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(54) **A METHOD AND APPARATUS FOR SECURING A RIBBON TO A BALLOON**

VERFAHREN UND VORRICHTUNG ZUR BEFESTIGUNG EINES BANDES AN EINEM
LUFTBALLON

PROCEDE ET APPAREIL POUR FIXER UN RUBAN A UN BALLON

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Description

Field of the Invention

[0001] The present invention relates to an apparatus for securing a ribbon to a balloon.

Description of the Related Art

[0002] US Patent Specification No. A-4,510,653 discloses an apparatus for tying a ribbon to a balloon having a body which is in use inflated through a neck. The apparatus comprises a member including a channel for accommodating a ribbon such that when the neck is knotted about the member and removed therefrom the neck contracts to form a knot about the ribbon.

Disclosure of the Invention

[0003] According to the present invention there is provided an apparatus for tying a ribbon to a balloon having a body which is in use inflated through a neck, the apparatus comprising a member including a channel for accommodating a ribbon such that when the neck is knotted about the member and removed therefrom the neck contracts to form a knot about the ribbon, characterised in that the apparatus includes a support base, a first retaining means extending from the base for retaining the inflated body of a balloon, and second retaining means extending from the base and spaced apart from the first retaining means so that in use the neck of the balloon can be drawn away from the body of the balloon retained in the first retaining means, stretched around the second retaining means to form a loop, and fed through the loop, whereby upon removal of the neck from the second retaining means the neck contracts to form the knot, the second retaining means having the said channel for accommodating the ribbon, the channel having a ribbon inlet and a ribbon outlet, with the ribbon inlet being disposed closer to the base than the ribbon outlet such that the length of ribbon in the channel extends generally away from the base and the neck of the balloon can be stretched around the second retaining means between the ribbon inlet and ribbon outlet, whereby upon removal of the neck from the second retaining means the neck contracts to form the knot around the ribbon.

Brief Description of the Drawings

[0004] Figure 1 is a perspective view of an apparatus for securing a ribbon to a balloon according to the invention; and Figure 2 is a front view of the apparatus of Figure 1 of the drawings.

Description of the Preferred Embodiment

[0005] An embodiment of the invention will now be de-

scribed, by way of example, with reference to the accompanying drawings. Referring now to Figure 1 of the drawings, there is shown an apparatus for securing a ribbon to a balloon generally indicated at 10 according to the invention. The apparatus 10 includes a substantially rectangular base 12 defined by a rectangular front face 14, a concave rear face 16, first and second rectangular side faces 18, 20 respectively, and first and second plano-concave end faces 22, 24 respectively.

[0006] Three substantially L-shaped spindles 26 each have a first end 28 and a free end 30. Each first end 28 is mounted to the first side face 18 of the base 12. Each spindle 26 projects from the first side face 18 and extends towards the second side face 20 along a line which is spaced-apart from and substantially parallel to the front face 14. A portion 32 of each spindle 26 adjacent the free end 30 is inclined to form an obtuse angle with the remainder of the spindle 26. The spindles 26 are mutually spaced-apart along the length of the base 12.

[0007] First retaining means in the form of a seat 34 comprises a substantially U-shaped bar 36 having two legs 35 joined by a cross-piece 37. A substantially circular indentation 38 is formed in the cross-piece 37. The legs 35 are mounted to the front face 14 of the base 12 adjacent the first end face 22.

[0008] A guide rod 40 is fixed to and projects from the front face 14 of the base 12. The guide rod 40 is located between the seat 34 and the spindles 26 and projects perpendicularly to the front face 14.

[0009] Second retaining means in the form of a substantially semi-cylindrical feeder 42 is mounted to and projects from the front face 14 of the base 12 between the guide rod 40 and the spindles 26. The feeder 42 includes a semi-cylindrical face 44, a rectangular face 46 and a semi-circular end face 48. A feed inlet (not shown) is located near the mid-point of the semi-cylindrical face 44 and a feed outlet 50 is located in the semi-circular end face 48 with a channel (not visible) formed within the feeder between the inlet and outlet.

[0010] The feeder 42 is so arranged relative to the front face 14 that the semi-cylindrical face 44 faces the spindles 26 and the rectangular face 46 faces the guide rod 40.

