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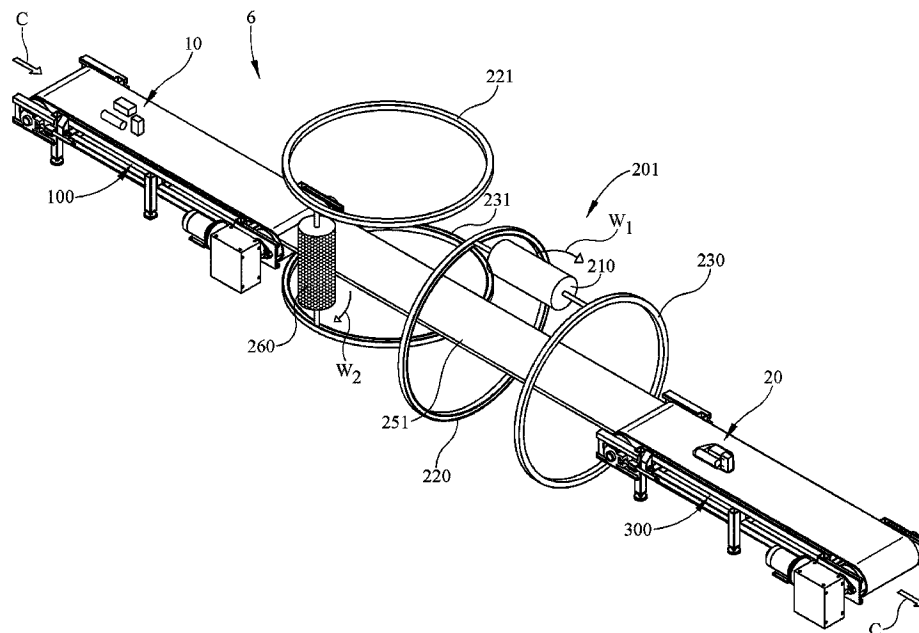
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(54) Titre : EMBALLAGE DE BOBINE DE FILM

(54) Title: FILM BUNDLE PACKAGING



(57) Abrégé/Abstract:

A plastic film bundle, and apparatus and methods for forming the plastic film bundle are disclosed herein.

ABSTRACT

A plastic film bundle, and apparatus and methods for forming the plastic film bundle are disclosed herein.

FILM BUNDLE PACKAGING

TECHNICAL FIELD

[0001] The present disclosure relates generally to a bundled package using film. More particularly, the present disclosure relates to a bundled package using a plastic film as an outer wrap and methods of using the films to bundle one or more items in a package, which films may be used to package one or more items for delivery or transport instead of or in addition to boxes and the like.

BACKGROUND

[0002] It is often desirable to ship or transport contents in a package. Furthermore, it is often desirable to ship the contents in a way that will reduce the environmental and economic impact of shipping. Reducing the variety and/or volume of products used for shipping, such as corrugated cardboard and the like, can reduce waste, cost, and/or allow for storage and management of fewer types of products.

SUMMARY

[0003] According to the present disclosure, a plastic film for bundling or packaging, and apparatus and methods of forming a plastic film bundle are disclosed.

[0004] In one aspect, for instance, a plastic film bundle is provided that includes comprising a plurality of items placed in close proximity to each other. The plurality of items bundled together with a plastic film to form a bundle. The plastic film is configured to maintain the bundle as a unit suitable for shipping. A shipping label is applied directly to the plastic film.

[0005] In another aspect, for instance, a system for forming a plastic film bundle for shipping is provided. The system includes a plurality of items for bundling and shipping and a plastic film wrapping apparatus for wrapping the plurality of items in a plastic film. The plastic film wrapping apparatus forms a plastic film bundle with the plastic film around the outside of the plurality of items and holding the plurality of items in close proximity to each other for shipping, with a shipping label applied directly to the plastic film.

In yet another aspect, for instance, a method of providing a plastic film bundle is provided. A plurality of items to be wrapped into a plastic film bundle is provided. The plurality of items is wrapped with a plastic film to form the plastic film bundle. A shipping label is applied directly to the plastic film. The stretch film bundle is shipped.

BRIEF DESCRIPTIONS OF THE DRAWINGS

- [0006] The detailed description particularly refers to the accompanying figures in which:
- [0007] FIG. 1 is an illustration of an exemplary embodiment of a film wrapping operation that may be used to bundle a package;
- [0008] FIG. 2 is an illustration of a second exemplary embodiment of a film wrapping operation that may be used to bundle a package;
- [0009] FIG. 3 is a front elevation view of an embodiment of a belt conveyor having a curved or U-shaped profile and conveying items for packaging or bundling;
- [0010] FIG. 4 is a front elevation view of another embodiment of a belt conveyor having an angled or V-shaped profile and conveying items for packaging or bundling; and
- [0011] FIG. 5 is an illustration of an embodiment of a hand wrapping station that may be used to bundle a package.

