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A. M. STAYER

3,452,754

DOUBLE SCALPEL FOR REMOVAL OF SCAR TISSUE

Filed Aug. 19, 1966

FIG_2

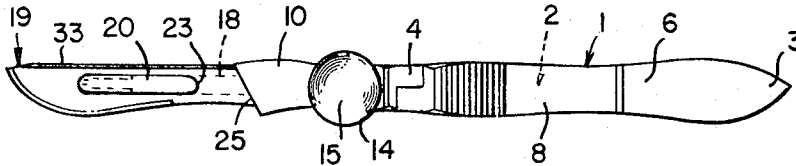


FIG_3

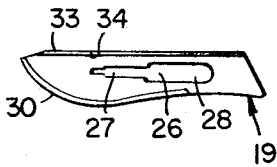


FIG_4

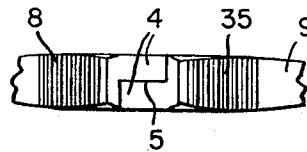


FIG_1

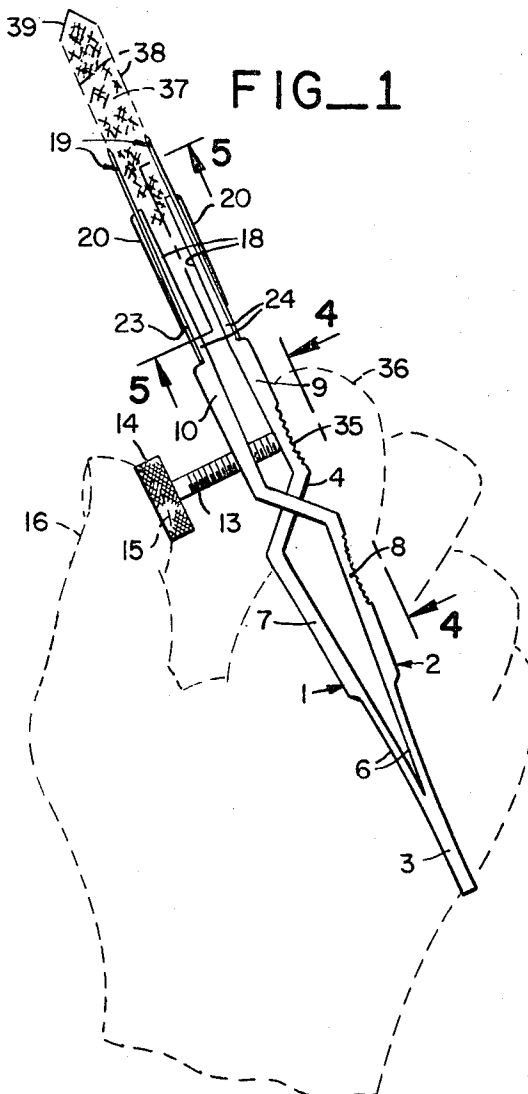


FIG_5

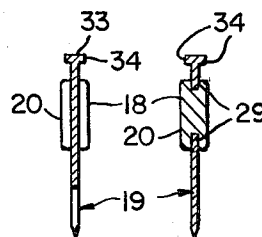
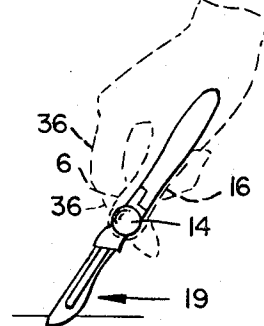


FIG_6



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DOUBLE SCALPEL FOR REMOVAL OF SCAR TISSUE

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2 Claims

ABSTRACT OF THE DISCLOSURE

A device for surgical use in removing scar tissue having a pair of scalpels removably supported on a handle in spaced side-by-side relation having adjusting means for spacing said scalpels different distances apart, the scalpels being arranged for simultaneous cutting through the skin along parallel lines at opposite sides of the scar tissue. The handle and adjusting means are positioned relative to the scalpels for comfortable and safe holding of the device in operating position in a hand of the surgeon.

