June 16, 1953 R. SONNBERGER 2,641,951

KNOT AND 3/4

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Fig. 1

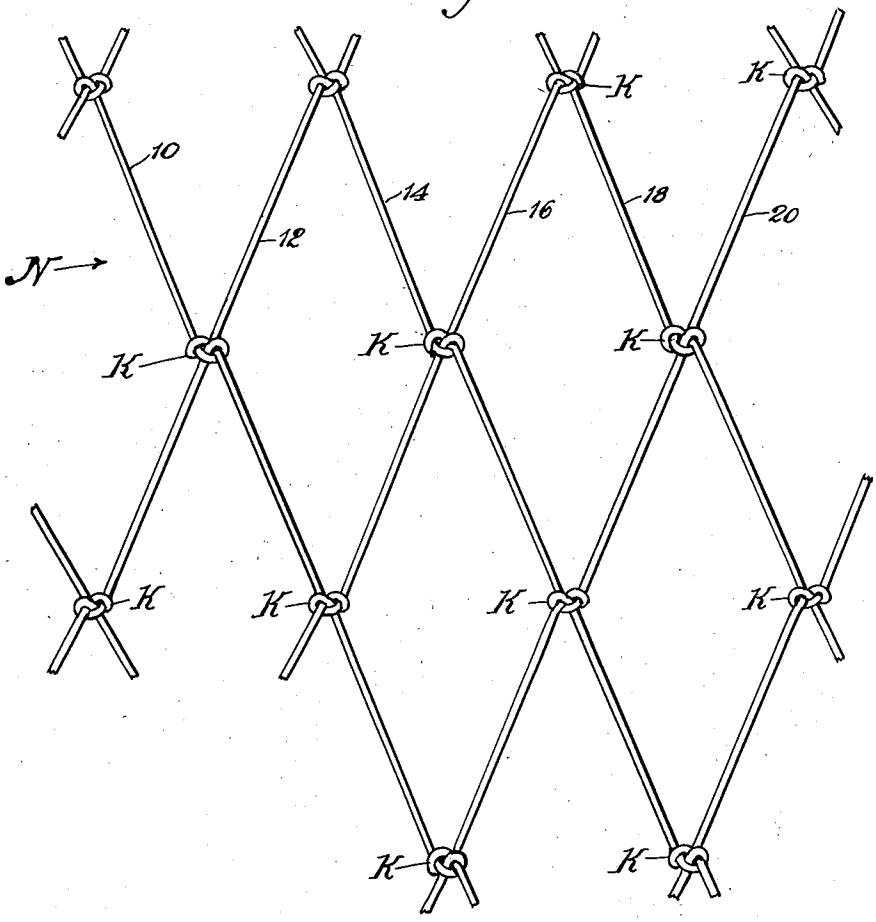
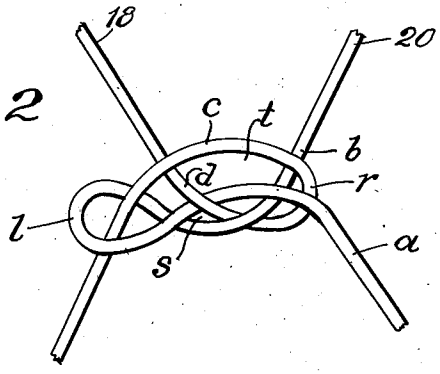


Fig. 2



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KNOT AND ¾

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My invention resides in the field of nets, such as the nets used in fishing and trapping, tennis, badminton, volley ball and other outdoor games. The knots used in these kinds of nets vary quite widely depending upon the type of use to be made of the net, the material from which the strands of the net are made, the conditions under which the net will be used, the strength necessary in the net necessitated by its application, and other factors. Various knots found suitable for one type of use are totally inappropriate in other fields in that they fail to stand up to the requirements of that particular activity.

Possibly the most important factor in nets involving their over-all utility, other than the material from which the strands of the net are made, is the knots used, in that ineffective or inappropriate knots can render the net inefficient if not useless and possibly dangerous.

