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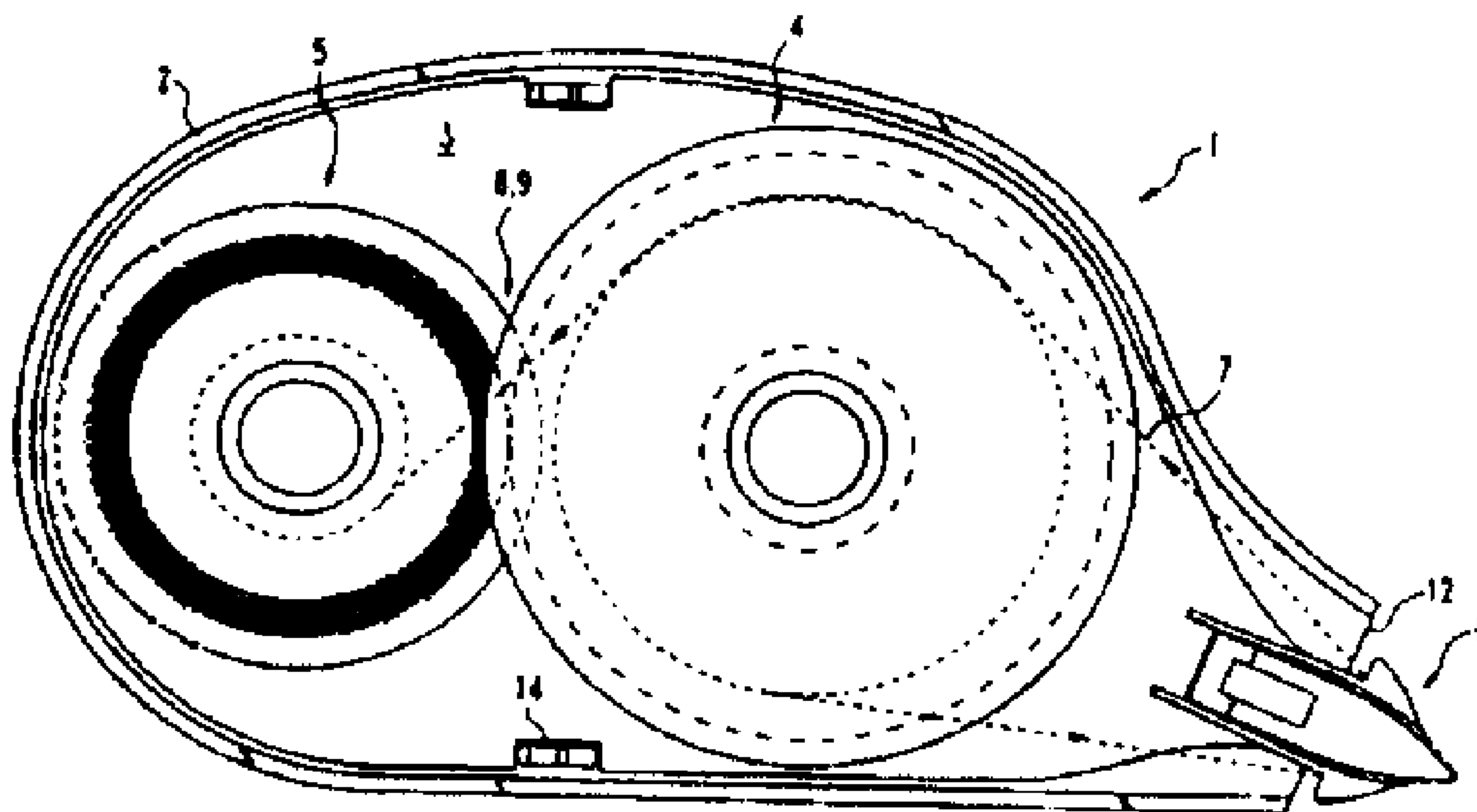
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(54) **APPAREIL MANUEL POUR TRANSFERER UN FILM D'UNE
BANDE SUPPORT SUR UN SUBSTRAT**

(54) **MANUAL DEVICE FOR TRANSFERRING A FILM FROM A
CARRIER TAPE TO A SUBSTRATE**



(57) L'invention concerne un appareil manuel (1) pour le transfert d'un film à partir d'une bande support (7) sur un substrat, comprenant un boîtier (2), une cassette interchangeable (3) pouvant être mise en place dans le boîtier (2), une bobine débitrice (4) pour une bande support (7) revêtue d'un film, et une bobine réceptrice (5) recevant la bande support (7) séparée du film, les deux bobines précitées étant logées dans la cassette (3), un applicateur (6) inversant la bande support (7), en saillie du boîtier (2), et présentant au substrat le côté de la bande support (7) revêtu du film, et des moyens de transmission (8) pour l'entraînement, dotés d'un

(57) The invention relates to a manual device (1) for transferring a film from a carrier tape (7) to a substrate, comprising a housing (2), a replaceable cassette (3) which can be inserted into the housing (2), a supply reel (4) for a carrier tape coated with a film and a winding reel (5) for receiving the carrier tape (7) separated from the film, both of which are accommodated in the replaceable cassette, and an applicator device (6) which turns the carrier tape (7), projects from the housing (2) and presents the side of the carrier tape (7) that is coated with the film to the substrate. Said device also comprises a drive connection (8), fitted with a sliding clutch (9),



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accouplement à friction, prévus entre la bobine débitrice (4) et la bobine réceptrice (5) et qui, lorsque la bobine débitrice (4) est entraînée par tirage de la bande support (7), entraînent la bobine réceptrice (5) à une vitesse de rotation telle que la bande support (7) demeure tendue en permanence. En vue de permettre un remplacement simple des bobines (4, 5), tout en assurant une fabrication simplifiée et économique, l'appareil selon l'invention est caractérisé en ce que l'applicateur (6) est constitué par une réglette d'application (10) montée sur le boîtier (2), et par des moyens de guidage de bande (11) pour la bande support, montés sur la cassette (3), et en ce que lesdits moyens de guidage de bande (11) sont réalisés de telle façon qu'ils préparent une partie de la bande support (7) sous forme d'une boucle dans laquelle pénètre la réglette (10) lors de la mise en place de la cassette (3) dans le boîtier (2).

which is mounted between the supply reel (4) and the winding reel (5), and which, when driving the supply reel (4) by pulling off the carrier tape (7), drives the winding reel (5) at such a number of rotations per minute that the carrier tape (7) remains stretched at all times. To enable for easy replacement of the reels (4, 5) and to ensure easy and economical production, the inventive manual device is characterized in that the applicator device (6) consists of both an applicator strip (10) placed on the housing (2), and a tape guide (11) for the carrier tape (7) placed on the replaceable cassette (3), wherein the tape guide (11) is configured in such a way that it presents part of the carrier tape (7) as a loop, through which the applicator strip (10) is fed when the cassette (3) is inserted into the housing (2).



