



Europäisches Patentamt  
European Patent Office  
Office européen des brevets



(11) **EP 1 209 521 B1**

(12) **EUROPEAN PATENT SPECIFICATION**

(45) Date of publication and mention  
of the grant of the patent:  
**12.01.2005 Bulletin 2005/02**

(51) Int Cl.7: **G03D 15/00**

(21) Application number: **01127690.4**

(22) Date of filing: **21.11.2001**

(54) **Apparatus for packaging photographic pictures**

Gerät zur Verpackung von fotografischen Bildern

Appareil pour le conditionnement d'images photographiques

(84) Designated Contracting States:  
**GB**

(30) Priority: **24.11.2000 DE 10058489**

(43) Date of publication of application:  
**29.05.2002 Bulletin 2002/22**

(73) Proprietor: **EASTMAN KODAK COMPANY**  
**Rochester, New York 14650 (US)**

(72) Inventor: **Miklosovic, Miroslav**  
**70323 Stuttgart (DE)**

(74) Representative: **Weber, Etienne Nicolas et al**  
**Kodak Industrie,**  
**Département Brevets,**  
**CRT,**  
**Zone Industrielle**  
**71102 Chalon sur Saône Cedex (FR)**

(56) References cited:  
**EP-A- 0 860 374**                      **EP-A- 0 867 767**  
**EP-A- 0 952 487**                      **WO-A-92/15044**

**EP 1 209 521 B1**

Note: Within nine months from the publication of the mention of the grant of the European patent, any person may give notice to the European Patent Office of opposition to the European patent granted. Notice of opposition shall be filed in a written reasoned statement. It shall not be deemed to have been filed until the opposition fee has been paid. (Art. 99(1) European Patent Convention).

## Description

**[0001]** The invention concerns an apparatus for introducing photographic pictures and film strips, and in particular index prints, into a job pouch that has a picture pocket and a film-strip pocket, comprising one conveying device in each case for the pictures, for the film strips, and for the index print, and a support plate for the job pouch that is to be loaded.

**[0002]** Once a customer's photographic film has been developed, enlargements in the form of pictures are made of the individual photographic images. The pictures, cut into individual pictures, are deposited in a picture/film pocket in a separate picture compartment. The film, cut into strips, is also housed in the same picture/film pocket in a separate film-strip compartment. The two compartments are then covered with a single closure flap hinged on the picture/film pocket. The picture/film pocket is then placed into a customer job pouch and delivered to the customer, for example, via a photo shop.

**[0003]** It has recently become customary to add to the pictures and image strips in the picture/film pocket a picture-like "index print," which shows all the photographic images present on the film in a small format, in a positive depiction, and in an organized arrangement. This has the advantage that in the case of a negative film, the customer is better able to recognize the images he or she has taken, and can more conveniently and reliably select them so as to reorder prints.

**[0004]** These picture and film strip packaging operations are all performed automatically. In the context of presently known packaging machines, the index print is simply deposited onto the picture/film pocket loaded with pictures and film strips, before the closure flap is flipped closed over the index print and this unit is then placed in the customer job pouch.

**[0005]** A new job pouch with a modified configuration has now been introduced in the territory of the European Union. This new job pouch combines the picture/film pouch and the customer job pouch into a one-piece job pouch. In addition, the closure flap of this new job pouch is equipped with an adhesive closure. As a result of this configuration of the job pouch, the index print can no longer be deposited between the closure flap and the pockets loaded with pictures and film strips, since in that location it would interfere with the adhesive closure. This circumstance makes it necessary for the index print also to be housed inside the job pouch in the pocket for the pictures. An operation of this kind is not possible with the known machine that is being used.

**[0006]** It is therefore the object of the invention to reconfigure the packaging machine used for loading the old-format picture/film pocket and job pocket, without costly effort, in such a way that it can be reliably and economically used to load the new EU job pouch.

**[0007]** This is achieved, according to the present invention as defined by claim 1, in that the conveying device for the index print is movable from a horizontal start-

ing position in order to receive the index print, into a vertical position, holding the job pouch on the support plate, in order to deliver the index print into the picture pocket; and that the upper side of the picture pocket can be acted upon by a flow of compressed air.

**[0008]** In detail, the conveying device is configured such that the one for the index print has a frame and a deposition plate, pivotably mounted in the latter, having a holding device for the index print; that a compressed-air apparatus directed toward the support plate is provided on the conveying device; that the latter is movable about a shaft out of its horizontal starting position into its vertical position and can be lowered onto the support plate; and that in order to deliver the index print into the picture pocket of the job pouch, the deposition plate is pivotable out of the vertical position about a pivot axis into an inclined oblique position.

**[0009]** With the conveying device in this vertical position, the deposition plate is located opposite the opening of the picture pocket of a job pouch lying on the support plate; as a consequence of a flow of air delivered by the compressed-air apparatus, the picture pocket is opened and held open on the one hand because of the negative pressure generated by the flow of air on the upper side of the picture pocket, and on the other hand by the flow of air reflected from the deposition plate and penetrating into the picture pocket.

**[0010]** Upon delivery of the flow of compressed air by the compressed-air apparatus, the deposition plate is pivotable out of its vertical position into an oblique position inclined with respect to the opening of the picture pocket, the deposition plate having a bracket, extending almost over the width of the picture pocket, that engages into the picture pocket when the deposition plate is in the pivoted oblique position.

