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(54) **Method and apparatus for collating postal items**

(57) For collating postal items into sets, the actual relative positions of the collated first and second postal items is measured and a tolerance between nominal relative positions of the first and second postal items and the actual relative positions of the collated first and second postal items is determined. For at least one later set to be collated, the feeding of the second postal item is

controlled for bringing the leading or trailing edge of the second postal item into a nominal off-set relative to the leading or, respectively, the trailing edge of the first postal item, which nominal off-set is larger than or equal to the determined tolerance. An apparatus for carrying out such a method is also described.

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Description

FIELD AND BACKGROUND OF THE INVENTION

[0001] The invention relates to a method and an apparatus for collating postal items. In many cases, the automated production of postal items involves collation of a number of postal items that are to be included in a mail piece. Such postal items may for instance include postal items, each constituted by one or more sheets, business reply envelopes, cards on carriers, brochures etc..

[0002] One manner of collating such postal items is to successively stack the items on top of each other, each sheet being aligned against a common alignment stop as it is positioned on top of the stack of items. However, a disadvantage of this manner of stacking is, that each next item that is added to a stack slides over the previous item, which entails a risk of jams, in particular if the items are to be stacked at high speed. Moreover, the requirement that postal items can slide over each other reduces the versatility with respect to the ability to process postal items of various lengths, friction coefficients and thickness patterns.

[0003] Another manner of collating postal items includes transporting a first postal item in a transport direction along a transport track, detecting a leading or trailing edge (the detected edge) of the first postal item in the transport track, and, in response to the detection of the detected edge of the first postal item, transporting a second postal item in a feeding direction along a feeding track into a position collated with the first postal item in the transport track and retaining the second postal item in that position relative to the first postal item. In such a stacking process, the postal items in the transport track are merged with postal items fed from the feeding tracks and the merged postal items are transported further along the transport track.

[0004] However, because the first and second items are retained by the feeding and transport tracks during stacking without sliding relative to each other and are retained in mutually fixed positions after having been stacked, tolerances on the precision with which leading or trailing edges of the stacked postal items are mutually aligned do in practice result in some misalignment of the leading or trailing edges of many of the stacks.

[0005] To avoid that such misalignments build up with each next item that is added to a stack, it is known to deliberately include an offset between the detected edge of the first postal item and the edge of that next postal item on the same side of the stack. The size of this offset is selected for all sets, such that the edge of each further postal item at the side of the detected edge is positioned either slightly retracted relative to the detected edge of the first postal item or, in the event this next postal item has ended up in the tolerance range in a position extremely shifted to the side of the stack of the detected edge, precisely in alignment with the detected edge.

[0006] To avoid that misalignment causes a next postal

item of a length shorter than the distance between one end and one of the folds to be made in the stack to be improperly folded along an edge and/or displaced during folding, it is also known to deliberately include an off-set between a leading or trailing edge of the first postal item and the edge of that next postal item on the same side of the stack, such that the next postal item is positioned either with an area along this edge slightly projecting relative to the first postal item or, in the event this next postal item has ended up in the tolerance range in a position extremely shifted to the side of the stack away from this edge, with this edge precisely in alignment with the first postal item.

[0007] However, such deliberate offsets cause misalignments between the postal items of most stacks, which is disadvantageous for an orderly presentation of the stacks of postal items.

SUMMARY OF THE INVENTION

[0008] It is an object of the present invention to provide a solution to reduce misalignment due to deliberate offsets in the positions of next postal items in stacks.

[0009] According to one aspect of the invention, this object is achieved by providing a method according to claim 1. The invention may also be embodied in an apparatus according to claim 9, which is specifically arranged for carrying out the method according to claim 1.

[0010] Because, the tolerance between nominal relative positions of the first and second postal items and the actual relative positions of these postal items is determined on an apparatus, the nominal off-set based on the tolerance for successive sets to be collated on the same apparatus can, at least in many cases, be set smaller than a nominal off-set that is selected to take into account a largest tolerance that may be expected.

[0011] Particular elaborations and embodiments of the invention are set forth in the dependent claims.

[0012] Further features, effects and details of the invention appear from the detailed description and the drawings.

