

(19)



Europäisches Patentamt
European Patent Office
Office européen des brevets



(11)

EP 0 963 934 B1

(12)

EUROPEAN PATENT SPECIFICATION

(45) Date of publication and mention
of the grant of the patent:
13.08.2003 Bulletin 2003/33

(51) Int Cl.7: **B65H 37/00**

(21) Application number: **98110475.5**

(22) Date of filing: **08.06.1998**

(54) **Transfer head for applicator**

Auftragkopf für eine Auftragvorrichtung

Tête de transfert pour applicateur

(84) Designated Contracting States:
DE ES FR GB IT

(43) Date of publication of application:
15.12.1999 Bulletin 1999/50

(73) Proprietor: **TOMBOW PENCIL CO., LTD.**
Tokyo 114 (JP)

(72) Inventor: **Umeyama, Taku**
Ichihara-shi, Chiba-ken 299-0102 (JP)

(74) Representative: **Schmidt, Horst, Dr.**
Patentanwalt
Postfach 44 01 20
80750 München (DE)

(56) References cited:
EP-A- 0 770 572 **WO-A-97/46475**
DE-A- 4 404 103

EP 0 963 934 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 present invention relates to an applicator according to the preamble of the claim for transferring a paint for correcting an error or the like, or applying an adhesive by sliding a transfer tape bearing the paint or adhesive (as will be called the "paint or the like") on its surface, in close contact with a transfer object (or an object to have the paint or the like applied thereto) and, more particularly, to a transfer head composing the applicator.

[0002] In the prior art, the transfer head in the applicator for transferring a paint or the like, correcting an error or the like or applying an adhesive by sliding the transfer tape bearing the paint or the like on its surface in close contact with the transfer object has to be operated by the user to slide the transfer tape in close contact with the surface of the transfer object while being pushed at its back, so as to ensure the transfer of the paint or the like, as applied to the transfer tape, to the transfer object. In the actual use, however, a load for displacing the tape to the right and left is applied to the tape when the tape is slid not only back and forth but also in an arcuate curve. When this transfer head is slid in close contact with the surface of the transfer object, on the other hand, it is exposed to a heavy load. As a result, especially the tongue portion of the leading end of the transfer head is vertically rocked so that the transfer tape peels off the tongue portion. It has been proposed (WO 97/46475) to provide guide plates for regulating the peel or the like of the transfer tape, which are erected at the two sides of the tongue portion of the leading end of the transfer head. Moreover, the guide plates are so tapered in the feeding direction of the transfer tape as to have the width of the transfer tape at its leading end so that the troubles of the transfer tape, as might otherwise be caused in the transferring work, may be prevented.

[0003] In the aforementioned prior art, however, the torsions, the peels from the tongue portion and so on are caused by the rocking motions of the tongue portion of the leading end of the transfer head in the transfer tape which is held by the tongue portion. With the guide plates erected at the two sides of the tongue portion the transfer tape can be prevented from peeling off the tongue portion by the guide plates. Unless the guide plates at the two sides of the tongue portion of the leading end of the transfer head have a spacing larger than the transfer tape width or a sufficient height, however, the transfer tape, as held by the tongue portion of the leading end of the transfer head, is swung with respect to its feeding and winding directions so that the tape transferred to the paper surface meanders to degrade the using feel, when the tongue portion of the leading end of the transfer head for holding the transfer tape is slid by the user into close contact with the surface of the transfer object. With an excessive height, the design is deteriorated. If the guide plates on the transfer side are

high, there arises another defect that the transfer is impossible without an enlarged using angle. In the worst case, the transfer tape, as held by the tongue portion of the leading end of the transfer head, may be cut off.

