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(54) METHOD AND APPARATUS FOR APPLICATION OF LINERLESS LABELS

VERFAHREN UND VORRICHTUNG ZUM ANBRINGEN VON TRÄGERBANDLOSEN ETIKETTEN

PROCEDE ET APPAREIL PERMETTANT D'APPLIQUER DES ETIQUETTES SANS DOUBLURE

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Description

Field of the Invention

[0001] The present invention relates to the field of labels that are provided without separation liners between the labels and layer of supply of labels, and rolls, especially linerless labels provided in roll form. The present invention also relates to a method and an apparatus for applying linerless labels to substrates.

[0002] More specific the present invention relates to a method for the application of linerless labels and of the type as indicated in the preamble of claim 1.

[0003] The invention furthermore relates to an apparatus for carrying out the method according to the invention and of the type as indicated in the preamble of claim 3.

Background of the Invention

[0004] Labels which are not provided with liners over an adhesive face, referred to in the art as linerless labels, are less expensive than lined labels, since more labels can be provided in a roll of a given diameter than conventional labels with release liners, and they are more environmentally friendly since they do not require the disposal of liners after use.

[0005] Linerless labels have also become increasingly more popular because of the many advantages associated therewith. When any type of labels - including linerless labels - are used, it also is necessary to be able to automatically print the labels in a cost-effective manner. One way this can readily be accomplished is by using a thermal printer having a thermal print head with a thermal ribbon unwind and rewind system, or a thermal printer with a direct thermal print head. However, conventional thermal printers are not capable of printing linerless labels, because there will be surfaces thereof which necessarily come into contact with the uncovered adhesive face of the linerless labels as the label are being fed to the print head, during printing, or afterwards.

[0006] A variety of thermal printers are provided, which overcome this problem and are eminently suited for effective printing of linerless labels as by way of examples disclosed in US-A1-5,560,293 and US-A1-4,784,714

Purpose of the Invention

[0007] On this background it is the purpose of the present invention to provide an improved method and apparatus for application of linerless labels onto packings or the like.

Summary of the Invention

[0008] According to the invention there is provided a method for application of linerless labels onto packings or the like, and comprising the following steps:

- unwinding a linerless web from a supply roll including an interior core, e.g. of card board, with the adhesive face of the web facing downwards,
- leading the linerless web passed a conventional direct thermal print head,
- carrying the adhesive face of the linerless web by means of a carrier roller in combination with a carrier member having an anti-stick profiled surface,
- cutting the linerless web into individual printed labels, and
- leading said individual labels to an outlet position for either manually or automatically applying said labels onto packings or the like,

characterized in, that the final leading of said individual linerless labels to said outlet position is carried out by means of an inclined carrier plate member comprising a belt conveyor in combination with a pivotally arranged upper holding down arm member serving to press said individual labels against the conveyance surface of said belt conveyor, and that the final applying of said individual labels to said packings or the like is carried out by means of an application roller.

[0009] By means of rather simple provisions is hereby achieved an indeed improved method for successively unwinding of a linerless web, printing and cutting the web into individual linerless labels, which subsequently to the printing and forming at the very same operation may be applied onto suitable packings or the like.

[0010] Or the method according to the invention may alternatively be such provided, that said individual labels in said outlet position are caught by a plate-shaped suction head on a carrier arm system by means of which said individual labels are applied onto said packings or the like.

[0011] As introductory mentioned the present invention furthermore relates to an apparatus for application of linerless labels onto packings or the like, comprising an unwinding system with a spring-loaded hub for a supply roll containing a linerless web and a conventional direct thermal print head, said apparatus in connection with said print head comprises a carrier roller in combination with a carrier member having an anti-stick profiled surface, a stationary cutting unit for cutting said linerless web into individual printed labels, and an outlet position from which said individual labels may be either manually or automatically applied onto packings or the like, which apparatus is

characterized in comprising an inclined carrier plate member with a belt conveyor, which in combination with a pivotally arranged upper holding down arm member is provided for taken over the final leading of said individual linerless labels to said outlet position, and comprising an application roller for said final applying of said individual labels on to said packings or the like.

[0012] Alternatively the apparatus according to the invention may be such provided, that in said outlet position is provided a plate-shaped suction head on a carrier arm

system, by means of which said individual labels are caught and are applied onto said packings or the like.

[0013] Furthermore it may be advantageously that the apparatus according to the invention may be such provided, that said carrier roller is made from a multi compound rubber material with an anti-sticking surface, and that said carrier surface combined with said carrier roller is made from steel and with an anti-sticking surface having saw tooth like corrugations the pointed edges of which are leading in the direction of conveyance of said individual linerless labels.

[0014] In order to ensure an optimal function of the stationary cutting unit, the apparatus according to the invention may be provided such that said stationary cutting unit comprises an upper stationary knife and a lower movable inclined knife.

[0015] Further more a leading plate member may be provided behind the cutter for guiding the front end of the individual labels safe to said inclined carrier surface and in between said belt conveyor and said holding down arm member.

[0016] Because said lower inclined knife furthermore is operating from the adhesive face of the web being provided with a preferably very thin layer of hot-melt glue in the order of some 16 - 18 g /m^2, which means that the knife system as a whole is only very little exposed to being dirty.

[0017] In a certain and simple embodiment the apparatus according to the invention may be such provided, that in said outlet position is provided a pair of carrier arm members on which said individual labels is positioned adapted to be picked by hand and manually applied onto packings, and that below said carrier arm members is placed a photo cell being adapted to cooperate with a mirror placed above said carrier arm members.

[0018] In order to be able to ensure optimal operation of the apparatus according to the invention, this may advantageously be such provided, that said spring-loaded hub comprises a recognizing system belonging to a steering system of the apparatus and being adapted to recognize an original supply roll of a linerless web being provided with an interior core, by way of example of cardboard, as said core being provided with a recognizable signal member in the form of a RFID-tag of -label. **RFID** is abbreviation for **R**adio Frequency **ID**entification.

Brief Description of the Drawings

[0019] In the following the invention is described in more detail reference being made to the accompanying drawing, in which:

Fig. 1 shows a perspective view of an embodiment for a basic apparatus part of an apparatus according to the invention,

Fig. 2 shows a perspective view of an embodiment for a label applying apparatus part for an apparatus according to the invention,

Fig. 3 shows a perspective view of another embodiment for a label applying apparatus part for an apparatus according the invention,

Fig. 4 shows a perspective view of a basic apparatus jf. Fig. 1 provided with a label applying apparatus part with a plate-shaped suction head for the application of labels,

Fig. 5 shows a perspective view of the label applying apparatus part jf. Fig. 4,

Fig. 6 shows a perspective view of a further embodiment for a label applying apparatus part with an outlet position provided by a pair of carrier arm members for an apparatus according the invention,

Fig. 7A shows a perspective view of an embodiment for a special mounting plate member for the cutting unit of the apparatus according to the invention,

Fig. 7B shows a similar view of the mounting plate member jf. Fig. 7A - seen from the opposite side thereof,

Fig. 7C shows a perspective view of another and preferred embodiment for a mounting plate member for the cutting unit of the apparatus according to the invention,

Fig. 7D shows a similar view of the mounting plate member jf. Fig. 7C - seen from the opposite side thereof,

Fig. 8A shows a plane view of an embodiment for a cutting unit as mounted by means of a mounting plate member jf. Fig. 7C - as seen from the rear side of the cutting unit,

Fig. 8B shows a perspective view of the cutting unit as mounted by means of a mounting plate member jf. Fig. 7C,

Fig. 8C shows a similar view of the cutting unit cf. Fig. 8B - seen from the opposite side thereof,

Fig. 9A shows a perspective view of a rear side cover plate member for the cutter,

Fig. 9B shows a side view of the rear side cover plate member jf. Fig. 9A,

Fig. 10 shows a view of a label applying apparatus part jf. Fig. 2 for an apparatus according to

the invention,

Fig. 11 shows a detail view of the label applying apparatus part jf. Fig. 10,

Fig. 12 shows a detail side view of the print head and the cutter section - showing the path of the linerless web to be cut into individual printed linerless labels,

Fig. 13 shows a detail view - seen from above - showing the position of the front end of the linerless web,

Fig. 14 shows a detail view of the carrier roller in combination with the mounting plate member and the cutter - seen from the side and above - and with the print head swung backwards to show said parts,

Fig. 15 shows a more close detail view of the carrier roller in combination with the mounting plate member and the cutter - seen from the side - showing the position of the rear side cover plate member and the belt conveyor cooperating with the holding down arm member,

Fig. 16 shows a detail view of the front end of the linerless web on its way towards said belt conveyor and said holding down arm member, and

Fig. 17 shows a detail view illustrating the manner of cooperation between said belt conveyor and said holding down arm member.

Detailed Description of the Invention

[0020] A basic apparatus part 2 shown in Fig. 1 forms the main part of any apparatus for the applying of linerless labels according to the invention, and the basic apparatus part 2 inside a housing 3 comprises the necessary computerized control system for the printing and cutting of individual linerless labels as well as the necessary motor drives for the devices mentioned in the following. The basic apparatus part 2 comprises a spring-loaded hub 4 for a supply roll 6 of a linerless web 10 (Fig. 12) being used for the forming of individual linerless labels 12 (Figs. 10 and 11) by means of a thermal print head 14 and a cutting unit 16.

[0021] The basic apparatus part 2 have at the corners of an open end part 18 connection members 20, by means of which the basic apparatus part 2 may be connected to a label applying apparatus part 22 (Fig. 2) comprising an inclined carrier plate member 24, at the centre of which an endless belt conveyor 26 is provided for carrying out an active conveyance of an individual linerless label 12 (Figs. 10 and 12) held against the belt conveyor 26 by means of a holding down arm member 28, which above the top end of the carrier plate member 24 is pivotally connected to a shaft arm 30 projecting laterally from a housing 32 of the label applying apparatus part 22.

