Abstract:

Title: OXYGEN DELIVERY DEVICE

An oxygen delivery device (1) having a substantially U-shaped nasal cannula (3) with a formable tip (31) that fits inside the patient's nostril and extends around to an outer surface of the patient's nostril then toward the patient's eye or ear. The substantially U-shaped cannula has a first section of formable tubing (8) then extends from the U-shaped cannula across the patient's cheek around the side of the face and over the patient's ear. A second section of formable tubing (10) extends over the ear and a coiled section of tubing then extends downward to the patient's shoulder where a clip (15) located near the coiled section of flexible tubing may be used to attach the coiled section of flexible tubing to the patient's clothing. A stabilization patch (17 or 18) further secures the tubing to the cheek and/or behind the ear of the patient.


Published:

— as to the applicant's entitlement to apply for and be granted a patent (Rule 4.17(H))
— as to the applicant's entitlement to claim the priority of the earlier application (Rule 4.17(in))

without international search report and to be republished upon receipt of that report (Rule 48.2(g))
OXYGEN DELIVERY DEVICE

FIELD OF THE INVENTION

This application relates to an apparatus for supplying supplemental oxygen or other gas to a patient via a nasal cannula.

BACKGROUND OF THE INVENTION

Dual prong nasal cannulas are generally used to deliver oxygen to a patient via the patient's nose. The most commonly used arrangement includes a dual prong nosepiece which is centered in a loop of vinyl tubing. The nosepiece openings are inserted in the nostrils with the tubing tucked behind the ears and around to the front of the patient below the chin. A slide adjustment may be used to draw it tight beneath the chin. Usually by the third or fourth day of using a dual prong nasal cannula, irritation of the skin and subcutaneous areas in contact with the cannulas and tubing begins and by the fifth day, the majority of patients have begun to use tissues and the like to relieve the soreness, pressure and irritation under the nose and around the ears. This soreness, pressure and irritation is often due to abrasion and interface pressure which is often caused by movement of the tight fitting tubing and cannulas and to the accumulation of moisture between the skin and the tubing and/or cannulas. As the slide is pulled tighter to keep the cannulas in the nostrils of the patient the irritation is only exacerbated and the subcutaneous layers of the skin are affected.

Thus, the use of a dual prong cannula can become quite uncomfortable for a patient and can lead to pressure ulcers. The comfort of the patient becomes even more critical, both to the patient and to the professionals attending the patient when the patient is also fitted with a naso-
gastric or Levine tube. Now the nose becomes a fairly cluttered access route, and adhesive tape is often used, by application to the face, to get all the tubes to remain in place.

In addition to the discomfort and susceptibility to skin deterioration where supplemental oxygen is required, a patient may suffer from "free floating anxiety" as a result of reduced blood oxygen. Such a patient may believe something is wrong but cannot quite identify the problem, and may not be thinking clearly. Often such patients have feelings of claustrophobia and may attempt to remove the cannulas despite the fact that doing so may adversely affect the patient's condition. It is not uncommon to find the tubing disconnected or prongs displaced from the nose due to pulling from movement of the head, especially during sleep. Further, patient non-compliance or lack of cooperation may necessitate the use of some more expensive or aggressive means of oxygen administration, including face masks or catheters.

To an increasing extent, supplemental oxygen is used on an outpatient basis, such as in a home. Under such conditions, the cosmetics of the oxygen delivery apparatus can be important, and the commonly-used dual prong cannula can make a person feel conspicuous and, as previously mentioned, cause irritation from interface pressure.

In addition to the discomfort, skin deterioration, and cosmetic concerns posed by use of the dual prong cannulas, it has been established that single prong nasal, or unilateral, nasal catheters provide a higher inspired oxygen fraction than the dual prong cannulas.