[0011] A rectangular cutter 51 is mounted to the second side face 20 adjacent the feeder 42. A pair of notch-shaped blades 52 are formed in opposing sides of the cutter 51.

[0012] A first and second chain 54, 56 have respective first ends 58, 60 and second ends 62 (only one visible) and are mounted to the base 12 adjacent the first and second end faces 22, 24 respectively. The respective first end 58, 60 of each chain 54, 56 is fixed to the base 12 adjacent the first side face 18. The respective second end 62 of each chain 54, 56 is fastenable to the base 12 adjacent the second side face 20.

[0013] A tank 64 includes a body 66 having a shoulder 70 from which an outlet nozzle 68 projects. Typically, the

tank 64 is filled with a gas (not shown) such as helium. The nozzle 68 is openable to release the gas from the tank 64. The apparatus 10 is mountable to the tank 64 by locating the first chain 54 around the shoulder 70 and the second chain 56 around the body 66. The concave rear face 16 of the base 12 substantially conforms to the shape of the tank 64.

[0014] A reel 74 of, for example, ribbon 76 is rotatably mountable to one or each of the spindles 26. The reel 74 is threaded onto the spindle 26 so that the reel 74 is rotatable about its longitudinal axis. Lateral movement of the reel 74 relative to the spindle 26 is inhibited by the inclined portion 32 of the spindle 26.

[0015] The ribbon 76 has a loose end 78 which is fed, by an operator, through the feed inlet and along the channel until it emerges from the feed outlet 50. The loose end 78 of the ribbon hangs freely from the feed outlet 50. A sufficient length of ribbon 76 is drawn through the feed outlet 50 so that the ribbon 76 is retained by the feeder 42 under the weight of the loose end 78.

[0016] Referring now to Figure 2, there is shown a balloon 80 comprising a mouth 82 joined to an inflatable pouch 84 by a neck 86.

[0017] In use, an operator fits the mouth 82 of the balloon 80 over the nozzle 68 of the tank 64. The operator opens the nozzle 68 thus releasing gas into the balloon 80. When the pouch 84 is filled with gas, the operator removes the mouth 82 from the nozzle 68 and pinches the neck 86 adjacent the mouth 82 to prevent gas from escaping from the balloon 80.

[0018] The operator then feeds the neck 86 of the balloon 80 through the circular indentation 38 until the pouch 84 is securely held in the seat 34. The operator draws the neck 86 away from the seat 34 and guides the mouth 82 so that the neck 86 is stretched over the guide rod 40 and around the semi-cylindrical face 44 of the feeder 42 between the feed inlet and the feed outlet 50 of the channel. Passing the neck 86 around the rod 40 expels air from the neck of the balloon allowing easier knotting of the balloon as will be explained. The mouth 82 is then wrapped around a portion of the neck 86, which is located between the guide rod 40 and the feeder 42, to form a loop 88. The mouth 82 is further fed through the loop 88 by the operator. As the ribbon 76 passes through the channel, therefore, it also passes through the loop 88. Thus, the neck 86 simultaneously encircles the feeder 42 and a portion of the ribbon 76.

[0019] The operator removes the stretched neck 86 from the feeder 42 while maintaining the loop 88. Once the neck 86 disengages the feeder 42, the neck 86 returns to its unstretched state. The loop 88 thus contracts to form a knot (not shown). The ribbon 76 is grasped within the knot adjacent the loose end 78. The knot may be tightened by the operator pulling the mouth 82 of the balloon 80 away from the knot.

[0020] The operator removes the balloon from the seat 34 and draws the loose end 78 of the ribbon 76

away from the reel 74 thereby causing the reel 74 to rotate and ribbon 76 to be dispensed from the reel 74. When a desired length of ribbon 76 has been dispensed from the reel 74, the operator draws the ribbon 76 towards the cutter 51 and cuts the ribbon 76 to the desired length using one or other of the notch-shaped blades 52.

[0021] The spacing between the feed outlet 50 and the cutter 51 is so arranged that, after the ribbon 76 has been cut, a sufficient length of ribbon 76 hangs from the feed outlet 50 to enable the ribbon 76 to be retained by the feeder 42.

