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Cook

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[54] **SURGICAL HEMOSTATIC LIGHT**

[76] Inventor: **Galen B. Cook,** 1028 Marchetta Lane, Pebble Beach, Calif. 93953

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[51] **Int. Cl.** **A61b 17/12,** A61b 1/06

[58] **Field of Search** ..... 128/6, 9, 11, 20, 128/23, 303 R, 325, 396, 397, 398

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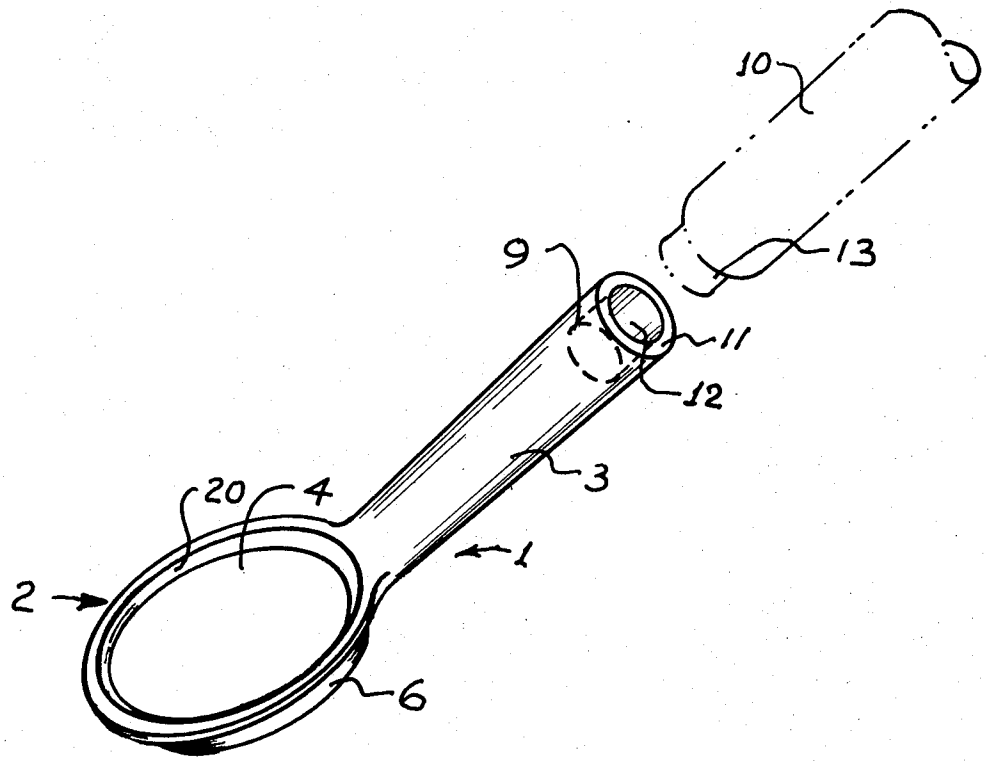
Primary Examiner—Channing L. Pace

Attorney—Philip B. Polster et al.

[57] **ABSTRACT**

A surgical device provides sterile compression of the capillary blood vessels about the periphery of an operating area. The device is a circular or elliptical ring with an outwardly extending arm adapted to receive an illumination source. The ring is rigid and preferably transparent. The under-surface of the ring compresses a narrow zone of skin about the operating area. The illumination source functions both to illuminate the operating area and as a handle for the device.

4 Claims, 4 Drawing Figures



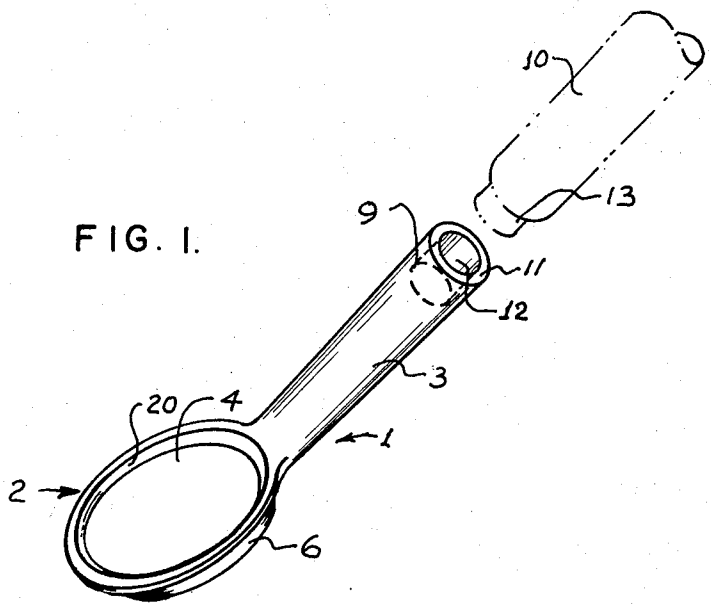


FIG. 1.