Therefore, a need exists for an oxygen delivery device having a single prong nasal cannula that can be securely affixed to a patient while providing an adequate supply of oxygen to the patient with the least amount of irritation and/or discomfort to the patient possible.
The relevant prior art includes the following references:

<table>
<thead>
<tr>
<th>Patent No.</th>
<th>Inventor</th>
<th>Issue/Publication Date</th>
</tr>
</thead>
<tbody>
<tr>
<td>4,660,555</td>
<td>Payton</td>
<td>04-28-1987</td>
</tr>
<tr>
<td>4,685,456</td>
<td>Smart</td>
<td>08-11-1987</td>
</tr>
<tr>
<td>4,736,741</td>
<td>Payton et al.</td>
<td>04-12-1988</td>
</tr>
<tr>
<td>4,742,824</td>
<td>Payton et al.</td>
<td>05-10-1988</td>
</tr>
<tr>
<td>6,804,866</td>
<td>Lemke et al.</td>
<td>10-19-2004</td>
</tr>
<tr>
<td>6,807,966</td>
<td>Wright</td>
<td>10-26-2004</td>
</tr>
<tr>
<td>2008/0223375</td>
<td>Cortez et al.</td>
<td>09-18-2008</td>
</tr>
<tr>
<td>D643,113</td>
<td>Butler</td>
<td>08-09-2011</td>
</tr>
</tbody>
</table>

**SUMMARY OF THE INVENTION**

The primary object of the present invention is to provide an oxygen delivery device having a single prong nasal cannula and tubing that can be securely affixed to a patient while providing an adequate supply of oxygen to the patient with the least amount of irritation and/or discomfort to the patient possible.

The present invention fulfills the above and other objects by providing an oxygen delivery device having a single prong nasal cannula for insertion into a patient's right or left nostril to deliver oxygen to the patient. The substantially U-shaped cannula is preferably tubular. The U-shaped cannula may be flexible or non-flexible and may be constructed of bendable or
memory materials. The U-shaped nasal cannula has a first end that fits inside the patient's nostril and a second end having a substantially U-shaped portion that extends downward from the patient's nostril, around an outer surface of the patient's nostril, and then upward toward the patient's eye. The U-shaped nasal cannula may have a bendable wire embedded within at least a portion of the cannula wall, with the wire extending substantially axially along the cannula wall. The cannula may retain its shape when bent. Alternatively, the cannula may return to its original shape after bending. The cannula may have a substantially ninety degree bend located between substantially U-shaped portion of the substantially U-shaped nasal cannula and a juncture with a first section of tubing. The bend prevents the formation of kinks that could reduce or restrict the flow of gas and also enhances the placement of cannula and tubing on the patient's face.

The substantially U-shaped cannula attaches to a flexible and preferably formable or bendable first section of tubing, which may be constructed of memory material. The tubing then extends upward from the second end of the cannula and toward the patient's eye or ear, across the patient's cheek around the side of the face, and over the patient's ear. This section of tubing may have a wire embedded within at least a portion of the tubing wall, with the wire extending substantially axially along and within the wall. This tubing section may be contoured over the ear and bent slightly inward against the patient's scalp behind the ear to lock the tubing in place around the ear like a temple tip of a conventional pair of eye glasses.

A secondary coiled section of flexible tubing may then extend downward to the patient's shoulder. The coiled section of tubing allows the patient to move his or her head without affecting the placement of the U-shaped cannula in the nostril. Finally, a flexible piece of tubing extends directly to a supply source for supplying oxygen to the patient and preferably around the back of the patient's neck over the opposite shoulder where a clip located on the coiled tubing
may be used to attach the tubing to the patient's clothing and then to the supply source for supplying oxygen.

An additional feature of the present invention is a clip with planar stabilization patch that further secures the tubing to the cheek of the patient. The clip is a semi-rigid substantially C-shaped clip located on an upper surface of the planar stabilization patch having adhesive located on a rear surface to attach the patch to the patient's cheek. After the patch is secured to the patient's cheek, the tubing may be pressed into the C-shaped clip and held in place by a pressure fit. The planar stabilization patch may also have other means of holding the tubing to the cheek such as an adhesive and so forth.

An additional feature of the present invention is a flexible stabilization patch made of flexible, breathable and non-irritating material. The flexible stabilization patch has two patch sections that are separated and connected by a tubing securement area. The flexible stabilization patch may be secured to the patient's cheek and/or to the skin behind the patient's ear by an adhesive located on one side of a patch section. The flexible stabilization patch secures the tubing to the face and over and behind the ear by placing the tubing along and perpendicularly across the tube securement area of the stabilization patch, folding the stabilization patch over the tubing to mate the first patch section to the second patch section with an adhesive, and then affixing the stabilization patch on the skin using the adhesive located on the exposed side of a patch section.

