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(54) **DEVICE FOR SEPARATING A WEB INTO PARTS AND FOR STACKING SAID PARTS, POSSIBLY AFTER FOLDING.**

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Description

The invention concerns a device for separating a web into parts and for stacking said parts, possibly after folding, said device comprising a workstation with a supporting structure and with a web-transporting device, a separating device and a folding device, mounted on the supporting structure and further comprising a collecting device for collecting the web parts into stacks, said collecting device being situated under the workstation and comprising a portion which is at least horizontally movable with regard to the workstation and means for moving this portion.

Such devices are often put up after a printing device, in particular for continuous forms. The folding device used hereby contains known means for laying down web parts in a zigzag manner on a platform or on web parts already present on this platform and elements for flattening the folds. Also, these flattening elements must be situated practically at the height of the platform or the stack already placed upon it. Since the stack becomes ever higher as more of a web part or more web parts are put on the platform, it should be possible to move the workstation and the platform with regard to one another.

A device of this kind is known from EP-A-0 187 344. In this known device, the workstation is stationary while the platform is movable up and down. Before a stack is formed on the platform, it is raised against the workstation. As the stack becomes higher, the platform is lowered. When the stack is sufficiently high, the platform is lowered to the height of a horizontally movable portion of the collecting device. By means of a mechanism, the stack is finally pushed from the platform on two said movable portion.

To permit forming relatively high stacks, the distance between the platform and the workstation is relatively large and larger than the height of the highest stack which should be collected by the collecting device. If however only a small stack is required, after formation of the stack, the platform has still be lowered over a relatively large distance to the level of the horizontally movable portion, which implies a loss of time. The mechanism to push the stack from the platform makes the construction of the device more complicated and also this pushing off requires extra time.

Moreover in the known device, the separating device is a device for tearing apart the web. This tearing device comprises a mechanism for retaining the web and drive means situated upstreams for moving the web in the backward direction. To permit tearing apart, the web has to be pre-perforated in the crosswise direction. In fact, this known device can only treat a pre-folded web provided with perforations along the folding lines. As for each tearing the web movement has to be reversed, the formation of stacks of separate forms from a web is very time-consuming, as the web has to be teared on each folding line.

The invention aims to provide a remedy to the above-mentioned disadvantages and to provide a device for separating a web into parts and for stacking said parts, possibly after folding, according to the invention which has a relatively simple construction but which is fast-working, also when stacks of separate forms are desired, and which does not require a pre-folding or pre-perforating in the crosswise direction of the web.

To this aim the separating device is a cross-cutting device and the workstation is movably up and down above the horizontally movable portion of the collecting device, such that a stack is formed directly on this portion and the device comprises means for moving the workstation up and down as a function of the height of the stack formed on the movable portion.

A device for folding and stacking a web wherein the folding device alone is movable up and down in function of the height of a stack formed on a stationary platform is known as such from US-A-4 504 051. This device does not comprise any means for separating the web and it can only be used to form stacks from a prefolded web. Difficulties appear when the memory of the folds is lost. Moreover the folding device does only comprise guiding means but no flattening elements.

Also DE-A-3 346 841 discloses a device for refolding a prefolded web and stacking it on a stationary support. It does not comprise any means for separating the web. The folding device is comprised of an upper part and a lower part which are movable with respect to each other in the vertical direction. When a stack is formed on the stationary platform, the lower part is moved upwards with respect to the upper part as a function of the increasing height of the stack.

In a particular form of embodiment of the invention, the folding device can be put in and out operation.

Especially in this form of embodiment, the device can also easily stack loose sheets, which of course must not be folded.

Efficiently, the device then also contains a rotating element to collect a sheet from the folding device put out of operation and to lay down on the collecting device or the stack which has already been formed thereon, said rotating element being mounted on the supporting structure in a movable manner and being situated in one position at or under the lower end of the folding device put out of operation.

According to an advantageous form of embodiment of the invention, the folding device comprises a guide for the web parts which is suspended to the supporting structure in a pivotable manner around the horizontal axis, means to pivote this guide to and fro, two movable flattening elements which are mounted under the pivotable guide, on both sides of a vertical plane through the pivotating axis of the guide, and means to drive the flattening elements.

According to a preferred form of embodiment of the invention, the device comprises a control device for controlling at least the cross-cutting device whereas the workstation contains a detector to detect marks applied on the web, which detector is connected to the control device.

On the basis of the information of the detector, the control device can precisely determine the moment to cut the web.

Other characteristics and advantages of the invention will become clear from the following description of a device for separating a web into parts and for stacking said parts, possibly after folding. This description is given by way of example only and without being limitative in any way. The figures refer to the accompaying drawings wherein :

figure 1 shows a schematic front view of a device according to the invention;

figure 2 shows a cross section according to line II-II in figure 1 to a larger scale;

figure 3 shows a side view of the workstation from the device in figure 1 whereby a side wall of the supporting structure has been left out, represented to a larger scale;

figure 4 shows a side view analogous to that in figure 3, but in relation to another embodiment of the invention.

The device represented in the figures mainly contains a vertical guide 1, a workstation 2 which can be moved up and down over it and a collecting device 3 mounted under this workstation which comprises an endless belt-conveyer 5 mounted on a frame 4.