This invention relates to scalpels, and has for one of its objects the provision of a double scalpel for use by surgeons in the removal of scar tissue.

Under present procedures, the scar resulting from the incision made by a surgeon in a first operation normally is relatively slight if the edges of the skin along opposite sides of the incision have been properly sutured following the operation and no complications have developed. There are no differences in contour between the edges of the skin along the line of the incision since they were produced at the same time by a single scalpel.

Many times it becomes necessary to perform one or more operations at substantially the same site, as in Cesarean operations, and the incisions are made along the line of the original incision, resulting in the formation of scar tissue, and with each repetition of the incision the width of the scar tissue increases, and may increase to an inch or more in width.

The normal operational procedure adopted for the removal of such scar tissue is to employ a single conventional scalpel and to cut through the skin along lines respectively disposed at opposite sides of the scar tissue. The skin between the corresponding ends of such lines is cut through and then the skin between the lines is then removed.

This procedure is difficult and unsatisfactory for the reason that the skin immediately following the cut made by the scalpel pulls away irregularly, there being scar tissue along one side of the incision and virgin tissue along the other side, and after the scar tissue is removed the edges of the skin to be drawn together by sutures are not complementary in linear contour nor are they straight. For this reason, an unsightly scar may be unavoidable and the difficulty of properly suturing or uniting the irregular edges of the virgin skin is greater than in the case of the initial single incision in virgin skin.

Surgeons have, from time-to-time, tried to overcome the above difficulties attendant upon removing scar tissue by attempting to hold a pair of scalpels in one hand and to make the incision along parallel paths at the same time. Obviously this is a difficult procedure and a hazardous one. The points of the blades of the scalpels must be positioned and held to cut the same depth at the same time. To so hold a pair of separate scalpels is awkward at best, and there is imminent danger of slippage of one or the other with bad results.

Conventional scalpels are of different sizes and in actual practice at the present time, relatively short rigid blades are releasably secured on one end of a handle. The cut-

ting edge itself may be up to approximately an inch in length and linearly convexly curved at the outer end of the blade to facilitate moving the blade through the skin with the pointed outer end extending through the skin and the blade at a substantial angle, such as approximately 60 degrees relative to the surface of the skin.

One of the objects of the present invention is to provide a double scalpel that is simple, strong, and easy to firmly and safely hold in one hand during the step of simultaneously cutting through the virgin skin along parallel lines at opposite sides of scar tissue in the operation of removing said tissue.

Another object is the provision of a double scalpel that is adapted to use conventional blades adopted by surgeons, and which double scalpel is provided with the same or similar means for securement of the blades thereto and for removal therefrom.

In this connection, it may be noted that the blades are normally used once and discarded, but the handle for the blades must be sterilized between uses, and another object of the invention is the provision of a holder that is as readily and efficiently sterilized as a single scalpel.

A still further object of the invention is the provision of a double scalpel provided with simple means for quickly adjusting the spacing between the cutting edges of the blades to accurately cut along parallel lines at opposite sides of the scar tissue, and which double scalpel is adapted to be readily held in one hand of the surgeon with the thumb and forefinger of the hand holding the scalpel in opposed gripping relation at points adjacent to said blades, with means provided at said points for securely holding the double scalpel against slippage relative to the scalpel-gripping fingers.

An added object of the invention is the provision of a double scalpel having separate arms in generally side-by-side relation and yieldable means at one of their ends connected therewith for yieldably urging the opposite ends of said arms toward each other at all times, and which opposite ends have the cutting blades removably secured thereto, with adjusting means disposed between the arms adjacent to such blades for spacing said blades and opposite ends of said double scalpel different distances apart and for holding them in adjusted position. The said adjusting means is in a position for tight frictional engagement with the thumb of the hand of a person gripping said double scalpel during an operation.

Another object of the invention is the provision of a double scalpel constructed to be firmly and comfortably held in the hand of a surgeon in a manner to insure the precision essential to accurate cutting through the skin to a uniform depth along separate spaced lines and to accurately follow a precise path during the cutting, and which scalpel structure is such as to approximate the manner in which a single scalpel is held.