DETAILED DESCRIPTION

- [0012] Embodiments now will be described more fully hereinafter with reference to the accompanying Figures, in which some, but not all embodiments are shown. As used in the specification, and in the appended claims, the singular forms “a”, “an”, “the”, include plural referents unless the context clearly dictates otherwise.
- [0013] The terms “substantial” or “substantially” may encompass the whole as specified, according to certain embodiments, or largely but not the whole specified according to other embodiments.
- [0014] Illustrative embodiments of this disclosure relate to a film such as a polyolefin or thermoplastic film that may be used to wrap or bundle one or more items into a package or

bundle that may be shipped or mailed, for example. Film bundles and/or bundling processes could be used instead of or in addition to other packaging options, such as cardboard boxes, mailing envelopes, and the like. For example, a film bundle could be provided instead of boxes or mailing envelopes. Such packaging could be used for shipping via carriers such as US Postal Service, UPS, Fed Ex, DHL, or the like, or by retailers or wholesalers whether online or otherwise such as Amazon or the like. For example, a plurality of items for shipping may be bundled together and wrapped in a film, and a shipping label may be applied directly to the film for transport. As discussed more below, other films such as shrink films and/or bubble wrap or the like may be included as well. The film bundle may include a protective material in addition to an outer wrap film and/or provided as a part of the outer wrap film. The film bundle, outer wrap film, and/or protective material may be substantially free of cardboard, wood, metal, and/or paper products. Plastic film may replace other packaging materials, such as corrugated cardboard, wood, paper products, and/or metal or the like. This may result in a reduction of waste, fewer products to store, and/or fewer types of products to store and manage. It is understood that in some embodiments, items 10 may include cardboard or materials other than plastic film, but the exterior of the film bundle, such as the outer wrap film and/or protective material, may be substantially free of cardboard, wood, paper products, metal, and/or materials other than plastic film.

[0015] An embodiment of a film bundling apparatus 5 is shown for example in FIG. 1. Film bundling apparatus 5 may include, for example, any or all of a first conveyor 100, a second conveyor 300, and a bundler or wrapper 200. Any or all of the components of film bundling apparatus 5 may be used to move, consolidate, bundle or wrap one or more items 10, for example, into a bundle 20. Bundle 20 may include an outer wrap. The outer wrap may include a stretch wrap film and/or a shrink wrap film or the like to hold items 10 together in a package that may be labeled and shipped, for example. Bundler or wrapper 200 may include and/or use a material such as a first roll 210 of plastic wrapping material to apply and/or wrap items 10 with the outer wrap, which may be a plastic film, such as a plastic stretch film or shrink film, for example. Film may be used as the outer wrap, for example, to prepare bundle 20 that may be labeled and/or shipped to deliver mail, packages, or the like while minimizing or eliminating additional packaging materials such as boxes, pouches, envelopes, etc. For example, labels such as shipping labels, return labels, and/or instructional labels or the like may be applied directly to

the outer wrap for shipping instead of being applied to cardboard. A closure element may be provided to hold the bundle closed. For example, a tape and/or adhesive may be applied to the outer wrap to hold bundle 20 closed. Alternatively, or additionally, the outer wrap film may have self-clinging properties to hold bundle 20 closed. The closure element may be configured to have sufficient adhering properties to withstand shipping, distribution, storing, and/or handling, or the like. Any of a variety of films may be used, such as thermoplastic films. Examples of thermoplastic films that could be used include stretch wrap and shrink wrap films. For example, film of about 80 gauge to about 300 gauge may be used. One or more films may be used, any or all of which may be clear, tinted, or opaque. If tinted or opaque, the film may be fully opaque (i.e. 100% opacity) or partially opaque. For example, the film may have between about 10% opacity and about 100% opacity, between about 30% opacity and about 100% opacity, between about 50% and about 100% opacity, between about 70% and about 100% opacity, and/or between about 70% and about 90% opacity. The outer wrap plastic film may include any of a variety of colors or combination thereof, whether tinted or not.

