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C. A. LOOMIS

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PACKAGING OF SHEET ABRASIVE DISCS

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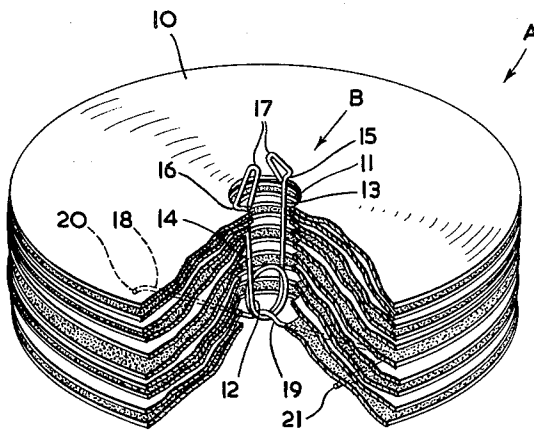


FIG. 1

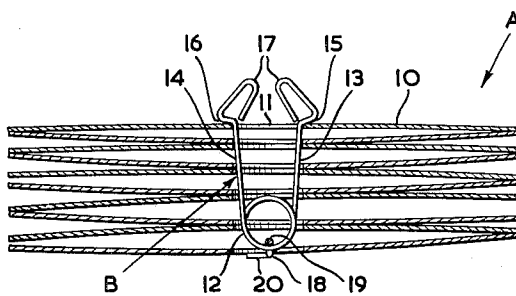


FIG. 2

INVENTOR
CLARE A. LOOMIS

BY 
 ATTORNEY

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PACKAGING OF SHEET ABRASIVE DISCS

Clare A. Loomis, New Lisheard, Ontario, Canada, assignor to The Carborundum Company, Niagara Falls, N.Y., a corporation of Delaware

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4 Claims. (Cl. 206—46)

This invention relates to packaging of sheet abrasive centrally orificed discs and fasteners therefor.

In the packaging of sheet abrasive discs up to the present time, it has been usual loosely to superimpose a predetermined number of these discs and place them in a fibreboard container of a size to contain the diameter of the discs. Such discs are of shallow dished form and when loosely superimposed are compressible to a smaller overall depth. Consequently when the package is opened, the uppermost discs may have a tendency to spring out inadvertently causing handling inconvenience. This is an incidental disadvantage of such mode of packaging but what is of more importance is the fact that due to the composition of the discs, when loose they tend to curve and assume a somewhat trough-like form and being somewhat stiff in character, this presents a disadvantage in handling and mounting as well as the fact that the loosely disposed group will thus tend to assume an aggregate thickness greater than the depth of the package which presents some problems in active storage. The present invention eliminates these difficulties and provides added advantages in the handling of these units and which is accomplished by simple fastening means correlated to the central orifice of the discs.

According to the invention, a package of flexible sheet abrasive centrally orificed discs is provided comprised by a plurality of superposed discs forming a compressible stack and having the central orifice in each disc aligned with one another forming a common central channel there-through, a fastener disposed to extend through said channel of a length less than the depth of said stack of discs when loosely superposed, first anchoring means for one end of said fastener to engage one of two outermost discs of the package, and second anchoring means for the opposite end of said fastener and engageable with the other of said outermost discs when said stack of discs is compressed to a depth correlated to the length of the said fastener, said first anchoring means being releasable for selective separation of said discs, and said second anchoring means being detachable for complete release of said discs. The invention also embodies a preferred simple type of fastener which may be employed to form said package.

The invention will be clearly understood by reference to the following detailed specification taken in conjunction with the accompanying drawings.

In the drawings:

FIG. 1 is a perspective view of a package of sheet abrasive discs, part of which has been broken away to illustrate the manner in which the discs are secured in a unitary package form; and

FIG. 2 is a schematic sectional view taken through a body of discs showing the manner in which they are superposed on one another and illustrating the fastening means mainly in side elevation.

Referring to the drawings, A indicates a package of sheet abrasive centrally orificed discs as a unitary body or stack and B indicates a fastening means applied to the discs to form the unitary packaged body. The discs 10 are centrally orificed as at 11 in the normal course and taking advantage of the orifice 11 as a packaging aid, the fastener B is employed to pass through the common channel formed

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by the disc orifices when aligned with one another in a superposed bundle of discs.

A preferred form of fastener is illustrated which can be quickly applied and quickly released to facilitate handling of the discs, and as shown this fastener takes the form of a single piece of wire bent intermediate its ends to provide an elongated and generally U-shaped body having a closed or looped end portion 12 forming the energizing spring and which terminates in a pair of spring arms 13 and 14 biased apart. The terminal or free ends of these arms are bent to form shoulders 15 and 16 adjacent to but spaced from the terminal ends which may be bent or looped as at 17 to form fingers which constitute gripping means and which normally project above the uppermost disc of the package and may be engaged by thumb and finger to compress them and the arms inwardly towards one another in releasing a disc or discs from the package. The shoulders 15, therefore, constitute releasable anchoring means for one end of the fastener designed to engage the outer surface of one of two outermost discs of the package. The fastener is completed by detachable anchoring or retainer means which is provided for the opposite end of the package and is constituted in preferred form by the elongated wire pin or bar 18, preferably formed intermediate its length with a bowed portion 19, and provided at one end with an offset preferably curved portion 20 and at the other, a handle 21 which may be a simple offset bend as shown in FIG. 1. The pin or bar 18 forming the anchoring means for the offset end of the package and adapted to engage with the outer surface of the other of said outermost discs is designed to be passed through the looped end portion 12 using the offset curved end 20 as an engaging and guiding element until the bowed portion 19 straddles the loop, as shown in FIG. 1, so that the superposed group of discs are held together in a unitary package which may be very quickly formed and which can be easily manipulated for selective separation of the discs of the package.

