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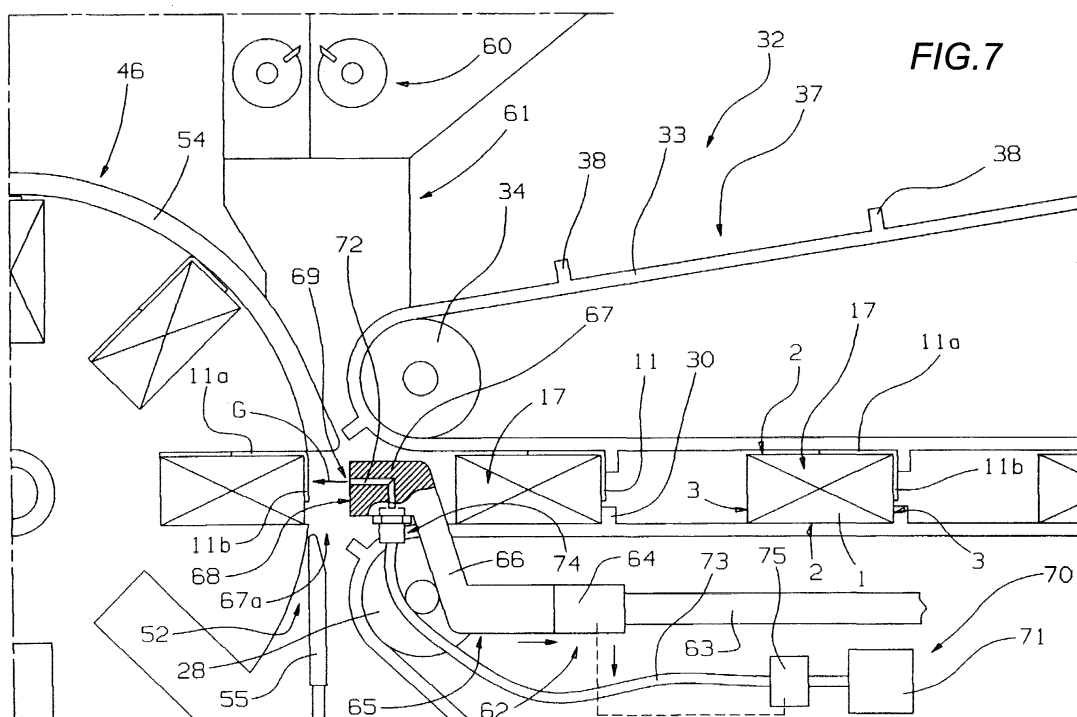
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(54) **Device for transferring substantially parallelepiped wrappings**

(57) Wrappings (17) of substantially parallelepiped shape, each fashioned from at least one packaging component (6, 7, 11, 12, 13, 16) and presenting two portions overlapped and fixed along at least one face, are transferred by a device making use of a reciprocating pusher (65) equipped with a head (67) offered to the face of the wrapping (17) presenting the overlapped por-

tions. During each active stroke of the pusher, a wrapping (17) is directed from a first position to a second position. The transfer device comprises a pneumatic circuit (70) producing jets of air directed at the face of the wrapping that coincides with the area of contact between the two overlapped portions, at least at the moment of inversion when the active stroke of the pusher (65) terminates and the return stroke commences.



Description

[0001] The present invention relates to a device for the transfer of substantially parallelepiped wrappings.

[0002] More precisely, the present invention relates to a device for the transfer of wrappings designed to hold tobacco products, to which reference will be made in the course of the specification albeit with no limitation in scope implied, and is applicable to wrappings that can consist in cigarette packets of both soft and rigid types, also to wrappings containing groups of such packets, whether of the carton type having a rigid overwrap or the simple multiple pack type with a soft overwrap.

[0003] Most cigarette packets present a substantially rectangular parallelepiped shape, referable to a predominating longitudinal axis, and will present a top end face and a bottom end face, also four side faces of which two are larger and two smaller.

[0004] Cigarette packets of the soft type comprise an inner wrapper fashioned typically from metal foil paper, fully enveloping the contents, and an outer wrapper or label fashioned from a sheet of paper material, which is folded about the first wrapper in such a way as to envelop it in part, leaving the top end face exposed. These same soft packets can also present a single wrapper incorporating both the label and the top end face.

[0005] Cigarette packets of the rigid type having a hinged lid consist in an outer wrapper of box-like embodiment, fashioned from a flat precreased diecut blank generally of paper material, and internally of the outer wrapper, an inner wrapper of paper or metal foil paper enveloping a group of cigarettes. The outer box-like wrapper appears as a container of cupped appearance, and a lid hinged along a rear edge of the container.