A web 6 of paper provided with perforations along the edges and which has been printed in a printing device, is supplied to the workstation 2 via a buffer 7 and over guide rolls 8 on the topmost end of the guide 1.

This workstation 2 contains, as shown in detail in figures 2 and 3, a supporting structure 9 with two standing side walls 10 in between which, successively from top to bottom, a transport device 11, a longitudinal-cutting device 12, a cross-cutting device 13 and a folding device 14 have been mounted.

The supporting structure 9 contains a carriage 15 upon which the standing side walls 10 have been mounted, which can be moved with wheels 16 over a guide 1. This carriage 15 carries a gear 17 which is driven by a motor 18 which can rotate in two directions and which cooperates with a gear rack 19 which is part of the guide 1. The motor 18 is controlled by a control device 20 with which it is connected via a line 21.

The transport device 11 contains two pin tractors put up opposite a guide plate 22 which each contains an endless belt 23 provided with pins. The two endless belts 23 run over two rolls 24 mounted on top of each other between the side walls 10. The lower roll 24 for each belt 23 is intermittently driven by a stepping motor 25.

The longitudinal-cutting device 12 contains two disc-shaped knives 26 which have been fixed on a horizontal shaft 27 opposite supports 28. The shaft 27 which is borne in the side walls 10 is driven by a motor 29.

The cross-cutting device 13 contains two horizontal knives directed crosswise to the side walls 10, namely a fixed knife 30 and a knife 31 which can move with regard to the latter. The knife 31 works in conjuction with a cam disc 32 which can push this knife against the action of a spring 33 against the fixed knife 30 to cut the web 6. The cam disc 32 is fixed on a shaft 34 which is driven by a stepping motor 35.

The folding device 14 contains a guide 36 pivotating to and fro which two parallel, downward directed plates which are connected to one another at the top by means of taps 38 with which they are suspended in a pivotable manner around a horizontal axis between the side walls 10. The top of the slot 39 between the plates 37 is situated just under the slit between the knives 30 and 31. On their lower edge the plates 37 are provided with guide rolls 40. One of the taps 38 is driven by a stepping motor 41 which can rotate in both directions.

The folding device 14 also contains two flattening elements 42 which have been mounted under the guide 36 on both sides of the theoretically vertical plane through the pivoting axis of the guide 36, at the same height, in a rotatable manner between the lower ends of the side walls 10. These elements 42 extend parallel to the pivoting axis of the guide 36. Perpendicular to their rotating axis, these flattening elements 42 have a practically half circle shaped section whereby one element 42 has been turned 180 degrees with regard to the other. The two rotatable flattening elements 42 are driven by stepping motors 43.

The belt-conveyer 5 of the collecting device 3 consists of an actual endless belt which runs over two rolls 45 borne in the frame 4, with the topmost belt portion 44 horizontally. One of the rolls 45 is driven by a motor 46.

Not only the motor 18 but also the motors 25, 29, 35, 41, 43 and 46 are connected to the control

device 20 by means of lines 21 and are controlled by this device.

This control device is also connected to a photo detector 47 which is mounted right above the cross-cutting device 13 and which can detects marks which have been applied on the web 6 by the printing device.

The web 6 is inserted between the guide plate 22 and the endless belts 23 with the pins through the perforations along the edges of the web 6. As the device is switched on, the control device orders the starting of the stepping motor 25 as a result of which the web is moved downwards by the belts 23. At the same time also the motors 29, 41 and 43 are started. The edges with perforations are cut off from the strip 6 by the longitudinal-cutting device 12. When the photo detector 47 has detected a mark or a random predetermined number of marks and the control device 20 has received corresponding signals, the latter orders the starting of the motor 35. As a result, the cam disc 32 is rotated one turn which results in the moveable knife 31 being pushed against the fixed knife 30 and the web 6 being cut. During this cut operation the control device 20 orders the motors 25 and 29 to stop such that the web 6 comes to a standstill.

The cut-off web part drops in the slot 39. The control device 20 controls the stepping motor 41 such that the guide 36 pivots to and fro as a result of which this web part is laid in a zigzag manner on the belt-conveyer 5 which is hold stationary or on a stack which has already been placed upon it. Successively, the folds are pressed on either side by the flattening elements 42 which are rotated by the motors 43 at the same speed.

As the stack on the upper belt portion 44 of the endless belt-conveyer 5 becomes higher, the control device 20 orders the workstation 2 to rise by activating the stepping motor 18, such that the flattening elements 42 are always at the required height so as to be able to press the folds of the web parts which have been laid down in a zigzag manner. One or more web parts with a predetermined length can be laid down on one and the same stack.

When the stack has reached the required height, which can for example be detected by means of photo cells or such like or by counting the number of web parts, folds or sheets, the control device 20 orders the belt-conveyer 5 to move over a restricted distance by temporarily activating the stepping motor 46. Immediately thereafter, the device 20 moves the workstation 2 in its lowest position, just above the belt-conveyer 5, by activating the stepping motor 18 in the required revolving direction.