[0016] A protective packaging material such as bubble wrap may be used in addition to the outer wrap, as shown for example in FIG. 1. Protective material may provide cushion, padding, or the like to dampen contact, pressure, and/or forces that items 10 in bundle 20 might otherwise be subject to during handling, shipping, distribution, storage, or the like. Other types of protective material may be provided instead of or in addition to padding material such as bubble wrap. For example, protective material may inhibit or prevent ingress or egress of certain liquids or gases, and/or of light or certain types of light, such as ultraviolet (UV) light or infrared light, for example. In some embodiments, protective material or outer wrap may be vapor permeable and liquid or water impermeable. The plastic film included in the outer wrap may be substantially single layer or multilayer. For example, a single layer or multilayer film may include one or more layers with one or more characteristics. For example, a single layer or multilayer film may include a first characteristic, a second characteristic, and/or additional characteristic. An exemplary first characteristic is being oxygen impermeable such as a multilayer film including a layer of EVOH. An exemplary second characteristic is including one or more layers that are tear or puncture resistant, such as an augmented core layer. An exemplary additional characteristic is UV light blocking. It is understood that virtually any number of characteristics in virtually any combination may be used in protective material and/or

outer wrap included in bundle 20. Bubble wrap or other protective material may be applied from a second roll 260. Second roll 260 may include other protective material instead of or in addition to bubble wrap, such as packing materials (e.g., packing peanuts), foam material, insulation, etc., which may be configured to protect items 10 in bundle 20 during shipping, handling, storage, distribution, and the like.

[0017] Some embodiments of wrapper 200 may include, for example, a first rail 220 and/or a second rail 230 upon which first roll 210 and/or second roll 260 may move or rotate about items 10 to wrap them with film and/or protective material, for example, to form bundle 20, as shown in FIG. 1. First roll 210 and/or second roll 260 may move or rotate about items 210, for example, in a first wrapping direction W_1 to facilitate wrapping items 10 in protective material and/or film wrap to form bundle 20. It is understood that first roll 210 and/or second roll 260 may move in another direction, such as the opposite direction instead of in first wrapping direction W_1 . First roll 210 and second roll 260 may wrap items 10 substantially simultaneously, for example, by moving together in first wrapping direction W_1 while on the same rails 220, 230. Other wrapping configurations are discussed more below. Wrapper 200 may include a table or bridge 250 for any of a variety of reasons, including, but not limited to, helping to transport items 210 from first conveyor 100 through wrapper 200 toward second conveyor 300. An example of a film wrapper is the LAN-RINGER, commercially available from Lantech of Jeffersontown, Kentucky. One or more wraps may be used and/or included to form bundle 200. For example, the outer wrap and/or first roll 210 may have a height or width of about 15 inches to about 20 inches. If one or more items 10 have a dimension greater than the height or width of the outer wrap, first roll 210, protective material, and/or second roll 260, a spiral wrap apparatus and/or process may be used to wrap items 10 in forming bundle 20. Outer wrap may at least partially overlap itself as applied, for example, in a spiral pattern. Protective material may at least partially overlap itself as applied, for example, in a spiral pattern.

[0018] Another embodiment of a film bundling apparatus 6 is shown for example in FIG. 2. In this embodiment, a second wrapper 201 may include a vertically oriented second roll 260 on vertically oriented first rail 221 and second rail 231 and a horizontally oriented first roll on horizontally oriented first rail 220 and second rail 230. In this embodiment, items 10 may be wrapped in protective material from second roll 260 and subsequently wrapped in outer wrap from first roll 210. Second roll 260 may move or rotate in a second wrapping direction W_2

which may be different from first wrapping direction W_1 . For example, as shown in FIG. 2, second wrapping direction W_2 may be transverse and/or perpendicular to first wrapping direction W_1 . It is understood that a variety of configurations may be provided for applying protective material from second roll 260 and/or outer wrap from first roll 210. Protective material and outer wrap may be applied substantially simultaneously or in separate steps. Protective material may be applied before outer wrap. First roll 210 may be oriented vertically, horizontally, or otherwise relative to first conveyor 100, second conveyor 300, and/or table or bridge 250, 251. Second roll 260 may be oriented vertically, horizontally, or otherwise relative to first conveyor 100, second conveyor 300, and/or table or bridge 250, 251. First roll 210 and second roll 260 may be oriented in substantially the same direction, for example horizontally or vertically, whether applied simultaneously as shown in FIG. 1 or in separate steps as shown in FIG. 2. First roll 210 and second roll 260 may be oriented in different directions whether applied simultaneously or in separate steps.

