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(54) **Packet conveying and sealing assembly**

Vorrichtung zum Transportieren und Siegeln von Paketen

Machine pour transporter et sceller des paquets

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Description

[0001] The present invention relates to a packet conveying and sealing assembly.

[0002] The present invention may be used to advantage on packet wrapping lines, particularly the wrapping lines of machines for cellophaning packets of cigarettes, to which the following description refers purely by way of example.

[0003] The wrapping lines of some cellophaning machines are known to feature conveying assemblies connected to a conveyor and for feeding respective packets along the wrapping line on which each packet is provided with a sheet of normally transparent overwrapping material, which is folded about the packet to form an open tubular wrapping, i.e. a wrapping presenting two superimposed longitudinal portions for sealing.

[0004] Each conveying assembly of known cellophaning machines of the type described above normally presents a sealing device, which travels with the conveying assembly and provides for sealing the two superimposed portions to form a finished tubular wrapping.

[0005] Known conveying assemblies of the above type present several drawbacks, mainly due to the number of component elements involved, which provide not only for folding the sheet of overwrapping material about the respective packet, but also for sealing the wrapping so formed. As a result, the structure of known conveying assemblies is relatively complex, expensive and unreliable. Moreover, being called upon to operate successively as the packets are fed between a loading and an unloading station, the component elements require the use of relatively large conveyors, which are poorly suited to relatively fast-operating cellophaning machines.

[0006] An example of such an assembly is disclosed in GB-A-2235913 in which a conveyor is provided with a plurality of pivoting pockets, each of which is equipped with moving folder a fixed folder and a sealing member, which operates on the superimposed portions when the pocket is located in a place remote from the moving and fixed folder. The assembly described above is in use rather complicated since each pocket, beside being fed by the conveyor, has to be pivoted in several positions.

[0007] Furthermore, when a packet is pivoted by the respective pocket from the fixed folder in front of the sealing member the superimposed portions may lose the tight contact and the cellophaned packet will have a poor appearance.

[0008] One way of eliminating the above drawbacks is to fold the sheet on one conveyor and seal the wrapping longitudinally on another follow-up conveyor. Such a solution, however, fails to solve the problem of providing a straightforward, low-cost conveying and sealing assembly capable of receiving and feeding a packet with an open tubular wrapping along a sealing path.

[0009] It is an object of the present invention to provide a conveying and sealing assembly designed to solve the aforementioned problem.

vide a conveying and sealing assembly designed to solve the aforementioned problem.

[0010] It is a further object of the present invention to provide a conveying assembly which may be fed continuously along said sealing path.

[0011] According to the present invention, there is provided an assembly for conveying and sealing packets, in particular packets of cigarettes, the assembly being movable in a given travelling direction, and comprising a movable U-shaped pocket for partially housing a respective packet with a tubular wrapping presenting two superimposed longitudinal portions for sealing, a retaining device in turn comprising at least a first retaining element carried on the pocket and movable in relation to the pocket to and from an operating position wherein, in use, the first retaining element engages the tubular wrapping along a first edge of the packet located outside the pocket and parallel and adjacent to said superimposed portions to retain the wrapping on the packet and the packet inside the pocket; and a sealing device movable with and in relation to the pocket to and from an operating position wherein the sealing device is positioned with a sealing member along a sealing portion extending along at least the full length of the superimposed portions; the assembly being characterised by the fact that said first retaining element being so formed as to permit, when positioned, in use, in said operating position, free access by the sealing device to said sealing portion.

[0012] According to a preferred embodiment of the present invention, the above conveying and sealing assembly also comprises a pressing device movable with and in relation to the pocket to and from an operating position wherein, in use, the pressing device is positioned with a pressing member contacting said superimposed portions and adjacent to said sealing portion to maintain the superimposed portions firmly contacting each other while at the same time permitting free access by the sealing member to the sealing portion.

[0013] A non-limiting embodiment of the present invention will be described by way of example with reference to the accompanying drawings, in which:

Figure 1 shows a schematic side view of a portion of the wrapping line of a cellophaning machine featuring conveying and sealing assemblies in accordance with the teachings of the present invention and shown in a first operating position;

Figure 2 shows a plan view of a detail in Figure 1; Figures 3 and 4, similar to Figure 1, show the Figure 2 detail in a further two operating positions.

