EYELET SETTING TOOL

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ABSTRACT

An eyelet setting tool is comprised of an elongate member having a first end and a second end. An eyelet splayed is coupled to the first end for splaying one end of an eyelet. A pressing member is coupled to the second end of the elongate member and is configured for pressing with a palm of a hand of a user to force the first end against the eyelet and to splay the end of the eyelet in contact with the eyelet splayed. The pressing member is of a size that is comfortable to the user when used to press the pressing member with the palm of the user’s hand to set the eyelet.
EYELET SETTING TOOL

BACKGROUND OF THE INVENTION

[0001] 1. Field of the Invention

[0002] The present invention relates generally to hand operated tools for setting eyelets and more particularly to an eyelet setting tool used for setting eyelets to paper products and the like in a manner that significantly reduces the sound normally associated with eyelet setting.


[0004] As scrapbooking has become a national phenomenon, various new products have been introduced to the market to embellish and customize scrapbook pages. No longer is it enough to simply insert one's photographs into an photo album. Scrapbook pages are now highly customized works of art that include various background papers, stickers, and text that accompany personal photographs to create an entire visual display. As such, various items that may have been known are used to embellish scrapbook pages to add to their customized look. One such embellishment is the use of colored eyelets that are attached to scrapbook pages to attach papers, ribbons, string, yarn or other items. A scrapbook page or to simply provide an interesting look and feel to a scrapbook page thorough the placement of such colored eyelets.

[0005] The tool presently used to set eyelets is an eyelet setting tool that is stricken on one end with a hammer to cause one end of the eyelet to splay out in order to secure the eyelet. Often it takes several hits to set each eyelet. As the popularity of adding eyelets to a scrapbook page has increased, the use of an eyelet setting tool has become more prevalent at scrapbooking events.

[0006] Scrapbooking events often involve the gathering of numerous individuals (25 to 100 or more) in a large room, such as a hotel conference room, where the individuals produce their album pages while socializing. Many of these events last for twenty-four hours or more. At such scrapbooking events, the use of typical eyelet setting tools results in constant hammering noise. To most individuals attending such scrapbooking events, this loud, persistent noise is not only annoying, but often significantly diminishes the individual's enjoyment of the event.

[0007] As such, there exists a need in the art to provide an eyelet setting tool that easily and quickly sets an eyelet with little or no perceivable noise to individuals in the vicinity.

SUMMARY OF THE INVENTION

[0008] An eyelet setting tool of the present invention is comprised of an elongate member having a first end and a second end. An eyelet splier is coupled to the first end for splaying one end of an eyelet. A pressing member is coupled to the second end of the elongate member and is configured for pressing with a palm of a hand of a user to force the first end against the eyelet and to splay the end of the eyelet in contact with the eyelet splier. The pressing member is of a size that is comfortable to the user when used to press the pressing member with the palm of the user's hand to set the eyelet.

[0009] The foregoing advantages and characterizing features will become apparent from the following description of certain illustrative embodiments of the invention. The above-described features and advantages of the present invention, as well as additional features and advantages, will be set forth or will become more fully apparent in the detailed description that follows and in the appended claims. The novel features which are considered characteristic of this invention are set forth in the attached claims. Furthermore, the features and advantages of the present invention may be learned by the practice of the invention, or will be obvious to one skilled in the art from the description, as set forth hereinafter.

BRIEF DESCRIPTION OF THE DRAWINGS

[0010] The following drawings illustrate exemplary embodiments for carrying out the invention. Like reference numerals refer to like parts in different views or embodiments of the present invention in the drawings.