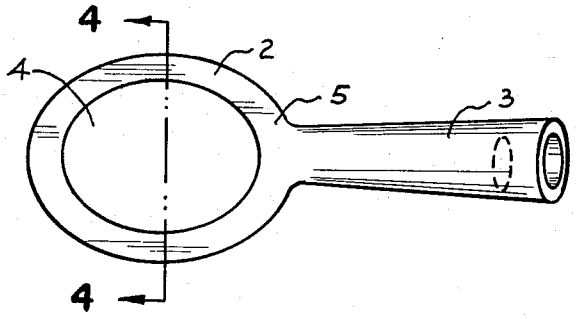


FIG. 2.

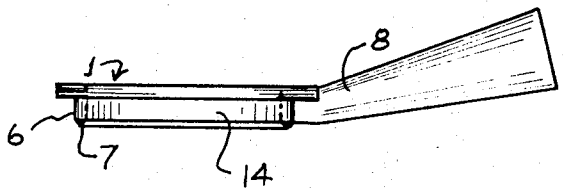


FIG. 3.

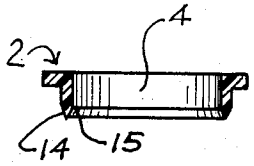


FIG. 4.

INVENTOR:

GALEN B. COOK.

BY : Polster and Polster

SURGICAL HEMOSTATIC LIGHT

BACKGROUND OF THE INVENTION

This invention relates to hemostatic devices. While the invention is described with particular application to a low cost device having utility in the minor or cosmetic surgical fields, those skilled in the art will recognize the wide applicability of my invention in other surgical procedures.

The surgeon, dermatologist, and general practitioner of medicine frequently find it necessary to biopsy small skin lesions. Although generally referred to as minor surgery, these operations are not without complications. Light conditions, in many instances, are less than ideal. Additionally, the surgical assistant is generally a nurse or paramedical assistant rather than another physician.

My invention affords excellent illumination and a relatively blood-free operating field when utilized in limited incisional or excisional skin surgery. The device permits a paramedical assistant or nurse with little or no surgical training to aid in the surgical procedure by maintaining hemostasis and illumination. Both hemostasis and illumination are maintained without encumbering the sterile field of the operation. The device is pre-sterilized and handled remotely resulting in little need for donning of sterile surgical gloves by operating assistants.

One of the objects of this invention is to provide a low cost surgical aid.

Another object of this invention is to provide a surgical device that is disposable after a single use.

Still another object of this invention is to provide improved lighting conditions during minor surgery.

Yet another object of this invention is to provide a device which aids in controlling bleeding and thus gives a relatively bloodless zone during surgical procedures.

Other objects will become apparent to those skilled in the art in light of the following description and accompanying drawings.

SUMMARY OF THE INVENTION

In accordance with this invention, generally stated, a surgical hemostatic device is provided with an integrally arranged connector adapted to receive an illumination source. The device has a lower surface which is placed about a surgical area. As manual pressure is applied, the device compresses the skin, restricting blood flow at the surgical site.

The preferred embodiment is an elliptical, plastic ring which permits ready access to the sterilized surgical site through the ring aperture. An outwardly extending arm is attached to the ring and has a simply constructed fitting for connecting a light source to the ring. The plastic material diffuses light rays emanated by the light source and illuminates the surgical area exposed within the ring. The device is packaged in a sterilized state, making it available for immediate use.

BRIEF DESCRIPTION OF THE DRAWINGS

In the drawings,

FIG. 1 is a view in perspective of an illustrative embodiment of surgical hemostatic light of this invention;

FIG. 2 is a top plan view of the device illustrated in FIG. 1;

FIG. 3 is a view in side elevation of the device shown in FIG. 1; and

FIG. 4 is a sectional view taken along the line 4—4 of FIG. 2.

DESCRIPTION OF THE PREFERRED EMBODIMENT

Referring now to FIG. 1, reference numeral 1 indicates one illustrative embodiment of hemostatic light device of this invention. Light device 1 includes a body part 2, an integrally constructed connector 3 and a detachably mounted pen-light 10 which serves as the illumination source for my invention.

Body part 2, in the embodiment illustrated, is an elliptical ring 20 having a longitudinal opening 4 through it. Designs for body part 2 other than the ellipse illustrated work well, and commercial applications of my invention may assume various forms. Ring 20 has a relatively broad upper surface 5, a side wall 6 and a hemostatic edge 7. Surface 5 serves several functions. It splays light from pen-light 10 along the perimeter of opening 4 and provides structural rigidity for body part 2. Both features are important and are explained fully hereinafter.

Side wall 6 extends downwardly from surface 5, and its material thickness delineates an exterior wall 14 and an interior wall 15. The hemostatic edge 7 is formed by chamfering walls 14 and 15 to convergence, as is best illustrated in FIG. 4. I have found that molded plastic holds an edge sufficiently so that additional chamfering operations are not required. However, where body part 2 is constructed from other materials, additional operations may be required in order to provide edge 7 with hemostatic capabilities.

Connector 3 is constructed integrally with body part 2 and forms an arm-like member thereof, extending upwardly and outwardly from side wall 6. Connector 3 is conical in side elevation, narrowing near an end 8 at its attachment with side wall 6. Connector 3 has an end 9 adapted to receive pen-light 10. End 9 has a socket 12 in it, defined by an annular wall 11. Socket 12 is sized diametrically and runs into connector 3 for a depth sufficient to enable it to frictionally engage an end 13 of pen-light 10, to hold the two together during use but to permit them to be manually disengaged without undue effort and without damage to the pen-light.