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| <p>(21) Internationales Aktenzeichen: PCT/EP97/06576 (22) Internationales Anmeldedatum: 25. November 1997 (25.11.97) (30) Prioritätsdaten: 197 02 345.2 23. Januar 1997 (23.01.97) DE (71) Anmelder (für alle Bestimmungsstaaten ausser US): TIPP-EX GMBH & CO. KG [DE/DE]; Rossertstrasse 6, D-65835 Liederbach (DE). (72) Erfinder; und (75) Erfinder/Anmelder (nur für US): SEMMLER, Georg [DE/DE]; Hasengartenstrasse 36a, D-65189 Wiesbaden (DE). (74) Anwalt: SCHMIDT-EVERS, Jürgen; Mitscherlich & Partner, Sonnenstrasse 33, D-80331 München (DE).</p> | <p>(81) Bestimmungsstaaten: AU, BR, CA, CN, JP, KR, US, europäisches Patent (AT, BE, CH, DE, DK, ES, FI, FR, GB, GR, IE, IT, LU, MC, NL, PT, SE). Veröffentlicht <i>Mit internationalem Recherchenbericht.</i> <i>Vor Ablauf der für Änderungen der Ansprüche zugelassenen</i> <i>Frist. Veröffentlichung wird wiederholt falls Änderungen</i> <i>eintreffen.</i></p> | |
| <p>(54) Title: MANUAL DEVICE FOR TRANSFERRING A FILM FROM A CARRIER TAPE TO A SUBSTRATE</p> | | |
| <p>(54) Bezeichnung: HANDGERÄT ZUM ÜBERTRAGEN EINES FILMES VON EINEM TRÄGERBAND AUF EIN SUBSTRAT</p> | | |
| <p>(57) Abstract</p> | | |
| <p>The invention relates to a manual device (1) for transferring a film from a carrier tape (7) to a substrate, comprising a housing (2), a replaceable cassette (3) which can be inserted into the housing (2), a supply reel (4) for a carrier tape coated with a film and a winding reel (5) for receiving the carrier tape (7) separated from the film, both of which are accommodated in the replaceable cassette, and an applicator device (6) which turns the carrier tape (7), projects from the housing (2) and presents the side of the carrier tape (7) that is coated with the film to the substrate. Said device also comprises a drive connection (8), fitted with a sliding clutch (9), which is mounted between the supply reel (4) and the winding reel (5), and which, when driving the supply reel (4) by pulling off the carrier tape (7), drives the winding reel (5) at such a number of rotations per minute that the carrier tape (7) remains stretched at all times. To enable for easy replacement of the reels (4, 5) and to ensure easy and economical production, the inventive manual device is characterized in that the applicator device (6) consists of both an applicator strip (10) placed on the housing (2), and a tape guide (11) for the carrier tape (7) placed on the replaceable cassette (3), wherein the tape guide (11) is configured in such a way that it presents part of the carrier tape (7) as a loop, through which the applicator strip (10) is fed when the cassette (3) is inserted into the housing (2).</p> | | |
| | | |
| <p>(57) Zusammenfassung</p> | | |
| <p>Es wird ein Handgerät (1) zum Übertragen eines Filmes von einem Trägerband (7) auf ein Substrat vorgeschlagen, mit einem Gehäuse (2), einer in das Gehäuse (2) einsetzbaren Wechselkassette (3), einer Vorratsspule (4) für ein mit einem Film beschichtetes Trägerband (7) und einer Aufwickelspule (5) zur Aufnahme des vom Film getrennten Trägerbandes (7), die beide in der Wechselkassette (3) aufgenommen sind, einer das Trägerband (7) umlenkenden Auftrageinrichtung (6), die aus dem Gehäuse (2) herausragt und die mit dem Film beschichtete Seite des Trägerbandes (7) dem Substrat darbietet, und einer mit einer Rutschkupplung (9) versehenen Antriebsverbindung (8) zwischen Vorratsspule (4) und Aufwickelspule (5), die beim Antrieb der Vorratsspule (4) durch Abziehen des Trägerbandes (7) die Aufwickelspule (5) mit einer solchen Drehzahl antreibt, daß das Trägerband (7) stets gespannt bleibt. Um ein einfaches Auswechseln der Spulen (4, 5) zu ermöglichen und dabei einfach und kostengünstig herstellbar zu sein, ist das Handgerät erfindungsgemäß dadurch gekennzeichnet, daß die Auftrageinrichtung (6) aus einer am Gehäuse (2) angebrachten Auftragleiste (10) und einer an der Wechselkassette (3) angebrachten Bandführeinrichtung (11) für das Trägerband (7) besteht, wobei die Bandführeinrichtung (11) derart gestaltet ist, daß sie einen Teil des Trägerbandes (7) als Schlaufe bereit hält, in die die Auftragleiste (10) beim Einlegen der Wechselkassette (3) in das Gehäuse (2) eintaucht.</p> | | |

MANUAL DEVICE FOR TRANSFERRING A FILM FROM A
CARRIER TAPE TO A SUBSTRATE

The invention relates to a hand-operated appliance for transferring a film from a carrier tape to a substrate according to the preamble of claim 1.

10 Hand-operated appliances of the above-mentioned type are primarily used in offices to apply a coloured, opaque or adhesive film from a carrier tape to a substrate such as paper, for example. Hand-operated appliances of this kind enable the user to apply the film very neatly and to a localised point.

DE 36 44 946 C2 discloses a hand-operated appliance for applying an adhesive film to a substrate. The hand-operated appliance consists of a casing containing a supply spool for a carrier tape coated with an adhesive film, a wind-up spool for taking up the carrier tape separated from the adhesive film, a tape guide device and an applicator device which deflects the carrier tape, can spring elastically outwards, projects out of the casing and presents the side
20 of the carrier tape which is coated with the adhesive film to the substrate. A drive connection provided with a slip coupling is disposed between the supply spool and the wind-up spool and, as the supply spool is driven by drawing off the carrier tape, drives the wind-up spool at a rotational speed which is such that the carrier tape always remains tensioned. In order to simplify the entire refilling handling process for the user when changing the tape, the supply spool and the wind-up spool, as well as the applicator device and the tape guide device, are accommodated in an interchangeable cassette. In addition,
30 the drive connection, which is provided entirely within the casing, comprises a so-called input and a so-called output driving pin for mounting the two spools, so that the interchangeable cassette can be positioned accurately in the casing.

The spool changing operation is simplified even further for the user in DE 37 36 357 C2. In the region of the applicator device an additional support-centring pin at the casing and a corresponding holding fixture at the
5 interchangeable cassette ensure that the latter is correctly positioned, and a holder is also provided as a positive locking element to prevent the interchangeable cassette from turning about the support-centring pin.

10 The applicants' German patent application DE 42 20 712 C2 discloses a hand-operated appliance of a particularly simple and small design. The hand-operated appliance for transferring a film from a carrier tape to a substrate, with a casing, in which a supply spool and a wind-up spool
15 for the carrier tape are rotatably mounted, and an applicator device disposed at the casing, is distinguished by a special type of drive connection between the spools. The drive connection with a slip coupling is formed as a friction drive directly between the two spools.

20 Starting out from the above prior art, the object of the invention is to provide a hand-operated appliance of the type initially mentioned which enables the spools to be easily replaced while being easy and inexpensive to
25 produce.

This object is achieved by the features of claim 1. The interchangeable cassette can easily be loaded and the carrier tape tensioned on account of the two-part
30 construction of the applicator device, with the applicator strip being located on the casing and the tape guide device on the interchangeable cassette, and the tape guide device being formed such that it holds a part of the carrier tape ready as a loop into which the applicator strip enters when
35 the interchangeable cassette is loaded into the casing. As the interchangeable cassette is formed in a relatively simple manner on account of the construction according to

the invention, it can accordingly be produced easily and inexpensively.