When the reciprocating pivoting movement of the guide 36 of the folding device 14 starts, the guide 36 hangs vertically. The control device 20 not only controls the starting of the motor 41 but determines also the direction of the pivoting movement when starting according to the choice of the user. Referring to figure 3, the guide 36 can thus be moved first to the right or first to the left. Taking into account that the web 6 fed to the device may be pre-folded or not, the following possibilities are open. When a pre-folded web 6 is refolded, it may be refolded in the same way and with the same folds as in memory or the folds in memory may be inversed so that the folded web is stacked up the belt-conveyer 5 upside down with respect to the original stack upstreams the device. When a not folded continuous web 6 is treated, the web may be folded with the upside of the sheets of forms upside after folding or downside after folding. So, if e.g. the web is printed on one side, the device can fold the web so that the printed side of the first form of the folded web is downside or is upside.

The form of embodiment of the workstation 2 represented in figure 4 mainly differs from the form of embodiment in the previous figures in that the folding device 14, which can be switched off by the way, has a different construction.

In particular the two flattening elements 42 can be adjusted in the height with regard to the guide 36 as they are mounted between the lower parts of the side walls 10 which are not fixed to the rest and which can be adjusted in the heigth with regard to the rest by means of cylinder piston mechanisms 48. Moreover, one of the two flattening elements 42 can be horizontally moved as far as the vertical plane through the pivoting axis of the guide 36. In fact, this removable flattening element 42 in the last-mentioned position no longer forms a flattening element but a rotating element to collect a sheet from the stationary guide 36 and to rotate this sheet down on the belt-conveyer 5 or on the sheets which have already been laid down upon it. To this end the removable element 42 has been provided with a slot 49 in the longitudinal direction which opens on its outer surface, as represented in figure 4.

The device provided with the workstation 2 according to the embodiment in figure 4 can supply stacks with one or more folded web parts as well as stackes with loose sheets.

For supplying folded web parts, the removable lower ends of the side walls 10 are pushed upward towards the rest of the side walls and the movable flattening element 42 is placed symmetrically with regard to the other flattening element 42 with regard to the vertical plane through the pivoting axis of the guide 36. The device works entirely as described above whereby the folding device 14 is activated or in other words the guide 36 pivots to and fro and the two elements 42 are flattening.

For supplying loose, unfolded sheets, the folding device 14 must be switched off, which implies that it must be no longer possible to fold anything. To this end the guide 36 stands still in the vertical position. The movable flattening element 42 must be further rotated however, and the other flattening element 42 may be further rotated, but these elements 42 do no longer flatten. Moreover, the movable flattening element 42 must be placed under the guide 36 as represented in figure 4. Naturally, the control device 20 controls the cross-cutting device 13 such that the sheets are cut from the web 6 at the required length. These sheets frop through the slot 39 and are collected in the slot of the removable element 42 which does not function as a flattening element but as a rotating element and lays down the collected sheets on a stack.

The devices described above have a relatively simple construction. As the workstation 2 can be moved up and down and are stacking directly onto the belt-conveyer 5, successive stacks can be formed very fast one after the other such that the device can work very quickly. The web 6 to be fed to the device may but must not be pre-folded or crosswise pre-perforated.

The succesive stacks have not necessarily to be separated, or in other words the top sheet of a first sheet may be connected by web material to the lowermost sheet of the next stack. The control device 20 has of course to control the stepping motor 35 of the cross-cutting device 13 accordingly so that the web 6 is not cut between the stacks which should be connected to each other.

The present invention is in no way limited to the forms of embodiment described above; on the contrary, many modifications can be made to the described forms of embodiment, amongst others as far as form, composition, arrangement and the number of parts used for the realization of the invention are concerned, while still remaining within the scope of the invention.

In particular the collecting device must not necessarily have a belt-conveyer. Other transport devices with horizontally removable part, such as for example a removable table, can be used.

The transport device of the workstation must not necessarily have pin tractors either. The transport can also take place by means of pressure rolls, in which case the web must not be provided with perforations along its edges and the longitudinal-cutting device is of course redundant.

Claims

1. Device for separating a web (6) into parts and for stacking said parts, possibly after folding, said device comprising a workstation (2) with a supporting structure (9) and with a web-transporting device (11), a separating device (13) and a folding device (14), mounted on the supporting structure (9) and further comprising a collecting device (3) for collecting the web parts into stacks, said collecting device (3) being situated under the workstation (2) and comprising a portion (44) which is at least horizontally movable with regard to the workstation (2) and means (46) for moving this portion (44), characterized in that the separating device (13) is a cross-cutting device and the workstation (2) is movably up and down above the horizontally movable portion (44) of the collecting device (3), such that a stack is formed directly on this portion (44) and the device comprises means (17, 18) for moving the workstation (2) up and down as a function of the height of the stack formed on the movable portion (44).

2. Device according to claim 1, characterized in that the folding device (14) can be put in and out operation.

3. Device according to claim 2, characterized in that it also contains a rotating element (42) for collectinf a sheet from the folding device (14) put out of operation and for laying it down on the collecting device (3) or the stack which has already been formed thereon, said rotating element (42) being mounted on the supporting structure (9) in a movable manner and being situated in one position at or under the lower end of the folding device (14) put out of operation.

4. Device according to any one of the claims 1 to 3, characterized in that the folding device (14) comprises a guide (36) for the web parts which is suspended to the supporting structure (9) in a pivotable manner around the horizontal axis, means to pivote this guide (36) to and fro two movable flattening elements (42) which are mounted under the pivotable guide (36), on both sides of a vertical plane through the pivotating axis of the guide (36), and means (43) for driving these flattening elements (42).