Pen-light 10 in the embodiment shown is conventional and may be any one of several commercially available models. Preferably, it includes a high intensity bulb, also conventional, which has the effect of concentrating emitted light.

In the embodiment of the drawings, body part 2 and connector 3 are made of plastic, molded in one piece. The plastic is of a kind which tends to transmit light rays from pen-light 10 and diffuse them in the area defined by the body part 2. The light is carried along connector 3 and transferred to side wall 6 along the junction formed by the union of connector 3 and side wall 6. While some light is lost through exterior wall 14, a sufficient quantity is emitted through wall 15 to provide a zone of light over the operating area. If desired, the outer wall can be made opaque and reflective, as by coating or metalizing, but that is generally not necessary.

Hemostatic light 1 is packaged in a sterile condition. Pen-light 10 may be packaged separately, if desired, or only body part 2 need be supplied. In any event, the use of the combination is simple. Pen-light 10 is inserted manually into channel 12. Connector 3 is of sufficient

length to permit pen-light insertion without contamination of edge 7 or other areas of body part 2 that may come in contact with the field of operation. Once inserted, the pen-light and arm configuration provide a relatively long cantilever arm connected to hemostatic edge 7. Edge 7 is placed around the operating area and tightly held against the skin by applying pressure on the pen-light and arm combination. The force applied through edge 7 compresses the skin, exposes the operating area through opening 4, and acts to cut off the capillary blood vessels of the skin in that operating area.

The surgical assistant merely has to hold the body part 2 in place to provide both illumination of, and hemostasis in, the operating area. As this is accomplished remotely from the sterilized field of operation, the need for surgical glove use by the surgical assistant is diminished.

Numerous variations, within the scope of the appended claims, will occur to those skilled in the art in light of the foregoing description and accompanying drawings. For example, the design of body part 2 or connector 3 may vary. Thus, while an elliptical device was described with particularity, other shapes, exemplified by circular, rectangular, or triangular forms, work well. The length of connector 3 may be varied, as any length sufficient to permit use of the device without contamination of required sterile areas of body part 2 will suffice. The placement of connector 3 is a design choice. I prefer to have the connector positioned so as to be as unobtrusive as possible to the field of operation. Different materials may be used in the construction of the device. I prefer plastic because its low cost opens the door to a truly disposable surgical aid. Other materials are acceptable where disposability is not desirable. Metal may be used with another connector arrangement in order to provide direct illumination by the pen-light on the operating area, for example. Design of hemostatic edge 7 may be altered. A single chamfer works well, for example. Mere material thickness may be sufficient in some applications. Where the material utilized possesses sufficient inherent rigidity, the width of surface 5 may be diminished. These variations are merely illustrative.

I claim:

1. A surgical hemostatic light comprising:

an annulus having a top wall, a side wall extending downwardly from said top wall, and a bottom wall, said annulus having an opening from and between said top and said bottom walls, said opening being of sufficient size to permit biopsy of a predetermined surgical area, said bottom wall having at least one edge completely surrounding said opening, said edge being adapted to restrict blood flow in the area surrounded by said opening;

an integrally formed arm extending radially outwardly from said annulus having a first end and a second end, said first end being attached to said annulus and said second end having an axially opening socket formed in it; and

a penlight removably mounted in said axially opening socket of said arm, said penlight and said arm defining a cantilever structure for applying force to the opening surrounding edge of said annulus, the annulus and arm being made of light-conducting material, and the light of the penlight being transmitted thereby to illuminate an area surrounded by said annulus.

2. The surgical hemostatic light of claim 1 wherein said bottom wall is formed by the material thickness of said side wall, said side wall having an inboard face adjacent said opening and an outboard face, at least one of said inboard and said outboard faces being chamfered so that it converges with the other of said inboard and said outboard faces.

3. The surgical hemostatic light of claim 2 wherein said top wall and said side wall are L-shaped in cross section.

4. A surgical hemostatic light comprising:

an annulus having a top wall, a side wall attached to said top wall and extending perpendicularly downwardly therefrom, and a bottom wall, said annulus having an opening from and between said top and said bottom walls, said bottom wall comprising the material thickness of said side wall, said side wall having an inboard face adjacent said opening and an outboard face, one of said inboard and outboard faces being chamfered to meet the other of said inboard and said outboard faces along an end of said side wall opposite attachment of said side wall and said top wall thereby defining a blood restricting edge about said opening, said opening being of sufficient size to permit biopsy of a predetermined surgical area;

an integrally formed arm extending radially outwardly from said annulus having a first end and a second end, said first end being attached to said annulus along said side wall and said second end having an axially opening socket formed in it; and

a penlight removably mounted in said axially opening socket of said arm, said penlight and said arm defining a cantilever structure for applying force to said blood restricting edge of said annulus, the annulus and arm being made of light-conducting material, and the light of the penlight being transmitted thereby to illuminate an area surrounded by said annulus.

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