[0022] It will be seen that the embodiment provides a simple method and apparatus for securing a ribbon to a balloon where the two actions of tying the balloon and securing the balloon to the ribbon are performed simultaneously.

[0023] It will be seen that the apparatus 10 may also be used only to tie the balloon. In this case, the feeder 42 is not supplied with ribbon and the balloon is knotted when looped around and withdrawn from the feeder as described earlier.

[0024] It will be further realised that the apparatus can be mounted on the gas bottle in a variety of ways or the apparatus may be fixed to a wall with, for example, a wall mounting bracket.

[0025] The invention is not limited to the embodiments described herein which may be modified or varied without departing from the scope of the invention.

Claims

1. An apparatus for tying a ribbon to a balloon (80) having a body (84) which is in use inflated through a neck (86), the apparatus comprising a member (42) including a channel for accommodating a ribbon (76) such that when the neck (86) is knotted about the member and removed therefrom the neck contracts to form a knot about the ribbon, **characterised in that** the apparatus includes a support base (12), a first retaining means (34) extending from the base (12) for retaining the inflated body of a balloon, and second retaining means (42) extending from the base (12) and spaced apart from the first retaining means (34) so that in use the neck (86) of the balloon can be drawn away from the body (84) of the balloon retained in the first retaining means (34), stretched around the second retaining means (42) to form a loop (88), and fed through the loop, whereby upon removal of the neck (86) from the second retaining means (42) the neck (86) contracts to form the knot, the second retaining means (42) having the said channel for accommodating the ribbon (76), the channel having a ribbon inlet and a ribbon outlet (50) with the ribbon inlet being disposed closer to the base (12) than the ribbon outlet (50) such that the length of ribbon in the channel extends generally away from the base (12) and the

neck (86) of the balloon can be stretched around the second retaining means (42) between the ribbon inlet and ribbon outlet (50), whereby upon removal of the neck (86) from the second retaining means (42) the neck contracts to form the knot around the ribbon.

2. An apparatus according to claim 1, wherein the second retaining means (42) is substantially in the form of a semi-cylindrical body with a flat face (46) facing the first retaining means (34) and a curved face (44) facing away from the first retaining means.
3. An apparatus according to claim 2, wherein the ribbon outlet (50) is in a substantially semi-circular end face (48) of the second retaining means (42) and the ribbon inlet is in the curved face (44) of the second retaining means.
4. An apparatus according to claim 1, 2 or 3, further including means (26) for supporting a reel (74) of ribbon on the base (12) from which reel the ribbon (76) can be fed through the channel from the ribbon inlet to the ribbon outlet (50).
5. An apparatus according to any preceding claim, further including a guide rod (40) projecting from the base (12) and being positioned to deflect the neck (86) of the balloon between the first and second retaining means (43, 42).

Patentansprüche

1. Vorrichtung zum Binden eines Bands an einen Ballon (80) mit einem Körper (84), der in Gebrauch durch einen Hals (86) aufgeblasen wird, wobei die Vorrichtung ein Element (42) aufweist, das einen Kanal zum Unterbringen eines Bands (76) derart umfaßt, daß, wenn der Hals (86) um das Element geknotet und davon entfernt wird, der Hals sich zum Bilden eines Knotens um das Band zusammenzieht, **dadurch gekennzeichnet, daß** die Vorrichtung einen Haltegrundteil (12), ein erstes Haltemittel (34), das sich von dem Grundteil (12) zum Halten des aufgeblasenen Körpers eines Ballons erstreckt, und ein zweites Haltemittel (42) aufweist, das sich von dem Grundteil (12) erstreckt und von dem ersten Haltemittel (34) beabstandet ist, so daß der Hals (86) des Ballons in Gebrauch von dem Körper (84) des in dem ersten Haltemittel (34) gehaltenen Ballons weggezogen, um das zweite Haltemittel (42) zum Bilden einer Schleife (88) gedehnt und durch die Schleife geführt werden kann, wodurch bei Entfernung des Halses (86) vom zweiten Haltemittel (42) der Hals (86) sich zum Bilden des Knotens zusammenzieht, wobei das zweite Haltemittel (42) den genannten Kanal zum Unterbringen des

Bands (76) aufweist, der Kanal einen Bandeinlaß und einen Bandauslaß (50) aufweist und der Bandeinlaß näher als der Bandauslaß (50) zu dem Grundteil (12) angeordnet ist, so daß sich der Abschnitt des Bands in dem Kanal allgemein von dem Grundteil (12) weg erstreckt und der Hals (86) des Ballons um das zweite Haltemittel (42) zwischen dem Bandeinlaß und dem Bandauslaß (50) gedehnt werden kann, wodurch sich bei Entfernung des Halses (86) vom zweiten Haltemittel (42) der Hals zum Bilden des Knotens um das Band zusammenzieht.