BRIEF DESCRIPTION OF THE DRAWINGS

[0013]

Fig. 1 is a schematic representation in side view of an example of an apparatus according to the invention;

Fig. 2 is a schematic representation of a stack stacked in accordance with an example of a method according to the invention; and

Fig. 3 is a schematic representation of another stack stacked in accordance with an example of a method according to the invention.

DETAILED DESCRIPTION

[0014] In Fig. 1, an example of an apparatus according to the invention for collating postal items into sets is shown schematically. In this apparatus, a transport track 1 for transporting postal items in a transport direction (arrow 2) is defined by two upper conveyor belts 3, 4 and a lower conveyor belt 5 on opposite sides of the transport track 1. The conveyor belts 3-5 may each include single belts mounted around end rollers. However, one or more of these conveyor belts may include a plurality of narrow belts or strings tensioned parallel to each other. The transport track 1 is for transporting postal items 6-9.

[0015] The postal items 6-9 are generally flat and rectangular items and may for instance be postal items, each constituted by one or more sheets, business reply envelopes, cards on carriers, brochures etc., suitable to be inserted and mailed in an envelope. The postal items 6-8 each have a leading edge 16, 17, 18 and a trailing edge 26, 27, 28 in the transport track 1 and oriented perpendicular to the transport direction 2.

[0016] Along the transport track 1, an edge detector (indicated by opposite arrows) 11 is located for detecting a leading or trailing edge of each first postal item in the transport track 1 as it passes the detector 11.

[0017] A feeding track 12 for feeding second postal items 7, 9 extends in a feeding direction (arrow 13). The feeding track 12 is defined between upper and lower conveyor belts 14, 15 on opposite sides of the feeding track 12. Also these conveyor belts 14, 15 may each include single belts mounted around end rollers or one or more of these conveyor belts may include a plurality of narrow belts or strings tensioned parallel to each other. In Fig. 1, a second postal item 9 having a leading edge 19 and a trailing edge 29 in the feeding track 12 and oriented perpendicular to the feeding direction 13 is shown. The feeding track 12 merges with the transport track 1 downstream of the detector 11, for collating each of the second postal items 9 with one of the first postal items 8 transported in the transport track 1.

[0018] In Fig. 1, the postal item 7 is a second postal item that has been fed via the feeding track and collated onto one of the first postal items 6 being transported along the transport track 1. After having been collated, the collated first and second postal items 6, 7 are transported further in the transport direction 2 along the transport track 1. In the present example, the transport track 1 leads to a folding station 20.

[0019] With respect to the representation in Fig. 1, it is noted that a small gap is shown between the belts 3-5, 14, 15 and the postal items 6-9 to facilitate distinguishing these distinct items from each other in the drawing, but that, in practice, the directly adjacent portions of these items on diametrically opposite sides of the respective gap are generally in contact with each other for engaging postal items between opposite belt sections and for retaining collated postal items 6-8 in the transport track 1 in positions that are fixed relative to each other.

[0020] The apparatus further includes a sensor structure for measuring the actual relative positions of the collated first and second postal items of the sets of collated postal items (in the example shown in Fig. 1 the items 6, 7). This sensor structure is formed by a combination of an edge detector (indicated by opposite arrows) 21 located downstream of a point where the feeding track 12 meets the transport track 1, for detecting a leading and trailing edge of each collated sets of postal items in the transport track 1 as it passes the detector 21, a pulse disk unit 22 (including a disk and a pulse detector) coupled to a drive of the lower conveyor belt 5 and a control system 23 to which the edge detector (indicated by opposite arrows) 21 and the pulse disk unit 22 are connected. The control unit 23 is arranged for counting the number of pulses between detection of a leading and a trailing edge of a set of collated postal items, thereby obtaining a signal that is a measure of the length in transport direction 2 of the set of postal items 6, 7.

[0021] Thus, the actual relative positions of the collated first and second postal items 6, 7 can be measured in a relatively simple manner by measuring the length of the sets of collated postal items 6, 7.

[0022] For driving the conveyor belts 3-5, a central motor 24 is provided, which can be coupled to and uncoupled from end rollers of the conveyor belts 5, 14 by clutches 30 and 33 respectively. The clutches 30 and 33 are arranged for stopping the belts 5, 14 and the belts coupled thereto within a predetermined stopping distance when disconnected from the drive. The upper conveyor belts 3, 4 of the transport track 1 are permanently coupled to the lower conveyor belt 5 for circulation at the same velocity as the lower conveyor belt 5.

