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(54) **Inserting system**

(57) An inserting system has one or more postal item feeders, an envelope feeder, an inserting station for inserting postal items into envelopes in an inserting position and a mailpiece holder for holding envelopes with postal items inserted therein. A tower portion of the inserting system projects upwardly of the inserting station wherein the holders associated to said feeders are connected to the tower portion and arranged on opposite

sides of the tower portion. The inserting station projects horizontally relative to the tower portion under at least one holders of one of the feeders. The mailpiece holder projects horizontally relative to the tower portion under one of the holders on a side of the tower portion opposite the inserting station.

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Description

BACKGROUND OF THE INVENTION

[0001] The invention relates to an inserting system for feeding postal items and envelopes from respective stocks to an inserting station where postal items are inserted into envelopes.

[0002] Such an inserting system is known from US-A1-2004/0035528. In this inserting system holders of the feeders for holding postal items and envelopes are arranged on opposite sides of a tower portion and the inserting station extends on a side of the tower portion under a holder of one of the feeders. A mailpiece holder is arranged to a side of the inserting station facing away from the tower portion.

[0003] An advantage of such an arrangement is that the footprint of the system is relatively small and the holders are nevertheless accessible, because holders can be arranged above each other and/or above the inserting station. A small footprint is particularly relevant for inserting systems that are used in organizations that send relatively small numbers of mailpieces and therefore have no mailroom or only a small mailroom. In addition, in some organizations there is a desire to have several smaller inserting systems rather than one or a few larger ones. Accordingly, there is a need for inserting systems that occupy little space and in particular have a small footprint.

SUMMARY OF THE INVENTION

[0004] It is an object of the invention to provide an inserting system with a reduced footprint compared to existing inserting systems with comparable capacity and versatility.

[0005] This object is achieved according to the invention by providing an inserting system according to claim 1.

[0006] Passing the completed mailpieces to a mailpiece holder on a side of the tower portion opposite of the side of the tower portion where the inserting station is located allows the mailpiece holder to be arranged in a vertical array with one or more of the holders of the feeders, while being easily accessible for unloading completed mailpieces. Accordingly, the mailpiece holder adds little or nothing to the overall footprint (the area within the contour of the apparatus in top plan view) of the inserting system.

[0007] Particular embodiments of the invention are set forth in the dependent claims.

[0008] Further objects, aspects, effects and details of the invention are described in the following detailed description of a number of exemplary embodiments, with reference to the drawings.

BRIEF DESCRIPTION OF THE DRAWINGS

[0009]

Fig. 1 is a schematic side elevation, partly in cross-section, of an inserting system according to the invention,

Fig. 2 is a schematic side view in perspective of the inserting system of Fig. 1 in which the inserting system is partly opened to access a paper transport path,

Fig. 3 is a schematic side view in perspective of the inserting system of Figs. 1 and 2 in which the inserting system is further opened to access another paper transport path, and

Fig. 4 is an alternative embodiment of a switch between the upstream and downstream sections of the transport arrangement for transporting mailpieces from the inserting position to the mailpiece holder.

DETAILED DESCRIPTION

[0010] In Fig. 1 a schematic side elevation, partly in cross-section, of an inserting system 1 is shown. In this embodiment, the inserting system 1 has postal item feeders in the form of three document feeders 2, 3, 4 for feeding documents and an insert feeder 7 for feeding inserts. (In this context of the present invention, postal items are understood to constitute the items to be inserted into the envelopes.) Furthermore an envelope feeder 5 for feeding envelopes is provided. In a housing 6 of the inserting system, a folding station 8, an inserting station 9 are arranged. The housing has a tower portion 56 projecting upwardly of the inserting station 9. A mailpiece holder 10 for receiving completed mailpieces 11 is arranged on a side of the tower portion of the housing 6 opposite to the side at which the inserting station 9 projects from the tower portion 56 of the housing 6.

[0011] Each document feeder 2, 3, 4 has a document holder 12, 13, 14 for holding a stack 15, 16, 17 of documents and a separating system 18, 19, 20 for separating and transporting a document or document set from the stack 15, 16, 17 and transporting it further into the inserting system 1. The feeder 4 may be dedicated or settable for processing daily mail, in which case a plurality of stacked documents loaded into the holder 14 (for instance a document set) is not separated but transported integrally from the feeder to a document transport path.

[0012] The envelope feeder 5 and the insert feeder 7 may both function as a feeder for sheetlike items, such as envelopes, inserts, or documents. Hence it is possible to have two separate envelope feeders. In an alternative embodiment it is also possible to have e.g. two insert feeders, where the envelope feeder is located elsewhere in the system (not shown in the drawings).

[0013] The envelope feeder 5 has an envelope holder 21 for holding a stack 22 of envelopes and a separating system 23 for separating and transporting a single envelope from the stack 22 and transporting it further into the inserting system 1.

[0014] The insert feeder 7 has an insert holder 24 for holding a stack 25 of inserts and a separating system 26 for separating and transporting a single insert from the stack 25 and transporting it further into the inserting system 1. The insert can be any of a wide variety of enclosures, such as a greeting card, a business card, a reply envelope or a sheet to be folded.

