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(54) **SLEEVE FILM WRAPPING A PACK OF CONTAINERS**

(57) This invention provides a film wrapped pack of containers that allows a container to be removed while maintaining the remaining containers together. This can be accomplished by providing a sleeve wrapped pack of containers with two perforated lines registered on the top of the film before film wrapping. By peeling off the top part of the perforated film, the containers are exposed, allowing for the removal of a container while maintaining the integrity of the film.

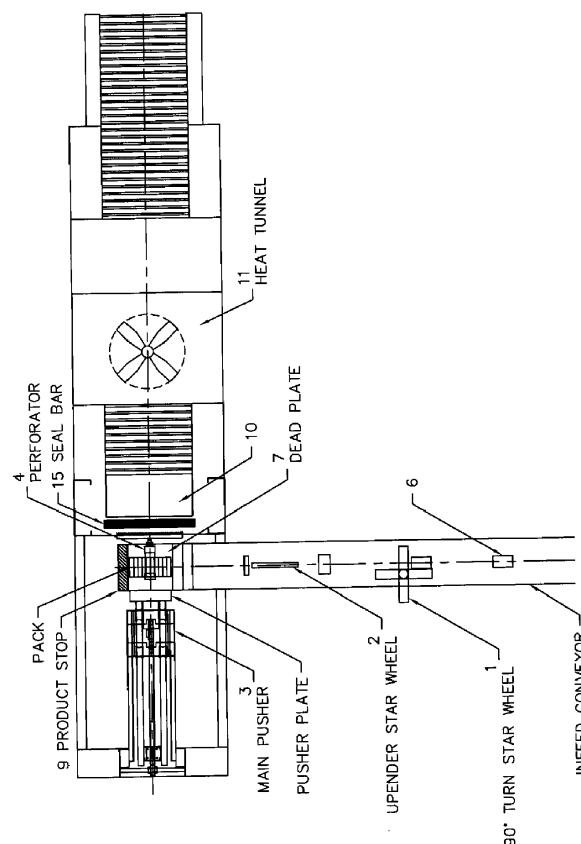


Fig. 1

Description

Technical Field

[0001] This invention relates to film wrapping containers to form a sleeve around the containers. The containers are collated and formed into a pack and then sleeve film wrapped. Containers such as cans or boxes can be sleeve wrapped.

Background Art

[0002] Containers such as sardine cans and boxes are normally found on grocery shelves stacked on a cardboard tray which has been wrapped with a heat shrink film. The tray is placed on the shelf with the film on top of the stack opened. Customers pick the containers from the stack. The containers tend to separate from the film wrapped stack and rest loosely on the shelf.

[0003] The objective of this invention is to provide a film wrapped pack of containers that allows a container to be removed while maintaining the remaining containers together. This can be accomplished by providing a sleeve wrapped pack of containers with two perforated lines registered on the top of the film before film wrapping. By peeling off the top part of the perforated film, the containers are exposed, allowing for the removal of a container while maintaining the integrity of the film. This allows the containers to stay together while the pack is placed on the shelf.

Brief description of drawings

[0004]

Figure 1 shows orienting a container so the container can be collated to form a pack followed by forming a sleeve around the pack;
 Figures 2-3 show orienting a container on a conveyor and collating the containers for pack formation;
 Figure 4 shows an upper and lower film wrapping a sleeve around the containers; and
 Figure 5 shows a sleeve film wrapped pack having a perforated portion peeled from the pack.

Description of embodiments

[0005] Figures 1-3 show transporting a container 6 lying flat on conveyor 5. A star wheel 1 turns the container 90 degrees so that the largest length of the can is perpendicular to the longitudinal axis of the conveyor belt (machine direction). Afterward the upended star wheel lifts and turns the container 90 degrees on its skinny side to a vertical position. This allows the conveyor to transport and collate a predetermined number of containers 6 on the conveyor. The conveyor moves the collated containers 13 to a position onto a dead plate 7 where the containers are pushed together against back stop 9 to form

a pack. A main pusher 3 pushes the pack into a upper film 8 and lower film 12 onto dead plate 10. The film forms a sleeve around the pack. Figure 4 shows the unwinding of upper film 8 and lower film 12 as the pack is pushed against the film. Upper film 8 is perforated by two blades adjustable to register the perforations 14 with the top of the pack. Lower film 12 registers with the bottom of the pack. If a two pack are to be film wrapped, an additional pack can be sequentially pushed onto dead plate 10 so the packs are adjacent each other. Seal bar 15 seals the upper film 8 and lower film 9 together and cuts and seals the upper and lower film to establish a new curtain of film for the next pack. After sleeve film wrapping, the pack is conveyed through heat tunnel 11. The film wrapping can be accomplished by conventional technology in the prior art.