[0019] First conveyor 100 and/or second conveyor 300 may include a moving surface such as a belt 110 and/or a first rail 120 and/or a second rail 130, as shown for example with reference to a conveyor belt 100 having a general concave or U-shaped profile as shown in FIG. 3. The view shown in FIG. 3 may be the from the front or the rear of conveyor 100, for example. First conveyor 100' and/or second conveyor 300 may include a moving surface such as a belt 110' and/or a first rail 120' and/or a second rail 130', as shown for example with reference to a conveyor belt 100' having a general concave or V-shaped profile as shown in FIG. 4. The view shown in FIG. 4 may be the from the front or the rear of conveyor 100', for example. A generally concave, U-shaped, and/or V-shaped profile such as shown with respect to conveyor belt 110 and conveyor belt 110' for example, may facilitate placing a variety of item 10 in close proximity to one another at the low or central point of the conveyor. Items 10 in close proximity to one another may facilitate wrapping them together into bundle 20.

[0020] An example of a hand wrapping station 400 is shown, for example, in FIG. 5. Hand wrapping station 400 may include a first roll 410 including an outer wrap material, such as a plastic film 415, and/or a second roll 420 including a protective material, such as bubble wrap 425. Plastic film 415 may include a stretch wrap film and/or a shrink wrap film or the like. Items 10 may be wrapped with bubble wrap 425 or the like and/or plastic film 415 or the like to provide a padded and wrapped bundle, for example. Protective material such as bubble wrap, or

other material may be included with an automated or other type of wrapper such as wrapper 200 shown for example in FIGs. 1 and 2. Protective material may be included instead of or in addition to wrap or film. For example, protective material and outer wrap material may be provided in the same roll and/or as one combined material. It is understood that a hand wrapping station 400 may be included instead of or in addition to wrapper 200.

[0021] In use, one or more items 10 may be provided, for example on a hand wrapping station table or on a conveyor 100. Conveyor 100 may consolidate the packages 10 via a concave shaped belt 110, 110' or otherwise and transfer the items 10 to a wrapping station. The wrapping station or operation may be automated and/or include a hand wrapping station. Items 10 may be provided at a hand wrapping station other than by a conveyor, for example, by hand. The wrapping station or operation may apply a protective material and/or an outer wrap plastic film to items 10 to form bundle 20. Bundle 20 may be transferred from the wrapping station to a second conveyor 300 for subsequent transportation, conveying, and/or processing. Bundle 20 may be secured and/or sealed. For example, the film may be sealed using an adhesive or adhering process, and/or may be sealed with a shipping label and/or heat seal. One sided cling film may be used in some embodiments, which may help prevent multiple bundles 20 from sticking together. Bundle 20 may be formed without cardboard on the exterior, and/or with shipping labels and/or other labels applied directly to the outer wrap.

[0022] Modifications and variations may be practiced by those of ordinary skill in the art without departing from the spirit and scope. In addition, it should be understood that aspects of the various embodiments may be interchanged in whole or in part. Furthermore, those of ordinary skill in the art will appreciate that the foregoing description is by way of example only, and it is not intended to limit the scope of that which is described in the claims. Therefore, the spirit and scope should not be limited to the exemplary description of the versions contained herein.

CLAIMS

I claim:

1. A plastic film bundle, comprising:
a plurality of items placed in close proximity to each other;
the plurality of items bundled together with a plastic film to form a bundle;
wherein the plastic film is configured to maintain the bundle as a unit suitable for shipping; and
wherein a shipping label is applied directly to the plastic film.
2. The plastic film bundle of claim 1, wherein the plastic film is at least partially opaque.
3. The plastic film bundle of claim 1, further comprising a protective material interposed between the plastic film and the plurality of items.
4. The plastic film bundle of claim 3, wherein the protective material is bubble wrap.
5. The plastic film bundle of claim 1, wherein the plastic film is a stretch film.
6. A system for forming a plastic film bundle for shipping, comprising:
a plurality of items for bundling and shipping; and
a plastic film wrapping apparatus for wrapping the plurality of items in a plastic film;
wherein the plastic film wrapping apparatus forms a plastic film bundle with the plastic film around the outside of the plurality of items and holding the plurality of items in close proximity to each other for shipping, with a shipping label applied directly to the plastic film.
7. The system of claim 6, further comprising a first conveyor for conveying the plurality of items from a first location to the plastic film wrapping apparatus.
8. The system of claim 7, further comprising a second conveyor for conveying the plurality of items from the plastic film wrapping or bundling apparatus to a second location.

