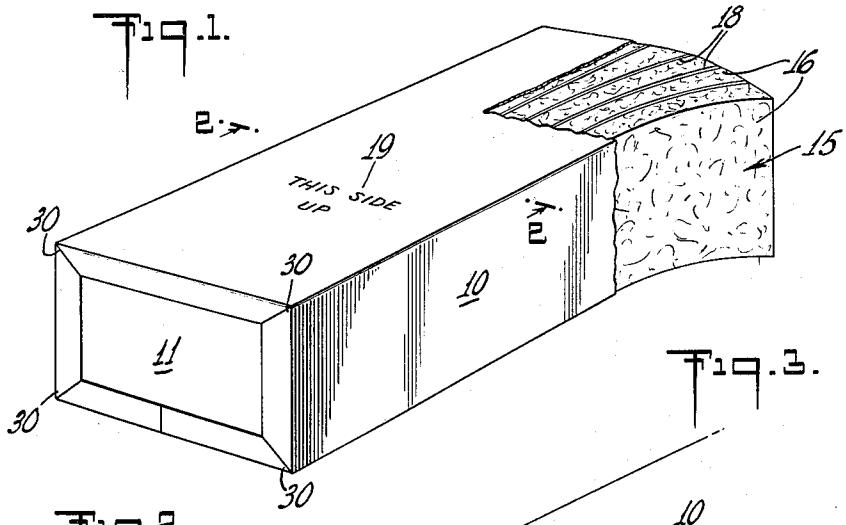


Fig. 3.

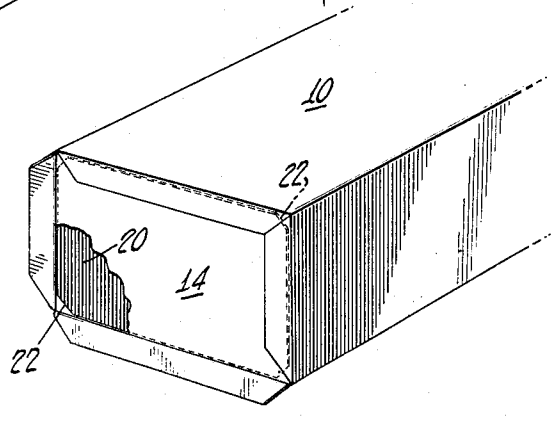


Fig. 2.

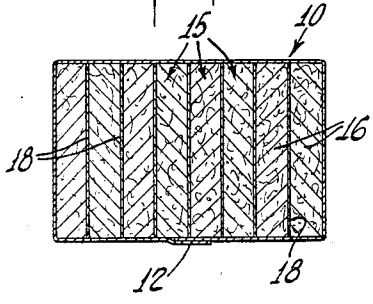


Fig. 4.

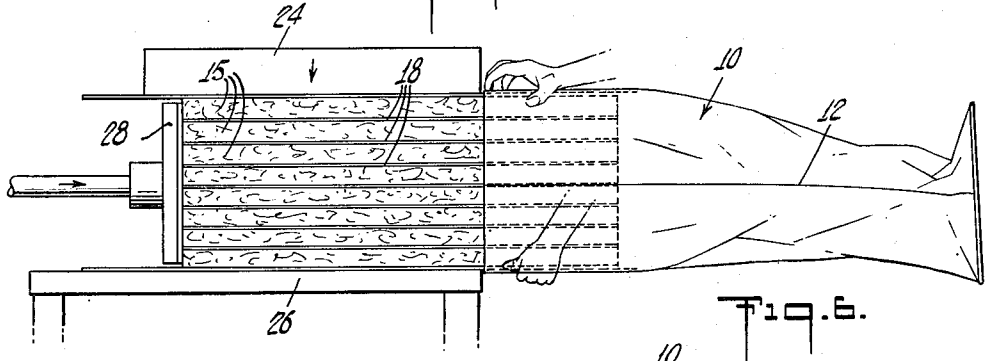


Fig. 6.

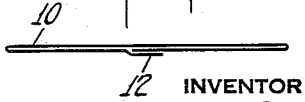
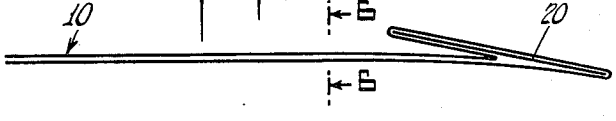


Fig. 5.