[0022] Fig. 3 shows a quite similar label applying apparatus part 34 having just a longer inclined carrier plate member 36 than that of the label applying apparatus part 22, as the label applying apparatus part 34 together with the basic apparatus part 2 is adapted for the applying of individual labels 12 having a larger length onto substrates such as packings and the like.

[0023] In order to prevent the free front edge of each individual linerless labels 12 to follow the lower turning of the belt conveyor 26, it may be advantageous at a lowermost central part at the bottom of the of the inclined carrier plate member 36 in connection with a central cut out 35 for the belt conveyor 26 that a short central inclined plate part 37 leading down into said cut out 35 is provided with an angle of inclination in the order of some 2-10 °, preferable 4-5 °, in relation the top surface of the inclined carrier plate member 36.

[0024] Fig. 4 shows a basic apparatus part 2 provided with an other type of label applying apparatus part 38 comprising a plate-shaped suction head 40 on a carrier arm system 42 by means of which said individual labels 12 may be applied onto said substances such as packings and the like. Fig. 5 shows the label applying apparatus part 38 as a stand alone apparatus part before being connected to the basic apparatus part 2.

[0025] Fig. 6 shows a very simple label applying apparatus part 44 adapted to be interconnected with a basic apparatus part 2 and comprising in said outlet position a pair of carrier arm members 46 on which said individual labels successively is positioned adapted to be picked by hand and manually applied onto substrates in the form of packings or the like. Below said carrier arm members 46 is placed a photo cell 48 being adapted to cooperate with a mirror 50 placed above said carrier arm members 46.

[0026] Figs. 7A and 7B shows a mounting plate member 52 provided with an elongate concave hollowness 54 adapted to take-up a side part of a particular carrier roller 56 (Figs. 14 and 15), which in combination with a particularly provided anti-sticking carrier surface 58 in the form of the top surface of said mounting plate member 52. As shown in the drawing (Figs. 7A, 7B and 14) this surface 58 having saw tooth like corrugations the pointed edges of which are leading in the direction of conveyance of said individual linerless labels 12. The carrier roller 56 is made with anti-sticking surface from a multi-compound rubber material.

[0027] Figs. 7C and 7D shows a preferred mounting plate member 53 provided with said elongate concave hollowness 54 adapted to take-up a side part of said carrier roller 56 (figs. 14 and 15), which in combination with said anti-sticking carrier surface 58, which is also provided by the mounting plate member 53.

[0028] The mounting plate member 53 is furthermore

at the rear side at the bottom in an integral manner provided with a rearwards projecting supporting member 55 for said cutting unit 16, which is shown in more details in Figs 8A-8C.

[0029] In Fig. 8A shows the cutting unit 16 as seen from the rear side thereof and being mounted in the mounting plate member 53. The said lower movable inclined knife 57 of the cutting unit 16 may clearly be seen through a traverse opening 59 of a rear side cover plate 61 of the cutting unit 16. Said rear side cover plate 61 is coated or treated with an anti-sticking agent by way of example by means a socalled PlasmaCoat combining the excellent hardness and anti-wear of thermal spray processes with non-stick and sliding properties of fluoropolymers.

[0030] Figs. 8B and 8C shows more clearly that the operation of the lower movable knife 57 is carried out by means of driving arms 63 operated by means of eccentric discs means 65 at opposite ends of a common drive shaft driven by means of a not shown electric motor.

[0031] An optional rear side cover plate member 60 for the cutting unit 16 is shown in Figs. 9A and 9B. This cover plate member 60 is provided with an inclined edge part 64 facing the knives of the cutting unit 16. In practice the actual angular configuration of said edge part 64 is of particular importance in order to be able ensure safe guidance of a free front end 66 of said linerless web to said carrier plate member 24 and in between said belt conveyor 16 and said holding down arm member 28. Preferable said edge part 64 has an angle of about 144° in relation to a vertical plane of the rear side of said cover plate member 60 and an angle of about 36° in relation to a horizontal plane. Furthermore it is very important that at least the outer surface of said rear side cover plate member 60 as well as at least the outer surface of said mounting arm member 52 is coated or treated with an anti-sticking agent by way of example by using a socalled PlasmaCoat combining the excellent hardness and anti-wear of thermal spray processes with non-stick and sliding properties of fluoropolymers.

[0032] The label applying apparatus 22 shown in Fig. 2 is also shown in Fig. 10, where an individual linerless label 12 is shown during its way down the inclined carrier plate member 24 by means of the belt conveyor 26 and the holding down arm member 28. At the bottom of the inclined carrier plate member 24 is mounted an application roller 62 by means of which linerless labels 12 leaving the label applying apparatus 22 are finally applied to a substrates such as a packings or the like.

[0033] In the close-up detail view of Fig. 11 the holding down arm member 28 is made from a suitable plastic material in stead as in Fig. 10, where the same holding down arm member 28 is made from metal such as anodized aluminium. In Fig. 11 the used application roller 62 has a larger width than that of the similar roller 62 of Fig. 10.

[0034] The detail view of Fig. 12 shows the thermal print head 14 and the cutting device 16 together with the very first parts of the subsequent inclined carrier plate member 24, the endless belt conveyor 26 and the holding down arm member 28. From the supply roll 6 (not shown) the linerless web 10 is fed under a horizontally projecting reversing roller 65 and in under the thermal print head 16, so that the front end of the linerless web 10 is positioned just in front of the cutting device 16. Fig. 13 shows in principle the very same as that of Fig. 12 seen from above - and with the thermal print head 14 swung upwards/backwards, where the front end of the linerless web 10 is positioned just in front of the cutting device 16.

[0035] Fig. 14 shows a detail view of the carrier roller 56 in combination with the mounting plate member 52 and the cutting device 16 - seen from the side and above - and with the thermal print head 14 swung upwards/backwards to show said parts. It should be mentioned, that said carrier roller 56 in practice is also the driving roller operated by a suitable electric step motor for the unwinding of the linerless web 10 from the supply roll 6 and the forward movement of the linerless web 10 under the thermal print head 14 and through the cutting device 16.

[0036] Fig. 15 shows a more close detail view of the carrier roller 56 in combination with the mounting plate member 52 and the cutting device 16 - seen from the side - showing the position of the rear side cover plate member 60 and the belt conveyor 26 cooperating with the holding down arm member 28.

[0037] Fig. 16 shows a detail view of the front end 66 of the linerless web 10 on its way towards said belt conveyor 26 and said holding down arm member 28, and Fig. 17 shows a detail view illustrating the manner of cooperation between said belt conveyor 26 and said holding down arm member 28 during the guidance of the front end of the linerless web 10.

Claims

1. A method for application of linerless labels (12) onto packings or the like, and comprising the following steps:

   - unwinding a linerless web (10) from a supply roll (6) including an interior core by way of example of card board, with the adhesive face of the web facing downwards,
   - leading the linerless web (10) passed a conventional direct thermal print head (14),
   - carrying the adhesive face of the linerless web (10) by means of a carrier roller in combination with a carrier member having an anti-stick profiled surface,
   - cutting the linerless web (10) into individual printed labels 812), and
   - leading said individual labels (12) to an outlet position for either manually or automatically application of said labels (12) onto said packings

or the like,

***characterized* in,**
that the final leading of said individual linerless labels (12) to said outlet position is carried out by means of an inclined carrier plate member (24, 36) comprising a central belt conveyor (26) in combination with a pivotally arranged upper holding down arm member (28) serving to press said individual labels (12) against the conveyance surface of said belt conveyor (26), and that the final application of said individual labels (12) onto said packings or the like is carried out by means of an application roller.

2. A method according to claim 1, ***characterized* in, that** said individual labels (12) in said outlet position are successively transferred to a plate-shaped suction head (40) on a carrier arm system (42) by means of which said individual labels (12) are applied onto said packings or the like.

3. An apparatus (2) for application of linerless labels (12) onto packings or the like, comprising an unwinding system with a spring-loaded hub (4) for a supply roll (6) containing a linerless web (10) and a conventional direct thermal print head (14), said apparatus in connection with said print head (14) comprises a carrier roller in combination with a carrier member having an anti-stick profiled surface, a stationary cutting unit (16) for cutting said linerless web into individual printed labels (12), and an outlet position from which said individual labels may be either manually or automatically applied onto packings or the like, ***characterized* in** comprising an inclined carrier plate member (24, 36) with a central belt conveyor (26), which in combination with a pivotally arranged upper holding down arm member (28) is provided for taken over the final leading of said individual linerless labels (12) to said outlet position, and comprising an application roller for said final application of said individual labels (12) on to said packings or the like.

4. An apparatus according to claim 3, ***characterized* in, that** said application roller is adapted to successively transfer said individual labels to a plate-shaped suction head (40) on a carrier arm system (42), by means of which said individual labels successively are applied onto said packings or the like.

5. An apparatus according to claim 3, ***characterized* in, that** said carrier roller (56) is made from a multi compound rubber material with an anti-sticking surface, and that said carrier surface combined with said carrier roller (56) is made from steel and with an anti-sticking surface having saw tooth like corrugations (58) the pointed edges of which are leading in the direction of conveyance of said individual linerless labels (12).

6. An apparatus according to claim 3, ***characterized* in, that** said stationary cutting unit (16) comprises a stationary upper knife and a movable lower preferably inclined knife (57).