In a development of the invention locking means with seats
5 are provided in the casing of the hand-operated appliance
which, when the interchangeable cassette is loaded, secure
it in a first position in which the tape guide device
protrudes with respect to the applicator strip, so that the
applicator strip enters into the loop of the carrier tape,
10 and which, after the interchangeable cassette has been
pushed back, secure it in an end position in which the tape
guide device is pushed back with respect to the applicator
strip, so that the carrier tape of the loop runs over the
applicator strip.

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Further configurations and developments are the subject of
subsequent claims.

A preferred embodiment of the invention is illustrated in
20 detail in the following on the basis of the accompanying
drawings, in which:

Figure 1 is a side view of a hand-operated appliance
according to the invention with the second casing
25 half having been removed;

Figure 2 is a plan view of the hand-operated appliance of
Figure 1;

Figure 3 is a side view of the interchangeable cassette of
the hand-operated appliance of Figure 1;

30 Figure 4 is a side view of the first casing part of the
hand-operated appliance of Figure 1;

Figure 5 is a side view of the second casing half of the
hand-operated appliance of Figure 1;

Figure 6 shows the first casing half of Figure 1 in a view
35 A from Figure 4;

Figure 7 shows the first casing half of Figure 6 with the
interchangeable cassette in a first position; and

Figure 8 shows the first casing half of Figure 6 with the interchangeable cassette in a second position.

Figures 1 and 2 show a preferred embodiment of a hand-operated appliance according to the invention when ready for use, i.e. with an inserted interchangeable cassette, while Figures 3 to 6 each show the individual components of the hand-operated appliance according to the invention which is shown in Figures 1 and 2. The process of loading the interchangeable cassette into the casing is illustrated in detail on the basis of Figures 7 and 8.

The main components of the hand-operated appliance 1 are a casing 2 of a manageable size, an interchangeable cassette 3, a supply spool 4, which is rotatably mounted in the interchangeable cassette 3, a wind-up spool 5, which is rotatably mounted in the interchangeable cassette 3, an applicator device 6, which projects out of the casing 2 and consists of an applicator strip 10 and a tape guide device 11, a carrier tape 7 and a drive connection 8, which is disposed between the spools 4, 5 and has an integrated slip coupling 9. All the parts of the hand-operated appliance 1 which have been described above and are yet to be described preferably consist of a plastics material and - with the exception of the carrier tape 7 - may be produced by injection moulding.

In the side view according to Figure 1 the casing 2 is in the shape of a drop, which may be rounded or polygonal. The horizontal width of the casing 2 is relatively small, being approximately 20 to 25 mm.

The casing 2 consists of a first casing half 2a and a second casing half 2b, this not being included in Figure 1, which can be fastened to the first casing half by clamping and/or interlocking. The surrounding side wall 2c of the casing 2 may be moulded both onto the first casing half 2a

and onto the second casing half 2b; the illustrated embodiment shows the side wall 2c on the second casing half 2b. The bottom front corner of the casing 2 is provided with a through-opening 12, through which the applicator device 6 projects out of the casing 2 when the hand-operated appliance 1 is closed. The through-opening 12 is dimensioned such that slits which form the delivery or feed opening for the carrier tape 7 are provided between the underside and the top side of the applicator device 6 and the side wall 2c of the casing 2.

The carrier tape 7 is coated with a coloured, opaque or adhesive film - according to the purpose of the application. The carrier tape 7, which can be drawn off the supply spool 4, is guided around the applicator device 6 and runs back into the casing 2 to the wind-up spool 5. In order to apply the film to a substrate such as paper, for example, the applicator strip 10 of the applicator device 6 is pressed against the substrate, so that the film which is presented to the substrate adheres to the latter.

The supply spool 4 and the wind-up spool 5 are disposed in an interchangeable cassette 3. The interchangeable cassette 3 is substantially a plate which has a drop-shaped contour like the casing 2 and which can be loaded or inserted into the first casing half 2a. For the purpose of accurate positioning and as a loading aid for the interchangeable cassette 3, a plurality of locking means 14 in the form of pins or studs are located on the first casing half 2a, these engaging in corresponding locking means 15 in the form of recesses or openings in the plate 3. The locking means 14, 15 may be disposed at the edge of or within the plate 3. The loading operation and the special form of the locking means 14, 15 are described in greater detail on the basis of Figures 6 to 8.

A bearing sleeve 17 for the supply spool 4 and a bearing sleeve 18 for the wind-up spool 5 are moulded onto the plate 3 along a line 16 extending approximately through the centre of the casing 2 and approximately parallel to the bottom edge of the latter. The outside diameter of the bearing sleeves 17, 18 is in this case slightly smaller than the respective hub parts 4a, 5a of the two corresponding spools 4, 5, so that the spools 4, 5 are rotatably mounted on the stationary bearing sleeves 17, 18. In the embodiment described here the supply spool 4 is disposed before the wind-up spool 5 in relation to the applicator device 6.

The drive connection 8 and the slip coupling 9 between the two spools 4, 5 correspond to the drive connection and the slip coupling disclosed in the applicants' publication DE 42 20 712 C2. Lateral spool walls 4b, 5b, between which the carrier tape 7 is wound or wound up, extend from the hub parts 4a, 5a of the spools 4, 5. The drive connection 8 and the slip coupling 9 are formed by at least one pair of friction surfaces 19, 20 which are directly in engagement with one another and which in the present embodiment are formed at opposite inner and outer faces of the spool walls 4b, 5b. The sum of the distances $d_1/2$, $d_2/2$ of the friction surfaces 19, 20 from the rotational axes of the respective spools 4, 5 is greater than the centre distance a between the two spools 4, 5, so that the friction surfaces 19, 20 of the spool walls 4b, 5b overlap. In this configuration the outer spacing of the spool walls 5b of the wind-up spool 5 is adapted to the inner spacing of the spool walls 4b of the supply spool 4, so that the wind-up spool 5 fits with its spool walls 5b between the spool walls 4b of the supply spool 4, as shown in the plan view of Figure 2. In order nevertheless to guarantee the lateral guidance of the carrier tape 7 on the supply spool 4, the supply spool walls 4b may be thickened inwards to the guide width in the winding region.

When the rotational drive between the spools 4, 5 is based solely on frictional action between preferably plane friction surfaces 19, 20, a compressive stress between the friction surfaces 19, 20 is required to produce the friction. This can be achieved by slightly overdimensioning or underdimensioning the outer spacing between the wind-up spool walls 5b and the inner spacing between the supply spool walls 4b, with the initial stress being based on the elasticity of the material with which associated spool walls are pressed together. The two associated spool walls 4b and 5b are preferably provided with friction surfaces 19 and 20 as described above, so that two friction surface pairs are present.

The drive connection 8 between the spools 4 and 5 must be designed such that, taking account of the winding diameters 21 and 22 effective at the time, the wind-up spool 5 is driven at such a speed that the carrier tape section to be wound up is always slightly tensioned. The slip coupling 9 comes into operation above a certain driving torque active in the drive connection 8, so that, although the wind-up spool 5 is driven faster, it only rotates at a speed which corresponds to the speed of movement of the carrier tape 7, so as to prevent the carrier tape 7 from tearing.

