

TECHNICAL TERMS IN FISHING GEAR MATERIALS AND GEAR FABRICATION

P. K. EAPEN

(Dy. Director, Govt. of India, Off-shore Fishing Station, Cochin)

Papers dealing with technical terms in Fisheries Science are few. This paper however, covers only one or two aspects of the subject, namely fishing gear materials and fishing gear fabrication. Similar papers on other aspects are also planned.

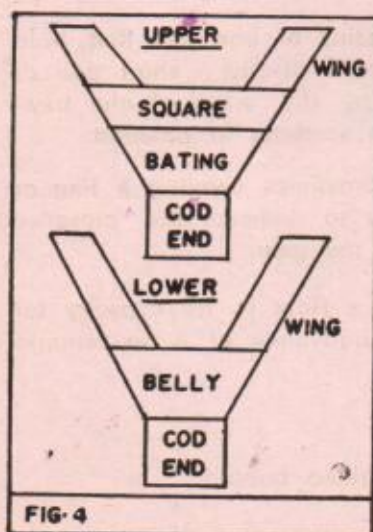
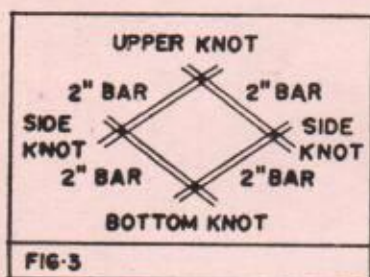
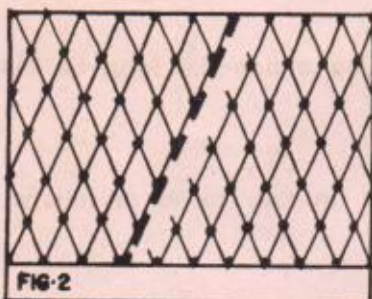
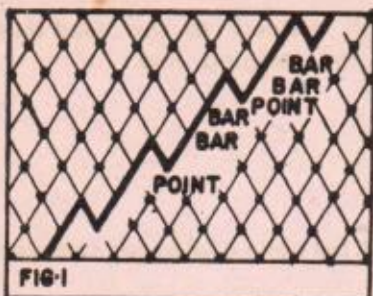
Attempt has been made to give the correct definition of each term. Short explanations or descriptions are also given wherever considered necessary. Due to the fact that publications on knots, ties, hitches, etc., are available, these items have been omitted in this paper.

It is hoped that this paper will be a source of help to the readers to use the correct and the most commonly used terms at their correct place.

My grateful thanks are due to Dr. H. Miyamoto, FAO Gear Technologist, formerly attached to the Central Institute of Fisheries Technology, Cochin, for going through the manuscript and giving me several suggestions. I am also thankful to Shri. S. Miskeith, Superintending Engineer, Deepsea Fishing Station, Bombay for encouraging me to write this paper.

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|-----------------|--|
| ACETATE: | Artificial textile fibre and filaments composed of cellulose acetate. |
| ACRILAN: | A synthetic fibre belonging to the Acrylic fibre group. Manufactured in the U. S. A. |
| AMILAN: | Trade name for Nylon fibre manufactured in Japan. |
| ANCHOR: | Any weight used to secure fishing gear in a stationary position at sea. |
| | An implement for retaining a ship in position at sea by chaining it to the sea bottom. |

- ANCHQR BEND:** An important knot known for its simplicity and great strength. It will not slip, chafe or jam and can be easily untied. It is also known as "Fishermen's Bend".
- APRON:** Old pieces of thick netting attached below the cod end as a chafing gear. It is also called "Dress".
- ASSEMBLING THE NET:** Joining the different sections of a net and combining it into one net and then hanging it on the foot-rope, head rope etc., so that the net is ready for use. This process is also known as "Rigging the net".
- AYANA BARK:** Bark of Ayana tree, widely used in India for tanning nets.
Terminalia tomentosa is the commonly available species.
- BABUL BARK:** Bark of the Babul tree (*Accacia arabica*) used as a source of tannin.
- BAR:** A knot along the edge of a webbing, having three legs, the other leg cut away while shaping the webbing to certain design (Fig 1)
- BAR CUT:** Cutting only one leg at each knot. All bars cut gives a triangular webbing where two sides are equal in length. (Fig 2)
- BAR OF A MESH:** A leg, strand or side of a mesh. A normal mesh has four bars of equal length. Therefore the size of a mesh is sometimes expressed by the length of a bar. Thus a "two-inch bar" means a four inch stretched mesh. (Fig 3)
- BARKING OF NET:** Soaking of net in a cold or hot water decoction of the barks of certain trees is called barking or tanning of nets. This is done to reduce deterioration due to rotting caused by various reasons. Synthetic fibres do not require barking.
- BASKET**
Basket made of cane, bamboo etc., to store and handle fish.
Basket in which long line gear is arranged and kept. The term "basket" is used to indicate a unit or long-line which is comprised of one main line and five or six or more branch lines with hook.
Basket hoisted during day time on a trawler to indicate it is under operation