Other objects and advantages will appear in the description and in the drawings.

In the drawings, FIG. 1 is a top plan view of the double scalpel in a position illustrating the position of the blades relative to scar tissue in the operation of cutting through the skin to remove such tissue, the hand of the surgeon being indicated in broken lines between the viewer and the scalpel.

FIG. 2 is a side-elevational view of the scalpel of FIG. 1 as seen from the left-hand side of the latter as viewed in FIG. 1.

FIG. 3 is a side elevation of one of the scalpel blades removed from one arm of the holder shown in FIGS. 1 and 2.

FIG. 4 is a fragmentary side-elevational view of a portion of the holder as seen from line 4—4 of FIG. 1.

FIG. 5 is an enlarged cross-sectional view taken along line 5—5 of FIG. 1.

FIG. 6 is a greatly reduced side-elevational view of the double scalpel approximately in a position for use, the holding hand being shown in dotted lines.

In detail, the blade holding body of the scalpel illustrated comprises a pair of elongated arms generally designated 1, 2, which arms are rigidly connected at one of their ends by an end piece 3. Their connected ends may be called "inner" ends since their opposite, or outer ends, are not connected.

Arms 1, 2 are formed with angularly extending portions 4 intermediate their ends where they are cut away along opposite edges to a line 5 (FIG. 4) to cross each other. Each of said arms is rigid except for a relatively thin section 6 adjoining the end piece 3 and these sections are of flexible spring material that are under tension for continuously springing apart the parts 7, 8 of said arms, extending to the cut out portions whereby the outer end sections 9, 10 will automatically be under yieldable tension for movement toward each other. In the absence of any stop means between the outer end sections 9, 10, said sections would be yieldably held substantially in engagement with each other, with the parts 7, 8 extending divergently apart from the end piece 3, and pressure against the opposite outer sides of the spaced or divergent ends of said parts 7, 8 will move the outer sections apart.

Threadedly extending through the outer section 10 of arm 2 and part 8 is a screw 13, having a circular head 14 on its outer end spaced outwardly to one side of the pair of arms, and the other or inner end of said screw abuts the inner side of the outer end section 9 of arm 1. This screw and its abutting end portion are adjacent to the crossing portions 4. Head 14 is preferably about .7 of an inch in diameter, and its outwardly facing surface 15 is concave so as to form a shallow recess for approximately following the convex contour of the pulp on the thumb 16, the latter being indicated in broken lines in FIG. 1. Head 14 also provides means for manually rotating screw 13. Upon rotation of the latter in one direction the portion of the screw between sections 9, 10 will be extended to move said sections apart, while upon opposite rotation of the screw, the spring sections 6 will move the sections 9, 10 toward each other according to the degree of extension of the screw. At any time, however, the person holding the device may quickly spread the sections 9, 10 by manually pressing together the divergent ends of portions 7, 8, and upon release, they will automatically move toward each other until the section 9 abuts the inner end of screw 13.

The outer ends of the sections 9, 10 are the blade holding ends, and these may be designated 18 (FIGS. 1, 2, 5) and each has a conventional scalpel blade 19 removably secured thereto. The structure of said blade holding ends 18 of arms 1, 2 is conventional, as are blades 19, said ends 18 being rigid and in longitudinal outward extension of sections 9, 10 and substantially narrower than blades 17.

Each end 18 is formed along its opposite upper and lower edges (assuming the double scalpel is horizontal as seen in FIG. 2) with a thickened outer end section 20 extending from the outermost end of each end 18 to a point 23 (FIGS. 1, 2) and the end 18 is then of reduced thickness at 24 (FIG. 1) for a short distance to an angularly extending shoulder 25 (FIG. 2) that extends slantingly downwardly and rearwardly in a direction generally away from the thickened portion or section 20.

Each blade 19 is formed with a slot 26 extending longitudinally of the blade, approximately one half of its length, extending from the outer end of the blade, being narrower, as seen at 27 in FIG. 3, than the remaining half 28. The rear end of each blade 19 is slanted to correspond to the slant of shoulder 25.