An additional feature of the present invention is a nasal cannula tip made of pliable or formable materials, which may be affixed to the end of the cannula. The cannula tip has two ends and secures the cannula within the nostril and enhances the inspired oxygen by reducing the backflow of oxygen out of the nostril. The width of the second end of the cannula tip that is
placed within the patient's nostril may be larger than the width of the first end of the cannula tip that is affixed to the end of the cannula.

The above and other objects, features and advantages of the present invention should become even more readily apparent to those skilled in the art upon a reading of the following detailed description in conjunction with the drawings wherein there is shown and described illustrative embodiments of the invention.

**BRIEF DESCRIPTION OF THE DRAWINGS**

In the following detailed description, reference will be made to the attached drawings in which:

**FIG. 1** is a front view of an oxygen delivery device of the present invention being worn by a patient;

**FIG. 2** is a rear view of an oxygen delivery device of the present invention being worn by a patient;

**FIG. 3** is a side view of a U-shaped cannula of the present invention constructed of a non-flexible material;

**FIG. 4** is a side view of a U-shaped cannula of the present invention constructed of a flexible, formable, or memory material;

**FIG. 5** is a front view of a semi-rigid stabilization patch of the present invention;

**FIG. 6** is a side view of a semi-rigid stabilization patch of the present invention;

**FIG. 7** is an open view of a flexible stabilization patch of the present invention;

**FIG. 8** is a closed view of a flexible stabilization patch of the present invention;

**FIG. 9** is a side view of a U-shaped cannula with a cannula tip of the present invention attached and constructed of pliable material;
FIG. 10 is a perspective of a cannula tip; and

FIG. 11 is a perspective of a first section of tubing of the present invention, showing a tubing wall in which a bendable wire may be embedded.

DESCRIPTION OF THE PREFERRED EMBODIMENTS

For purposes of describing the preferred embodiment, the terminology used in reference to the numbered accessories in the drawings is as follows:

1. oxygen delivery device, generally
2. patient
3. U-shaped nasal cannula
4. first end of U-shaped nasal cannula placed in nostril interior
5. ninety degree bend in cannula
6. second end of U-shaped nasal cannula exterior to nostril
7. juncture of cannula to first section of tubing
8. first section of tubing
9. juncture of first section of tubing to second section of tubing
10. second section of tubing
11. juncture of second section of tubing to third section of tubing
12. third section of tubing
13. juncture of third section of tubing to fourth section of tubing
14. fourth section of tubing
15. clip attaching fourth section of tubing to clothing
16. oxygen supply connector
17. semi-rigid stabilization patch
18. flexible stabilization patch
19. bendable wire
20. cannula wall
21. C-shaped clip
22. upper surface of semi-rigid stabilization patch
23. adhesive
24. rear surface of semi-rigid stabilization patch
25. open view of flexible stabilization patch
26. rear adhesive surface of flexible stabilization patch
27. tubing securement area of flexible stabilization patch
28. upper adhesive surface of flexible stabilization patch
29. closed view of flexible stabilization patch
30. outer non-adhesive surface of closed flexible stabilization patch
31. cannula tip
32. bendable wire
33. tubing wall
34. first end of cannula
35. second end of cannula
36. substantially U-shaped portion of cannula second end
37. gas passageway of cannula
38. first patch section of the flexible stabilization patch
39. second patch section of the flexible stabilization patch
folding adhesive side of the first patch section

first end of the cannula tip

second end of the cannula tip

width of the first end of the cannula tip

width of the second end of the cannula tip

gas passageway of tubing

duct of tubing for embedded bendable wire

With reference to FIGS. 2 and 3, a front view and a rear view, respectively, of an oxygen delivery device 1 of the present invention being worn by a patient 2 is illustrated. The oxygen delivery device 1 comprises a substantially U-shaped nasal cannula 3 that may be non-flexible or flexible. The substantially U-shaped nasal cannula 3 is preferably constructed from formable or memory material.

In a preferred embodiment, the cannula 3 is tubular. As further described herein, the substantially U-shaped nasal cannula 3 may have a bendable wire 19 embedded within at least a portion of the cannula wall 20, with the wire 19 extending substantially axially along the cannula wall 20. With the use of a wire 19 in a cannula (and with the tubing 8, described below), softer and more flexible materials, which in turn are more comfortable and less irritating to the patient, may be used. Such materials may include a vinyl polymer or a silicone polymer.