[0011] FIG. 1 is a side view of an eyelet setting tool in accordance with the principles of the present invention;

[0012] FIG. 2 is a cross-sectional side view of the eyelet setting tool illustrated in FIG. 1;

[0013] FIG. 3 is a top view of the eyelet setting tool illustrated in FIG. 1;

[0014] FIG. 4 is a bottom view of the eyelet setting tool illustrated in FIG. 1;

[0015] FIGS. 5A and 5B are side and bottom end views, respectively, of an eyelet splier in accordance with the principles of the present invention;

[0016] FIGS. 6A and 6B are side and bottom end views, respectively, of an alternative embodiment of an eyelet splier in accordance with the principles of the present invention;

[0017] FIGS. 7A and 7B are side and bottom end views, respectively, of yet another embodiment of an eyelet splier in accordance with the principles of the present invention;

[0018] FIGS. 8A and 8B are first and second side views of a first embodiment of a hole punch in accordance with the principles of the present invention;

[0019] FIGS. 9A, 9B and 9C are first side, second side and distal end views of a second embodiment of a hole punch in accordance with the principles of the present invention;

[0020] FIG. 10 is a top view of a mat in accordance with the present invention; and

[0021] FIGS. 11 and 12 are side views of an eyelet setting tool of the present invention setting an eyelet according to the principles of the present invention.

DETAILED DESCRIPTION OF THE ILLUSTRATED EMBODIMENTS

[0022] Referring now to the drawings, FIG. 1 illustrates a tool, generally indicated at 10, for setting an eyelet in accordance with the principles of the present invention. The tool 10 is comprised of an elongate member 12 having a first end 14 and a second end 16. The elongate member 12 has a generally cylindrical configuration, but could have other geometries as desired. The elongate member 12 includes texturing 18 along a portion thereof to aid in grasping the elongate member 12 by a user. The texturing 18 provides a...
roughened surface to prevent slipping of the fingers of a user when grasping the elongate member 12.

[0023] An eyelet splayer, generally indicated at 20 is configured for coupling to the first end 14. In this embodiment (as will be shown in more detail), the eyelet splayer 20 is configured to be at least partially received within the first end 14 of the elongate member. That is, the eyelet splayer 20 has a proximal end 22 for being received within the first end 14 of the elongate member 12 and a distal end 24 configured for splaying one end of an eyelet when the distal end is pressed against the eyelet.

[0024] A pressing member 30 is coupled to the second end 16 of the elongate member and is configured for pressing with a palm of a hand of a user to force the first end 14 and thus the distal end 24 of the eyelet splayer 20 against an eyelet. The pressing member 30 is of a size that is comfortable to the user when used to press the pressing member 30 with the palm of the user’s hand to set an eyelet. That is, the surface area of the pressing member 30 upon which the palm of the user is placed is large enough so as to allow the user to firmly press the eyelet splayer 24 with sufficient force to set an eyelet while remaining comfortable to the user. Of course, if the surface area of the pressing member 30 were too small, the force required to set an eyelet would cause the pressing member to embed in the palm of the hand so as to impart pain to the user. The pressing member 30 of the present invention, however, is provided with a relatively large surface area so as to fit within the palm of a user’s hand and is of a generally oval or elliptical shape with rounded corners for grasping comfort. Of course, those of skill in the art will appreciate that other shapes and sizes of pressing members may be of equal utility without departing from the spirit and scope of the present invention.

[0025] As further illustrated in cross-section in FIG. 2, the elongate member 12, the elongate member 12 is coupled to the pressing member 30 by threaded engagement. That is, the proximal end 16 is provided with external threads and is threaded into a threaded bore 32 on the bottom of the pressing member 30. In order to provide adequate support and strength to the attachment of the elongate member 12 to the pressing member 30, a frustoconical protrusion 34 is provided on and depends from the bottom side 36 of the pressing member 30. The angle of the sides of the frustoconical protrusion 34 is approximately between 10 and 20 degrees from the longitudinal axis of the elongate member 12. The bore 32 extends into the frustoconical protrusion 34 and helps to retain the elongate member 12 while preventing any bending between the elongate member and the pressing member 30. A set pin 38 is fitted within an aperture that extends from the outside of the frustoconical protrusion 34 and engages the threads 40 of the elongate member 12 to prevent disengagement of the elongate member 12 from the pressing member 30.

