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Description

[0001] The present invention relates to the technical sector of packing articles internally of packs, such as for example blisters internally of packs.

[0002] To carry out these packaging operations, automatic and/or semi-automatic apparatus are used, which are usually provided with an inlet line in which flat packs have to be positioned in continuous succession, flanked to one another in a continuous line, the flat packs then being directed towards other work sections of the apparatus where the packs will be opened out such as to be able to receive the articles internally thereof and obtain the final packages.

[0003] In particular, the present invention relates to a device for supplying the inlet line of a packaging machine with flat packs that are contained internally of a box, and also concerns a new box package containing flat packs.

[0004] At present the supply operations of the inlet line of the packing machine with flat packs are manually carried out by an operator.

[0005] Once the box is open (inside which the flat packs are packed in rows, one flanked to another), the operator performing this operation must manually collect, one at a time, a series of packs, from the row of packs, and position them on the inlet line of the packing machine.

[0006] It is clear that these supply modes are not at all normal, either in regard to the safeguard and physical well-being of the operator, who has to exert quite considerable physical efforts in handling the fully boxes and must be very able and quick in maintaining a good rhythm of transfer of the boxes, and in regard also to the operativity and productivity of the packing machine.

[0007] Document DE 10355544 A1 discloses a machine for setting up cartons in which the blanks are fed in collapsed state inside a box in an automatic way.

[0008] The aim of the present invention is to provide a device for supplying an inlet line of a packing machine with flat packs contained internally of a cardboard box which obviates the above-cited drawbacks present in the prior art.

[0009] In particular, an aim of the present invention is to provide a device able to bring and supply the flat packs to the inlet line of the packing machine automatically.

[0010] The aims are obtained with a device for supplying an inlet line of a packing machine with flat packs contained internally of a box according to claim 1.

[0011] Other advantageous characteristics of the device of the present invention are set out in the dependent claims of claim 1.

[0012] A further aim of the present invention is to provide a new box packaging containing flat packs according to claim 11, usable with the device of claim 1, and the claims dependent on claim 1.

[0013] The characteristics of the device for supplying an inlet line of a packing machine with flat packs contained internally of a box and the package containing flat packs of the present invention are described in the fol-

lowing with reference to the accompanying tables of drawings, in which:

- figure 1 is a schematic perspective view of particularly significant components of the device of the present invention in an operating configuration in which the box containing the packs is positioned with the upper face open and flanked to the inlet line of the packing machine; in this figure the box has been made "transparent" in order better to illustrate components of the device which otherwise would not be visible due to the presence of the box;
- figures 2A, 2B e 2C illustrate the perspective view of figure 1 of the device of the present invention in successive operating configurations each relative to corresponding steps of supplying successive batteries of flat packs contained in the box to the inlet line of the packing machine; in this figure too the box has been shown as "transparent" in order better to illustrate components of the device which otherwise would not be visible due to the presence of the box;
- figure 3 is a view from above of the device of the present invention in a possible, but not exclusive, embodiment by way of example;
- figure 4A illustrates, in a vertical transversal section, a box package containing batteries of flat packs of the present invention, while figure 4B illustrates, in a view from above, the empty box with the upper face open and the upper flaps of the transversal and longitudinal lateral walls opened out.

[0014] With reference to the tables of drawings, reference letter (D) denotes the device for supplying an inlet line (L) of a packing machine with flat packs contained internally of a box (C).

[0015] The inlet lines (L) of the packing machine usually comprise a conveyor channel for the flat packs towards the work stations of the machine which channel is provided with lateral walls (L1, L2) for containing flat packs during transfer thereof.

[0016] The device (D) of the invention comprises a rest plate (1), which a shape and dimensions adequate for restingly receiving a base surface (CB) of the box (C), which is fixable with respect to the inlet line (L) in a position such that the box (C), once rested on the plate (1), is arranged with a transversal lateral wall (PT) facing towards the inlet line (L) of the packing machine and with an upper surface thereof open (I) at a level corresponding to a start level of the line (L) (see for example figure 1).

[0017] The plate (1) comprises a series of through-holes (11), for example eight in number as illustrated in the figures, arranged in two rows of four, aligned two by two.

[0018] The box (C), which internally contains the packs to be supplied to the inlet line (L) exhibits a base surface

(CB) provided with through-holes (F) realised in such a way as to be positioned opposite the holes (11) present in the plate (1), once the box (C) has been placed resting thereon.

[0019] The packs (A) are predisposed in the box (C) in a row, flanked to one another such as to form a battery (B) of flat packs, the box (C) exhibiting dimensions such as to be able to contain a plurality of batteries (B) of packs mutually superposed and which is provided, for each battery (B) of packs, with a containing portion (U) in a U-shape arranged such as to support the battery (B) of packs and envelop the battery (B) at least partially at the two ends thereof.

[0020] In order to be able to automatically carry out the supply of the packs contained in this way in a single box, the device (D) also comprises a series of rods (2), corresponding in number to a number of holes (11) present in the plate (1), predisposed in such a way as to be coaxially aligned to the holes (11) and exhibiting dimensions such as to be able to transit freely through the holes (11).

[0021] The device (D) further comprises moving means (M) of the rods (2), activatable in such a way as to translate the rods (2) with respect to the plate (1) in two opposite translation directions.

[0022] The moving means (M) are in particular commandable, once a box (C) has been positioned with the relative base surface (CB) resting on the plate (1), in such a way as to translate the rods (2) with respect to the plate (1) so that the rods (2) pass through the holes (11) present in the plate (1) and the holes (F) present on the base surface (CB) of the box (C) enter internally of the box (C) and raise the batteries (B) of packs present therein such that a battery (B) of packs in turn is raised into a position (P) beyond the upper open surface (I) of the box (C) and maintained in said position (P) for a time that is sufficient for all the packs of the battery to be supplied and transferred to the inlet line (L) of the packing machine.

[0023] In this way, the device (D) can time by time carry each battery (B) of packs in the raised position (P) thus enabling the battery of packs to be supplied and transferred to the inlet line (L) of the packing machine.

[0024] In detail, once the box (C) has been rested on the rest plate (1) (as illustrated in figure 1), the moving means (2) are activated to translate so as to pass through the holes (11) of the plate (1) and the holes (F) present in the base surface (CB) of the box (C) and enter the box (C), going to abut against the containing portion (U) which envelops and supports the lower battery (B) of packs internally of the box (i.e. the battery (B) of packs rested on the bottom of the box (B)).

[0025] The moving means (M) are maintained active to continue to translate the rods (2) up to when the rods (2) raise all the batteries (B) present internally of the box upwards by a displacement amount corresponding to the height of the battery of boxes (B), then to be stopped.

[0026] This means that the upper battery of packs originally present in the box is raised and positioned in a

position (P) beyond the open upper face (I) of the box and maintained in this position (P) for a sufficient time to enable transfer thereof to the inlet line (L) (see figure 2A).

[0027] Once the battery of packs has been all transferred to the inlet line (L), and the relative containing portion removed, the moving means (M) can be newly activated to newly translate the rods (2) with respect to the plate such as to raise the batteries of packs that remain in the box upwards, newly by a displacement amount in an upwards direction towards the other corresponding to the height of a battery of packs, then to be newly halted, such that a successive further battery of packs is positioned in the raised position (P) raised beyond the opening of the box, and maintained in this position (P) for a time sufficient to enable transfer thereof to the inlet line (L) (see figure 2B).

[0028] This translation cycle of the rods (2) is repeated up to when all the batteries of packs present in the box are raised and maintained in the position (P) beyond the open upper face (I) of the box (for example in the figures the box contains three superposed batteries of packs, and the figure 3C illustrates the situation of when the third battery of boxes, i.e. the lower battery which was in contact with the bottom of the box, has been raised and brought into the position (P) beyond the opening of the box).

[0029] Once all the batteries of packs present in the box have been raised time by time and brought into the position (P), and then successively transferred to the inlet line (L), the moving means (M) will be commanded to translate the rods (2) in the opposite direction with respect to the plate (1) up to bringing them newly below the plate (1) such as to enable a new box to be placed resting thereon.

[0030] It is clear that the device of the present invention enables, in a completely automated way, making the various batteries of boxes contained internally of a box available, time by time, directly at the start of the inlet line of the packing machine without required any intervention or effort on the part of the operator.