5. Device according to claim 4, characterized in that the flattening elements (42) are elements which are mounted out of center with regard to their rotating axis, which is directed parallel to the pivoting axis of the guide (36), on the supporting structure (9), whereby one flattening element (42) has been turned 180 degrees with regard tot the other an the means (43) for driving the flattening elements (42) are means to rotate these elements.

6. Device according to claims 3 and 5, characterized in that one of the two flattening elements (42) is horizontally movable with regard to the supporting structure (9) to beneath the lower end of the guide (36) when the folding device (14) is put out of operation and the guide (36) has thus come to a standstill, whereby the means (43) for driving the flattening elements (42) can also drive at least the horizontally movable flattening element (42) when the folding device (14) is put out of operation and whereby this flattening element (42), when placed under the guide (36) in its shifted position, forms the rotating element for collecting the sheets one by one and laying them down.

7. Device according to claim 6, characterized in that the rotatable and horizontally movable flattening element (42) which forms the rotating element, is adjustable in the height with regard to the guide (36).

8. Device according to claim 7, characterized in that the horizontally movable flattening element (42) is mounted on the lower end of the supporting structure (9) which end is adjustable in the height with regard to the remainder of the supporting structure.

9. Device according to any of claims 6 to 8, characterized in that the horizontally movable flattening element (42) is provided with a slot (49) for collecting sheets.

10. Device according to claim 4 or 5, characterized in that it comprises a control device (20) which can determine the direction in which the pivoting movement of the guide (36) starts from its rest position before starting, in which position the guide (36) hangs vertically on the supporting structure (9).

11. Device according to any one of the claims 1 to 10, characterized in that the transport device (11) of the workstation (2) comprises pin tractors (23, 24, 25) and in that this workstation (2) comprises a longitudinal-cutting device (12) under these pin tractors for cutting off the edges of the web (6) provided with perforations along its edges.

12. Device according to any one of the claims 1 to 11, characterized in that the collecting device (3) comprises an endless belt-conveyer (5) with a belt whose top part (44) is directed horizontally.

13. Device according to any one of the claims 1 to 12, characterized in that it comprises a control device (20) for controlling at least the cross-cutting device (13), whereas the workstation (2) contains a detector (47) to detect marks applied on the web (6), which detector (47) is connected to the control device (20).

Patentansprüche

1. Vorrichtung zum Trennen einer Warenbahn (6) in Einzelteile und zum Stapeln besagter Einzelteile, eventuell nach Falten, wobei besagte Vorrichtung einen Arbeitsplatz (2) mit einer Trägerstruktur (9) und einer Warenbahn-Transportvorrichtung (11), einer Trennvorrichtung (13) und einer Faltvorrichtung (14), die auf der Trägerstruktur (9) montiert sind, umfaßt, und weiterhin eine Sammelvorrichtung (3) zum Sammeln der Warenbahnteile in Stapeln, wobei sich besagte Sammelvorrichtung (3) unter dem Arbeitsplatz (2) befindet und einen Teil (44), der in Bezug auf den Arbeitsplatz (2) zumindest horizontal bewegt werden kann, sowie Mittel (46) zum Bewegen dieses Teils (44) umfaßt, dadurch gekennzeichnet, daß die Trennvorrichtung (13) eine Querschneidevorrichtung ist und der Arbeitsplatz (2) über dem horizontal bewegbaren Teil (44) der Sammelvorrichtung (3) auf- und abbewegt werden kann, so daß ein Stapel direkt auf diesem Teil (44) gebildet wird, und die Vorrichtung Mittel (17, 18) zum Auf- und Abbewegen des Arbeitsplatzes (2) als Funktion der Höhe des auf dem bewegbaren Teil (44) gebildeten Stapels umfaßt.

2. Vorrichtung gemäß Anspruch 1, dadurch gekennzeichnet, daß die Faltvorrichtung (14) in und außer Betrieb gesetzt werden kann.

3. Vorrichtung gemäß Anspruch 2, dadurch gekennzeichnet, daß sie auch ein rotierendes Element (42) zum Aufnehmen eines Bogens von der außer Betrieb gesetzten Faltvorrichtung (14) und zu dessen Ablegen auf der Sammelvorrichtung (3) oder auf dem darauf bereits gebildeten Stapel umfaßt, wobei besagtes rotierendes Element (42) auf bewegliche Weise auf der Trägerstruktur (9) montiert ist und sich in einer Position an oder unter dem unteren Ende der außer Betrieb gesetzten Faltvorrichtung (14) befindet.

4. Vorrichtung gemäß einem der Ansprüche 1 bis 3, dadurch gekennzeichnet, daS die Faltvorrichtung (14) eine Führung (36) für die Warenbahnteile umfaßt, die schwenkbar um die hori-

zontale Achse an der Trägerstruktur (9) aufgehängt ist, Mittel zum Hin- und Herschwenken dieser Führung (36), zwei bewegbare Glättelemente (42), die unter der schwenkbaren Führung (36), auf beiden Seiten einer vertikalen Ebene durch die Schwenkachse der Führung (36), montiert sind, und Mittel (43) zum Antrieb dieser Glättelemente (42).

