

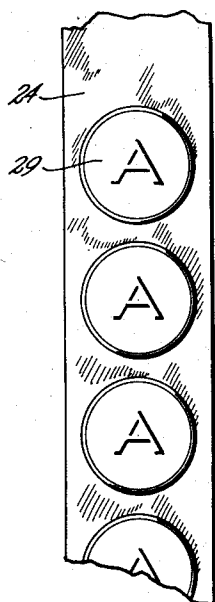
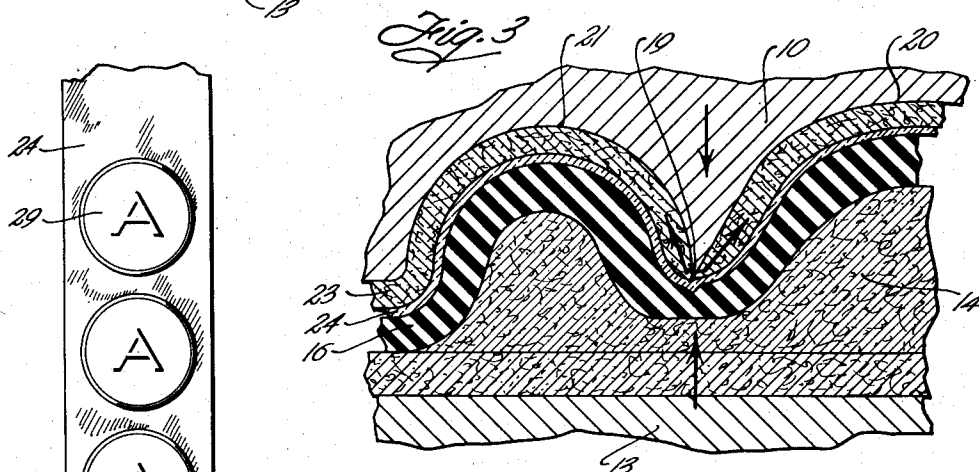
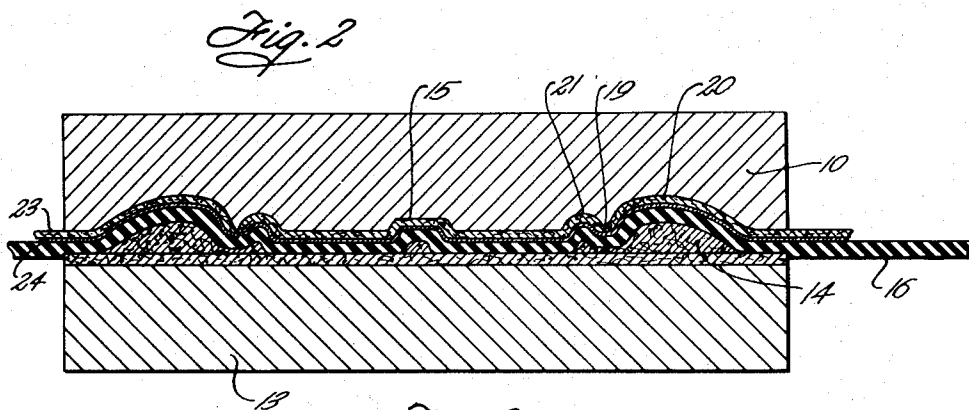
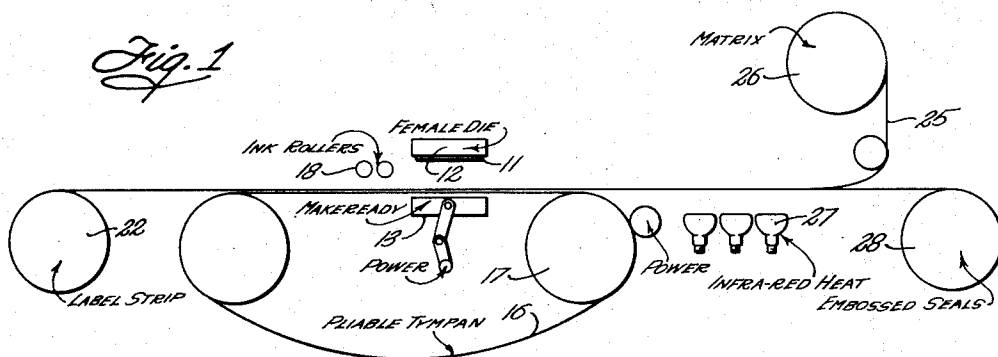
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METHOD OF MAKING EMBOSSED SEALS

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METHOD OF MAKING EMBOSSED SEALS

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6 Claims. (Cl. 154—2)

This invention relates to pressure sensitive adhesive embossed seals or labels and to a method of making the same.

