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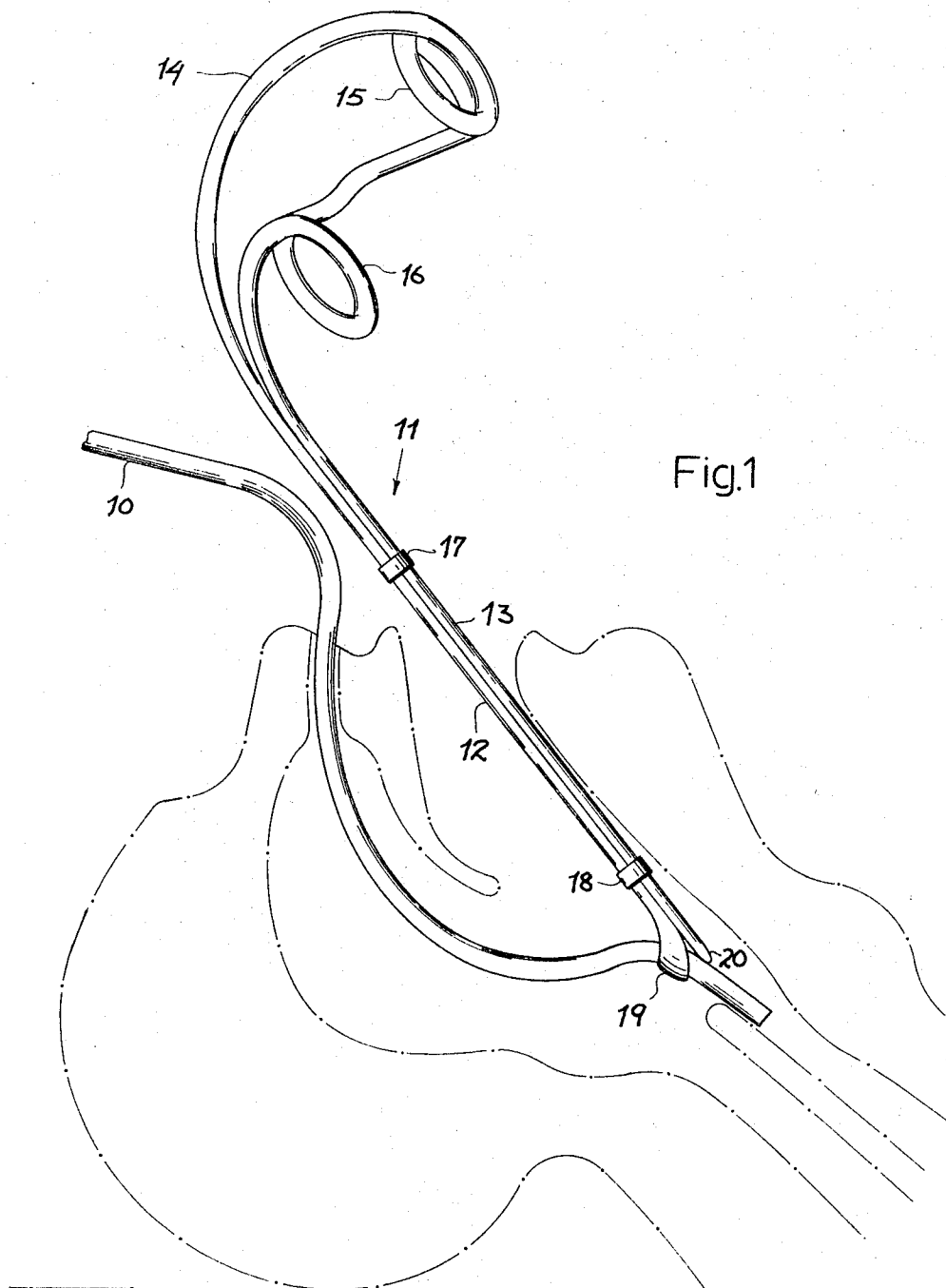
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PHARYNGEAL TUBE CLAMP