[0004] If the guide plates are so tapered in the feeding direction (or the longitudinal direction) of the transfer tape as to have the width of the transfer tape at its leading end, moreover, the transfer tape to be wound is sufficiently regulated by the guide plates to reduce the transverse swings at the tongue portion of the transfer head because the guide plates are given the transfer tape width at their leading ends. As a result, the troubles such as the peel or the cut of the transfer tape are reduced. Since the guide plates are given the transfer tape width at their leading ends, however, they are wider at this side of the leading ends than the width of the transfer tape. As a result, the transfer tape may swing to the right and left on the leading ends of the guide plates in the feeding and winding directions (or the longitudinal directions) so that it cannot be sufficiently prevented from peeling off. Another problem is that it is impossible to prevent the troubles of the peel, the cut and so on of the transfer tape reliably. To a certain extent such problem may be mitigated when in addition to the guide plates at a longitudinal distance therefrom a pair of guide pins is provided defining another guiding passage for the tape downstream the guide plates, as this is also proposed by the above-mentioned publication.

[0005] It is an object of the invention to eliminate the aforementioned defects and problems of the prior art and to make it possible to effectively prevent any irregular movement of the transfer tape and its winding by the take-up reel thereby to smooch the transfer.

[0006] This object is obtained by the features of the characterizing part of the claim. Accordingly, there is provided, in an applicator for transferring a paint to a transfer tape, which is made to run between a feed reel and a tape-up reel mounted in an applicator body a transfer head wherein guide plates are erected at the two sides of the tongue portion of the leading end of the transfer head, as protruded from and fixed by the opening of the applicator body. Guide ridges are so protruded to form a transfer tape guide passage between the guide plates over a predetermined longitudinal distance, which has a width equal to a transfer tape width. Guide pins are juxtaposed at the back of the transfer tape guide passage between the guide ridges, which protrude to the surface and the back. Guide grooves are formed in the transfer head at the back of the guide pins for clamping and guiding the two sides of the transfer tape.

[0007] For practicing the invention, even if the tongue portion at the leading end of the transfer head of the applicator is slid in close contact with the surface of the transfer object, the tape is fed and taken up while being guided and regulated by both the guide plates, which are erected at the two sides of the tongue portion and the transfer tape guide passage which is formed between the guide plates. The transfer tape is not swung

to the right and left with respect to the feeding and winding directions so that a peel of the transfer tape from the tongue portion at the leading end of the transfer head and a cut of the transfer tape after peeled can be prevented.

[0008] At the middle portion of the transfer head, moreover, there are so juxtaposed the guide pins having the distance between the guide ridges protruded to conform to the transfer tape width as to protrude to the surface and back, and there are further formed the guide grooves over the guide pins. As a result, the transfer tape can be reliably prevented from peeling from the tongue portion and from twisting thereby to smooth the transfer of the paint or the like by the applicator. It is further possible to prevent the irregular winding of the take-up reel thereby to eliminate the causes for obstructing the rotations of the reel.

BRIEF DESCRIPTION OF THE DRAWINGS

[0009]

Fig. 1 is a front elevation showing an applicator according to an embodiment of the invention;

Fig. 2 is a side elevation showing a transfer head composing the applicator according to the embodiment of the invention;

Fig. 3 is a top plan view of the transfer head composing the applicator according to the embodiment of the invention; and

Fig. 4 is an enlarged perspective view showing an essential portion of the state in which the transfer head composing the applicator according to the embodiment of the invention is feeding a transfer tape.

DESCRIPTION OF THE PREFERRED EMBODIMENT

[0010] The invention will be described in more detail in connection with its embodiment with reference to the accompanying drawings. Reference numeral 1 designates an applicator according to an embodiment of the invention. This applicator 1 is constructed to comprise: an applicator body 2 charged with a feed reel 5 and a take-up reel 6 for feeding and taking-up a transfer tape 4 bearing a paint or the like on its surface, when used; and a transfer head 7 protruded from and fixed by an opening 3 of the applicator body 2 such that the transfer tape 4 made run on the feed reel 5 and the take-up reel 6 fitted in the applicator body 2 is supported at its back.