[0006] A revenue stamp or seal is affixed normally to the outer wrapper of such packets, and in certain instances it is the practice also to attach coupons to the external surface, consisting in a leaflet or a card or the like, printed with text, pictures or images carrying a variety of messages aimed at the smoker.

[0007] In each of the cases mentioned, the outer wrapper and inner wrapper constitute specific and essential packaging components of the single packets, whereas the revenue stamp or seal and the coupon constitute additional components.

[0008] Finally, when groups of packets are packaged in multiples or cartons, both the soft overwrappings and the rigid overwrappings constitute specific and essential packaging components.

[0009] Accordingly, each specific packaging component and each additional component constitutes a single packaging component forming part of each wrapping.

[0010] Conventionally, packets turned out by a packaging machine, or packer, will run initially onto a first conveyor and subsequently onto a second conveyor comprising a belt with slats by which the selfsame packets are fed at predetermined intervals to the infeed of a cellophaning machine, or cellophaner, which comprises

a wrapping conveyor embodied as a wheel with radial pockets.

[0011] The single packets are transferred from the slat conveyor into a pocket of the wrapping wheel by a reciprocating push rod, and during the transfer movement the packet is also pushed across the feed path followed by a further wrapping material.

[0012] Advancing on the second conveyor typically with their longitudinal axes extending transversely to the direction of movement and lying on one of the two larger side faces, the packets will generally receive at least one additional packaging component while in transit, namely a seal or a coupon.

[0013] The positions in which the additional packaging component can be applied to the packet are many and various, to suit a broad range of requirements.

[0014] More exactly, taking the example of the revenue stamp or seal, without implying any limitation in scope, this can be affixed entirely to one larger face of the packet, or along the line of the hinge in the case of a rigid packet, or entirely to one flank face of the packet, or along the line of the join between the container and the lid, in the case of a rigid packet. Alternatively, the seal can be affixed straddling two or more adjoining side faces of the packet, or positioned straddling the top end face and affixed to at least one of the side faces.

[0015] To make certain that it remains properly stuck to the packet, the seal needs to be held continuously against the wrapping by a suitable element from the moment of its application until a given interval of time has elapsed sufficient to ensure that the glue has dried completely.

[0016] For this reason, the single slats of the second conveyor also function as retaining elements while the packet is advancing along the second conveyor and, at the moment when the packet is taken up by the push rod, the push rod itself will engage the packet along the portion of the flank face to which the seal has been applied previously in such a way as to maintain the seal stably in contact with the selfsame flank face.

[0017] In this way the seal or stamp continues to be held against the packet, first by the slat of the conveyor and thereafter by the push rod, from the moment of being affixed until the moment when the packet is directed into the pocket of the wrapping wheel.

[0018] It has been found that if the glue does not dry completely by the time the packet is directed into the pocket of the wrapping wheel, then the seal or stamp affixed previously, given the springiness of the material from which it is fashioned, can lift and separate from the flank face at the moment when the end of the push rod is distanced from the flank face of the packet, with the result that the packet becomes defective and will consequently be rejected during subsequent steps of the wrapping process.

[0019] This separation from the packet, which can also be induced by traces of gum on the contact surface of the push rod, or by electrostatic charges, is especially

frequent in the case of a seal or stamp affixed to adjoining side faces of the packet. In this instance the gummed seal is applied first to the larger side face of the packet, leaving a tab that projects freely beyond the longitudinal corner edge of this same face and will subsequently be bent and flattened against the adjoining flank face by a folder device.

[0020] Thus, the natural tendency of the seal to regain its initial flat condition increases the likelihood that the projecting tab will spring away from the flank face when the push rod is distanced from the packet, causing the material to be bent defectively or torn during subsequent steps of the wrapping process.

[0021] Clearly, the observations made thus far remain valid also for the transfer of wrappings consisting in at least one specific and essential packaging component and no additional components.

[0022] In effect, at the high operating tempos of which modern packaging machines are capable, the path through which single wrappings are directed during the aforementioned conveying and transfer steps toward the infeed of an overwrapping machine serves also as a drying path. In the case of a wrapping with at least one face presenting two portions of a given packaging component gummed one to the other, pressure will be applied to the gummed area along the conveying and transfer path in order to ensure that the overlapping portions remain stuck firmly together.

[0023] Accordingly, in the event that use is made of a push rod device to transfer the single wrappings by interacting with a face of the wrapping that has not completely dried, it can happen that when the stroke of the push rod is inverted, the specific and essential packaging component in contact with the push rod can be caused to separate from the component underneath, as already intimated, giving rise to defective packets which have ultimately to be rejected.

[0024] The object of the present invention is to provide a device for the transfer of wrappings such as will be unaffected by the drawbacks described above.