[0006] Figure 5 shows a sleeve film wrapped pack of containers 6 having a portion of film 8 peeled along the perforations to expose containers 6.

[0007] This application claims priority of US Application No. 15/411,413 filed on January 20, 2017, invented by Alain Cerf titled "Sleeve Film Wrapping a Pack of Containers."

Claims

1. An apparatus for forming a film wrapped sleeve pack of containers comprising means for orienting a predetermined number of containers on a moving conveyor so that the containers can be pushed together to form a pack, means for forming perforations in the film that rests on the top of the pack so that a part of the film can be peeled off while maintaining the integrity of the pack, means for film wrapped the pack with the perforated film by forming a sleeve around the pack, means for sealing the pack after being film wrapped, and means for heat shrinking the film.
2. An apparatus according to claim 1 includes means for orienting includes means for positioning the containers lying on their side so that the largest length of the container is perpendicular to the longitudinal axis of the conveyor.
3. An apparatus according to claim 2 wherein the means for positioning includes a star wheel.
4. An apparatus according to claim 1 wherein the means for orienting the containers on the conveyor includes means for vertically positioning the containers using an upender star wheel that lifts one end of the container and turns the container on another side.
5. An apparatus according to claim 1 includes collating the containers on the conveyor.

6. An apparatus according to claim 5 wherein the conveyor pushes the collated containers onto a dead plate to form a pack.
7. An apparatus according to claim 6 include means for pushing the pack from the dead plate into a film. 5
8. A process for forming a film wrapped sleeve pack of containers comprising, transporting on a conveyor a predetermined number of containers oriented on the conveyor so that the containers can be pushed together to form a pack, forming perforations in parts of the film that rests on the top of the pack so that a part of the film can be peeled off while maintaining the integrity of the pack, film wrapping a sleeve around the pack with the perforated film, sealing the pack after being film wrapped, and heat shrinking the film wrapped pack. 10 15
9. A process according to claim 8 includes positioning the container on the conveyor so the largest length of the containers is perpendicular to the longitudinal axis of the conveyor. 20
10. A process according to claim 9 wherein a star wheel positions the containers. 25
11. A process according to claim 8 wherein an upender star wheel vertically positions the containers by lifting one end of the containers and turning the can on another side. 30
12. A process according to claim 8 includes collating the containers on the conveyor. 35
13. A process according to claim 12 wherein the conveyor pushes the collated containers onto a dead plate to form a pack.
14. A process according to claim 13 including pushing the pack from the dead plate into a film. 40
15. A process for forming a film wrapped sleeve pack of containers comprising, forming perforations in the film for allowing a part of the film to be peeled from the top of the pack while maintaining the integrity of the pack, film wrapping a sleeve around the pack with the perforated film, sealing the film, and heat shrinking the film. 45 50