[0011] Moreover, guide plates 9 and 9 are erected at the two sides of a tongue portion 8 of the leading end of the transfer head 7, as protruded from and fixed by the opening 3 of the applicator body 2, and guide ridges 10 and 10 are so protruded to form a transfer tape guide passage 11 having a transfer tape width that a prede-

termined longitudinal distance taken in the feeding direction of the transfer tape 4 is defined between the guide plates 9 and 9 erected at the two sides of the tongue portion 8 of the transfer head 7. In addition, guide pins 12 and 12 are juxtaposed at the back of the transfer tape guide passage 11 to have a distance from the guide ridges 10 and 10 and spaced equal to the transfer tape width. At the back of the guide pins 12, there are formed guide grooves 14 for clamping and guiding the two sides of the transfer tape 4. By making the height 9' of the leading ends of the guide plates 9 and 9 larger than that of the prior art, as shown in Figs. 2 and 4, the guidance of the transfer tape 4 can be made more reliable.

[0012] With the applicator 1 thus constructed according to the embodiment of the invention, even when the tongue portion 8 of the leading end of the transfer head 7, as protruded from and fixed by the opening 3 of the applicator body 2, is slid in close contact with the surface of a transfer object 13 by the user using the applicator 1 to transfer the paint or the like, the transfer tape 4, as held by the tongue portion 8 of the leading end of the transfer head 7, is fed out and taken up while being guided and regulated by the guide plates 9 and 9, which are erected at the two sides of the tongue portion 8 of the leading end of the transfer head 7, and by the transfer tape guide passage 11 which is formed by the guide ridges 10 and 10 which are parallel and have the transfer tape width, at a predetermined longitudinal distance along the guide plates 9 and 9. By sliding the transfer head 7, the transfer tape 4 is not swung, even when fed and wound at the tongue portion 8 of the leading end of the transfer head 7, to the right and left with respect to the feeding and winding direction so that the transfer tape 4 can peel off the tongue portion 8 of the leading end of the transfer head 7 or can be prevented from being cut off.

[0013] At the back of the transfer tape guide passage 11 of the transfer head 7, moreover, there are juxtaposed the guide pins 12 and 12 protrude to the surface and back of the tongue portion 8 of the transfer head 7 with the width of the transfer tape 4, and there is formed the guide groove 14. By sliding the tongue portion 8 of the leading end of the transfer head 7 in close contact with the surface of the transfer object 13 for the use of the applicator 1, the transfer tape 4, as held on the surface and back of the tongue portion 8 of the leading end of the transfer head 7, is fed and wound while being guided and regulated by: the guide plates 9 and 9 which are erected from the two sides of the tongue portion 8 of the leading end of the transfer head 7; the transfer tape guide passage 11 which is given the parallel side edges by protruding the guide edges 10 and 10 with the transfer tape width of the predetermined distance between the guide plates 9 and 9 erected from the two sides of the tongue portion 8 of the transfer head 7; the guide pins 12 and 12 which are protruded from the surface and back of the distance between the guide ridges 10 and 10; and the guide groove 14. As a result, the

transfer tape 4, as held by the tongue portion 8 of the leading end of the transfer head 7, can be reliably prevented from peeling off the tongue portion 8 of the leading end of the transfer head 7 holding it or from being cut off, so that the transfer of the paint or the like by the applicator 1 can be smoothed. Especially by providing the guide groove 14 in the vicinity of the tape-up reel 6, this reel can be corrected in its take-up position to prevent the irregular winding of the tape.

[0014] With the construction of the invention, as has been described hereinbefore, the transfer tape is smoothly fed out and taken up, when the applicator is to be used, without any transverse swing by the guide plates, the transfer tape guide passage and the guide pins. As a result, the transfer tape can be freed from the troubles of its peel from the tongue portion of the leading end of the transfer tape or its cut thereby to provide an excellent effect that the smooth transfer can be reliably performed.