[0025] The stated object is duly realized in a device according to the present invention for transferring wrappings of substantially parallelepiped shape, each comprising at least one packaging component and presenting two portions overlapped and fixed along at least one face coinciding with an area of overlapping contact, wherein the transfer device comprises a reciprocating pusher device designed to direct at least one wrapping with each forward stroke from a first position to a second position, furnished with a pusher head such as will engage the face of the wrapping that presents the two overlapped and fixed portions, characterized in that it comprises pneumatic means acting on the face of the wrapping coinciding with the area of overlapping contact between the two portions, at least at the moment of inversion when the forward stroke of the pusher device terminates and the return stroke commences.

[0026] The invention will now be described in detail,

by way of example, with the aid of the accompanying drawings, in which:

- figure 1 shows a packet of soft type for tobacco products, viewed schematically and in perspective, having an inner wrapper and an outer wrapper cut away for clarity;
- figure 2 shows a packet of rigid type with hinged lid for tobacco products, viewed schematically and in perspective and with a part of the outer wrapper cut away for clarity;
- figure 3 shows a plurality of packets in a rigid carton, viewed schematically and in perspective;
- figure 4 shows a plurality of packets in a soft pack, viewed schematically and in perspective;
- figure 5 illustrates a portion of a packing line equipped with a device according to the invention for the transfer of wrappings, viewed in a side elevation and with parts cut away for clarity;
- figures 6 and 7 show a detail of the device in figure 5, viewed schematically in a side elevation and illustrated in two distinct operating steps.

[0027] Referring to figures 1 and 2 of the accompanying drawings, 1 denotes a packet, considered in its entirety, designed to hold a group of cigarettes (not illustrated), appearing in shape substantially as a rectangular parallelepiped referable to a predominating longitudinal axis and presenting four side faces, namely two larger main faces 2 and two smaller flank faces 3, also a bottom end face 4 and a top end face 5.

[0028] The group of cigarettes is enveloped entirely by an inner wrapper 6 of metal foil paper protected in turn by an outer wrapper 7 which in the example of figure 1, illustrating a packet 1 of the soft type, consists in a label 8 partly enveloping the inner wrapper 6 and leaving the top end face 5 exposed, whilst in the example of figure 2, illustrating a packet 1 of the rigid type, the outer wrapper 7 consists in a cupped container 9 surmounted by a lid 10, likewise cupped, hinged to the container 9 and rotatable thus between a closed position shown in figure 2 and an open position (not illustrated).

[0029] The rigid type of packet 1 also comprises a frame (not shown in figure 2) disposed partly inside the container 9, to which it is secured, breasted in contact with the inside of the front face 2 and of the two flank faces 3 of the container 9.

[0030] The inner wrapper 6 and the outer wrapper 7 of both the rigid and the soft type packet 1, also the frame (not illustrated in figure 2) of the rigid packet, constitute specific and essential packaging components of the respective types of packet 1.

[0031] Conventionally, the packets 1 both of the soft type and of the rigid type present a revenue stamp or seal 11 which in the case of the soft packet 1 is applied straddling the top end face 5, and in the case of the rigid packet 1, applied to coincide with the line of the join between the container 9 and the lid 10, straddling one flank

face 3 and the rear face 2.

[0032] As discernible in figure 2, the rigid packet 1 can be packaged with an insert 12 consisting for example in a card, a coupon or the like, bearing text, pictures or more generally images conveying messages of whatever nature directed at the smoker.

[0033] The stamp or seal 11 and the insert 12 constitute additional packaging components of the packet 1.

[0034] Conventionally, the finished packets 1 can be grouped together and enveloped in an overwrap 13 appearing as a rigid carton 14, in the example of figure 3, or as a soft pack 15 in the example of figure 4. Likewise in these two cases the relative overwraps 13 constitute specific and essential packaging components.

[0035] The packets 1 illustrated in figures 1 and 2, the rigid carton 14 illustrated in figure 3 and the soft pack 15 illustrated in figure 4 can all be enveloped and sealed in a protective overwrap 16 of clear plastic material, typically polypropylene, which likewise constitutes a specific packaging component.

[0036] Thus, generally considered, the packet 1 and the carton 14 or pack 15 constitute wrappings 17 for tobacco products, for example cigarettes, and the specific components together with the additional components constitute packaging components of each wrapping 17.

[0037] Referring to figure 5 of the drawings, 20 denotes a portion, in its entirety, of a packaging line turning out sealed packets 1 of cigarettes each with a respective revenue stamp or seal 11.

[0038] The packaging line 20 comprises a packer, not shown in the drawings but indicated schematically by a block denoted 21, and a cellophaner 22 linked to the packer 21 by way of a conveyor device 23 along which a device 24 for the application of the seals 11 is also located.