[0031] Other advantageous characteristics of the device are described in the following.

[0032] The device (D) comprises retaining means (3) of the box (C) which are situated on the plate (1) such as to retain the box (C) in contact with the plate (1) once the box (C) has been positioned resting thereon.

[0033] The presence of the retaining means (3) is useful for maintaining the box (C) always in contact with the plate while the rods are activated in translation such as to raise the batteries of packs internally of the box so that the open upper surface (I) is maintained always at the same level, corresponding to the inlet line level (L).

[0034] In the preferred but not exclusive embodiment illustrated in the accompanying figures, the retaining means (3) of the box (C) can be constituted by suckers which are housed in niches (30) realised in the plate (1).

[0035] In a further possible embodiment, not illustrated, the retaining means (3) of the box (C) can comprise

aspirating means housed in niches (30) present in the plate (1) and communicating with an aspirating or depressive source.

[0036] In the illustrated embodiment of the device (D), the above-mentioned moving means (M) of the rod comprise a frame (4), predisposed such as to be parallel to the plate (1), on which frame (4) the rods (2) are mounted in such a way as to be perpendicular thereto, and also comprise actuator organs (41) connected to the frame (4) and activatable such as to translate the frame (4) with respect to the plate (1) in opposite translating directions, and therefore consequently also the rods (2) with respect to the plate (1).

[0037] The actuator organs (41) comprise a brushless motor (42), a threaded shaft (43), activatable in rotation by the brushless motor (42) in two opposite rotation directions, a nut screw (44) mounted rigidly on the frame (4), the threaded shaft (43) being predisposed and mounted such as to be coupled to the nut screw (44).

[0038] In this way, the activating in rotation of the shaft (43) by the brushless motor (42), in a rotation direction or another, determines translation of the nut screw (44) on the shaft (43) in one direction or another, and thus translation of the frame (4) and the rods (2) with respect to the plate (1).

[0039] The brushless motor (42) is programmable according to the height of the box, the height of the batteries of packs and the number of batteries of packs present internally of the box such as to adjust and vary the modes and lengths of the translation runs of the rods as a function of these parameters.

[0040] This enables the device to adjust time by time to the possible different dimensions of the boxes and packs contained therein which can be used to supply the packing machine.

[0041] The device (D) can also exhibit a first pusher organ (5) (visible in figure 3), positioned in such a way as to be arranged on an opposite side of the box (C) with respect to the inlet line (L) of the packing machine and which is activatable each time a battery (B) of packs has been raised and positioned in the position (P) beyond the upper open surface (I) of the box (C) such as to transfer the battery (B) of packs from the box into the inlet line (L).

[0042] The presence of this first pusher organ (5) enables automating also the supply and transfer operations of the batteries of the packs to the inlet line (L) of the packing machine, leaving the operative exclusively a controlling function to make sure everything happens correctly and removing the containing portion (U) once the corresponding battery of packs has been transferred to the line (L).

[0043] The operator can also be assigned the task of opening the upper face of the cardboard (C) once it has been placed on the rest plane (1).

[0044] The loading operations of the box (C) can in fact be carried out entirely automatically and autonomously by the device (D).

[0045] In this regard, the device (D) can comprise, as illustrated for example in detail in figure 3, a storage plane (6) situated laterally to the plate (1) and in a position such as to be situated at a same level thereof in order to restingly receive a following box (C) containing packs, while waiting until all the batteries (B) of packs present internally of the box resting on the plate (1) have been transferred to the inlet line (L) of the packing machine (in figure 1, for the sake of greater clarity, the storage plane (6) has been omitted, while in figures 2A, 2B, 2C the storage plane (6) has been only partially illustrated in the part thereof adjacent to the plate (1), while in figure 3 the storage plane (6) is entirely visible).

[0046] The device (D) also includes a second pusher organ (61) for transferring the box from the storage plane (6) to the rest plane (1), once the emptied box is removed from the rest plate (1) and the rods (2) have been lowered.

[0047] To transport a box after another onto the storage plane (6), the device (D) is provided with a conveyor belt (7) for conveying the boxes (C) internally containing the flat packs which is positioned in such a way that the terminal part thereof is positioned by a flank of the storage plane (6) and a third pusher organ (71) for transferring the box that has reached the terminal part of the conveyor on the storage plane (6).

[0048] In this way, the device (D) is able to predispose, time by time, on the storage plane (6), a box (C) ready to be transferred onto the plate (1), once the preceding box has been emptied of the contents thereof, the operator has removed the box from the plate (1) and the rods (2) have been translated and lowered newly below the plate (1).

[0049] Figure 3 illustrates the situation where the box previously placed on the rest plate (1) has been completely emptied, while a successive box has been predisposed on the storage plane (6) ready to be transferred onto the rest plate (1).

[0050] In figure 3, the empty box still on the plate (1) has been illustrated with the bottom shown as "transparent" so as to show the plate (1) with the relative holes (11) and the rods (2): in figure 3 the flap (W1) of the box is folded so as to insert between the two lateral walls (L1, L2) of the inlet line (L), as specified more precisely in the following.

[0051] The advantages of the device of the present invention are evident.

[0052] The supply operations of the boxes to the inlet line of the packing machine are carried out entirely automatically, and thus have a supply frequency that is significantly higher than the manual supply modes as present used, which leads to an increase in productivity.

[0053] Further, the operator is no longer hampered by operations which in the long run can be very laborious (loading, unloading of boxes, transfer of the packs from the box to the inlet line), but can turn his attention only to a control activity of the correct functioning of the device, and possibly take charge of only some very simple operations to be performed, such as the removal of the con-

taining portions of the box once transferred to the line, the removal of the box from the plate once emptied, and possibly also the opening of the box, for example once it has been transferred onto the rest plate (1).

[0054] In figures 4A and 4B a package (Z) of a box containing flat packs is shown.

[0055] This package (Z) can be predisposed and prepared especially to be used by the previously-described device (D) to supply the inlet line (L) of a packing machine.

[0056] The package (Z) comprises a box (C) provided with a base surface (CB) which exhibits a series of through-holes (F), the through-holes (F) being in a number corresponding to a number of holes (11) present in the plate (1) of the device (D) and in such a way as to be positioned at the holes (11) once the box (C) is positioned resting on the plate (1).

[0057] The holes (F) are realised so as to have such dimensions as to be freely passed-through by the rods (2) of the device (D).

[0058] Internally of the box (C), the package (Z) further comprises:

a series of batteries (B) of flat packs superposed on one another, with the flat packs of each battery (B) being predisposed in a row, flanked to one another;

a series of U-shaped containing portions (U), each of which containing portions (U) is predisposed in such a way as to be associated to a corresponding battery (B) of packs and being arranged internally of the box (C) in such a way as to support the battery (B) of packs and envelop the battery at least up to two ends thereof.

[0059] The containing portion (U) can be made of cardboard and has the function of retaining the packs of the battery in position internally of the box during the raising thereof towards the raised position (P) beyond the opening of the box by the rods (2) of the device.

[0060] The presence of the containing portion (U) below the battery of packs which is in contact with the bottom of the box enables the rods (2) to carry out the raising operations of the various batteries unproblematically.

[0061] The box (C) of the package (Z) comprises, at each of the upper ends of the lateral walls, flaps (W, W1) foldable for closing/opening an upper surface (I) thereof.

[0062] A peculiarity of the box (C), is constituted by the fact that the flap (W1) of a lateral transversal wall (PT), destined to be positioned facing towards the inlet line (L) of the packing machine once the box (C) has been positioned on the rest plate (1) of the device (D), exhibits transversal dimensions that are such that once folded with respect to the relative lateral transversal wall (PT) for opening the upper surface (I) of the box (C), the flap (W1) can be positioned and inserted between lateral containing walls (L1, L2) of the packs present in the inlet line (L) of the packing machine such as to constitute a support for the packs during transfer thereof from the raised po-

sition (P) to the inlet line (L) (see for example figure 4 and figure 3).

[0063] This peculiarity facilitates and expedites the transfer of the battery of packs to the inlet line (L).

[0064] The above has been described by way of non-limiting example, and any constructional variants are understood to fall within the protective scope of the following claims.