Claims

1. An applicator for transferring a correction paint, an adhesive and the like from a transfer tape to an object surface, in which the transfer tape is made to run between a feed reel (5) and a take-up reel (6) mounted in an applicator body (2), said transferring is obtained by holding the transfer tape on a tongue portion (8) at the leading end of a transfer head (7) and by sliding said tongue portion in contact with the object surface, said tongue portion protruding from an opening (3) of the applicator body holding said transfer head, said tongue portion having guide plates (9) erected at opposite sides of the leading end of the tongue portion and spaced from each other a transfer tape guiding passage (11) being formed therebetween and extending over a predetermined longitudinal distance in the running direction of the transfer tape, and guide pins (12) disposed at a distance from said transfer tape guiding passage and spaced from each other equal to the width of the transfer tape, **characterized in that** said transfer tape guiding passage (11) is formed between parallel guide ridges (10) protruding from said guide plates (9) along a predetermined longitudinal distance in the feeding direction of the transfer tape and spaced from each other equal to the width of the transfer tape, **in that** said guide pins protruding from said tongue portion in upward and downward directions, and further **in that** guide grooves (14) are formed on the transfer head at a distance from said guide pins for clamping and guiding the sides of the transfer tape.

Patentansprüche

1. Auftragsvorrichtung zum Übertragen einer Korrekturfarbe, eines Klebstoffes u.dgl. von einem Übertragungsband auf eine Objektfläche, wobei das Übertragungsband veranlasst ist, zwischen einer Zuführspule (5) und einer Aufnahmespule (6) zu laufen, die in einem Auftragsvorrichtung-Basiskörpers (2) gehalten sind, wobei der Übertrag erfolgt, indem das Übertragungsband auf einem Zungenbereich (8) am vorderen Ende eines Übertragungskopfes (7) gehalten und der Zungenbereich längs und in Berührung mit der Objektfläche gleitend bewegt wird, welcher Zungenbereich aus einer Öffnung (3) des den Übertragungskopf haltenden Auftragsvorrichtung-Basiskörpers herausragt und Führungsplatten (9) aufweist, die an gegenüberliegenden Seiten des vorderen Endes des Zungenbereiches in Abstand voneinander abstehen, wobei zwischen den Führungsplatten eine Führungspassage (11) für das Übertragungsband gebildet ist, die sich über eine bestimmte longitudinale Abstandsstrecke in Laufrichtung des Übertragungsbandes erstreckt, und wobei in einer Abstandsstrecke von der Übertragungsband-Führungspassage angeordnete Führungsstifte (12) in einem Abstand voneinander stehen, der gleich der Breite des Übertragungsbandes ist, **dadurch gekennzeichnet, dass** die Übertragungsband-Führungspassage (11) zwischen parallelen Führungsleisten (10) ausgebildet ist, die von den Führungsplatten (9) längs einer bestimmten longitudinalen Abstandsstrecke in Förderichtung des Übertragungsbandes abstehen und in einem Abstand voneinander sind, der gleich der Breite des Übertragungsbandes ist, dass die Führungsstifte von dem Zungenbereich in Richtungen nach oben und nach unten ragen, und dass ferner Führungsnuten (14) am Übertragungskopf in einer Abstandsstrecke von den Führungsstiften zum Klemmen und Führen der Seiten des Übertragungsbandes ausgebildet sind.

Revendications

1. Appareil destiné à transférer une peinture de correction, un adhésif et autre depuis un ruban de transfert sur une surface d'objet, où le ruban de transfert est amené à s'étendre entre une bobine débitrice (5) et une bobine réceptrice (6) montées dans un corps d'applicateur (2), ledit transfert est obtenu en maintenant le ruban de transfert sur une partie de languette (8) à l'extrémité avant d'une tête de transfert (7) et en faisant coulisser ladite partie de languette en contact avec la surface d'objet, ladite partie de languette faisant saillie depuis une ouverture (3) du corps d'applicateur comprenant ladite tête de transfert, ladite partie de languette com-