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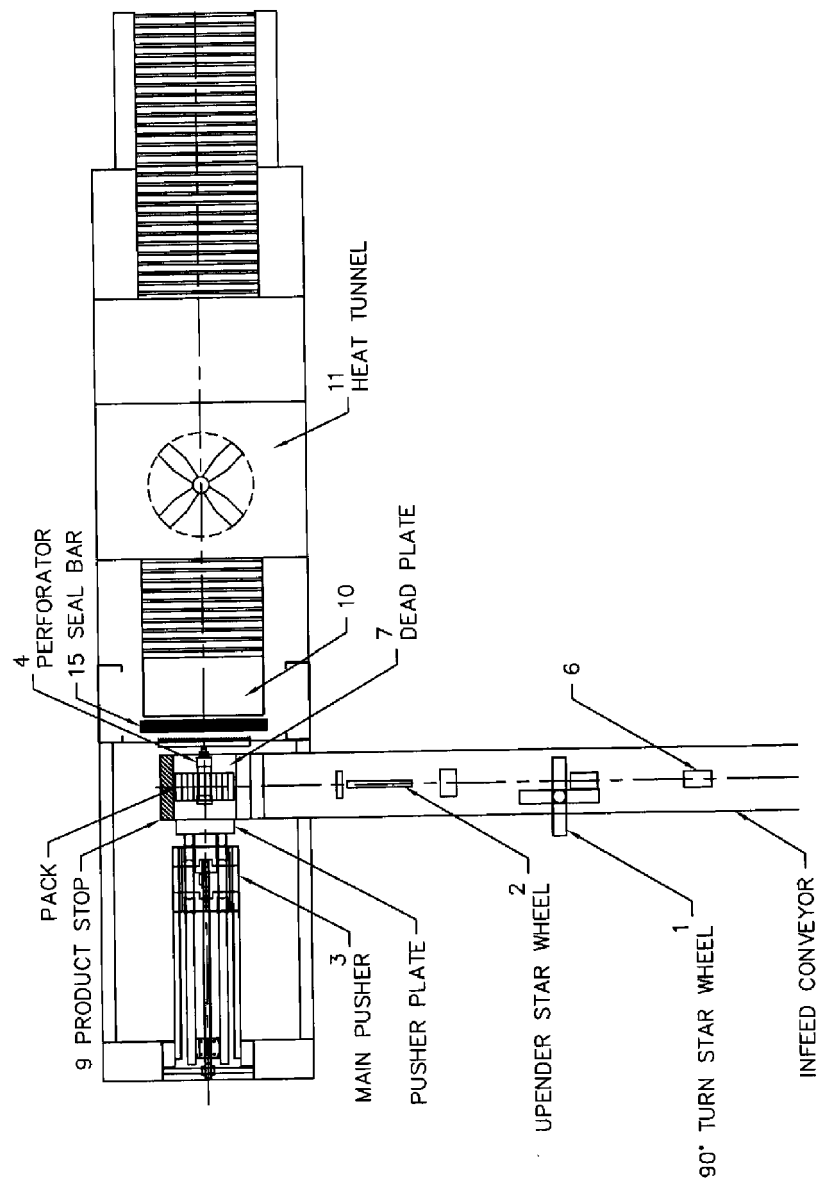