Claims

1. A device for supplying an inlet line (L) of a packing machine with flat packs contained internally of a cardboard box (C), the device (D) being **characterised in that** it comprises:

a rest plate (1), which exhibits a shape and dimensions adequate for restingly receiving a base surface (CB) of the box (C), which is fixable with respect to the inlet line (L) in a position such that the box (C), once rested on the plate (1), is arranged with a transversal lateral wall (PT) facing towards the inlet line (L) of the packing machine and with an upper surface thereof open (I) at a level corresponding to a start level of the line (L), and which comprises a series of through-holes (11), the box (C) exhibiting the base surface (CB) thereof provided with through-holes (F) realised in such a way as to be positioned opposite the holes (11) present in the plate (1), once the box (C) has been placed resting thereon, the packs (A) being predisposed in the box (C) in a row, flanked to one another such as to form a battery (B) of flat packs, the box (C) exhibiting dimensions such as to be able to contain a plurality of batteries (B) of packs mutually superposed and which is provided, for each battery (B) of packs, with a containing portion (U) in a U-shape arranged such as to support the battery (B) of packs and envelop the battery (B) at least partially at the two ends thereof,

a series of rods (2), corresponding in number to a number of holes (11) present in the plate (1), predisposed in such a way as to be coaxially aligned to the holes (11) and exhibiting dimensions such as to be able to transit freely through the holes (11);

moving means (M) of the rods (2), activatable in such a way as to translate the rods (2) with respect to the plate (1) in two opposite translation directions, the moving means (M) being commandable, once a box (C) has been positioned with the relative base surface (CB) resting on the plate (1), in such a way as to translate the rods (2) with respect to the plate (1) in such a

- way that the rods (2) pass through the holes (11) present in the plate (1) and the holes (F) present on the base surface (CB) of the box (C) enter internally of the box (C) and raise the batteries (B) of packs present therein such that a battery (B) of packs in turn is raised into a position (P) beyond the upper open surface (I) of the box (C) and maintained in said position (P) for a time that is sufficient for all the packs of the battery to be supplied and transferred to the inlet line (L) of the packing machine.
2. The device of claim 1, **characterised in that** it comprises retaining means (3) of the box (C) which are situated on the plate (1) such as to retain the box (C) in contact with the plate (1) once the box (C) has been positioned resting thereon.
 3. The device of claim 2, **characterised in that** the retaining means (3) of the box (C) comprise suckers housed in niches (30) present in the plate (1).
 4. The device of claim 2, **characterised in that** the retaining means (3) of the box (C) comprise aspirating elements mounted on the surface of the plate (1) and communicating with a source of aspiration.
 5. The device of claim 2, **characterised in that** the moving means (M) of the rods (2) comprise a frame (4), predisposed such as to be parallel to the plate (1), on which frame (4) the rods (2) are mounted in such a way as to be perpendicular thereto, and actuator organs (41) connected to the frame (4) and activatable such as to translate the frame (4) with respect to the plate (1) in opposite translating directions.
 6. The device of claim 5, **characterised in that** the actuator organs (41) comprise a brushless motor (42), a threaded shaft (43), activatable in rotation by the brushless motor (42) in two opposite rotation directions, a nut screw (44) mounted rigidly on the frame (4), the threaded shaft (43) being predisposed and mounted such as to be coupled to the nut screw (44) in such a way that the activating in rotation of the shaft (43) by the brushless motor (42), in a rotation direction or another, determines translation of the nut screw (44) on the shaft (43) in one direction or another, and thus translation of the frame (4) and the rods (2) with respect to the plate (1).
 7. The device of any one of the preceding claims, **characterised in that** it comprises a first pusher organ (5), positioned in such a way as to be arranged on an opposite side of the box (C) with respect to the inlet line (L) of the packing machine and which is activatable each time a battery (B) of packs has been raised and positioned in the position (P) beyond the upper open surface (I) of the box (C) such as to transfer the battery (B) of packs from the box into the inlet line (L).
 8. The device of any one of the preceding claims, **characterised in that** it comprises a storage plane (6) situated laterally to the plate (1) and in a position such as to be situated at a same level thereof in order to restingly receive a following box (C) containing packs, while waiting until all the batteries (B) of packs present internally of the box resting on the plate (1) have been transferred to the inlet line (L) of the packing machine.
 9. The device of any one of the preceding claim, **characterised in that** it comprises a second pusher organ (61) for transferring the box from the storage plane (6) to the rest plane (1), once the emptied box is removed from the rest plate (1) and the rods (2) have been lowered.
 10. The device of the preceding claim, **characterised in that** it comprises a conveyor belt (7) for conveying boxes (C) containing internally thereof flat packs positioned such that a terminal part thereof is by a flank of the storage plane (6), and a third pusher organ (71) for transferring the box that has arrived at the terminal part of the conveyor (7) on the storage plane (6).
 11. A cardboard package containing flat packs, the package (Z) comprising:
 - a box (C) provided with a base surface (CB) which exhibits a series of through-holes (F), the through-holes (F) being in a number corresponding to a number of holes (11) present in the plate (1) of the device (D) according to any one of claims from 1 to 10, and the through-holes (F) being realised in such a way as to be positioned at the holes (11) once the box (C) is positioned resting on the plate (1) and having such dimensions as to be freely passed-through by the rods (2) of the device (D), and internally of the box (C):
 - a series of batteries (B) of flat packs superposed on one another, with the flat packs of each battery (B) being predisposed in a row, flanked to one another;
 - a series of U-shaped containing portions (U), each of which containing portions (U) is predisposed in such a way as to be associated to a corresponding battery (B) of packs and being arranged internally of the box (C) in such a way as to support the battery (B) of packs and envelope the battery at least up to two ends thereof.

12. The cardboard package of claim 11, **characterised in that** the box (C) comprises, at each of upper ends of the lateral walls, flaps (W, W1) foldable for closing/opening an upper surface (I) thereof, and **in that** the flap (W1) of a lateral transversal wall (PT), destined to be positioned facing towards the inlet line (L) of the packing machine once the box (C) has been positioned on the rest plate (1) of the device (D), exhibits transversal dimensions that are such that once folded with respect to the relative lateral transversal wall (PT) for opening the upper surface (I) of the box (C), the flap (W1) can be positioned and inserted between lateral containing walls (L1, L2) of the packs present in the inlet line (L) of the packing machine such as to constitute a support for the packs during transfer thereof from the raised position (P) to the inlet line (L).

Patentansprüche

1. Vorrichtung zur Versorgung einer Einlaufinie (L) einer Verpackungsmaschine mit Flachpackungen, die in einem Karton (C) enthalten sind, wobei die Vorrichtung (D) **dadurch gekennzeichnet ist, dass** sie Folgendes beinhaltet:

eine Auflageplatte (1), die eine geeignete Form und geeignete Abmessungen zur Aufnahme einer Grundfläche (CB) des Kartons (C) aufweist, welche im Verhältnis zur Einlaufinie (L) in einer Stellung fixierbar ist, so dass der Karton (C), sobald er auf der Platte (1) aufliegt, mit einer seitlichen Querwand (PT) zur Einlaufinie (L) der Verpackungsmaschine hin angeordnet ist und sich mit einer oberen offenen Fläche (I) auf einer Höhe befindet, die der Anfangshöhe der Linie (L) entspricht, und welche eine Reihe von Durchgangslöchern (11) umfasst, wobei der Karton (C) eine Grundfläche (CB) aufweist, die mit Durchgangslöchern (F) versehen ist, die so ausgeführt sind, dass sie gegenüber den Löchern (11) in der Platte (1) zu liegen kommen, wenn der Karton (C) darauf abgesetzt wurde, wobei die Packungen (A) im Karton (C) in einer Reihe, Seite an Seite, so angeordnet sind, dass sie eine Gruppe (B) von Flachpackungen bilden, wobei der Karton (C) derartige Abmessungen aufweist, dass er eine Vielzahl von übereinander liegenden Packungsgruppen (B) aufnehmen kann, und für jede Packungsgruppe (B) mit einem U-förmigen Aufnahmeabschnitt (U) versehen ist, der so angeordnet ist, dass er die Packungsgruppe (B) abstützt und die Gruppe (B) an deren beiden Enden zumindest teilweise umhüllt;

eine Reihe von Stangen (2), deren Anzahl der Anzahl von Löchern (11) entspricht, die in der