7. An apparatus according to claim 3, ***characterized* in, that** a leading plate member is provided behind the cutter (16) for guiding the front end of said individual labels (12) safely to said inclined carrier surface (24, 36) and in between said belt conveyor belt (26) and said holding down arm member (28).

8. An apparatus according to claim 3, ***characterized* in that** in said outlet position is provided a pair of carrier arm members (46) on which said individual labels (12) are positioned adapted to be picked by hand and manually applied onto said packings or the like, and that below said carrier arm members is placed a photo cell (48) being adapted to cooperate with a mirror (50) placed above said carrier arm members (46).

9. An apparatus according to claim 3 ***characterized* in, that** said spring-loaded hub (4) comprises a recognizing system belonging to a steering system of the apparatus (2) being adapted to recognize an original supply roll (6) of a linerless web (10) provided with an interior core provided with a recognizable signal member in the form a RFID-label.

Patentansprüche

1. Verfahren zum Aufbringen von trägerbandlosen Etiketten (12) auf Verpackungen oder Ähnlichem, und welches die folgenden Schritte aufweist:

- Abwickeln eines trägerbandlosen Bandes (10) von einer Zuführrolle (6), welche einen inneren Kern beispielsweise aus Vollpappe beinhaltet, wobei die Klebefläche des Bandes nach unten zeigt,
- Führen des trägerbandlosen Bandes (10), nachdem es einen herkömmlichen Direkt-Thermodruckkopf (14) passiert hat,
- Tragen bzw. Befördern der Klebefläche des trägerbandlosen Bandes (10) mit Hilfe eines Trägerrollengliedes in Kombination mit einem Trägerglied, welches eine nicht klebende Profiloberfläche besitzt,
- Schneiden des trägerbandlosen Bandes (10) in einzelne bedruckte Etiketten (12) und
- Führen der einzelnen Etiketten (12) zu einer Auslassposition entweder für die manuelle oder automatische Aufbringung der Etiketten (12) auf den Verpackungen oder Ähnlichem,

dadurch gekennzeichnet, dass
das Führen der einzelnen trägerbandlosen Etiketten (12) am Ende zu der Auslassposition mit Hilfe eines geneigten Trägerplattengliedes (24, 36) ausgeführt wird, welches einen zentralen Bandförderer (26) in Kombination mit einem drehbar angeordneten oberen Niederhaltearmglied (28) aufweist, welches dazu dient, die einzelnen Etiketten (12) gegen die Transportoberfläche des Bandförderers (26) zu pressen, und dass das letzte Aufbringen der einzelnen Etiketten (12) auf den Verpackungen oder Ähnlichem mit Hilfe einer Auflegerolle ausgeführt wird.

2. Verfahren nach Anspruch 1, **dadurch gekennzeichnet, dass** die einzelnen Etiketten (12) in der Auslassposition nacheinander zu einem plattenförmigen Saugkopf (40) auf einem Trägerarmsystem (42) übertragen werden, mit dessen Hilfe die einzelnen Etiketten (12) auf die Packungen oder Ähnlichem aufgebracht werden.

3. Gerät (2) zum Aufbringen von trägerbandlosen Etiketten (12) auf Verpackungen oder Ähnlichem, welches aufweist: ein Abwickelsystem mit einer federvorgespannten Nabe (4) für eine Zuführrolle (6), welche ein trägerbandloses Band (10) und einen herkömmlichen Direkt-Thermodruckkopf (14) enthält, wobei das Gerät in Verbindung mit dem Druckkopf (14) eine Trägerrolle in Kombination mit einem Trägerglied aufweist, welches eine nicht klebende Profiloberfläche, eine stationäre Schneideeinheit (16) zum Schneiden des trägerbandlosen Bandes in einzelne bedruckte Etiketten (12) und eine Auslassposition besitzt, von welcher die einzelnen Etiketten entweder manuell oder automatisch auf Packungen oder Ähnlichem aufgebracht werden können, **dadurch gekennzeichnet, dass** es ein geneigtes Trägerplattenglied (24, 36) mit einem zentralen Bandzuführglied (26) aufweist, welches in Kombination mit einem drehbar angeordneten oberen Niederhaltearmglied (28) vorgesehen ist, um das abschließende Führen der einzelnen trägerbandlosen Etiketten (12) zu der Auslassposition zu übernehmen, und mit einer Aufbringrolle zum endgültigen Aufbringen der einzelnen Etiketten (12) auf den Packungen oder Ähnlichem.

4. Gerät nach Anspruch 3, **dadurch gekennzeichnet, dass** die Aufbringrolle geeignet ist, aufeinanderfolgend die einzelnen Etiketten zu einem plattenförmigen Saugkopf (40) auf einem Trägerarmsystem (42) zu übertragen, mit Hilfe dessen die einzelnen Etiketten aufeinanderfolgend auf die Verpackungen oder Ähnlichem aufgebracht werden.

5. Gerät nach Anspruch 3, **dadurch gekennzeichnet, dass** die Trägerrolle (56) aus einem Mehrfachverbund-Gummimaterial mit einer nicht klebenden Oberfläche hergestellt ist und dass die Trägeroberfläche, welche mit der Trägerrolle (56) kombiniert ist, aus Stahl und mit einer nicht klebenden Oberfläche hergestellt ist, welche sägezahnartige Rillen (58) besitzt, deren spitz zulaufende Ränder in Richtung der Zuführung der einzelnen trägerbandlosen Etiketten (12) zeigen.

6. Gerät nach Anspruch 3, **dadurch gekennzeichnet, dass** die stationäre Schneideeinheit (16) ein stationäres oberes Messer und ein bewegliches unteres, vorzugsweise geneigtes Messer (57) aufweist.

7. Gerät nach Anspruch 3, **dadurch gekennzeichnet, dass** ein Führungsplattenglied hinter dem Schneideglied (16) vorgesehen ist, um das vordere Ende der einzelnen Etiketten (12) sicher zu der geneigten Trägeroberfläche (24, 36) und zwischen dem Bandzuführglied (26) und dem Niederhaltearmglied (28) zu führen.

8. Gerät nach Anspruch 3, **dadurch gekennzeichnet, dass** in der Auslassposition ein Paar von Trägerarmgliedern (46) vorgesehen sind, auf welchem die einzelnen Etiketten (12) geeignet positioniert sind, um von Hand aufgenommen zu werden und manuell auf die Verpakkungen oder Ähnlichem aufgebracht zu werden, und dass unterhalb der Trägerarmglieder eine Photozelle (48) positioniert ist, welche geeignet ist, über einen Spiegel (50), welcher oberhalb der Trägerarmglieder (46) angeordnet ist, zusammenzuwirken.

9. Gerät nach Anspruch 3, **dadurch gekennzeichnet, dass** die über eine Feder vorgespannte Nabe (4) ein Erkennungssystem aufweist, welches zu einem Steuerungssystem des Gerätes (2) gehört, welches geeignet ist, eine Original-Zuführrolle (6) eines trägerbandlosen Bandes (10) zu erkennen, welches mit einem inneren Kern ausgestattet ist, welcher mit einem Glied für ein erkennbares Signal in Form eines RFID-Etikettes ausgestattet ist.

Revendications

1. Procédé d'application d'étiquettes sans doublure (12) sur des emballages ou similaires, comprenant les étapes suivantes consistant à :

- dérouler une bande sans doublure (10) d'un rouleau d'alimentation (6) comprenant un noyau intérieur constitué par exemple de carton, la face adhésive de la bande étant orientée vers le bas,
- entraîner la bande sans doublure (10) au-delà d'une tête d'impression thermique directe classique (14),
- soutenir la face adhésive de la bande sans

doublure (10) au moyen d'un rouleau de support en combinaison avec un organe de support ayant une surface profilée anti-adhésive,
- couper la bande sans doublure (10) en étiquettes imprimées individuelles (12), et
- entraîner lesdites étiquettes individuelles (12) dans une position de sortie pour l'application manuelle ou bien automatique desdites étiquettes (12) sur lesdits emballages ou similaires,

caractérisé en ce que
l'entraînement final desdites étiquettes sans doublure individuelles (12) dans ladite position de sortie est réalisé au moyen d'un organe formant plaque de support incliné (24, 36) comprenant un transporteur à courroie central (26) en combinaison avec un organe de bras de maintien supérieur agencé de manière pivotante (28) servant à presser lesdites étiquettes individuelles (12) contre la surface de transport dudit transporteur à courroie (26) et **en ce que** l'application finale desdites étiquettes individuelles (12) sur lesdits emballages ou similaires est réalisée au moyen d'un rouleau d'application.

2. Procédé selon la revendication 1, **caractérisé en ce que** lesdites étiquettes individuelles (12) dans ladite position de sortie sont successivement transférées vers une tête d'aspiration en forme de plaque (40) sur un système de bras de support (42) au moyen duquel lesdites étiquettes individuelles (12) sont appliquées sur lesdits emballages ou similaires.

3. Appareil (2) d'application d'étiquettes sans doublure (12) sur des emballages ou similaires, comprenant un système de déroulement avec un moyeu à ressort (4) pour un rouleau d'alimentation (6) contenant une bande sans doublure (10) et une tête d'impression thermique directe classique (14), ledit appareil en rapport avec ladite tête d'impression (14) comprend un rouleau de support en combinaison avec un organe de support ayant une surface profilée anti-adhésive, une unité de coupe immobile (16) pour couper ladite bande sans doublure en étiquettes imprimées individuelles (12) et une position de sortie à partir de laquelle lesdites étiquettes individuelles peuvent être appliquées soit manuellement soit automatiquement sur des emballages ou similaires, **caractérisé en ce qu'**il comprend un organe formant plaque de support incliné (24, 36) avec un transporteur à courroie central (26) qui, en combinaison avec un organe de bras de maintien supérieur agencé de manière pivotante (28), est fourni pour réaliser l'entraînement final desdites étiquettes sans doublure individuelles (12) dans ladite position de sortie et **en ce qu'**il comprend un rouleau d'application pour ladite application finale desdites étiquettes individuelles (12) sur lesdits emballages ou similaires.