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INSULATION PACKAGE

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Application January 14, 1942, Serial No. 426,658

3 Claims. (Cl. 206—46)

The present invention relates to a package for insulating units, particularly units comprising a relatively thick resilient fibrous layer, such, for example, as mineral wool batts which are conventionally made in sizes approximating 16'' x 48'' and of a thickness approximating 2'' or 4'', one face having a covering of a relatively heavy or stiff moisture-proof paper, or other paper.

Heretofore, insulating units or batts of the type referred to above have been packaged in suitable cartons formed of conventional corrugated board, the cartons being relatively resistant to deformation. A principal object of the instant invention is the provision of an improved package for units of the type referred to, which is flexible and resilient so that it may be distorted to some extent where necessary or desirable in handling, the package returning to or substantially to its original shape when the distorting pressure is relieved.

Another object of the present invention is the provision of a package that is adapted for ready handling and which is highly resistant to damage during storage and transportation. Also the package of the instant invention is one which is relatively low in cost as compared with the packages previously used.

My invention will be more fully understood and further objects and advantages thereof will become apparent when reference is made to the more detailed description thereof which is to follow and to the accompanying drawing in which:

Fig. 1 is a perspective view of a package of the instant invention with a portion cut away;

Fig. 2 is a cross-sectional view taken on the line 2—2 of Fig. 1;

Fig. 3 is a view similar to Fig. 1 with parts broken away for clearness of illustration depicting the package during one stage of its formation;

Fig. 4 is a diagrammatic elevational view of the manner in which the package contents are inserted in the wrapper;

Fig. 5 is a sectional view lengthwise of a folded package wrapper in accordance with the invention; and

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

Referring now to the drawing, the package in accordance with the invention comprises a tubular sleeve or wrapper 10 and end closures 11. Wrapper 10, prior to insertion of the contents of the package, is in the form of a bag which may be supplied and stored in collapsed form as illustrated in Fig. 5. The bag walls may comprise one or more plies of a suitable relatively heavy kraft paper or the like, seamed as indicated at 12 in Fig. 6, the overlapping portions of the seam being cemented together by a suitable adhesive such as asphalt or a rubber cement. The closed bottom of the bag may be of any suitable type. In the construction illustrated, flanges are formed from the end of the tube walls, the flanges being folded over and secured by an adhesive of a suitable preferably waterproof type, as referred to above. It will be understood, however, that the particular bag structure may take other forms.

The contents of the package consists of a plurality of insulating units 15. As previously stated, the invention is particularly directed to a package for insulating units of the type of rock wool batts comprising a relatively thick layer 16 of a resilient compressible mineral wool felt and a paper backing sheet 18 overlying one face of the felt.

The batts 15 are positioned in the package so that the paper-surfaced faces extend at substantially right angles to the portions of the wrapper to constitute the top and bottom of the package, as indicated particularly in Figs. 1 and 2, and the exterior of the package is demarked in a suitable manner, as shown, for example at 19, to indicate the package top. Batts 15 are compressed to, say, one-half of their normal thickness before insertion into the wrapper and are maintained by the wrapper under substantially such compression. Due to the pressure exerted by the compressed resilient batts, the tubular wrapper is expanded into the cross-sectional shape of the package contents.

Preferably loosely inserted in each end of the package between the contents and closures is a reinforcing and package-shaping member 20 formed of chipboard, heavy cardboard, corrugated board, or the like. Reinforcing member 20 preferably has its corners truncated as indicated at 22 for a purpose later to be referred to.

In the assembly of a plurality of units in a wrapper or bag to form the package of the instant invention, the open end or mouth of a collapsed bag, as shown in Fig. 5, is expanded by suitable means and a plurality or stack of the insulating units are compressed, as, for example, between plates 24 and 26 (see Fig. 4) sufficiently so that the stack has a cross-sectional area substantially equal to the cross-sectional area of the expanded bag. Preferably, the bags are so dimensioned and the number of units is so selected that when the units are compressed to substantially half their

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normal thickness, the stack will fit snugly within the wrapper. Suitable means are then employed to force the stack into the bag, the bag, of course, expanding ahead of the units as they are forced therein. In Fig. 4 such means is shown as a plunger 28 in the course of its operation with the insulating units partially installed in the bag. As will be understood, an air vent of any suitable type may be provided at or adjacent the bottom of the bag to permit the escape of air which would otherwise be confined between the ends of the units and the bag end. After the units have been moved completely into the bag, a reinforcing member 20 is inserted in the open end of the bag to overlie the ends of the units, a closure member 14 is then inserted, and the extending walls of the bag are folded over and secured by any suitable adhesive, such as that previously referred to, to the outer face of the closure member 14.