Platte (1) vorhanden sind, und die so angeordnet sind, dass sie koaxial zu den Löchern (11) ausgerichtet sind und derartige Abmessungen aufweisen, dass sie ungehindert durch die Löcher (11) durchlaufen können;

Bewegungseinrichtungen (M) der Stangen (2), die so betätigt werden können, dass die Stangen (2) im Verhältnis zur Platte (1) in zwei entgegengesetzte Verfahrrichtungen verfahren werden, wobei die Bewegungseinrichtungen (M) angesteuert werden können, wenn ein Karton (C) mit der entsprechenden Grundfläche (CB) auf die Platte (1) aufgesetzt wurde, so dass die Stangen (2) im Verhältnis zur Platte (1) so verfahren werden, dass die Stangen (2) durch die Löcher (11) in der Platte (1) und die Löcher (F) in der Grundfläche (CB) des Kartons (C) in den Karton (C) fahren und die darin enthaltenen Packungsgruppen (B) so anheben, dass jeweils eine Packungsgruppe (B) in eine Position (P) über der oberen offenen Fläche (I) des Kartons (C) angehoben und in der genannten Position (P) für eine ausreichende Zeit gehalten wird, damit alle Packungen der Gruppe der Einlaufinie (L) der Verpackungsmaschine zugeführt und übergeben werden können.

2. Vorrichtung nach Anspruch 1, **dadurch gekennzeichnet, dass** sie Halteeinrichtungen (3) des Kartons (C) beinhaltet, die auf der Platte (1) angeordnet sind, um den Karton (C) mit der Platte (1) in Kontakt zu halten, wenn der Karton (C) darauf abgesetzt wurde.

3. Vorrichtung nach Anspruch 2, **dadurch gekennzeichnet, dass** die Halteeinrichtungen (3) des Kartons (C) Saugnäpfe beinhalten, die in Vertiefungen (30) in der Platte (1) untergebracht sind.

4. Vorrichtung nach Anspruch 2, **dadurch gekennzeichnet, dass** die Halteeinrichtungen (3) des Kartons (C) Sauglemente beinhalten, die auf der Oberfläche der Platte (1) montiert und mit einer Saugquelle verbunden sind.

5. Vorrichtung nach Anspruch 2, **dadurch gekennzeichnet, dass** die Bewegungseinrichtungen (M) der Stangen (2) einen Rahmen (4) beinhalten, der parallel zur Platte (1) angeordnet ist, wobei die Stangen (2) auf diesem Rahmen (4) so montiert sind, dass sie senkrecht dazu stehen, sowie Betätigungsorgane (41), die mit dem Rahmen (4) verbunden sind und so betätigt werden können, dass der Rahmen (4) im Verhältnis zur Platte (1) in entgegengesetzte Verfahrrichtungen verfahren wird.

6. Vorrichtung nach Anspruch 5, **dadurch gekennzeichnet, dass** die Betätigungsorgane (41) einen

bürstenlosen Motor (42), eine durch den bürstenlosen Motor (42) in zwei entgegengesetzte Richtungen in Drehung versetzbare Gewindespindel (43), eine starr am Rahmen (4) montierte Mutter (44) beinhalten, wobei die Gewindespindel (43) so ausgeführt und montiert ist, dass sie so mit der Mutter (44) gekoppelt wird, dass durch das Drehen der Spindel (43) durch den bürstenlosen Motor (42) in die eine oder andere Richtung, das Verfahren der Mutter (44) auf der Spindel (43) in die eine oder andere Richtung und dadurch das Verfahren des Rahmens (4) und der Stangen (2) in Bezug auf die Platte (1) bewirkt wird.

7. Vorrichtung nach einem der vorhergehenden Ansprüche, **dadurch gekennzeichnet, dass** sie ein erstes Schuborgan (5) beinhaltet, das so angeordnet ist, dass es sich in Bezug auf die Einlauflinie (L) der Verpackungsmaschine auf einer entgegengesetzten Seite des Kartons (C) befindet, und das bei jedem Anheben und Positionieren einer Packungsgruppe (B) in Position (P) über der oberen offenen Fläche (I) des Kartons (C) so betätigt werden kann, dass die Packungsgruppe (B) aus dem Karton zur Einlauflinie (L) übergeben wird.
8. Vorrichtung nach einem der vorhergehenden Ansprüche, **dadurch gekennzeichnet, dass** sie eine Ablagefläche (6) beinhaltet, die sich seitlich der Platte (1) sowie in einer Position befindet, die der Höhe der genannten Platte entspricht, um einen folgenden Karton (C) mit Packungen aufzunehmen, während darauf gewartet wird, dass alle in dem auf der Platte (1) aufliegenden Karton enthaltenen Packungsgruppen (B) zur Einlauflinie (L) der Verpackungsmaschine übergeben worden sind.
9. Vorrichtung nach einem der vorhergehenden Ansprüche, **dadurch gekennzeichnet, dass** sie ein zweites Schuborgan (61) beinhaltet, das zum Übergeben des Kartons von der Ablagefläche (6) zur Auflageplatte (1) dient, nachdem der geleerte Karton von der Auflageplatte (1) entfernt wurde und die Stangen (2) abgesenkt wurden.
10. Vorrichtung nach einem der vorhergehenden Ansprüche, **dadurch gekennzeichnet, dass** sie ein Förderband (7) zum Befördern von Flachpackungen enthaltenden Kartons (C) beinhaltet, welches so angeordnet ist, dass ein Ende davon an einer Seite der Ablagefläche (6) zu liegen kommt, sowie ein drittes Schuborgan (71) zum Übergeben des am Ende des Förderbandes (7) ankommenden Kartons auf die Ablagefläche (6).
11. Eine Flachpackungen enthaltende Kartonpackung, wobei die Packung (Z) Folgendes beinhaltet:

einen Karton (C) mit einer Grundfläche (CB), welche eine Reihe von Durchgangslöchern (F) aufweist, wobei die Anzahl der Durchgangslöcher (F) der Anzahl von Löchern (11) in der Platte (1) der Vorrichtung (D) nach einem der vorhergehenden Ansprüche von 1 bis 10 entspricht, und wobei die Durchgangslöcher (F) so ausgeführt sind, dass sie an den Löchern (11) positioniert werden, sobald der Karton (C) auf der Platte (1) aufliegt, und derartige Abmessungen aufweisen, dass die Stangen (2) der Vorrichtung (D) ungehindert durchlaufen können, und im Inneren des Kartons (C):

eine Reihe von übereinander liegenden Flachpackungsgruppen (B), wobei die Flachpackungen einer jeden Gruppe (B) in einer Reihe, Seite an Seite, angeordnet sind;

eine Reihe von U-förmigen Aufnahmeabschnitten (U), wobei jeder dieser Aufnahmeabschnitte (U) so angeordnet ist, dass er einer entsprechenden Packungsgruppe (B) zugeordnet ist und im Inneren des Kartons so angeordnet ist, dass er die Packungsgruppe (B) abstützt und mindestens zwei Enden davon umhüllt.

12. Kartonpackung nach Anspruch 11, **dadurch gekennzeichnet, dass** der Karton (C) an jedem oberen Ende der Seitenwände Klappen (W, W1) umfasst, die zum Schließen/Öffnen einer oberen Fläche (I) desselben faltbar sind, und dadurch, dass die Klappe (W1) einer seitlichen Querwand (PT), die dazu bestimmt ist, der Einlauflinie (L) der Verpackungsmaschine zugewandt zu sein, nachdem der Karton (C) auf der Auflageplatte (1) der Vorrichtung (D) angeordnet wurde, querseitig derartige Abmessungen aufweist, dass nach dem Falten im Verhältnis zur entsprechenden seitlichen Querwand (PT) zum Öffnen der oberen Fläche (I) des Kartons (C), die Klappe (W1) zwischen den seitlichen Haltewänden (L1, L2) der Packungen in der Einlauflinie (L) der Verpackungsmaschine positioniert und eingeführt werden kann, so dass sie eine Halterung für die Packungen während der Übergabe derselben von der angeordneten Position (P) zur Einlauflinie (L) darstellt.