[0014] Number 1 in the accompanying drawings indicates a continuous cellophaning machine comprising a line 2 for supplying and wrapping a succession of packets 3 of cigarettes.

[0015] As shown in Figure 1, line 2 comprises a continuous supply conveyor 4 presenting a succession of

pockets 5, each presenting a respective cavity 6 for receiving a respective packet 3 substantially in the form of a rectangular parallelepipedon and laid flat, i.e. with one of its large lateral surfaces 7, 8 - in the example shown, surface 7 - facing the bottom surface 9 of respective cavity 6. Each cavity 6 preferably presents a depth equal to less than half the width of the small lateral surfaces 10, 11 of packet 3, and a length shorter than that of packet 3; and, in addition to a portion of respective packet 3, each cavity 6 also receives a sheet 12 of wrapping material wrapped about packet 3 to form a tubular wrapping 13, which presents two longitudinal portions 14 and 15 located outside cavity 6 and superimposed to form a longitudinal strip 16 of double thickness and defining a sealing portion contacting one of surfaces 10, 11 and extending along the full length of portions 14, 15. In the example shown, sealing strip or portion 16 extends in contact with surface 11, which is located rearwards in the travelling direction 17 of conveyor 4.

[0016] Line 2 also comprises a wrapping conveyor wheel 18 substantially tangent to conveyor 4 at a transfer station 19, and for successively receiving packets 3 from conveyor 4 and feeding them continuously along a sealing path extending from station 19 in a direction 20 and along which each wrapping 13 is closed by longitudinally sealing portions 14 and 15 to each other along strip 16.

[0017] Wheel 18 comprises a number of conveying pockets 21 (only one shown), each connected integral with one end of a respective arm 22, which presents an axis 23 extending substantially radially in relation to wheel 18, and is oscillated, in known manner by a known actuating device (not shown), about a respective axis (not shown) perpendicular to the Figure 1 plane and crosswise to direction 20.

[0018] More specifically, each pocket 21 is oscillated about the respective axis (not shown) so that axis 23 is positioned perpendicular to direction 17 as pocket 21 travels in the region of transfer station 19.

[0019] On the side facing radially outwards of wheel 18, each pocket 21 is defined by a cylindrical surface portion 24, an intermediate portion of which presents a cavity 25 substantially in the form of a rectangular parallelepipedon and for partially receiving a respective packet 3. Cavity 25 presents a depth equal to less than half the width of the small lateral surfaces 10, 11 of packet 3, thus leaving strip 16 exposed, and is shorter than the width of sheet 12 when measured crosswise to travelling direction 20. More specifically, the length of cavity 25 is substantially equal to that of packet 3, and two opposite longitudinal end portions 26 of wrapping 13 project from opposite longitudinal ends of cavity 25.

[0020] Each pocket 21 forms part of a respective conveying and sealing assembly 27 for receiving a respective packet 3 from conveyor 4 at station 19, and which, in addition to pocket 21, also comprises a retaining device 28 for retaining packet 3 and sheet 12 inside cavity 25, a pressing device 29 for pressing portions 14 and

15 against each other and against surface 11 of packet 3, and a sealing device 30 for engaging strip 16 and sealing portions 14 and 15 to each other.

[0021] As shown in Figures 1 and 2, retaining device 28 comprises two retaining elements 31 and 32 located on either side of cavity 25 in direction 20. Retaining element 31, located to the rear of cavity 25, comprises a powered shaft 33 mounted for rotation through pocket 21 so as to oscillate about an axis 34 crosswise to direction 20 and to axis 23; and each end of shaft 33 projects outwards of pocket 21 and is fitted integral with a respective rod 35 coaxial with axis 34 and forming a first arm of a lever 36 for activating a retaining member 37 parallel to rod 35.

[0022] Lever 36 is substantially L-shaped and, in addition to rod 35, also comprises a crosspiece 38 connecting rod 35 to retaining member 37; and rod 35 is long enough to permanently keep crosspiece 38 outwards of the free end of respective portion 26 of wrapping 13.