The drive connection 8 must have a transmission ratio for driving the wind-up spool 5 faster, according to the spool base size. In this embodiment this is achieved by making the average diameter d_1 of the annular friction surface 19 at the supply spool 4 greater than the average diameter d_2 of the annular friction surface 20 at the wind-up spool 5.

It is equally possible to create or replace the frictional action between the spool walls 4b, 5b by elevations and depressions in the form of teeth with associated tooth spaces, the tooth engagement of which can be bridged in order to form the slip coupling 9. The applicants'

publication DE 42 20 712 C2 is referred to at this point for a more precise description of this alternative for the drive connection 8.

5 As the drive connection 8 and the slip coupling 9 are formed as one part at the spools 4, 5, no additional parts are required. Moreover, the use of small and simple components permits a simple and inexpensive production process. The arrangement of the two spools 4, 5 in an
10 interchangeable cassette 3 makes it easier for the user to change the spools, and, due to the construction of the drive connection 8 and the slip coupling 9 described above, the user does not need to ensure that the spools 4, 5 are properly arranged when carrying out a spool change, as
15 these are located together with the drive connection 8 and the slip coupling 9 in an exact position in relation to one another in the interchangeable cassette 3.

As already mentioned above, in order to apply the film to a
20 substrate, the carrier tape 7 is guided around the applicator device 6 which projects out of the casing 2 and is pressed against the substrate. According to the invention this applicator device 6 is of a two-part construction. It consists of a tape guide device 11 located
25 on the interchangeable cassette 3 and of an applicator strip 10 located on the first casing half 2a.

The tape guide device 11 at the interchangeable cassette 3 consists substantially of two webs 11a projecting out of
30 the casing 2 and extending approximately parallel to one another and, at least in the front region, parallel to the carrier tape 7. In their front region the webs 11a each have two lateral boundary walls 11b, between which the carrier tape 7 is passed. The spacing between the lateral
35 boundary walls 11b of a web 11a is slightly greater than the width of the carrier tape 7. A clearance 11c is provided between the two webs 11a, which clearance is

bounded by a contact edge 11d towards the plate 3 and is open towards the front end. As can be seen in Figure 3, the carrier tape 7 is guided around the front ends of the two webs 11a in the form of a loop.

5

Figures 4 and 6 show the first casing half 2a in a side view and in a view A from Figure 4. The applicator strip 10 is preferably integral with the first casing half 2a and in the form of a wedge 10a in the front region. The tip of this preferably rigid wedge 10a is advantageously rounded. The rear part of the applicator strip 10 is stepped with respect to the horizontal width of the wedge 10a and forms a seat 10c. The applicator strip 10 leads downwards from this seat 10c at the end in the form of a slope 10d to the level of the plate 3. As shown in Figure 4, a holding opening 10b is provided in the applicator strip 10 in the rear region 10c, 10d to accommodate a centring device 23 provided on the second casing half 2b (Figure 5).

20 The locking means 14 on the first casing half 2a are also stepped in a manner similar to that of the applicator strip 10. As shown in Figure 6, the locking means 14 also comprise a seat 14a extending away from the applicator strip 10 in the rear region and lying approximately at the same level above the plate 3 as the seat 10c of the applicator strip 10. A slope 14b is likewise provided at the rear end adjacent to the seat 14a.

The loading of the interchangeable cassette 3 is described in the following on the basis of both Figures 7 and 8. The interchangeable cassette 3 is firstly placed on the seats 10c and 14a of the applicator strip 10 and the locking means 14. The contact edge 11d of the tape guide device 11 and the contact edge 15a of the opening are positioned at the rear edges 10e, 14c of the front regions of the applicator strip 10 and locking means 14. The rear edges 10e, 14c may advantageously be bevelled to make it easier

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to load the interchangeable cassette 3 into this first position.

As shown in Figure 7, in this first position of the
5 interchangeable cassette 3 the applicator strip 10 enters
with its wedge 10a into the loop of the carrier tape 7,
which loop is guided tautly around the tape guide device
11. The interchangeable cassette 3 is then pushed back
10 until the contact edges 11d and 15a slide down over the
slopes 10d and 14b and the plate 3 is lying on the casing
half 2a.

This end position is shown in Figure 8. In this position
the wedge 10a of the applicator strip 10 projects through
15 the two webs 11a of the tape guide device 11 out of the
casing 2, while the carrier tape 7 is guided tautly around
the tip of the wedge 10a. As before, the lateral boundary
walls 11b at the webs 11a of the tape guide device 11
guarantee the lateral position of the carrier tape 7.

20 The two-part applicator device 6 according to the invention
which is described above has the following advantage: When
the interchangeable cassette 3 is loaded into the casing 2
the applicator strip 10 moulded on the first casing half 2a
25 serves both as a holding and positioning device for the
tape guide device 11 moulded on the interchangeable
cassette 3 and to tension the carrier tape 7. This means
that, apart from the applicator device 6, all that is
required are the locking means 14, which are formed
30 relatively simply, on the casing 2, and the interchangeable
cassette 3 and carrier tape 7 can still be easily inserted
into the casing 2 so as to take up an accurate position.
Just a simple tape guide device 11 is moulded onto the
actual interchangeable cassette 3 instead of a complex
35 applicator device 6 as in the case of conventional hand-
operated appliances. The interchangeable cassette 3 can

therefore be produced easily and inexpensively, while saving materials.

As shown in Figure 5, for the purpose of securely holding
5 the two spools 4, 5 in the casing 2, the second casing half
2b comprises two bearing sleeves or pins 24 and 25 for
holding the bearing sleeves 17 and 18 moulded onto the
interchangeable cassette 3. The outside diameter of the
bearing sleeves or pins 24, 25 corresponds approximately to
10 the inside diameter of the bearing sleeves 17, 18, and a
slight clamping action can preferably be achieved.

In addition, a support ring 26 of a greater diameter than
the bearing sleeve 24 is located concentrically with the
15 latter on the second casing half 2b. The diameter and the
height of the support ring 26 are determined such that the
spool wall 4b of the supply spool 4 lies on this support
ring 26 in its inner region (within the friction surface
19).

20 The second casing part 2b also comprises a fastening device
27 above the through-opening 12 on the outer face of the
side wall 2c for a protective cap (not shown). The
protective cap can be turned down over the applicator
25 device 6 projecting out of the through-opening 12, so that
the applicator device 6 and the carrier tape 7 guided
around the latter are protected when the hand-operated
appliance 1 is not in use.

30 Fluting 28 is also provided on the outer face of the side
wall 2c in the region above the through-opening 12. The
fluting 28 serves as a rest for the user's index finger, so
that the hand-operated appliance 1 can be reliably
controlled by the user in the latter's hand.

35 In order to prevent looping of the carrier tape 7 if the
hand-operated appliance 1 is used incorrectly, a return

stop (not shown) may preferably be associated with the wind-up spool 5. The return stop may be formed, for example, by a stop pawl gear, consisting of a toothed ring which is disposed at the circumferential edge of one of the 5 wind-up spool walls 5b and which co-operates with a pawl arm. The pawl arm extends approximately in a tangential direction to the toothed ring and is acted upon by a spring force towards the toothed ring such that the pawl arm runs over the toothed ring in the wind-up direction and prevents 10 reverse rotation of the wind-up spool 5 in the opposite direction of rotation by engaging with the toothed ring.