Revendications

1. Un dispositif pour alimenter une ligne d'entrée (L) d'une machine à emballer avec des paquets plats contenus à l'intérieur d'un carton (C), le dispositif (D) étant **caractérisé en ce qu'il** comprend:

une plaque d'appui (1), qui présente une forme

et des dimensions adéquates pour recevoir en appui une surface de base (CB) du carton (C), qui peut être fixée par rapport à la ligne d'entrée (L) dans une position telle que le carton (C), une fois en appui sur la plaque (1), est disposé avec une paroi latérale transversale (PT) orientée vers la ligne d'entrée (L) de la machine à emballer et avec une surface supérieure (I) à un niveau correspondant à un niveau de départ de la ligne (L), et qui comprend une série de trous débouchants (11), le carton (C) ayant sa surface de base (CB) dotée de trous débouchants (F) réalisés de manière à être positionnés opposés aux trous (11) présents dans la plaque (1), une fois que le carton (C) a été placé en appui sur celle-ci, les paquets (A) étant prédisposés dans le carton (C) en rangée, accolés les uns aux autres de manière à former une batterie (B) de paquets plats, le carton (C) présentant des dimensions telles qu'il peut contenir une pluralité de batteries (B) de paquets mutuellement superposés et étant doté, pour chaque batterie (B) de paquets, d'une portion de confinement (U) en forme de « U » disposée de manière à supporter la batterie (B) de paquets et à envelopper la batterie (B) au moins partiellement au niveau des deux extrémités de celle-ci, une série de tiges (2), dont le nombre correspond au nombre de trous (11) présents dans la plaque (1), prédisposées de manière à être coaxialement alignées par rapport aux trous (11) et présentant des dimensions telles qu'elles peuvent librement passer à travers les trous (11) ; des moyens (M) d'actionnement des tiges (2), pouvant être activés de manière à déplacer en translation les tiges (2) par rapport à la plaque (1) dans deux sens de translation opposés, les moyens d'actionnement (M) pouvant être commandés, une fois qu'un carton (C) a été positionné avec la surface de base (CB) correspondante en appui sur la plaque (1), de manière à déplacer en translation les tiges (2) par rapport à la plaque (1) afin que lesdites tiges (2) passent à travers les trous (11) présents dans la plaque (1) et les trous (F) présents sur la surface de base (CB) du carton (C), pénètrent à l'intérieur du carton (C) et soulèvent les batteries (B) de paquets qui y sont présentes de manière à ce qu'une batterie (B) de paquets à la fois soit soulevée dans une position (P) au-delà de la surface supérieure ouverte (I) du carton (C) et maintenue dans ladite position (P) pendant un temps suffisant pour que tous les paquets de ladite batterie soient alimentés et transférés à la ligne d'entrée (L) de la machine à emballer.

2. Le dispositif selon la revendication 1, **caractérisé**

en ce qu'il comprend des moyens (3) de retenue du carton (C) qui sont situés sur la plaque (1) de manière à retenir le carton (C) en contact avec la plaque (1) une fois que ledit carton (C) a été positionné en appui sur celle-ci.

3. Le dispositif selon la revendication 2, **caractérisé en ce que** les moyens (3) de retenue du carton (C) comprennent des ventouses logées dans des niches (30) présentes dans la plaque (1).
4. Le dispositif selon la revendication 2, **caractérisé en ce que** les moyens (3) de retenue du carton (C) comprennent des éléments aspirants montés sur la surface de la plaque (1) et communiquant avec une source d'aspiration.
5. Le dispositif selon la revendication 2, **caractérisé en ce que** les moyens (M) d'actionnement des tiges (2) comprennent un châssis (4), prédisposé de manière à être parallèle à la plaque (1), sur ce châssis (4) sont montées les tiges (2) de manière à être perpendiculaires à celui-ci, et des organes actionneurs (41) reliés au châssis (4) et pouvant être activés de manière à déplacer en translation le châssis (4) par rapport à la plaque (1) dans des sens de translation opposés.
6. Le dispositif selon la revendication 5, **caractérisé en ce que** les organes actionneurs (41) comprennent un moteur brushless (42), un arbre fileté (43), pouvant être mis en rotation par le moteur brushless (42) dans deux sens de rotation opposés, une vis-mère (44) montée de façon rigide sur le châssis (4), l'arbre fileté (43) étant prédisposé et monté de manière à être accouplé avec la vis-mère (44) afin que la mise en rotation de l'arbre (43) par le moteur brushless (42), dans un sens de rotation ou dans l'autre, détermine une translation de la vis-mère (44) sur l'arbre (43) dans un sens ou dans l'autre, et donc une translation du châssis (4) et des tiges (2) par rapport à la plaque (1).
7. Le dispositif selon l'une quelconque des revendications précédentes, **caractérisé en ce qu'il** comprend un premier organe pousseur (5), positionné de manière à être disposé sur un côté opposé du carton (C) par rapport à la ligne d'entrée (L) de la machine à emballer et qui peut être activé chaque fois qu'une batterie (B) de paquets a été soulevée et positionnée dans la position (P) au-delà de la surface supérieure ouverte (I) du carton (C) de manière à transférer la batterie (B) de paquets du carton à la ligne d'entrée (L).
8. Le dispositif selon l'une quelconque des revendications précédentes, **caractérisé en ce qu'il** comprend un plan de stockage (6) situé latéralement à

la plaque (1) et dans une position telle qu'il est situé à un même niveau que cette dernière de manière à recevoir en appui un carton (C) suivant contenant des paquets, tout en attendant que toutes les batteries (B) de paquets présentes à l'intérieur du carton en appui sur la plaque (1) aient été transférées à la ligne d'entrée (L) de la machine à emballer.

9. Le dispositif selon l'une quelconque des revendications précédentes, **caractérisé en ce qu'il** comprend un deuxième organe poussoir (61) pour transférer le carton du plan de stockage (6) à la plaque d'appui (1), une fois que le carton vidé a été enlevé de cette même plaque d'appui (1) et que les tiges (2) ont été abaissées.
10. Le dispositif selon la revendication précédente, **caractérisé en ce qu'il** comprend une bande transporteuse (7) pour transporter des cartons (C) contenant à l'intérieur des paquets plats, positionnée de manière à ce qu'une partie terminale de celle-ci se trouve sur un côté du plan de stockage (6), et un troisième organe poussoir (71) pour transférer le carton qui a atteint la partie terminale de la bande transport de la bande transporteuse (7) sur le plan de stockage (6).

11. Un emballage en carton contenant des paquets plats, l'emballage (Z) comprenant:

un carton (C) doté d'une surface de base (CB) qui présente une série de trous débouchants (F), le nombre desdits trous débouchants (F) correspondant au nombre de trous (11) présents dans la plaque (1) du dispositif (D) selon l'une quelconque des revendications de 1 à 10, et les trous débouchants (F) étant réalisés de manière à être positionnés au niveau des trous (11) une fois que le carton (C) est positionné en appui sur la plaque (1) et ayant des dimensions telles qu'ils peuvent être traversés librement par les tiges (2) du dispositif (D), et à l'intérieur du carton (C) :

une série de batteries (B) de paquets plats superposées les unes sur les autres, avec lesdits paquets plats de chaque batterie (B) prédisposés en rangée, les uns à côté des autres ;

une série de portions de confinement (U) en forme de « U », chacune de ces portions de confinement (U) est prédisposée de manière à être associée à une batterie (B) correspondante de paquets et étant disposée à l'intérieur du carton (C) de manière à supporter la batterie (B) de paquets et à envelopper ladite batterie au moins jusqu'aux deux extrémités de celle-ci.

12. L'emballage en carton selon la revendication 11, **caractérisé en ce que** le carton (C) comprend, au niveau de chacune des extrémités supérieures des parois latérales, des rabats (W, W1) qui peuvent être pliés pour fermer/ouvrir une surface supérieure (I) de celui-ci, et **en ce que** le rabat (W1) d'une paroi latérale transversale (PT), destinée à être positionnée pour être orientée vers la ligne d'entrée (L) de la machine à emballer une fois que le carton (C) a été positionné sur la plaque d'appui (1) du dispositif (D), présente des dimensions transversales qui sont telles, qu'une fois plié par rapport à la paroi latérale transversale (PT) pour ouvrir la surface supérieure (I) du carton (C), ledit rabat (W1) peut être positionné et inséré entre des parois latérales (L1, L2) de confinement des paquets présents dans la ligne d'entrée (L) de la machine à emballer de manière à constituer un support pour les paquets pendant leur transfert de la position soulevée (P) à la ligne d'entrée (L).