2. Vorrichtung nach Anspruch 1, bei der das zweite Haltemittel (42) im wesentlichen in Form eines halbzylinderförmigen Körpers vorliegt, bei dem eine flache Fläche (46) zu dem ersten Haltemittel (34) gerichtet ist und eine gekrümmte Fläche (44) von dem ersten Haltemittel weg gerichtet ist.
3. Vorrichtung nach Anspruch 2, bei der der Bandauslaß (50) sich in einer im wesentlichen halbkreisförmigen Endfläche (48) des zweiten Haltemittels (42) befindet und der Bandeinlaß sich in der gekrümmten Fläche (44) des zweiten Haltemittels befindet.
4. Vorrichtung nach Anspruch 1, 2 oder 3, die weiter Mittel (26) zum Halten einer Bandspule (74) an dem Grundteil (12) umfaßt, von welcher Spule das Band (76) durch den Kanal von dem Bandeinlaß zum dem Bandauslaß (50) geführt werden kann.
5. Vorrichtung nach einem vorhergehenden Anspruch, die weiter einen Führungsstab (40) umfaßt, der von dem Grundteil (12) vorsteht und positioniert ist, um den Hals (86) des Ballons zwischen dem ersten und zweiten Haltemittel (43, 42) umzubiegen.

Revendications

1. Appareil pour attacher un ruban à un ballon (80) ayant un corps (84) qui est, lors de l'utilisation, gonflé de par un col (86), l'appareil comprenant un élément (42) comportant un conduit destiné à loger un ruban (76) tel que, lorsque le col (86) est noué autour de l'élément puis en est retiré, le col se contracte pour former un noeud autour du ruban, **caractérisé en ce que** l'appareil comporte un socle de support (12), un premier moyen de retenue (34) se prolongeant depuis le socle (12) afin de retenir le corps gonflé d'un ballon, et un deuxième moyen de retenue (42) se prolongeant depuis le socle (12) et espacé du premier moyen de retenue (34) de telle façon que, lors de l'utilisation, le col (86) du ballon peut être écarté du corps (84) du ballon retenu dans le premier moyen de retenue (34), étiré autour du deuxième moyen de retenue (42) pour former une

boucle (88), et introduit à travers la boucle, au moyen duquel le col (86), une fois retiré du deuxième moyen de retenue (42), se contracte pour former le noeud, le deuxième moyen de retenue (42) ayant ledit conduit servant à loger le ruban (76), le conduit ayant une entrée de ruban et une sortie de ruban (50), l'entrée de ruban étant disposée plus près du socle (12) que la sortie de ruban (50), telle que le segment de ruban dans le conduit se prolonge de façon générale dans une direction opposée au socle (12) et le col (86) du ballon peut être étiré autour du deuxième moyen de retenue (42) entre l'entrée de ruban et la sortie de ruban (50), au moyen duquel le col (86), une fois retiré du deuxième moyen de retenue (42), se contracte pour former le noeud autour du ruban.

2. Appareil selon la revendication 1, dans lequel le deuxième moyen de retenue (42) se présente essentiellement sous la forme d'un corps semi-cylindrique avec une face plate (46) faisant face au premier moyen de retenue (34) et une face incurvée (44) orientée en direction opposée au premier moyen de retenue.
3. Appareil selon la revendication 2, dans lequel la sortie de ruban (50) est dans une face terminale (48), essentiellement semi-circulaire, du deuxième moyen de retenue (42) et l'entrée de ruban est dans la face incurvée (44) du deuxième moyen de retenue.
4. Appareil selon la revendication 1, 2 ou 3, comportant en outre des moyens (26) pour maintenir une bobine (74) de ruban sur le socle (12), bobine à partir de laquelle le ruban (76) peut être introduit de par le conduit depuis l'entrée de ruban jusqu'à la sortie de ruban (50).
5. Appareil selon l'une quelconque des revendications précédentes, comportant en outre une tige de guidage (40) faisant saillie à partir du socle (12) et étant placée de façon à dévier le col (86) du ballon entre le premier et le deuxième moyen de retenue (43, 42).