Heretofore it has been common practice to manufacture labels mounted on a suitable backing and temporarily held thereon by means of "pressure sensitive adhesive," this term being applied to that class of adhesives characterized as being normally tacky requiring neither the application of heat or moisture to render it adhesive at the time of application of the seal or label to an object. Flat labels have been manufactured heretofore by preparing a composite strip consisting of paper stock that forms the labels, a backing, and pressure sensitive adhesive connecting the backing and stock. This composite strip on being run through a dieing or processing machine is converted into labels which remain attached to the backing by the pressure sensitive adhesive. During such dieing or processing the paper stock and the backing are simultaneously cut or perforated to conform to the shape of the finished label.

It has long been desired to be able to manufacture embossed labels or seals equipped with pressure sensitive adhesive and a backing wherein the embossed seals would remain attached to the backing by the adhesive but the backing would project beyond the marginal edges of the seals to facilitate stripping or peeling of the backing from the seals. Such projecting backing might be in the form of a backing that merely projects beyond the edges of individual seals or might be in the form of a continuous backing on which the seals were positioned in rows.

Embossed seals have heretofore been produced equipped with pressure sensitive adhesive and applied to a backing. However, in such constructions the seals have been first formed and embossed and have had the pressure sensitive adhesive applied thereto and have been subsequently applied to the backing either by hand or otherwise. The desired method of manufacture however, is to be able to first form the composite strip and feed it into a suitable processing machine which would emboss and die out the labels leaving them attached by the adhesive to the backing which is of greater dimensions than that of the individual seal.

The conventional embossing die for producing embossed seals is so constructed as to simultaneously emboss the seal and to die it out of the paper stock used to form the seal. With such an arrangement it is manifest that in preparing a composite strip of ordinary materials that the con-

ventional die would not only die out the seal but also die out the backing preventing the formation of a backing which projected beyond the edges of the seals to enable stripping or peeling.

An object of the present invention is to provide an improved method of making embossed seals wherein a composite strip of label or seal forming material and backing material joined together by pressure sensitive adhesive can be employed, fed to a conventional seal manufacturing machine, and have the seals embossed and died out without cutting or breaking the backing material thus leaving the seals on the backing with the backing material projecting beyond the edges of the seals to enable stripping or peeling at the time of use. In this way continuous strips of backing may be supplied having the embossed labels attached thereto by pressure sensitive adhesive. On the other hand, if desired the backing may be cut into individual sections all of which sections have seals attached thereto with the backing projecting beyond the marginal edges of the seals.

Another object of the invention is to provide an improved seal consisting of a section of backing having an embossed seal applied thereto by means of pressure sensitive adhesive, the seal being characterized by the fact that there is an embossment adjacent its margin which is of advantage in facilitating the peeling or stripping of the backing at the time that the seal is to be applied as will be hereinafter more specifically pointed out.

Another object of the invention is to provide a method wherein the above-described desiderata can be secured using a conventional type of seal press and conventional dies with no material alteration.

With the foregoing and other objects in view, which will be made manifest in the following detailed description and specifically pointed out in the appended claims, reference is had to the accompanying drawing for an illustrative embodiment of the invention, wherein:

Figure 1 is a diagrammatic view illustrating certain essential parts of a label or seal-forming and printing machine and illustrating one preferred manner in which the method embodying the present invention may be performed;

Fig. 2 is an enlarged view in vertical section illustrating the embossing die, the yieldable or resilient tympan, the counter, the make-ready, and the platen in a position wherein the dieing out and embossing of the label are being performed;

Fig. 3 is an enlarged partial section of a portion

illustrated in Fig. 2, some of the parts being somewhat exaggerated; and

Fig. 4 is a top plan view of a portion of a label strip produced by the embossment of the method embodying the present invention.