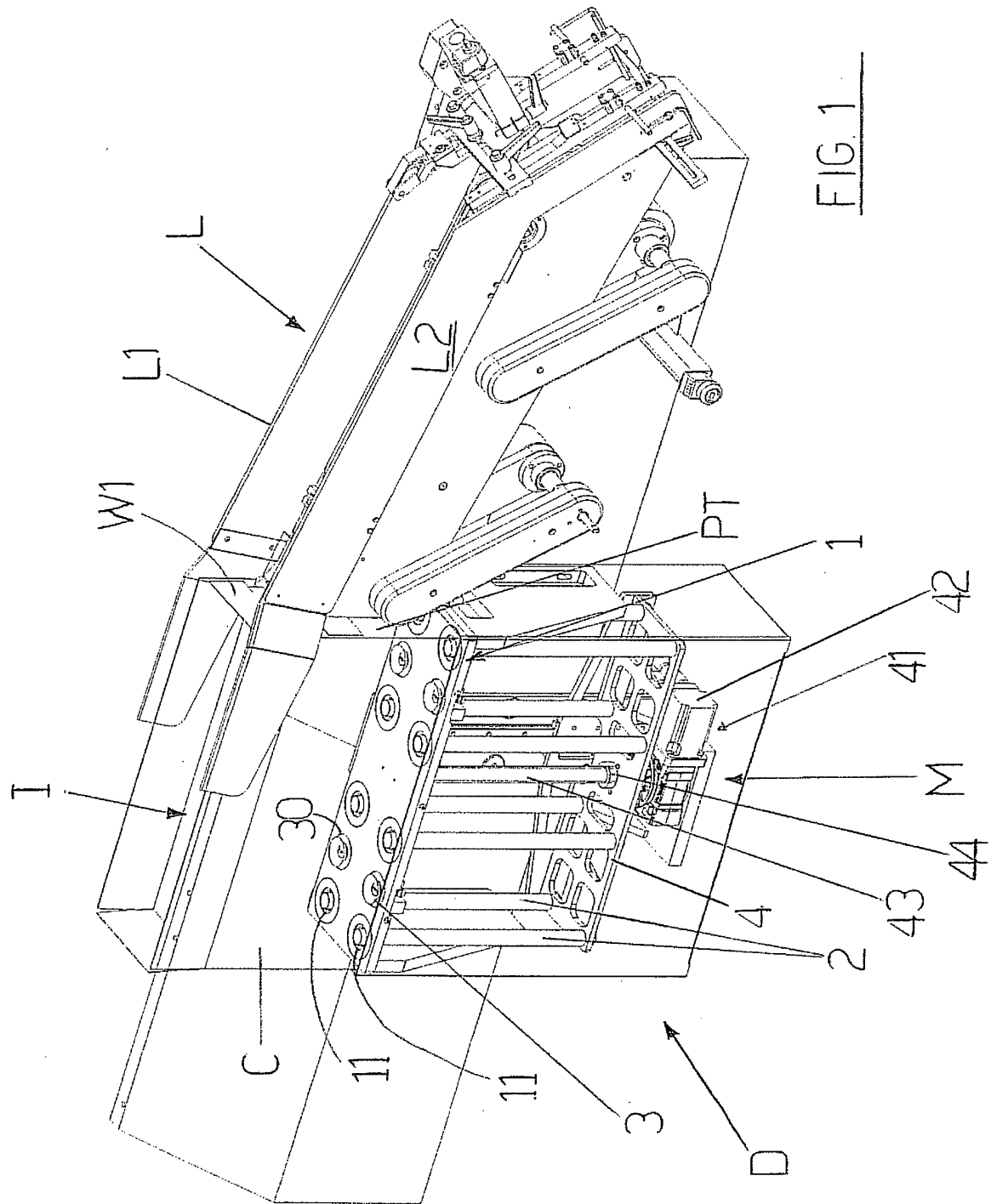
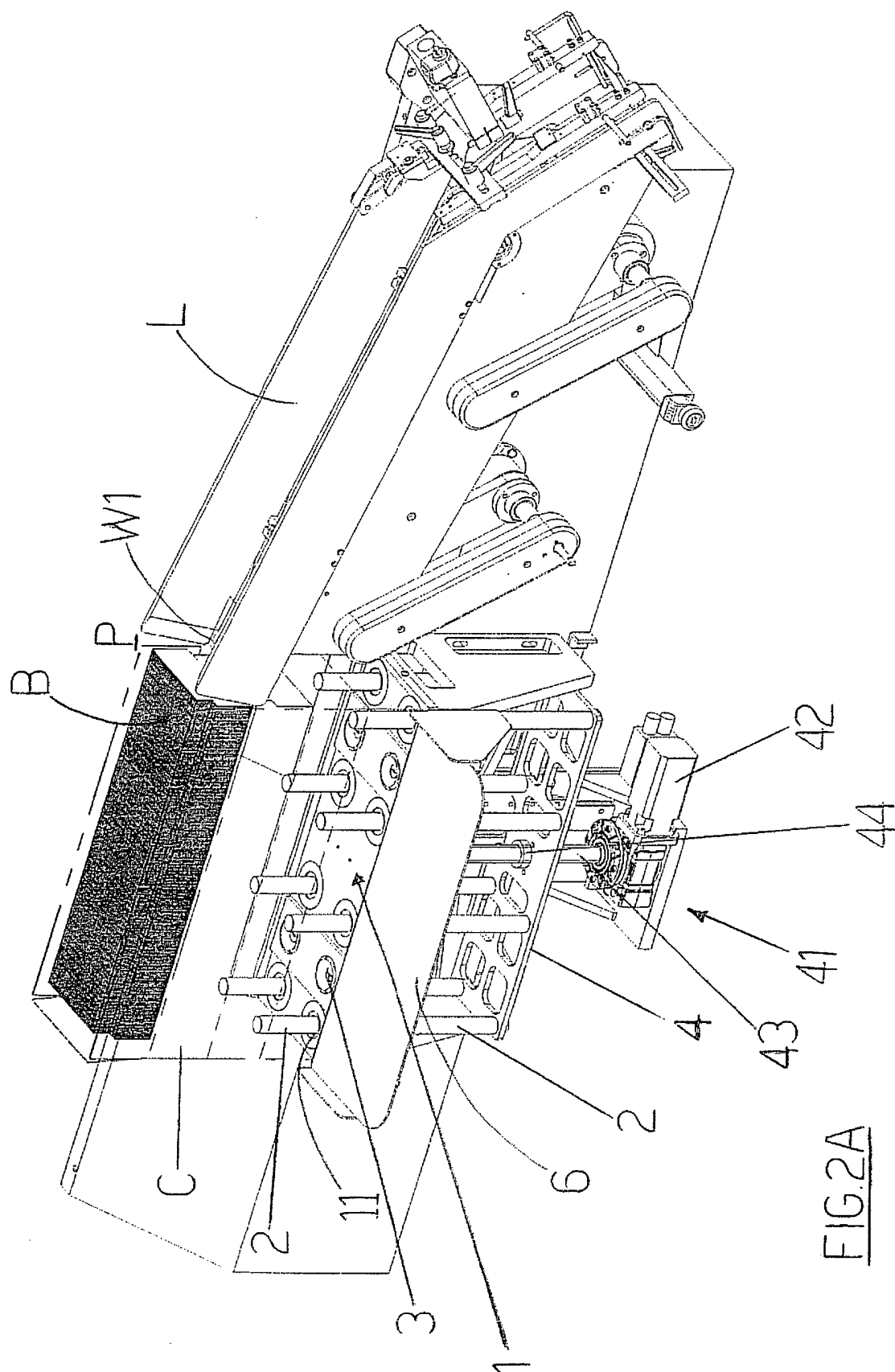
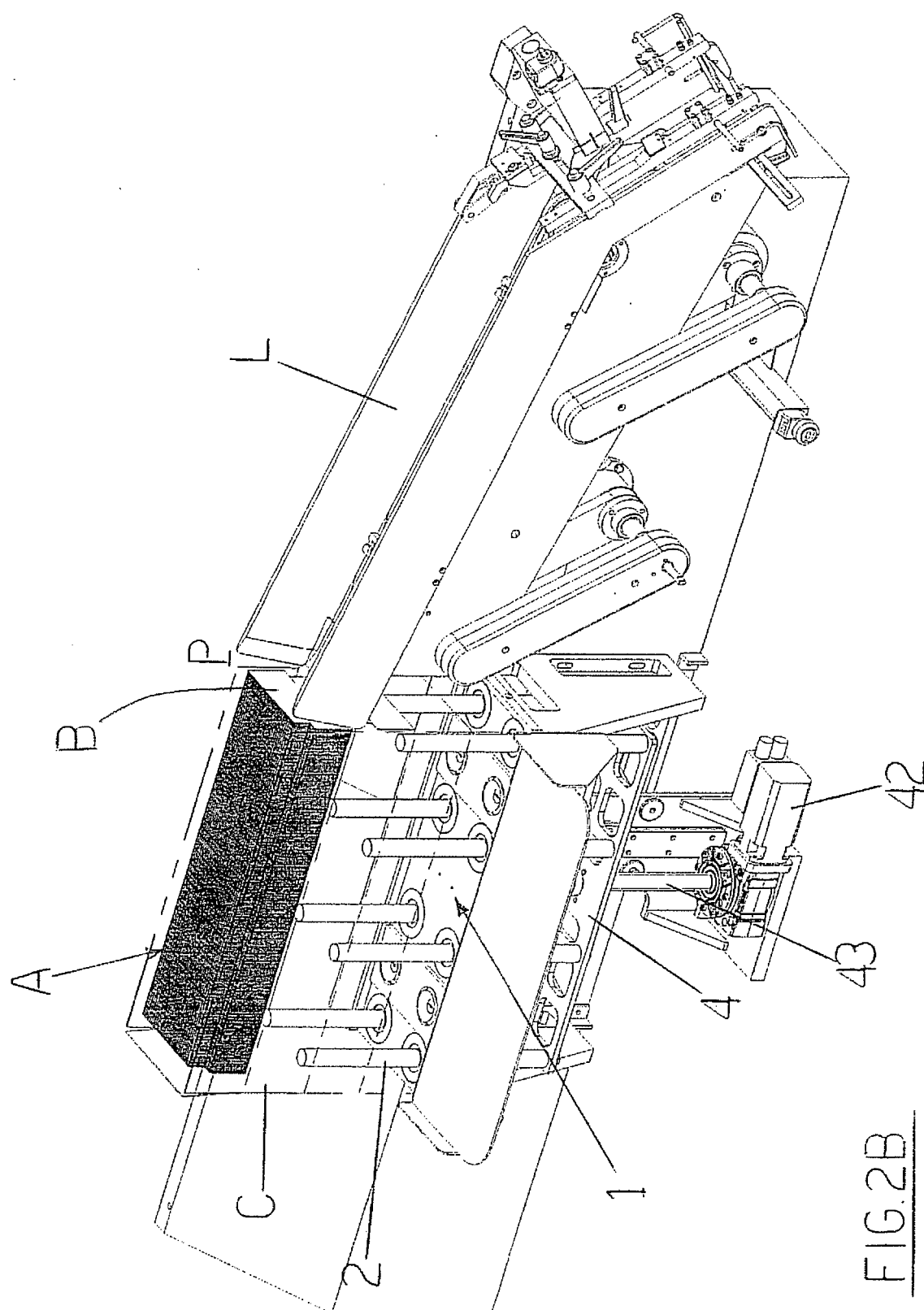