**[0011]** With this simply constructed and retrofittable conveying device, the index print can be reliably placed into the picture pocket even with the packaging machines hitherto used for pictures and film strip, with no damage to the pictures already present in the job pocket.

**[0012]** Further features and advantages are evident from the description of an exemplary embodiment of the invention that is depicted in the drawings, and from the further dependent claims.

**[0013]** In the drawings:

Fig. 1 shows a view of the conveying device according to the present invention in its upper, horizontal starting position;

Fig. 2 shows a view of the conveying device of Fig. 1 in its lower, vertical position;

Fig. 3 shows a view in the direction of arrow "A" of the conveying device of Fig. 1; and

Fig. 4 shows the conveying device of Fig. 1 in a per-

spective depiction.

**[0014]** The exemplary embodiment depicted in the drawings of a conveying device 100 for conveying an index print into a customer job pouch 12 already loaded with pictures and film strips comprises a frame 10 in which a deposition plate 11 is mounted, pivotably by way of a compressed-air cylinder 14, about a fulcrum 13. A clamping plate 15 is arranged on deposition plate 11 in such a way that by way of articulated pieces 17 mounted articulatedly on frame 10, it can on the one hand be lifted away from deposition plate 11 in order to deposit an index print 25 on deposition plate 11, and on the other hand can be lowered onto deposition plate 11 in order to clamp index print 25 in place. Articulated pieces 17 are acted upon and moved by a linear actuator cylinder 18. Also provided is a slider 16, guided on deposition plate 11 in longitudinal slots 31, for removing index print 25 from deposition plate 11. Slider 16 is movable by way of a pusher cylinder (not depicted) via a crank linkage 35.

**[0015]** Provided at the free end of deposition plate 11 and extending over the latter's width is a bracket 24 whose width is adapted to the internal width of a picture pocket 22 of job pouch 12.

**[0016]** Lastly, an extension arm 19, at whose free end sits a nozzle 33 of a compressed-air apparatus 20, is mounted on frame 10. The emission direction of nozzle 33 is directed, at an acute angle that can be between 25 and 85 degrees, frontally toward deposition plate 11.

**[0017]** A support plate 30 is provided inside the packaging machine in order to support a job pouch 12 that is to be loaded with pictures, film strips, and index print 25.

**[0018]** Job pouch 12 comprises picture pocket 22, a film pocket 32, and a closure flap 34. An adhesive closure 36 for sealing job pouch 12 is provided between closure flap 34 and the side of job pouch 12 on which picture pocket 22 and film pocket 32 are arranged. Conveying device 100 is arranged so as to pivot about a shaft 23 out of its horizontal starting position for receiving an index print 25 into its vertical position for delivering index print 25 to job pouch 12.

**[0019]** The manner of operation of the conveying device for the index print within the overall apparatus is as follows:

**[0020]** While the developed and cut pictures are being conveyed to picture pocket 22, and the film (cut into strips) into film pocket 32, conveying device 100 is in its horizontal starting position as depicted in Figs. 1 and 3. In this position, clamping plate 15 is in its opened state and an index print 25 can be conveyed via a transport apparatus 40 to conveying device 100, and deposited on deposition plate 11. Clamping plate 15 is then lowered by way of linear actuator cylinder 18 back onto deposition plate 11, and clamps index print 25 in place on the latter.

**[0021]** Frame 10 with deposition plate 11 of conveying

device 100 is then rotated 90 degrees about shaft 23 into a vertical position (see Fig. 2), by way of a drive (not depicted) engaging on a pivot lever 28, and lowered onto support plate 30. The vertical movement of the conveying device is accomplished by way of a gated guide that is joined to a flange 27 mounted immovably on shaft 23. With conveying device 100 in the vertical position, job pouch 12 is held on support plate 30 by frame 10.

**[0022]** With conveying device 100 in this position, compressed-air apparatus 20 is put into operation, and a stream of compressed air is blown at an acute angle through nozzle 33 toward deposition plate 11. This stream of compressed air generates a negative pressure in the region of upper side 21 of picture pocket 22, in such a way that picture pocket 22 opens. As a result of the air which is reflected from deposition plate 11 (and from index print 25) and penetrates into the opened picture pocket 22, the latter is opened even further. At the same time, deposition plate 11, driven by compressed-air cylinder 14, is pivoted out of its vertical position into an oblique position inclined with respect to support plate 30, in which bracket 24 engages into picture pocket 22 and completely opens the latter, as depicted with dot-dash lines in Fig. 2. After the lifting of clamping plate 15, slider 16 is then moved in the direction of bracket 24 by crank linkage 35 that is also driven by a compressed-air cylinder (not depicted), and index print 25 is slid through under bracket 24 into picture pocket 22.

**[0023]** Deposition plate 11 then returns from the inclined oblique position into its vertical position, and conveying device 100 returns from its vertical position into its horizontal starting position, in order to receive the next index print 25.

**[0024]** Closure flap 34 is folded over upper side 21, i. e. over picture pocket 22 and film pocket 32, and job pouch 12 is thereby sealed by way of adhesive closure 36. The loaded job pouch 12 is then transported off to an output container.