The substantially U-shaped cannula 3 has a first end 4 that fits inside the patient's nostril and a second end 6 that is exterior to the nostril and extends downward from the patient's nostril, around an outer surface of the patient's nostril, and upward toward the patient's eye. The substantially U-shaped cannula 3 attaches to flexible and preferably formable or bendable tubing
8. The tubing 8 then extends upward from the second end 6 of the cannula 3 and toward the
patient's eye or ear. The substantially U-shaped cannula 3 has a first end 4 that fits inside the
nostril from which oxygen or other gasses are delivered to the patient.

The second end 6 of the U-shaped cannula 3 may further comprise a substantially ninety
degree bend 5 preferably constructed from the same material as the rest of the substantially U-
shaped cannula 3 to prevent formation of kinks which could reduce or restrict the flow of oxygen
and to enhance placement of the cannula and tubing on the patient's face. The substantially U-
shaped cannula second end 6 is joined at the juncture 7 of cannula 3 to the first section of tubing
8.

In a preferred embodiment, the first section of tubing 8, that is preferably flexible,
formable or bendable, and which may have a bendable wire 32 (not shown) embedded in the
tubing wall 33, extends from a second end 6 of the U-shaped cannula across the patient's cheek,
around the side of the face and toward the top of the patient's ear. The first section of tubing 8
may be contoured over the patient's ear and bent slightly inward against the patient's scalp
behind the ear to secure the tubing placement. This configuration allows the tubing 8 to be
positioned and worn slightly above the ear, thereby preventing interface pressure and friction
behind the ear and allowing a patient to wear eye glasses without interference from the tubing.

Alternatively, the first section of tubing 8 may be joined at juncture 9 to a second section
of tubing 10. The second section of tubing 10 extends over and behind the ear and may be
flexible, formable or bendable so that it may be contoured over the ear and bent slightly inward
against the patient's scalp behind the ear to secure the tubing placement. This configuration of
the second section of tubing 10 allows the tubing to be worn slightly above the ear, thereby
preventing interface pressure and friction behind the ear and allowing a patient to wear eye
glasses without interference from the tubing. A second section of tubing 10 is affixed to a third section of tubing 12 at a juncture 11. The third section of tubing 12 preferably consists of coiled flexible tubing which allows the patient to move his or her head without affecting the placement of the U-shaped cannula 3 in the nostril. A third section of tubing 12 is joined at juncture 13 to a fourth section of tubing 14. A fourth section of tubing 14 extends directly to the oxygen supply source and is preferably draped across the back of the patient's neck and crossing to the opposite shoulder of the nostril into which the cannula 3 is inserted and thence to the oxygen supply source. A clip 15 may be used to attach the fourth section of tubing 14 to the patient's clothing, further securing the cannula 3 placement. A fourth section of tubing 14 is attached to the oxygen supply at connector 16. Also illustrated in FIG 1 is a semi-rigid stabilization patch 17 on the patient's face that further secures the tubing 8 to the cheek of the patient and is discussed in greater detail below. Alternatively, a flexible stabilization patch 18 may be used to secure the first section of tubing 8 in place. In an alternate embodiment, the first section of tubing 8 is joined to the third section of tubing 12 at juncture 11.

In another preferred embodiment, the substantially U-shaped nasal cannula 3 is tubular and includes a bendable wire 19 that is embedded within at least a portion of the cannula wall 20 and extends substantially axially along the cannula wall 20, a first end 4 that fits inside the patient's nostril and a second end 6 that is exterior to the nostril. The second end 6 of the cannula 3 extends downward from the patient's nostril, around an outer surface of the patient's nostril, upward toward the patient's eye to a substantially 90 degree bend 5 across the patient's cheek, around the side of the face, toward the top of and over the patient's ear. With this alternative embodiment, there is no juncture with a first section of tubing 8 proximate the patient's cheek, which eliminates a potential source of irritation for the patient.
With reference to FIG 2, a rear view of an oxygen delivery device of the present invention being worn by a patient, a flexible stabilization patch 18 affixed behind the patient's ear is illustrated. This flexible stabilization patch 18 functions to additionally secure the tubing placed over the ear and reduce the movement of the tubing in the vicinity of the ear, reducing the interface pressure and friction of the tubing against the skin.