[0026] The distal end 14 of the elongate member 12 defines a recess 42 therein. In this embodiment, the recess 42 is essentially a concentric bore that extends longitudinally into the distal end 14 of the elongate member 12. The diameter (or effective diameter) of the recess 42 is sized to receive a proximal end 44 of the eyelet splayer 20. The proximal end 44 of the eyelet splayer 20 is sized to slideably fit within the recess 42 in a close fitting arrangement. As such, at least a portion of the eyelet splayer 20 fits within the recess 42 when in use.

[0027] In this embodiment, the eyelet splayer 20 is formed from steel as is the elongate member 12. A permanent magnet 46 is positioned within the recess 42 at the bottom 48 thereof. The magnet 46 may be held in place with an adhesive and/or a retaining member 50, such as an o-ring abutting the exposed surface of the magnet 50 and the interior walls of the recess 42. The magnet 46 attracts and thus retains the eyelet splayer 20 within the recess 42 when the eyelet splayer 20 is inserted within the recess 42 as shown. To remove or replace the eyelet splayer 20, one simply pulls the eyelet splayer 20 from the recess 42 with sufficient force as to overcome the magnetic force between the magnet 46 and the proximal end 44 of the eyelet splayer 20. Of course, other releasable attachment mechanisms, such as the spring loaded ball/recess assemblies found on a typical ratchet/socket set.

[0028] The eyelet splayer 20 includes a centrally located abutment structure 52 that extends circumferentially around the perimeter of the eyelet setter. The abutment structure 52 has sufficient longitudinal length and circumferential size so as to resist shearing from the eyelet splayer 20 under load. In use, the abutment structure 52 abuts against the distal end 14 of the elongate member 12 and is prevented from crushing or otherwise deforming the magnet 46. The distal end 24 is provided with what is commonly referred to as a “flower” end. The distal end 24 is provided with a generally conically-shaped center protrusion 54. In use, the center protrusion 54 is positioned within the end of an eyelet to be set. As will be described in more detail, when sufficient force is placed upon the eyelet, the curvature of the distal end 24 causes the eyelet to splay or spread open. Continued force causes the eyelet end to essentially fold upon itself as its spreads to increase the effective diameter of the end being splayed.

[0029] FIGS. 3 and 4 illustrate top and bottom views, respectively of the eyelet setting tool 10. The pressing member 30 has a generally oval shape with a rounded contour. The Width W of the pressing member may be approximately 1.75 inches with a length L of approximately 2.75 inches. Such a size fits comfortably in the palm of an average sized hand of a user. Of course, the size and shape of the pressing member may vary as contemplated by the present invention. For example, the pressing member may be a spherical shape, a flat rectangular shape, a cylindrical shape, a circular shape or the like. As shown in FIG. 4, the elongate member 12 is generally concentric with the center of the pressing member 30.

[0030] Referring now to FIGS. 5A, 5B, 6A, 6B, 7A and 7B, there is illustrated three eyelet spayers 100, 110 and 120, respectively, in accordance with the present invention. Each eyelet splayer 100, 110 and 120 is configured to splay an eyelet of a different size. That is, each eyelet splayer 100, 110 and 120 has a proximal end portion 101, 111 and 121, respectively, that is of the same size to fit within a recess of an eyelet setting tool of the present invention. The distal end portions, 102, 112 and 122, of the eyelet spayers 100, 110 and 120, respectively, are of different diameters to accommodate eyelets of various sizes. As such, as the diameter increases, so does the size of the center protrusions, 103, 113 and 123 so as to cause eyelets of larger or smaller sizes to splay properly. Radial spaced ribs 104, 105, 106 and 107 are provided on the eyelet splayer 100 to further guide the eyelet as it is being splayed. Such ribs, are also shown with respect
to eyelet splayers 110 and 120. The centrally located abutment structure 108 is illustrated as having a hexagonal configuration. Of course, other geometric shapes could also be utilized.