[0039] The outfeed of the packer 21 is connected in familiar manner (not illustrated) to the conveyor device 23, along which the single packet 1 advances typically with its longitudinal axis disposed transversely to the feed direction D and resting on one of the two larger faces 2.

[0040] The device 23 includes a first belt conveyor 25 located between the packer 21 and cellophaner 22 and comprising a belt 26 looped around a plurality of pulleys, of which only two denoted 27 and 28 are indicated in the drawing, rotatable about relative axes 27a and 28a disposed normal to the viewing plane of figure 5. The belt 26 affords a succession of pockets 29 each designed to accommodate a single packet 1, distributed uniformly around the loop at a selected pitch Pa and compassed between ribs 30 set transversely to the developable longitudinal dimension of the belt 26. The belt 26 presents a substantially horizontal active branch 31 extending along a conveying path P in the feed direction D, composed of a portion 31a adjacent to the packet 21 and a portion 31b adjacent to the cellophaner 22.

[0041] The device 23 further includes a belt conveyor 32 located above the belt conveyor 25 first mentioned,

comprising a belt 33 looped around two pulleys 34 and 35 and presenting an active branch 36 disposed parallel with and facing one portion 31b of the active branch 31 presented by the first belt 26. The active branch 36 of this belt conveyor 32 and the portion 31b of the active branch 31 presented by the first belt conveyor 25 combine to create a feed channel 100 along which the packets 1 advance.

[0042] The second belt 33 likewise presents a succession of pockets 37 distributed uniformly around the loop at the same pitch Pa as the pockets 29 of the first belt and compassed between ribs 38 set transversely to the developable longitudinal dimension of the selfsame belt 33.

[0043] The seals 11 are applied employing a device 24 of conventional embodiment located along the active branch 31 of the lower conveyor belt 25, above the portion 31a nearer the packer 21 and in alignment with the feed direction D. The device 24 comprises a frame 39 supporting an applicator drum 40, also a pickup drum 41 occupying a position substantially tangential to the applicator drum 40 and adjacent to a device 42 by which the seals 11 are taken up from a magazine 43.

[0044] The applicator drum 40 and the pickup drum 41 afford respective cylindrical surfaces 40a and 41a presenting uniformly distributed suction ports 44 and 45 by which the seals 11 are retained during their transfer toward the packet. The frame 39 also carries a gumming device, not illustrated, located along the surface 40a of the applicator drum 40, by which the seals 11 retained on the surface of the drum 40 are pasted with an adhesive substance.

[0045] The cellophaner 22 comprises further conveyor means 46 consisting in a wrapping wheel, rotatable about an axis 46a extending parallel to the pulley axes 27a and 28a and set in motion intermittently (by familiar drive means, not illustrated) in an anticlockwise direction as viewed in the drawings. The wheel 46 presents a substantially cylindrical surface 47 of revolution punctuated by a plurality of pockets 48 each with a pair of mutually opposed side walls 49 and a bottom wall 50. Each pocket 48 is designed to accommodate a respective packet 1 of cigarettes and to convey it along a path 51 from an infeed and folding station 52 located between the active branch 31 of the first belt conveyor 25 and the wheel 46, to an outfeed station 53.

[0046] The cellophaner 22 also comprises a first fixed folder element 54 of conventional embodiment, and a second folder element 55 likewise of conventional embodiment, positioned facing the surface 47 of the wheel at the infeed station 52 and capable thus of movement through the station toward and away from the fixed folder element 54.

[0047] The cellophaner 22 is equipped further with a holder 57 for rolls 58 of cellophane strip 59, a device 60 by which the strip 59 is decoiled and cut to generate a succession of discrete overwrapping sheets 16, and a device 61 by which the sheets 16 are supplied to the

infeed and folding station 52.

[0048] Observing figures 6 and 7, the packaging line 20 further comprises a transfer device 62 located at the infeed and folding station 52, disposed facing the surface 47 of the wrapping wheel 46 and capable thus of producing a radial movement whereby each packet 1 is inserted together with a corresponding sheet 16 of material into a respective pocket 48. The transfer device 62 is connected to a shaft 63 and coupled to reciprocating actuator means 64, and comprises a pusher device 65 embodied as a pair of push arms 66 flanking one another horizontally and disposed on opposite sides of the belt 26, of which only the nearer arm 66 is shown in the drawings. Each push arm 66 presents a relative pusher head 67 of familiar embodiment, with a flat pushing face 68 occupying a vertical plane parallel to the plane occupied by the flank face 3 of the packet 1, which is insertable from the bottom upwards into the feed channel 100 along which the packets 1 advance. Each pushing face 68 presents at least one opening 69 forming part of pneumatic means denoted 70 in their entirety. Such means 70 also comprise a source 71 of compressed air connected to the opening 69 by way of a duct 72 formed within the head 67 of the pusher device 65. The duct 72 emerges at the bottom face 67a of the pusher head 67 and is connected to a pipeline 73 by way of an inlet port boss 74.