With reference to FIG. 3, a side view of a U-shaped cannula 3 of the present invention constructed out of a non-flexible tubing is illustrated, which is self-explanatory when viewed in conjunction with the description above. In another preferred embodiment, the cannula 3 is tubing that is flexible and constructed out formable or memory material.

The cannula 3 has a first end 34, which is adapted to fit inside the patient's nostril, and a second end 35 having a substantially U-shaped portion 36, which that is adapted to extend downward from the patient's nostril, around an outer surface of the patient's nostril, and then upward toward the patient's eye. A cannula wall 20 surrounds the gas passageway 37. Also shown in FIG. 3 is a substantially ninety degree bend 5 in the second end 35. Also shown is the location of the juncture 7 of the U-shaped cannula 3 to first section of tubing (not shown). The cannula length extends from the first end 34 to the location of the juncture 7.

With reference to FIG. 4, a side view of a substantially U-shaped cannula 3 of the present invention is illustrated. The cannula 3 is a flexible tubing that is constructed out of a formable or memory material. The cannula 3 has a first end 34, which is adapted to fit inside the patient's nostril, and a second end 35 having a substantially U-shaped portion 36, which that is adapted to extend downward from the patient's nostril, around an outer surface of the patient's nostril, and then upward toward the patient's eye. A cannula wall 20 surrounds the gas passageway 37. Also shown in FIG. 3 is a substantially ninety degree bend 5 in the second end 35. Also shown is the location of the juncture 7 of the U-shaped cannula 3 to first section of tubing (not shown). The cannula length extends from the first end 34 to the location of the juncture 7.
location of the juncture 7 of the U-shaped cannula 3 to first section of tubing (not shown). The cannula length extends from the first end 34 to the location of the juncture 7. As illustrated here, there is a flexible or bendable wire 19 embedded in a wall 20 or proximal to the wall 20 of the U-shaped cannula 3. The wire 19 extends substantially axially along the cannula wall. The length of the wire 19 is typically less than the length of the cannula 3 so that the wire does not protrude into the patient's nostril.

In one embodiment, the substantially U-shaped cannula 3 retains its shape when bent and in another embodiment the substantially U-shaped cannula 3 returns to its original shape after bending. The material used to form the flexible, formable or memory tubing of the cannula 3 may also be a semi-rigid plastic, polyurethane, elastomer or other material that retains its shape when bent without the assistance of the embedded flexible wire 19. Such tubing may also be applied to the section of tubing 10 that fits over the ear of the patient.

With reference to FIGS. 5 and 6, a front view and a side view, respectively, of a semi-rigid stabilization patch 17 is illustrated. The semi-rigid stabilization patch 17 comprises a preferably semi-rigid substantially C-shaped clip 21 located on an upper surface 22 of a stabilization patch 17 having adhesive 23 located on a rear surface 24 to attach the stabilization patch 17 to a patient's cheek, as illustrated in FIG. 1. The first section of tubing 8 may be pressed into the C-shaped clip 21 and held in place by a pressure fit, as illustrated in FIG. 1. One or more stabilization patches 17 or 18 (as described below) may be placed on a patient's cheek to stabilize the tubing. The placement of the tubing is over areas of the face that have minimum hair growth and oil secretion, thereby ensuring the one or more stabilization patches 17 or 18 adhere to the patient's skin.
With reference to FIG. 7, a flexible stabilization patch 18 in an open configuration 25 is illustrated. The flexible stabilization patch 18 may be affixed to the face as shown in FIG 1 in replacement of the semi-rigid stabilization patch 17 or behind the patient's ear 18 as shown in FIG 2. The flexible stabilization patch 18 preferably should be made of flexible, breathable and non-irritating material. The flexible stabilization patch 18 has two patch sections, a first patch section 38 and a second patch section 39, that are separated and connected by a tubing securement area 27. The first patch section 38 includes a skin adhesive side 26, which has adhesive on the surface for attaching the stabilization patch to the skin, and an opposing folding adhesive side 40. The second patch section 39 includes a folding adhesive side 28 and an opposing non-adhesive side 30.