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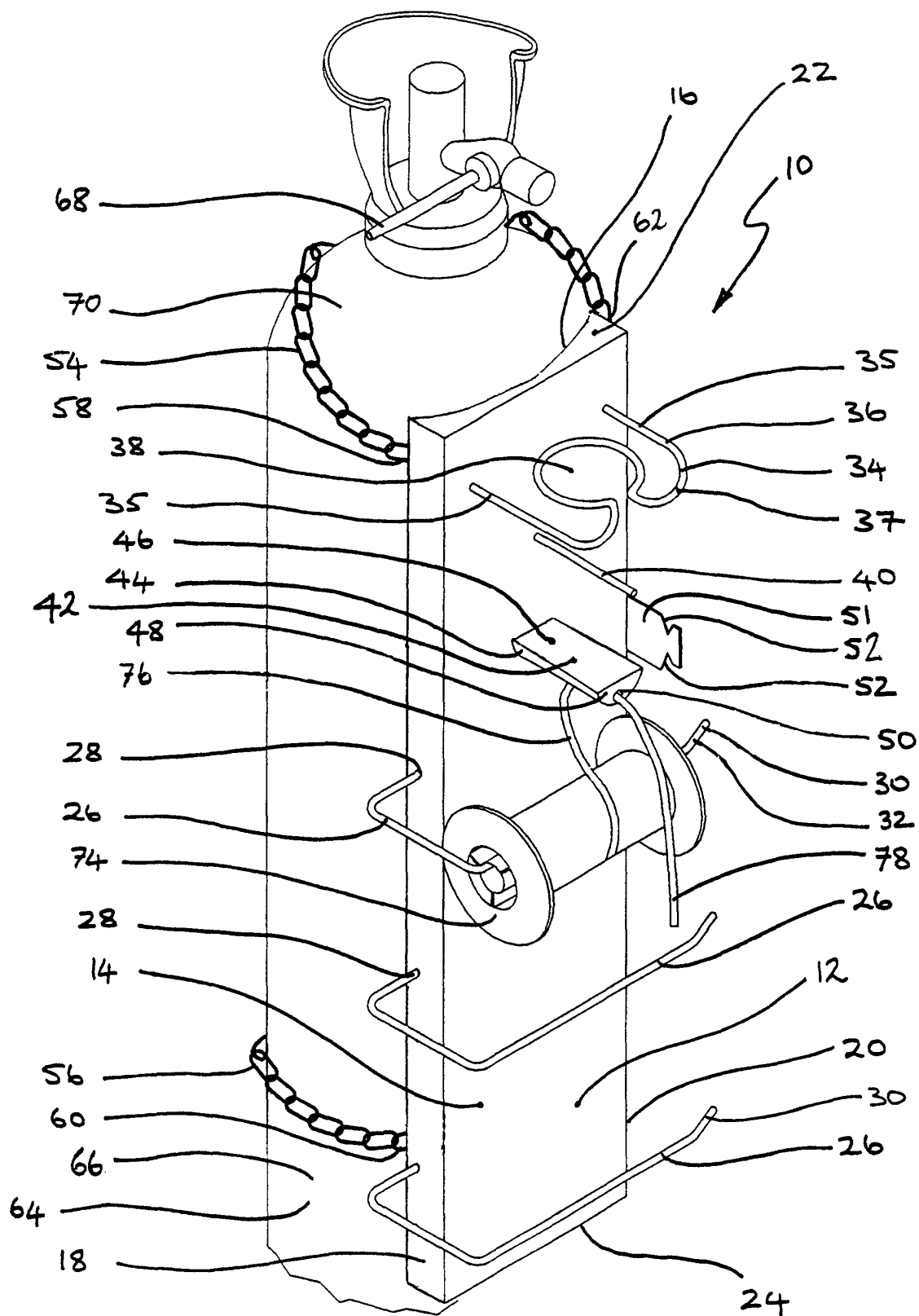


FIGURE 1.