FIG. 1





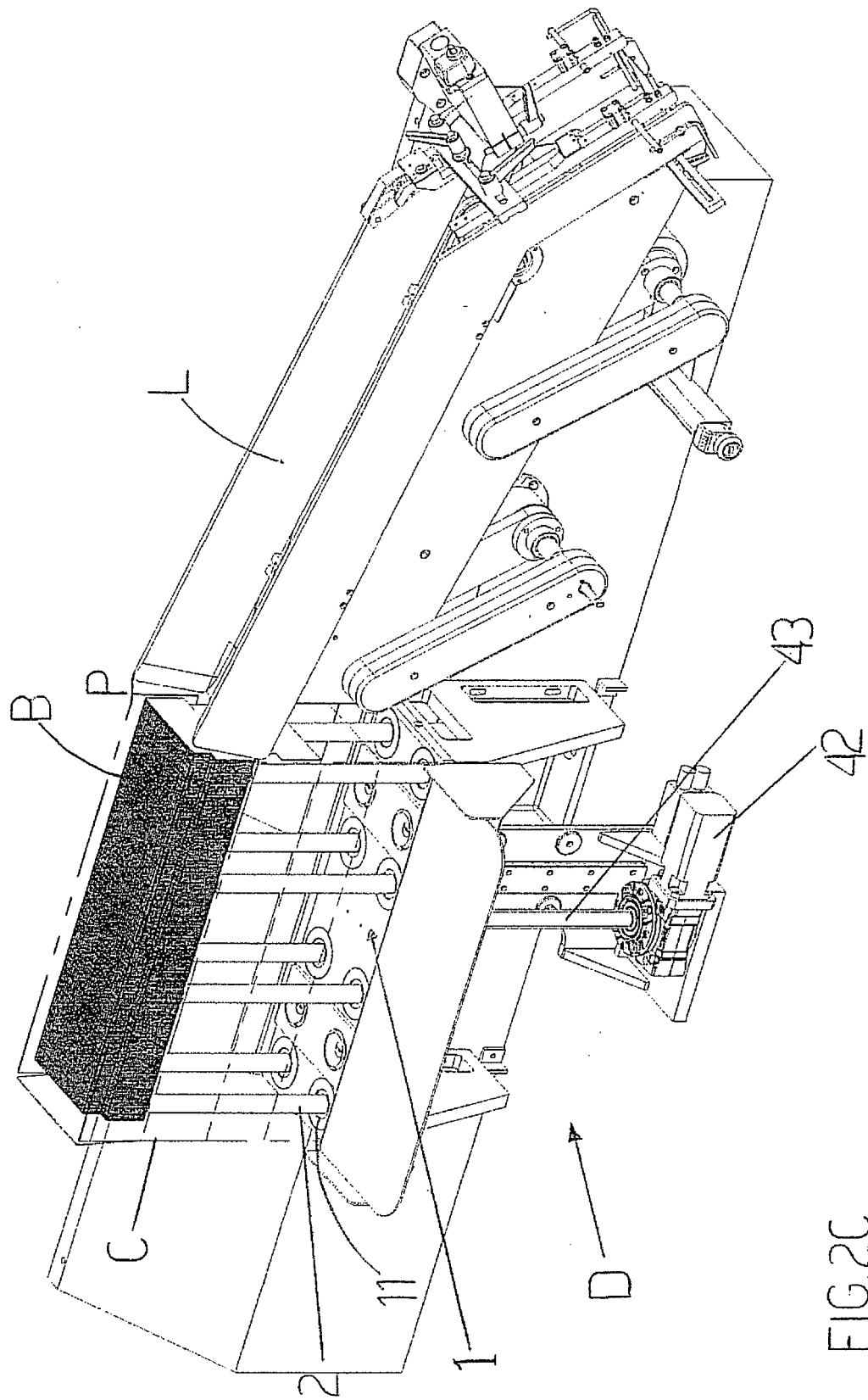


FIG. 2C

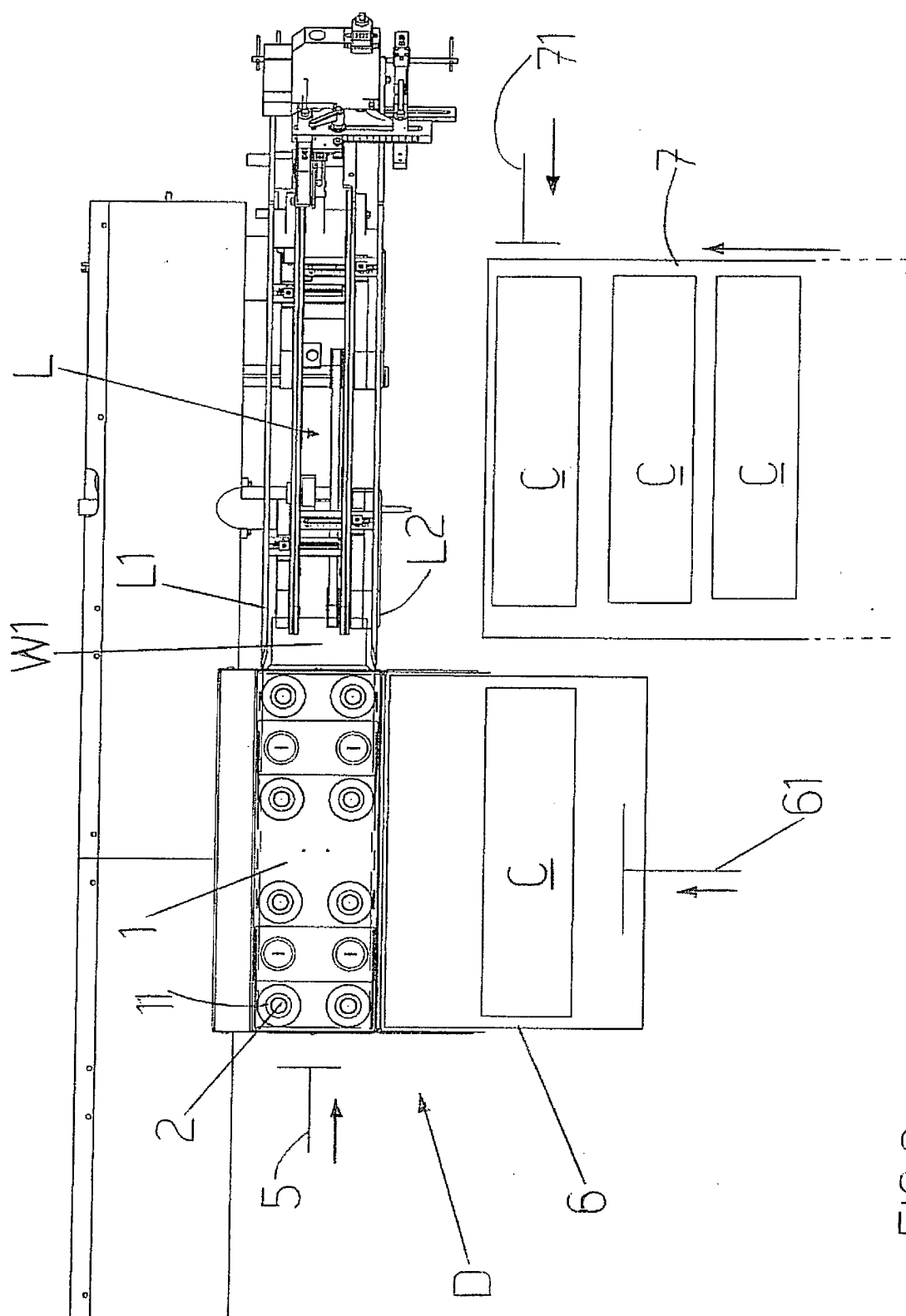
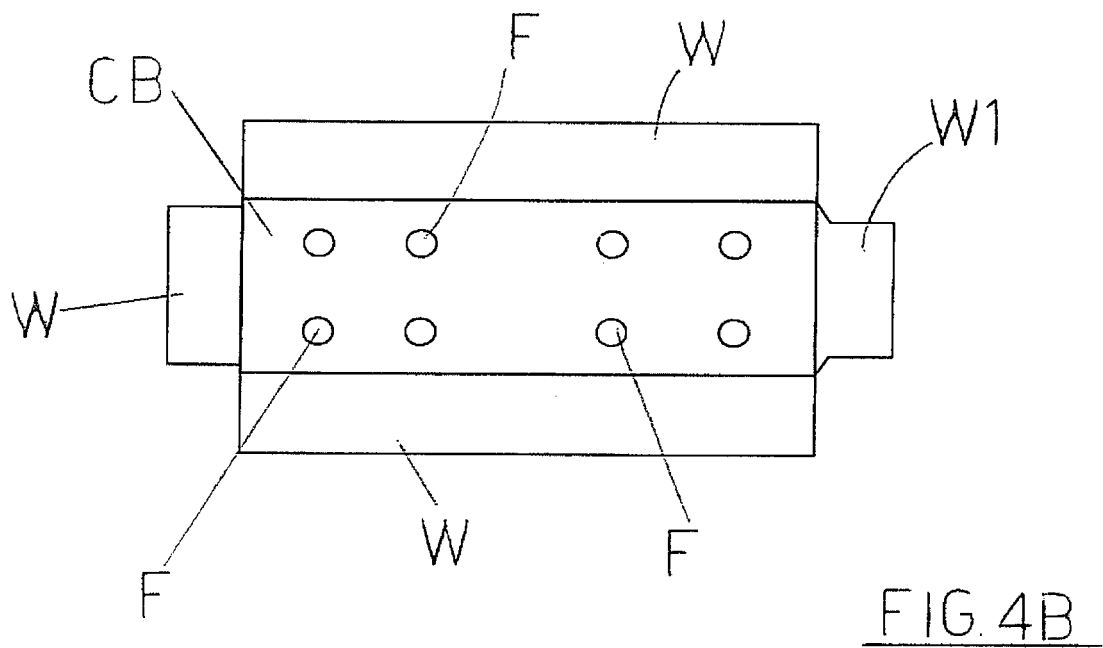