[0049] The pipeline 73 is furnished with valve means 75 interposed between the source 71 of compressed air and the duct 72, which are activated at prescribed intervals timed with the operating cycle of the pusher device 65 so as to connect the opening 69 with the source of compressed air when the pusher device 65 occupies certain specific positions.

[0050] In operation, the packets 1 are directed from the packer 21 onto the active branch 31 of the first belt conveyor 25 in such a way that each occupies a respective pocket 29, positioned with one larger face 2 resting on the belt 26 and the bottom end face 4 and top end face 5 parallel to the viewing plane of figure 5.

[0051] Once in the pocket 29 the packet 1 is taken up by a corresponding rib 30, which engages a central portion of the relative flank face 3, and carried along the conveying path P advancing continuously in the feed direction D toward the cellophaner 22.

[0052] As the packets 1 advance, seals 11 are directed by the relative device 24 onto those occupying the corresponding portion 31a of the active branch 31. The seals 3 are picked up from the magazine 43 in ordered succession, and in familiar fashion, then gummed and transferred to the suction ports 45 of the applicator drum 40, which deposits one seal 11 on each successive packet 1. The ports 45 of the drum 40 are spaced apart at the same pitch Pa as the pockets 29 of the conveyor 25 and timed so as to coincide with their passage in such a way that one portion 11a of the seal 11 is affixed to the upwardly directed larger face 2 of the packet 1 and a second portion 11b of the seal 11 projects freely from

one longitudinal corner edge of the packet 1.

[0053] Thereafter, each packet 1 advances together with the relative seal 11 toward the feed channel 100 and onto the relative portion 31b presented by the active branch 31 of the belt 26, occupying both the pocket 29 of the one conveyor 25 and a pocket 37 of the conveyor 32 above, the downwardly directed main face 2 disposed in contact with the one belt 26 and the upwardly directed main face 2 in contact with the other belt 33.

[0054] The two sets of ribs 30 and 38 are timed one with another when in rotation so that each upper rib 38 advances in alignment with a relative lower rib 30, and in particular, so that the upper rib 38 will flatten the projecting portion 11b of the seal 11 against the flank face 3 of the packet 1, defining an area at which the seal 11 overlaps the specific packaging component beneath. The rib 38 maintains the projecting portion 11b in contact with the flank face 3 of the packet 1 as it advances toward the cellophaner 22, functioning thus as a retaining element by which the seal 11 is held in place

[0055] As a sheet 16 of cellophane is directed by the decoiling device 60 toward the infeed and folding station 52, in other words into the space between the wrapping wheel 46 and the relative portion 31b of the active branch 31, and thereupon held in a position transverse to the feed direction D, the wheel 46 indexes and an empty pocket 48 is brought into the station 52, its two side walls 49 aligned respectively with the active branches 31 and 36 of the two looped belts 25 and 33.

[0056] During the time that the pocket 48 is stationary, the transfer device 62, which is located beneath the first belt conveyor 25, will swing upwards in conventional manner into the feed channel 100 and assume a predetermined position along the path P such as will allow the packet 1 occupying the part of the conveyor 25 nearest to the pocket 48 to be transferred from the conveyor 25 to the wrapping wheel 46.

[0057] At this juncture the two arms 66 of the transfer device 62 lie one on each side of the belt 26, each pushing face 68 offered to a respective end portion of the flank face 3 presented by the packet 1 which is engaged neither by the lower rib 30 nor by the upper rib 38.

[0058] More precisely, the pusher heads 67 of the two arms 66 engage the portion 11b of the seal 11 bent down and flattened moments earlier, and a portion of the packet 1 afforded by a specific packaging component, respectively.

[0059] Thereupon, the packet 1 is pushed forward by the transfer device 62 along the channel 100 and fully into the pocket 48 of the wrapping wheel 46, with the result also that the sheet 16 of cellophane is intercepted, drawn into the pocket 48 and bent to a U profile around the selfsame packet 1.

[0060] It will be observed that the pusher device 65 also performs a retaining function during this same forward stroke, in similar fashion to the ribs 30 and 38, inasmuch as the action of the two arms 66 is instrumental in causing both the portion 11b of the seal 11 and the

outermost layer of the specific packaging component, from which the packet 1 is fashioned, to be held firmly against the packaging component beneath.

[0061] Once the packet 1 has been transferred into the pocket 48, the pusher device 65 begins its return stroke and, at the moment of inversion, the valve means 75 are activated to connect each opening 69 with the source 71 of compressed air (figure 7).