5. Vorrichtung gemäß Anspruch 4, dadurch gekennzeichnet, daS die Glättelemente (42) Elemente sind, die in Bezug zu ihrer Rotationsachse, die parallel zur Schwenkachse der Führung (36) gerichtet ist, an der Trägerstruktur (9) exzentrisch montiert sind, wobei ein Glättelement (42) um 180 Grad in Bezug auf das andere verdreht ist und die Mittel (43) zum Antrieb der Glättelemente (42) Mittel zum Rotieren dieser Elemente sind.

6. Vorrichtung gemäß Ansprüchen 3 und 5, dadurch gekennzeichnet, daß eines der beiden Glättelemente (42) in Bezug zur Trägerstruktur (9) horizontal bis unter das untere Ende der Führung (36) bewegt werden kann, wenn die Faltvorrichtung (14) außer Betrieb gesetzt ist und die Führung (36) somit zu einem Stillstand gekommen ist, wobei die Mittel (43) zum Antrieb der Glättelemente (42) auch zumindest das horizontal bewegbare Glättelement (42) antreiben können, wenn die Faltvorrichtung (14) außer Betrieb gesetzt ist, und wobei dieses Glättelement (42), wenn es in seiner verschobenen Position unter die Führung (36) plaziert wird, das rotierende Element bildet, um Bogen für Bogen aufzunehmen und abzulegen.

7. Vorrichtung gemäß Anspruch 6, dadurch gekennzeichnet, daß das rotierbare und horizontal bewegbare Glättelement (42), das das rotierende Element bildet, in Bezug auf die Führung (36) höhenverstellbar ist.

8. Vorrichtung gemäß Anspruch 7, dadurch gekennzeichnet, daß das horizontal bewegbare Glättelement (42) auf dem unteren Ende der Trägerstruktur (9) montiert ist, welches Ende in Bezug auf den Rest der Trägerstruktur höhenverstellbar ist.

9. Vorrichtung gemäß einem der Ansprüche 6 bis 8, dadurch gekennzeichnet, daß das horizontal bewegbare Glättelement (42) mit einem Schlitz (49) zum Sammeln von Bögen ausgestattet ist.

10. Vorrichtung gemäß Anspruch 4 oder 5, dadurch gekennzeichnet, daß sie eine Steuervorrichtung (20) umfaßt, die vor dem Starten die Richtung festlegen kann, in welche die Schwenkbewegung der Führung (36) aus ihrer Ruheposition startet, in welcher Position die Führung (36) vertikal an der Trägerstruktur (9) hängt.

11. Vorrichtung gemäß einem der Ansprüche 1 bis 10, dadurch gekennzeichnet, daß die Transportvorrichtung (11) des Arbeitsplatzes (2) Nadelzugvorrichtungen (23, 24, 25) umfaßt, und daß dieser Arbeitsplatz (2) eine Längsschneidevorrichtung (12) unter diesen Nadelzugvorrichtungen zum Abschneiden der Kanten der Warenbahn (6), die mit Perforationen entlang ihrer Kanten versehen ist, umfaßt.

12. Vorrichtung gemäß einem der Ansprüche 1 bis 11, dadurch gekennzeichnet, daß die Sammelvorrichtung (3) ein Endlos-Förderband (5) mit einem Band umfaßt, dessen Oberseite (44) horizontal ausgerichtet ist.

13. Vorrichtung gemäß einem der Ansprüche 1 bis 12, dadurch gekennzeichnet, daß sie eine Steuervorrichtung (20) zum Steuern zumindest der Querschneidevorrichtung (13) umfaßt, während der Arbeitsplatz (2) einen Detektor (47) zum Detektieren von auf der Warenbahn (6) angebrachten Markierungen umfaßt, welcher Detektor (47) mit der Steuervorrichtung (20) verbunden ist.

Revendications

1. Dispositif pour séparer une bande (6) en parties et pour empiler lesdites parties éventuellement après pliage, ledit dispositif comprenant un poste de travail (2) muni d'une structure de support (9) et d'un dispositif de transport de bande (11), un dispositif de séparation (13) et un dispositif de pliage (14) montés sur la structure de support (9) et comprenant, en outre, un dispositif de récolte (3) pour récolter les parties de bande en piles, ledit dispositif de récolte (3) étant situé en dessous du poste de travail (2) et comprenant une portion (44) qui est mobile au moins en direction horizontale par rapport au poste de travail (2), ainsi qu'un moyen (46) pour déplacer cette portion (44), caractérisé en ce que le dispositif de séparation (13) est un dispositif de coupe transversale et le poste de travail (2) peut se déplacer de haut en bas au-dessus de la portion (44) du dispositif de récolte (3), mobile en direction horizontale, de telle sorte qu'une pile est formée directement sur cette portion (44), et le dispositif comprend un moyen (17, 18) pour déplacer le poste de travail (2) de haut en bas

en fonction de la hauteur de la pile formée sur la portion mobile (44).

2. Dispositif selon la revendication 1, caractérisé en ce que le dispositif de pliage (14) peut être mis en et hors service.

3. Dispositif selon la revendication 2, caractérisé en ce qu'il contient également un élément rotatif (42) pour récolter une feuille provenant du dispositif de pliage (14) mis hors service et pour la déposer sur le dispositif de récolte (3) ou sur la pile qui a déjà été formée sur ce dernier, ledit élément rotatif (42) étant monté sur la structure de support (9) d'une manière mobile et étant situé dans une position à l'extrémité inférieure du dispositif de pliage (14) mis hors service, ou en dessous de cette dernière.