With reference to FIG. 8, a flexible stabilization patch 25 in a closed configuration 29 is illustrated. To achieve the closed configuration 29, the tubing 10 to be secured is placed perpendicularly across the tubing securement area 27. Then the flexible stabilization patch is folded over the tubing 10 so that the folding adhesive side 40 of the first patch section 38 is mated to the folding adhesive side 28 of the second patch section using an adhesive. The adhesive, which is used to mate the folding adhesive side 40 of the first patch section 38 to the folding adhesive side 28 of the second patch section 39, is located on the surface of either the first patch section 38 folding adhesive side 40 or the second patch section 39 folding adhesive side 28, or both. In a closed configuration, the flexible stabilization patch 25 secures the tubing 10 in the tubing securement area 27. Furthermore, the flexible stabilization patch is affixed to the patient's cheek or to the skin behind the patient's ear by placing the skin adhesive side 26 of the first patch section 38 onto the cheek or the skin behind the ear, respectively.
In one embodiment, when the flexible stabilization patch 18 is a closed configuration as illustrated in FIG. 8, the secured tubing 10 is free to move relative to the flexible stabilization patch and shift in an axial direction relative to the tubing. In another embodiment, all movement of the secured tubing 10 relative to the flexible stabilization patch 18 is prevented. In the closed configuration 25, the non-adhesive upper surface 30 of the flexible stabilization patch 29 is exposed.

With reference to FIG. 9, a side view of U-shaped cannula 3 with a cannula tip 31 affixed. The cannula tip 31 is preferably made of pliable or formable materials which may be affixed to the end of the cannula 4. The cannula tip 31 secures the cannula 4 within the nostril and enhances the inspired oxygen by reducing the backflow of oxygen out of the nostril.

With reference to FIG. 10, a perspective of a cannula tip 31 is illustrated. The cannula tip 31 has a first end 41 and a second end 42. The first end 41 of the cannula tip 31 has a width 43 and is attached to the first end of a cannula 3 (not shown). The second end 42 of the cannula tip 31 has a width 44 and is adapted to be placed in a patient's nostril. The second end 42 typically has a width 44 is larger than the width 43 of the first end 41 of the cannula tip 31. Accordingly, the specific size of the cannula tip 31 to be used for a specific patient may be selected according to the size of the patient's nostril (not shown) to comfortably secure the cannula in the nostril while mitigating any irritation and/or discomfort to the patient. For some patients, a cannula tip 31 will be selected so that the width 44 of the second end 42 of the cannula tip 31 is greater than the width 43 of the first end 41.

With reference to FIG. 11, a perspective of a first section of tubing 8 of the present invention is illustrated, showing a tubing wall 33, the gas passageway 45, and a separate duct or passage 46 in the tubing wall 33 into which a bendable wire 32 (not shown) may be inserted.
and/or embedded. A plug (not shown) may be inserted into the end of the duct 46 and used to prevent protrusion of the bendable wire 32 from the tubing 8.

It is to be understood that while a preferred embodiment of the invention is illustrated, it is not to be limited to the specific form or arrangement of parts herein described and shown. It will be apparent to those skilled in the art that various changes may be made without departing from the scope of the invention and the invention is not to be considered limited to what is shown and described in the specification and drawings.
CLAIMS

Having thus described my invention, I claim:

1. An oxygen delivery device for delivering oxygen to a patient, said oxygen delivery device comprising:
   a substantially U-shaped nasal cannula, the substantially U-shaped nasal cannula further comprising a gas passageway, a cannula wall surrounding the gas passageway, a length, a first end that is adapted to fit inside the patient's nostril, and a second end having a substantially U-shaped portion and adapted to extend downward from the patient's nostril, around an outer surface of the patient's nostril and then upward toward the patient's eye; and
   a first section of tubing constructed of memory material that retains its shape when bent, the first section of tubing adapted to extend from the second end of the substantially U-shaped nasal cannula across the patient's cheek, around a side of the patient's face, and over the patient's ear.

2. The oxygen delivery device of claim 1, wherein the substantially U-shaped nasal cannula is constructed of memory material that retains its shape when bent.

3. The oxygen delivery device of claim 1, wherein the substantially U-shaped nasal cannula comprises a bendable wire that is embedded in at least a portion
4. The oxygen delivery device of claim 3, wherein the substantially U-shaped nasal cannula retains its shape when bent.

5. The oxygen delivery device of claim 3, wherein the substantially U-shaped nasal cannula returns to its original shape after bending.

