CLAIMS

1. A slider device (50) for selectively interlocking and unlocking complementary profiles of opposing tracks of a plastic zipper closure; the slider device comprising:

(a) a top member (90) with an opening end (76) and an opposite closing end (74);

(b) pair of spaced legs (96, 97) depending from the top member; the spaced legs defining an open volume (98) therebetween to allow for passage of the tracks therethrough and with the legs having terminal ends (101, 102) straddling the tracks;

(c) the top member having an internal surface (94) within the open volume between the legs; the internal surface including at least a first region (104) and a second region (106);

(i) the first region extending from the closing end partially along the internal surface of the top member; and

(ii) the second region being between the first region and the opening end;

(iii) the first region extending at a greater distance from the terminal ends of the spaced legs than the second region;

(d) internal surfaces (112, 113) spaced sufficiently close together to press the profiles into interlocking relationship as the slider device is moved in a closing direction (68) along the zipper closure leading with the opening end and trailing with the closing end;

(e) a separator plow (114) extending from the second region of the top member into the open volume between the legs; the separator plow being positioned to wedge between opposing tracks and unlock the profiles as the slider device is moved in an opening direction along the zipper closure leading with the closing end and trailing with the opening end; and

(f) the second region of the top member including an engagement surface (80) positioned to strike an end stop on at least one end of the zipper closure.

2. The slider device of claim 1 wherein the engagement surface is located between the separator plow and the first region.

3. The slider device of any one of claims 1 and 2 wherein the legs each having internal facing hooks (116, 117) at their respective terminal ends.

4. The slider device of claim 3 wherein the hooks extend an entire length of the slider device between the opening end and closing end.

5. The slider device of claim 1 wherein the engagement surface is a portion of the separator plow.

6. The slider device of claim 1 further including a leg engagement surface (118, 119) extending from an internal surface of each of the legs.

7. The slider device of claim 3 wherein the hooks extend from the opening end only a partial length of the slider device toward the closing end.

8. The slider device of claim 7 wherein the hooks extend only along the portions of the legs that are along the second region of the top member.

9. The slider device of claim 1 wherein the second region extends from the opening end.

10. The slider device of claim 1 further including a first pointed projection (128) extending from the engagement surface partially toward the closing end.

11. The slider device of claim 10 wherein:
    (a) the internal surface of the top member further includes a third region (130);
    (b) the third region extending from the opening end, with the second region being between the third region and the first region;
    (c) the third region extending at a greater distance from the terminal ends of the spaced legs than the second region.

12. The slider device of claim 11 wherein the third region and the first region extend a same distance from the terminal ends of the spaced legs.

13. The slider device of claim 11 wherein the third region and the first region extend a different distance from the terminal ends of the spaced legs.

14. The slider device of any one of claims 11-13 further including a second pointed projection (134) extending from the second region partially toward the opening end.

15. A slider zipper closure system (64) comprising:
    (a) a recloseable zipper closure (26) with complementary profiles (39, 41) of opposing tracks (38, 40) for interlocking and unlocking; the zipper closure having a first end and an opposite second end;
    (b) a first end stop (52) positioned at the first end of the zipper closure;
    (c) a second end stop (54) positioned at the second end of the zipper closure; and

(d) the slider device of claim 1 ~~a slider device (50) having a closing end (74) and an opposite opening end (76); the slider device~~ slidably positioned on the zipper closure between and engaging the first end stop and second end stop to selectively:

(i) unlock the complementary profiles as the slider device is moved along the tracks in an opening direction (66) leading with the closing end and trailing with the opening end; and

(ii) interlock the complementary profiles as the slider device is moved along the tracks in a closing direction (68) leading with the opening end and trailing with the closing end~~; and~~

~~(e) the slider device having a first end stop engagement surface (80) positioned inboard from the closing end and adapted to strike the first end stop~~.