[0023] Along the feeding track 12, an edge detector (indicated by opposite arrows) 31 is located for detecting leading and trailing edges 19, 29 of each second postal item 9 in the feeding track 12 as it passes the detector 31. A pulse disk unit 32 is coupled to the conveyor belt 14 of the feeding track 12 and connected to the control system 23 for signaling displacement of items in the feeding track 12 in terms of counted pulses to the control system 23. The control system is arranged for controlling the clutch 33 for stopping the conveyor belts 14, 15 of the feeding track 12 within a predetermined distance counted by the pulse disk unit 32 after the detection of the leading edge 19 of a postal item 9 has been signaled by the edge detector 31 to the control system 23. Thus, a postal item 9 can be reliably stopped in a waiting position in the feeding track 12.

[0024] The control system 23 is connected to the clutches 30, 33 for each time transporting one of the second postal items 7, 9 from its waiting position in the feeding track 12 in the feeding direction 13 along the feeding track 12 in response to the detection of the trailing edge 28 of the first postal item 6 resp. 8 by the detector 11, into a position collated with one of the first postal items 6, 8 in the transport track 1. Thus, the postal item 9 is ready waiting between the conveyors 14, 15 of the feed-

ing track and on the transport track 1 a postal item 8 is transported from an upstream feeder. Based upon the passing of the trailing edge 28 at a photocell of the edge detector 11, the conveyors 14, 15 are started, so as to add the second postal item 9 in an accurately stacked position on top of postal item 8. The conveyors 14, 15 of the feeding track 14 are stopped as soon as the trailing edge of second postal item has passed a photocell of the edge detector 21.

[0025] As will be explained in more detail with reference to Figs. 2 and 3, because the first and second items 6-9 are retained by the feeding and transport tracks 1, 12 during stacking without sliding relative to each other and are retained in mutually fixed positions after having been stacked, tolerances on the precision with which leading or trailing edges 26-29 of the stacked postal items 6-9 are mutually aligned do in practice result in some misalignment of the leading or trailing edges of many of the stacks.

[0026] One situation in which such misalignments can lead to a particularly large increase of the length of a stack, which becomes irreversible if the stack is folded, is when a succession of feeding tracks, such as the feeding track 12, merges with a transport track, such as the transport track 1, in a succession of positions along the transport track. In some stacks, a number of postal items may each become positioned in a position in which the aligned edge projects slightly from all other aligned edges. In such a situation, the length of the stack may be increased by an amount that hampers reliable processing and particularly insertion of the stack of postal items.

[0027] As is illustrated by Fig. 2, to avoid that such misalignments due to a possible tolerance range $2t$ (tolerance = $\pm t$) build up with several or even all next items 52, 53, 54, 55 that are added to a first postal item 51 of a stack 50 from a next feeding track merging with the transport track 1 in positions downstream of the position where the feeding track 12 merges with the transport track, a nominal off-set $o_{nom} \geq t$ in transport direction (arrow 2) between the detected edge 56 of the first postal item 51 and the edge 57 of the next postal item 52 on the same side of the stack 50 is applied. The size of this offset O_{nom} ensures that the edge 57-60 of each further postal item 52-55 at the side of the detected edge 51 is positioned either slightly retracted relative to the detected edge 56 of the first postal item 51 or, if the next postal item 52-55 has ended up extremely to the right in the tolerance range $2t$, possibly in alignment with the detected edge 56. Thus, it is ensured that an edge 57-60 of a next postal item 52-55 does not project beyond the first postal item 51 and thereby becomes the new edge that is detected and triggers the feeding of a next postal item 53-55 from a next insert feeding track to the postal items 51-54 arriving along the transport track..

[0028] If, as a variant on the example illustrated by Fig. 2, instead of the passage of the trailing edge of the postal item in the transport track, each time the passage of the leading edge of the postal item in the transport track trig-

gers the feeding of a second postal item and the leading edges are aligned relative to each other, to avoid a build up of misalignments of stacked postal items fed from successive feeding tracks, the nominal off-set of the leading edge of the second postal item relative to the leading edge of the first postal item should each time be in a direction opposite to the transport direction 2.