[0015] The holder 24 of the insert feeder 7 projects horizontally from the tower portion 56 on a first side of the tower portion 56 while the holders 12, 13, 14 of the document feeders 2, 3, 4, the holders 21 of the envelope feeder 5 and the inserting station project horizontally from the tower portion 56 on a second side of the tower portion 56 opposite of the first side.

[0016] The folding station 8 has a first pair of folding rollers 27, 28 forming a first folding nip there between and a second pair of folding rollers 28, 29 forming a second folding nip there between. In this embodiment one of the folding rollers of the first pair of folding rollers and one of the folding rollers of the second pair of folding rollers are formed by one and the same folding roller 28, but it is also possible that in an alternative embodiment the first and second pair of folding rollers do not comprise a common folding roller.

[0017] The inserting station 9 comprises an envelope holder 30 for holding an envelope 32 in an inserting position 31, and a flap hold-open element 33 for holding open a flap 34 of the envelope 32 held in the envelope holder 30. Please note that the envelope holder and the flap hold-open element are not depicted in detail, since these elements are known per se. For example, but not exclusively, the flap hold-open element and envelope holder as described in EP-A1-2.123.474 can be used in the inventive inserting system. In the situation where the flap 34 of the envelope 32 is held open by the flap hold-open element 33 a document folded in the folding station 8 can be inserted into the envelope 32. In order to realize this, the inserting station 9 is connected to the folding station 8 in a manner known per se.

[0018] According to the present example, a first transport arrangement for transporting postal items from document and insert feeders to the inserting position and for transporting envelopes from the envelope feeder to the mailpiece holder is arranged as follows.

[0019] From the document feeder 3, a document transport path 35 for transporting documents from the stack 16 of documents extends through the folding station 8 to the inserting position 31. From the document feeder 2 a document transport path 36 extends into the document transport path 35 for transporting documents from the stack 15 of documents through the folding station 8 to the inserting position 31. From the document feeder 4 a document transport path 37 extends into the document transport path 36 for transporting documents, from the stack 17 of documents through the folding station 8 to the inserting position 31. Thus, the transporting of documents from a stack can constitute the transportation of individual documents separated from the stack, the transportation of individual sets of documents (e.g. sets of documents attached to each other) from the stack or, if the daily mail function is selected or one of the feeding stations is dedicated for processing daily mail, the transportation of the whole stack at once.

[0020] From the envelope feeder 5 an envelope transport path 38 for transporting an envelope from the stack 22 of envelopes extends through the second folding nip formed between the second pair of folding rollers 28, 29 to the inserting position 31.

[0021] From the insert feeder 7 an insert transport path 39 enters into the envelope transport path 38 for transporting an insert from the stack 25 of inserts through the second folding nip formed between the second pair of folding rollers 28, 29 to the inserting position 31. In this embodiment the insert transport path coincides at least for a part with the envelope transport path. However, in an alternative embodiment the insert transport path may be completely separate from the envelope transport path.

[0022] The transport paths 35-39 constitute a transport path structure having tower sections descending from the document, insert and envelope feeders 2, 3, 4, 5, 7 through the tower portion 56 of the inserting system, and curved sections under and downstream of the respective tower sections and extending towards the inserting position 31.

[0023] In the embodiment shown the insert transport path 38, 39 comprises a diverter 40. This diverter 40 defines a first insert transport path part a between the insert feeder 7 and the diverter 40. In the position of the diverter 40 indicated by solid lines a second insert transport path part through which an insert can be transported is formed by a further curved section in the form of a cross-over path 41 which passes to the document transport path 35 and the (final) part of the document transport path 35. Thus the diverted insert passes through the first and the second folding nip, and is finally transported to the inserting position 31. In this position of the diverter 40 the insert transport path is formed by the first insert transport path part a, the cross-over path 41 and a (final) part of the document transport path 35. A stop 42 may be present to collate inserts. Such a stop or other means for collating inserts is known per se, and by way of non-limiting example reference is made to EP-A-2 107 021.

[0024] In the position of the diverter 40' indicated by dotted lines an insert being transported through the first insert transport path part a continues through the envelope transport path 38 portion between the diverter 40' and the inserting position 31. This portion of the envelope transport path 38 between the diverter 40' and inserting position 31 forms a third transport path part for an insert bypassing the first folding nip and only passing through the second folding nip.

[0025] The diverter 40 is operable to selectively divert inserts to be transported from the insert feeder 7 to the inserting position 31 by the first insert transport path part a and the second insert transport path part (41 and final part of 35) or the first insert transport path part a and the third insert transport path part (portion of envelope transport path 38 between diverter 40 and inserting position 31).