6. The oxygen delivery device of claim 1, wherein the substantially U-shaped nasal cannula is constructed of non-flexible material.

7. The oxygen delivery device of claim 1 comprising a second section of tubing extending from the first section of tubing to a gas supply source.

8. The oxygen delivery device of claim 3, wherein the first end of the substantially U-shaped nasal cannula further comprises a cannula tip, the cannula tip comprising a first end and a second end, wherein the first end of the cannula tip has a width and is attached to the first end of the substantially U-shaped nasal cannula, and wherein the second end of the cannula tip has a width and is adapted to be placed in a patient's nostril.
9. The oxygen delivery device of claim 8, wherein the width of the second end of the cannula tip is greater than the width of the first end of the cannula tip.

10. The oxygen delivery device of claim 1, wherein the second end of the substantially U-shaped nasal cannula further comprises a substantially ninety-degree bend located between the substantially U-shaped portion of the second end and the first section of tubing.

11. The oxygen delivery device of claim 3, wherein the wire length is less than the length of the substantially U-shaped nasal cannula.

12. A cannula used in a gas delivery system for delivering gas to a patient, the cannula comprising:

   a gas passageway, a cannula wall surrounding the gas passageway, a length, a first end that is adapted to fit inside the patient's nostril, and a second end having a substantially U-shaped portion and adapted to extend downward from the patient's nostril, around an outer surface of the patient's nostril and then upward toward the patient's eye; and

   a wire embedded within at least a portion of the cannula wall.

13. The cannula of claim 12, wherein the cannula retains its shape when bent.
14. The cannula of claim 13, wherein the cannula is constructed of memory material.

15. The cannula of claim 12, wherein the second end of the cannula is further adapted to extend across the patient's cheek, around the side of the patient's face, and toward the top of the patient's ear and then over the patient's ear.

16. The cannula of claim 15, wherein the cannula is constructed of memory material.

17. The cannula of claim 12 further comprising a juncture to which a first section of tubing is joined.

18. The cannula of claim 17, wherein the cannula further comprises a substantially ninety-degree bend located between the substantially U-shaped portion and the juncture.

19. The cannula of claim 12, wherein the first end of the cannula further comprises a cannula tip, the cannula tip comprising a first end and a second end, wherein the first end of the cannula tip has a width and is attached to the first end of the cannula, and wherein the second end of the cannula tip has a width and is adapted to be placed in a patient's nostril.
20. The cannula of claim 19, wherein the width of the second end of the cannula tip is greater than the width of the first end of the cannula tip.

21. The cannula of claim 12, wherein the wire has a length that is less than the cannula length and the wire extends substantially axially along the cannula wall.

22. An oxygen delivery device for delivering oxygen to a patient, said oxygen delivery device comprising:

   a substantially U-shaped nasal cannula, the substantially U-shaped nasal cannula further comprising a gas passageway, a cannula wall, a length, a bendable wire embedded within the cannula wall and extending substantially axially along at least a portion of the length of the substantially U-shaped nasal cannula, a first end that is adapted to fit inside the patient's nostril, a second end having a substantially U-shaped portion and adapted to extend downward from the patient's nostril, around an outer surface of the patient's nostril and then upward toward the patient's eye; and

   a first section of tubing, the first section of tubing being adapted to extend from the second end of the substantially U-shaped nasal cannula across the patient's cheek, around a side of the patient's face, and over the patient's ear.
23. The oxygen delivery device of claim 22, wherein the substantially U-shaped nasal cannula retains its shape when bent.

24. The oxygen delivery device of claim 23, wherein the cannula is constructed of memory material.

25. The oxygen delivery device of claim 22, wherein the substantially U-shaped nasal cannula returns to its original shape after bending.

26. The oxygen delivery device of claim 25, wherein the cannula is constructed of memory material.

27. The oxygen delivery device of claim 22, wherein the first end of the substantially U-shaped nasal cannula further comprises a cannula tip, the cannula tip comprising a first end and a second end, wherein the first end of the cannula tip has a width and is attached to the first end of the substantially U-shaped nasal cannula, and wherein the second end of the cannula tip has a width and is adapted to be placed in a patient's nostril.