[0029] As is illustrated by Fig. 3, if each time a next postal item 102 is added to a first postal item 101 to form a stack 100 and the next postal items 102 each have a length l_2 measured from the leading edge 105 to the trailing edge 104 that is shorter than the length of each of the first postal items 101 from the leading edge 106 to the trailing edge 103 and shorter than or equal to the length l_f measured from the trailing edge 103 to the envisaged position f of a fold to be made in the first postal item 101, it should be avoided that misalignment causes the next postal 102 to interfere with the folding of the first postal item 101, for instance, because only a small edge portion of the next postal item 102 projects beyond the envisaged position f of the fold. To achieve this, a deliberate nominal off-set O_{nom} between the edge 103 of the first postal item 101 and the adjacent parallel edge 104 of the next postal item 102 may be provided, such that the next postal item 102 is positioned either with its edge 104 along the edge 103 of the first postal item 101 slightly projecting in a direction opposite to the transport direction (arrow 2) relative to the first postal item 101 or, in the event this next postal 102 item has ended up in the tolerance range $2t$ (tolerance = $\pm t$) in a position extremely shifted to the side of the stack 100 away from the edges 103, 104, possibly with the edges 103, 104 precisely in alignment with each other. It is thus ensured, that the opposite edge 105 of the second postal item 102 stays clear of the fold, when the fold is made in the envisaged position f .

[0030] If, as a variant on the example illustrated by Fig. 2, instead of the passage of the trailing edge of the postal item in the transport track, each time the passage of the leading edge of the postal item in the transport track triggers the feeding of a second postal item and the leading edges are aligned relative to each other, to reduce the risk of interference of the second postal item with the folding of the first postal item, the nominal off-set of the leading edge of the second postal item relative to the leading edge of the first postal item should be in the transport direction.

[0031] In the apparatus according to the example shown in Fig. 1, the control system 23 is arranged for determining the tolerance t between nominal relative positions of the first and second postal items 6, 8 and, respectively 7, 9 and the actual relative positions of the collated first and second postal items 6, 8 and, respectively 7, 9 of each of a first plurality of the stacked sets. The control system 23 is moreover arranged for, for at least one of the sets after the first plurality of the sets, controlling the transport of the second postal items for bringing the leading or trailing edge of the second postal

item into a nominal off-set O_{nom} relative to the trailing edge of the first postal item, which nominal off-set O_{nom} is larger than or equal to the determined tolerance t .

[0032] Because, the tolerance t between nominal relative positions of the first and second postal items and the actual relative positions of these postal items is determined, the nominal off-set can, at least in many cases, be set smaller than a nominal off-set that is selected to take into account a largest tolerance that may be expected. For instance, since the tolerance t is determined using the apparatus on which collation is subsequently carried out in the production mode, the tolerance is determined for the individual apparatus at hand. The tolerance may also be determined for the prevailing operating conditions and for, or even during, processing postal items of a given type. This more individualized and preferably condition based determination of the prevailing tolerance in the situation at hand allows the applicable tolerance to be determined more accurately and to select a smaller nominal off-set without adverse effects on reliability. In practice, the tolerance t is generally partly machine dependent and partly material dependent.

[0033] The applicable tolerance t may for instance be determined at installation or during a setting phase prior to operation in a production mode by loading all the downstream insert feeding stations each with at least 10 sheets or other postal items and by loading a most upstream feeding station with at least a number of sheets or other postal items equal to 10 times the number of feeding stations.

[0034] Then, sheets or other postal items are fed from the most upstream feeder and the next downstream feeder and collated with a nominal off-set O_{nom} that is larger than the largest tolerance t that may be expected, for instance a nominal off-set o_{nom} of -5 mm (i.e., in the example shown in Fig. 1, the trailing edge 27, 29 of the postal item 7, 9 fed from the downstream feeder along the feeding track 12 would end up 5 mm in advance of the trailing edge 26, 28 of the postal item 6, 8 supplied along the transport track 1). This is repeated 10 times. By measuring the overall length l_{tot} of the stack, which should be equal to the item length plus 5 mm if the tolerance t would be zero, larger than the item length plus 5 mm if the second postal item ends up too far upstream of the nominal position relative to the first postal item and smaller than the item length plus 5 mm if the second postal item ends up too far downstream of the nominal position relative to the first postal item.