4. Dispositif selon l'une quelconque des revendications 1 à 3, caractérisé en ce que le dispositif de pliage (14) comprend un guide (36) pour les parties de bande, qui est suspendu à la structure de support (9) d'une manière apte à pivoter autour de l'axe horizontal, un moyen pour faire pivoter ce guide (36) vers l'avant et vers l'arrière, deux éléments d'aplatissement mobiles (42) qui sont montés en dessous du guide pivotant (36) de part et d'autre d'un plan vertical passant par l'axe de pivotement du guide (36), ainsi que des moyens (43) cour entraîner ces éléments d'aplatissement (42).

5. Dispositif selon la revendication 4, caractérisé en ce que les éléments d'aplatissement (42) sont des éléments qui sont montés de manière excentrique par rapport à leur axe de rotation qui est orienté parallèlement à l'axe de pivotement du guide (36), sur la structure de support (9), par lequel un élément d'aplatissement (42) a opéré une rotation de 180° par rapport à l'autre, les moyens (43) pour entraîner les éléments d'aplatissement (42) étant des moyens destinés à faire tourner ces éléments.

6. Dispositif selon les revendications 3 et 5, caractérisé en ce qu'un des deux éléments d'aplatissement (42) est mobile en direction horizontale par rapport à la structure de support (9) pour venir se placer en dessous de l'extrémité inférieure du guide (36) lorsque le dispositif de pliage (14) est mis hors service et lorsque le guide (36) se trouve ainsi au repos, par lequel les moyens (43) pour entraîner les éléments d'aplatissement (42) peuvent également entraîner au moins l'élément d'aplatissement (42) mobile en direction horizontale lorsque le dispositif de pliage (14) est mis hors service, et par lequel cet élément d'aplatissement (42), lorsqu'il est placé en dessous du guide (36) dans sa position décalée, forme l'élément rotatif pour récolter les feuilles une à une et pour les déposer.

7. Dispositif selon la revendication 6, caractérisé en ce que l'élément d'aplatissement (42) rotatif et mobile en direction horizontale, qui forme l'élément rotatif, peut être réglé en hauteur par rapport au guide (36).

8. Dispositif selon la revendication 7, caractérisé en ce que l'élément d'aplatissement (42) mobile en direction horizontale est monté sur l'extrémité inférieure de la structure de support (9), ladite extrémité étant réglable en hauteur par rapport au reste de la structure de support.

9. Dispositif selon l'une quelconque des revendications 6 à 8, caractérisé en ce que l'élément d'aplatissement (42) mobile en direction horizontale est muni d'une fente (49) pour la récolte des feuilles.

10. Dispositif selon la revendication 4 ou 5, caractérisé en ce qu'il comprend un dispositif de commande (20) qui peut déterminer la direction dans laquelle le mouvement de pivotement du guide (36) démarre à partir de sa position de repos avant le démarrage, position dans laquelle le guide (36) est suspendu en direction verticale à la structure de support (9).

11. Dispositif selon l'une quelconque des revendications 1 à 10, caractérisé en ce que le dispositif de transport (11) du poste de travail (2) comprend des dispositifs de traction à broches (23, 24, 25) et en ce que ce poste de travail (2) comprend un dispositif de coupe longitudinale (12) en dessous de ces dispositifs de traction de broches pour découper les bords de la bande (6), muni de perforations le long de ses bords.

12. Dispositif selon l'une quelconque des revendications 1 à 11, caractérisé en ce que le dispositif de récolte (3) comprend un transporteur (5) à courroie sans fin, dont la partie supérieure (44) de la courroie est orientée en direction horizontale.

13. Dispositif selon l'une quelconque des revendications 1 à 12, caractérisé en ce qu'il comprend un dispositif de commande (20) pour commander au moins le dispositif de coupe transversale (13), tandis que le poste de travail

(2) contient un détecteur (47) pour détecter des repères appliqués sur la bande (6), ledit détecteur (47) étant relié au dispositif de commande (20).