[0062] The jets G of compressed air that issue from the respective openings 69 are directed respectively at the portion 11b of the seal 11 and at a portion of the specific packaging component from which the packet is fashioned, functioning thus as retaining means which come into operation during the return stroke of the pusher device 65, at least when the moment of inversion occurs, to ensure that neither the seal 11 nor the external layer of the packaging component will lift and separate from the layer of the component beneath.

[0063] In a preferred solution, the valve means 75 might be activated during the entire return stroke of the pusher device 65, or during the entire forward and return movement of the selfsame device 65.

[0064] The pusher head 67 having remained in horizontal alignment thus far with the packet 1, the pusher device 65 now begins its return stroke in familiar manner, as indicated in figure 5, dipping downwards so as to avoid interfering with the next packet 1 advancing on the conveyor 25 and with the wrapping wheel 46 of the cellophaner 22; the wheel 46 in its turn will then index the pocket and its contents through a succession of final folding and sealing operations, all conventional and not illustrated, to produce a packet 1 of cigarettes as in figures 1 and 2

[0065] It will be appreciated that whereas reference is made explicitly in the foregoing description to a device for the transfer of wrappings furnished with an additional packaging component such as a seal or revenue stamp, and advancing toward a cellophaner, the device according to the invention might also be employed advantageously in transferring other types of wrappings such as multiple packs or cartons, soft and rigid alike.

[0066] More exactly, in the event of a pusher device 65 being used to transfer any one of the wrappings 17 mentioned previously, engaging a face that presents two overlapping portions consisting in at least one previously gummed packaging component, the jet G of compressed air that issues from the head 67 of the pusher device 65 will ensure that the two portions do not lift and separate at the moment when the stroke of the pusher device 65 is inverted.

Claims

1. A device for transferring wrappings (17) of substantially parallelepiped shape, each comprising at least one packaging component (6, 7, 11, 12, 13, 16) and presenting two portions overlapped and fixed along

at least one face coinciding with an area of overlapping contact, wherein the transfer device comprises a reciprocating pusher device (65) designed to direct at least one wrapping (17) with each forward stroke from a first position to a second position, furnished with a pusher head (67) such as will engage the face of the wrapping that presents the two overlapped and fixed portions,

characterized

in that it comprises pneumatic means (70) acting on the face of the wrapping coinciding with the area of overlapping contact between the two portions, at least at the moment of inversion when the forward stroke of the pusher device (65) terminates and the return stroke commences.

2. A device as in claim 1, wherein each wrapping (17) comprises at least one specific packaging component (6, 7, 13, 16), and the two portions are portions of one and the same specific packaging component.
3. A device as in claim 1, wherein each wrapping (17) comprises at least one specific packaging component (6, 7, 13, 16), also one additional packaging component (11, 12), and the two portions consist respectively in a portion of the specific packaging component (6, 7, 13, 16) and a portion of the additional packaging component (11, 12).
4. A device as in claim 3, wherein the additional packaging component consists in a seal (11) or revenue stamp.
5. A device as in claim 3, wherein the additional packaging component consists in an insert (12) or coupon.
6. A device as in claims 1 to 5, wherein the pneumatic means (70) are connected to the pusher device (65).
7. A device as in claim 6, wherein pneumatic means (70) comprise a source (71) of pressurized fluid connected to the pusher head (67) of the pusher device (65) by way of at least one duct (72) located internally of the pusher device (65) and emerging at a point coinciding with at least one opening (69) afforded by the pusher head (67).
8. A device as in claim 6 or 7, wherein pneumatic means (70) comprise valve means (75) of which the operation is timed selectively in relation to that of the pusher device (65).
9. A device as in claims 7 and 8, wherein the valve means (75) are operated at least when the stroke of the pusher device (65) is inverted so as to con-

nect the source (71) of pressurized fluid to the opening (69).

10. A device as in claims 7 and 8, wherein the valve means (75) are operated during a selected fraction of the return stroke of the pusher device (65) so as to connect the source (71) of pressurized fluid to the opening (69). 5
11. A device as in claims 7 and 8, wherein the valve means (75) are operated both during the forward stroke and during the return stroke of the pusher device (65) so as to connect the source (71) of pressurized fluid to the opening (69). 10
12. A device as in claims 1 to 11, wherein the second position coincides with the entry point of conveyor means (46) by which the wrappings (17) are taken up from the transfer device. 15
13. A device as in claim 12, associated with conveyor means (46) that consist in a wrapping wheel (46) affording pockets (48) each designed to take up and accommodate a single wrapping (17) directed by the transfer device from a first position to a second position in such a way as to cut across a feed line along which a wrapping material (16) is advanced, wherein the second position coincides with one of the pockets (48) afforded by the wheel (46). 20
- 25
- 30
- 35
- 40
- 45
- 50
- 55