portant des plaques de guidage (9) montées au niveau de côtés opposés de l'extrémité avant de la partie de languette et espacées l'une de l'autre, un passage de guidage de ruban de transfert (11) étant formé entre celles-ci et s'étendant sur une distance longitudinale prédéterminée dans la direction de déplacement du ruban de transfert, et des broches de guidage (12) disposées à une certaine distance dudit passage de guidage de ruban de transfert et espacées l'une de l'autre de façon égale à la largeur du ruban de transfert, **caractérisé en ce que** ledit passage de guidage du ruban de transfert (11) est formé entre des protubérances de guidage parallèles (10) faisant saillie desdites plaques de guidage (9) suivant une distance longitudinale prédéterminée dans la direction d'avance du ruban de transfert et espacées l'une de l'autre de façon égale à la largeur du ruban de transfert, **en ce que** lesdites broches de guidage dépassent de ladite partie de languette en direction du haut et du bas, et en outre **en ce que** les rainures de guidage (14) sont formées sur la tête de transfert à une certaine distance desdites broches de guidage en vue de serrer et guider les côtés du ruban de transfert.

25

30

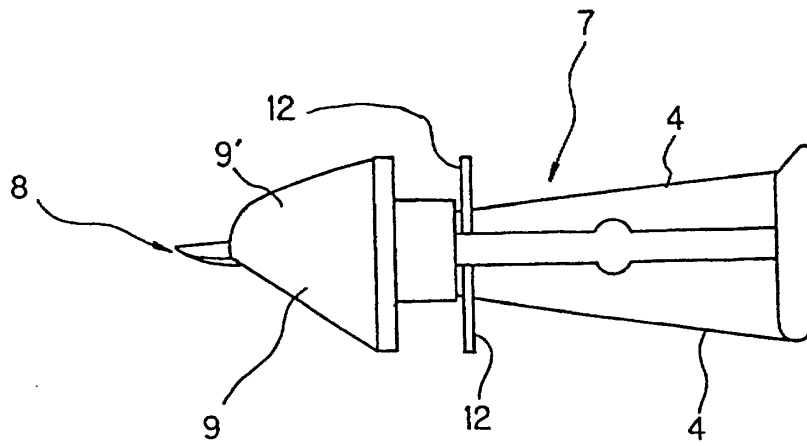
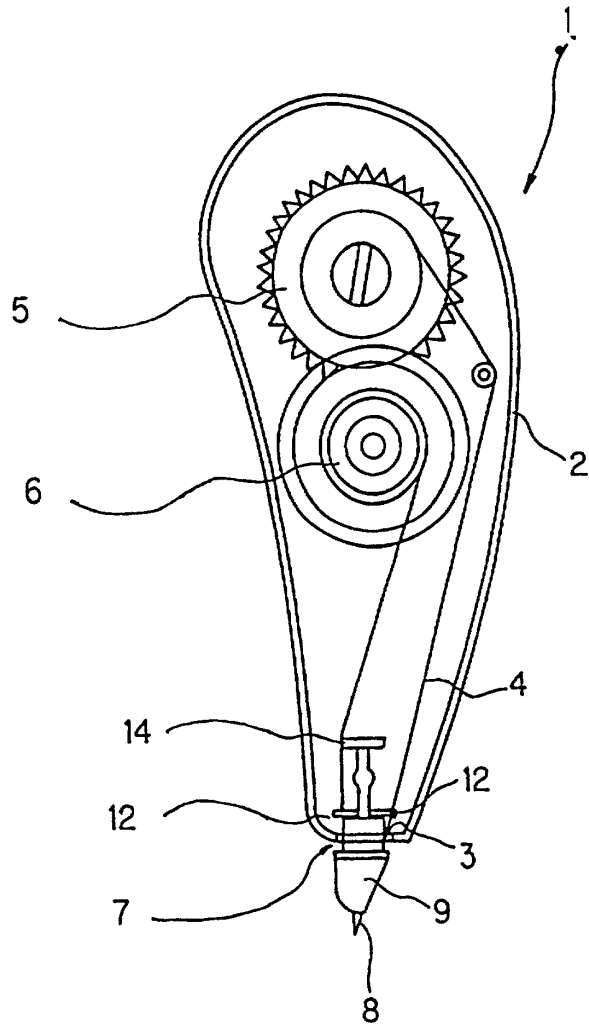
35