New claims

1. Hand-held apparatus (1) for transferring a film from a carrier tape (7) to a substrate, the said apparatus having:
- a housing (2),
 - an interchangeable cassette (3) which can be inserted in the housing (2),
 - a storage reel (4) for a carrier tape (7) coated with a film and a winding-on reel (5) for receiving the carrier tape (7) which has been separated from the film, both of which reels are held in the interchangeable cassette (3),
 - an applying arrangement (6) which deflects the carrier tape (7), protrudes from the housing (2), presents that side of the carrier tape (7) which is coated with the film to the substrate, and consists of an applying strip (10) attached to the housing (2) and of a tape-guiding arrangement (11) for the carrier tape (7), which tape-guiding arrangement is attached to the interchangeable cassette (3), the said tape-guiding arrangement (11) being configured in such a way that it holds part of the carrier tape (7) ready as a loop into which the applying strip (10) is introduced when the interchangeable cassette (3) is placed in the housing (2), and
 - a driving connection (8) between the storage reel (4) and the winding-on reel (5), which driving connection is provided with a slipping clutch (9) and drives the winding-on reel (5), when the storage reel (4) is driven by the pulling-off of the carrier tape (7), at a rotational speed such that the said carrier tape (7) always remains tensioned,
- characterised in that**
the applying strip (10) has a support (10c) which secures the interchangeable cassette (3), when it is placed in the housing (2), in a position in which the

5 tape-guiding arrangement (11) projects in relation to
the applying strip (10), in such a way that the said
applying strip (10) is introduced into the loop of the
carrier tape (7) and the interchangeable cassette (3)
can be displaced backwards, with the tape-guiding
arrangement (11), in relation to the applying strip
(10) and inserted in the housing (2).

10 2. Hand-held apparatus according to claim 1,
characterised in that
there are provided, in the housing (2), locking means
(14) for the interchangeable cassette (3) which secure
the said interchangeable cassette (3) in a position in
which the tape-guiding arrangement (11) is displaced
15 backwards in relation to the applying strip (10) in
such a way that the carrier tape (7) of the loop runs
over the applying strip (10).

20 3. Hand-held apparatus according to claim 2,
characterised in that
the locking means (14) have supports (14a) which
secure the interchangeable cassette (3), when it is
placed in the housing (2), in a position in which the
tape-guiding arrangement (11) projects in relation to
25 the applying strip (10), in such a way that the said
applying strip (10) is introduced into the loop of the
carrier tape (7) and the interchangeable cassette (3)
can be displaced backwards, with the tape-guiding
arrangement (11), in relation to the applying strip
30 (10) and inserted in the housing (2).

35 4. Hand-held apparatus according to claim 2 or 3,
characterised in that
the locking means (14) have bevels (14b) for
simplifying the operation of placing the
interchangeable cassette (3) in the housing (2).

5. Hand-held apparatus according to one of the preceding claims,
characterised in that
the applying strip (10) has bevels (10d) for
5 simplifying the operation of placing the
interchangeable cassette (3) in the housing (2).
6. Hand-held apparatus according to one of claims 2 to 5,
characterised in that
10 openings or recesses (15), in which the locking means
(14) on the housing (2) engage, are provided on the
interchangeable cassette (3).
7. Hand-held apparatus according to one of the preceding
15 claims,
characterised in that
the tape-guiding arrangement (11) has a clearance
(11c) for receiving the applying strip (10).
- 20 8. Hand-held apparatus according to one of the preceding
claims,
characterised in that
the housing (2) consists of a first housing half (2a)
and of a second housing half (2b), the side wall (2c)
25 of the housing (2) being moulded onto one of the two
housing halves (2a, 2b), and that the applying strip
(10) and the locking means (14) are moulded onto the
first housing half (2a).
- 30 9. Hand-held apparatus according to one of the preceding
claims,
characterised in that
the applying strip (10) is moulded onto the housing
(2) as a rigid component.
35
10. Hand-held apparatus according to one of the preceding
claims,

characterised in that

the interchangeable cassette (3) is constructed as a plate onto which two bearing sleeves (17, 18) for the reels (4, 5) are moulded.

5

11. Hand-held apparatus according to one of the preceding claims,

characterised in that

10

the driving connection (8) and slipping clutch (9) is formed by a direct friction contact between the reel bodies (4b, 5b).

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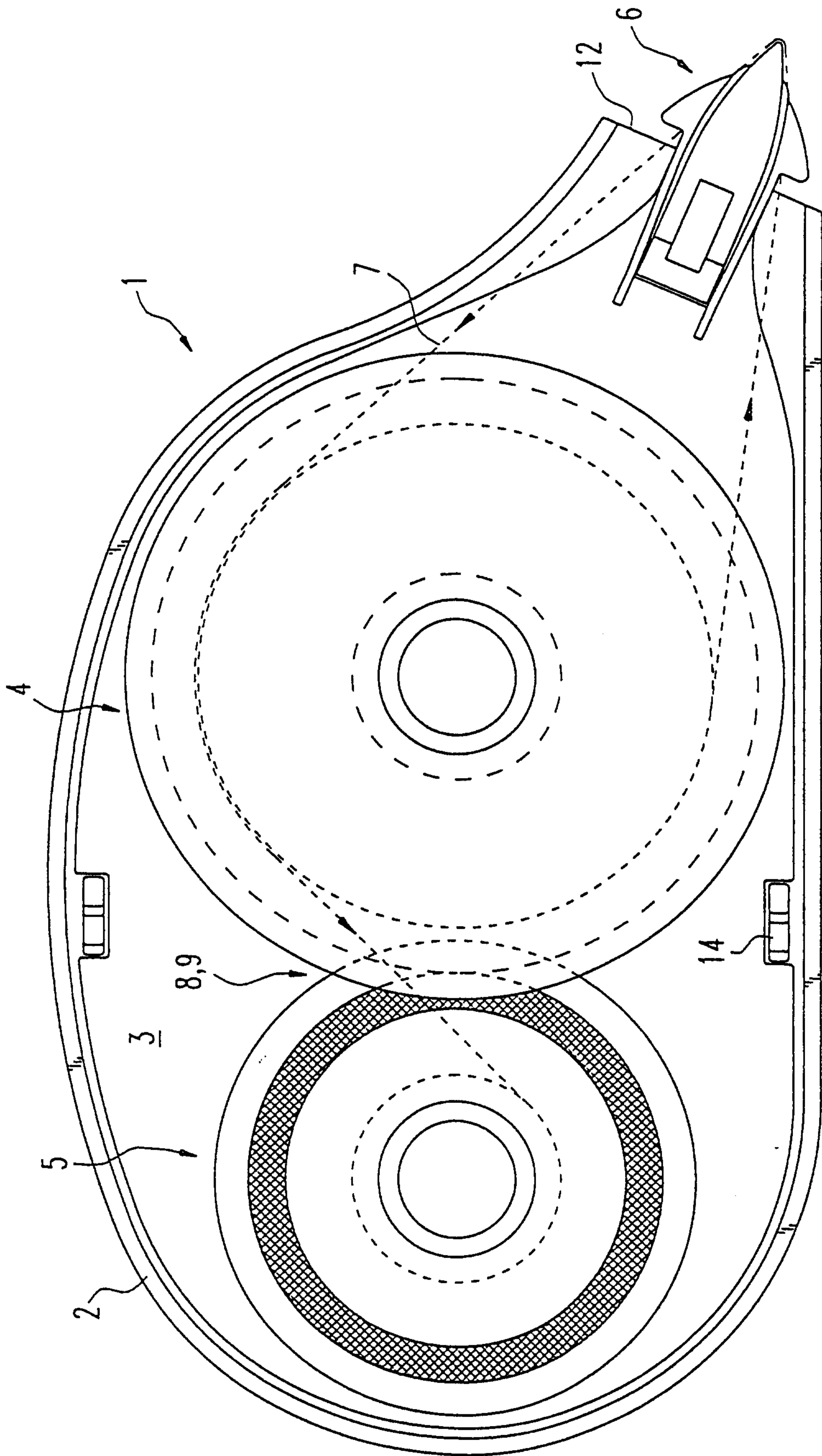