The upper and lower edges of the thickened portion 20 of each section 18 are formed with parallel upwardly and

downwardly opening grooves 29 (FIG. 5). The bottoms of these grooves are spaced apart approximately the distance between the edges of the narrow end portion 27 of slot 26 in each blade 19, while the vertical width of each portion 20 is approximately equal to the distance between the edges of the wider end portion 28 of each slot 26.

It is pertinent to note that the thickened portions 20 project oppositely outwardly of the outer ends of the blade holding portions 18 relative to the oppositely outwardly facing surfaces of the thinned sections 24 (FIG. 1). This is so that the blades 19 may be attached and removed from the oppositely outwardly facing sides of the pair of portions 18.

Each blade 19 has a sharpened edge 30 (FIG. 3) that extends convexly from a point even with the back 33 of the blade, each such back being straight and defined by oppositely outwardly extending flanges 34 (FIG. 5).

In securing a blade onto the outer end of each end portion 18, the blade is positioned against the outer side of portion 18 and the inner end edges of the portion 27 of slot 26 are inserted in the outer ends of grooves 29. The rear portions of each blade is sprung slightly outwardly relative to the forward or outer end portion when in this position, and upon sliding each blade rearwardly the yieldable tension may slightly increase until the portion of the blade at the rear end of the wider portion 28 of slot 27 clears the thickened rear end of portion 18, and at this point the part of blade 19 between the slanted rear edge thereof and the rear end of slot 26 will snap against the lateral outer side of the thinned portion 24 of the arm and the blade will be rigidly held against movement in any direction.

To remove the blade, the rear end portion must be sprung out outwardly of the thinned portion 24 adjacent thereto and pushed forwardly until the edges of the forward portion 27 of slot 26 clears the grooves 29.

The outer side of the portion 9 of arm 1 is formed with a shallow concavity 35 that may be slightly roughened, as by ribs (FIGS. 1, 4) at a point about opposite to the point where the outer end of screw 13 engages said portion 9. This concavity extends transversely across the outer side of portion 9 and is in a position for receiving the convexly curved portion of index finger 36 of the hand in approximately opposed relation to the thumb when the latter is in engagement with the screw head 14.

When in use, the arms 9, 10 outwardly or forwardly of the crossed portions 4 will be tightly held against separation by the combined tension of sections 6 and the gripping effect of the thumb and forefinger of the hand respectively engaging the outer surface of head 14 and the concave surface 35 of arm portion 9.

The parts 7, 8 and the connector 3 will normally extend into the palm portion of the hand with the part 3 engaging the palm side of the hand along the edge extending from the little finger toward the wrist, or the abductor minimi digiti.

When so held, the double scalpel cannot accidentally twist in the hand, nor slip, but every movement thereof is under full control of the hand and braced for application of the desired force to the cutting edges. Furthermore, the surgeon may instantly spread the blades for cleaning or wiping them by transferring pressure to the portions 7, 8, after which the blades will automatically resume their correct spacing when the pressure against portions 7, 8 is released.

In an operation, the scar tissue is indicated at 37 in FIG. 1. The blades are adjusted to follow lines 38 adjoining opposite sides of the tissue. A V-cut 39 is made through the skin at one end of the strip of tissue and the two scalpels of the device are then inserted through the skin at the divergent ends of the V-cut and the double scalpel is then drawn along lines 38 from one end of the scar tissue to the other to leave free edges of virgin skin along the cuts at opposite sides of the tissue. At the end of the cut, the skin may be similarly formed with a V-cut

at the completion of the operation and the scar tissue is then removed and the free edges of virgin skin sutured together, after which the scar, if any, will be the same as where a single incision has been made in virgin skin.

The double scalpel is normally held in approximately the position shown in FIG. 6 during the cutting movement along lines 38.

Where plastic surgery is performed to remove displeasing scars, the double scalpel may be smaller, and the blades are smaller. The conventional blades come in different sizes and contours, but follow the same structure for attachment and removal from a handle, as above described. Obviously the blades are not used for slicing, since the thickened portion 18 projects from opposite sides of each blade, nor is there a handle for gripping by the fingers of a hand in the same manner as where a single handle on a knife is held in the hand for slicing.