Referring again to Fig. 1, a portion of the rear of the wrapper has been shown as cut away with the exposed unit ends expanding to their normal thickness, the figure illustrating the extent to which the units are compressed within the package. As will be readily understood, due to the pressure exerted by the compressible felt of which the units or batts are primarily composed, the wrapper 10 is maintained in a taut condition and, notwithstanding its normal flexible nature, provides a relatively rigid protective cover for the stack of batts. At the same time, the package is sufficiently flexible to permit it to be bent to some extent as may be desirable in carrying it around corners, beams, posts, etc. However, upon removal of the distorting pressure, the resilience of the contents of the package returns it to or substantially to its former shape. Also, due to the resilience of the batts, the package is easily handled and the tendency of a large package to slip from the hands of a person is mostly eliminated. The package has no sharp edges which might tend to injure the handler.

The reinforcing members 20, loosely positioned at each end of the units or batts, serve to square up the package. Also, the reinforcing members in conjunction with the batt backing sheets 18 serve to reinforce the package to such an extent that the packages may be piled or stacked on top of each other to a height of six or more packages without undue distortion of the packages at the bottom of the stack. Although the backing sheets 18 are per se readily flexible, when they are confined by the compressed felted layers on each side, they exert a high degree of resistance to compressive forces exerted in directions parallel to the planes of the backing sheets. The truncated corners of the reinforcing members leave a portion of the wrapper and end piece sufficiently free at the corners of the package to provide ears 30, as illustrated in Fig. 1, to aid in grasping the package.

Further features of the invention reside in the fact that the package may be opened by simply slitting the same along the top, no danger to the batt backing sheets being incurred in this operation, as they extend vertically in the package. The wrapper, being under pressure due to the resilience of the batts, is easily removed and may be crumpled into a relatively small mass for disposal.

Having thus described my invention in rather complete detail, it will be understood that these details need not be strictly adhered to but that various changes and modifications will suggest themselves to one skilled in the art, all falling within the scope of the invention as defined by the subjoined claims.

What I claim is:

1. A substantially rectangular package of relatively large, elongated insulating units approximately 16'' x 48'' and having a thickness of say from 2'' to 4'', said package comprising an outer, flexible, elongated, tubular wrapper, end closures therefor, a filling comprising a plurality of such insulating units, each including a compressed fibrous layer and a paper backing sheet co-extensive with said layer, said units lying longitudinally within said wrapper and with the backing sheets extending at substantially right angles to a longitudinal side of said package on which it is arranged to rest, and reinforcing members of substantially the area of the ends of said filling and lying between the filling and said end closures at substantially right angles to said backing sheets.

2. A substantially rectangular package of relatively large, elongated insulating units comprising an outer, flexible, elongated, tubular wrapper, end closures therefor, a filling comprising a plurality of insulating units including a compressed fibrous layer and a relatively thin backing sheet coextensive with said layer, said units lying longitudinally within said wrapper and maintained under compression thereby, the backing sheets extending at substantially right angles to a longitudinal side of said package on which it is arranged to rest, and relatively stiff reinforcing members lying between the filling and said end closures at substantially right angles to said backing sheets.

3. A substantially rectangular package of relatively large, elongated insulating units comprising an outer, flexible, elongated, tubular wrapper, end closures therefor, a filling comprising a plurality of insulating units, each including a compressed fibrous layer and a backing sheet coextensive with said layer, said units extending longitudinally within said wrapper with the backing sheets extending at substantially right angles to a longitudinal side of said package on which it is arranged to rest, said fibrous layers being maintained under compression by said sleeve, and relatively stiff reinforcing members lying between the filling and said end closures at substantially right angles to said backing sheets, said reinforcing members being of substantially the area of the ends of said filling and having truncated corners.

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