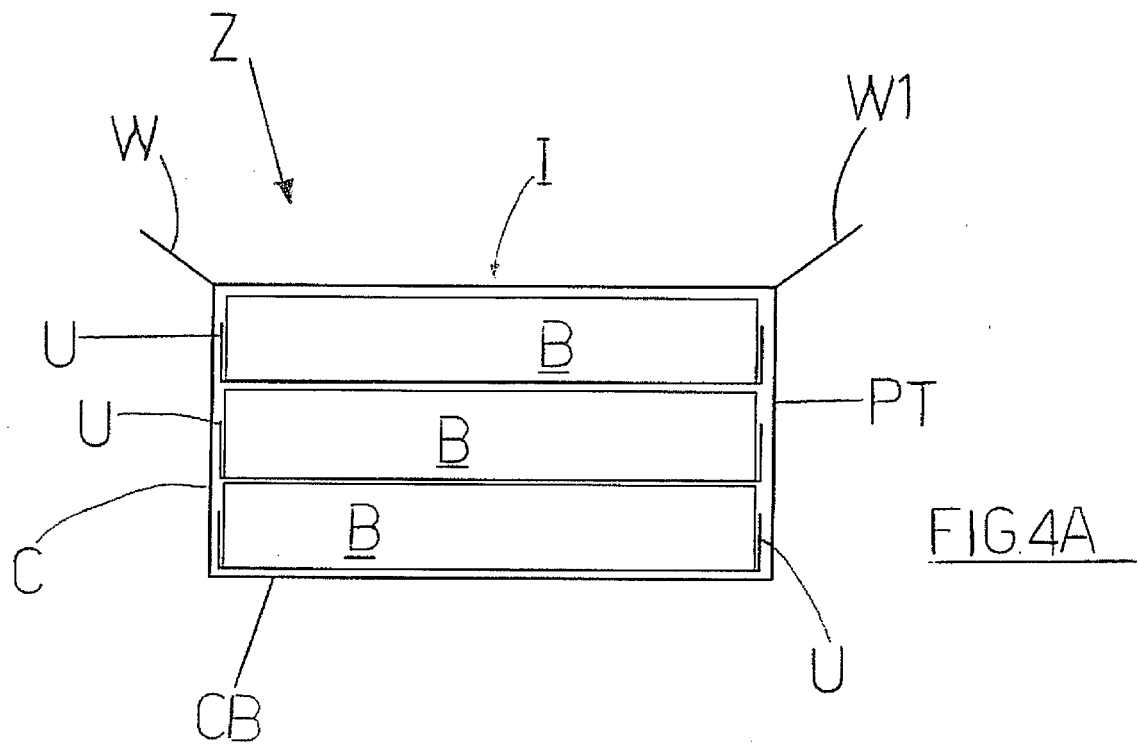


FIG 3



REFERENCES CITED IN THE DESCRIPTION

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