4. Appareil selon la revendication 3, **caractérisé en ce que** ledit rouleau d'application est adapté pour transférer successivement lesdites étiquettes individuelles vers une tête d'aspiration en forme de plaque (40) sur un système de bras de support (42), au moyen duquel lesdites étiquettes individuelles sont successivement appliquées sur lesdits emballages ou similaires.

5. Appareil selon la revendication 3, **caractérisé en ce que** ledit rouleau de support (56) est constitué à partir d'un matériau de caoutchouc multicomposé avec une surface anti-adhésive, et **en ce que** ledit organe de support à surface qui est combiné avec ledit rouleau de support (56), est constitué à partir d'acier et présente une surface anti-adhésive en dents de scie (58) dont les bords pointus orientés selon la direction de transport desdites étiquettes sans doublure individuelles (12).

6. Appareil selon la revendication 3, **caractérisé en ce que** ladite unité de coupe immobile (16) comprend une lame, supérieure immobile et une lame, de préférence inclinée, inférieure mobile (57).

7. Appareil selon la revendication 3, **caractérisé en ce qu'**un organe formant plaque d'entraînement est disposé derrière le dispositif de coupe (16) pour guider l'extrémité avant desdites étiquettes individuelles (12) de manière sûre vers ledit organe formant plaque de support incliné (24, 36) et entre ledit transporteur à courroie (26) et ledit organe de bras de maintien (28).

8. Appareil selon la revendication 3, **caractérisé en ce que**, dans ladite position de sortie, il est prévu une paire d'organes de bras de support (46) sur lesquels lesdites étiquettes individuelles (12) sont positionnées et adaptées pour être saisies à la main et manuellement appliquées sur lesdits emballages ou similaires, et **en ce que** sous lesdits organes de bras de support est placée une photocellule (48) qui est adaptée pour coopérer avec un miroir (50) placé au-dessus desdits organes de bras de support (46).

9. Appareil selon la revendication 3, **caractérisé en ce que** ledit moyeu à ressort (4) comprend un système de reconnaissance appartenant à un système de direction de l'appareil (2) qui est adapté pour reconnaître un rouleau d'alimentation original (6) d'une bande sans doublure (10) dotée d'un noyau intérieur comportant un élément de signal reconnaissable sous la forme d'une étiquette RFID.