[0023] Retaining member 37 comprises an angle defined by two integral perpendicular plates 39 and 40 forming a right-angle dihedron, the edge of which is parallel to axis 34 and coaxial with the edge of the dihedron formed by the other retaining member 37, and the free end of which is separated from the free end of the other retaining member 37 by a distance approximately equal to but no less than the width of pockets 5 measured crosswise to direction 17.

[0024] Element 31 is movable, about axis 34 and by means of powered shaft 33, between an idle position (Figure 1) wherein each retaining member 37 is located behind cavity 25 and contacting surface 24, and an operating position (Figures 2 and 3) wherein each retaining member 37 is positioned with its edge coincident with the rear longitudinal edge 41 of packet 3, and plates 39 and 40 are positioned contacting the portions of sheet 12 respectively contacting surfaces 7 and 11 of packet 3, so as to retain sheet 12 on packet 3 and packet 3 inside cavity 25, and so as to cooperate with cavity 25 to keep portions 14 and 15 superimposed one on top of the other.

[0025] As shown in Figures 1 and 2, retaining element 32 is a portal-shaped element, and comprises two levers 42 fitted at one end to a powered shaft 43 mounted for rotation through pocket 21 so as to oscillate about an axis 44 parallel to axis 34. Levers 42 project from pocket 21 through respective slots formed through surface 24 and parallel to direction 20, and are connected to each other, at the opposite end to that fitted to shaft 43, by a retaining member 45 defined by two integral perpendicular plates 46 and 47 forming a right-angle dihedron with its edge parallel to axis 44.

[0026] Element 32 is movable, about axis 44 and by means of powered shaft 43, between an idle position (Figure 1) wherein retaining member 45 is located in front of pocket 21, and an operating position (Figures 2 and 3) wherein retaining member 45 is positioned with

its edge coincident with the front longitudinal edge 48 of packet 3, and plates 46 and 47 are positioned contacting the portions of sheet 12 respectively contacting surfaces 7 and 10 of packet 3, so as to cooperate with element 31 to retain sheet 12 on packet 3 and packet 3 inside cavity 25.

[0027] According to a variation not shown, element 32 is eliminated and may be compensated for by increasing the size of plates 39 in direction 20.

[0028] As shown in Figures 1 and 2, pressing device 29 is fitted to pocket 21 behind cavity 25 and in front of shaft 33, and comprises two levers 49 fitted at one end to a powered shaft 50 mounted for rotation through pocket 21 so as to oscillate about an axis 51 parallel to axis 34. Levers 49 project from pocket 21 through respective slots formed through surface 24 and parallel to direction 20, and are connected to each other, at the opposite end to that fitted to shaft 50, by a crosspiece 52 presenting a length equal to that of strip 16, and comprising a longitudinal portion projecting frontwards of levers 49 and defining a pressing member 53.

[0029] Device 29 is movable, about axis 51 and by means of powered shaft 50, between an idle position (Figure 1) wherein crosspiece 52 is located behind cavity 25 and substantially contacting surface 24, and an operating position (Figures 2 and 3) wherein crosspiece 52 is positioned with pressing member 53 contacting the free end of portion 15, so as to press portion 15 against portion 14 and surface 11 of packet 3, while at the same time allowing access to substantially the whole surface of strip 16.

[0030] As shown in Figures 1 and 2, sealing device 30 is fitted to pocket 21 behind cavity 25 and between pressing device 29 and retaining element 31, and comprises two levers 54 fitted at one end to a powered shaft 55 mounted for rotation through pocket 21 so as to oscillate about an axis 56 parallel to axis 34. Levers 54 project from pocket 21 through respective slots formed through surface 24 and parallel to direction 20, and are connected to each other, at the opposite end to that fitted to shaft 55, by a transverse sealing member comprising a sealing blade 57 of the same length as strip 16.

[0031] Device 30 is movable, about axis 56 and by means of powered shaft 55, between an idle position (Figure 1) wherein blade 57 is located behind cavity 25 and substantially contacting surface 24, and an operating position (Figures 2 and 3) wherein blade 57 contacts portion 15 along the whole of strip 16 so as to seal portion 15 to portion 14 and longitudinally close wrapping 13.