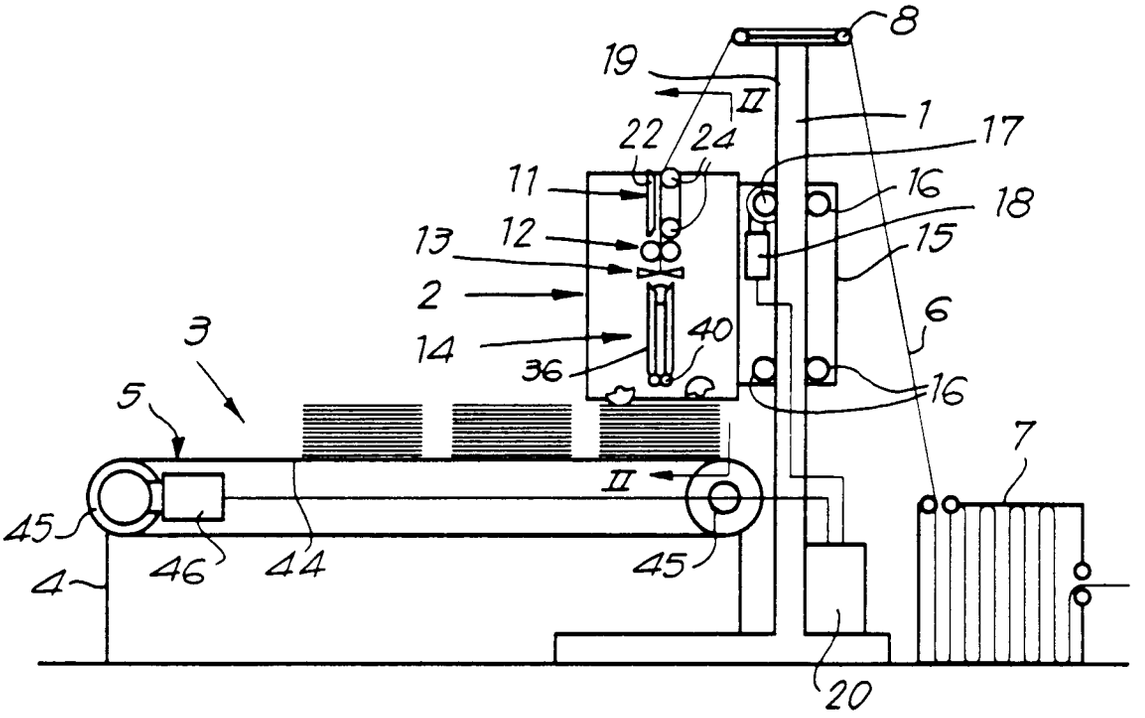
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Fig. 1

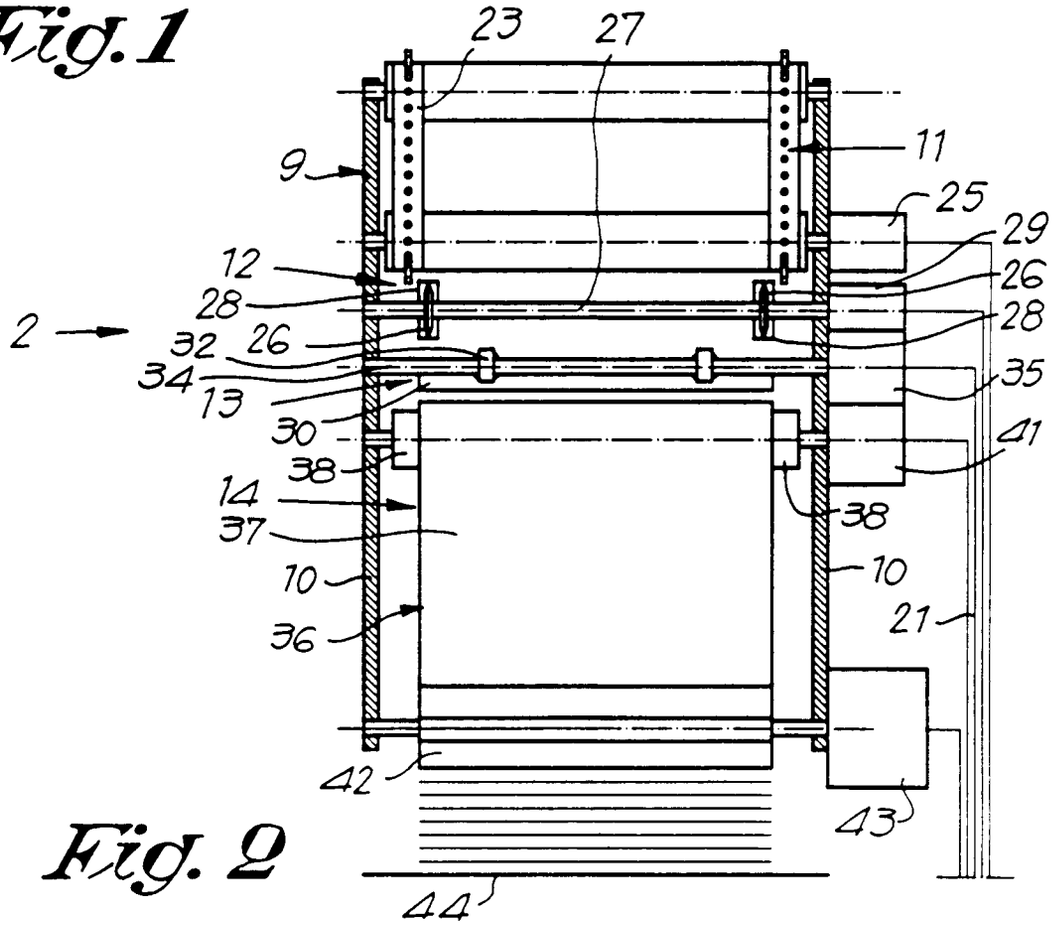
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Fig. 2