[0035] Thus, the average bias between the intended nominal position of the second postal item relative to the first postal item can be calculated and compensated for during stacking of next sets of postal items and the applicable bandwidth or tolerance t about the average value can be determined as well. On the basis of the determined tolerance t , a nominal off-set O_{nom} larger than or equal to the determined tolerance t , but generally significantly smaller than an off-set, which would have been based on the largest tolerance t that may be expected,

can be selected and applied during operation in a production mode.

[0036] This procedure is then repeated for each feeding station coupled to the transport track via a feeding track and for each feeding track meeting the transport track, an individual nominal off-set o_{nom} larger than or equal to the determined tolerance t for that feeding track can be selected and applied during operation in the production mode.

[0037] If, as in the example shown in Fig. 3, the nominal off-set is set at a positive value, for instance a nominal off-set o_{nom} of +5 mm (i.e., in the example shown in Fig. 1, the trailing edge 27, 29 of the postal item 7, 9 fed from the downstream feeder along the feeding track 12 would end up 5 mm trailing the trailing edge 26, 28 of the postal item 6, 8 supplied along the transport track 1), the overall length l_{tot} of the stack will be smaller than the item length plus the nominal off-set if the second postal item ends up too far upstream of the nominal position relative to the first postal item and larger than the item length plus the nominal off-set if the second postal item ends up too far downstream of the nominal position relative to the first postal item.

[0038] It is observed that, within the framework of the present invention, the tolerance t may also be determined from the length of the stacked sets without applying a nominal off-set larger than the tolerance range. If the stacked postal items are of the same length, every misalignment between the first and second postal items results in a change of the length l_{tot} of the stack, but information regarding the bias between the nominal position of the added postal item and the actual position where the added postal item is positioned is, at least to some extent, not available. If one of the postal items is of a shorter length than the other, misalignments causing one of the postal items to be fully inside the contour of the larger postal items cannot be determined from the length of the stacked set. However, such measurements may nevertheless be useful, for instance during operation in a production mode, to monitor whether the frequency of sets of postal items with a length equal to the length of the largest postal item stays below a certain threshold value and whether the nominal off-set is not larger than necessary.

[0039] To further reduce the risk of the build-up of misalignments between successively fed postal items that are collated into a stack or the risk of a second or further postal item interfering with the folding of a longer postal item, the nominal off-set may be selected to be equal to the sum of the determined tolerance and a safety margin.

[0040] While the invention has been illustrated and described in detail in the drawings and foregoing description, such illustration and description are to be considered illustrative or exemplary and not restrictive; the invention is not limited to the disclosed embodiments.

[0041] For example, it is possible to provide that the feeding and/or transport tracks are partially or completely and on one or both sides defined by a plurality of rollers

and/or stationary guide surfaces forming a succession in transport direction.

[0042] Furthermore, the distance traveled of a set of postal items between detection of the leading and trailing edges may also be measured in other manners, for instance by counting pulse commands sent to a stepper motor or to a brushless DC motor or by counting indicia provided on rollers or belts of the transport track.

[0043] The edge detectors may be positioned for detecting leading edges instead of trailing edges or vice versa.

[0044] In particular during operation in a production mode, it is advantageous to measure the relative positions of the collated first and second postal items by monitoring when the trailing edge of a second postal item passes an edge detector, for instance as the edge detector 31, along the feeding track. Once the second postal item is traveling, a quite accurate estimate of what its actual position relative to the first postal item will be, once stacked, can be obtained from the determination when, in relation to the progress of the first postal item after its trailing edge had been detected, the trailing edge of the second postal item passes a given position.

[0045] Other variations to the disclosed embodiments can be understood and effected by those skilled in the art in practicing the claimed invention, from a study of the drawings, the disclosure, and the appended claims.