[0032] Operation of assembly 27 is clearly understandable from the foregoing description with no further explanation. Suffice it to say that retaining device 28 is first activated to retain sheet 12 on packet 3, packet 3 inside cavity 25, and portion 15 on portion 14; pressing device 29 is then activated to exert a given contact pressure on portions 14 and 15; and, finally, sealing device 30 is activated to contact strip 16 and seal portions 14

and 15 to each other. This is only made possible by virtue of the particular design of retaining element 31, the rods 35 of which define, together with respective L-shaped levers 36, respective U-shaped elements, the crosspieces 38 of which are separated by a distance greater than the length of strip 16, crosspiece 52 and sealing blade 57.

[0033] In connection with retaining device 28, it should be pointed out that, since the distance between the two retaining members 37 is, as stated, at least equal to the width of conveyor 4, retaining element 31 may be activated as packet 3 reaches station 19, i. e. the Figure 1 position, to retain packet 3 inside cavity 25 and detach it from conveyor 4; whereas element 32, if provided, may be activated only upon packet 3 leaving station 19 and respective pocket 5.

Claims

1. An assembly for conveying and sealing packets (3), in particular packets (3) of cigarettes, the assembly (27) being movable in a given travelling direction (20), and comprising a movable U-shaped pocket (21) for partially housing a respective packet (3) with a tubular wrapping (13) presenting two superimposed longitudinal portions (14, 15) for sealing, a retaining device (28) in turn comprising at least a first retaining element (31) carried on the pocket (21) and movable in relation to the pocket (21) to and from an operating position wherein, in use, the first retaining element (31) engages the tubular wrapping (13) along a first edge (41) of the packet (3) located outside the pocket (21) and parallel and adjacent to said superimposed portions (14, 15) to retain the wrapping (13) on the packet (3) and the packet (3) inside the pocket (21); and a sealing device (30) movable with and in relation to the pocket (21) to and from an operating position wherein the sealing device (30) is positioned with a sealing member (57) along a sealing portion (16) extending along at least the full length of the superimposed portions (14, 15); the assembly being **characterised** by the fact that said first retaining element (31) is so formed as to permit, when positioned, in use, in said operating position, free access by the sealing device (30) to said sealing portion (16).
2. A conveying and sealing assembly as claimed in Claim 1, **characterized in that** the first retaining element (31) is fitted to said pocket (21) so as to rotate about an axis (34) to and from said operating position.
3. A conveying and sealing assembly as claimed in Claim 2, **characterized in that** said axis (34) is crosswise to said travelling direction (20).

4. A conveying and sealing assembly as claimed in Claim 2 or 3, **characterized in that** the first retaining element (31) comprises at least a first retaining member (37) which is brought into contact with a respective said packet (3) along said first edge (41); the first retaining member (37) comprising two flat plates (39, 40) perpendicular to and integral with each other; and said two plates (39, 40) defining a right-angle dihedron, and cooperating, in use, with two surfaces (7, 11) of a respective packet (3) intersecting each other along said first edge (41).
5. A conveying and sealing assembly as claimed in Claim 4, **characterized by** comprising two said first retaining members (37) aligned with each other and parallel to said axis (34); the two first retaining members (37) being separated by a given distance less than a width of said pocket (21) measured parallel to said axis (34).
6. A conveying and sealing assembly as claimed in Claim 5, **characterized in that** said first retaining element (31) comprises, for each first retaining member (37), a supporting crosspiece (38) crosswise to the first retaining member (37) and to said axis (34); the two crosspieces (38) being separated by a distance at least equal to a length of said sealing member (57).
7. A conveying and sealing assembly as claimed in any one of the foregoing Claims, **characterized in that** said pocket (21) presents a cavity (25) for partially receiving a respective said packet (3); said retaining device (28) also comprising a second retaining element (32); and said first (31) and second (32) retaining elements being located on either side of said cavity (25) in said travelling direction (20) so as to engage, in use, the packet (3) and the wrapping along respective first (41) and second (48) longitudinal edges of the packet (3).
8. A conveying and sealing assembly as claimed in Claim 7, **characterized in that** said second retaining element (32) comprises a second retaining member (45) of substantially the same shape as the first retaining member (37).
9. A conveying and sealing assembly as claimed in any one of the foregoing Claims, **characterized by** also comprising a pressing device (29) movable with and in relation to the pocket (21) to and from an operating position wherein the pressing device (29) is positioned, in use, with a pressing member (53) contacting said superimposed portions (14, 15) and adjacent to said sealing portion (16) to maintain the superimposed portions (14, 15) firmly contacting each other while at the same time permitting free access by the sealing member (57) to the sealing

