

13

system) and can include at least one application, which supports operations according to embodiments of the present invention. The circuit can include a Tissue Protection Mode and Full Firing Mode Module 450. Finally, the data 456 represents the static and dynamic data used by the application programs 454, the operating system 452, the I/O device drivers 458, and other software programs that may reside in the memory 414.

While the present invention is illustrated, for example, with reference to the Module 450 being application programs in FIG. 14, as will be appreciated by those of skill in the art, other configurations may also be utilized while still benefiting from the teachings of the present invention. For example, the Module 450 and/or may also be incorporated into the operating system 452, the I/O device drivers 458 or other such logical division of the data processing system. Thus, the present invention should not be construed as limited to the configuration of FIG. 14 which is intended to encompass any configuration capable of carrying out the operations described herein.

The foregoing is illustrative of the present invention and is not to be construed as limiting thereof. Although a few exemplary embodiments of this invention have been described, those skilled in the art will readily appreciate that many modifications are possible in the exemplary embodiments without materially departing from the novel teachings and advantages of this invention. Accordingly, all such modifications are intended to be included within the scope of this invention as defined in the claims. In the claims, means-plus-function clauses, if used, are intended to cover the structures described herein as performing the recited function and not only structural equivalents but also equivalent structures. Therefore, it is to be understood that the foregoing is illustrative of the present invention and is not to be construed as limited to the specific embodiments disclosed, and that modifications to the disclosed embodiments, as well as other embodiments, are intended to be included within the scope of the appended claims. The invention is defined by the following claims, with equivalents of the claims to be included therein.

That which is claimed is:

1. A surgical stapler, comprising:

a stapler head having an internal anvil surface and opposed first and second elongate jaws with opposing proximal and distal end portions;

a staple cartridge held in at least one of the first and second jaws, the stapler cartridge configured to concurrently deliver staples from a plurality of parallel rows of staples from a length of the cartridge; and

a tissue protection segment held in a proximal portion of at least one of the first and second jaws, longitudinally aligned with the anvil and/or staple cartridge,

wherein, the jaws are configured to close against target tissue and, at stapler firing, staples are delivered to a subset of tissue held inside the jaws so that tissue held by the tissue protection segment adjacent the proximal end portion of the stapler is not stapled, and

wherein the tissue protection segment comprises at least one of: (a) an interior facing recess in at least one of the first and second jaws configured to inhibit tissue crushing for tissue held thereat when the jaws close; and (b) at least one resilient member configured to translate outward away from clamped tissue when the jaws close against tissue to thereby inhibit tissue crushing for tissue held thereat when the jaws close.

14

2. The stapler of claim 1, wherein the tissue protection segment is longitudinally spaced apart from staples held in the staple cartridge.

3. The stapler of claim 1, wherein the tissue protection segment is formed by the stapler cartridge.

4. The stapler of claim 1, wherein the tissue protection segment is defined by at least one inner surface of the first and/or second jaw of the stapler head.

5. The stapler of claim 1, wherein the jaws have a straight configuration arranged to be substantially parallel with or axially aligned with a centerline of a shaft extending from the staple head, and wherein at least one of the jaws has an arched leading edge portion.

6. The stapler of claim 1, wherein the tissue protection segment comprises the interior facing recess, and wherein the recess is formed in an internal surface of at least one of the first and second jaws and is configured to inhibit tissue crushing for tissue held thereat when the jaws close, and wherein the first and second jaws at the recess have an internal open depth that is between about 30 mm to about 100 mm and define a wider space when the stapler is closed and fires than a space between the first and second jaws in a staple delivery part of the staple cartridge.

7. The stapler of claim 1, wherein the tissue protection segment comprises the at least one resilient member configured to translate transversely outward toward a respective outerwall of an overlying jaw when the jaws close against tissue to thereby inhibit tissue crushing for tissue held thereat when the jaws close, wherein the at least one resilient member compresses to a smaller size when the stapler is closed than when open.

8. The stapler of claim 1, wherein the tissue protection segment has a length of between about 10-30 mm.

9. The stapler of claim 1, wherein the stapler cartridge is configured to deliver staples from a forward portion having a length of between about 30-80 mm.

10. The stapler of claim 1, further comprising a cutting member configured to extend and retract from one of the first or second jaws, wherein the cutting member is configured to cut only tissue adjacent the stapled tissue held against the staple cartridge.

11. The stapler of claim 10, wherein the cutting member is configured to pivotably translate upward or downward to be aligned with an axially extending centerline of the stapler head to cut tissue between two adjacent stapled rows of tissue.

12. The stapler of claim 1, wherein the tissue protection segment comprises a scalloped interior-facing surface.

13. The stapler of claim 12, wherein the scalloped interior-facing surface bounds a zone adapted to compress tissue held thereat when the stapler is closed and fired, and wherein the scalloped surface is recessed relative to cooperating surfaces of the anvil and staple cartridge when the jaws are closed.

14. The stapler of claim 1, wherein, when the jaws close against target tissue held by the tissue protection segment adjacent the proximal end portion of the stapler, the tissue thereat is held snugly without introducing undue compressive injury.

15. The stapler of claim 1, wherein the tissue protection segment has a wider internal space when the stapler is closed and fires than a space between the first and second jaws in a staple delivery part of the staple cartridge.

16. A surgical stapler, comprising:  
a stapler head having opposed first and second elongate jaws with opposing proximal and distal end portions;  
a staple cartridge held in at least one of the first and second jaws, the stapler cartridge configured to concurrently