[0026] Thus e.g. in case of a letter fold (also called a C-fold) or a Z-fold of the main documents and a relatively short insert or business reply envelope (BRE) fitting in the main envelope without being folded, the diverter 40' is placed in the position indicated by dotted lines and the insert or BRE will be sent through the third insert transport path part and bypasses the first folding nip. The insert is then inserted into the second fold of the documents, so that the insert or BRE will be nested inside the main documents and will not fall out of the envelope easily when the recipient opens the letter. In other cases the diverter 40 can be placed in the position indicated by the solid lines so that the insert or BRE passes through the first folding nip as well as the second folding nip (which folding stations form substations of the inserting system). This is mostly the case when a single fold is applied to the BRE or insert, in order to allow the insert or BRE to be nested inside the main documents.

[0027] Although the diverter could be operated manually, it is presently most preferred to automatically operate said diverter to selectively divert inserts either from the insert feeder to the inserting position by the first insert transport path part and the second insert transport path part or from the insert feeder to the inserting position by the first insert transport path part and the third insert transport path part. Such an automatic operation could be obtained based on one or more parameters chosen from the group consisting of fold length, fold type, length of a document, length of an envelope and length, thickness and stiffness of an insert. If e.g. for a specific type of mail pieces to be completed from a number or batch of sheetlike items these parameters are known beforehand these parameters could be inputted in a control unit controlling the operation of the inserting system. Based on the inputted parameters said control unit is then able to place the diverter in the desired position. Alternatively the relevant parameters, such as the fold length, the length of a document, the length of an envelope and/or the length, thickness and/or stiffness of an insert could be measured automatically. For such measurements the inserting system comprises sensors or scanners or other means which are known per se.

[0028] The control unit could for example control the operation of the inserting system to determine automatically which way the insert should go based on the following algorithm:

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IF fold type is NOT single fold
THEN send insert to second fold rollers

ELSE
IF (insert length + insert margin) > envelope length
THEN send insert to collator / first fold rollers
ELSE
IF (insert length + fold margin) < first fold length
THEN send insert to first fold rollers
ELSE send insert to second fold rollers

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[0029] Thus, in case of a single fold, the diverter is placed in the position in which the inserts are sent to the first folding nip if possible, because if the diverter would be positioned such that the inserts would be sent via the second folding nip the inserts would not be nested inside the folded documents and, depending on the length of the enclosure and the envelope, the enclosure might not fit into the envelope..

[0030] Optionally the control unit could be provided with an override input so that an operator can choose to overrule the automatic insert path selection.

[0031] As can be seen in Fig. 1 the envelope transport path 38 can be divided into a first envelope transport path part, which is arranged between the envelope feeder 5 and the diverter 40 and a second envelope transport path part, which is arranged between the diverter 40 and the inserting position 31. To avoid too many paper paths and to be able to form a compact inserting system the paths are arranged such that a portion of the first envelope transport path part coincides with a portion of the first insert transport path part, and such that the second envelope transport path part and third insert transport path part coincide.

[0032] Seen in transport direction from a feeder to the inserting position 31 the envelope transport path 38 and the document transport path 35 upstream of the second folding nip 28, 29 are separate so that documents and envelopes can be transported independently of each other and for example simultaneously thus increasing the output rate of the inserting system.

[0033] As can be seen in the embodiment shown in Figs. 1 - 3 the inserting system 1 further comprises a plate 43 having a first side 45 and an opposite second side 44.

[0034] In the embodiment shown the envelope and insert transport path 38 is partly formed between a first paper item transport guide formed by the first side 45 of the plate 43 and a second paper item transport guide formed by a guide plate 46 and a number of transport rollers of which only two 47 and 47' are indicated in Fig. 1. The transport rollers 47, 47' in the first paper item transport guide are driven rollers which can be brought into contact with non-driven rollers 56, 56' (Fig. 3) arranged on the plate 43

[0035] Furthermore in the embodiment shown the document transport path 35 is partly formed by the second side 44 of the plate 43 (forming a third paper item transport guide) and a fourth paper item transport guide formed by a guide plate 48 and a number of transport rollers of which only two 49 and 49' are indicated in Fig. 1. By this construction it is clear that, seen in transport direction from a feeder to a substation (e.g. formed by a collating station, a folding station or an insert station), at least a portion of the first and second paper item transport guides 46, 45 and a portion of the third and fourth paper item transport guides 44, 48 upstream of the substation are separate. The rollers 49, 49' in the fourth paper item transport guide are driven rollers which can be brought into contact with non-driven rollers and 57, 57' (Fig. 2) respectively, arranged on the plate 43.

[0036] Please note that although in this embodiment transport rollers are shown, the invention is not limited to inserting systems with rollers for defining transport paths and driving transport of postal items, envelopes and/or mailpieces, but also encompasses inserting systems with other transport means such as belts, strings, a gripper mechanism or any other known transport mechanism or a combination of any other known transport means. The non-driven transport means in the plate will rotate when they are in contact with the driven transport means. However, it is not necessary that the plate comprises non-driven transport means. It is also possible to provide the plate with a smooth guide plate, optionally provided with holes on the position of the driven transport means on the opposite side of the paper path.