Fig.1

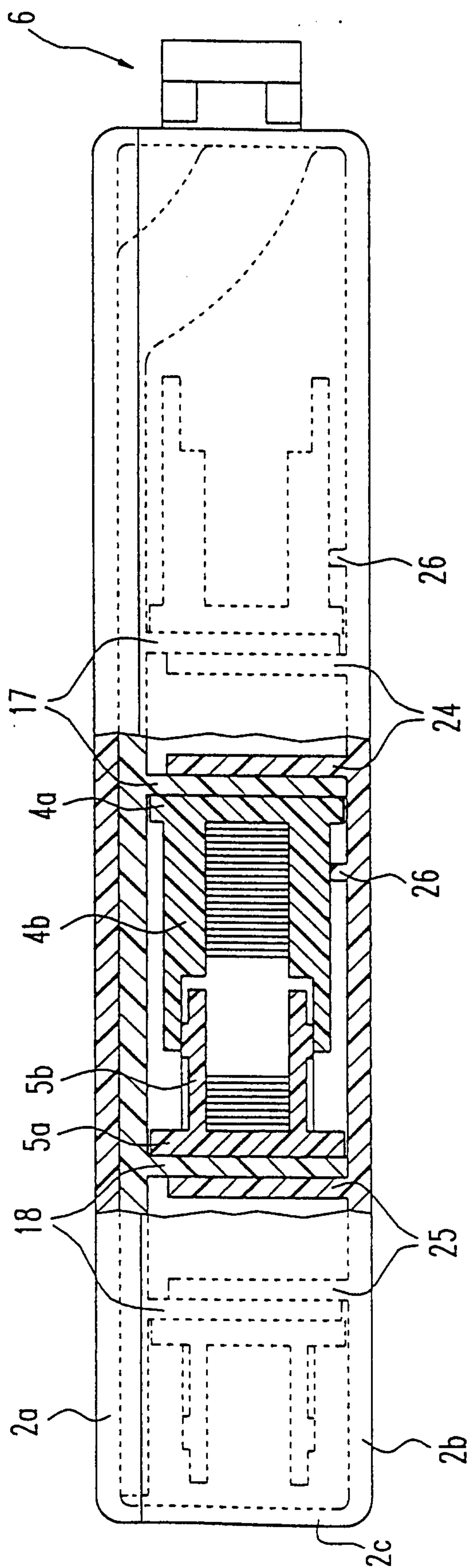
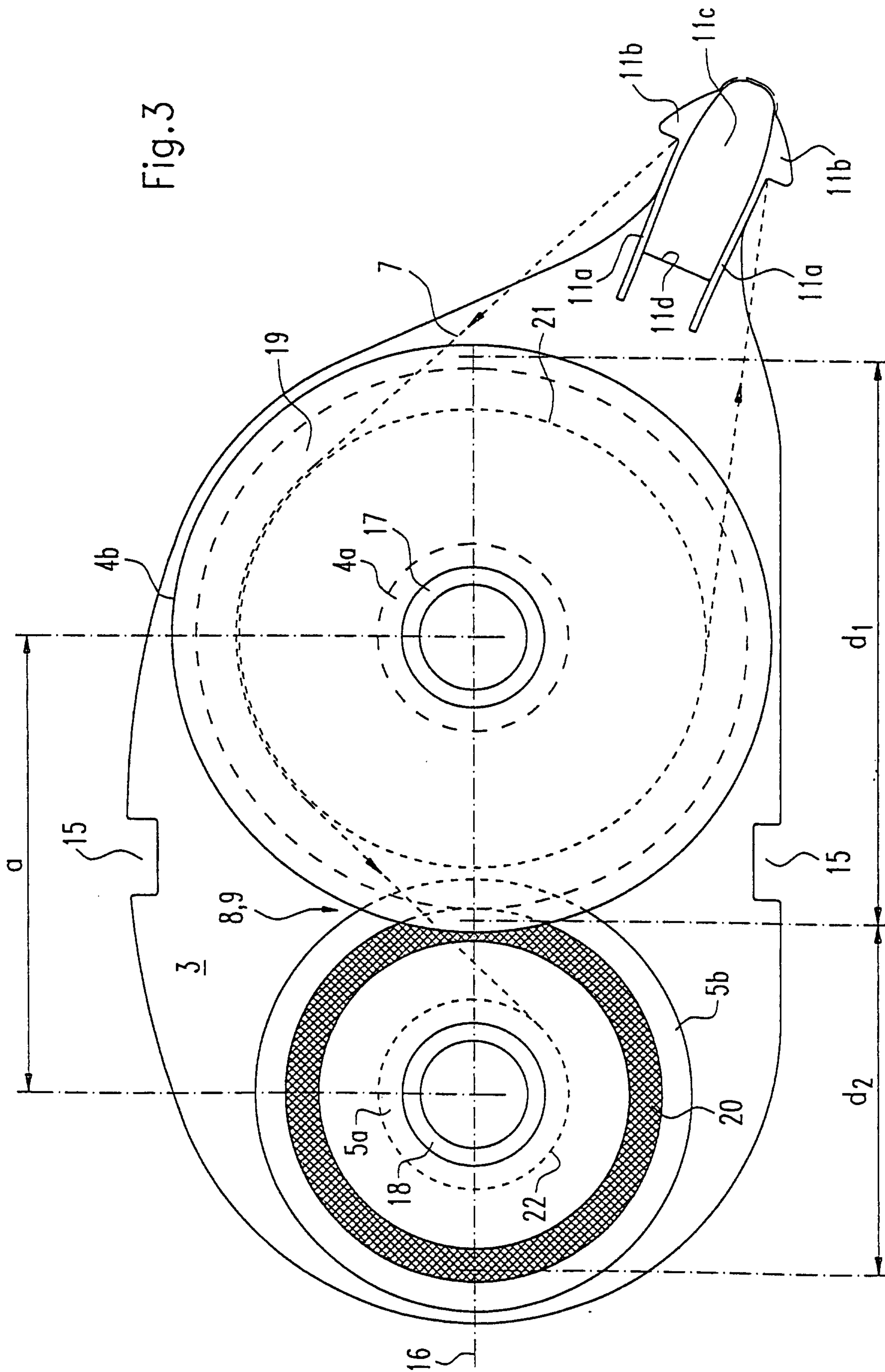