The overall length of the fastener is chosen in correlation to the ultimate thickness of the package. For instance, these discs are often packaged by reversing alternate superposed discs but whether or not this is the case and because of the fact that they assume a shallow dished form, will permit compression of the loosely superposed group of discs to a body or package of lesser thickness. Consequently, the fastener is formed of a length less than the depth of said discs when loosely superposed and correlated to the depth of the package when compressed such that the anchoring means formed by the shoulders 15 will firmly engage the outermost top disc when the grouped discs are compressed, as urged by the anchoring means on the bottom formed by the pin or bar 18, and the grouped discs of the package are held under compression as a unitary group.

The simplicity of packaging and the practicability of the package is illustrated by a description of the manner in which the fastener may readily be applied. Having formed a group or stack of loosely superposed discs wherein the central orifice of each is aligned to form a common channel through the group, this group is compressed and the fastener B is grasped by the fingers 17 so that the fingers are compressed towards one another. The looped end portion 12 is then passed down through the channel until its lower end is disposed close to the outermost bottom disc. Then by taking the pin or bar 18 by the handle 21 and engaging the offset end 20 in the loop, and releasing the fingers 17 so that the anchoring means formed by the shoulders 15 and 16 engages the outermost top disc, the pin or bar 18 is guided and inserted transversely through the looped end portion 12 and across the channel until the bowed portion is disposed in the chan-

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nel as shown in FIG. 1 and the discs are held in a compressed compact unitary package. This obviously is very easy to handle and to pack and has the advantage that it will retain the discs in a compressed condition designed to offset any tendency that they may have to curve into somewhat channel form as previously mentioned where they are loosely packed in the carton and the fastener provides a means through which the discs may be selectively separated or completely released in a very simple and practical manner. By compressing the fingers 17, the discs may be removed one by one or in selected groups. Alternatively with this operation, they can be completely released to separate all of the discs, as by detaching the bar 18.

By this simple means of forming the package a number of practical advantages result. While the preferred form of fastener is illustrated, it will be obvious that some other equally practical forms of fastener might be employed to achieve this simple unitary practical package.

I claim:

1. A package comprising in combination: a compressible stack of superposed flexible sheet abrasive discs formed with central orifices aligned to provide a channel; and a fastener extending through said channel, having a length less than the depth of said stack of discs when loosely superposed and detachably securing said stack under compression as a unitary group, said fastener including first anchoring means secured thereto adjacent one end portion thereof and second separate anchoring means extending transversely through the other end portion thereof, said first anchoring means engaging the outer surface of one of the outermost discs and being releasable for selective separation of said discs, and said second anchoring means engaging the outer surface of the other of said outermost discs when said stack is compressed to a depth correlated to the length of said fastener and being detachable for complete release of said discs.

2. A fastener for detachably securing under compression as a unitary group a compressible stack of superposed flexible sheet abrasive discs formed with central orifices aligned to provide a channel, said fastener comprising: an elongated body including a closed end portion and a plurality of spring arms biased apart and having anchoring means secured thereto adjacent their free ends; and separate retainer means arranged to extend transversely through said closed end portion, said arms being compressible inwardly for insertion of said closed

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end portion into said channel, said anchoring means being engageable with the outer surface of one of the outermost discs upon release of said arms following said insertion of said closed end portion into said channel and being releasable upon compression of said arms for selective separation of said discs, and said retainer means being insertable through said closed end portion and across said channel as well as engageable with said closed end portion and the outer surface of the other of said outermost discs upon sufficient compression of said stack and being detachable for complete release of said discs.

3. A fastener for detachably securing under compression as a unitary group a compressible stack of superposed flexible sheet abrasive discs formed with central orifices aligned to provide a channel, said fastener comprising a single piece of resilient wire bent intermediate its ends to provide a generally U-shaped body having a closed end portion and a pair of spring arms biased apart and bent to form shoulders adjacent their free ends; and a separate and elongated wire retainer bar arranged to extend transversely through said closed end portion, said arms being compressible inwardly for insertion of said closed end portion into said channel, said shoulders being engageable with the outer surface of one of the outermost discs upon release of said arms following said insertion of said closed end portion into said channel and being releasable upon compression of said arms for selective separation of said discs, and said retainer bar being insertable through said closed end portion and across said channel as well as engageable with said closed end portion and the outer surface of the other of said outermost discs upon sufficient compression of said stack, and being detachable for complete release of said discs.

4. A fastener as in claim 3 wherein said wire retainer bar is bent intermediate its ends to provide a bowed portion arranged to straddle said closed end portion and extend into said channel.

References Cited in the file of this patent

UNITED STATES PATENTS

1,590,172	Thorberg	June 22, 1926
2,020,206	Place	Nov. 5, 1935
2,056,724	Jackson	Oct. 6, 1936
2,088,344	Richardson	July 27, 1937
2,146,548	Mitschang et al.	Feb. 7, 1939
2,218,832	Schroeder	Oct. 22, 1940