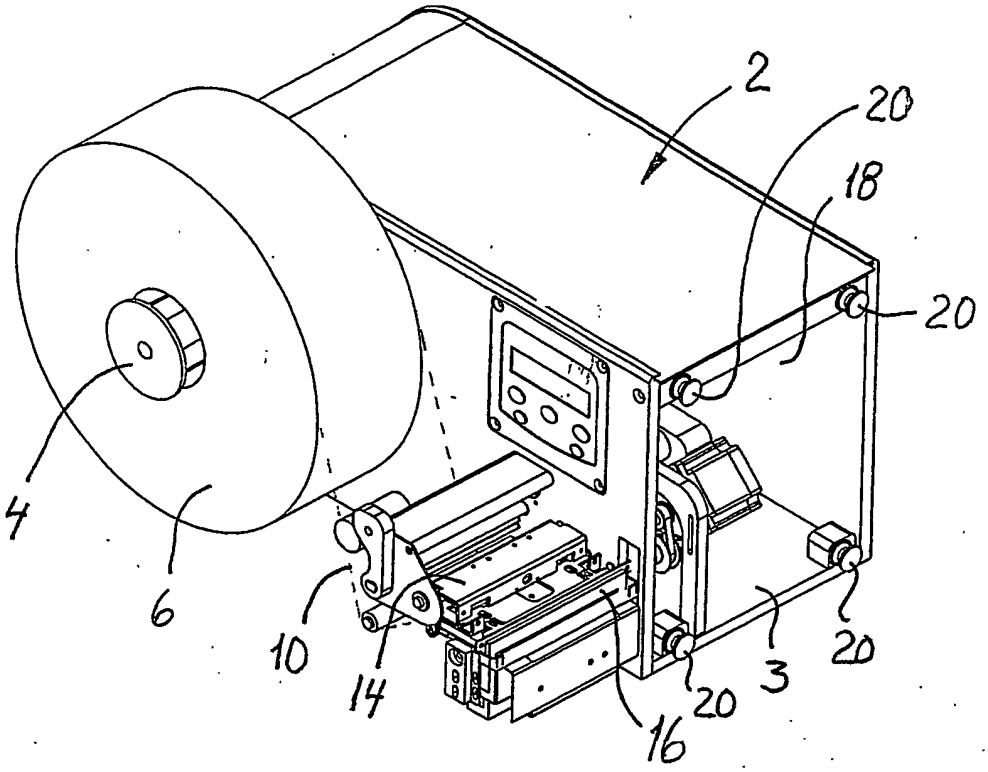


Fig. 1

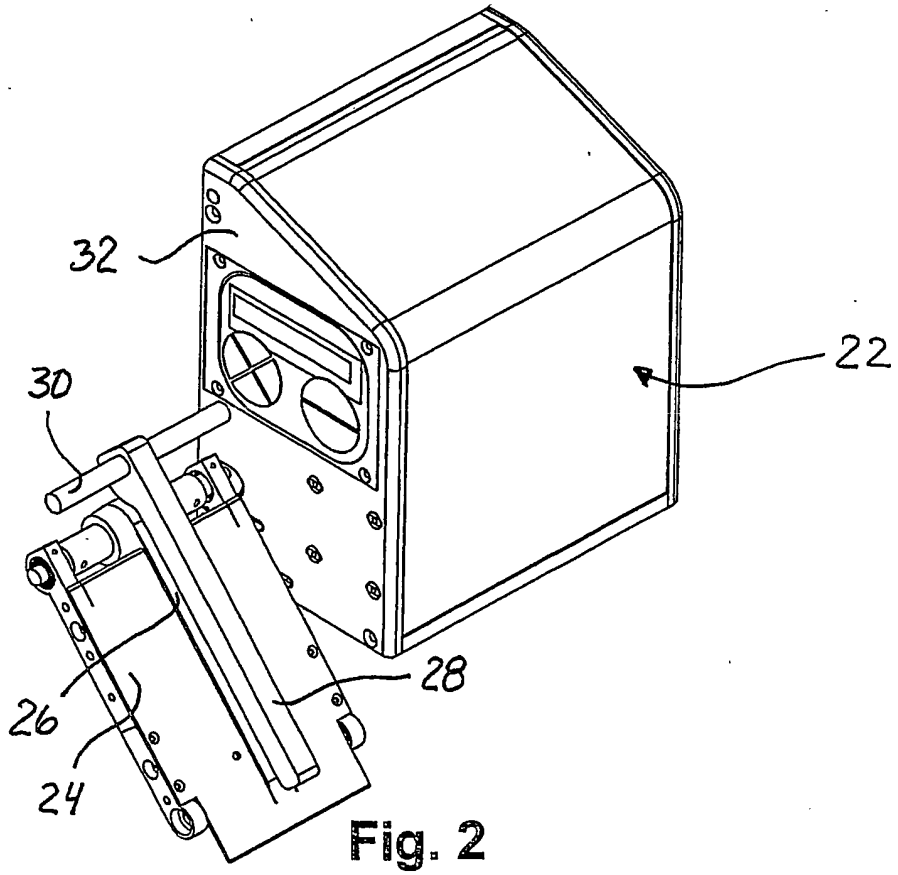


Fig. 2

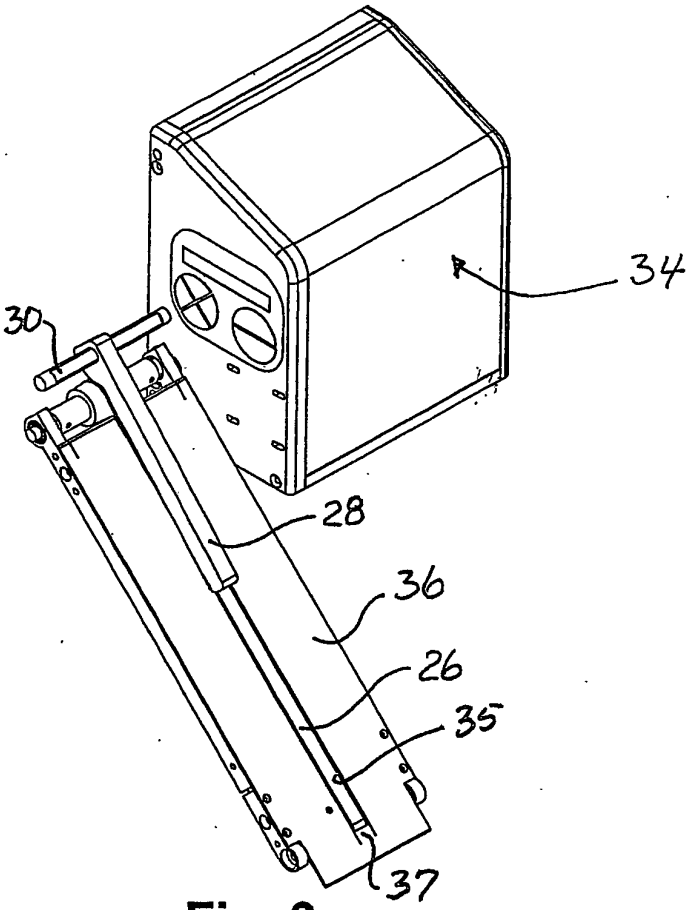


Fig. 3

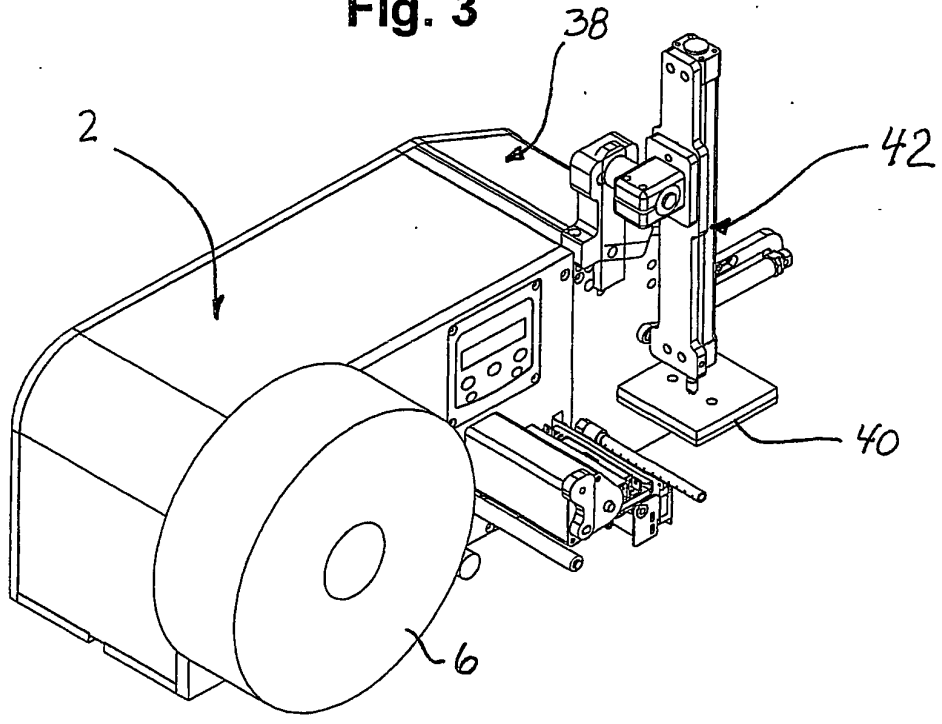


Fig. 4

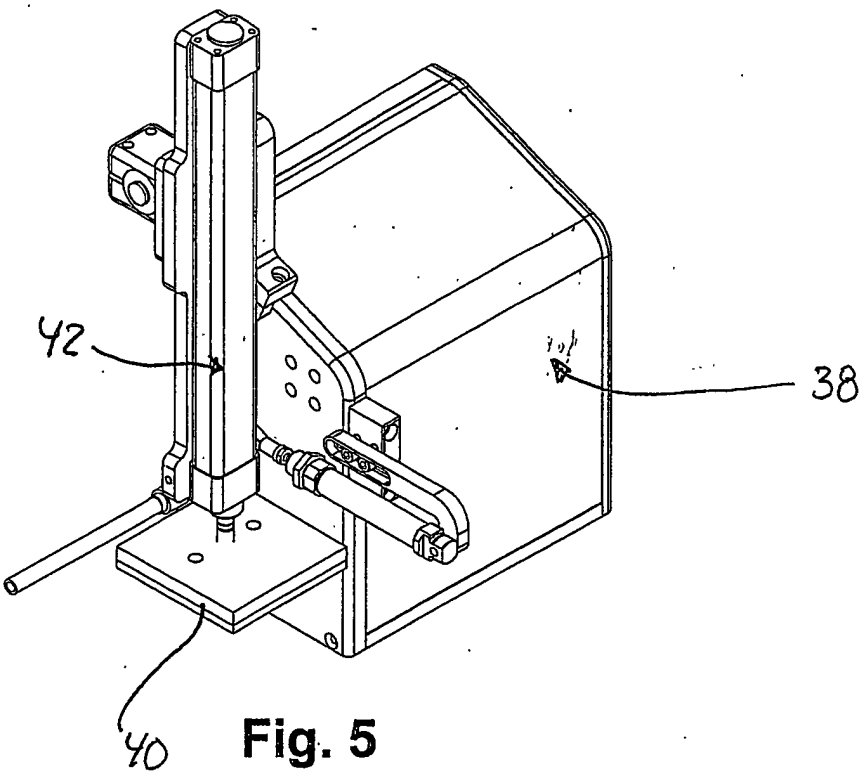


Fig. 5

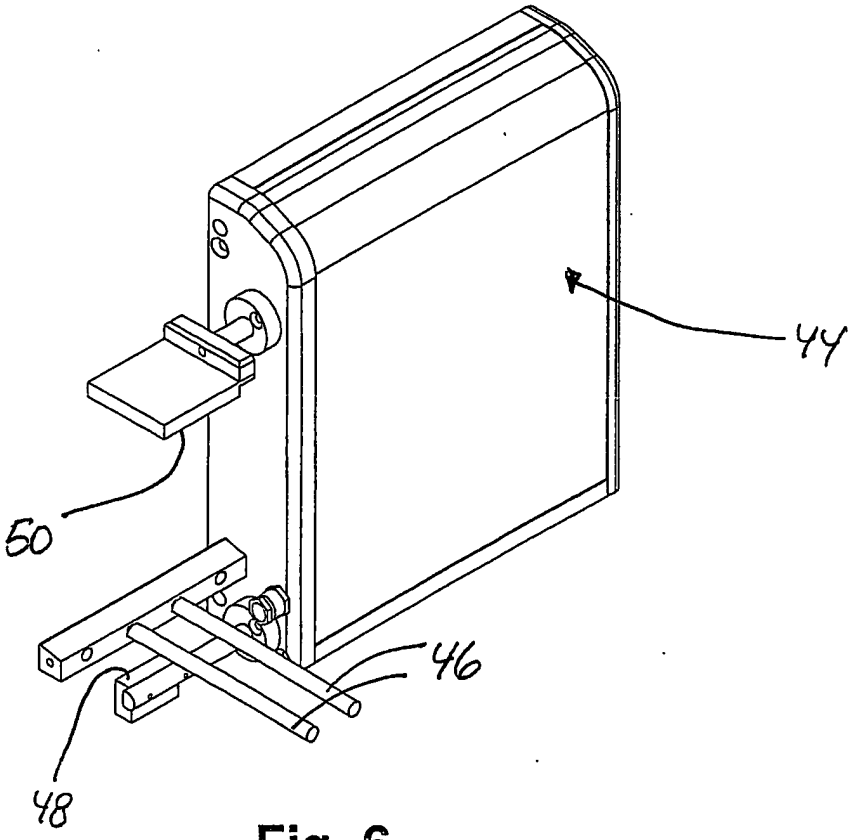


Fig. 6