Fig.2

Fig. 3



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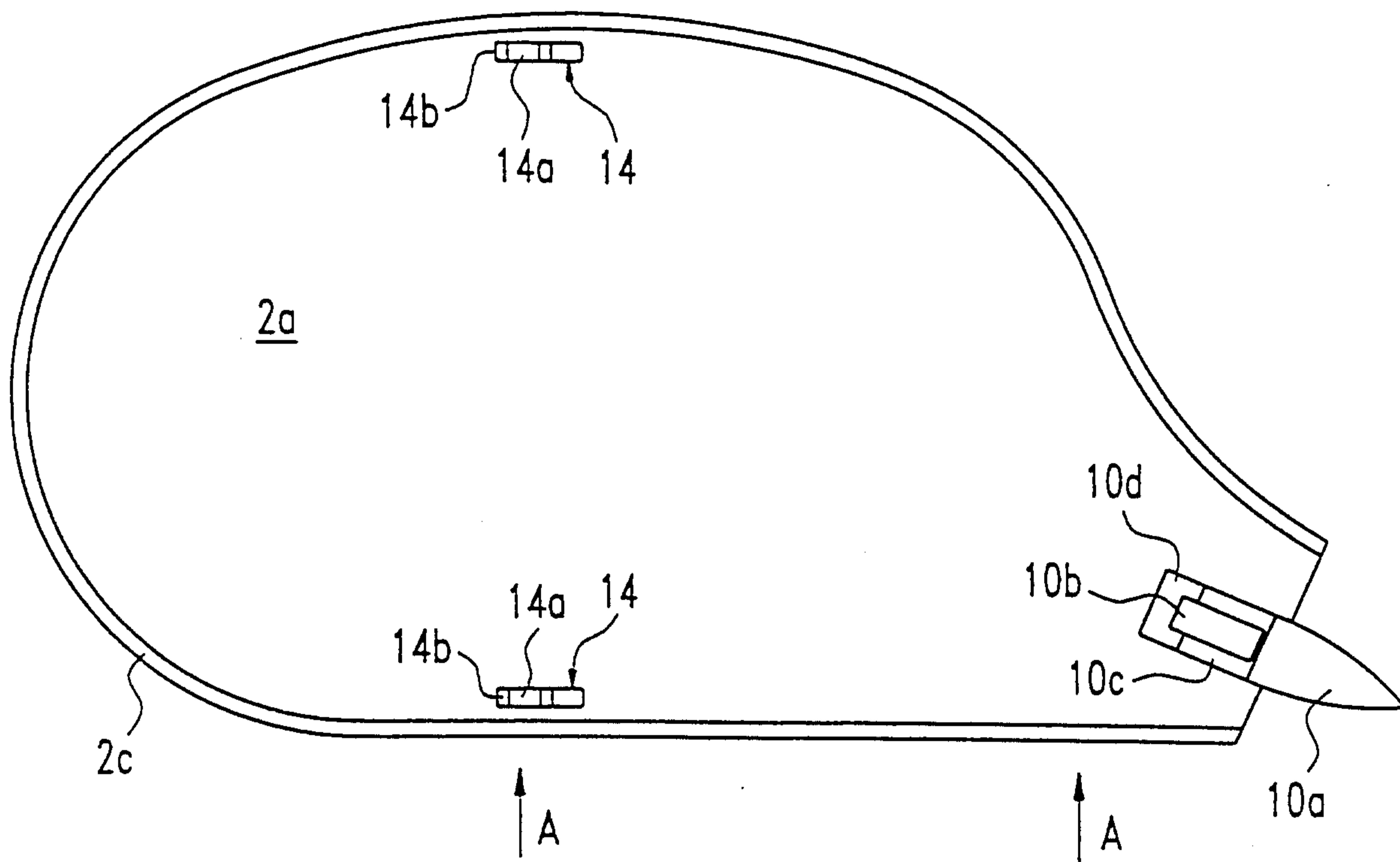


