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(54) **A packaging machine former**

(57) A packaging machine former apparatus 10 through which a film 11 passes to be formed into a tube 12. The apparatus 10 includes a shoulder 15 over which the film 11 passes, the shoulder 15 including an approach member 16 that leads to a crown 17. The mem-

ber 16 includes a passage 20 terminating in an aperture 21 to which a gas under pressure is delivered so as to create an "air cushion" over which the film passes, thereby aids in movement of the film 11 over the surface 18 of the approach member 16.

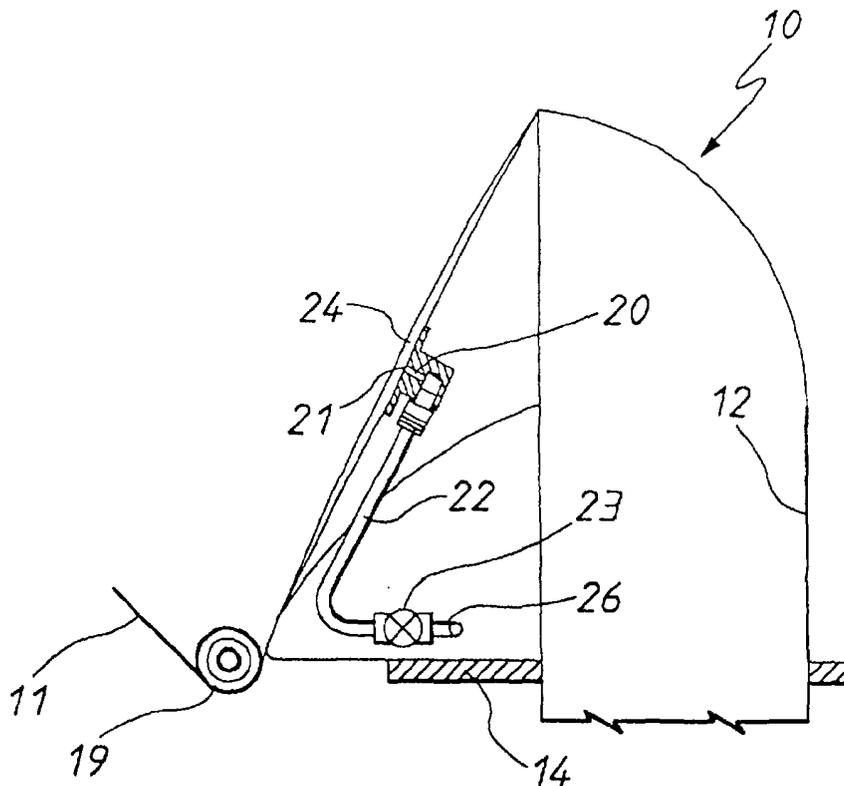


FIG. 3

Description

Technical Field

[0001] The present invention relates to packaging machines and more particularly to former shoulders which receive film from a roll to transform the film into a tubular configuration for delivery to a machine which forms discrete packages containing product.

Background of the Invention

[0002] Packaging machines such as those described in USA Patents 4663917, 4423858, 4391081, 3070931 and 3850780 employ formers which transform plastic film (strip) into a tubular configuration. The film is pulled through the former by means of a film drive unit. Typically the film drive unit will engage the tubular material by means of rollers and belts such as that discussed in USA Patent 4910943. It is also known to move the tubular bag material through the packaging machines by means of engagement with the jaws of the packaging machine.

[0003] A former includes a forming shoulder over which the film passes. Problems are often encountered with this relative movement which can result in a variation in the force required to move the film over and through the former. Preferably the force required is constant and is not excessive. These problems are exacerbated in the case of heavy gauge film as well as film that may be relatively stiff. Humidity and static charge also influence the force required to be applied to the film.

[0004] A further problem to the above is that frequently formers will smudge any printed material applied to the film.

Object of the Invention

[0005] It is the object of the present invention to overcome or substantially ameliorate at least one of the above disadvantages.

Summary of the Invention

[0006] There is disclosed herein a shoulder for a packaging machine former, said shoulder including:

a crown over which film passes to be arranged in a tubular configuration; and
 an approached member extending to said crown and having a surface past which the film moves in approaching said crown, said member having a passage extending to said surface through which a gas under pressure is delivered to deliver said gas to an area between said surface and said film.

[0007] Preferably the said passage terminates with an aperture located generally centrally in said surface.

[0008] A one preferred form there is a plurality of said passages extending to said surface through which said gas is delivered so that said gas is delivered to an area between said surface and said film.