9. The system of claim 7, wherein the first conveyor is concave.
10. The system of claim 9, wherein the first conveyor is at least one of U-shaped and V-shaped.
11. The system of claim 6, wherein the plastic film is a stretch film.
12. The system of claim 6, wherein the plastic film is a shrink film.
13. The system of claim 6, wherein the plastic film wrapping apparatus is an automated apparatus including a roll of plastic film for wrapping.
14. The system of claim 6, wherein the plastic film wrapping apparatus is a hand operated apparatus including a roll of plastic film for wrapping.
15. The system of claim 6, further comprising protective material interposed between the plastic film and the plurality of items.
16. The system of claim 15, further comprising a protective material wrapping apparatus for applying the protective material to the plurality of items.
17. The system of claim 16, wherein the protective material is applied and the stretch film is wrapped around the plurality of items simultaneously.
18. A method of providing a plastic film bundle, comprising the steps of:
providing a plurality of items to be wrapped into a plastic film bundle;
wrapping the plurality of items with a plastic film to form the plastic film bundle;
applying a shipping label directly to the plastic film; and
shipping the stretch film bundle.
19. The method of claim 18, further comprising the step of conveying the plurality of items from a first location to a plastic film wrapping apparatus to be formed into the plastic film bundle.
20. The method of claim 19, further comprising the step of wrapping the plurality of items with a protective material.