**[0025]** The decisive feature of the subject matter of the invention is the fact that it is possible, by way of a negative pressure generated by a flow of compressed air, to open the already loaded picture pocket 22 to such an extent that bracket 24 can engage into picture pocket 22 and open the latter sufficiently wide that index print 25 can be added, subsequently and additionally, to the pictures already present in picture pocket 22.

**[0026]** This simply constructed and reliably operating apparatus makes it possible to refit costly packaging machines for pictures and films, quickly and economically, in such a way that they can also process new, reconfigured EU job pockets.

#### Parts List

##### **[0027]**

10	Frame
11	Deposition plate for index print

12	Job pouch	
13	fulcrum	
14	Compressed-air cylinder	
15	Clamping plate for index print	
16	Slider	5
17	Articulated piece	
18	Linear actuator cylinder for clamping plate	
19	Extension arm	
20	Compressed-air apparatus	
21	Upper side	10
22	Picture pocket	
23	Shaft	
24	Bracket	
25	Index print	
27	Flange	15
28	Pivot lever	
30	Support plate	
31	Longitudinal slot	
32	Film pocket	
33	Nozzle	20
34	Closure flap	
35	Crank linkage	
36	Adhesive closure	
40	Transport device	
100	Conveying device	25

## Claims

1. An apparatus for introducing photographic pictures and film strips, and in particular index prints, into a job pouch (12) that has a picture pocket (22) and a film-strip pocket (32) comprising one conveying device in each case for the pictures, for the film strips, and for the index print, and a support plate (30) for the job pouch (12) that is to be loaded, **characterized in that** the conveying device (100) for the index print (25) is movable from a horizontal starting position in which the index print (25) is received, into a vertical position, in which the index print is delivered into the picture pocket (22) whilst the job pouch is on the support plate; and that means (20, 33) are provided arranged to open the upper side (21) of the picture pocket (22) by a flow of compressed air.
2. The apparatus as defined in Claim 1, **characterized in that** the conveying device (100) for the index print (25) has a frame (10) and a deposition plate (11), pivotably mounted in the latter, having a holding device (15) for the index print (25); that a compressed-air apparatus (20) including a nozzle (33) directed toward the deposition plate (11) is provided on the conveying device (100); that the latter is movable about a shaft (23) out of its horizontal starting position into its vertical position and can be lowered onto the support plate (30); and that in order to deliver the index print (25) into the picture pocket (22) of the job pouch (12), the deposition plate (11) is pivotable out of the vertical position about a fulcrum (13) into an inclined oblique position.
3. The apparatus as defined in Claims 1 and 2, **characterized in that** in its vertical position, the conveying device (100) lies with its deposition plate (11) opposite the opening of the picture pocket (22) of a job pouch (12) lying on the support plate (30); and that as a consequence of a flow of air delivered by the compressed-air apparatus (20), the picture pocket (22) is opened and held open on the one hand because of the negative pressure generated by the flow of air on the upper side (21) of the picture pocket (22), and on the other hand by the flow of air reflected from the deposition plate (11) and penetrating into the picture pocket (22).
4. The apparatus as defined in Claims 1 through 3, **characterized in that** upon delivery of the flow of compressed air by the compressed-air apparatus (20), the deposition plate (11) is pivotable out of its vertical position into an oblique position inclined with respect to the opening of the picture pocket (22); and that the deposition plate (11) has a bracket (24), extending almost over the width of the picture pocket (22), that engages into the picture pocket (22) when the deposition plate (11) is in the pivoted oblique position.
5. The apparatus as defined in Claim 4, **characterized in that** the bracket (24) for the index print (25) serves as a guide means as the latter is transported into the picture pocket (22).
6. The apparatus as defined in Claim 1, **characterized in that** the index prints (25) can be conveyed to the conveying device (100) by way of a transport device (40).
7. The apparatus as defined in Claim 1, **characterized in that** the holding device (15, 17) for the index print (25) comprises a clamping plate (15) that can be raised and lowered with respect to the deposition plate (11).
8. The apparatus as defined in Claims 1 and 7, **characterized in that** the clamping plate (15) can be raised and lowered by way of an articulated arrangement (17) driven by compressed air, and by way of a slider (16) driven by a crank linkage (35) can be moved back and forth, together with the index print (25), in the direction of the bracket (24) on the deposition plate (11).
9. The apparatus as defined in Claims 1 through 4, **characterized in that** the nozzle (33) of the compressed-air apparatus (20) is arranged on the conveying device (100) at an air emission angle in-

clined 25 to 85 degrees, preferably 45 degrees, with respect to the support plate (30).

10. The apparatus as defined in Claims 1 and 2, **characterized in that** a pivot lever (28) joined via a linkage to a compressed-air drive is provided in order to pivot the conveying device (100) from the horizontal into the vertical position.
11. The apparatus as defined in one of Claims 1 through 10, **characterized in that** the conveying device (100) is retained on the housing by way of a flange (27).
12. The apparatus as defined in one of Claims 1 through 11, **characterized in that** for vertical movement of the conveying device (100), the flange is guided and retained on the housing in a gate.