40

45

50

55



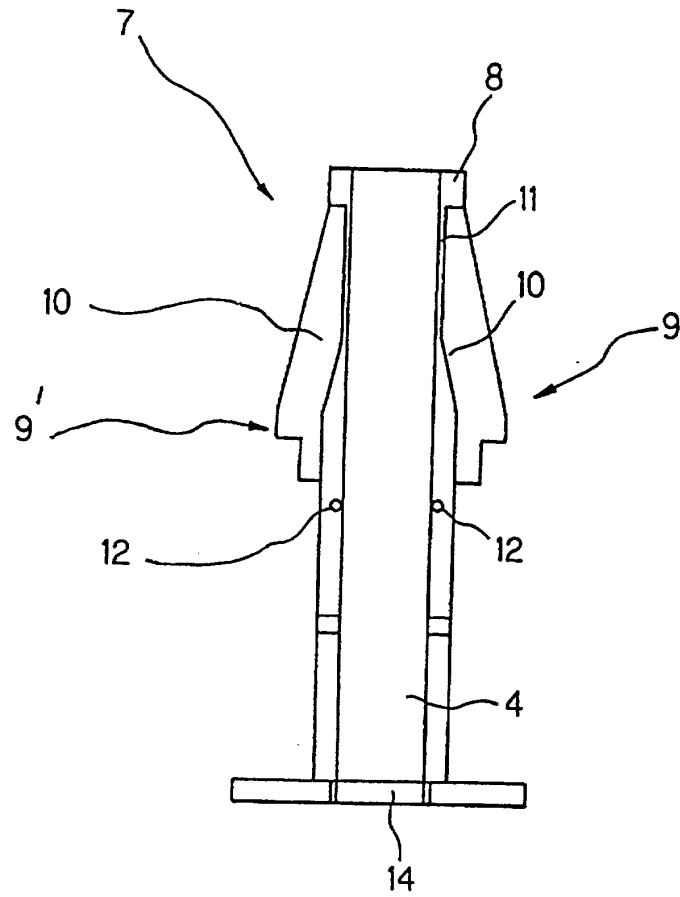


Fig. 3

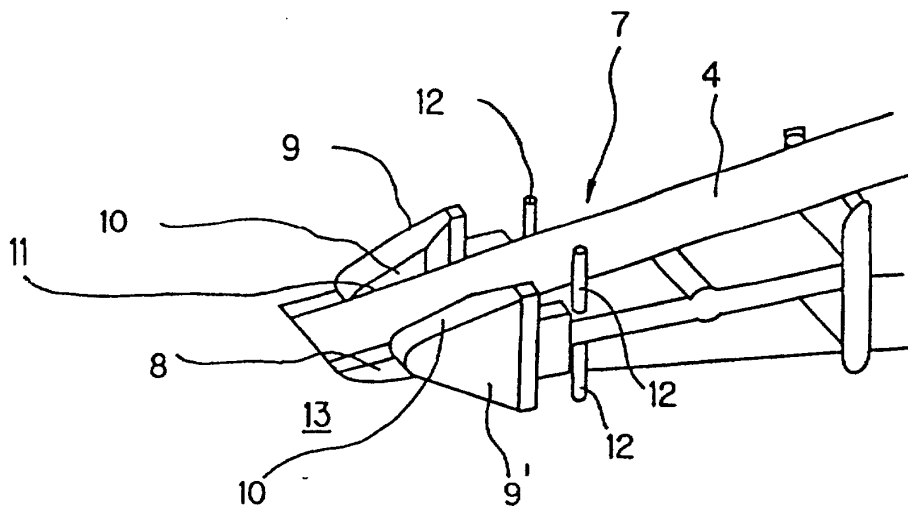


Fig. 4