Filed Aug. 12, 1964

2 Sheets-Sheet 1



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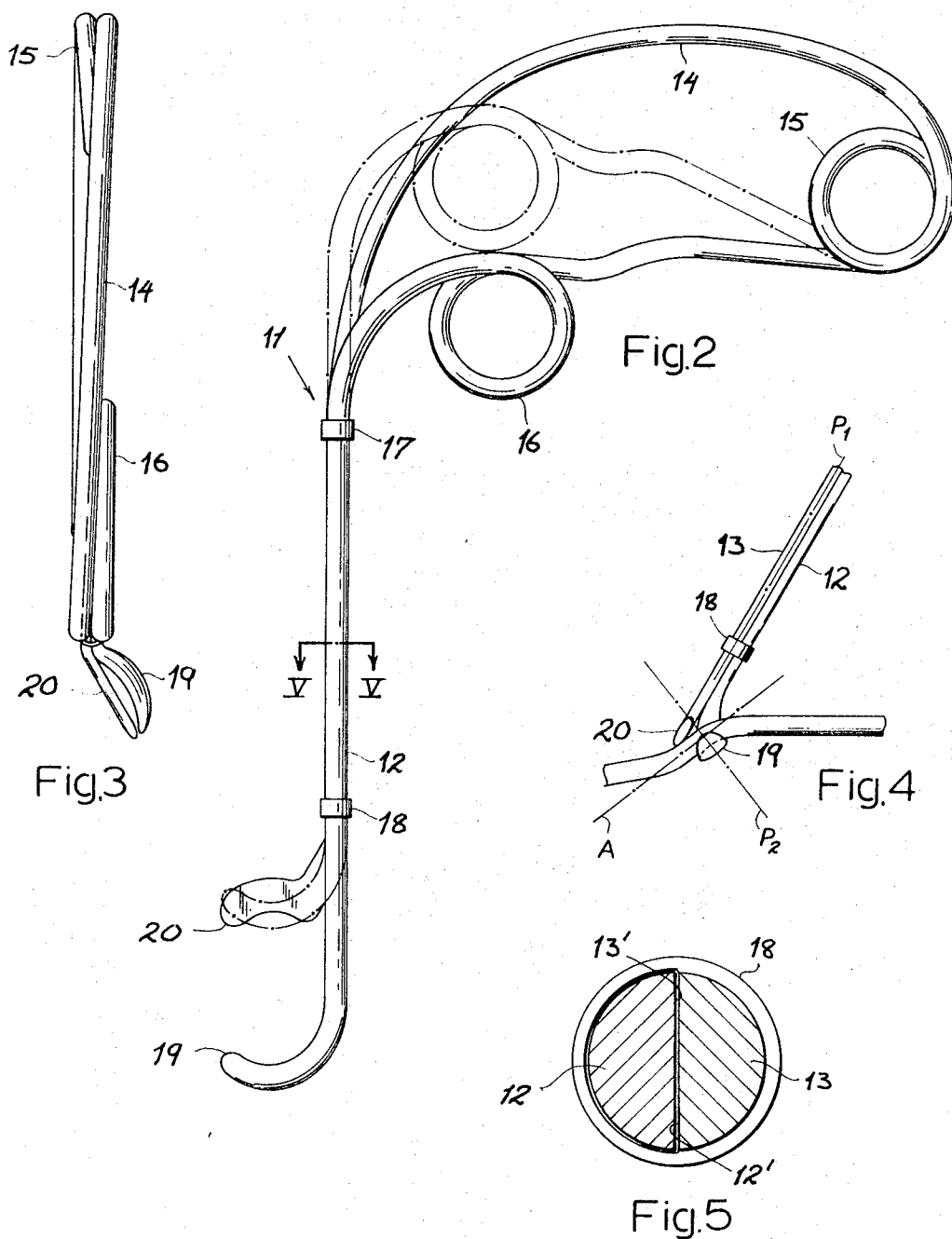
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PHARYNGEAL TUBE CLAMP

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ABSTRACT OF THE DISCLOSURE

Pharyngeal tube clamp with a handgrip and two relatively movable jaws formed from a continuous piece of spring wire, the two jaws having confronting concavities curved in mutually inclined planes for defining a passage therebetween which is skew to the straight wire portions whose ends constitute the two jaws.

My present invention relates to a pharyngeal tube clamp of the type used during nasal endotracheal intubation to facilitate the introduction into the trachea of a flexible tube inserted into the nasal pharynx through the nose of the patient.

Although flexible endotracheal tubes may be preformed in a manner designed to help their insertion into the trachea via the aforescribed path, it is found in practice that the passage of the tube through the nose and nasopharynx will tend to curve its forward end upwardly so that it deviates from the downwardly sloping trachea. The object of this invention, accordingly, is to provide an instrument which can be continuously inserted into the pharynx per os and is readily manipulable to grip the front end of an endotracheal tube emerging from the nasopharynx, this operation resulting in a suitable downward curving of the tube end so that the latter is positively guided into the trachea as the instrument is pushed down the throat of the patient.

The aforestated object is realized, in accordance with my present invention, through the provision of a pharyngeal tube clamp having two rod-shaped parallel members juxtaposed for relative longitudinal displacement. These members are interconnected by a resilient handgrip in such a way that their lower extremities, extending transversely and forming respective clamp jaws, are normally held separated by the biasing force of the handgrip, the two jaws being inversely curved and so shaped that upon being brought into a position of mutual approach by suitable manipulation of the handgrip, they define a passage with an axis skew to the two rod members. Thus, the upper jaw is downwardly concave whereas the lower jaw is generally upwardly concave in a plane inclined with reference to the plane of curvature of the upper jaw; according to a more specific feature, the latter plane (in which the rod member carrying the upper jaw is also located) includes an obtuse angle, preferably between about 140° and 160°, with the plane of the handgrip formed as a looped connection between the two rod members. Thus, according to a further feature of my invention, the handgrip and the two rods are integral with one another and are part of a continuous spring wire whose inherent resiliency normally spaces the two jaws apart, the connecting loop portion being for this purpose coiled at one end of the loop and, advantageously, coiled once more near one of the two jaw-carrying straight rod portions to form a hole accommodating the index finger of the user. I have found that the instrument is most easily manipulated if the aforementioned obtuse angle is maintained and if, in addition, the lower jaw extends within that obtuse angle between the plane of the loop and the plane of the upper jaw.