#### Patentansprüche

1. Vorrichtung zum Einbringen fotografischer Bilder und Filmstreifen und insbesondere Indexprints in einen Auftragsbeutel (12), der eine Bildertasche (22) und eine Filmstreifentasche (32) aufweist, bestehend aus jeweils einer Zuführeinrichtung für die Bilder, für die Filmstreifen sowie für den Indexprint, und aus einer Ablageplatte (30) für den zu befüllenden Auftragsbeutel (12), **dadurch gekennzeichnet, dass** die Zuführeinrichtung (100) für den Indexprint (25) aus einer horizontalen Ausgangslage zur Aufnahme des Indexprints (25) in eine vertikale Lage bewegbar ist, in der der Indexprint in die Bildertasche (22) förderbar ist, während sich der Auftragsbeutel auf der Ablageplatte befindet, und dass Mittel (20, 33) vorgesehen sind, dass die Oberseite (21) der Bildertasche (22) mit einem Druckluftstrom geöffnet werden kann.
2. Vorrichtung nach Anspruch 1, **dadurch gekennzeichnet, dass** die Zuführeinrichtung (100) für den Indexprint (25) einen Rahmen (10) und eine in demselben verschwenkbar gelagerte Ablageplatte (11) mit einer Halteeinrichtung (15) für den Indexprint (25) aufweist, dass eine gegen die Ablageplatte (11) ausgerichtete und eine Düse (33) umfassende Drucklufteinrichtung (20) an der Zuführeinrichtung (100) vorgesehen ist, dass letztere um eine Achse (23) aus ihrer horizontalen Ausgangslage in ihre vertikale Lage bewegbar und auf die Ablageplatte (30) absenkbar ist und dass die Ablageplatte (11) zur Abgabe des Indexprints (25) in die Bildertasche (22) des Auftragsbeutels (12) aus der vertikalen Lage um eine Schwenkachse (13) in eine geneigte Schräglage verschwenkbar ist.
3. Vorrichtung nach den Ansprüchen 1 und 2, **dadurch gekennzeichnet, dass** die Zuführeinrichtung (100) in ihrer vertikalen Lage mit ihrer Ablageplatte (11) der Öffnung der Bildertasche (22) eines auf der Ablageplatte (30) liegenden Auftragsbeutels (12) gegenüberliegt, und dass infolge eines von der Drucklufteinrichtung (20) abgegebenen Luftstroms die Bildertasche (22) sich zum einen aufgrund des vom Luftstrom auf der Oberseite (21) der Bildertasche (22) erzeugten Unterdrucks und zum anderen von dem von der Ablageplatte (11) reflektierten und in die Bildertasche (22) eindringenden Luftstroms geöffnet wird und offen gehalten ist.
4. Vorrichtung nach den Ansprüchen 1 bis 3, **dadurch gekennzeichnet, dass** bei der Abgabe des Druckluftstroms durch die Drucklufteinrichtung (20) die Ablageplatte (11) aus ihrer vertikalen Lage in eine zur Öffnung der Bildertasche (22) hin geneigte Schräglage verschwenkbar ist, und dass die Ablageplatte (11) einen sich nahezu über die Breite der Bildertasche (22) erstreckenden Bügel (24) aufweist, der in verschwenkter geneigter Schräglage der Ablageplatte (11) in die Bildertasche (22) eintritt.
5. Vorrichtung nach Anspruch 4, **dadurch gekennzeichnet, dass** der Bügel (24) für den Indexprint (25) als Führungsmittel bei dessen Beförderung in die Bildertasche (22) dient.
6. Vorrichtung nach Anspruch 1, **dadurch gekennzeichnet, dass** die Indexprints (25) der Zuführeinrichtung (100) mittels einer Transporteinrichtung (40) zuführbar sind.
7. Vorrichtung nach Anspruch 1, **dadurch gekennzeichnet, dass** die Halteeinrichtung (15, 17) für den Indexprint (25) aus einer gegenüber der Ablageplatte (11) anhebbaren und absenkbaren Klemmplatte (15) besteht.
8. Vorrichtung nach den Ansprüchen 1 und 7, **dadurch gekennzeichnet, dass** die Klemmplatte (15) mittels einer druckluftbetriebenen Gelenkanordnung (17) anhebbar und absenkbar und mittels eines von einem Kurbelgestänge (35) angetriebenen Schiebers (16) gemeinsam mit dem Indexprint (25) in Richtung des Bügels (24) auf der Ablageplatte (11) hin und her bewegbar ist.
9. Vorrichtung nach den Ansprüchen 1 bis 4, **dadurch gekennzeichnet, dass** die Düse (33) der Drucklufteinrichtung (20) unter einem Luftabstrahlwinkel von 25 bis 85 Winkelgraden, vorzugsweise 45 Winkelgraden, geneigt zur Ablageplatte (30) an der Zuführeinrichtung (100) angeordnet ist.