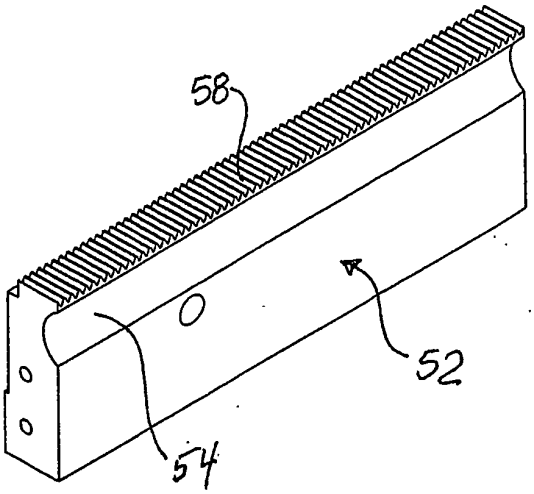


Fig. 7A

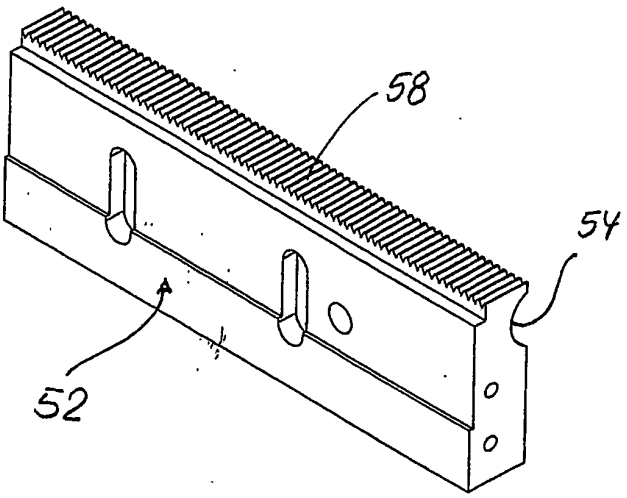


Fig. 7B

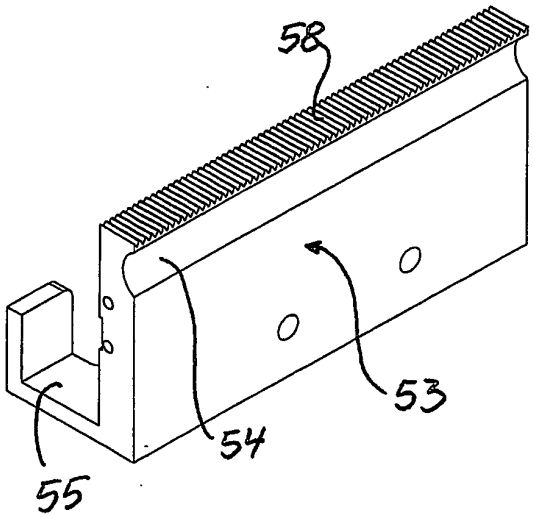


Fig. 7C

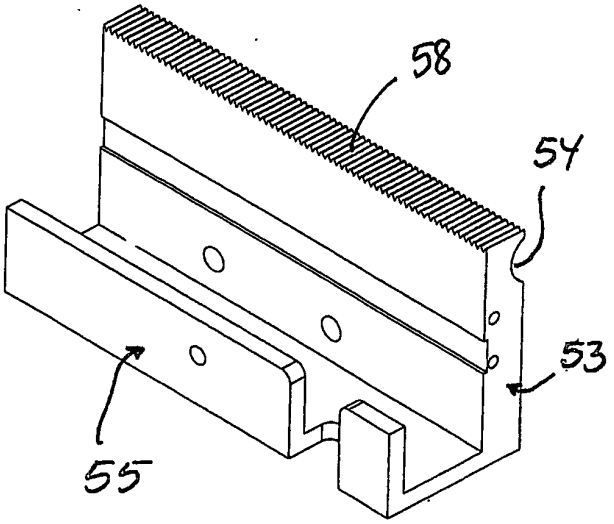


Fig. 7D

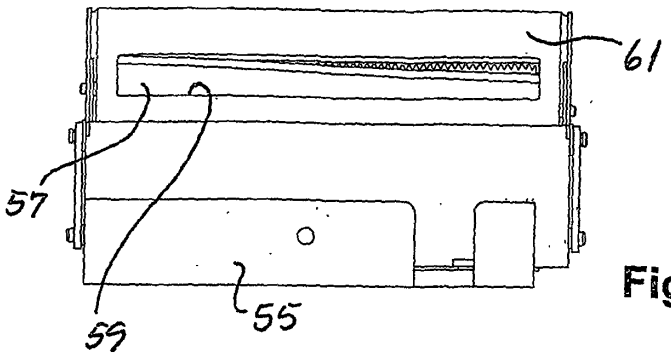


Fig. 8A

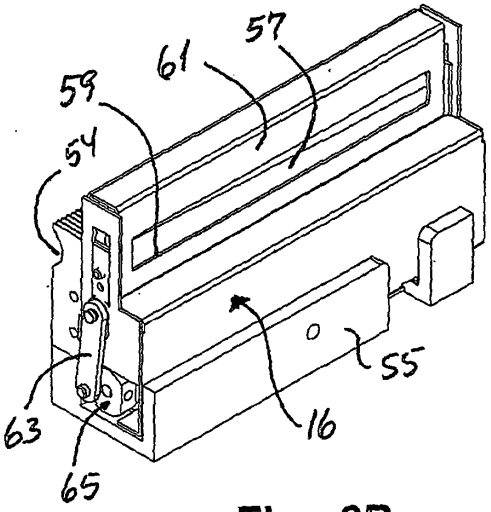


Fig. 8B

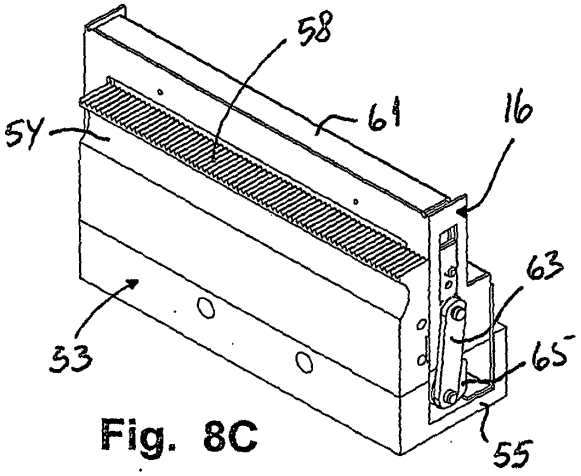