FIG.2

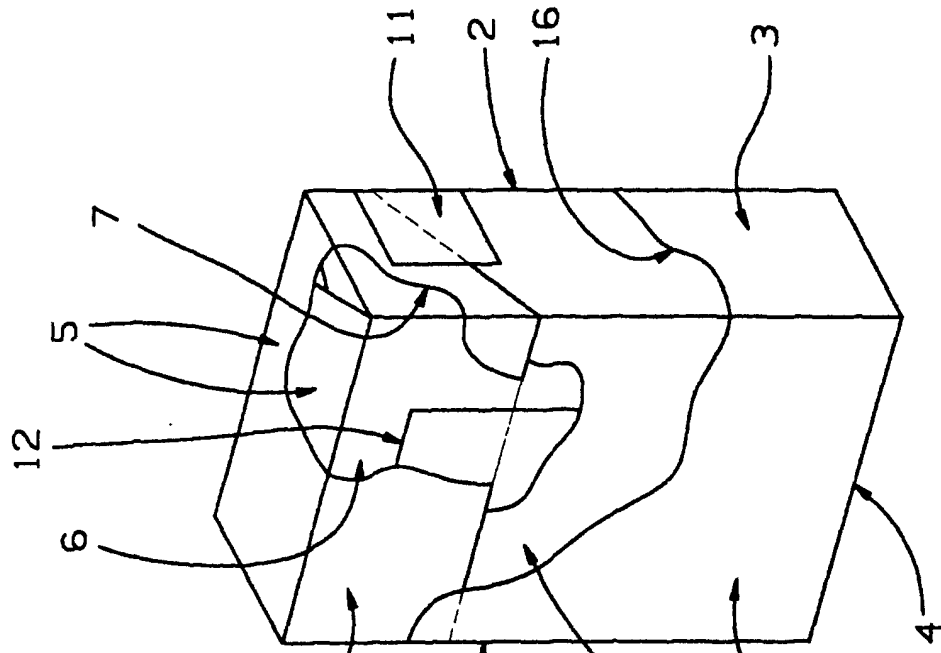


FIG.1

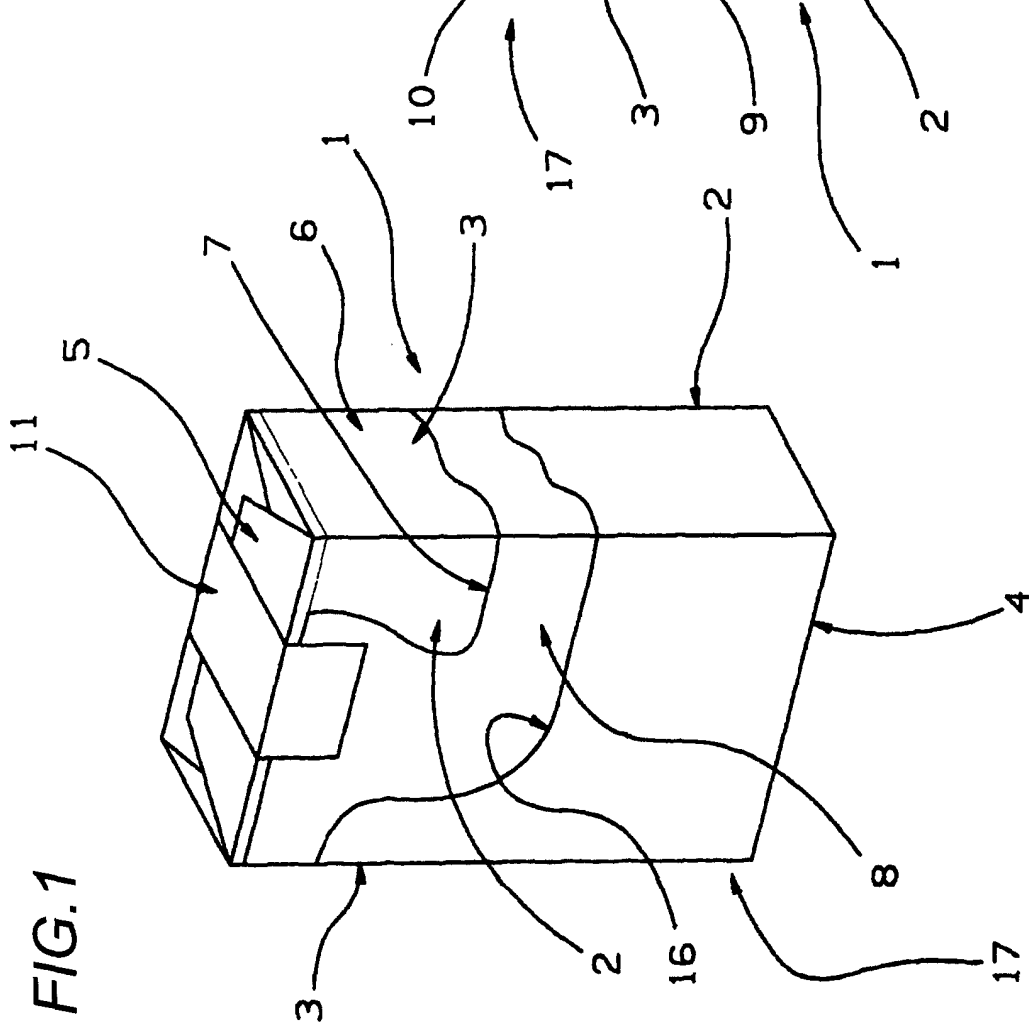


FIG.3