10. Vorrichtung nach den Ansprüchen 1 und 2, **dadurch gekennzeichnet, dass** zum Verschwenken der Zuführeinrichtung (100) von der horizontalen in die vertikale Lage ein über ein Gestänge mit einem Druckluftantrieb verbundener Schwenkhebel (28) vorgesehen ist. 5
11. Vorrichtung nach einem der Ansprüche 1 bis 10, **dadurch gekennzeichnet, dass** die Zuführeinrichtung (100) mittels eines Flansches (27) gehäuseseitig gehalten ist. 10
12. Vorrichtung nach einem der Ansprüche 1 bis 11, **dadurch gekennzeichnet, dass** zur vertikalen Bewegung der Zuführeinrichtung (100) der Flansch gehäuseseitig in einer Kulissee geführt und gehalten ist. 15

## Revendications

1. Dispositif destiné à introduire des images photographiques et des bandes de film, et en particulier des épreuves d'index, dans un sachet de travaux (12) qui comporte une poche pour images (22) et une poche pour bandes de film (32), comprenant un dispositif d'acheminement dans chaque cas pour les images, pour les bandes de film et pour l'épreuve d'index, ainsi qu'une plaque de support (30) pour le sachet de travaux (12) qui doit être chargé, **caractérisé en ce que** le dispositif d'acheminement (100) pour l'épreuve d'index (25) est mobile entre une position de départ horizontale, à laquelle l'épreuve d'index (25) est reçue, et une position verticale, à laquelle l'épreuve d'index est délivrée dans la poche pour images (22), tandis que le sachet de travaux se trouve sur la plaque de support, et **en ce que** des moyens (20, 33) sont prévus en étant agencés pour ouvrir le côté supérieur (21) de la poche pour images (22) par une circulation d'air comprimé. 25 30 35 40
2. Dispositif selon la revendication 1, **caractérisé en ce que** le dispositif d'acheminement (100) pour l'épreuve d'index (25) comporte un cadre (10) et une plaque de dépôt (11), installée avec possibilité de pivotement dans ce dernier, comportant un dispositif de maintien (15) pour l'épreuve d'index (25), **en ce qu'**un dispositif à air comprimé (20) comprenant une buse (33) dirigée vers la plaque de dépôt (11) est disposé sur le dispositif d'acheminement (100), **en ce que** ce dernier est mobile autour d'un axe (23) à partir de sa position de départ horizontale jusqu'à sa position verticale et peut être abaissé sur la plaque de support (30), et **en ce que** de manière à délivrer l'épreuve d'index (25) dans la poche pour images (22) du sachet de travaux (12), la plaque de dépôt (11) peut pivoter à partir de la po-

sition verticale autour d'un point d'appui (13) jusque dans une position oblique inclinée.

3. Dispositif selon les revendications 1 et 2, **caractérisé en ce que** dans sa position verticale, le dispositif d'acheminement (100) est placé avec sa plaque de dépôt (11) opposée à l'ouverture de la poche pour images (22) d'un sachet de travaux (12) se trouvant sur la plaque de support (30), et **en ce qu'**à la suite d'une circulation d'air délivrée par le dispositif à air comprimé (20), la poche pour images (22) est ouverte et maintenue ouverte d'une part en raison de la dépression générée par la circulation d'air sur le côté supérieur (21) de la poche pour images (22), et d'autre part par la circulation d'air renvoyée depuis la plaque de dépôt (11) et pénétrant dans la poche pour images (22). 5 10 15 20
4. Dispositif selon les revendications 1 à 3, **caractérisé en ce que** lors de la délivrance de la circulation d'air comprimé par le dispositif à air comprimé (20), la plaque de dépôt (11) peut pivoter à partir de sa position verticale jusque dans une position oblique inclinée par rapport à l'ouverture de la poche pour images (22), et **en ce que** la plaque de dépôt (11) comporte un support (24), s'étendant sur presque toute la largeur de la poche pour images (22), qui s'engage dans la poche pour images (22) lorsque la plaque de dépôt (11) se trouve dans la position oblique après pivotement. 25 30 35 40
5. Dispositif selon la revendication 4, **caractérisé en ce que** le support (24) pour l'épreuve d'index (25) sert de moyen de guidage lorsque cette dernière est transportée dans la poche pour images (22). 45
6. Dispositif selon la revendication 1, **caractérisé en ce que** les épreuves d'index (25) peuvent être transportées vers le dispositif d'acheminement (100) au moyen d'un dispositif de transport (40). 50
7. Dispositif selon la revendication 1, **caractérisé en ce que** le dispositif de maintien (15, 17) pour l'épreuve d'index (25) comprend une plaque de serrage (15) qui peut être relevée et abaissée par rapport à la plaque de dépôt (11). 55
8. Dispositif selon les revendications 1 et 7, **caractérisé en ce que** la plaque de serrage (15) peut être relevée et abaissée au moyen d'un agencement articulé (17) entraîné par air comprimé, et au moyen d'une glissière (16) entraînée par une liaison à manivelle (35), elle peut être déplacée en va-et-vient, en association avec l'épreuve d'index (25), dans la direction du support (24) sur la plaque de dépôt (11). 60 65 70 75 80 85 90
9. Dispositif selon les revendications 1 à 4, **caractérisé**

**sé en ce que** la buse (33) du dispositif à air comprimé (20) est agencée sur le dispositif d'acheminement (100) à un angle d'émission d'air incliné de 25 à 85 degrés, de préférence 45 degrés, par rapport à la plaque de support (30).

5

**10.** Dispositif selon les revendications 1 et 2, **caractérisé en ce qu'**un levier à pivot (28) relié par l'intermédiaire d'une liaison à un entraînement à air comprimé, est prévu de manière à faire pivoter le dispositif d'acheminement (100) de la position horizontale jusqu'à la position verticale.