[0031] Because the eyelet splier of the present invention can be removed from the tool, the present invention also includes a hole punch, generally indicated at 200, as shown in FIGS. 8A and 8B. The hole punch includes a proximal end portion 202 of a cylindrical shape and sized to fit within the distal end recess of the eyelet setting tool of the present invention. The hole punch may be formed from steel or other hard metal that may be retained within the tool of the present invention by magnetic or spring force as previously described. An abutment structure 204, similar to and generally in the same relative position as the abutment structure of the eyelet splayers previously illustrated herein. A frustoconically-shaped hole punch portion 206 depends from the abutment structure 204. The hole punch portion 206 defines a longitudinally extending bore 208 extending from the distal end 210 to the abutment structure 204. The interface 212 between the exterior sides of the hole punch portion 206 and the bore 210 form a sharpened circular edge having a diameter equal to the diameter of the bore 208. By placing longitudinal pressure, as with the eyelet setting tool of the present invention, upon the distal end 210 will cause the distal end 210 to cut into and through an engaging material, such as a sheet of paper. As a hole is formed in the material, the circular piece of material that is cut will enter the bore 208 at the distal end 212. If repeated hole punches are performed, each successive piece that enters the bore 208 will force adjacent pieces through the bore 208 until they emerge from the side opening 214 formed in the side of the hole punch portion 206. The side opening 214 is essentially a semicircular transverse cut through the side of the hole punch portion that extends to a point away from the distal end 210 so as to interrupt the circular cutting edge formed at the distal end 210. In addition, the remaining material of the hole cutting portion 206 is such that there is sufficient structural strength and integrity so as to support the distal end 210 when substantial force is applied thereto during the hole punching process.

[0032] Referring now to FIGS. 9A, 9B and 9C, there is illustrated another embodiment of a hole punch, generally indicated at 250, in accordance with the principles of the present invention. The hole punch 250 is similar in configuration to the hole punch 200 illustrate din FIGS. 8A and 8B, but is configured to punch a hole of a larger diameter than the hole punch 200. In order to do so, the hole punch portion 252 has a steeper taper relative to the longitudinal axis of the hole punch 250 to create a wider distal end 254. In addition, the central bore 256, which is concentric with the frustoconical hole punch portion 252 (see FIG. 9C), has a larger diameter to form a larger diameter cutting edge 256. If desired, the cutting edge 256 can be further sharpened to further increase the cutting ability of the hole punch 250.

[0033] As shown in FIG. 10, a mat, generally indicated at 270, formed from a hardened rubber or plastic material is provided. The mat 270 is to be used as a platen for supporting an eyelet when being set using the tool of the present invention or to receive the cutting edge of a hole punch when a hole is being formed. The mat 270 is provided with ruler markings 272 and measured lines 274 to be used as a guide for determining a desired placement of a hole when the hole punch of the present invention is being used. The ruler markings 272 and lines 274 are of a high contrast color compared to the background 276 of the mat so as to allow the markings 272 and lines 274 to be seen through some materials being cut.

[0034] Referring now to FIGS. 11 and 12, there is illustrated an eyelet setting tool, generally indicated at 300, setting an eyelet 302 in accordance with the principles of the present invention. As shown, an eyelet splier 304 of the eyelet setting tool 300 is brought into contact with the unset end 306 of the eyelet 302. The preformed end 307 of the eyelet 302 is resting upon a mat 308 and with the unset end 306 inserted through a hole 309 formed in a sheet 310 of material and exposed. A Force F is applied to the pressing member 312 so as to cause the unset end 306 to splay as shown in FIG. 12. Force F is applied to the pressing member 312 until the eyelet 302 is properly set.

[0035] It is understood that the terminology used herein is used for the purpose of describing particular embodiments only and is not intended to limit the scope of the present invention. It is also understood that, as used herein and in the appended claims, the singular forms “a,” “an,” and “the” include plural reference, unless the context clearly dictates otherwise.

[0036] Unless defined otherwise, all technical and scientific terms used herein have the same meanings as commonly understood by one of ordinary skill in the art to which this invention belongs. While various methods, compositions, and materials of the present invention are described herein, any methods and materials similar or equivalent to those described herein may be used in the practice or testing of the present invention. All references cited herein are incorporated by reference in their entirety and for all purposes.