BAST:

Fibre obtained from the inner bark of plants such as jute, flax, ramie etc.

BATING:

- (1) Decreasing or reducing the number of meshes in successive rounds to alter the shape of a webbing. It is also called "stealing". This is brought about by picking up two half meshes of the previous round and bringing them under a single knot of the round that is being made. Bating is usually carried out near the selvedge.

Bating in every round gives a deep slop to the webbing. Bating in every second, third, fourth round etc., gives lesser slopes.

Some fishermen, especially in the states, use the term "Take up" or "Taking in" for bating.

- (2) The portion between the square and cod-end on the upper side of a trawl net. It is often called as "top belly" or "top body".

BEAM:

A metal or wooden beam to which the upper edge of the square of a beam trawl is hung.

BELLY:

The section forming the body on the lower side of a trawl. Also called as "lower belly" or "lower body".

BELLY, FALSE: See False Belly.

BELLY LINE:

The rope extending from the quarter junction over the belly meshes to the cod-end of a trawl net.

BENDING THE

NET: Attaching the hanging line (with the net) to the head rope or foot rope giving a slack to the hanging line.

BIGHTS: See hanging Mesh.

BOARD, OTTER: See Otter board.

BOLCH LINE: See Hanging Line.

BOSOM: The portion of the top edge of the belly and square between the wings of a trawl net.

BOTTOM KNOT: See knot, Bottom.

BOWLINE: A knot commonly used for making a non-slip loop on the end of a rope.

BRAIDING: (1) Making of nets by hand.
(2) Weaving or plaiting fabric in flat, round or tubular shape.

BRAIL: An old term for Spreader.

BRAIL NET: A dip net for transferring fish.

BREAKING
FORCE: See Strength, Breaking.

BREAKING
LENGTH: See Length, Breaking.

BREAKING
LOAD: See Strength, Breaking.

BREAKING
STRENGTH: See Strength, Breaking.

BRIDLE: Name given to the four short chains or iron bars that hold an otter board at the proper angle or the short pair of lines (legs) attaching the board to the wing of the trawl or the short lines that hold the spreader in position.

BUOY: A float with visible mark and sometimes carrying a flag or lamp, attached to a fishing gear to indicate the presence of the gear or to help locating the gear.

BUOYANCY: Buoyancy or extra buoyancy of a float is its capacity for floating lightly on water. Extra buoyancy of a float should be as high as possible.

BURMA CATCH: See Cutch, Burma.

BUTTERFLY: Iron spreader attached to the danleno bobbin.

- CABLE:** Rope formed by twisting together three or more ropes.
- CABLE, PURSE:** See Purse, Cable.
- CABLE, TOWING:** See Towing Cable.
- CABLE, TWIST:** See Twist, Cable.
- CANADA CUTCH:** See Cutch, Canada.
- CHAFING GEAR:** See Gear Chafing.
- CHAIN, TICKLER:** See Tickler Chain.
- CHEMICAL PRESERVATIVE:** Chemicals such as copper compounds etc., used as a preservative for fishing gear.
- CHER:** A mangrove tree (*Avicinia alba* or *A. officinalis*) bark and fruits of which are used for the tanning of nets. Common in Jamnagar area.
- COAL TAR:** A preservative for heavy nets, ropes etc. Gives more of a physical protection for the nets., against wear and tear.
- COD-END:** The narrow end section of the trawl net, usually of heavy constrution with small meshes, where the fish is collected while the net is under operation-See fig. 4.
- COD-END KNOT:** See Knot, Cod-end.
- COD-END ROPE:** Rope, usually of heavy Manila reeved through the end-meshes of the cod-end, to tie (close) the cod-end. When the net is hauled up and taken on board, this is released to let the fish drop on the deck. "Purse-line" is another term for cod-end rope.
- COIR:** Strong, thick fibre obtained from the husk of the coconut fruit, with which ropes, cords, etc., are made.
- COMBINATION ROPE:** Cables of Manila, the cores of which are reinforced with galvanised steel wires of great strength and flexibility. The rope thus combines the strength of wire with the flexibility of fibre. Generally constructed in 4 or 6 strands.
- CORD** A flexible continuous, braided or twisted yarnstrand structure generally of less than 3/16 inch dia:
- CORK LINE:** See Head rope.