[0037] In the embodiment shown, the fourth paper item transport guide 48 together with amongst other things the document feeders, the envelope feeder and part of the housing 6 are mounted in the inserting system so as to be rotatable around a first rotation axis 50, which is arranged near an upper side of the inserting system 1. As is shown in Figs. 2 and 3 this upper part of the inserting machine can be rotated upward around the rotation axis 50 as indicated by the arrow 53. This part of the inserting machine is supported on opposite sides by e.g. hydraulic or pneumatic cylinders 51, 52. By such an upward rotation the fourth paper item transport guide 48 and the third paper item transport guide 44 are separated so that the document transport path is made accessible e.g. for maintenance or removal of jammed documents.

[0038] In addition the plate 43 is mounted in the inserting system 1 so as to be rotatable around a second rotation axis 54, which is arranged on a lower machine part near a lower side of the inserting system 1. The plate 43 can thus be rotated around the second rotation axis 54 in a second rotation direction (arrow 55). This causes that the second paper item transport guide 45 is rotated away from the first paper item transport guide 46 so that the envelope transport path is made accessible, e.g. for maintenance or removal of jammed envelopes or inserts. For accessing the transport paths the rotation directions 53, 55 can be opposite.

[0039] In an alternative embodiment not shown in the drawings, the plate could be mounted so as to be rotatable together with the upper machine part when this upper machine part is rotated upward around the rotation axis as indicated by the arrow 53 in Fig. 2, so that the separation of the machine parts will take place between the first and second guides. In order to access the other paper path the plate 43 could then be mounted to the upper machine part so as to be rotatable around a rotation axis. Furthermore, the rotation axes could be positioned at approximately the same level of the machine. In a further alternative embodiment the plate could be mounted to the upper and lower machine part by other means than a rotation axis, such as a parallelogram construction or other construction forcing a more or less rectilinear movement of the plate relative to the machine part, as long as the plate can be moved away from the relative machine part to allow access to the relevant paper path. In addition the plate could be mounted in the inserting system so as to be completely removable from the upper and lower machine parts. Furthermore, the plate may be divided into two or more parts that may be opened together but also individually.

[0040] Although not indicated in the drawings, the plate 43 can be equipped with sensors for paper detection and/or scanners for scanning a document transported through a transport path. These sensors and/or scanners can be movably mounted so that the sensors and/or scanners can be directed to either one of the transport paths. The diverter 40 can also be arranged on the plate 43, but can alternatively be arranged in or near the first paper item transport guide.

[0041] It will be clear that in case there are more separate transport paths in an inserting system more than one rotatable mounted plate without driven transport means separating these transport paths can be present. For example 4 parallel paper paths can be achieved using two plates in parallel. Although in the embodiment shown in Fig. 1 the holders 12, 13, 14 each hold a stack of documents, the holder 21 holds a stack of envelopes, and the holder 24 holds a stack of inserts, the invention is not limited to this embodiment. Depending on the desired application and configuration the holders may interchangeably hold other sheetlike items.

[0042] The inserting system has a second transport arrangement for transporting envelopes with postal items inserted

therein from the inserting position 31 to the mailpiece holder 10 on the opposite side of the tower portion 56. Because the mailpiece holder 10 projects horizontally relative to the tower portion 56 at the same side of the tower portion 56 as a holder 24 of one of the feeders 7, the footprint of the mailpiece holder 10 coincides for a large part with a portion of the overall footprint that is already occupied by the holder 24. Accordingly, the mailpiece holder adds relatively little to the footprint of the inserting system. More specifically, by arranging the mailpiece holder under the holders of the feeder at the same time, space alongside the tower portion 56 is used where positioning a feeder would be relatively complicated, because the feeder would be located lower than first transport arrangement for transporting postal items and envelopes down from the feeders to the inserting position, so the sheets would have to be transported upwardly along a transport path and join the transport path arriving from above.

[0043] The second transport arrangement has an upstream section 57 extending from the inserting position 31 on a side opposite of the curved section of the first transport arrangement and of the mailpiece holder 10. The second transport arrangement further has a downstream section 58 extending downstream of the upstream section 57 to the mailpiece holder 10 and passing underneath the inserting position 31 and the first transport arrangement. By passing the completed mailpieces underneath the inserting position, the mailpieces can initially be transported away from the inserting position in a direction away from the downstream end of the first transport arrangement, i.e. generally in the same direction as the direction in which the envelopes and the postal items to be inserted therein arrive at the inserting position. This is advantageous for reliability, production capacity per unit of time and simplicity of construction. Nevertheless, the mailpieces can be passed to the mailpiece holder on the opposite side of the tower portion without intersecting a transport path of the first transport arrangement.

[0044] A switch 59 is arranged between the upstream and downstream sections 57, 58 of the second transport arrangement. The switch 59 has a pair of rollers 60, 61 defining a nip between circumferential surfaces of these rollers 60, 61. The nip is arranged for receiving mailpieces 62 from the upstream section 57 and for feeding received mailpieces 62' into the downstream section 58. One of the rollers 61 is coupled to a drive structure 63 (schematically shown) for driving the roller 61 and for reversing a sense of rotation of that roller.