28. The oxygen delivery device of claim 27, wherein the width of the second end of the cannula tip is greater than the width of the first end of the cannula tip.
29. The oxygen delivery device of claim 28, wherein the substantially U-shaped nasal cannula further comprises a substantially ninety-degree bend located between the substantially U-shaped portion of the substantially U-shaped nasal cannula and the first section of tubing.

30. The oxygen delivery device of claim 22, wherein the wire has a length that is less than the cannula length.

31. An oxygen delivery device for delivering oxygen to a patient, said oxygen delivery device comprising:

   a substantially U-shaped nasal cannula, the substantially U-shaped nasal cannula further comprising a gas passageway, a cannula wall surrounding the gas passageway, a length, a first end that is adapted to fit inside the patient's nostril, and a second end having a substantially U-shaped portion and adapted to extend downward from the patient's nostril, around an outer surface of the patient's nostril and then upward toward the patient's eye; and

   a first section of tubing comprising a tubing wall and a tubing length;

   a bendable wire embedded in at least a portion of the tubing wall, the wire extending substantially axially along and within the tubing wall and for at least a portion of the length of the tubing, and

   wherein the first section of tubing is adapted to extend from the second end of the substantially U-shaped nasal cannula across the patient's cheek, around a side of the patient's face, and over the patient's ear.
32. The oxygen delivery device of claim 31, wherein the substantially U-shaped nasal cannula is constructed of memory material that retains its shape when bent.

33. The oxygen delivery device of claim 31, wherein the substantially U-shaped nasal cannula comprises a bendable wire that is embedded in the cannula wall, the bendable wire extending substantially axially along and within the cannula wall and having a wire length that is less than the length of the substantially U-shaped nasal cannula.

34. The oxygen delivery device of claim 33, wherein the substantially U-shaped nasal cannula retains its shape when bent.

35. The oxygen delivery device of claim 34, wherein the first section of tubing retains its shape when bent.

36. The oxygen delivery device of claim 34, wherein the first section of tubing returns to its original shape after bending.

37. The oxygen delivery device of claim 33, wherein the substantially U-shaped nasal cannula returns to its original shape after bending.
38. The oxygen delivery device of claim 37, wherein the first section of tubing retains its shape when bent.

39. The oxygen delivery device of claim 37, wherein the first section of tubing returns to its original shape after bending.

40. The oxygen delivery device of claim 31, wherein the first end of the substantially U-shaped nasal cannula further comprises a cannula tip, the cannula tip comprising a first end and a second end, wherein the first end of the cannula tip has a width and is attached to the first end of the substantially U-shaped nasal cannula, and wherein the second end of the cannula tip has a width and is adapted to be placed in a patient's nostril.

41. The oxygen delivery device of claim 40, wherein the width of the second end of the cannula tip is greater than the width of the first end of the cannula tip.

42. The oxygen delivery device of claim 31, wherein the substantially U-shaped nasal cannula further comprises a substantially ninety-degree bend located between the substantially U-shaped portion of the substantially U-shaped nasal cannula and the first section of tubing.
43. A flexible stabilization patch for securing a tubing on a patient using a gas delivery device, the flexible stabilization patch comprising:

   a first patch section, the first patch section further comprising a skin adhesive side and an opposing folding adhesive side;

   a second patch section having a folding adhesive side and an opposing non-adhesive side;

   a tubing securement area located between and connecting the first patch section and the second patch section;

   a first adhesive means for affixing the skin adhesive side of the first patch section to the patient's skin; and

   a second adhesive means for mating the folding adhesive side of the first patch section to the folding adhesive side of the second patch section;

   wherein, the tubing is secured in the tubing securement area of the stabilization patch after the first patch section is mated to the second patch section.

44. The flexible stabilization patch of claim 43, wherein the first patch section and the second patch section each have the same geometric shape.

45. The flexible stabilization patch of claim 43, wherein the first patch section and the second patch section each have a circular shape.
46. The flexible stabilization patch of claim 43, wherein the first adhesive means is located on the surface of the skin adhesive side of the first patch section.

47. The flexible stabilization patch of claim 43, wherein the second adhesive means is located on the folding adhesive side of the second patch section.

48. The flexible stabilization patch of claim 43, wherein the second adhesive means is located on the folding adhesive side of the first patch section.

49. The flexible stabilization patch of claim 43, wherein the tubing is free to move in an axial direction relative to the tubing securement area 27 of the stabilization patch 25.