Claims

1. A method for collating postal items into sets, comprising:

a) for each of the sets:

transporting a first postal item (6, 8) in a transport direction (2) along a transport track (1), the first postal item (6, 8) being transported having a leading edge (16, 18) and a trailing edge (26, 28) in the transport track (1) and perpendicular to the transport direction (2);

detecting a leading or trailing edge (16, 18) of the first postal item (6, 8) in the transport track (1); and

in response to said detection of the leading or trailing edge (16, 18) of the first postal item (6, 8), transporting a second postal item (7, 9) in a feeding direction (13), with a leading edge and a trailing edge in a feeding track (12) and perpendicular to the feeding direction (13), along the feeding track (12) into a position collated with the first postal item (6, 8) in the transport track (1) and retaining the second postal item (7, 9) in said position relative to the first postal item (6, 8);

b) measuring the actual relative positions of the collated first and second postal items (6-9); and
c) determining a tolerance between nominal relative positions of the first and second postal items (6-9) and the actual relative positions of the collated first and second postal items (6-9) of each of said first plurality of said sets;

d) wherein, for at least one of said sets after said first plurality of said sets, the feeding of the second postal item (7, 9, 52-55; 102) is controlled for bringing the leading or trailing edge (27, 29; 57-60; 104) of the second postal item (7, 9, 52-55; 102) into a nominal off-set relative to the leading or, respectively, the trailing edge (26, 28; 56; 103) of the first postal item (6, 8; 51; 101), said nominal off-set being larger than or equal to said determined tolerance.

2. A method according to claim 1, wherein the actual relative positions of the collated first and second postal items (6-9) of a first plurality of said sets of collated postal items is measured by measuring the length of each of said first plurality of said sets of collated postal items (6-9).

3. A method according to claim 1 or 2, further comprising determining a bias between nominal relative positions of the first and second postal items (6-9) and the measured actual relative positions of the collated postal items (6-9) of said first plurality of said sets.

4. A method according to claims 2 and 3, wherein, for each of a first plurality of said sets of collated postal items (6-9), the feeding of the second postal item (7, 9) is controlled for bringing the leading or trailing edge of the second postal item (7, 9) into a nominal off-set relative to the leading or, respectively, the trailing edge of the first postal item (6, 8), said nominal off-set being larger than the largest expectable tolerance between the nominal relative positions of the first and second postal items (6-9) and the actual relative positions of the collated postal items (6-9).

5. A method according to any one of the preceding claims, wherein said sets of said first plurality of said sets of collated postal items (6-9) are collated during a setting phase and wherein said at least one of said sets after said first plurality of said sets are collated during a production phase and processed into mail pieces.

6. A method according to any one of the preceding claims, wherein, for at least one of said sets after said first plurality of said sets, either the nominal off-set of the trailing edge (57-60) of the second postal item (52-55) relative to the trailing edge (56) of the first postal item (51) is in transport direction (2) or the nominal off-set of the leading edge of the second

postal item relative to the leading edge of the first postal item is in a direction opposite to the transport direction.

7. A method according to any one of the claims 1-5, wherein at least one of said sets after said first plurality of said sets is folded after collating, the second postal items (102) each have a length measured from the leading edge (105) to the trailing edge (104) that is shorter than the length of each of the first postal items (101) from the leading edge (106) to the trailing edge (103) thereof and shorter than or equal to the length measured from the leading or trailing edge (103) to the envisaged position (f) of a fold to be made in the first postal item (101), and wherein, for at least one of said sets after said first plurality of said sets, either the nominal off-set of the trailing edge (104) of the second postal item (102) relative to the trailing edge (103) of the first postal item (101) is in a direction opposite to the transport direction (2) or the nominal off-set of the leading edge of the second postal item relative to the leading edge of the first postal item is in the transport direction.
8. A method according to any one of the preceding claims, wherein said nominal offset is equal to the sum of said determined tolerance and a safety margin.
9. An apparatus for collating postal items into sets comprising:

a transport track (1) for transporting postal items (6-9) in a transport direction (2) with a leading edge (16-19) and a trailing edge (26-29) in the transport track (1) and oriented perpendicular to the transport direction (2) and for retaining collated postal items (6, 7) in the transport track (1) fixedly positioned relative to each other;

a detector (11) along the transport track (1) for detecting a leading or trailing edge (26, 28) of each first postal item (6, 8) in the transport track (1);

a feeding track (12) for feeding second postal items (7, 9) in a feeding direction (13), the second postal items (7, 9) each having a leading edge (17; 19) and a trailing edge (27, 29) in the feeding track (12) and oriented perpendicular to the feeding direction (12), the feeding track (12) merging with the transport track (1) downstream of the detector (11), for collating each of the second postal items (7, 9) with one of the first postal items (6, 8) transported in the transport track (1);