[0045] The orientation of the nip, defined by a plane perpendicular to a plane through axes of the rollers 60, 61, is in an angular range between a first direction of transport of the upstream section 57 where it reaches the nip and a second direction of transport of the downstream section 58 where it departs from the nip. This causes a mailpiece 62 to turn from the orientation shown in dash and dot lines 62' to an orientation shown in full lines 62 when the mailpiece 62 is released by the upstream section 57. When the sense of rotation of the rollers 60, 61 is subsequently reversed, the mailpiece 62 is fed into the downstream section 58 of the second transport arrangement. Preferably, the orientation of the nip is closer to the direction of transport of the downstream section 58 where it departs from the nip than to the direction of transport of the upstream section 57 where it reaches the nip.

[0046] The orientation of the nip may also be (essentially) in-line with the direction of transport of the downstream section 58 where it departs from the nip. However, reducing the angle between the orientation of the nip and the direction of transport in which the upstream section reaches the nip is advantageous for reliably feeding mailpieces into the nip and reducing the extent to which mailpieces are bent during transport into the nip. For reliably feeding mailpieces from the nip into the downstream section 58, without requiring alignment or at most very small difference between the orientation of the nip and the direction of transport at which the downstream section departs from the nip, a portion of the downstream section adjacent to the nip is bounded by a guide 64 constituting a guide wall 64 converging with an opposite surface for guiding mailpieces 62' into a further, narrower portion of the downstream section 58.

[0047] The downstream section 58 of the second transport arrangement has a guide surface 65 that is bellied out such that it is curved in a plane in transport direction and a transport belt 66 tensioned in the transport direction against the guide surface 65. Such a transport path in which mailpieces are clamped between an outwardly curved guide surface and a guide belt tensioned along that surface allows to reliably transport mailpieces of widely varying thicknesses and sizes without requiring adjustments, while constituting a simple, low-cost construction. Furthermore, the absence of rollers on one side of the downstream section 58 allows the guides defining downstream section 58 to be of a particularly slender construction.

[0048] At least a portion of the guide surface 65 in contact with the transport belt 66 is constituted by a surface of polyethylene material. This reduces friction between the belt and the guide surface as well as between the guide surface and mailpieces transported along the guide surface. Furthermore, the polyethylene guide surface is durable and staining of the mailpieces by material abraded from mailpieces or the belt is avoided or at least reduced to an acceptable minimum. Preferably, the polyethylene is an ultra high molecular weight polyethylene material.

[0049] To avoid static loading of mailpieces or the guide, the polyethylene is preferably of an anti-static type, for instance of a blend containing a conductive additive or filling material.

[0050] At least an outer surface of the belt in contact with the guide surface is preferably a surface of a polyurethane material. Such a material combines sufficient friction to impart traction upon the mailpieces, while being durable generating relatively little friction relative to the polyethylene material.

[0051] Within the framework of the present invention, many other embodiments are conceivable. For instance the first

transport arrangement may be constituted by a single path for transporting both envelopes and postal items to be inserted therein or by completely separate paths for transporting envelopes and postal items to be inserted therein.

[0052] The switch between the upstream and downstream sections of the second transport arrangement may for instance be provided in a form as schematically illustrated by Fig. 4. In Fig. 4, one of the rollers 161 of the rollers 160, 161 of the switch 159 is pivotably suspended such that the orientation of the nip can alternately be switched between a receiving orientation (arrow 167) and a feeding orientation (arrow 168).

[0053] According to the present example, a first one of the rollers 161 of the rollers 160, 161 of the switch 159 is pivotably suspended such that its axis can pivot about the axis of the other roller 160. To this end the first one of the rollers is suspended via pivotable swing arms 169 that are pivotable about the axis of the other roller 160. For operating the pivoting motion of the swing arms 169, a control arm 170 projects from the swing arm 169 and is coupled to a solenoid 171. By operating the solenoid 171, the position of the first roller 161 can be changed from the position 161' shown in dash and dot lines to the position 161 shown in full lines. This causes a mailpiece 162 to turn from the orientation shown in dash and dot lines 162' to an orientation shown in full lines 162. The mailpiece 162 is then fed into the downstream section 158 of the second transport arrangement.

[0054] Alternatively, changing of the orientation of the nip may also be accomplished by providing that resistance of the entrained roller 160 causes the lower, driven roller to roll over the circumference of the upper, driven roller between a receiving position and a feeding position. The range of the motion of the swing arm is preferably limited by stops. If the sense of rotation of the driven roller is inverted, the orientation of the nip is switched from the receiving orientation to the feeding orientation or vice versa. Inversely, the upper, driven roller may be suspended via swing arms that are pivotable about the axis of the lower, driven roller so that the arms and the upper, driven roller are entrained in a range limited by stops between the receiving position and a feeding position in response to inverting the sense of rotation of the lower, driven roller.

[0055] Although the receiving orientation and the feeding orientation are preferably in line with the upstream section 157 and, respectively, the downstream section 158, it is in principle sufficient if the receiving orientation is closer to a direction of transport of the upstream section, where it reaches the nip, than the feeding orientation.