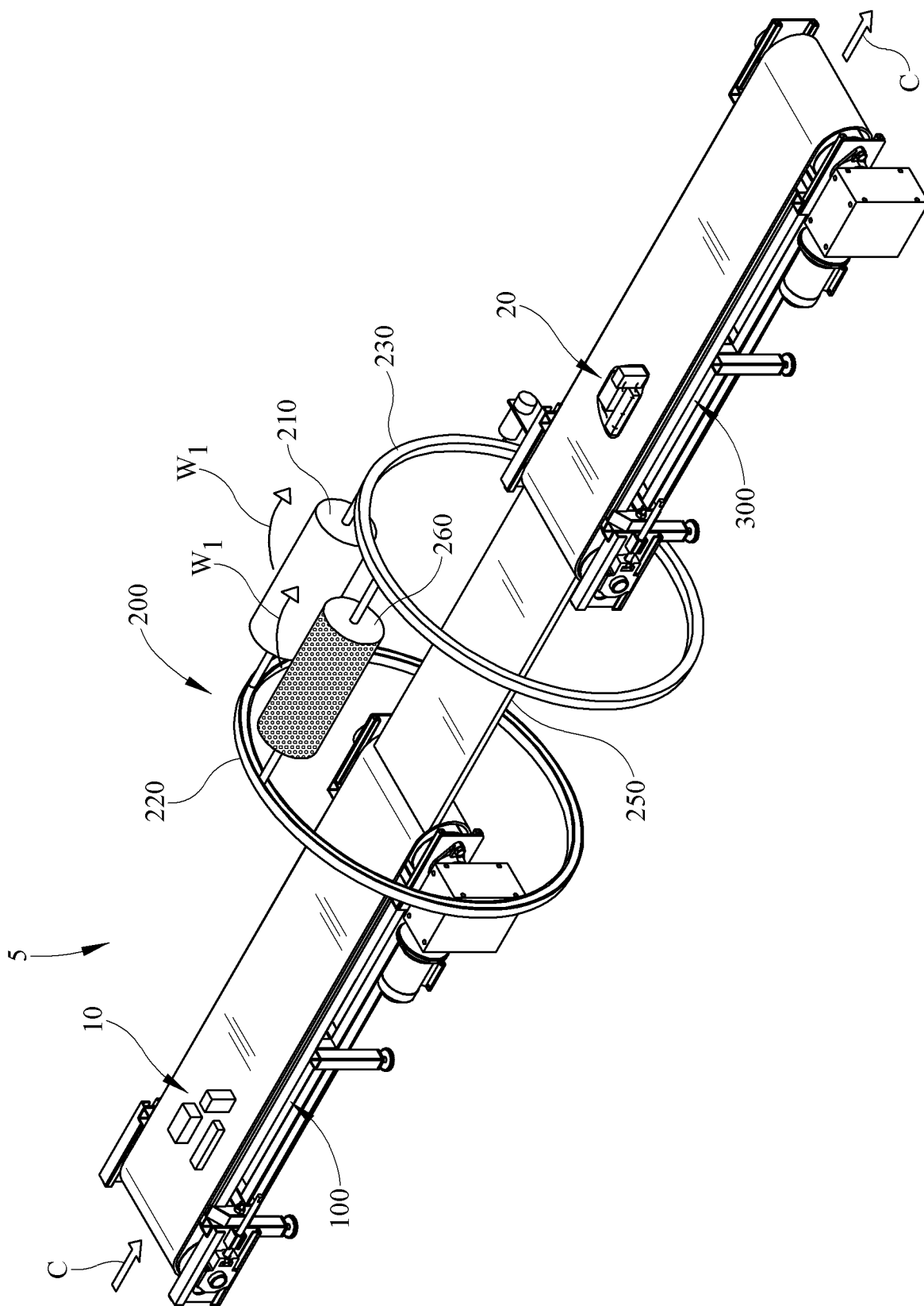
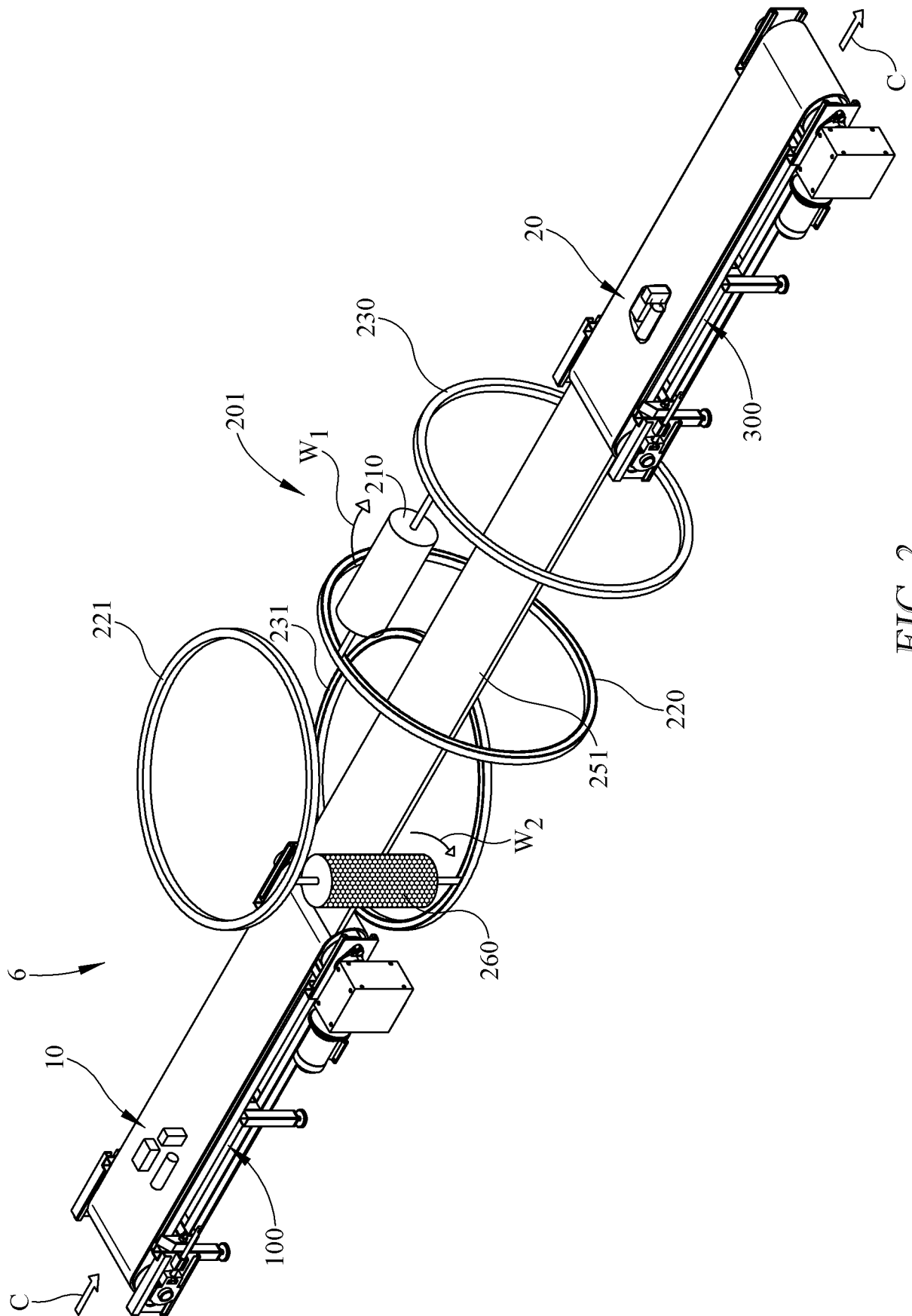