Referring to the accompanying drawing wherein in similar reference characters designate similar parts throughout, the invention is illustrated diagrammatically as being performed on one well-known type of seal manufacturing machine wherein the embossing die 10 is mounted within a suitable chase 11 in a chase holder 12 over a vertically reciprocable platen 13 which supports the make-ready 14. The die 10 conforms in all respects to the conventional die used for embossing and dieing out embossed seals. Illustrated on the die 10 is one embossment-forming recess adjacent the center thereof at 15, although it will be understood that the number of embossment recesses and their configuration and arrangement will vary considerably depending upon the style and shape of the seal to be produced. The machine illustrated diagrammatically in Fig. 1 is equipped with an endless and resilient tympan 16 trained over roller 17 so that its top reach passes over the top of the make-ready 14. Such an endless resilient tympan is usually but not always formed of rubber having a fabric reinforcement or backing and is advanced step by step during the operation of the machine.

The tympan employed in the present invention may be of any such fabric reinforced with rubber but if desired other tympanes may be employed which should possess the property of being somewhat compressible or elastic.

The conventional seal manufacturing machine is usually equipped with suitable inking rollers indicated at 18 which receive ink from an ink fountain and apply it to the underside of the embossing die 10 while the platen 13 is in its lowermost position.

In conformity with general practice wherein water gummed paper stock is used to produce embossed seals, the embossing die is so formed that it not only embosses the label but cuts or dies out the label out of the paper stock or matrix from which it is formed. At the margin of the seal that is to be produced the conventional embossing die 10 has a continuous relatively sharp edge 19. This sharp edge serves to die out and defines the margin of the seal. Outwardly of this relatively sharp edge the embossing die is usually relieved considerably as indicated at 20. Inwardly of the edge 19 the conventional die is also usually relieved as at 21 so that this inner relieved portion forms a marginal embossment adjacent the edge or margin of the seals.

In the conventional use of the seal manufacturing machine above-described, paper stock having water gum adhesive applied to its underside is fed through the machine over the resilient tympan 16. While the platen 13 is in its lowermost position the inking rollers 18 may apply ink to the bottom surface of die 10. When the platen 13 is lifted it carries the make-ready against the underside of the tympan and forces the paper stock firmly against the die so that the paper stock simultaneously receives the ink from the die and is at the same time embossed and died out. The shape of the make-ready generally conforms to the shape of a die complementary to the embossing die 10. The tympan however being somewhat compressible and elastic is forced thereby into the recesses and relieved portions

of the embossing die causing the paper stock to be embossed. Although the sharp edge 19 does not project below the bottom flat surface of the die 10 when the paper stock is forced firmly against it it serves to cut or pinch through the paper stock thus defining the marginal edges of the seals.