Fig. 8C

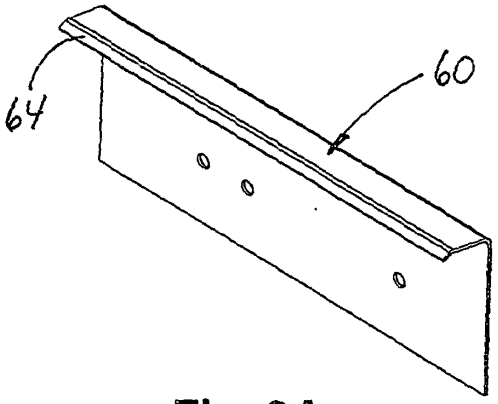


Fig. 9A

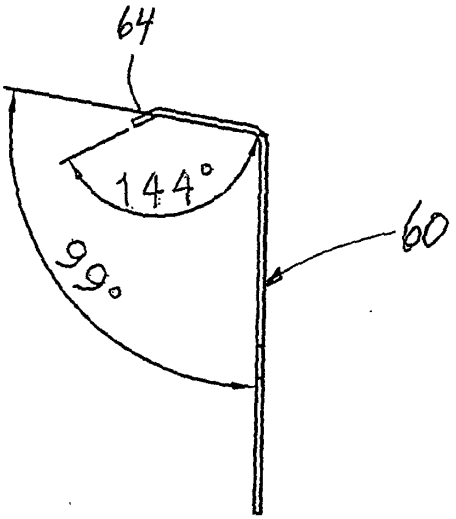


Fig. 9B

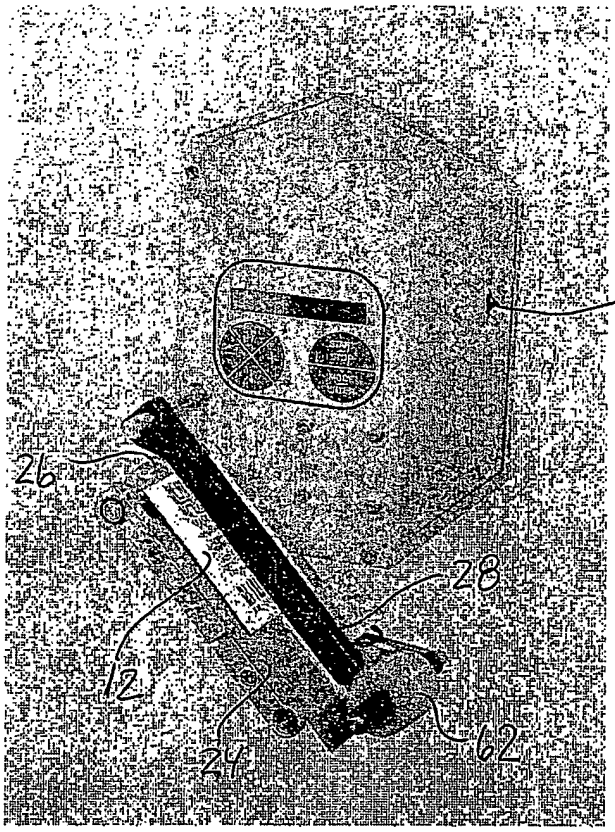


Fig. 10

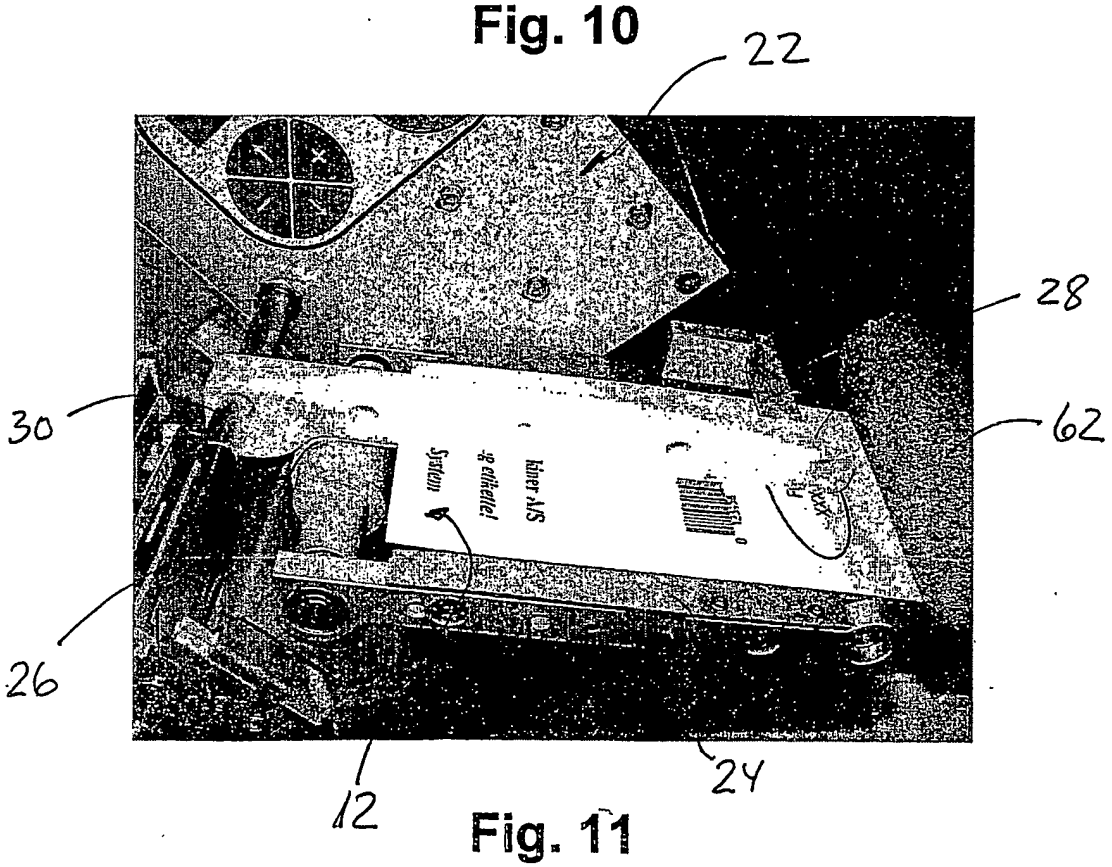


Fig. 11

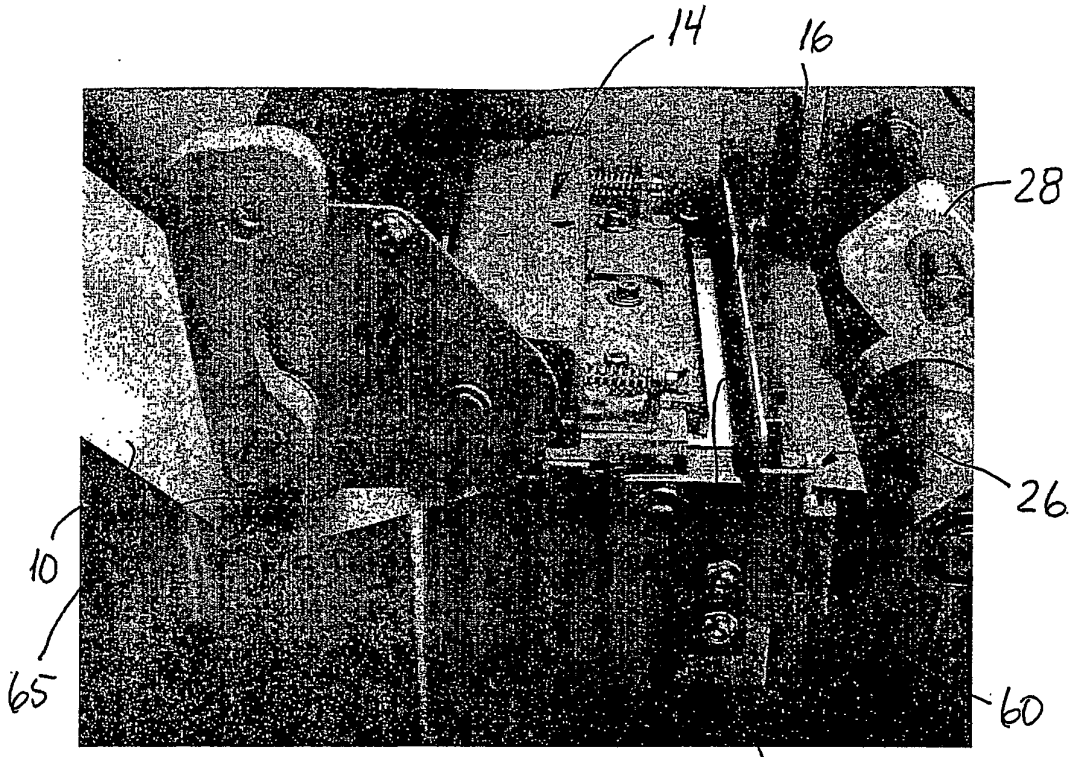


Fig. 12

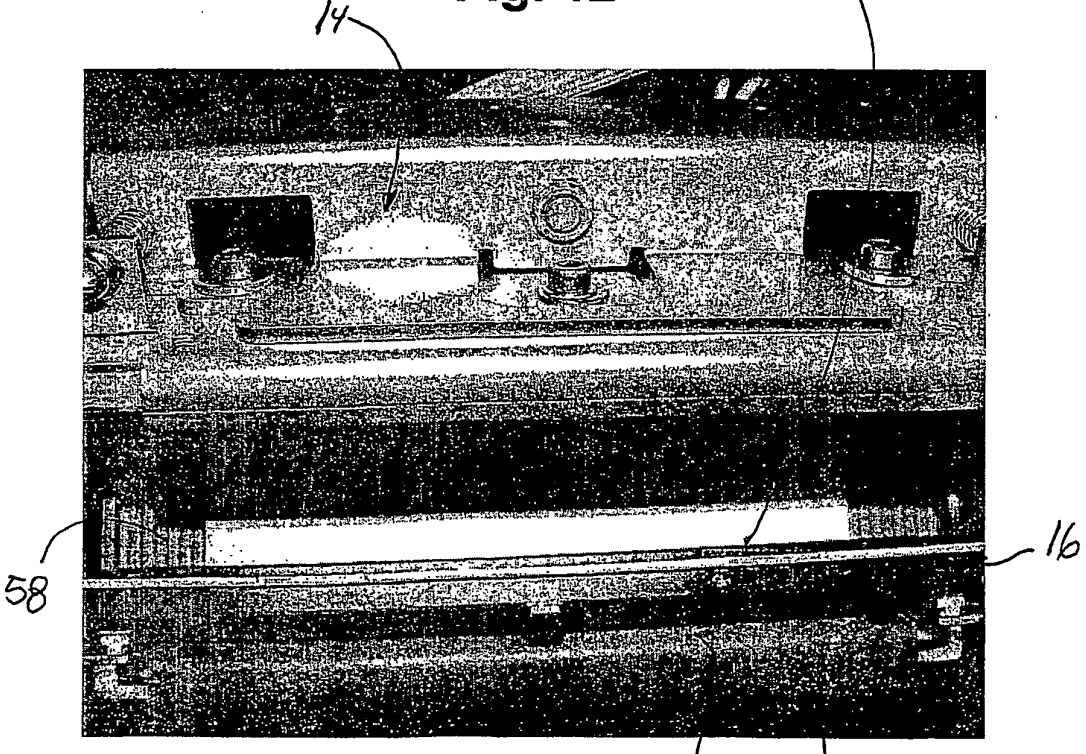