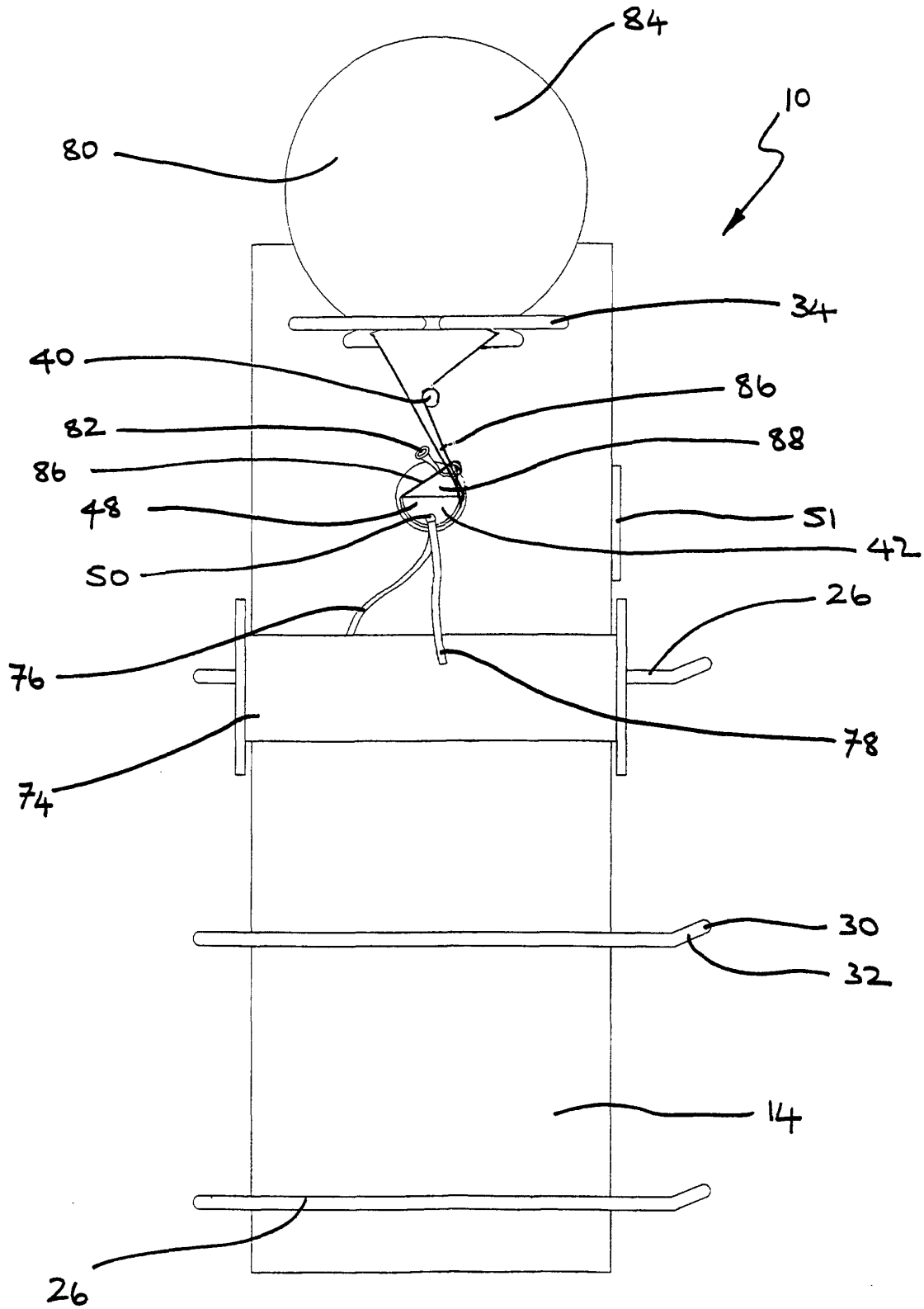


FIGURE 2.