Dec. 10, 1968 R. L. PETERSON 3,415,250

EMERGENCY TRACHEOTOMY KIT

Filed Aug. 2, 1965

FIG. 1

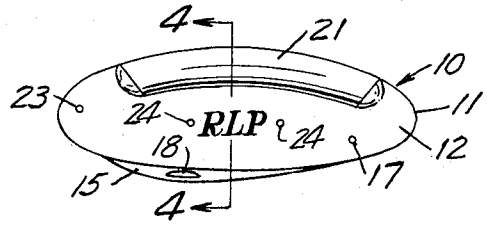


FIG. 2

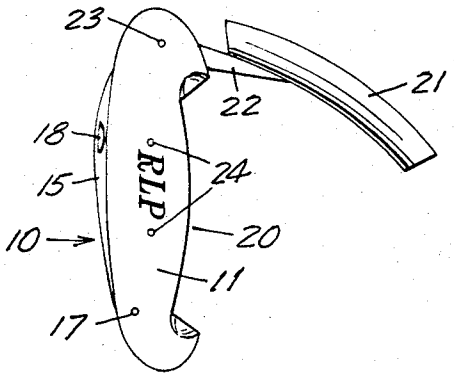


FIG. 3

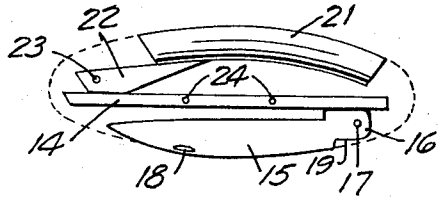
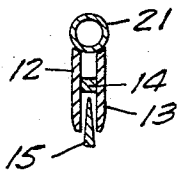


FIG. 4



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EMERGENCY TRACHEOTOMY KIT

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ABSTRACT OF THE DISCLOSURE

An emergency tracheotomy kit having a self-contained tracheal cutting blade and an emergency tracheal tube therein. The kit is constructed in the form of a pocket knife casing with the pivotally mounted blade normally folded therein. The tracheal tube is likewise secured to the casing by means of a pivotally mounted retaining handle. When used, the blade is swung out of the casing and utilized to puncture the trachea after which the tube is inserted therein.

This invention relates to the emergency performance of tracheotomies, and provides a simple, convenient and easily carried surgical instrument for use therein.

Choking caused by clogging of the windpipe, whether from disease or by food, oftentimes requires emergency treatment including incision of the trachea and insertion of an open-ended tube to permit the sufferer to breathe. Pocketknives have been used to make the opening, and various makeshift tubular articles, e.g. open-ended sections of fountain pen barrels, have been inserted to permit continued breathing while the patient is transported to a hospital for further treatment and care. Many doctors make a practice of carrying on their persons both a pocketknife and a short section of plastic tubing or the like for use in just such emergencies.

The present invention combines the functions of both knife and tube in a single unitary pocketpiece of pleasing appearance and convenient size and shape. The cutting element is fully concealed and protected yet is readily accessible. The tubular component is likewise immediately accessible, yet remains a permanent part of the whole so that it cannot be misplaced and, more significantly, cannot be accidentally forced or drawn beyond reach into the trachea or bronchi. A handle assembly serves to hold together and protect the working elements and to impart a pleasing appearance to the whole.

A presently preferred form of the instrument is illustrated in the accompanying drawing, in which:

FIGURE 1 is a view of the instrument in fully closed condition taken from one side,

FIGURE 2 is a side view with the tubular member in open position,

FIGURE 3 is a schematic illustration showing the blade, tube and spring in a closed position, and

FIGURE 4 is a transverse sectional view taken at line 4—4 of FIGURE 1.

The instrument **10** is in the general form of a pocketknife, having a handle member **11** comprising two opposed generally elliptical flat or rounded plates **12, 13** separated by a centrally affixed elongate spring **14**. A blade **15** has a rounded perforate shank **16** and is pivotally mounted on a rivet **17** at one end of the handle. The blade is retained in closed position with its sharp edge and pointed end within the outline of the handle, as shown in FIGURE 1, by the pressure of the free end portion of the

spring **14** against the edge of the shank **16**. A shallow groove **18** is provided adjacent the outer edge of the blade for assistance in pivoting the blade outwardly against the spring tension and into open position in line with the handle, where the spring engages the undercut flat outer edge **19** of the shank **16** and thereby holds the blade in the extended or open position.

At the edge opposite the closed position of the blade the elliptical plates forming the handle are cut away to provide an arcuate depression **20** within which fits an open-ended arcuate tube **21**. The plates are preferably extended outwardly adjacent the ends of the tube to give a smooth outline at such points. The tube is in turn supported from a lever **22** in the form of a perforated shank which is pivoted between the ends of the plates **12, 13** on rivet **23**. The inner and end edges of the tube-supporting shank are straight and at an obtuse angle to each other, and are in position for pressure contact with the adjacent free end of the spring **14**. In the closed position the tube is therefore held in place against the edge of the handle and within the depression **20**; in the open position it extends at an acute angle with the handle, as illustrated in FIGURE 2.

Rivets **24** support the central portion of the spring **14** leaving the two ends resiliently displaceable for controlling the positioning of blade and tube as indicated.

The instrument serves normally as a useful pocketknife or penknife of attractive appearance. It is of small size, low weight and smooth outline so that it is convenient to carry, and hence is more likely to be kept available for emergency use. It may be decorated or personalized as desired, for example by inscribing with the initials of the owner as indicated in FIGURE 1 of the drawing.

In the event of an emergency, the blade is first opened to the fully extended position and used to make an incision through the wall of the trachea. The blade is then closed and the tube extended to the open position and inserted into the opening. The handle rests against the throat of the patient and serves to prevent the tube from being thrust completely through the incision and lost within the trachea. The tube prevents closure or clogging of the incision while the patient is being transported to a hospital for further treatment and care.

What is claimed is as follows:

1. A surgical instrument useful in the performance of emergency tracheotomies and comprising a blade for making the incision, an open tube for insertion in said incision, handle means common to each and supporting each of said blade and tube for pivotal movement between closed and open position, and spring means for retaining each said blade and tube in either of said open or closed positions.

2. A surgical instrument having the general form of a pocketknife, useful in the performance of emergency tracheotomies and comprising: a handle composed of two opposing generally elliptical side plates having an arcuate depression along one edge; a narrow elongate spring member centrally longitudinally affixed between said side plates; a blade having a pointed cutting end and edge and a rounded shank end and pivotally supported at said shank end between adjacent ends of said side plates and with said shank bearing against the adjacent movable end portion of said spring; an arcuate open-ended tube fitting within said arcuate depression and attached to a lever having an angularly terminated shank end pivotally supported between the ends of said side plates opposite the blade-supporting ends and with the shank bearing against

the adjacent movable end portions of said spring; whereby said knife may be retained by said spring either in a closed position with at least the point and sharp edge within the handle member or in an open position with the blade extended in the line of the handle, and whereby said tube may be retained by said spring either in a closed position filling the arcuate depression and conforming to the elliptical outline of the handle or in an open position with the tube extended at an acute angle to the handle.

3. An emergency tracheotomy kit comprising a handle, a blade pivotally terminally supported at one end of said handle, an open tube pivotally supported at the other end of said handle, means for maintaining said blade either in closed position within said handle or in open position extending longitudinally of said handle, and means for maintaining said tube either in closed position along an outer edge of said handle or in open position at an acute angle with said handle.

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128—351; 30—155; 7—11