[0009] Preferably said shoulder further includes a valve to deliver said gas to said passage, said valve being adapted to govern the pressure of said gas delivered to said surface.

10 Brief Description of the Drawings

[0010] A preferred form of the present invention will now be described by way of example with reference to the accompanying drawings wherein:

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Figure 1 is a schematic perspective view of a former apparatus of a packaging machine;

Figure 2 is a schematic perspective view of film passing through the apparatus of Figure 1;

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Figure 3 is a section schematic side elevation of the apparatus and film of Figures 1 and 2;

Figure 4 is a further schematic perspective view of the film and apparatus of Figures 1 and 2;

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Figure 5 is a further schematic perspective view of the apparatus and film of Figures 1 and 2; and

Figure 6 schematically depicts a modification of the apparatus of Figures 1 to 5.

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Detailed Description of the Preferred Embodiments

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[0011] In the accompanying drawings there is schematically depicted a former apparatus 10 through which a web of film 11 passes to be formed into a tube 12. The tube 12 passes through a packaging machine and receives a product which is to be packaged by the packaging machine. The product to be packaged is delivered to the upper aperture 13 of the tube 12, with the tube 12 being subsequently scaled along the back seam and at spaced locations to form discrete packages.

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[0012] The apparatus 10 includes a base 14 which supports a shoulder 15 over which the film 11 passes. The shoulder 15 includes an approach member 16 which leads to a crown 17 over which the film 11 passes to be configured to form the tube 12. The member 16 has an upper surface 18 past which the film 11 moves in its passage to the crown 17.

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[0013] The film 11 is removed from a roll and first engages a roller 19 before delivery to the surface 18,

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[0014] The member 16 is provided with a passage 20 terminating at its end with a generally centrally located aperture 21. The aperture 21 is in the surface 18. Extending from the passage 20 is a duct 22 communicating with an airflow control valve 23. The valve 23 receives a gas (typically air) under pressure. The valve 23 governs delivery of air to the passage 20 and therefore the aperture 21. Air leaving the aperture 21 enters an area 24 between the surface 18 and film 11. This aids movement of the film 11 over the surface 18 by creating an

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"air cushion" over which the film 11 passes. This reduces frictional engagement between the surface 18 and the film 11. As best seen in Figures 4 and 5, the air escapes laterally relative to the longitudinal direction 25 of movement of the film 11.

nying drawings.

[0015] If so required, there may be a plurality of the passages 20 and associated apertures 21, with the apertures distributed over the surface 18.

[0016] Extending from the valve 23 is a duct 26 which attaches the apparatus 10 to a supply of gas under pressure.

[0017] In respect of the delivery of gas to the valve 23, it should be appreciated that the flow of gas could be pulsed if so required. Still further, the gas could be heated or chilled to increase or decrease the stiffness of the film 11. Still further, heating of the film 11 may aid in the drying of ink.

[0018] In a further embodiment (as shown in Figure 6), one or more apertures 21 are formed in the surface 18, each with an associated passage 20 extending from the duct 22

Claims

1. A shoulder for a packaging machine former, said shoulder including:

a crown over which film passes to be arranged in a tubular configuration; and
 an approached member extending to said crown and having a surface past which the film moves in approaching said crown, said member having a passage extending to said surface through which a gas under pressure is delivered to deliver said gas to an area between said surface and said film.

