

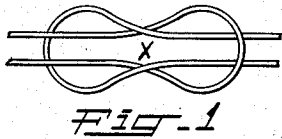
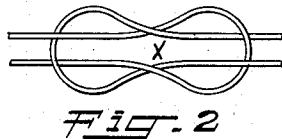
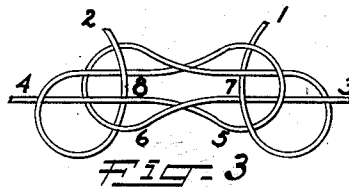
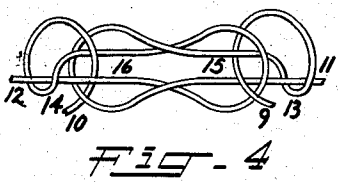
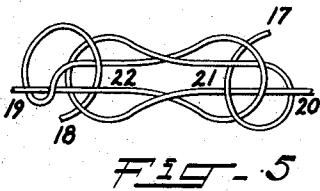
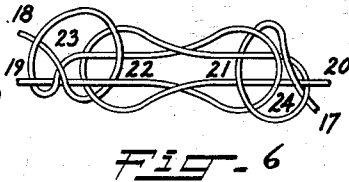
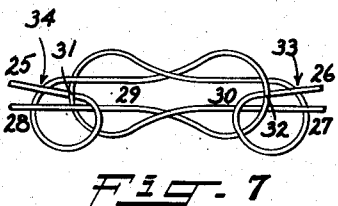
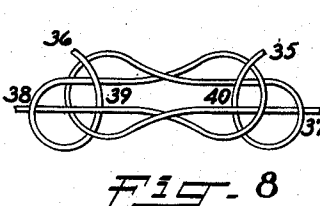
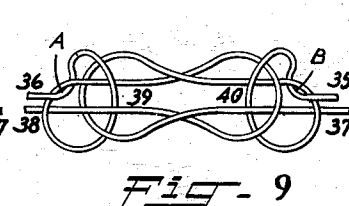
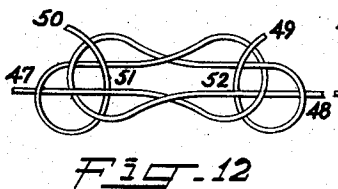
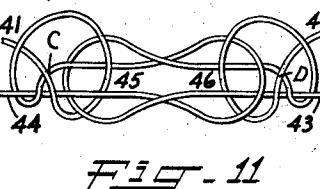
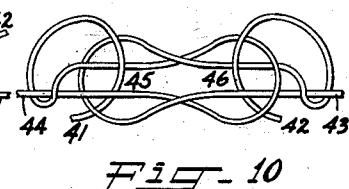
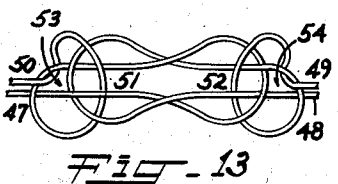
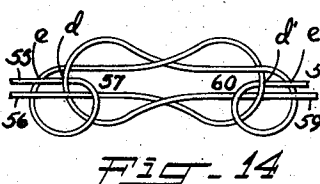
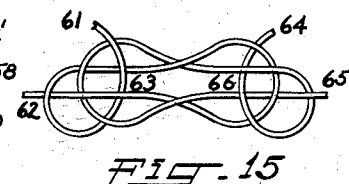
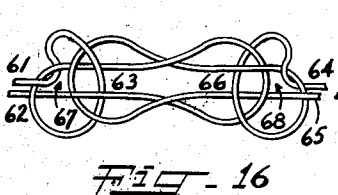
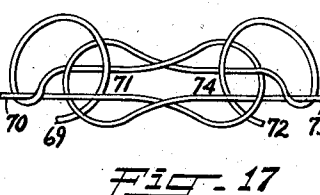
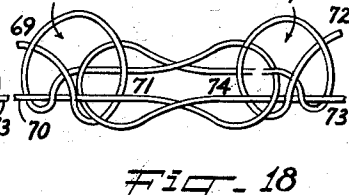
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2 SHEETS—SHEET 1



