

(19) World Intellectual Property Organization
International Bureau



(43) International Publication Date
27 December 2007 (27.12.2007)

PCT

(10) International Publication Number
WO 2007/149232 A4

- (51) International Patent Classification:
A61B 17/064 (2006.01)
- (21) International Application Number:
PCT/US2007/013496
- (22) International Filing Date: 8 June 2007 (08.06.2007)
- (25) Filing Language: English
- (26) Publication Language: English
- (30) Priority Data:
11/472,643 22 June 2006 (22.06.2006) US
- (71) Applicant (for all designated States except US): **THE CLEVELAND CLINIC FOUNDATION** [US/US]; 9500 Euclid Avenue, Cleveland, OH 44195 (US).
- (72) Inventor: **BERKY, Craig, B.**; 5700 Willean Drive, Milford, OH 45150 (US).
- (74) Agent: **WESORICK, Richard, S.**; Tarolli, sundheim, Covell & Tummino L.L.P., 1300 East Ninth Street, Suite 1700, Cleveland, OH 44114 (US).
- (81) Designated States (unless otherwise indicated, for every kind of national protection available): AE, AG, AL, AM,

AT, AU, AZ, BA, BB, BG, BH, BR, BW, BY, BZ, CA, CH, CN, CO, CR, CU, CZ, DE, DK, DM, DO, DZ, EC, EE, EG, ES, FI, GB, GD, GE, GH, GM, GT, HN, HR, HU, ID, IL, IN, IS, JP, KE, KG, KM, KN, KP, KR, KZ, LA, LC, LK, LR, LS, LT, LU, LY, MA, MD, ME, MG, MK, MN, MW, MX, MY, MZ, NA, NG, NI, NO, NZ, OM, PG, PH, PL, PT, RO, RS, RU, SC, SD, SE, SG, SK, SL, SM, SV, SY, TJ, TM, TN, TR, TT, TZ, UA, UG, US, UZ, VC, VN, ZA, ZM, ZW.

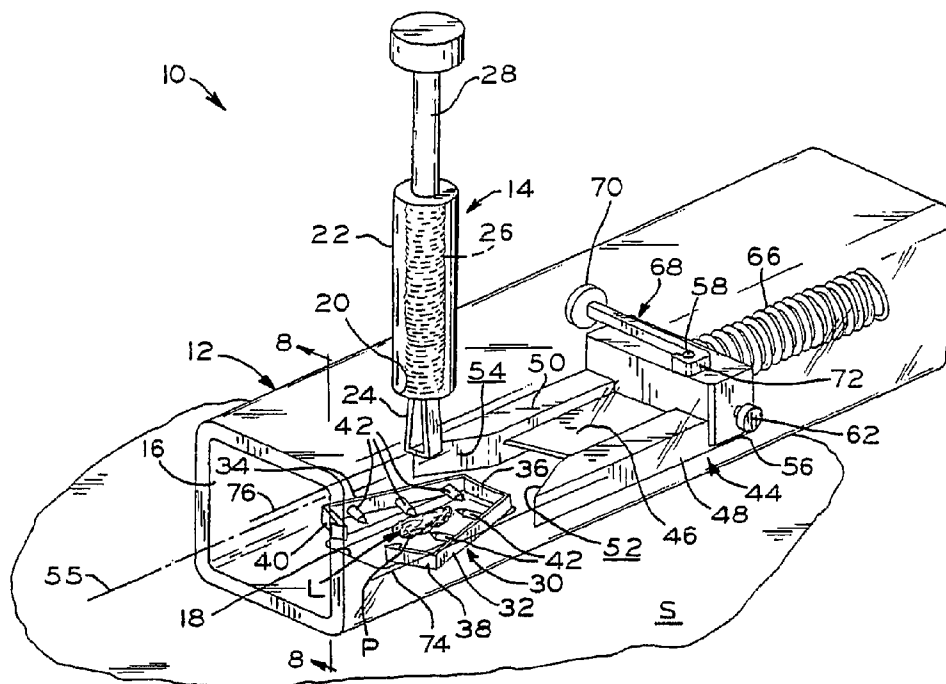
(84) Designated States (unless otherwise indicated, for every kind of regional protection available): ARIPO (BW, GH, GM, KE, LS, MW, MZ, NA, SD, SL, SZ, TZ, UG, ZM, ZW), Eurasian (AM, AZ, BY, KG, KZ, MD, RU, TJ, TM), European (AT, BE, BG, CH, CY, CZ, DE, DK, EE, ES, FI, FR, GB, GR, HU, IE, IS, IT, LT, LU, LV, MC, MT, NL, PL, PT, RO, SE, SI, SK, TR), OAPI (BF, BJ, CF, CG, CI, CM, GA, GN, GQ, GW, ML, MR, NE, SN, TD, TG).

Published:
— with international search report
— with amended claims

(88) Date of publication of the international search report:
29 January 2009

Date of publication of the amended claims: 2 April 2009

(54) Title: SKIN LESION EXCISER AND SKIN-CLOSURE DEVICE THEREFOR



(57) Abstract: A device for excising tissue and closing a wound that results from excision of the tissue includes structure defining an aperture into which tissue to be excised is exposed. The device also includes a cutting member for excising the tissue, a closure member for closing the wound, and an actuatable drive member associated with the structure. The drive member is actuatable to move the cutting member relative to the aperture for excising the tissue that is exposed in the aperture and for closing the wound with the closure member.