portion (16).

10. A conveying and sealing assembly as claimed in Claim 9, **characterized in that**, in the operating positions, said first retaining members (37), said sealing member (57) and said pressing member (53) are substantially coplanar and parallel to one another, with the sealing member (57) interposed between the first retaining members (37) and the pressing member (53).

Patentansprüche

1. Baueinheit zum Befördern und Verschließen von Paketen (3), insbesondere Zigarettenspaketen (3), wobei die Baueinheit (27) in einer vorgegebenen Bewegungsrichtung (20) bewegt werden kann und eine bewegliche U-förmige Tasche (21), um ein entsprechendes Paket (3) mit einer rohrförmigen Umhüllung (13), die zwei übereinander angeordnete longitudinale Abschnitte (14, 15) zum Verschließen aufweist, teilweise aufzunehmen, eine Haltevorrichtung (28), die wiederum wenigstens ein erstes Halteelement (31) enthält, das an der Tasche (21) getragen wird und in bezug auf die Tasche (21) zu und von einer Betriebsposition bewegt werden kann, bei der im Gebrauch das erste Halteelement (31) an der rohrförmigen Umhüllung (13) längs einer ersten Kante (41) des Pakets (3), die sich außerhalb der Tasche (21) befindet und parallel sowie neben den übereinander angeordneten Abschnitten (14, 15) verläuft, in Eingriff gelangt, um die Umhüllung (13) auf dem Paket (3) sowie das Paket (3) in der Tasche (21) zu halten; und eine Verschlussvorrichtung (30), die mit der und in bezug auf die Tasche (21) zu und von einer Betriebsposition bewegt werden kann, bei der die Verschlussvorrichtung (30) mit einem Verschlusselement (57) längs eines Verschlussabschnitts (16) positioniert ist, der sich wenigstens über die volle Länge der übereinander angeordneten Abschnitte (14, 15) erstreckt, umfaßt; wobei die Baueinheit **dadurch gekennzeichnet ist, daß** das erste Halteelement (31) so gebildet ist, daß es dann, wenn es im Gebrauch in die Betriebsposition gebracht wird, einen freien Zugang der Verschlussvorrichtung (30) auf den Verschlussabschnitt (16) ermöglicht.
2. Beförderungs- und Verschlussbaueinheit nach Anspruch 1, **dadurch gekennzeichnet, daß** das erste Halteelement (31) an der Tasche (21) befestigt ist, damit es sich um eine Achse (34) in die und aus der Betriebsposition dreht.
3. Beförderungs- und Verschlussbaueinheit nach Anspruch 2,

dadurch gekennzeichnet,

daß die Achse (34) quer zur Bewegungsrichtung (20) verläuft.