a sensor structure (21, 22, 23) for measuring the actual relative positions of the collated first and second postal items (6-9) of said sets of collated postal items (6-9);

a control system (23) for each time causing the

feeding of one of the second postal items (7, 9) in the feeding direction (13) along the feeding track (12) in response to said detection of the leading or trailing edge (26, 28) of the first postal item (6, 8) by the detector (11), into a position collated with one of the first postal items (6, 8) in the transport track (1);

wherein the control system (23) is arranged for:

determining a tolerance between nominal relative positions of the first and second postal items (6-9) and the actual relative positions of the collated first and second postal items (6-9) of each of said first plurality of said sets; and

for at least one of said sets after said first plurality of said sets, controlling the transport of the second postal item (7, 9, 52-55; 102) for bringing the leading or trailing edge (27, 29; 57-60; 104) of the second postal item (7, 9, 52-55; 102) into a nominal off-set relative to the leading or, respectively, the trailing edge (26, 28; 56; 103) of the first postal item (6, 8; 51; 101), said nominal off-set being larger than or equal to said determined tolerance.

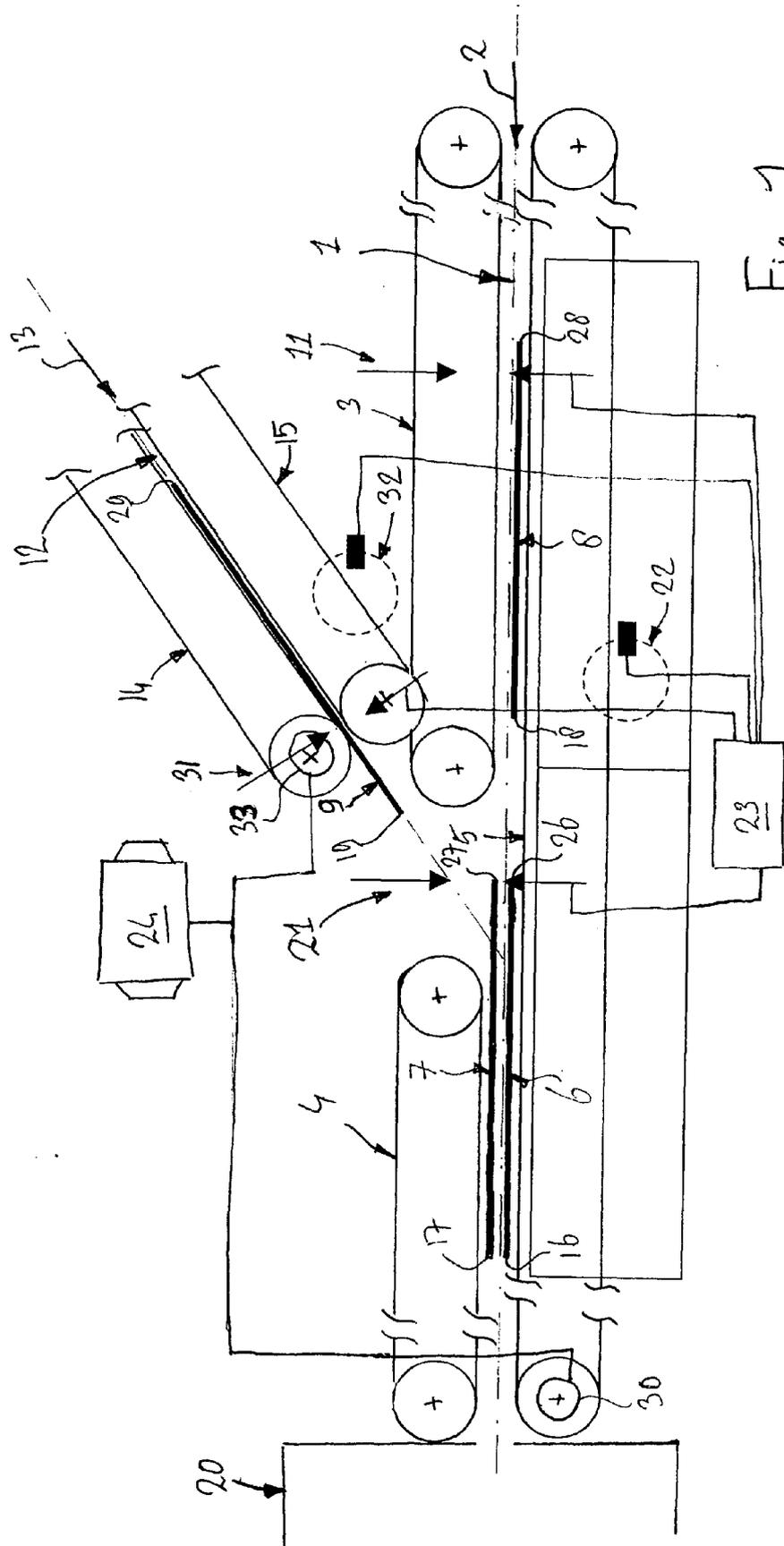


Fig. 1

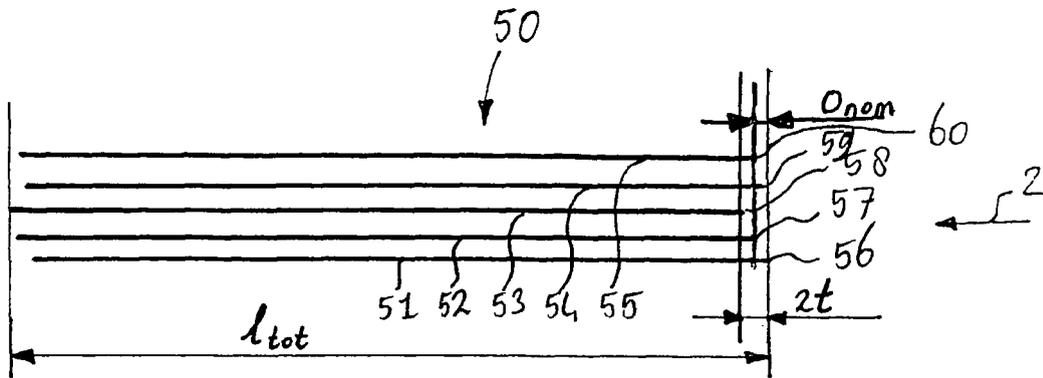


Fig. 2

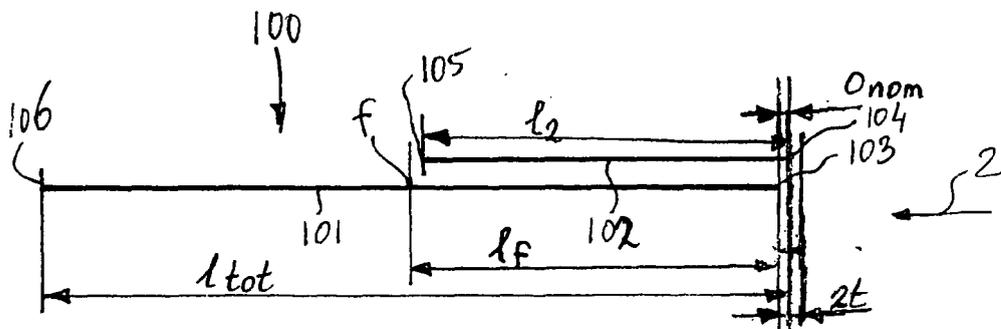


Fig. 3



DOCUMENTS CONSIDERED TO BE RELEVANT			
Category	Citation of document with indication, where appropriate, of relevant passages	Relevant to claim	CLASSIFICATION OF THE APPLICATION (IPC)
A	EP 1 550 628 A (NEOPOST S A [FR]) 6 July 2005 (2005-07-06) * page 4, paragraph 28 - page 5, paragraph 37 *	1-9	INV. G07B17/00
A	DE 197 06 140 A1 (KOCK KAY OLAF [DE] KOCK KAY-OLAF [DE]) 20 August 1998 (1998-08-20) * column 3, line 47 - column 4, line 34 *	1-9	
A	DE 100 42 261 A1 (YANG SHENG JUNG [TW]) 18 April 2002 (2002-04-18) * column 3, paragraph 20 - paragraph 21 *	1-9	
			TECHNICAL FIELDS SEARCHED (IPC)
			G07B B07C B43M B65H
The present search report has been drawn up for all claims			
Place of search The Hague		Date of completion of the search 14 May 2007	Examiner Bohn, Patrice
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