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2 SHEETS—SHEET 2

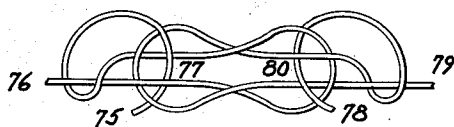


Fig. 19

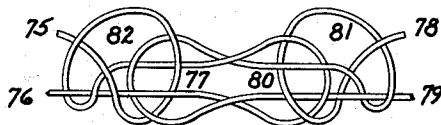


Fig. 20

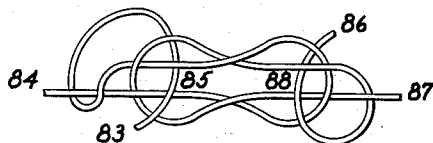


Fig. 21

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14 Claims. (Cl. 28-78)

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This invention relates to knots used for tying two strands of filamentary material together and more particularly this invention relates to the method used for tying two strands of plastic filamentary material together.

The use of plastic filaments such as polyethylene monofil, nylon or the like in the fabrication of commercial products, particularly woven material, demands the existence of a method of securely fastening together loose ends of the monofil. Polyethylene monofil possesses an unusual property in that, to the knowledge of the inventor, two pieces of polyethylene monofil could not heretofore be securely fastened by the use of ordinary type knots.

The object of the present invention is to provide a method of tying a simple knot, which when used to tie two pieces or sections of plastic filaments or strands together will hold fast without slipping.

Other objects and advantages of the present invention will become apparent from a study of the illustrations and description hereinafter.

In the drawings

Figure 1 is an illustration of the common square knot which is used as a basis for the present invention.

Figure 2 is an illustration of a granny knot which is also used as a basis in the present invention.

Figure 3 is an illustration of a preferred embodiment of the present invention.

Figures 4 to 11 are modifications of the form of invention shown in Figure 3 which use the square knot as a basis.

Figures 12 to 21 are modifications of the form of invention shown in Figure 3 using the granny knot as a basis.

The basic knots from which the present invention is derived are the square knot and the granny knot as shown in Figures 1 and 2 respectively. Hereafter, for the purpose of clarity, reference character X in Figures 1 and 2 designates the space between the two superimposed overhand knots known as the "loop" of the knot. The terms "standing portion," "end," "hitch" and the various names applied to knots are used according to their accepted definitions in standard dictionaries and hand-books on marine-spike technique. The preferred embodiment of the knot used in the present invention, as shown in Figure 3, is tied in the following manner: Tie a loose square knot in two strand sections as shown in Figure 1, and with the square knot lying in the position shown in Figure 1, pass the end 1 under

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the standing portion 3 of the same strand and up over the top and outside part 5 of the square knot down through the loop of the square knot at point 7. Similarly pass the end 2 over the standing portion 4 of the same strand, and down around the outside of part 6 of the square knot and up through the loop of the square knot at 8. The ends 1 and 2 in all the knots tied should be of sufficient length to prevent their slipping from the loop of the square knot as the knot is drawn tight. By pulling the standing portions 3 and 4 in opposite directions the knot is drawn tight.

The following modifications of the present invention, as shown in Figures 4 to 11 are all generated from the square knot lying in the position shown in Figure 1.

One modification of the present invention is illustrated in Figure 4. To tie this knot pass the free end 9 under and over the standing portion 11 of the same strand, then pass the end 9 up through the loop of the square knot at 15. Similarly bring the end 10 over and under the standing portion 12 and down through the loop of the square knot at 16. By pulling the strand portions 11 and 12 gently in opposite directions the knot is drawn tight. The loops 13 and 14 should tighten on the outside and adjacent the loops of the square knot.

Another modification of the present invention is illustrated in Figure 5. In this modification one free end 17 is passed under the standing portion 20 of the same strand around and down through the loop of the square knot at 21. The other end 18 is passed over and under the standing portion 19 and then passed down through the loop of the square knot at 22. This knot is tightened by gently pulling the standing portions 19 and 20 in opposite directions.

As shown in Figure 6 the knot as illustrated in Figure 4 may be further modified by passing the free end 18 through the center of the loop 23 which is formed on the standing portion 19, and by passing the end 17 over the standing portion 20 and down through the point 24.

A further modification of the present invention is illustrated in Figure 7. The end 25 is passed under the standing portion 28 around and down through the loop of the square knot at 29. It is then passed under the loop at 31 and over itself at point 34. Similarly the other end 26 is passed under the standing portion 27 around and through the loop of the square knot at 30. It is then passed under the loop at 32 and over itself at 33. The knot is tightened by gently pulling the standing portions 27 and 28 in the opposite directions.

