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(54) Benævnelse: **Indretning i form af en trachestomi-protese til nem indsætning og nem udtagning af en inderkanyle**

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DE-A1- 3 819 237
DE-U1-202004 020 109
GB-A- 634 978
US-A1- 2008 072 911

The invention relates to an arrangement in the form of a tracheostoma prosthesis for the easy insertion and easy removal of an inner cannula.

BACKGROUND OF THE INVENTION

Tracheostoma prostheses (also known as tracheostomy cannulas, tracheal cannulas, endotracheal tubes or tracheostomy tubes) for treating tracheostomised or laryngectomised patients with open throat (so called tracheostoma) have been known for decades.

From DE 195 14 433 A1 a tracheostomy cannula is known that is to be inserted in a tracheostoma and consists of a tubular outer cannula with a cannula shield and of a tubular inner cannula which can be guided into the outer cannula and locked with it at the proximal part.

This lock has the disadvantage that it can be jammed and then it is possibly difficult to release it so that the removal of the inner cannula out of the outer cannula is considerably more complicated.

P 38 19 237 A1 discloses an endotracheal tube comprising an outer tube and an inner tube and the inner tube is provided with a locking element for a snap-lock connection to the outer tube. The inner tube is also provided with an easily accessible operating handle which is connected to the locking element and is used to pull out the inner tube from the connection to the outer tube.

This loop- or lug-shaped operating handle has the disadvantage that it will tear off the inner tube, if the tensile forces are too high during the

removal of the inner tube out of the outer tube (e.g. if the inner tube is clamped in the outer tube or it is bonded by body secretions or the system is improperly handled) so that as a result of this tearing the inner tube can only be removed with very great effort out of the outer tube.

The design patent 40208362-0001 and its description discloses a push-button or knotted connection for a treacheal cannula consisting of a six-teeth, round plastic part at the inner cannula and a round bead-like edge at the outer cannula. The inner cannula is released out of the outer cannula by levering-off the push-button or knotted connection which is done by positioning thumb and index finger laterally at the push-button or knotted connection and levering it. In order to fix the inner cannula in the outer cannula, the inner cannula is gently pressed on the push-button or knotted connection after inserting it in the outer cannula. It snaps into place with an audible click.

This push-button or knotted connection has the disadvantage that the inner cannula must be removed out of the outer cannula by levering-off the push-button or knotted connection which is done by positioning thumb and index finger laterally and then levering. When using thumb and index finger for positioning them at the connection and subsequently levering it, the nails of these fingers can be injured so that the handling of this push-button or knotted connection can be very uncomfortable.

DE 202004 020 109 U1 discloses a treacheostoma tube with an adapter for lanryngectomy consisting of a tracheostoma tube equipped with an adapter at its distal end, and the free end of this adapter is provided with one recess or two oppositely arranged recesses at its edge. The adapter is used to add accessory parts (such as Trachinaze) to a tracheostoma tube

from the outside by coupling these accessory parts to the tracheostoma tube in a form-locked manner. The accessory parts can be very easily released from the adapter by putting one finger of one hand into the recess or thumb and index finger of one hand into the two recesses.

However, this technical solution has the disadvantage that it is not possible to insert an inner cannula in the outer cannula.

US2008/0072911 discloses a tracheal cannula with an inner cannula, and the inner cannula can be inserted into an opening in the proximal part of the outer cannula and is provided with a bead-like edge at its proximal end.

DETAILED DESCRIPTION OF THE INVENTION

The object of the invention is to offer an arrangement in the form of a tracheostoma prosthesis for the easy insertion and easy removal of an inner cannula, which avoids the disadvantages of prior art and in particular allows to pull out the inner cannula of a locked connection to the outer cannula with minimal effort by using thumb and index finger, and this even when applying considerable tensile forces.

This task is solved by an arrangement in the form of a tracheostoma prosthesis according to Claim 1. Advantageous embodiments of the invention are subject matter of the dependent claims.