4. Beförderungs- und Verschlußbaueinheit nach Anspruch 2 oder 3,
dadurch gekennzeichnet,
daß das erste Halteelement (31) wenigstens ein erstes Halteelement (37) umfaßt, das längs der ersten Kante (41) mit einem entsprechenden Paket (3) in Kontakt gebracht wird; das erste Halteelement (37) zwei flache Platten (39, 40) umfaßt, die zueinander senkrecht sowie einteilig miteinander ausgebildet sind; und die beiden Platten (39, 40) ein rechtwinkliges Zweiflach definieren und im Gebrauch mit zwei Oberflächen (7, 11) eines entsprechenden Pakets (3) zusammenwirken, wobei sie sich längs der ersten Kante (41) schneiden. 5 10
5. Beförderungs- und Verschlußbaueinheit nach Anspruch 4,
dadurch gekennzeichnet,
daß sie zwei erste Halteelemente (37) umfaßt, die aufeinander sowie parallel zur Achse (34) ausgerichtet sind; wobei die beiden ersten Halteelemente (37) um eine vorgegebene Strecke beabstandet sind, die kleiner als die parallel zur Achse (34) gemessene Breite der Tasche (21) ist. 15 20 25
6. Beförderungs- und Verschlußbaueinheit nach Anspruch 5,
dadurch gekennzeichnet,
daß das erste Halteelement (31) für jedes erste Halteelement (37) einen unterstützenden Querträger (38) umfaßt, der quer zum ersten Halteelement (37) und zur Achse (34) verläuft; wobei die beiden Querträger (38) um eine Strecke beabstandet sind, die wenigstens gleich der Länge des Verschlußelements (57) ist. 30 35 40
7. Beförderungs- und Verschlußbaueinheit nach einem der vorhergehenden Ansprüche,
dadurch gekennzeichnet,
daß die Tasche (21) eine Ausnehmung (25) zum teilweisen Aufnehmen eines entsprechenden Pakets (3) aufweist; die Haltevorrichtung (28) außerdem ein zweites Halteelement (32) umfaßt; und die ersten (31) und zweiten (32) Halteelemente jeweils an einer Seite der Ausnehmung (25) in der Bewegungsrichtung (20) angebracht sind, um im Gebrauch am Paket (3) und an der Umhüllung längs entsprechender erster (41) und zweiter (48) longitudinaler Kanten des Pakets (3) in Eingriff zu gelangen. 45 50 55
8. Beförderungs- und Verschlußbaueinheit nach Anspruch 7,
dadurch gekennzeichnet,

daß das zweite Halteelement (32) ein zweites Halteelement (45) mit einer Form, die im wesentlichen gleich der des ersten Halteelements (37) ist, umfaßt.

9. Beförderungs- und Verschlußbaueinheit nach einem der vorhergehenden Ansprüche,
dadurch gekennzeichnet,
daß sie außerdem eine Preßvorrichtung (29) enthält, die mit der und in bezug auf die Tasche (21) in eine und aus einer Betriebsposition bewegt werden kann, bei der die Preßvorrichtung (29) im Gebrauch so positioniert ist, daß ein Preßelement (53) die übereinander angeordneten Abschnitte (14, 15) berührt und neben dem Verschlußabschnitt (16) in Kontakt ist, um die übereinander angeordneten Abschnitte (14, 15) in festem Kontakt miteinander zu halten, während gleichzeitig durch das Verschlußelement (57) ein freier Zugang zum Verschlußabschnitt (16) ermöglicht ist.
10. Beförderungs- und Verschlußbaueinheit nach Anspruch 9,
dadurch gekennzeichnet,
daß die ersten Halteelemente (37), das Verschlußelement (57) und das Preßelement (53) in den Betriebspositionen im wesentlichen koplanar sowie zueinander parallel sind, wobei das Verschlußelement (57) zwischen die ersten Halteelemente (37) und das Preßelement (53) eingesetzt ist.

Revendications

1. Machine de transport et de scellement de paquets (3), en particulier de paquets (3) de cigarettes, la machine (27) étant mobile dans une direction de déplacement donnée (20), et comprenant une poche mobile en forme de U (21) pour loger partiellement un paquet respectif (3) avec un emballage tubulaire (13) présentant deux parties longitudinales superposées (14, 15) pour scellement, un dispositif de retenue (28) comprenant à son tour au moins un premier élément de retenue (31) porté sur la poche (21) et mobile par rapport à la poche (21) dans un mouvement de va-et-vient relatif à une position de fonctionnement dans laquelle, en utilisation, le premier élément de retenue (31) vient en prise avec l'emballage tubulaire. (13) le long d'un premier bord (41) du paquet (3) situé à l'extérieur de la poche (21) et parallèle et adjacent auxdites parties superposées (14, 15) pour retenir l'emballage (13) sur le paquet (3) et le paquet (3) à l'intérieur de la poche (21); et un dispositif de scellement (30) mobile avec et par rapport à la poche (21) dans un mouvement de va-et-vient relatif à une position de fonctionnement dans laquelle est positionné le dispositif de

scellement (30), un élément de scellement (57) s'étendant le long d'une partie de scellement (16) sur au moins toute la longueur des parties superposées (14, 15); la machine étant **caractérisée par le fait que** ledit premier élément de retenue (31) est formé de manière à permettre, lorsqu'il est positionné, en utilisation, dans ladite position de fonctionnement, un libre accès du dispositif de scellement (30) à la dite partie scellement (16).