Claims

1. An inserting system comprising:

a postal item feeder comprising a postal item holder for feeding postal items from the postal item holder;
an envelope feeder comprising an envelope holder and an envelope separator for separating and feeding envelopes from a stock of envelopes held by the envelope holder;
an inserting station for inserting postal items into envelopes in an inserting position in the inserting station;
a tower portion projecting upwardly of the inserting station wherein the holders of said feeders project horizontally from the tower portion on opposite sides of the tower portion; and
a mailpiece holder for holding envelopes with postal items inserted therein;
wherein the tower portion and the inserting station comprise:

- a first transport arrangement for transporting postal items from the postal item feeder to the inserting position and for transporting envelopes from the envelope feeder to the inserting position, and
- a second transport arrangement for transporting envelopes with postal items inserted therein from the inserting position to the mailpiece holder;

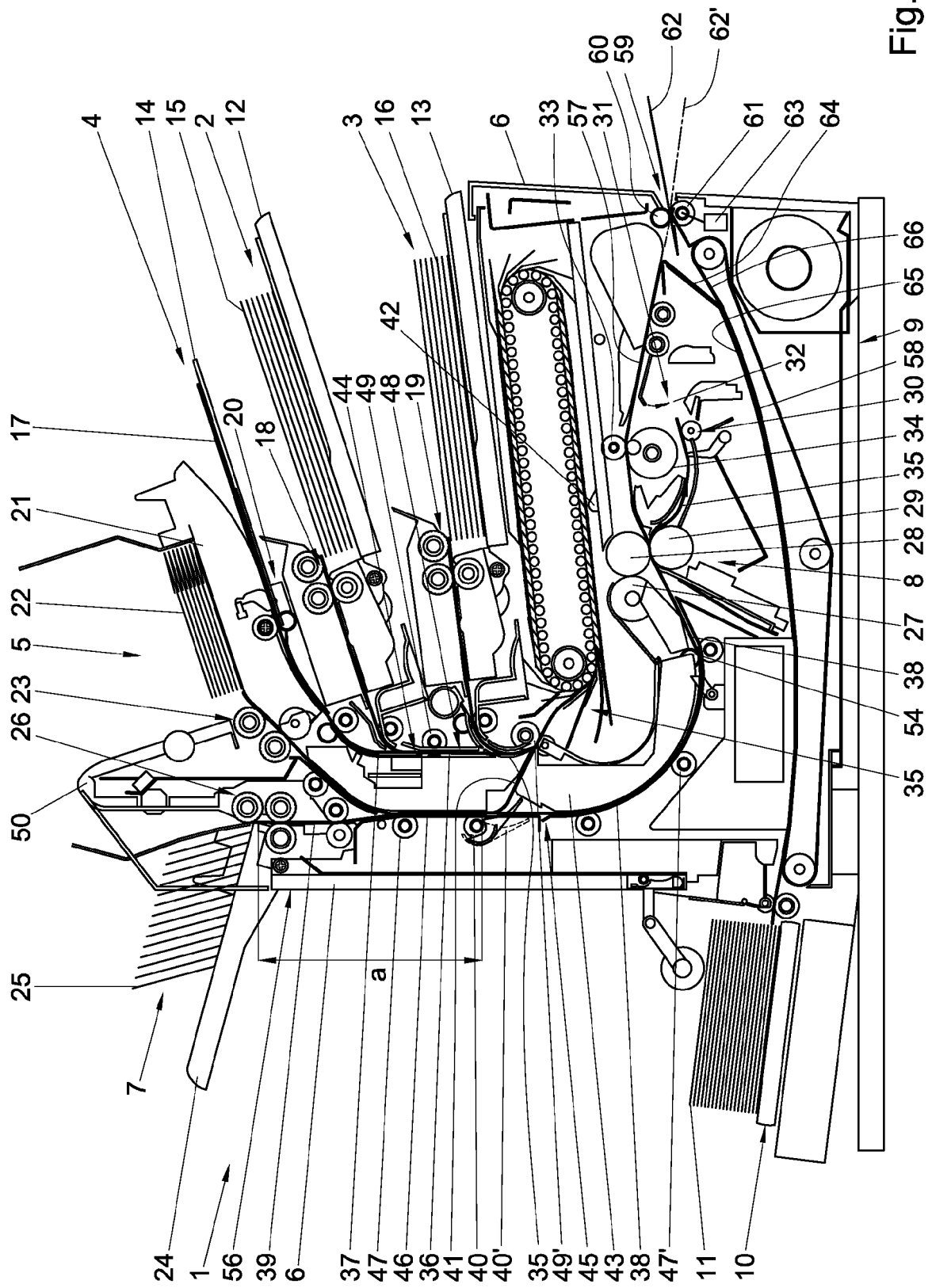
wherein the inserting station projects horizontally relative to the tower portion under at least one of said holders;
wherein the first transport arrangement defines a transport path having at least one tower section descending from at least the postal item feeder through a tower portion of the inserting system, and a curved section under the tower section and extending towards the inserting position;

wherein the mailpiece holder projects horizontally relative to the tower portion under one of said holders on a side of the tower portion opposite to the inserting station.