10

**11.** Dispositif selon l'une des revendications 1 à 10, **caractérisé en ce que** le dispositif d'acheminement (100) est maintenu sur la structure au moyen d'une bride (27).

15

**12.** Dispositif selon l'une des revendications 1 à 11, **caractérisé en ce que** pour le déplacement vertical du dispositif d'acheminement (100), la bride est guidée et maintenue sur la structure dans un passage.

20

25

30

35

40

45

50

55

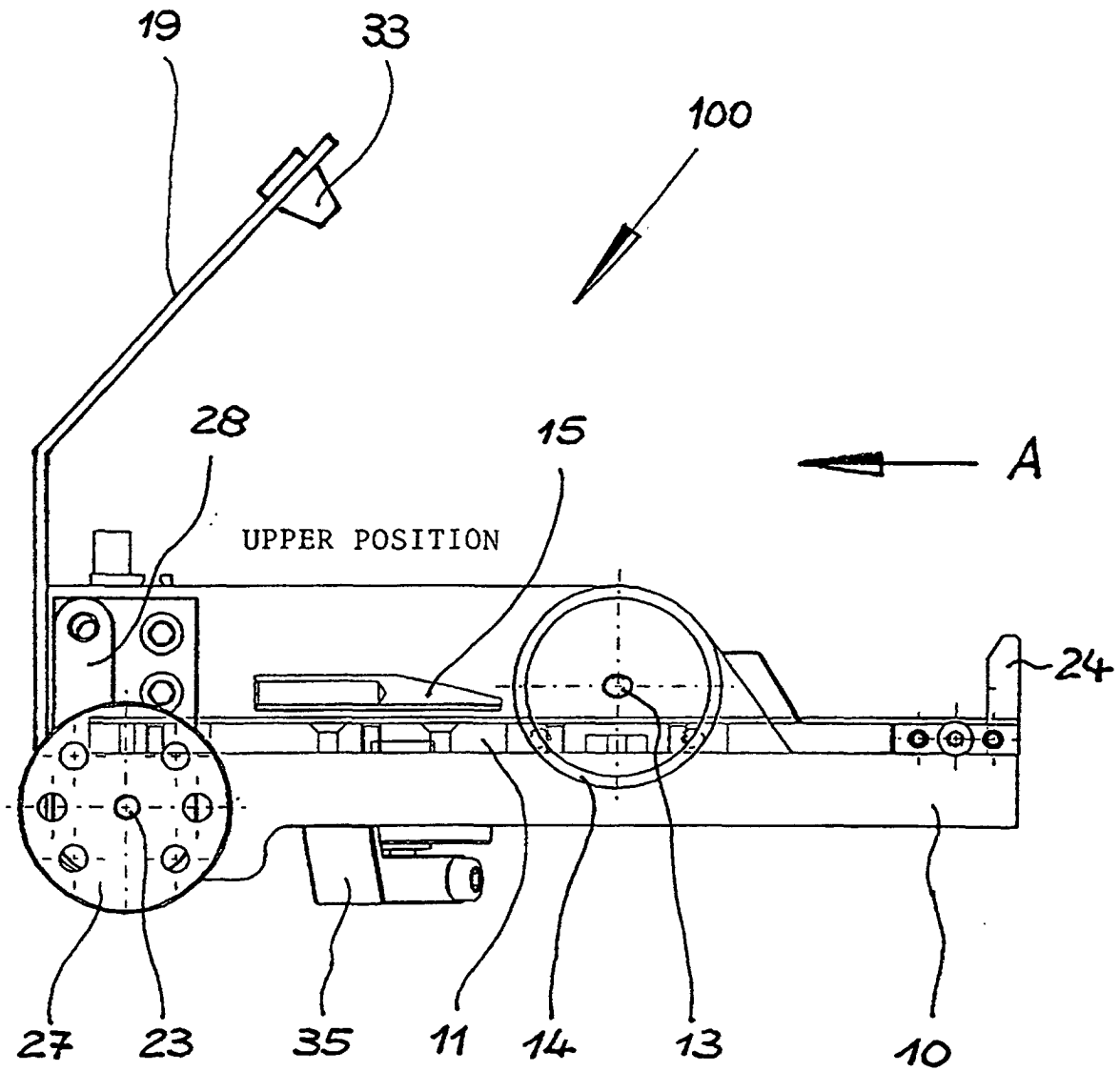


Fig. 1

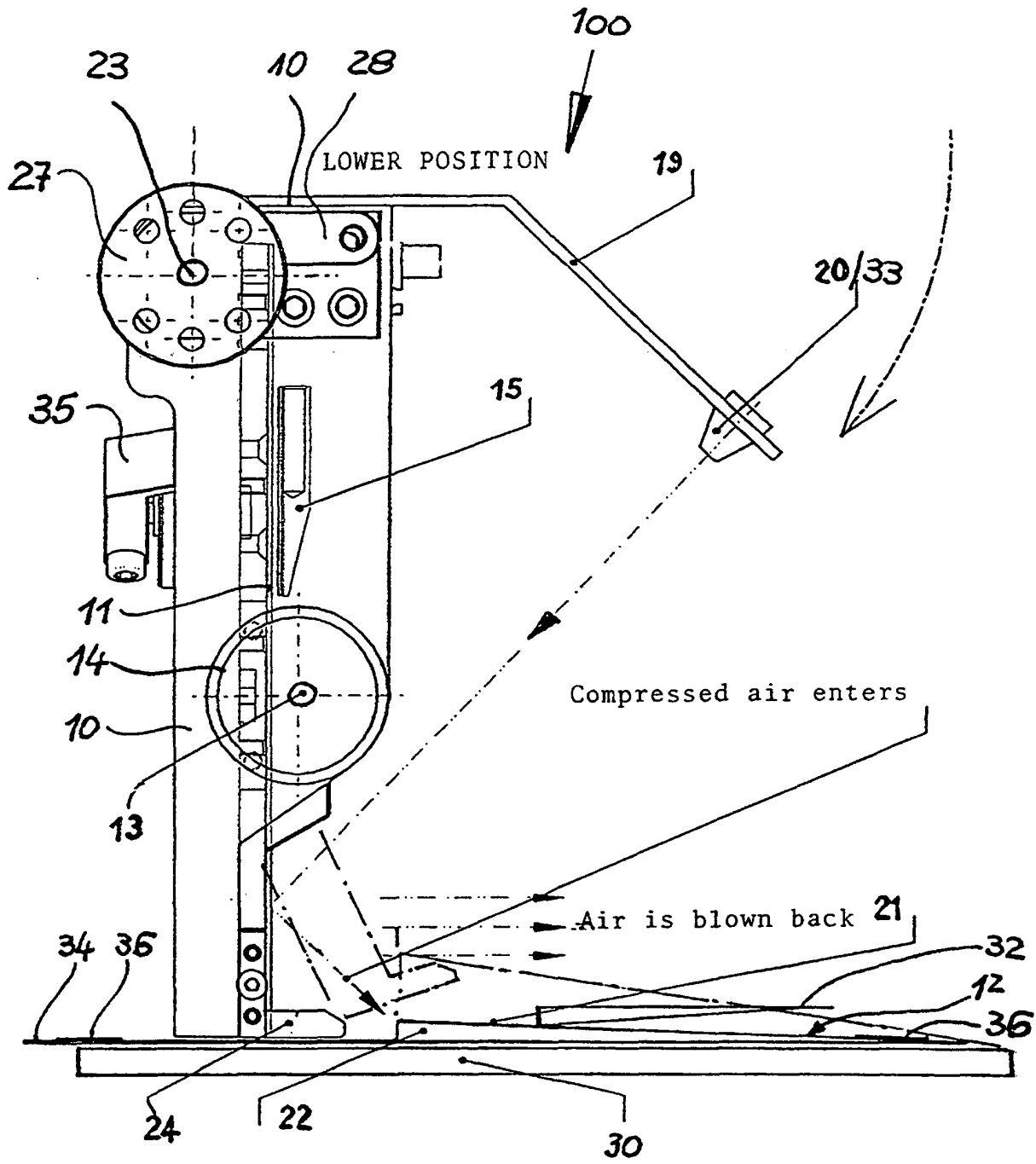


Fig. 2

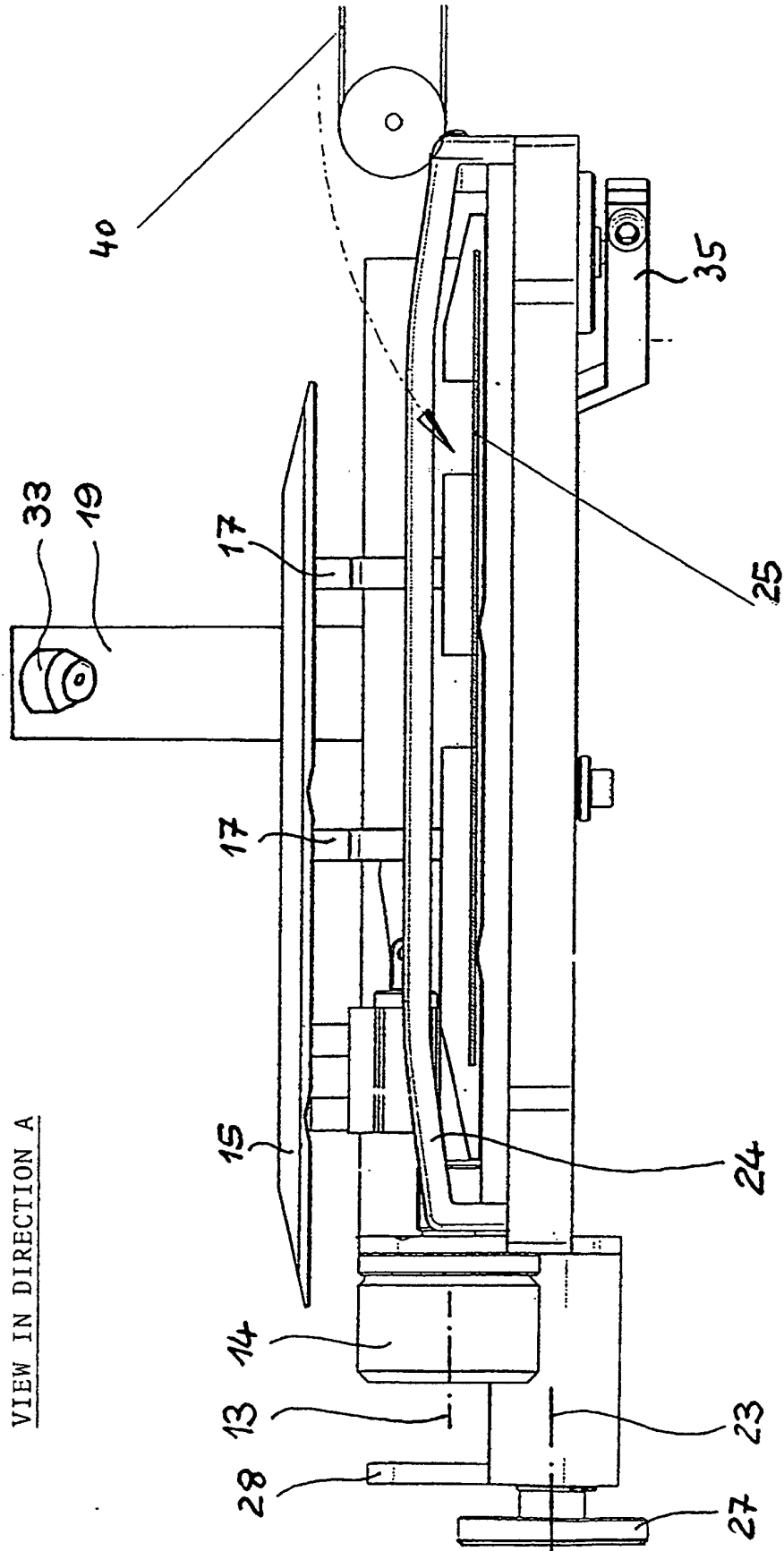


Fig. 3

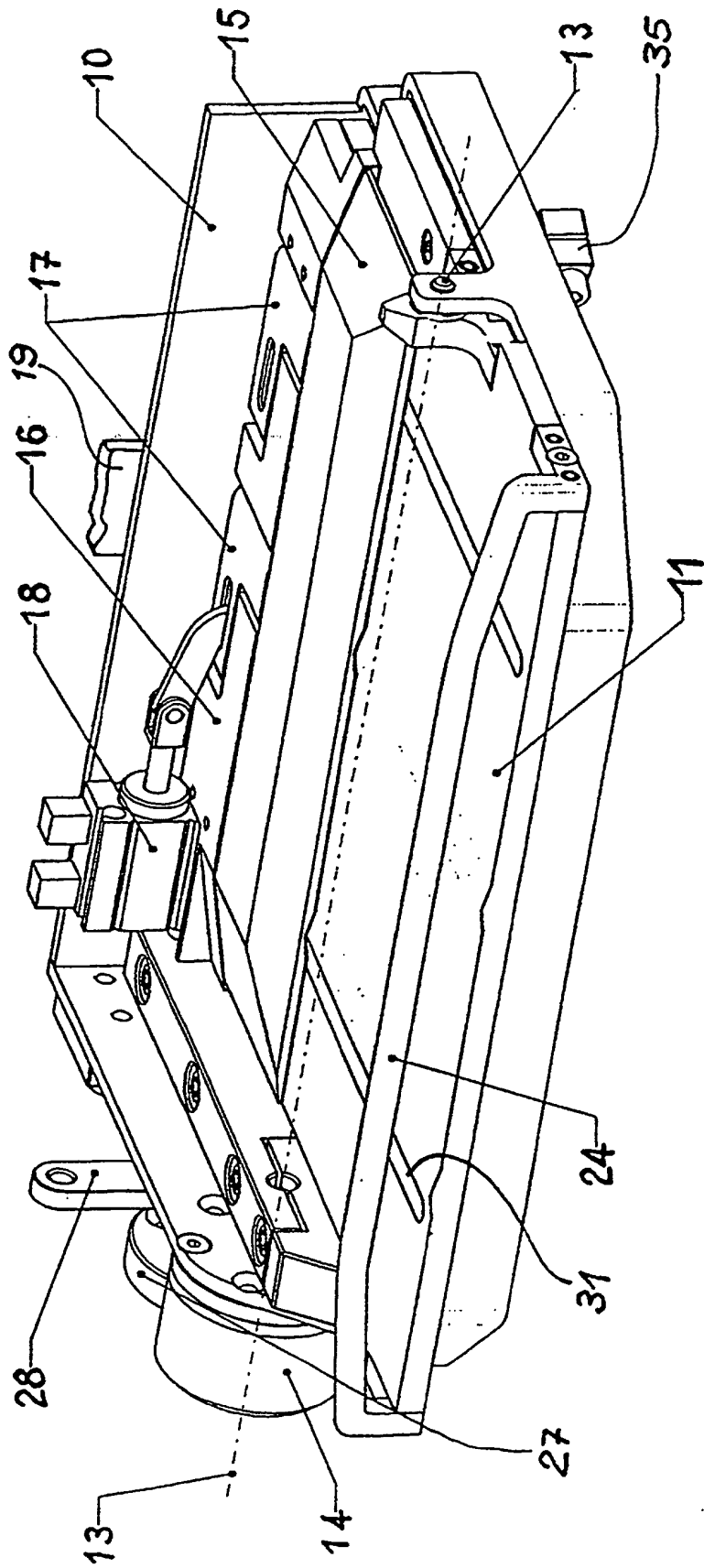


Fig. 4