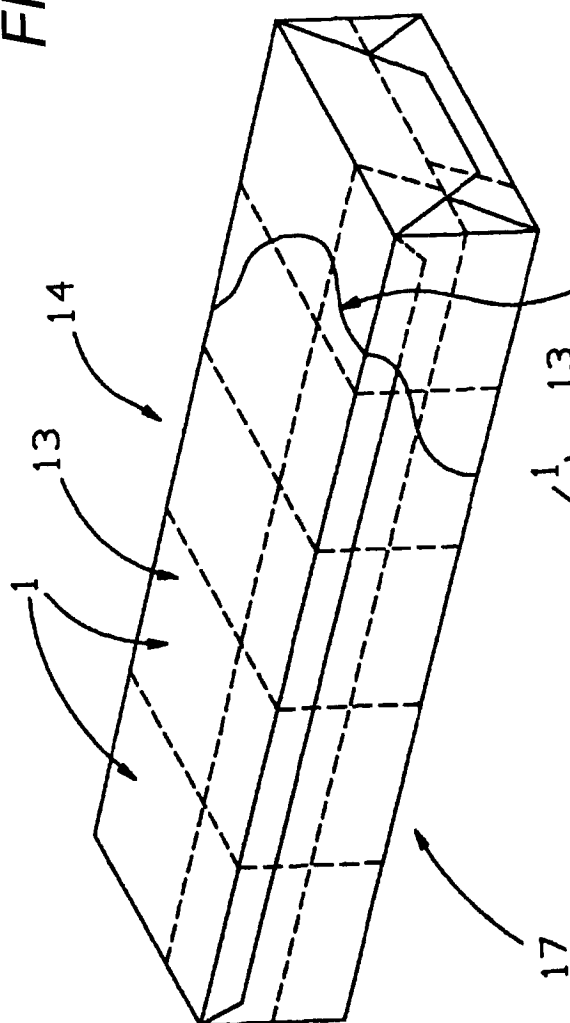


FIG.4

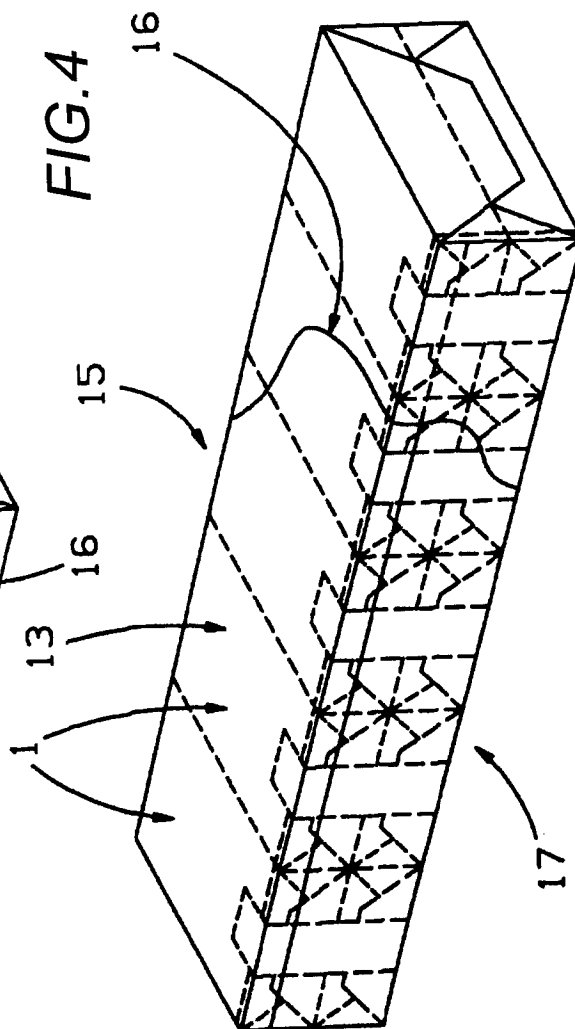


FIG. 5