2. Machine de transport et de scellement selon la revendication 1, **caractérisée en ce que** le premier élément de retenue (31) est ajusté sur ladite poche (21) de manière à tourner autour d'un axe (34) dans un mouvement de va-et-vient relatif à ladite position de fonctionnement.

3. Machine de transport et de scellement selon la revendication 2, **caractérisée en ce que** ledit axe (34) est transversal par rapport à ladite direction de déplacement (20).

4. Machine de transport et de scellement selon la revendication 2 ou 3, **caractérisée en ce que** ledit premier élément de retenue (31) comprend au moins un premier élément de retenue (37) qui est mis en contact avec un dit paquet respectif (3) le long dudit premier bord (41); le premier élément de retenue (37) comprenant deux plaques plates (39, 40) perpendiculaires l'une à l'autre et formant une seule pièce; et lesdites deux plaques (39, 40) définissant un dièdre à angle droit, et coopérant, en utilisation, avec deux surfaces (7, 11) d'un paquet respectif (3) en se coupant l'une l'autre le long dudit premier bord (41).

5. Machine de transport et de scellement selon la revendication 4, **caractérisée en ce qu'elle** comprend lesdits deux premiers éléments de retenue (37) alignés l'un avec l'autre et parallèles audit axe (34); les deux premiers éléments de retenue (37) étant séparés par une distance donnée inférieure à la largeur de ladite poche (21) mesurée parallèlement audit axe (34).

6. Machine de transport et de scellement selon la revendication 5, **caractérisée en ce que** ledit premier élément de retenue (31) comprend, pour chaque premier élément de retenue (37), une traverse de support (38) transversale par rapport au premier élément de retenue (37) et audit axe (34); les deux traverses (38) étant séparées par une distance au moins égale à une longueur dudit élément de scellement (57).

7. Machine de transport et de scellement selon l'une quelconque des revendications précédentes, **caractérisée en ce que** ladite poche (21) présente

une cavité (25) destinée à recevoir partiellement un dit paquet respectif (3); ledit dispositif de retenue (28) comprenant également un second élément de retenue (32); et lesdits premier (31) et second (32) éléments de retenue étant situés sur l'un et l'autre côté de ladite cavité (25) dans ladite direction de déplacement (20) de manière à venir en prise, en utilisation, avec le paquet (3) et l'emballage le long des premier (41) et second (48) bords longitudinaux du paquet (3).

8. Machine de transport et de scellement selon la revendication 7, **caractérisée en ce que** ledit second élément de retenue (32) comprend un second élément de retenue (45) ayant sensiblement la même forme que le premier élément de retenue (37).

9. Machine de transport et de scellement selon l'une quelconque des revendications précédentes, **caractérisée en ce qu'elle** comprend également un dispositif de serrage (29) mobile avec et par rapport à la poche (21) dans un mouvement de va-et-vient relatif à une position de fonctionnement dans laquelle est positionné le dispositif de serrage (29), en utilisation, un élément de serrage (53) étant en contact avec lesdites parties superposées (14, 15) et adjacent à ladite partie de scellement (16) pour maintenir les parties superposées (14, 15) fermement en contact l'une avec l'autre tout en permettant un libre accès de l'élément (57) à la partie de scellement (16).

10. Machine de transport et de scellement selon la revendication 9, **caractérisée en ce que**, dans les positions de fonctionnement, lesdits premiers éléments de retenue (37), ledit élément de scellement (57) et ledit élément de serrage (53) sont sensiblement dans le même plan et parallèles les uns aux autres, l'élément de scellement (57) étant intercalé entre les premiers éléments de retenue (37) et l'élément de serrage (53).