The above and other features of my invention will become more fully apparent from the following detailed description of a preferred embodiment, reference being made to the accompanying drawing in which:

2

FIG. 1 is a perspective view of a pharyngeal tube clamp according to the invention, the clamp being shown in the process of insertion into the throat of a patient (illustrated diagrammatically in dot-dash lines) for the gripping of an endotracheal tube passed through the patient's nose;

FIG. 2 is a side-elevational view of the clamp shown in FIG. 1;

FIG. 3 is a top view of the clamp;

FIG. 4 is a detail view of the lower end of the clamp, seen from the direction opposite that of FIG. 1; and

FIG. 5 is an enlarged cross-sectional view on the line V—V of FIG. 2.

In FIG. 1, I have shown diagrammatically the oral cavity of a patient having an endotracheal tube 10 introduced in one of his nostrils. A clamp 11, constructed in accordance with this invention as described in greater detail hereinafter, is inserted into the mouth of the patient to grip with its lower extremities the forward end of tube 10 so that this end is curved downwardly for entry into the trachea of the patient. Clamp 11 consists in essence of a single length of spring wire, e.g. of stainless steel, forming two straight rod portions or legs 12, 13 interconnected by a looped intermediate portion 14 which is grasped by the hand of the attending physician. Clamp portion 14 is shaped at the end of its loop into a coil 15, the resiliency of this coil tending to raise the leg 13 with reference to the leg 12, and into a second coil 16 adjacent leg 12 for receiving the index finger of the manipulator. A pair of longitudinally spaced lugs or ferrules 17, 18 are each rigid with one of the straight wire portions, here the leg 13, and embrace the other straight wire portion (leg 12) for slidably guiding it relatively to the first-mentioned straight portion, the two legs 12, 13 being formed with flattened confronting surfaces 12', 13' as best seen in FIG. 5.

The rod-shaped legs 12, 13 terminate at their lower ends in curved, transverse extremities forming a lower jaw 19 and an upper jaw 20, respectively. The upper jaw 20, whose curvature lies in a plane P_1 including leg 13 (see FIG. 4), is downwardly concave and flattened but rounded at its tip; the lower jaw 19 is more nearly spoon-shaped and curved in a plane P_2 which is inclined with reference to the plane P_1 , the two jaws 19, 20 defining in their approach position (FIGS. 1 and 4) a passage with an axis A extending skew to the rod portions 12, 13 of the clamp. In order to move the jaws 19, 20 from the open position of FIG. 2 (full lines) to the closed position of FIGS. 1 and 4, the user squeezes the handgrip portion 14 as shown in dot-dash lines in FIG. 2. If a tube 10 is located between the jaws 19, 20 during this motion, the free end of this tube is curved in the direction of axis A while the tube is being gripped for introduction into the trachea by the advancing clamp 11.

Each of the jaws 19 and 20, which should be free from sharp edges in order to protect the tissues, may have a length of about 1–2 cm.

It will be apparent that my improved clamp can be manipulated to open and close its jaws for gripping and advancing or retracting the tube 10, the proper curvature being always maintained in the tube at the point where it enters the trachea.

Minor modifications, e.g. in the construction of the handgrip 14, are, of course, possible without departing from the spirit and scope of my invention as defined in the appended claims.

I claim:

1. A pharyngeal tube clamp comprising a continuous piece of spring wire shaped into straight portions and a looped intermediate portion forming a resilient handgrip, said straight portions terminating in generally transverse lower extremities forming an upper and a lower

3

clamp jaw, respectively, said upper jaw being normally maintained spaced above said lower jaw by said hand-grip and being manually displaceable toward said lower jaw, said upper jaw being lightly curved with a downward concavity, said lower jaw being oppositely curved with a generally upward concavity in a plane inclined with reference to the plane of curvature of said upper jaw whereby in a position of mutual approach of said jaws there is defined by the curvature thereof a passage with an axis skew to said straight portions.

2. A clamp as defined in claim 1 wherein said looped portion is wound into two coils, one of said coils being disposed at the end of the loop for urging said jaws apart, the other of said coils forming a fingerhole close to the upper end of one of said straight portions.

3. A clamp as defined in claim 1 wherein said wire is provided with at least two longitudinally spaced lugs each rigid with one of said straight portions and embracing the other straight portion for slightly guiding the latter.

4. A clamp as defined in claim 3 wherein said straight portions have flattened confronting surfaces in contact with each other.

4

5. A clamp as defined in claim 1 wherein said looped portion substantially lies in a plane including an obtuse angle with a plane defined by said upper jaw and the straight portion carrying said upper jaw.

5 6. A clamp as defined in claim 5 wherein said lower jaw lies between said planes within said obtuse angle.

7. A clamp as defined in claim 5 wherein said obtuse angle ranges between substantially 140° and 160°.

8. A clamp as defined in claim 1 wherein said jaws have a length ranging between substantially 1 and 2 cm.

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