[0037] While the foregoing advantages of the present invention are manifested in the illustrated embodiments of the invention, a variety of changes can be made to the configuration, design and construction of the invention to achieve those advantages. Hence, reference herein to specific details of the structure and function of the present invention is by way of example only and not by way of limitation.

What is claimed is:

1. A tool for setting an eyelet, comprising:
   an elongate member having a first end and a second end;
   an eyelet splier coupled to said first end for splaying one end of an eyelet; and
   a pressing member coupled to said second end configured for pressing with a palm of a user to force the first end against the eyelet, said pressing member of a size that is comfortable to the user when used to press the pressing member with the palm of the user’s hand to set the eyelet.

2. The tool of claim 1, wherein said elongate member defines a recess at said first end for receiving said eyelet splier at least partially therein.

3. The tool of claim 2, further comprising a magnet inserted within said recess and wherein said eyelet splier is held to said first end by a magnetic force of said magnet.
4. The tool of claim 2, wherein said eyelet splayer has a proximal end for coupling to said first end of said elongate member and a distal end having a generally, conical-shape configured for splaying an eyelet.

5. The tool of claim 1, further comprising a hole punch configured for coupling to said first end of said elongate member.

6. The tool of claim 5, wherein said hole punch has a proximal end for coupling to said first end of said elongate member and a distal end defining a sharpened circular edge for cutting a circular hole.

7. The tool of claim 6, wherein said distal end of said hole punch has a generally frustoconical shape and defines a longitudinally extending bore, said hole punch defining a side opening in communication with said longitudinally extending bore for retrieving material cut by said hole punch entering said longitudinally extending bore.

8. The tool of claim 1, wherein said elongate member has an outer surface defining a texture for gripping by a user.

9. The tool of claim 1, wherein said pressing member has a generally oval shape.

10. The tool of claim 9, wherein said pressing member has a width of approximately 1.75 inches and a length of approximately 2.75 inches.

11. An eyelet setting kit, comprising:

a hand tool having an elongate member, said elongate member having a first end and a second end, a pressing member coupled to said second end configured for pressing with a palm of a hand of a user to place a force on said second end, said pressing member of a size that is comfortable to the user when used to press the pressing member with the palm of the user’s hand to set an eyelet; and

at least one eyelet splayer configured for being releasably coupled to said first end.

12. The kit of claim 11, where said elongate member defines a recess at said first end for receiving at least a portion of said eyelet splayer and for releasably retaining said eyelet splayer thereto.

13. The kit of claim 12, further comprising a magnet within said recess for releasably retaining said eyelet splayer to said first end.

14. The kit of claim 11, wherein said eyelet splayer has a proximal end for coupling to said first end of said elongate member and a distal end having a protrusion extending therefrom for splaying an eyelet.

15. The kit of claim 11, further comprising at least one hole punch configured for releasable attachment to said first end of said elongate member.

16. The kit of claim 15, wherein each of at least one hole punch has a proximal end for coupling to said first end of said elongate member and a distal end defining a sharpened circular edge for cutting a circular hole.

17. The kit of claim 16, wherein said distal end of said at least one hole punch has a generally frustoconical shape and defines a longitudinally extending bore, said hole punch defining a side opening in communication with said longitudinally extending bore for retrieving material cut by said hole punch entering said longitudinally extending bore.

18. The kit of claim 11, wherein said elongate member has an outer surface defining a texture for gripping by a user.

19. The kit of claim 11, wherein said pressing member has a generally oval shape.

20. The kit of claim 19, wherein said pressing member has a width of approximately 1.75 inches and a length of approximately 2.75 inches.

21. The kit of claim 11, wherein said at least one hole punch comprises a plurality of eyelet splayers of various sizes, each configured for splaying an eyelet of a different size.

22. The kit of claim 15, wherein each of said at least one hole punch comprises a plurality of hole punches of various sizes, each configured for creating a hole of a different size.

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