2. An inserting system according to claim 1, wherein the second transport arrangement comprises:

an upstream section extending from the inserting position on a side opposite of the curved section of the first transport arrangement and of the mailpiece holder; and
a downstream section extending downstream of the upstream section to the mailpiece holder and passing underneath the inserting position.

3. An inserting system according to claim 2, comprising a switch between the upstream and downstream sections of the second transport arrangement, wherein the switch comprises a roller pair defining a nip between circumferential surfaces of the rollers of said pair, the nip being arranged for receiving mailpieces from the upstream section and for feeding received mailpieces into the downstream section, and wherein at least one of the rollers of said pair is coupled to a drive structure for driving said at least one of the rollers and reversing a sense of rotation of said at least one of the rollers.
4. An inserting system according to claim 3, wherein the orientation of the nip, defined by a plane perpendicular to a plane through axes of the rollers, is in an angular range between a direction of transport of the upstream section where it reaches the nip and a direction of transport of the downstream section where it departs from the nip.
5. An inserting system according to claim 3, wherein at least one of the rollers is pivotably suspended such that the orientation of the nip, defined by a plane perpendicular through axes of the rollers, can alternately be switched between a receiving orientation and a feeding orientation, the receiving orientation being closer to a direction of transport of the upstream section, where it reaches the nip, than the feeding orientation.
6. An inserting system according to claim 3, 4 or 5, wherein a portion of the downstream section adjacent to the nip is bounded by a guide wall converging with an opposite surface for guiding mailpieces into a further, narrower portion of the downstream section.
7. An inserting system according to any of the preceding claims, wherein at least a section of the second transport arrangement comprises a guide surface that is bellied out such that it is curved in a plane in transport direction and at least one transport belt tensioned in said transport direction against said guide surface.
8. An inserting system according to claim 7, wherein at least a portion of said guide surface in contact with the transport belt is constituted by a surface of polyethylene material.
9. An inserting system according to claim 8, wherein the polyethylene material is an anti-static ultra high molecular weight polyethylene material.
10. An inserting system according to claim 8 or 9, wherein an outer surface of the belt in contact with the guide surface is a surface of a polyurethane material.
11. An inserting system according to any of the preceding claims, comprising a further postal item feeder comprising a further postal item holder and a further postal item separator for separating and feeding further postal items from a stock held by the further postal item holder, wherein the inserting station is located under said further postal item holder.