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Another modification of the present invention is shown in Figure 8. To tie this knot pass the end 35 over the standing portion 37, and around and up through the loop of the square knot at point 40. Similarly pass the end 36 over the standing portion 38 and around and up through the loop of the square knot at point 39. To tighten this knot, gently pull the strand portions 37 and 38 in opposite directions.

Figure 8 may be further modified as shown in Figure 9 by passing the end 36 under and over itself at point A to form an overhand knot. The standing portion 35 is passed under and over itself at point B to form an overhand knot.

Another embodiment of the present invention is illustrated in Figure 10. In this embodiment one end 41 is passed over, around and under the standing portion 44 and then passed down through the loop of the square knot at point 45. Similarly the other end 42 is passed over, around and under the strand portion 43 and then passed down through the loop of the square knot at point 46.

Figure 10 may be further modified as shown in Figure 11 by passing the ends 41 and 42 down through the loops they form on themselves at points C and D respectively.

The following modifications to be described in Figures 12 to 21 use the granny knot illustrated in Figure 2 as the basic knot from which the knots of this invention are generated.

A modification of the present invention is illustrated in Figure 12. To tie this knot, pass the end 50 over the standing portion 47 and up through the loop of the granny knot at point 51. Similarly the end 49 is passed over the standing portion 48 and up through the loop of the granny knot at point 52. To tighten this knot gently pull the standing portions 47 and 48 in opposite directions. This knot can be further modified as shown in Figure 13 by passing the end 50 through the loop at point 53 formed by the end 50 being passed over the standing portion 47. Similarly the end 49 is passed through the loop at point 54, formed by the end 49 being passed over the standing portion 48.

In another modification of the present invention shown in Figure 14 the end 55 is passed under the standing portion 56 and down through the loop of the granny knot at the point 57. It is then passed under the granny knot at the point d and over itself at point e. Similarly the end 58 is passed under the standing portion 59 and down through the loop of the granny knot at point 60. It is then passed under the loop formed by the granny knot at point d' and passed over itself at the point e'.

Another modification of the present invention is shown in Figure 15 in which the end 61 is passed over the standing portion 62 and up through the loop of the granny knot at the point 63. In a like manner the end 64 is passed under the standing portion 65 and down through the loop of the granny knot at the point 66. The knot is tightened in the usual manner as heretofore described. The knot as described in Figure 15 can be further modified as shown in Figure 16 by passing the end 61 up through the loop, at the point 67, formed by its passing over the standing portion 62. Similarly the end 64 is passed down through the loop, at the point 68, formed by its passing under the standing portion 65.

Another form of the invention is illustrated in Figure 17 in which the end 69 is passed over,

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around and under the standing portion 70 and down through the loop of the granny knot at point 71. Likewise the end 72 is passed over, around and under the standing portion 73 and down through the loop of the granny knot at point 74.

Figure 17 may be further modified by passing the ends 69 and 72 down through the loops they form on themselves at points E and F respectively as shown in Figure 18.

Another modification of the present invention is illustrated in Figure 19. In this form of the invention the end 75 is passed over, around and under the standing portion 76 and then passed down through the loop of the granny knot at point 77. In a like manner the strand 78 is passed under, around and over the standing portion 79 and then it is passed up through the loop of the granny knot at the point 80. This knot is tightened in the same manner as the other knots heretofore described. This invention can be further modified as shown in Figure 20 by passing the end 78 up through the loop it forms on itself at point 81, and by passing the end 75 down through the loop formed on itself at point 82.

Another modification of the present invention is illustrated in Figure 21. In this form of the invention the end 83 is passed over, around and under the standing portion 84 and up through the loop of the granny knot at point 85. In a like manner the end 86 is passed under the standing portion 87 and down through the loop of the granny knot at point 88.

By using the knots described in this invention, free ends of filamentary material, whether plied, twisted or untwisted or plastic filamentary material such as polyethylene monofil, nylon, or the like may be tied together without any danger of slippage.

Although this invention has been described with reference to improvements shown, it will be readily appreciated that numerous changes may be made without departing from the spirit and scope of the invention as described in the appended claims:

I claim:

1. A knot assembly for connecting together two strand sections, each having at least one end-portion and at least one standing portion, said knot assembly comprising two series-tied overhand knots, a loop in one of the sections adjacent its end-portion and extending from the last-named overhand knot around the standing portion of said section and between the overhand knots, and a loop in the other section adjacent its end-portion and extending around the standing portion of the last-named section and between the overhand knots.