Fig. 4

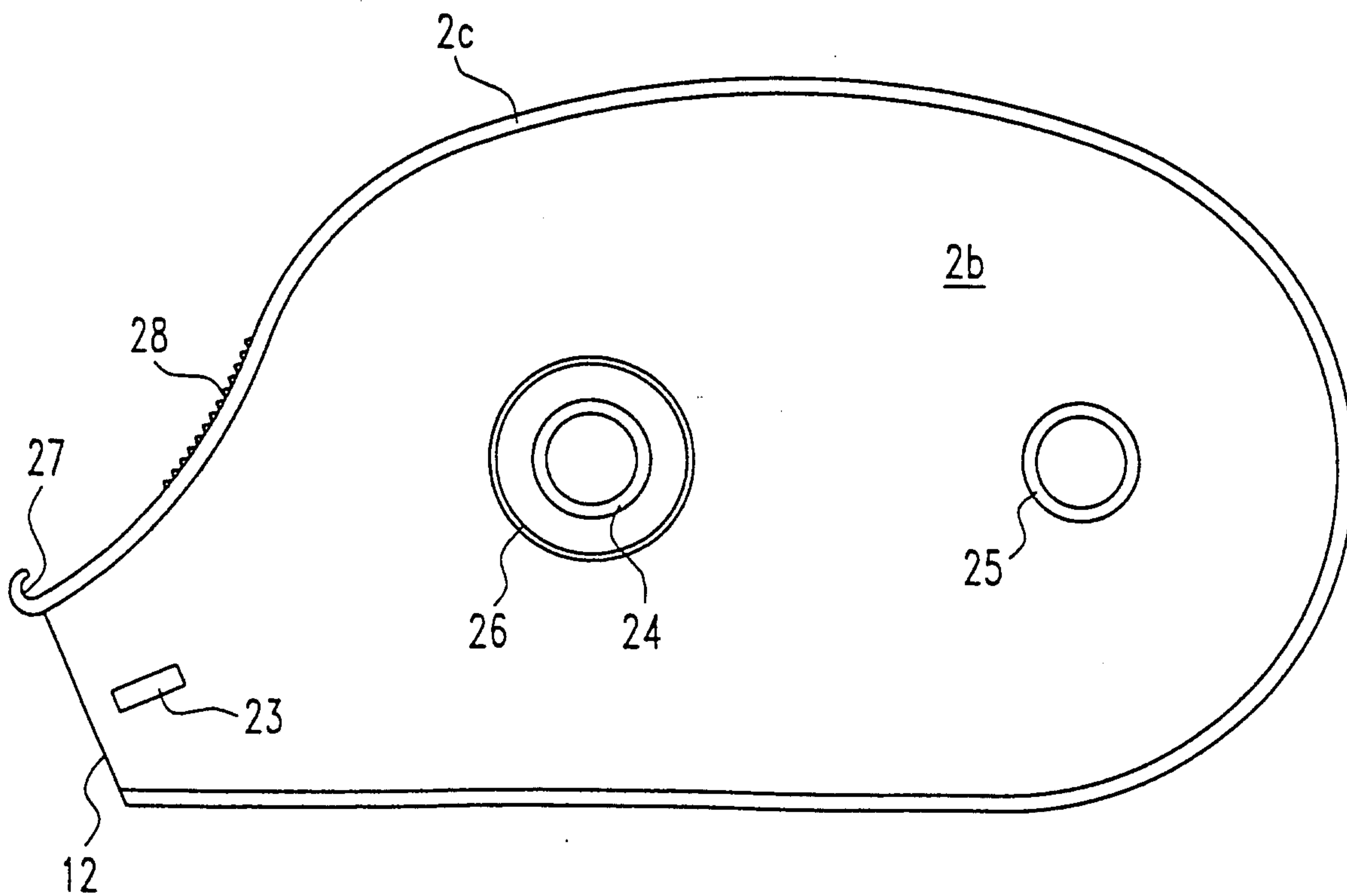


Fig. 5

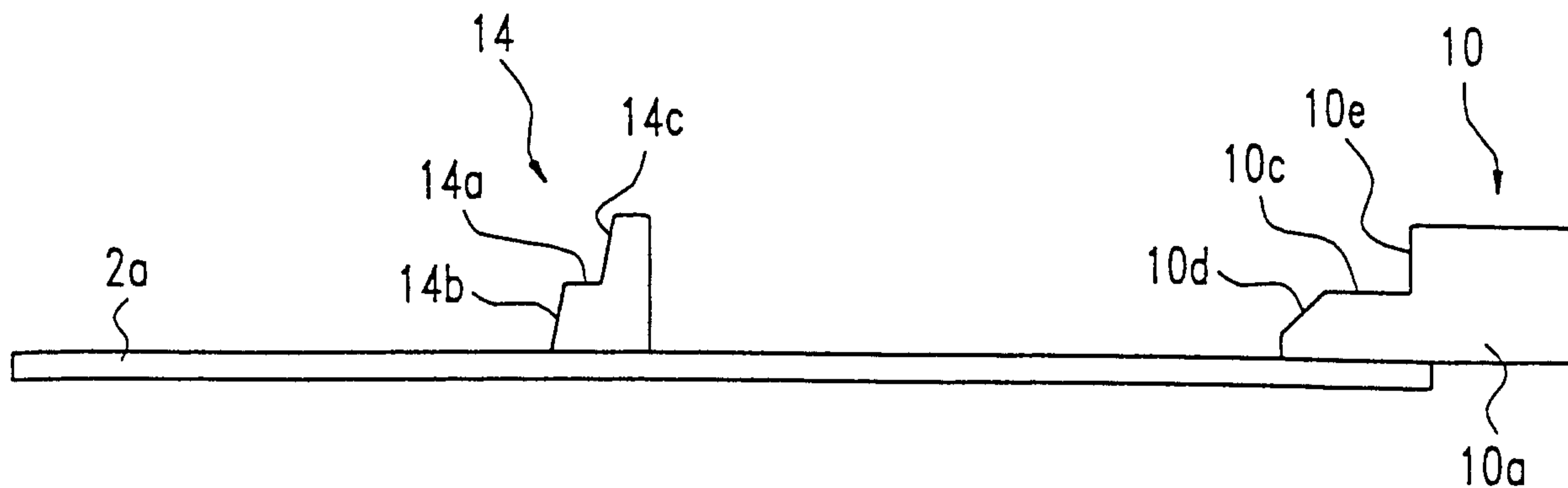


Fig.6

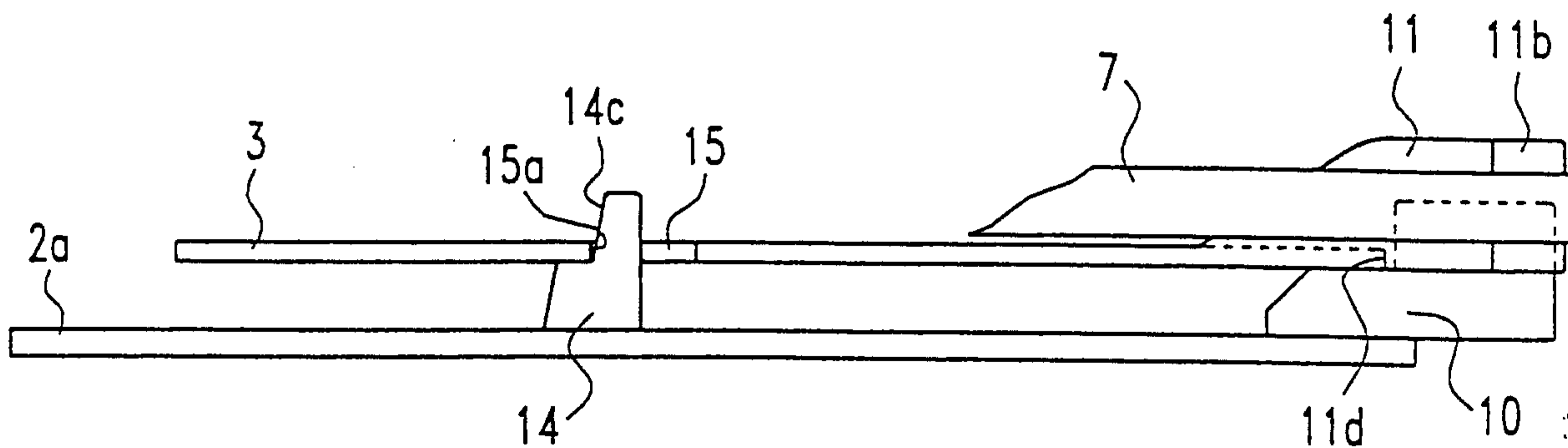


Fig.7

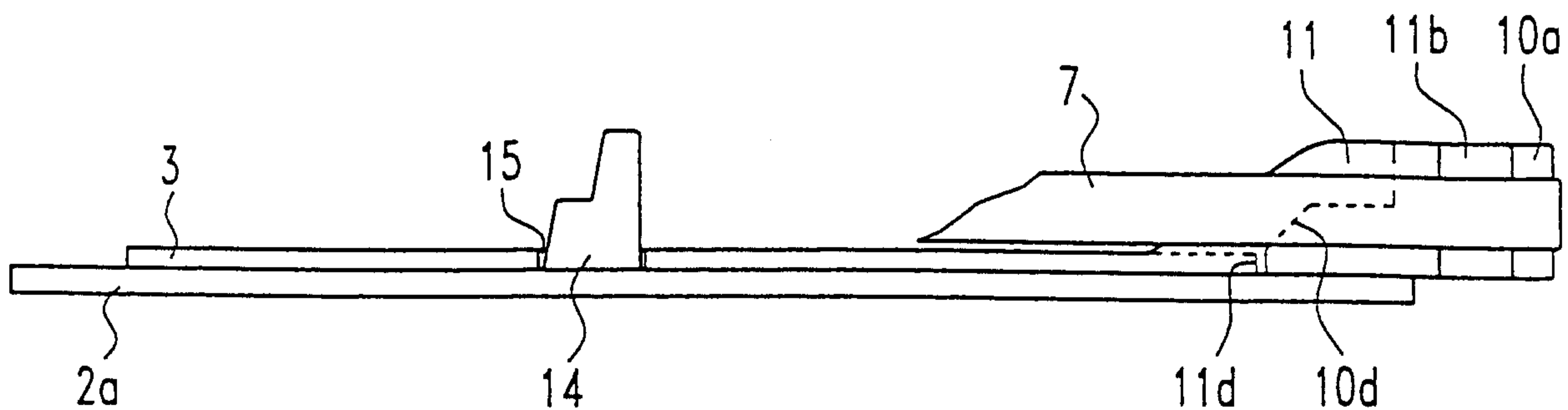


Fig.8