SUMMARY OF THE INVENTION

The essence of the invention is an arrangement in the form of a tracheostoma prosthesis that consists of an outer cannula and an inner cannula which can be inserted in this outer cannula, and the outer edge of the proximal part of the outer cannula is provided with two oppositely arranged moulded recesses which are in the shape of a circular arc (so called grasp-in recesses) and are designed such that thumb and index finger can grasp into them, and the outer edge of the proximal part of the inner cannula has a bead-like shape.

BRIEF DESCRIPTION OF THE DRAWINGS

In the following, the invention is explained in more detail by means of drawings. They show:

Fig. 1: a schematic overview drawing of an embodiment of an outer cannula of the arrangement according to this invention, and

Fig. 2: a lateral view of an embodiment of the arrangement according to this invention with an outer cannula and an inner cannula.

The outer cannula (1) shown in the Figures 1 and 2 has a tubular design according to the state of the art and is provided with a proximal part (11) and a distal part (12).

The inner cannula (4) represented in Figure 2 has also a tubular design and is provided with a bead-like outer edge (41) at its proximal end.

The inner cannula (4) can be guided in the opening at the proximal part (11) of the outer cannula (1) and can be locked in the proximal

part (11) of the tubular outer cannula (1) by appropriate locking or retaining means (not shown in Fig. 2) according to the state of the art.

At its proximal part (11), the tubular outer cannula (1) can be provided with a cannula shield (2) according to the state of the art.

Essential aspects of the invention are that the outer edge of the proximal part (11) of the outer cannula (1) is provided with two moulded recesses (3) in the shape of a circular arc, positioned opposite to each other, so called grasp-in recesses, designed to be grasped in by thumb and index finger, and that the inner cannula (4) has an outer edge (41) in a bead-like design at its proximal end.

These recesses (3) and the bead-like outer edge (41) have the advantage that an inner cannula (4) locked in the outer cannula (1) according to the state of the art can be easily and without any difficulty – even with strong tensile forces – removed out of the outer cannula (1) by the direct grasping of thumb and index finger at the bead-like edge (41) of the proximal end of the inner cannula (4) with said proximal end being not covered in the area of the recesses (3). When doing this, the fingernails of thumb and index finger are not damaged and no components of the inner cannula, such as an operating handle, are removed destructively by strong tensile forces.

Therefore, thumb and index finger grasp in a very ergonomic manner in the area of the recesses (3), i.e. in the grasp-in moulds, at the edge (41) of the inner cannula (4) so that the tensile forces applied by thumb and

index finger can be optimally transferred to the inner cannula (4) in order to remove it out of the outer cannula (1) by pulling it out.

The outer cannula (1) and the inner cannula (4) are made of plastic material, such as PVC, silicone or thermoplastic polyurethane, or of metal, e.g. sterling silver.

According to the state of the art, the outer cannula (1) and the inner cannula (4) can be designed as a standard arc from 80° to 110°.

All the features described in this invention and the following claims can be essential for the invention, either individually or in any combination with each another.

LIST OF REFERENCE NUMERALS

1	-	outer cannula
11	-	proximal part
12	-	distal part
2	-	cannula shield
3	-	recesses
4	-	inner cannula
41	-	bead-like edge

Patentkrav

1. Indretning i form af en tracheostomi-protese til nem indsætning og nem udtagning af en inderkanyle bestående af en slangeformet yderkanyle (1) med en proksimal del (11) samt en distal del (12) og en slangeformet inderkanyle (4), hvor inderkanylen (4) kan indføres i åbningen på den proksimale del (11) af yderkanylen (1) og kan låses ved hjælp af indgrebs- eller holdemidler, og den ydre kant af den proksimale del (11) af yderkanylen (1) har to udsparinger (3), der ligger over for hinanden, **kendetegnet ved, at** udsparingerne (3) er cirkelbueformede og udformet, så de kan gribes fat i af tommel- og pegefinger, og inderkanylen ved sin proksimale ende har en vulstlignende kant (41).