FIG. 1



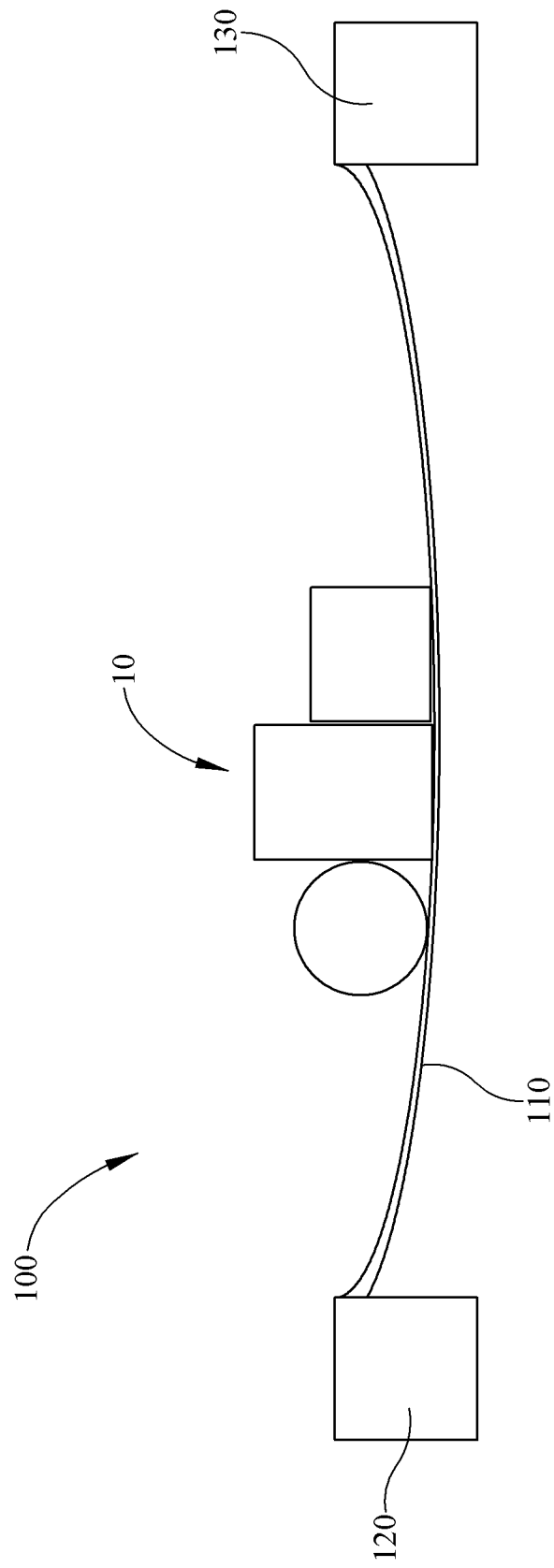


FIG. 3

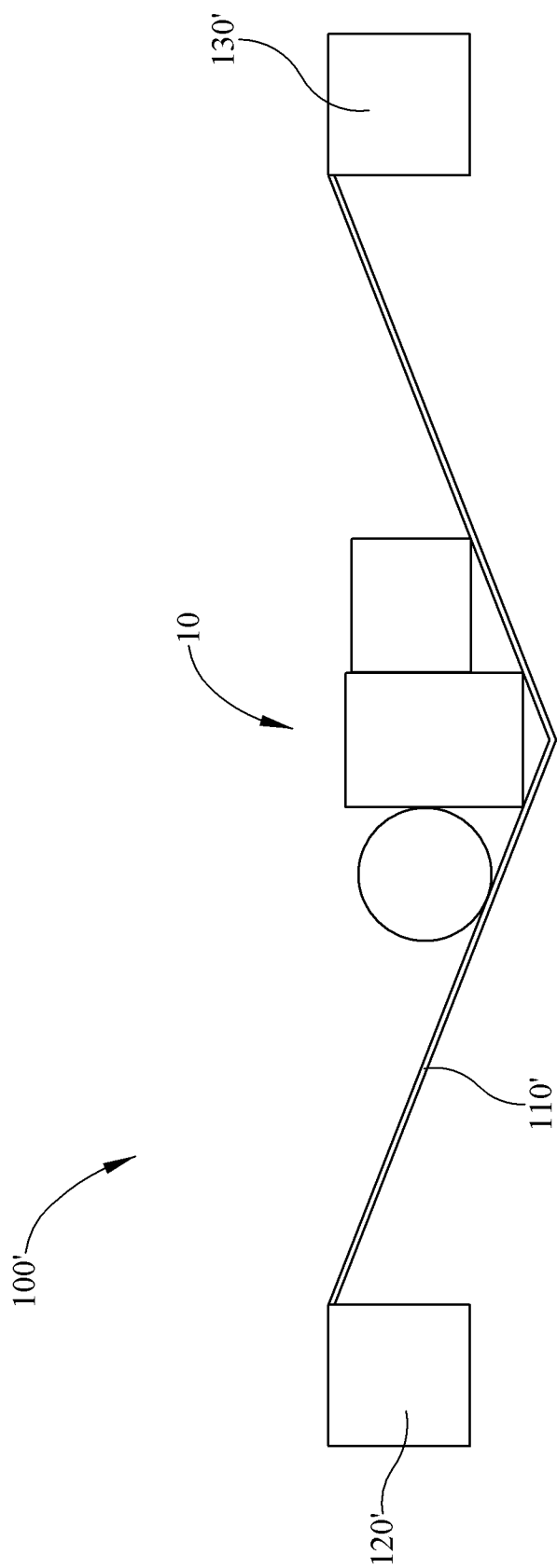