2. A knot assembly for connecting together two strand sections each having an end-portion and a standing portion, said knot assembly comprising two series-tied overhand knots comprising portions of both sections in each knot, a loop in each of the sections adjacent its end-portion and extending from the last-formed overhand knot around its standing portion and between the overhand knots.

3. A knot assembly as in claim 2 wherein the series-tied overhand knots comprise a square knot.

4. A knot assembly as in claim 2 wherein the series-tied overhand knots comprise a granny knot.

5. A knot assembly for connecting a pair of

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strand sections, each section having a standing portion extending into the assembly and an end-portion extending out of the assembly, the assembly comprising two series-tied overhand knots each comprising portions of both sections, a loop in each of the sections adjacent its end-portion and each loop extending from the last-formed overhand knot over the surface of its standing portion which faces away from an adjacent transverse portion of the other strand section which connects the two overhand knots, said loop then extending around the opposite side of the standing portion and extending between the overhand knots.

6. A knot assembly as in claim 5 wherein at least one of the loops extends back through itself to take the form of an overhand knot, being also a half hitch with respect to its standing portion and the adjacent portion of the other section which connect said series-tied overhand knots.

7. A knot assembly as in claim 5 wherein the series-tied overhand knots comprise a square knot.

8. A knot assembly as in claim 5 wherein the series-tied overhand knots comprise a granny knot.

9. A knot assembly for connecting a pair of strand sections, each section having a standing portion extending into the assembly and an end-portion extending out of the assembly, the assembly comprising two series-tied overhand knots each comprising portions of both sections, a loop in at least one of the sections connected with the portion thereof extending from the last-formed overhand knot and extending in the order named, transversely past the side of the standing portion which is opposite to that facing against the adjacent portion of the other section which connects the two overhand knots, encircling said standing portion approximately at least a full turn and extending between the overhand knots.

10. A knot assembly as in claim 9 wherein the loop extends from between the series-tied overhand knots, exteriorly around portions of the sections in the first-tied overhand knot at least one half turn, and back through the loop terminating in said end-portion, forming thereby a hitch on the standing portion of said section and the adjacent portion of the other section within the first-tied overhand knot.

11. A knot assembly for connecting a pair of strand sections, each section having a standing portion extending into the assembly and an end-portion extending out of the assembly, the assembly comprising two series-tied overhand knots each comprising portions of both sections, a loop in at least one of the sections connected with the portion thereof extending from the last-formed overhand knot and extending in the order named: transversely past the side of the standing portion which faces against the adjacent portion of the other section that connects the two overhand knots, encircling said standing portion at least a full turn and around portions of both sections comprising the second-

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tied overhand knot, and through the series-tied overhand knots.

12. A knot assembly as in claim 11 wherein the loop extends from between the overhand knots, then around adjacent portions of the two sections comprising the first-tied overhand knot, and back through the loop terminating in said end portion, said loop forming a hitch around said adjacent section portions of the first-tied overhand knot.

13. A knot assembly for connecting a pair of strand sections, each section having a standing portion extending into the assembly and an end-portion extending out of the assembly, the assembly comprising two series-tied overhand knots each comprising portions of both sections, a loop in at least one of the sections connecting the portion thereof extending from the last-tied overhand knot and extending in the order named: transversely past the side of the standing portion which faces against the adjacent portion of the other section for connecting the two overhand knots, encircling said standing portion and extending between the overhand knots, then between said connecting portion of the two series-tied knots and the first-named portion of the loop, said loop thereof forming a hitch around the portions of sections comprising the first-tied overhand knot.

14. A knot assembly for connecting a pair of strand sections, each section having a standing portion extending into the assembly and an end-portion extending out of the assembly, the assembly comprising portions of both sections, a loop in at least one of the sections connected with the portion thereof extending from the last-tied overhand knot and extending in the order named: transversely past the side of the standing portion which is opposite to that facing against the portion of the other section connecting the two overhand knots, encircling said standing portion and extending between the overhand knots, then between said connecting portion of the two series-tied knots and the first-named portion of the loop, said loop thereby forming a hitch around the portions of the sections comprising the first-tied overhand knot.

ADIN ALLEN NELLIS, JR.

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