Fig. 1

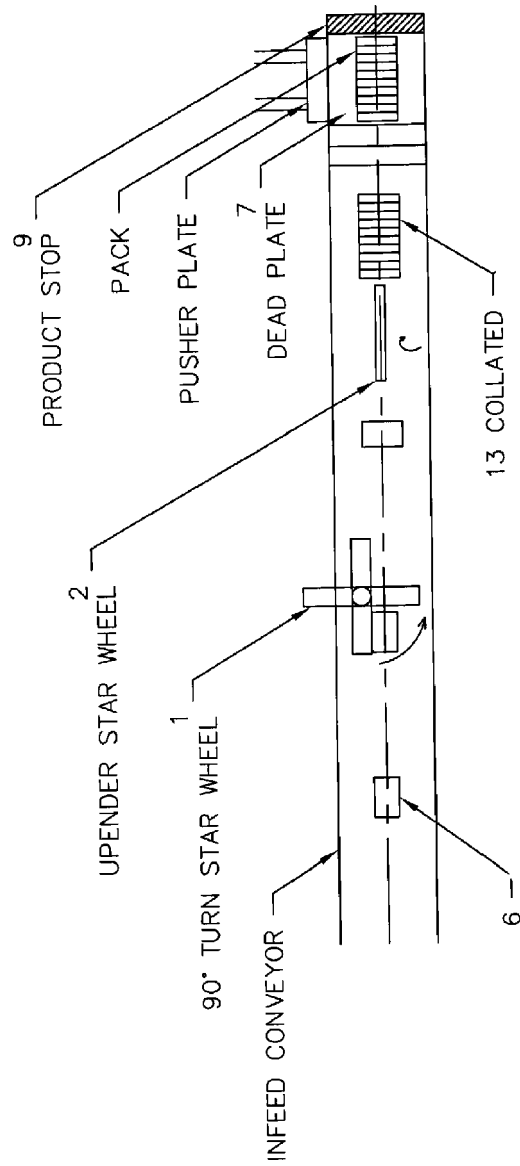


Fig. 2

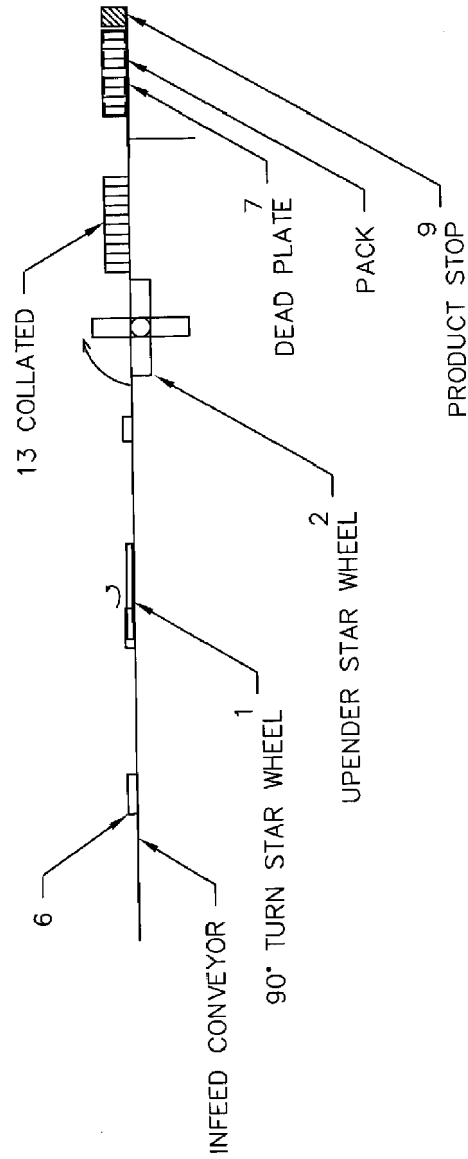


Fig. 3

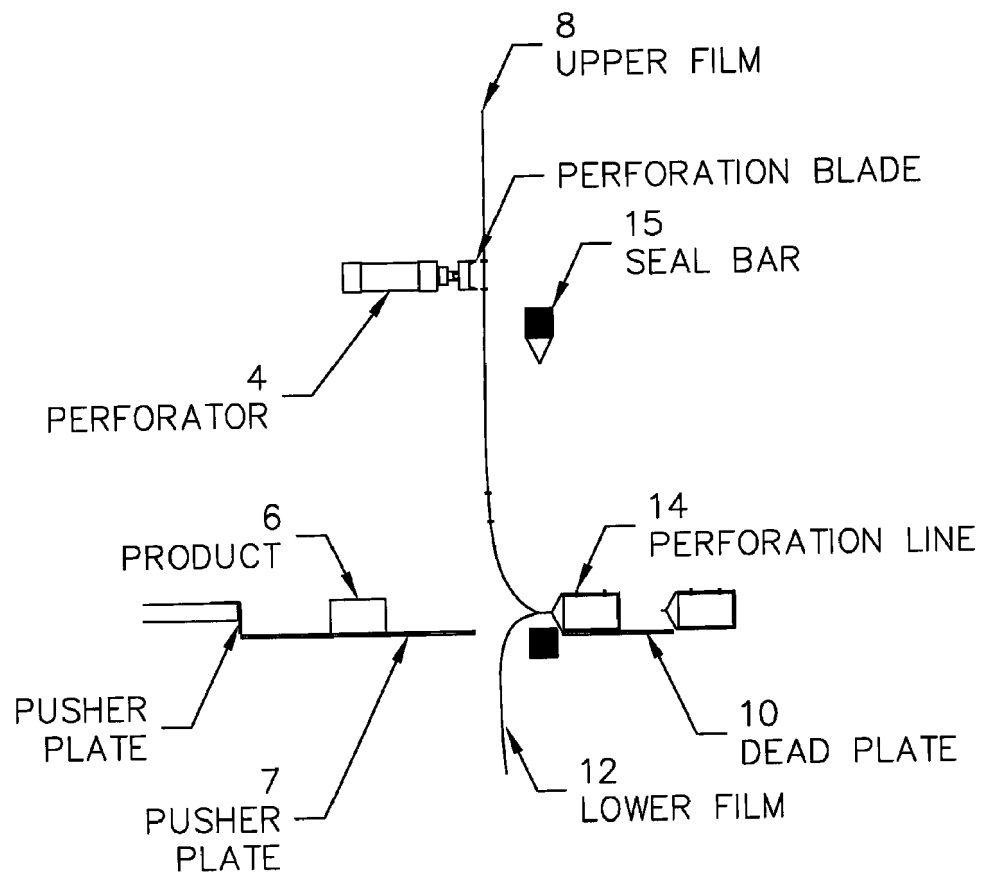


Fig. 4

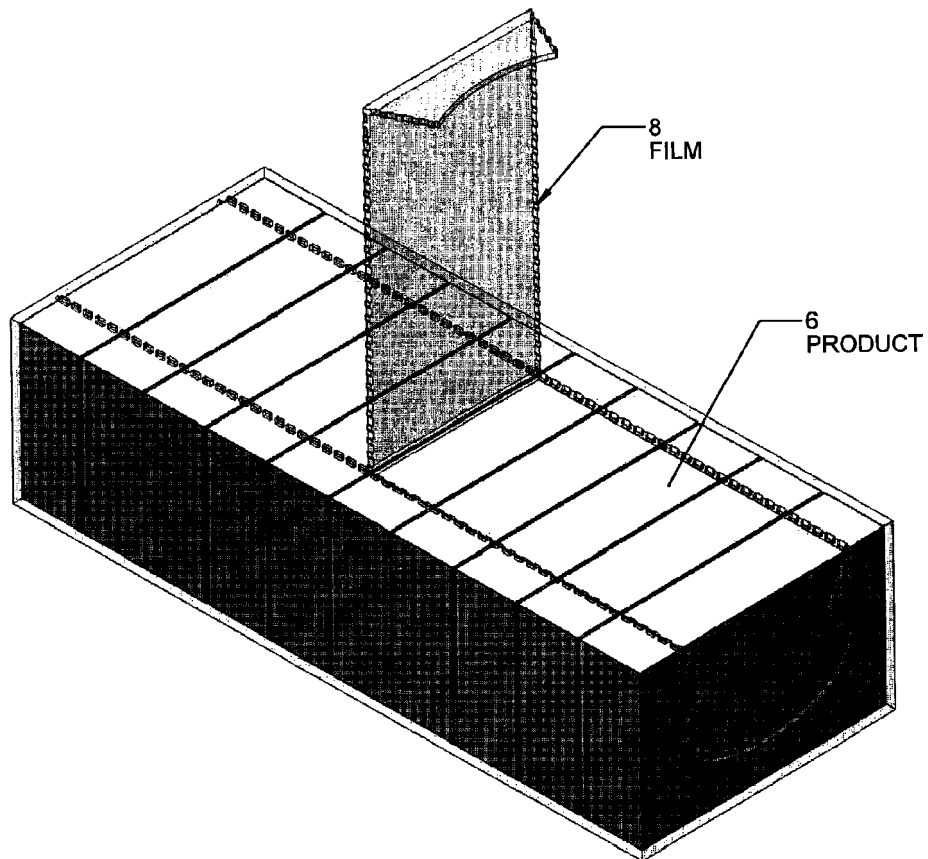


Fig. 5



EUROPEAN SEARCH REPORT

Application Number
EP 18 15 0845

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The present search report has been drawn up for all claims			
Place of search Munich		Date of completion of the search 9 April 2018	Examiner Damiani, Alberto
CATEGORY OF CITED DOCUMENTS X : particularly relevant if taken alone Y : particularly relevant if combined with another document of the same category A : technological background O : non-written disclosure P : intermediate document T : theory or principle underlying the invention E : earlier patent document, but published on, or after the filing date D : document cited in the application L : document cited for other reasons & : member of the same patent family, corresponding document			

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**ANNEX TO THE EUROPEAN SEARCH REPORT
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