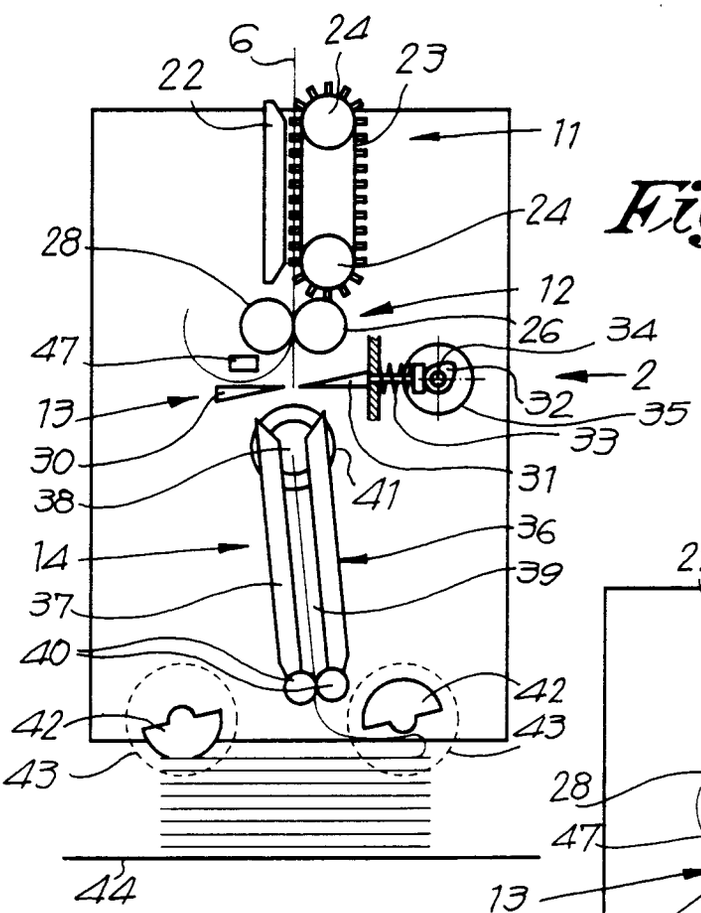
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Fig. 3

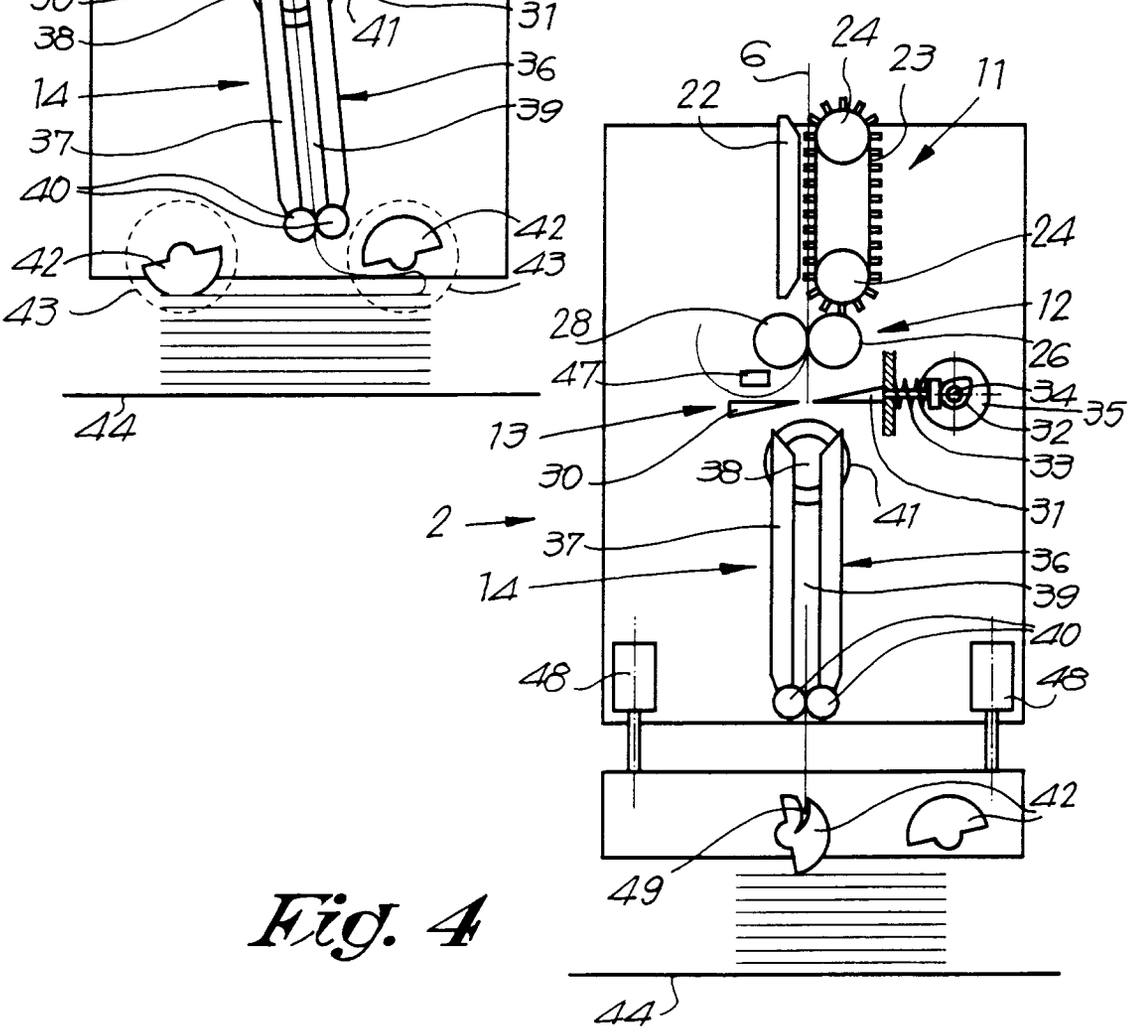
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Fig. 4