WO 2007/149232 A4

AMENDED CLAIMS
received by the International Bureau on 09 February 2009 (09.02.2009)

Having described the invention, the following is claimed:

1. A closure member for clamping tissue adjacent a wound, the closure member comprising:

a planar body portion including non-degradable first and second retaining portions and at least one degradable portion that connects the first and second retaining portions, the closure member having an open condition in which the degradable portion spaces the first and second retaining portions apart from one another so that the tissue to be clamped may be placed between the first and second retaining portions, the closure member having a closed condition in which the degradable portion engages the first and second retaining portions to clamp the tissue between the first and second retaining portions, and the body portion of the closure member being substantially planar in both the open and closed conditions;

a first set of tines that extends outwardly from the first retaining portion;
and

a second set of tines that extends outwardly from the second retaining portion;

the first and second sets of tines engaging the tissue to secure the body portion to the tissue when the closure member is in the closed condition.

2. The closure member of Claim 1, wherein each of the first and second sets of tines includes multiple tissue engaging members.

3. The closure member of Claim 1, wherein the first and second sets of tines are located within a plane of the body portion.

4. The closure member of Claim 1, wherein the first and second sets of tines are positioned relative to one another so as to interdigitate when the closure member is in the closed condition.

5. The closure member of Claim 1, wherein the degradable portion includes first and second engagement channels, the first engagement channel selectively engaging the first retaining portion concurrently with the second engagement channel selectively engaging the second retaining portion to place the closure member in the closed condition.

6. The closure member of Claim 1, wherein the degradable portion includes structure for engaging the first and second retaining portions to lock the closure member in the closed condition.

7. The closure member of Claim 1, wherein the degradable portion is a first degradable portion and the closure member also includes a second degradable portion, the first degradable portion connecting a first end of the first retaining portion to a first end of the second retaining portion and the second degradable portion connecting a second end of the first retaining portion to a second end of the second retaining portion.

8. The closure member of Claim 7, wherein each of the first and second ends of the first and second retaining portions includes a yield zone adapted to permit the first and second retaining portions to move relatively laterally from the open to the closed condition upon respective engagement of the first and second ends of the first and second retaining portions with the first and second engagement channels of the first and second degradable members.

9. The closure member of Claim 7, wherein an oblong opening is defined in the closure member when the closure member is in the open condition, the oblong opening being adapted for accepting tissue and having a length that is defined between the first and second degradable portions and a width that is defined between the first and second retaining portions, the length of the oblong opening being greater than the width of the oblong opening.

10. The closure member of Claim 1, wherein the degradable portion is formed from a material that degrades after a predetermined time period to release the closure member from the tissue.

11. The closure member of Claim 1, wherein the body portion remains planar during movement between the open and closed conditions.

12. A closure member for clamping tissue adjacent a wound, the closure member comprising:

a planar body portion including first and second retaining portions and at least one resilient portion that connects the first and second retaining portions, the closure member having a closed condition in which the resilient portion biases the first and second retaining portions toward one another to clamp the tissue therebetween, the closure member having an open condition in which the first and second retaining portions are held apart so that the tissue to be clamped can be placed between the first and second retaining portions, the body portion of the closure member being substantially planar in both the open and closed conditions;

a first set of tines extending outwardly from the first retaining portion; and
a second set of tines extending outwardly from the second retaining portion;

the first and second sets of tines engaging the tissue to secure the body portion to the tissue when the closure member is in the closed condition.

13. The closure member of Claim 12, wherein each of the first and second sets of tines includes multiple tissue engaging members.

14. The closure member of Claim 12, wherein the first and second sets of tines are located within a plane of the body portion.

15. The closure member of Claim 12, wherein the first and second sets of tines are positioned relative to one another so as to interdigitate when the closure member is in the closed condition.

16. The closure member of Claim 12, wherein the first and second retaining portions and at least one resilient portion are integrally formed.
17. The closure member of Claim 16, wherein the closure member is formed from a material that degrades after a predetermined time period to release the closure member from the tissue.
18. The closure member of Claim 12, wherein the first and second retaining portions and at least one resilient portion are separately formed and attached together to form the body portion.
19. The closure member of Claim 18, wherein at least one of the first and second retaining portions and the resilient portion is formed from a material that degrades after a predetermined time period to release the closure member from the tissue.
20. The closure member of Claim 12, wherein the resilient portion is a first resilient portion and the closure member includes a second resilient portion, the first resilient portion connecting a first end of the first retaining portion to a first end of the second retaining portion and the second resilient portion connecting a second end of the first retaining portion to a second end of the second retaining portion.
21. The closure member of Claim 20, wherein an oblong opening is defined by the closure member when the closure member is in the open condition, the oblong opening being adapted for accepting tissue and having a length that is defined between the first and second resilient portions and a width that is defined between the first and second retaining portions, the length of the oblong opening being greater than the width of the oblong opening.
22. The closure member of Claim 12, wherein the body portion remains planar during movement between the open and closed conditions.

23. A device for excising tissue and closing a wound resulting from excision of the tissue, the device comprising:

- a base structure defining an aperture for framing tissue to be excised;
- a cutting member for excising the tissue;
- a resilient closure member for closing the wound, having a closure member structure biased toward a closed position;
- a closure member retainer for overcoming the bias of the closure member and retaining the closure member in an open position before the tissue is excised;
- and
- an actuatable drive member associated with the base structure, the drive member being actuatable to move the cutting member relative to the aperture for excising the tissue that is framed by the aperture and for releasing the closure member from the open position to the closed position for closing the wound.

24. The device of Claim 23, wherein at least a portion of the closure member is formed from a material that degrades after a predetermined time period to release the closure member from the tissue.