FIG. 4

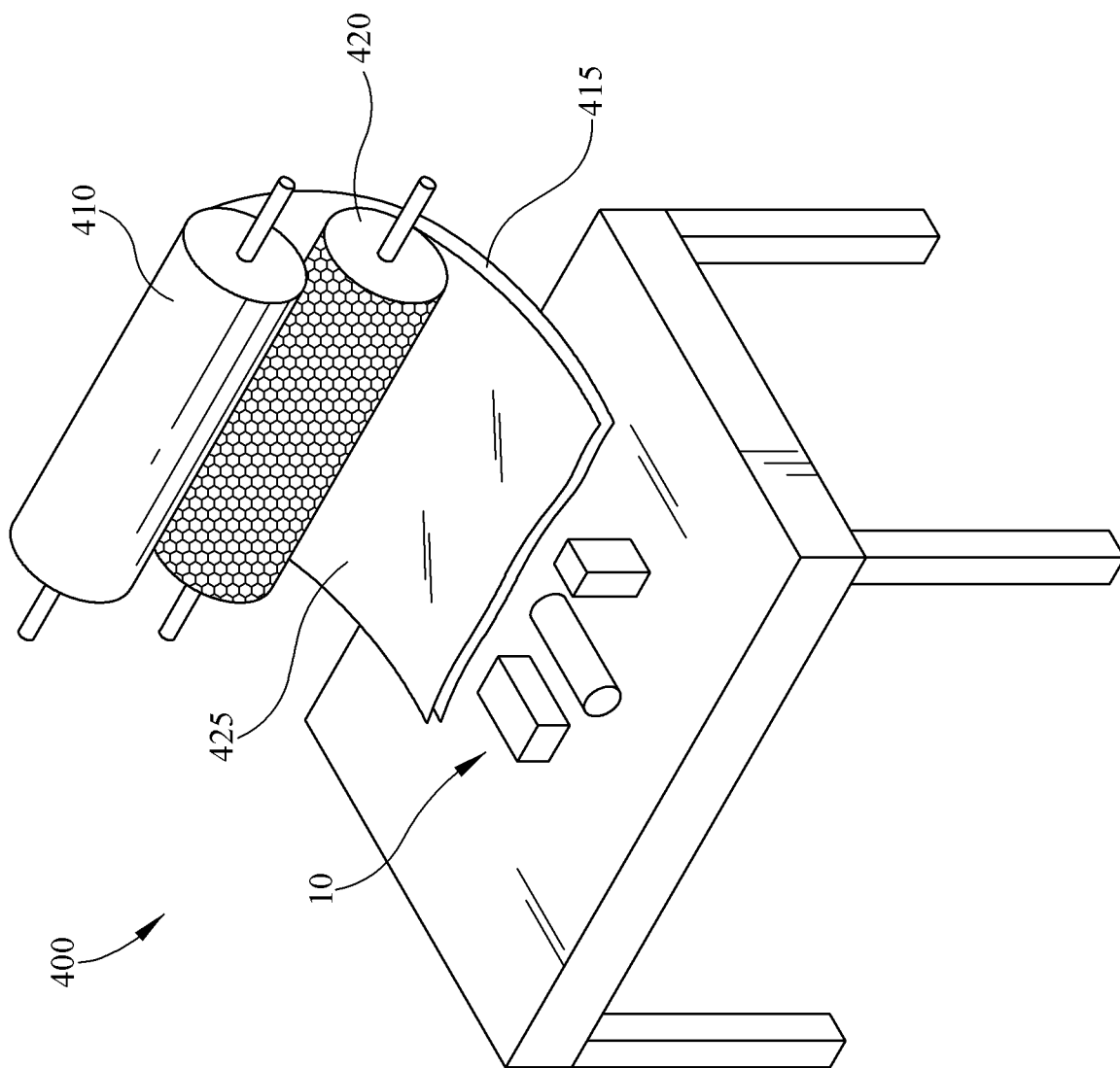


FIG. 5