It is obvious that certain modifications and changes may be made in the invention as described, without departing from the spirit of the invention or the scope of the appended claims.

I claim:

1. A double scalpel for use in the removal of scar tissue, comprising:

- (a) a pair of elongated arms in generally side-by-side relation in a single plane;
- (b) means connecting said arms at one of their ends, and their opposite ends being movable toward and away from each other;
- (c) blade holding means on said opposite ends of said arms for removably securing a scalpel blade, having a cutting edge to each arm in a position with the cutting edges of the blades so secured facing to the same side of said plane;
- (d) arm spacing means connected with one of said arms and in engagement with the other manually actuatable for spacing said opposite ends of said arms different distances apart for simultaneously cutting through the skin by said cutting edges on said blades along opposite sides of a strip of scar tissue when such scalpel blades are secured to said opposite ends of said arms;
- (e) finger engageable means rigid with the arms of said pair for gripping between the oppositely positioned thumb and forefinger of a hand of a surgeon for firmly holding said double scalpel during cutting the skin along said opposite sides of a strip of scar tissue for removal thereof;
- (f) said arms crossing each other at a point intermediate their ends providing inner end portions including said one of their ends at one side of said point and outer end portions including said blade holding means, said inner end portions having spring sections under constant tension for continuously yieldably urging said outer end portions in a direction toward each other;
- (g) said arm spacing means including a screw threadedly connected with one of said outer end portions rotatable for axial movement thereof changing the spacing between said outer end portions and for holding the other arm at each of its different distances from said one arm when said screw is stationary;
- (h) a head on the end of said screw outwardly of the pair of outer end portions for rotating said screw to change the spacing between said outer end portions;
- (i) said finger engageable means including the outer surface of said head relative to said screw, and said outer surface being concave to receive the pulp of the thumb.

2. A double scalpel for use in the removal of scar tissue, comprising:

- (a) a pair of elongated arms in general side-by-side relation in a single plane;

- (b) means connecting said arms at one of their terminal ends only supporting them for movement of their opposite ends toward and away from each other;
- (c) blade holding means on said opposite ends of said arms for removably securing a scalpel blade, having a cutting edge, to each arm in a position with the cutting edges of the blades so secured facing to the same side of said plane;
- (d) arm spacing means connected with one of said arms, and at a fixed position intermediate the ends of said arm, and in engagement with the other, manually actuatable for spacing said opposite ends of said arms different distances apart for simultaneously cutting through the skin by said cutting edges on said blades along opposite sides of a strip of scar tissue when such scalpel blades are secured to said opposite ends of said arms;
- (e) finger engageable means respectively on the arms of said pair in positions adjacent said opposite ends of said arms for gripping between the oppositely positioned thumb and forefinger of a hand of a surgeon for firmly holding said double scalpel during cutting the skin along said opposite sides of a strip of scar tissue for removal thereof;
- (f) a scalpel blade secured by said blade holding means on each of said opposite ends of said arms and against one of the oppositely outwardly facing sides of said opposite ends relative to a point intermediate them providing a pair of scalpel blades on said opposite ends of said arms, said blades having cutting edges projecting beyond said opposite ends outwardly thereof with said cutting edges facing in the same direction to one side of said plane;
- (g) means for removably securing said blades against said oppositely outwardly facing sides whereby said blades may be removed and replaced from the oppositely outwardly facing sides of said arms irrespective of the degree of spacing between the outer ends of said arms;
- (h) said means connecting one of said ends of said arms including a portion of at least one of said arms continuously yieldably urging one of said opposite ends of said arms toward each other, and
- (i) said arm spacing means including a screw threadedly extending through said one of said arms for movement thereof to different degrees of extension between said arms upon rotation thereof whereby said opposite ends of said arms will move different distances apart corresponding to said different degrees of extension, and a head on said screw for manual engagement for rotating said screw for effecting said different degrees of extension thereof and the different spacings of said arms, and said head having an axially outwardly facing surface free for engagement by said thumb when said double scalpel is held during said cutting.

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