With the advent of new and improved materials that can be used in the strands of the net, the conventional knots are on occasion inappropriate in that efficiency of a knot is ofttimes directly predicated upon the particular material being used.

Therefore, the primary object of my invention is a new and improved knot to be used in nets of all types and description wherein the knot is economical from the standpoint of the cost of the machinery necessary to produce the same.

A further object of my invention is a new and improved knot to be used to secure two strands of lines or twine together so as to acquire a firm and tight connection between the two, regardless of whether the line is made of conventional material, such as cotton or linen or, one of the new materials, such as nylon.

Other objects will appear from time to time in the ensuing specification and drawings, in which:

Figure 1 is a plan view of a section of a net employing my new knot; and

Figure 2 is a detail view of my new knot showing one of these knots in an expanded or loosened condition.

In Figure 1, a section of net N is shown as composed of a plurality of strands vertically disposed, such as denoted by reference numerals 10, 12, 14, 16, 18 and 20. These strands are woven into a net, by conventional net-making machines, so as to be knotted together at equally spaced intervals, such as by a knot K, so that a regular symmetric pattern is formed from the strands to produce an even well-balanced net. Any one of a large number of knots can be used

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to connect the various strands together, and I have invented a knot for this purpose which is far more efficient than conventional knots in extensive use at the present time.

One of my new knots is shown in Figure 2, and represents the connection of strands 18 and 20. Strand 20 has been formed into a loop *l* which is acquired by laying one of its legs *a* over the other leg *b* which reverses upon itself so that the legs *a* and *b* leading away from the loop *l* in the same manner that they would have been if the loop had not been formed. By over-looping the legs, the loop is provided with uninter-twined sub-loop *s*.

Strand 18 is formed in a loop *t* which has a strap portion *r* residing between the legs *a* and *b* of the strand 20. Leading away from the strap portion *r* are a pair of legs *c* and *d*, the leg *d* extending up through the sub-loop *s* in strand 20, as shown in Figure 2. The legs *c* and *d* cross to form a loop *t* in the strand, the cross occurring above the loop *l* and the sub-loop *s* in strand 20, and the leg *c* leads away toward the lower left through the loop *l* in the strand 20.

By this structure, the leg *c* of the loop *t* in strand 18 has a portion passing through the loop *l* in strand 20. The legs *a* and *b* leading away from the loop *l* cross one another before passing through the loop *t* in strand 18. Note that the legs *a* and *b* of strand 20 approach the loop *t* in strand 18 from opposite sides and cross one another while passing through said loop. The leg *a* of strand 18 which lies on top of the leg *b* which first crosses outside of the loop *t* must also lie on top of the leg *b* at the second crossing within loop *t*.

While I have described the legs, strand and loop by relative terms, such as, one leg residing on top of the other, one cross being above the other cross, a leg leading away to the upper left, and such, it should be understood that these terms are purely relative and are variable depending upon how the knot is orientated and they have been only for purposes of description and illustration in Figure 2.

I have found that this particular type of knot is extremely effective when used in combination with threads or strands of nylon. When nylon was first used in nets of various types, it proved not satisfactory in that the knots conventionally used with other materials would not hold nylon, and for several years, the production of nets of nylon was hindered due to the fact that the knots used would not form a sufficiently tight connection. The explanation for this can prob-

ably be derived from the inherent characteristics of nylon material when formed in the threads of nets, but for purposes of my invention, the explanation of the slipping phenomena of nylon is unimportant.

When I state that this new and improved knot is particularly efficient when used with nylon, I do not wish to be restricted to this particular material in that my new and improved knot has proven to be extremely efficient when used with materials that have been employed in net-making for years, such as linen, cotton and the like.

While I have illustrated and described one form of my invention, it should be understood that I do not wish to be restricted to the particular embodiment shown and described in that my invention is susceptible of numerous changes and modifications without departing from its essential theme, and the hereinabove description and disclosure should be interpreted as only illustrative or diagrammatic of my invention's essential characteristics and should not be interpreted to restrict the same except as by the appended claims.