In carrying out the present invention wherein embossed seals are produced which remain attached to an uncut backing which projects beyond the marginal edges of the seals, I first prepare a composite strip made up of paper stock that is to form the seal and a backing material possessing some degree of elasticity or stretchability as well as toughness. The stretchability of the backing should be markedly greater than that of the paper stock. For this purpose I employ a modified cellulosic material such as those materials now on the market known as "Cellophane," "Sylphrap," and "Lumarith Protectoid." Any one of these or similar materials may be used for the backing. These materials may be described as being in the nature of a non-fibrous cellulosic film. They all possess the required characteristics of being somewhat more stretchable than paper stock, are reasonably tough, and are highly flexible. The paper stock and the backing are then caused to adhere together by pressure sensitive adhesive which may be applied as a continuous adhesive layer or in the form of strips or spots. Such a composite material may be supplied in the form of rolls, one such roll being diagrammatically indicated at 22. The composite strip made of paper 23 and Cellophane or other stretchable tough backing 24 is fed into the machine in the same manner as water gummed paper is conventionally fed into the machine in manufacturing water gummed seals or labels. With my composite strip however, due to the nature of the backing, when the platen 13 is elevated to carry the make-ready against the underside of the compressible tympan the labels are printed, embossed, and died out as before. However, the backing being tough and possessing some degree of stretchability, instead of being cut or torn by the edge 19 of die 10, remains entirely intact. When the tympan is forced to carry the composite material against the underside of the die the paper 23 being practically inelastic is partially pinched and partially torn over the sharp edge 19 as the tympan forces the paper into the adjacent cavities at 20 and 21. The backing, however, instead of being cut, pinched, torn, or otherwise separated by this action merely stretches the required amount around the edge 19 and remains substantially unaffected even though the composite material is forced against the edge 19 with great force. In this way the labels or seals are not only printed, embossed, and cut from the paper matrix but they are allowed to remain intact on the uncut backing. In the course of the operation of the machine the composite strip then progresses from beneath the die 10 and the matrix material surrounding the died out seals that have been formed may be stripped from the Cellophane backing as indicated at 25 and wound on a suitable reel 26. If desired, the matrix may be permitted to remain intact on the backing surrounding the died out seal but it is preferable to strip it from the backing leaving the seals in place. In order to facilitate stripping of the matrix a suitable heat source is usually found necessary. Such a heat source can be supplied by a battery of infra-red lamps 27. The use of heat will usually be found neces-

sary to soften the pressure sensitive adhesive sufficiently to permit the pulling and peeling of the matrix from the backing. The Cellophane or like backing continues from the machine and carries with it the embossed seals which remain applied thereto. This backing may be wound on a suitable reel or roll 28 or if desired, the backing may be cut into individual sections, each of which carries one or more embossed seals. In all instances, it will be noted that the backing is not died out simultaneously with the seal but remains substantially intact projecting beyond the marginal edges of the seal. The finished product may be similar to that illustrated in Fig. 4 comprising a continuous strip of Cellophane or like backing 24 on which the embossed and printed labels 29 are mounted by means of the pressure sensitive adhesive.

The success of the present invention depends upon the backing possessing a greater degree of elasticity or stretchability than that of the paper stock 23. I find that if glassine or waxed paper which does not possess these properties is used as the backing material that when the composite strip is forced against the die 10 the die simultaneously cuts through the label material 23 and the backing 24 at the marginal edges of the seals. By the use of tough, stretchable materials such as Cellophane and the like the relatively inelastic paper will be pinched or torn through when forced against edge 19 but the backing will remain substantially intact so as to project beyond the marginal edges of the seals. In carrying out the present invention it is also of advantage to use the conventional compressible or resilient tympan over the make-ready for if the tympan is unyielding it tends to cause the edge 19 to penetrate through both the paper 23 and the backing 24.

While I have illustrated diagrammatically the formation of my improved embossed seals on a conventional form of machine generally used for manufacturing embossed water gum labels or seals, it will be understood that the improved method is in no way restricted thereto and if found desirable the method may be performed by hand on a suitable hand press.

While a marginal embossment formed by the recess 21 inwardly of the edge 19 is common practice in manufacturing embossed water gum seals, I find that the presence of this embossment is of considerable advantage where embossed pressure sensitive seals are made and used. When it is desired to remove a seal 29 from the backing 24 this may be easily accomplished by drawing the backing over a sharp edge such as is disclosed in the dispensing apparatus disclosed in my copending application Serial No. 349,892, filed August 2, 1940. While the backing is being drawn over such a sharp edge the marginal embossment tends to stiffen the edge of the seal to cause it to continue in its plane permitting the backing to be peeled therefrom while it is drawn in a direction at a relatively sharp angle to such plane. The presence of the marginal embossment thus tends to facilitate stripping or peeling of the backing from the seal in that the edge of the seal can be readily freed from the backing as the backing is drawn around such a sharp edge. I also observed that although the Cellophane backing 24 is initially pressed or embossed very much the same as the paper at this marginal embossment that in the course of time after the labels or seals have been manufactured the Cellophane tends to straighten out or return to its initial

flat condition pulling out of the concavities of the underside of all of the embossments. Thus, in the case of the marginal embossment when the Cellophane pulls out of the concavity the seals adjacent the margins are not as firmly attached to the backing at these localities as they are under the flat or unembossed portions of the seals. Thus, by the action of the Cellophane or like material pulling loose from the undersides of the marginal embossments the margins of the labels are more easily freed from the backing which facilitates the seals being grasped adjacent their edges and being pulled from the backing when the seals are removed by hand. It will of course be understood that the projecting portion of the backing provides a portion that can be easily grasped and peeled from the back of the seal.