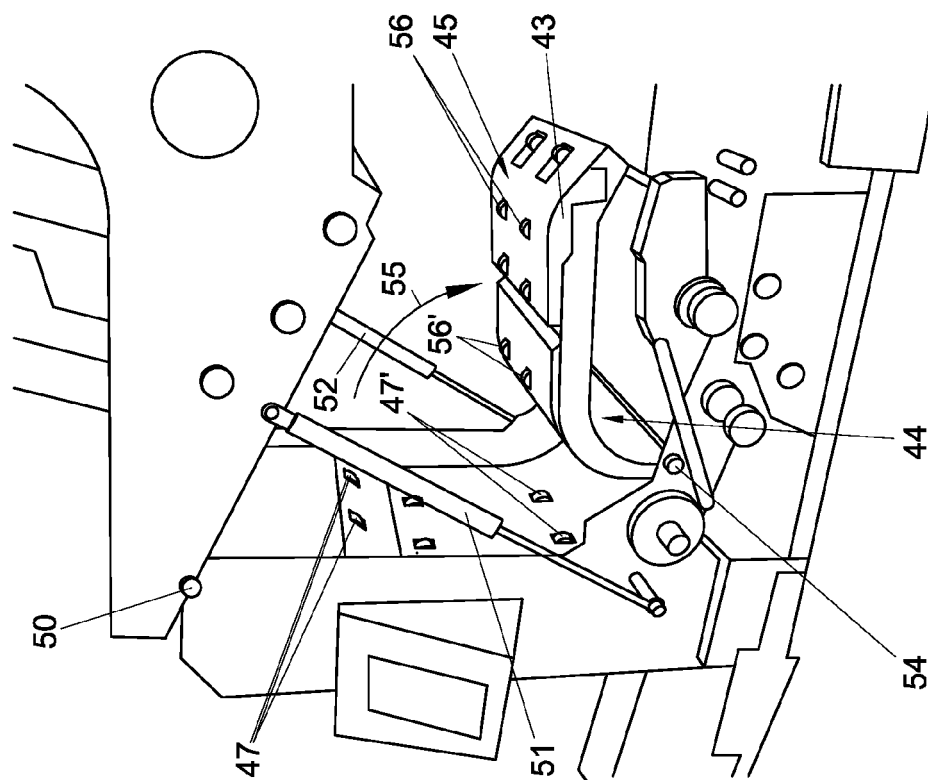


Fig. 3

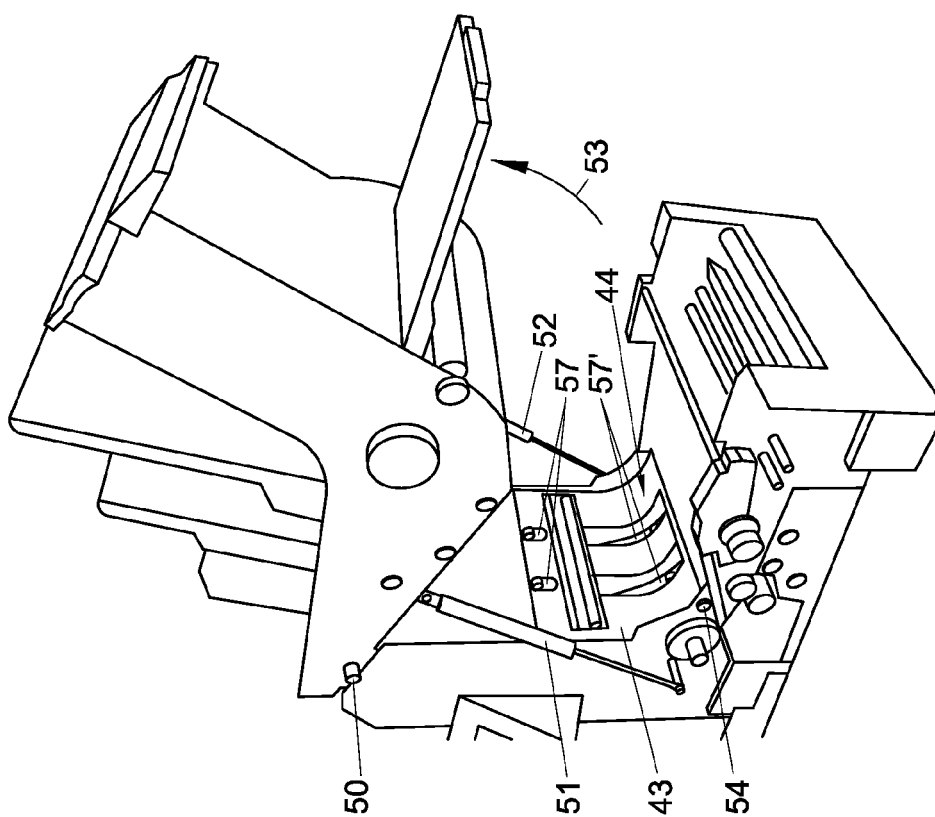


Fig. 2

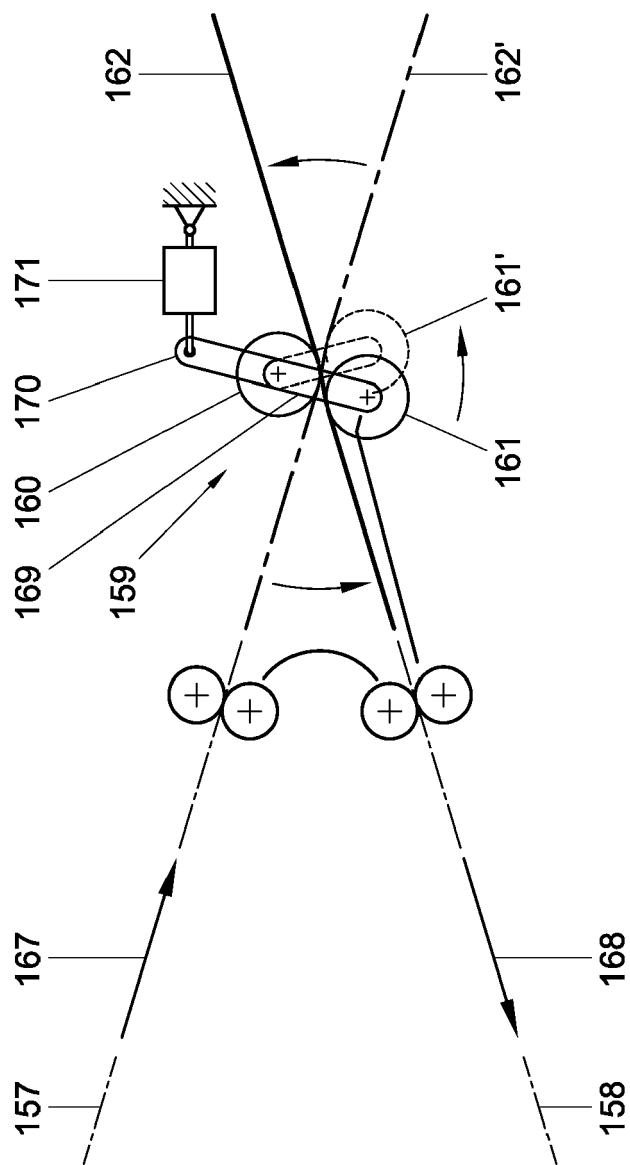


Fig. 4



EUROPEAN SEARCH REPORT

Application Number
EP 11 15 2804

DOCUMENTS CONSIDERED TO BE RELEVANT			
Category	Citation of document with indication, where appropriate, of relevant passages	Relevant to claim	CLASSIFICATION OF THE APPLICATION (IPC)
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