I claim:

1. A net formed from a series of strands knotted together at intervals, each knot being formed from a first and second strand, a loop being formed in the first strand with a pair of legs leading away therefrom, a loop being formed in the second strand and residing over only one of the legs leading away from the loop in the first strand, said loop in the second strand having a pair of legs leading away therefrom, said legs extending through the loop formed in the first strand, the second strand having a sub-loop formed by passing the legs of the first loop across one another.

2. A net formed from a series of strands knotted together at intervals, each knot being formed from a first and second strand, a loop being formed in the first strand with a pair of legs leading away therefrom, a loop being formed in the second strand and residing over only one of the legs leading away from the loop in the first strand, said loop in the second strand having a pair of legs leading away therefrom, said legs extending through the loop formed in the first strand, the second strand having a sub-loop formed by passing the legs of the first loop across one another, the second cross of the legs that form the sub-loop residing within the loops in the first strand, the strands being made of nylon.

3. A net formed from a series of strands knotted together at intervals, each knot being formed from a first and second strand, said first strand having a loop and a sub-loop therein with a pair of legs leading away from the sub-loop, a strap portion in the second strand with a pair of legs leading away therefrom and crossing each other to form a loop, said strap portion residing between the legs leading away from the sub-loop in the first strand, one of the legs leading away from the strap portion in the second strand passing through the loop formed in the first strand, and the other of the legs leading away from the strap portion in the second strand passing through the sub-loop.

4. A net formed from a series of strands knotted together at intervals, each knot being formed from a first and second strand, said first strand having a loop and a sub-loop therein with a pair of legs leading away from the sub-loop, a strap portion in the second strand with a pair of legs leading away therefrom and crossing each other to form a loop, said strap portion residing between the legs leading away from the sub-loop in the first strand, one of the legs leading away from the strap portion in the second strand passing through the loop formed in the first strand, and the other of the legs leading away from the strap portion in the second strand passing through the sub-loop, the said one leg in the second strand passing on the opposite side of the said other leg in the second strand from the loop in the first strand.

5. A net formed from a series of strands knotted together at intervals, each knot being formed from a first and second strand, said first strand having a loop and a sub-loop therein with a pair of legs leading away from the sub-loop, a strap portion in the second strand with a pair of legs leading away therefrom and crossing each other to form a loop, said strap portion residing between the legs leading away from the sub-loop in the first strand, one leg leading away from the strap portion in the second strand passing through the loop formed in the first strand, and the other leg leading away from the strap portion in the second strand passing through the sub-loop, the portions of the first strand forming the loop and sub-loop being crossed in an unintertwined manner.

6. A net formed from a series of strands knotted together at intervals, each knot being formed from a first and second strand, said first strand having a loop and sub-loop therein with a pair of legs leading away from the sub-loop, a strap portion in the second strand with a pair of legs leading away therefrom and crossing each other to form a loop, said strap portion residing between the legs leading away from the sub-loop in the first strand, one leg leading away from the strap portion in the second strand passing through the loop formed in the first strand, and the other leg leading away from the strap portion in the second strand passing through the sub-loop, the said one leg in the second strand passing on the opposite side of the said other leg in the second strand, from the loop in the first strand.

7. A net formed from a series of strands knotted together at intervals, each knot being formed from a first and second strand, said first strand having a loop and sub-loop therein with a pair of legs leading away from the sub-loop, a strap portion in the second strand with a pair of legs leading away therefrom and crossing each other to form a loop, said strap portion residing between the legs leading away from the sub-loop in the first strand, one leg leading away from the strap portion in the second strand passing through the loop formed in the first strand, and the other leg leading away from the strap portion in the second strand passing through the sub-loop, the said one leg in the second strand passing on the opposite side of the said other leg in the second strand, the strands being made of nylon.

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