From the above-described method of producing pressure sensitive embossed seals and the article resulting therefrom it will be appreciated that by the present invention embossed seals can be very easily, quickly, and cheaply manufactured using conventional seal manufacturing equipment. The seals may have the desired embossments and printing thereon and are left mounted on their uncut backing which may be continuous but which in all instances extends beyond the marginal edges of the seals.

Various changes may be made in the details of construction without departing from the spirit or scope of the invention as defined by the appended claims.

I claim:

1. The method of forming seals which includes attaching seal-forming material to a non-fibrous cellulosic film backing having a greater degree of elasticity than the seal-forming material by means of pressure sensitive adhesive, forcing the composite material thus formed by means of a compressible material against a seal-forming die, the margin defining edges of which are relieved on both sides whereby the composite material is forced into the relief recesses on opposite sides of the margin defining edges effecting a separation of the seal-forming material across the margin defining edges but without effecting a separation of the backing material across said edges.

2. The method of forming seals which includes attaching seal-forming material to a non-fibrous cellulosic film backing having a greater degree of elasticity than the seal-forming material by means of pressure sensitive adhesive, forcing the composite material thus formed by means of a compressible material against a seal-forming die, the margin defining edges of which are relieved on both sides whereby the composite material is forced into the relief recesses on opposite sides of the margin defining edges effecting a separation of the seal-forming material across the margin defining edges but without effecting a separation of the backing material across said edges, and stripping the matrix seal-forming material from which the seals are died from the backing leaving the seals intact on the backing.

3. The method of forming seals which includes forcing by means of a yieldable tympan composite material formed of seal-forming material attached by means of pressure sensitive adhesive to a backing having greater elasticity than the seal-forming material against a seal-forming die having embossing and relief recesses therein on both sides of its margin defining edges whereby the composite material is forced into the recesses on opposite sides of the margin defining

edges effecting a separation of the seal-forming material across the margin defining edges but without effecting a separation of the backing material thereacross.

4. The method of forming seals which includes forcing by means of a yieldable tympan composite material formed of seal-forming material attached by means of pressure sensitive adhesive to a backing having greater elasticity than the seal-forming material against a seal forming die having embossing and relief recesses therein on both sides of its margin defining edges whereby the composite material is forced into the recesses on opposite sides of the margin defining edges effecting a separation of the seal-forming material across the margin defining edges but without effecting a separation of the backing material thereacross, and stripping the matrix seal-forming material from which the seals are died from the backing leaving the seals intact thereon.

5. The method of forming seals which includes forcing by means of a yieldable tympan composite material formed of seal-forming material attached by means of pressure sensitive adhesive to a backing having greater elasticity than the seal-forming material against a seal-forming die having embossing and relief recesses therein on

both sides of its margin defining edges whereby the composite material is forced into the recesses on opposite sides of the margin defining edges effecting a separation of the seal-forming material across the margin defining edges but without effecting a separation of the backing material thereacross, and stripping the matrix seal-forming material from which the seals are died and the pressure sensitive adhesive applied thereto from the backing leaving the seals intact thereon.

6. The method of forming seals which includes attaching seal-forming material to a non-fibrous cellulosic film backing having a greater degree of elasticity than the seal-forming material by means of pressure sensitive adhesive, forcing the composite material thus formed by means of a compressible material against a seal-forming die, the margin defining edges of which are substantially flush with the flat bottom surface of the die and which are relieved on both sides whereby the composite material is forced into the relief recesses above the flat bottom surface of the die effecting a separation of the seal-forming material across the margin defining edges but without effecting a separation of the backing material thereacross.

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