2. Indretning ifølge krav 1, **kendetegnet ved, at** yderkanylen (1) ved den proksimale del (11) er forsynet med et kanyleskjold (2).

3. Indretning ifølge krav 1, **kendetegnet ved, at** yderkanylen (1) og inderkanylen (4) består af kunststof, såsom PVC, silicone eller termoplastisk polyurethan, eller af metal, såsom sterlingsølv.

4. Indretning ifølge krav 1, **kendetegnet ved,** at yderkanylen (1) og inderkanylen(4) er udført som standardbue på 80° til 110°.

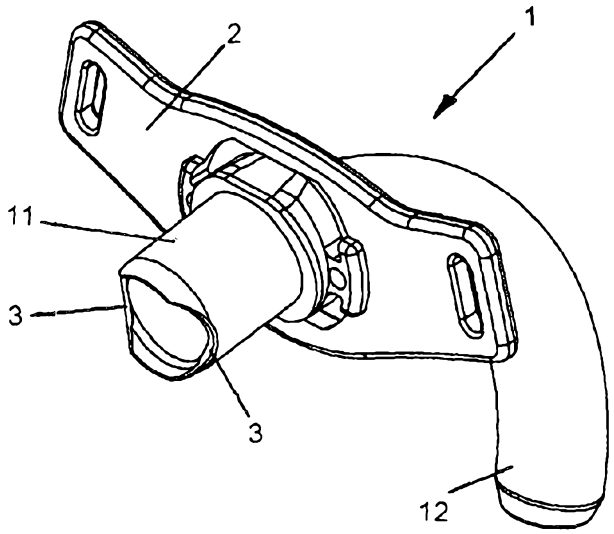

Fig. 1

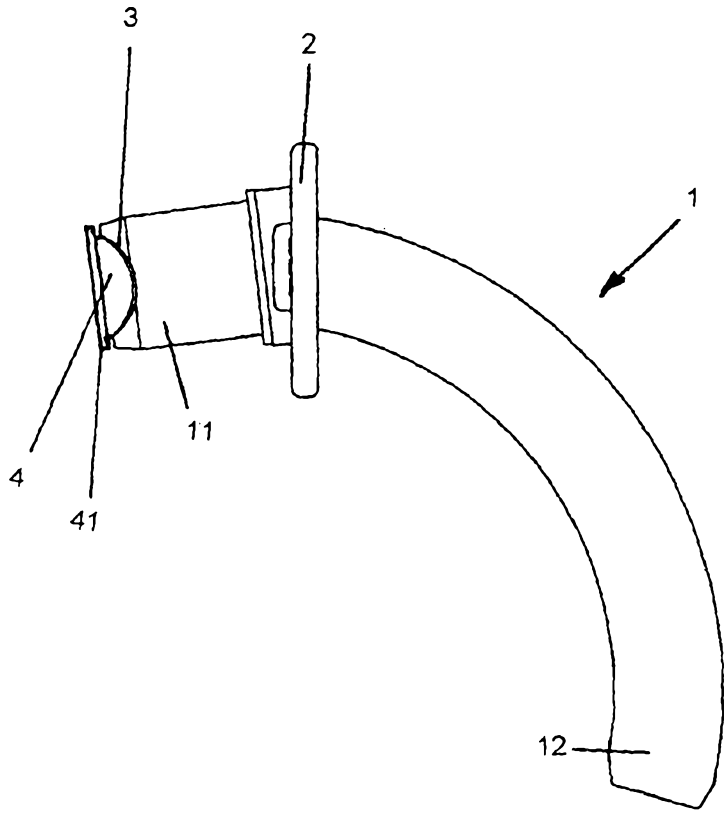

Fig. 2