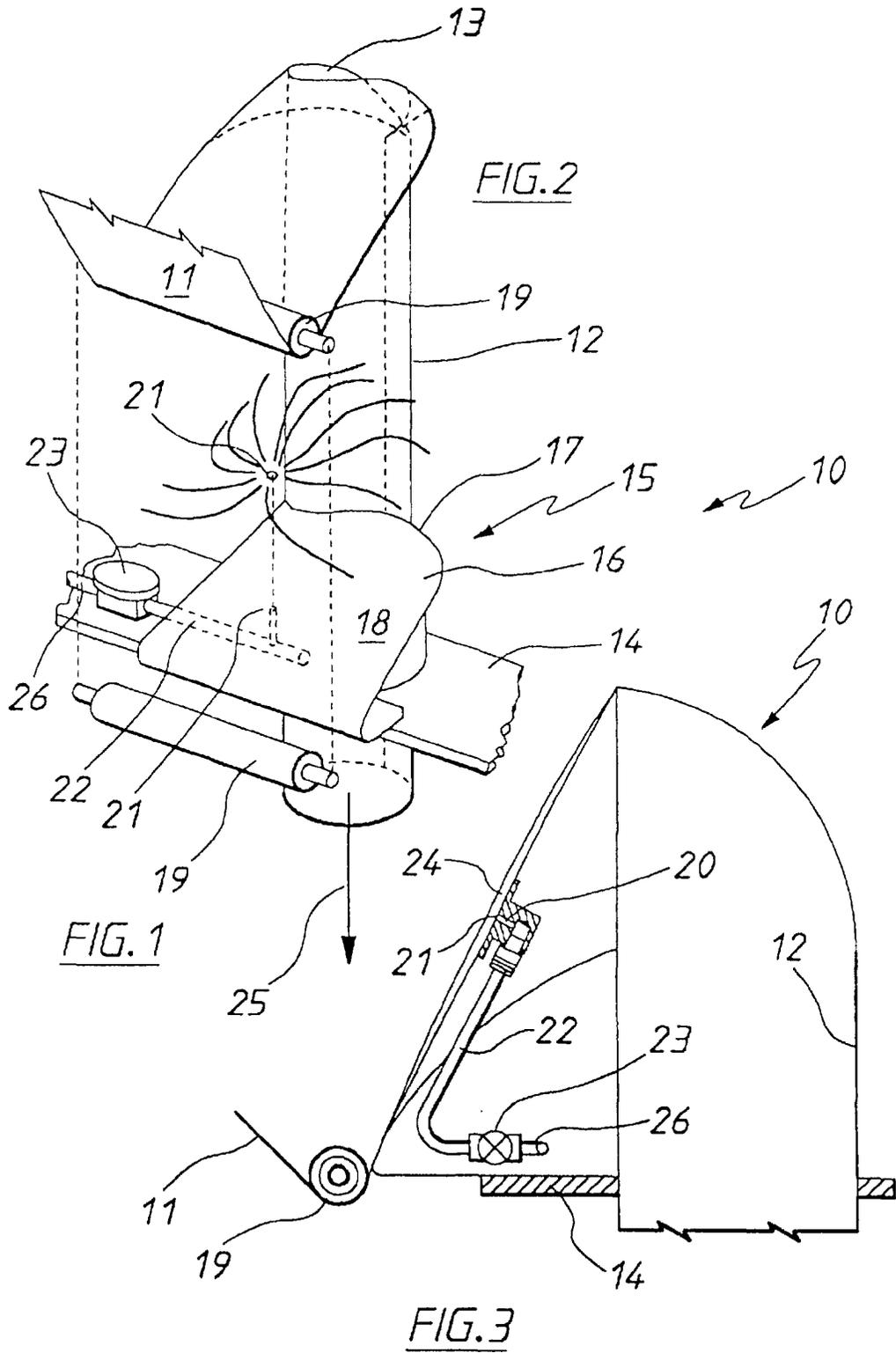
2. The shoulder of claim 1, wherein said passage terminates with an aperture located generally centrally in said surface,

3. The shoulder of claim 1, wherein there is a plurality of said passages extending to said surface through which said gas is delivered so that said gas is delivered to an area between said surface and said film.

4. The shoulder of claim 1 further including a valve to deliver said gas to said passage, said valve being adapted to govern the pressure of said gas delivered to said surface.