Fig. 13

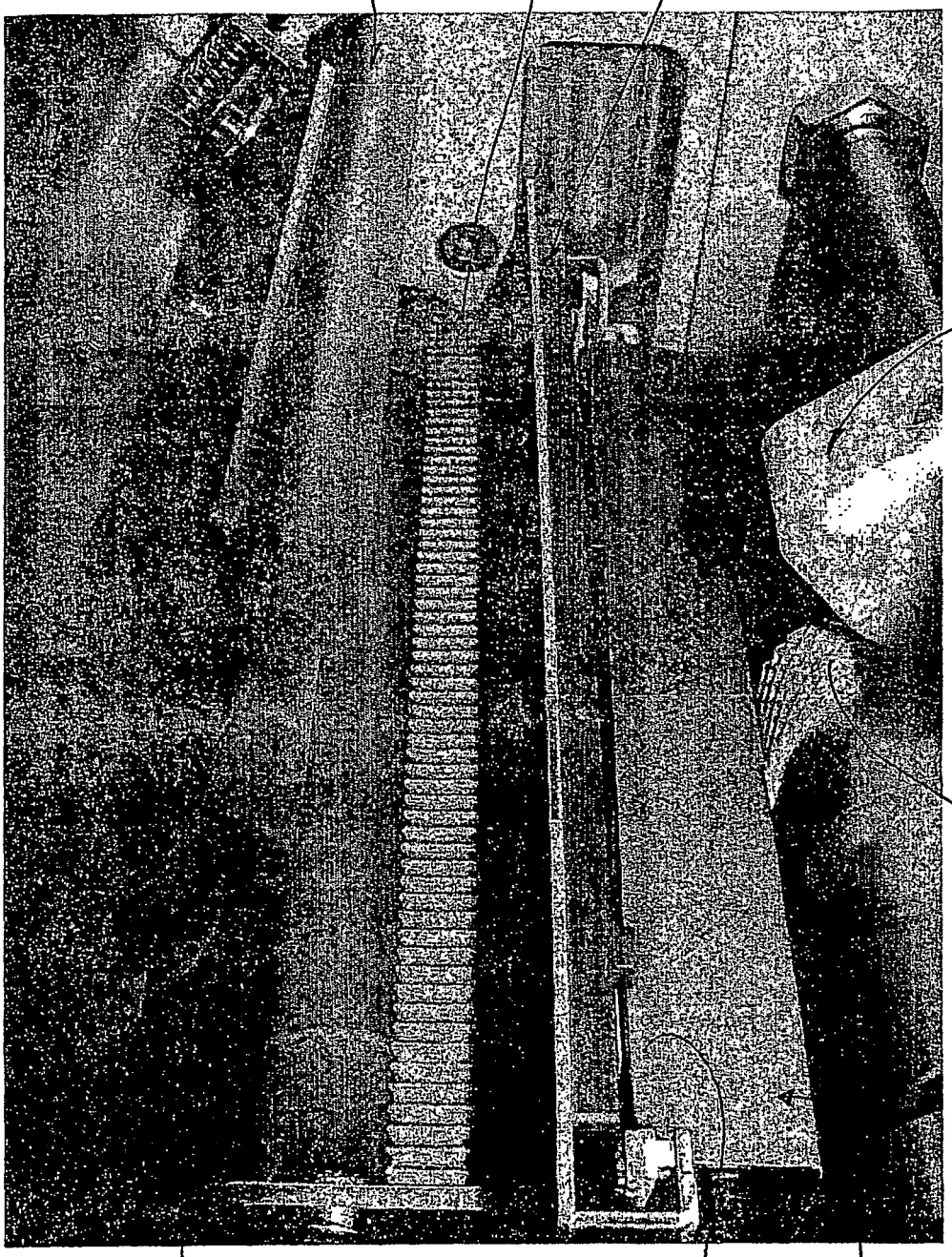


Fig. 14

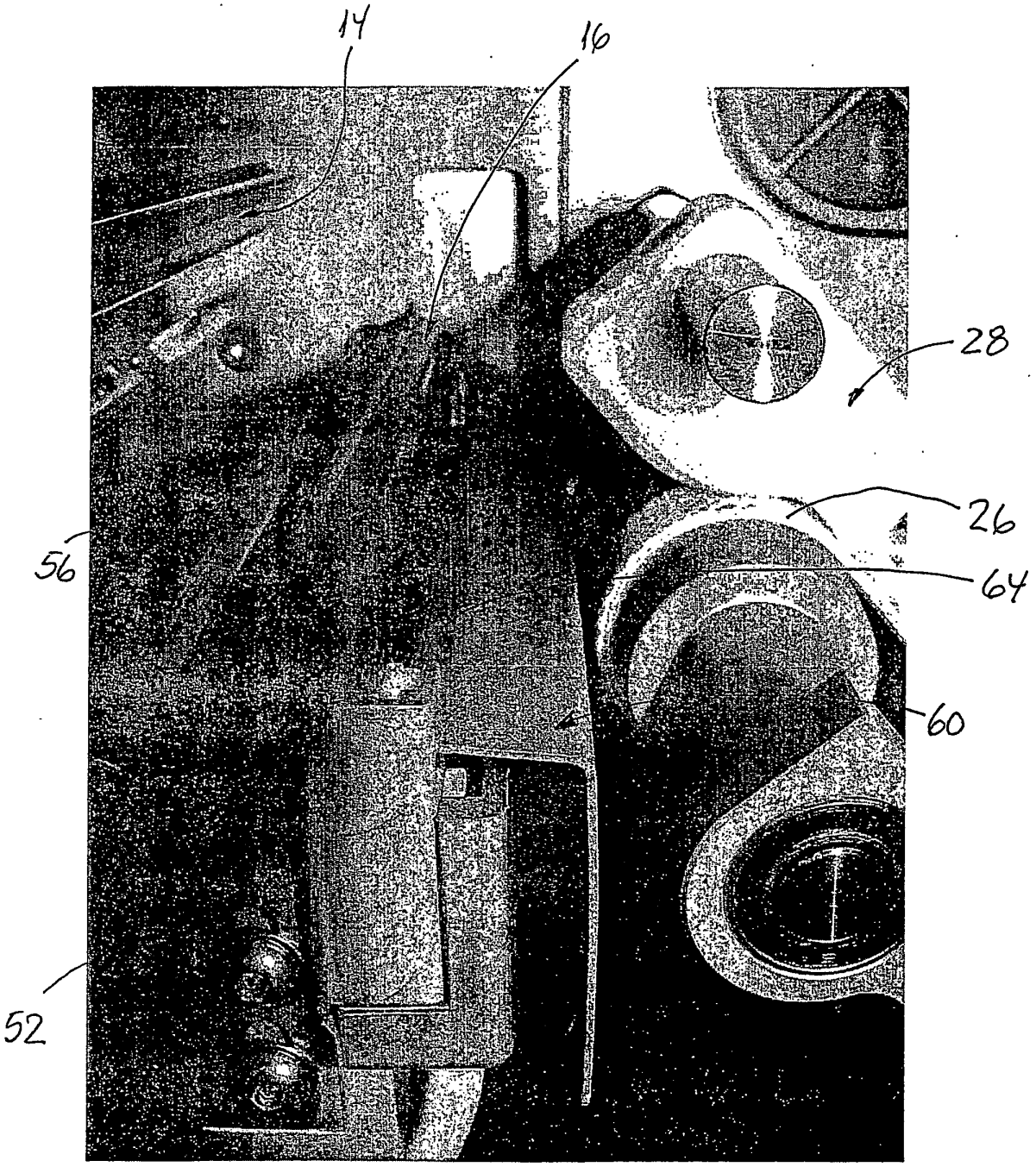


Fig. 15

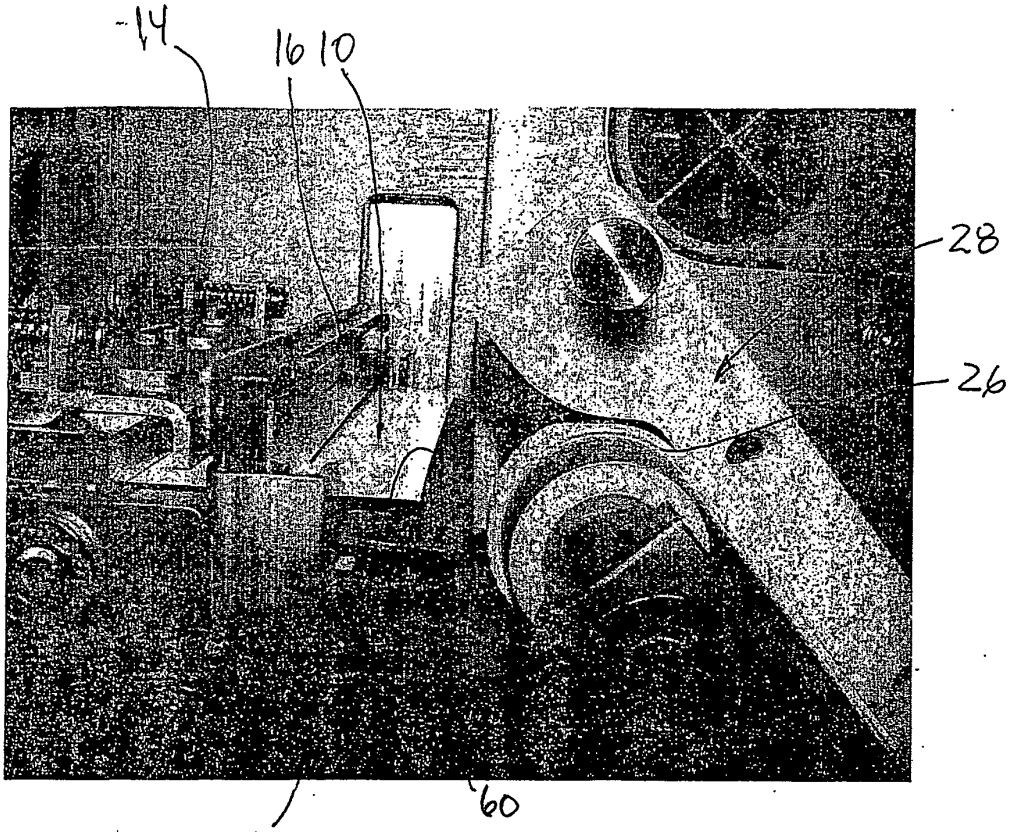


Fig. 16

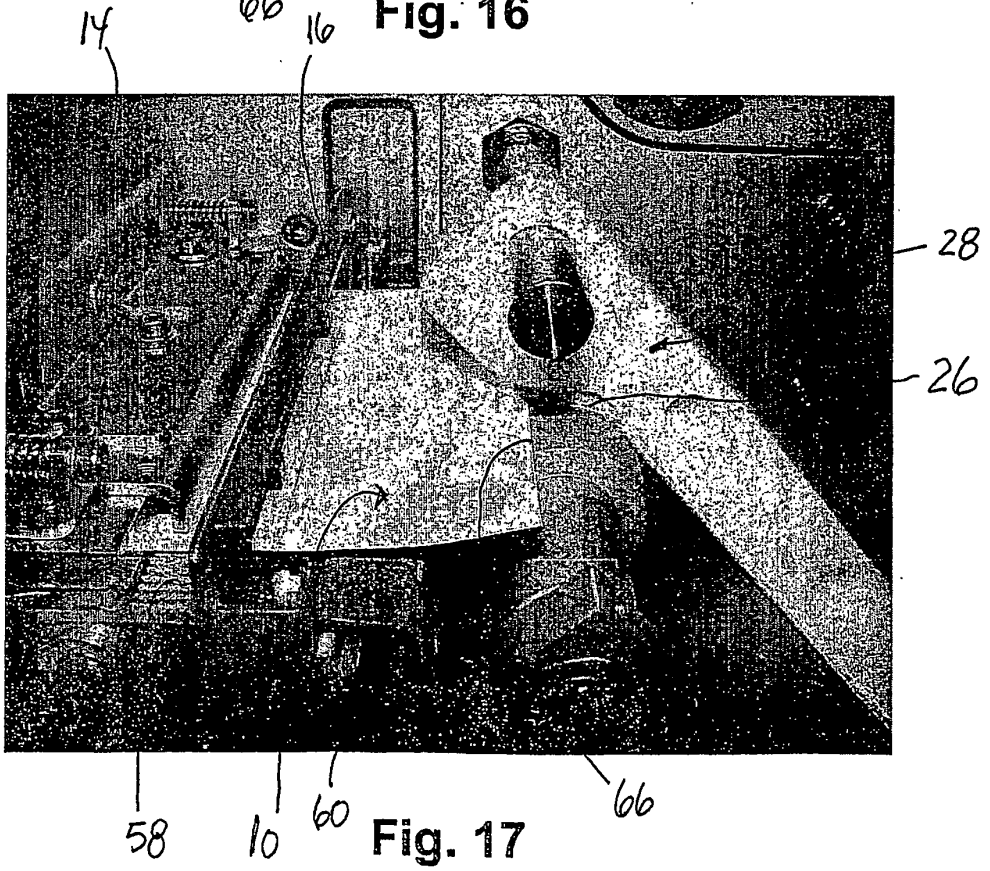


Fig. 17

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- US 5560293 A1 **[0006]**
- US 4784714 A1 **[0006]**