~~16. The slider zipper closure system of claim 15 wherein the slider device includes:~~

~~(a) a top member (90);~~

~~(b) pair of spaced legs (96, 97) depending from the top member; the spaced legs defining an open volume (98) therebetween with passage of the tracks therethrough and with the legs having terminal ends (101, 102) straddling the tracks;~~

~~(c) the top member having an internal surface (94) within the open volume between the legs; the internal surface including at least a first region (104) and a second region (106);~~

~~(i) the first region extending from the closing end a partially along the internal surface of the top member; and~~

~~(ii) the second region being between the first region and the opening end;~~

~~(iii) the first region extending at a greater distance from the terminal ends of the spaced legs than the second region;~~

~~(d) internal surfaces (112, 113) spaced sufficiently close together to press the profiles into interlocking relationship as the slider is moved in the closing direction;~~

~~(e) a separator plow (114) extending from the second region of the top member into the open volume between the legs; the separator plow adapted to wedge between opposing tracks and unlock the profiles as the slider device is moved in the opening direction along the zipper closure leading with the closing end and trailing with the opening end; and~~

~~(f) the second region of the top member including the first end stop engagement surface (80) positioned to strike the first end stop, when the zipper closure has been unlocked.~~

~~17~~16. The slider zipper closure system of claim ~~16~~15 wherein the first end stop and the second end stop are each an inverted U-clip (56, 58).

~~18~~17. The slider zipper closure system of claim ~~17~~16 wherein the first end stop engagement surface is a portion of the separator plow.

~~19~~18. The slider zipper closure system of claim ~~17~~16 wherein the first end stop engagement surface is between the separator plow and the closing end.

~~20~~19. The slider zipper closure system of claim ~~17~~16 wherein the opening end of the slider device engages against the second end stop, when the zipper closure has been interlocked.

~~21~~20. The slider zipper closure system of claim ~~16~~15 wherein the first end stop and second end stop are each ultrasonic fins (60, 62) projecting above a top of the tracks.

~~22~~21. The slider zipper closure system of claim ~~21~~20 wherein the slider device further includes a first pointed projection (128) extending from the first end stop engagement surface partially toward the closing end and being able to dig~~ging~~ into the first end stop.

~~23~~22. The slider zipper closure system of claim ~~22~~21 wherein:

(a) the internal surface of the top member further includes a third region (130);

(b) the third region extends from the opening end, with the second region being between the third region and the first region; and

(c) the third region extends at a greater distance from the terminal ends of the spaced legs than the second region.

~~24~~23. The slider zipper closure system of claims ~~23~~ 22, wherein the third region and the first region extend a same distance from the terminal ends of the spaced legs.

~~25~~24. The slider zipper closure system of claims ~~23~~ 22, wherein the third region and the first region extend a different distance from the terminal ends of the spaced legs.

~~26~~25. The slider zipper closure system of claim ~~23~~ 22, further including a second pointed projection (134) extending from the second region partially toward the opening end and being able to dig~~ging~~ into the second end stop.

~~27~~26. A method operating a zippered flexible package having an openable and recloseable mouth; the method comprising:

(a) providing a zippered flexible package having a recloseable zipper closure at the mouth including opposing tracks with complementary profiles for interlocking and unlocking; the complementary profiles interlocking to close the mouth and unlocking to open the mouth; first and second end stops on opposite ends of the zipper closure; a slider device according to claim 1 located on the zipper closure; ~~the slider device having a closing end and an opposite opening end and a first end stop engagement surface positioned inboard from the closing end;~~ and

(b) opening the mouth by moving the slider device along the tracks leading with the closing end and trailing with the opening end to unlock the complementary profiles until the first end stop engagement surface strikes the first end stop.

~~28~~27. The method of claim ~~27~~26 wherein the step of striking the first end stop includes striking an inverted U-clip forming the first end stop.

~~29~~28. The method of claim ~~28~~27 further including closing the mouth by moving the slider device along the tracks leading with the opening end and trailing with the closing end to interlock the complementary profiles until the opening end of the slider device strikes an inverted U-clip forming the second end stop.

~~30~~29. The method of claim ~~27~~26 wherein the step of striking the first end stop includes digging a first pointed projection extending from the first end stop engagement surface partially toward the closing end into an ultrasonically formed fin forming the first end stop.

~~31~~30. The method of claim ~~30~~29 further including closing the mouth by moving the slider device along the tracks leading with the opening end and trailing

with the closing end to interlock the complementary profiles until a second pointed projection positioned inboard from the opening end digs into an ultrasonically formed fin forming the second end stop.