5. A packaging machine former including a shoulder according to claim 1.

6. A packaging machine former substantially as hereinbefore described with reference to the accompa-



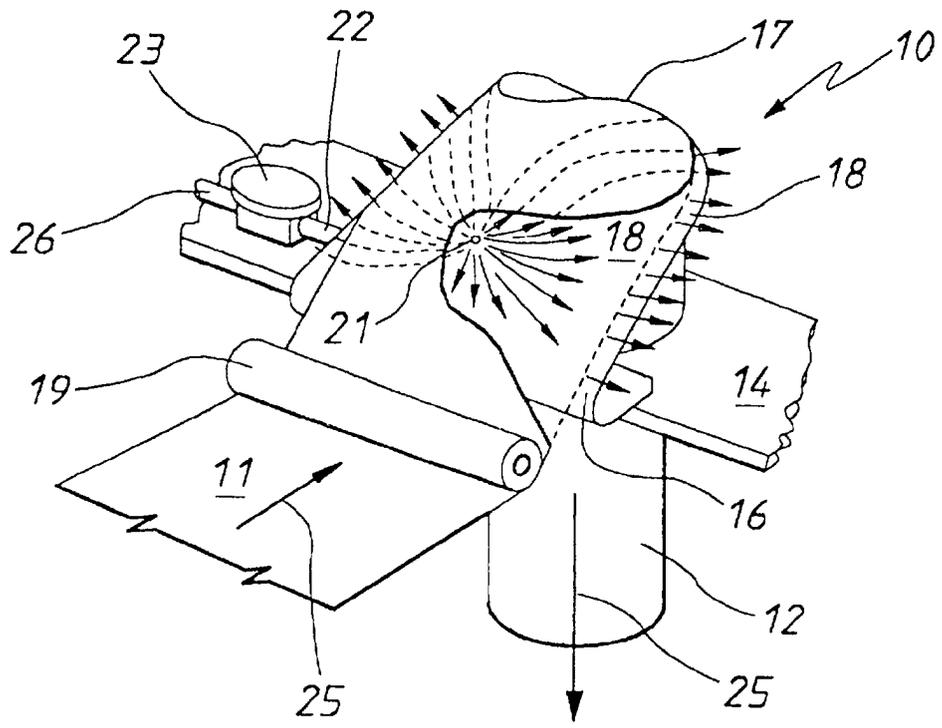


FIG. 4

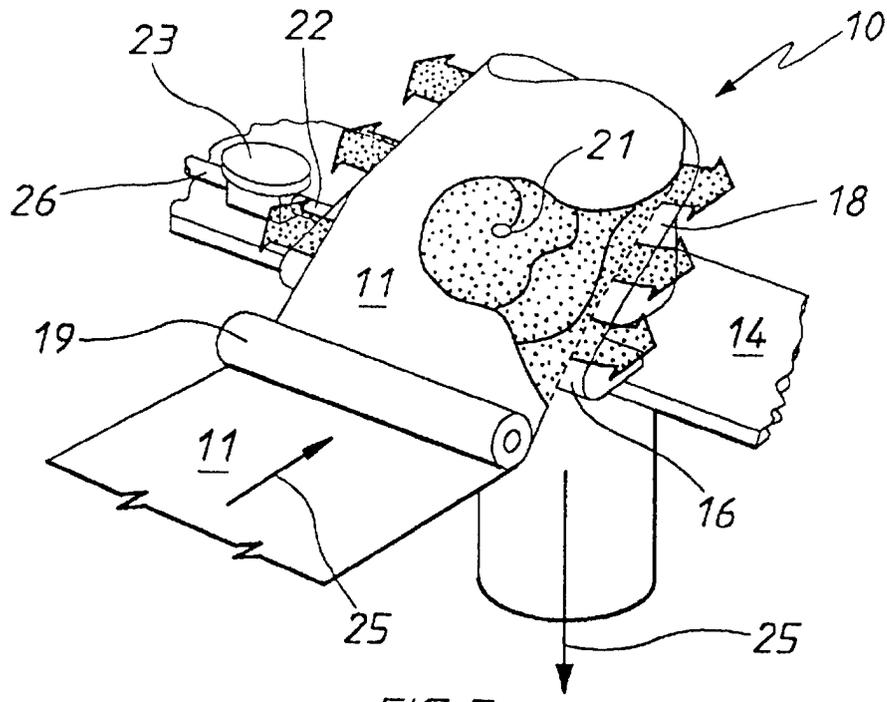


FIG. 5

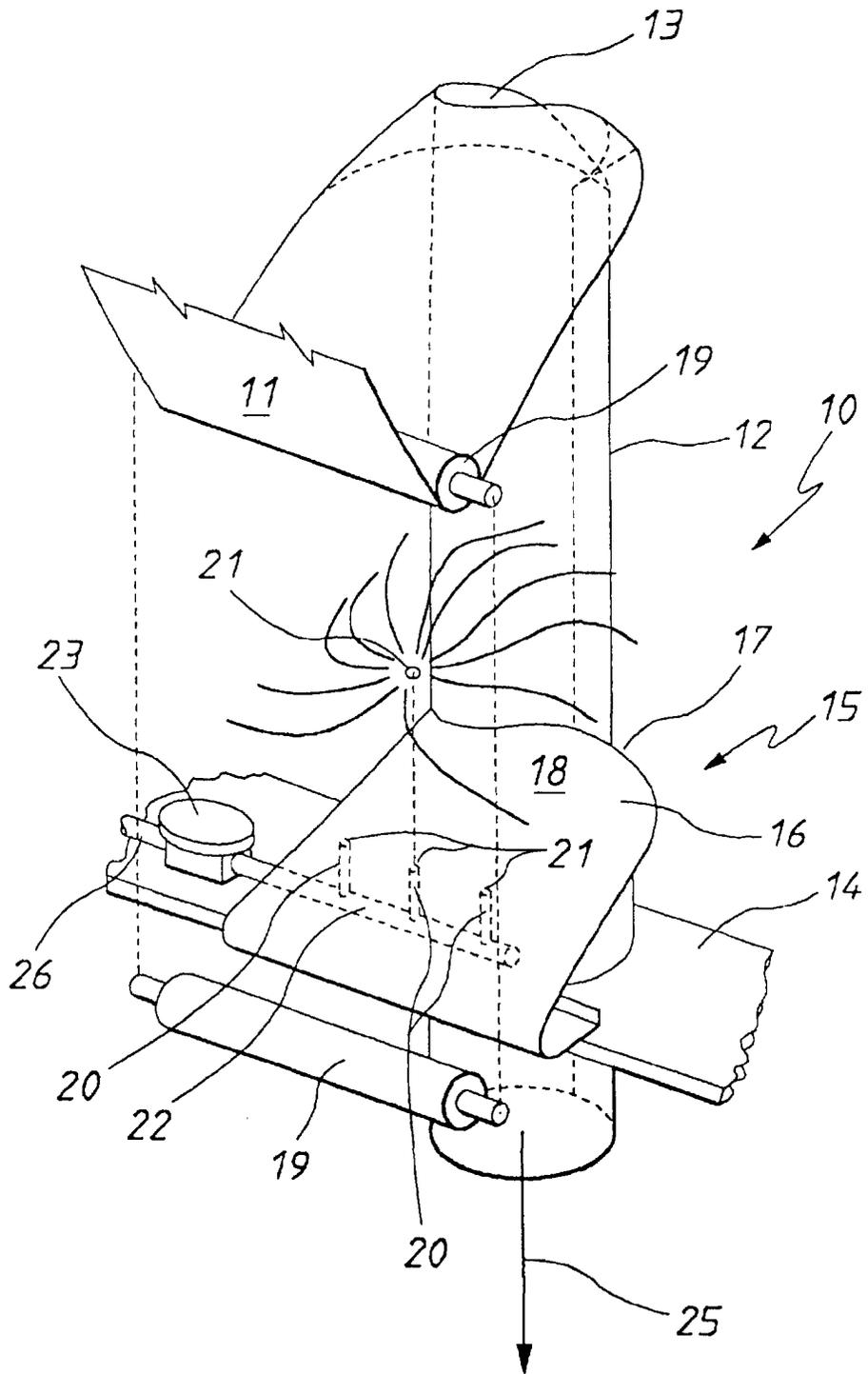


FIG. 6



| DOCUMENTS CONSIDERED TO BE RELEVANT | | | |
|---|---|--|--|
| Category | Citation of document with indication, where appropriate, of relevant passages | Relevant to claim | CLASSIFICATION OF THE APPLICATION (Int.Cl.7) |
| X | GB 1 557 480 A (MAIDSTONE) 12 December 1979 (1979-12-12) * the whole document * | 1-3,5 | B65B9/22 |
| X | US 3 042 103 A (MCDEVITT) 3 July 1962 (1962-07-03) * the whole document * | 1-3,5 | |
| X | WO 97 24263 A (PROCTER & GAMBLE) 10 July 1997 (1997-07-10) * the whole document * | 1 | |
| | | | TECHNICAL FIELDS SEARCHED (Int.Cl.7) |
| | | | B65B |
| The present search report has been drawn up for all claims | | | |
| Place of search | | Date of completion of the search | Examiner |
| THE HAGUE | | 8 January 2002 | Claeys, H |
| 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 | |

EPO FORM 1503 03/92 (P04001)

**ANNEX TO THE EUROPEAN SEARCH REPORT
ON EUROPEAN PATENT APPLICATION NO.**

EP 01 30 7690

This annex lists the patent family members relating to the patent documents cited in the above-mentioned European search report. The members are as contained in the European Patent Office EDP file on
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08-01-2002

| Patent document cited in search report | | Publication date | Patent family member(s) | Publication date |
|---|---|---------------------|-------------------------------|--------------------------|
| GB 1557480 | A | 12-12-1979 | NONE | |
| US 3042103 | A | 03-07-1962 | NONE | |
| WO 9724263 | A | 10-07-1997 | WO 9724263 A1 TR 970556 A1 | 10-07-1997 21-07-1997 |

EPO FORM P0459

For more details about this annex : see Official Journal of the European Patent Office, No. 12/82