CORK PURSE

LINE: Light line passed through rings on a head rope of the Purse seine to hold the corks (floats)

COTTON: Seed-hair, fibre obtained from cotton plant *Gossypium*, grown in U. S. A., India, China, etc.. More extensively used for netting purpose than any other plant fibre.

COUNT: (1) A number indicating the size of yarn by a length-weight relationship. It varies according to the type of yarn. The system sometimes varies from country to country also.

For Cotton, according to the English system, one count indicates a yarn of such size that 840 yds. (a 'hank') of it weighs one pound. 20 Counts, therefore indicated a thinner yarn of which 20 hanks (20 x 840 yds) would be required to weigh one pound.

$$\text{Thus, count No. } N_e = \frac{\text{Yards per pound}}{840}$$

In Metric system, count is the number of K. metres per Kg. of a single yarn.

$$\text{Thus count No. } N_m = \frac{\text{Metres per kg.}}{1000}$$

For Flax, count is the number of hanks ('lea') each of 300 yards which will weigh one pound.

$$\text{Lea No.} = \frac{\text{Yards per pound}}{300}$$

Also see Yarn Numbering system.

(2) In cloth, count is the number of warp and filling yarns per inch in the woven cloth.

COURLENE: A synthetic fibre belonging to the polyethylene fibre group. Manufactured in U. K.

COURTELLE: A synthetic fibre belonging to the Acrylic fibre group (U. K.)

CREASING: Increasing the number of meshes in successive rounds to alter the shape of a webbing.

CUPRINOL: A copper naphthenate solution, used as a preservative for all kinds of twines and nets. Special net cuprinol contains a certain amount of tar which acts as an extra binding medium for the copper salt.

- CURING:** The process of fixing the tannin in the twine, after the tanning of the net. Also see 'Pickle' and "Fixation of Tannin".
- CUTCH:** Tannin or extract taken from the bark and wood of certain trees used for the preservation ("tanning or "barking") of nets against rotting. Some fruits as well as nuts are also used for tanning nets.
- CUTCH, BURMA:** Tannin from the wood of a tree called *Acacia catechu* grown in Burma, Borneo, India etc.
- CUTCH, CANADA:** Tannin from the Canadian pine. *Abies canadensis*.
- CUTCH, RED:** Tannin from the barks of Mangrove trees.
- DACRON:** A synthetic fibre belonging to the polyester fibre group (U.S.A.)
- DANLENO:** See Spreader.
- DARVAN** A synthetic fibre belonging to the Nitril fibre group (U. S. A.)
- DENIER:** Unit weight per unit length of fibre or yarn showing the size of silk and synthetic endless filaments or yarn. It is the number of unit weights of 0.05 gm. per 450 metre length, equal to the number of grams per 9000 metre length. A low denier means a fine yarn.

Note: "denier" was an old French coin which was used in weighing silk yarns to ascertain its fineness. Different yarns made from different materials have different deniers. For Example:-

Amilan yarn:	60, 110, 210
Terylene:	125, 250
Ulstron:	190, 570

DEPTH OF THE

NET: It is the width of the net, indicated either by the number of full meshes or by the number of rounds in one vertical line from head to the foot of the net.

DIRECTION OF

TWIST: Twine is twisted either in 'Z' type or in 'S' type. A twine has 'Z' (right) twist when the strands are twisted from right to left about its axis and has 'S' (left) twist when twisted from left to right.

Note:- In some countries 'Z' twist is called left twist and and 'S' twist is called right twist. (Fig. No. 5)

The yarn and strands are twisted in opposite directions. That is to say, if the yarns are 'S' twisted to make a strand, then the strands are twisted together in 'Z' type to make the twine.

DOGEAR: A jib having all bars along the hanging edge and points on the wings.

DOOR-END: Tip end of the wing of a trawl net.

DOOR-OTTER: See Otter Board.

**DOUBLE
ENGLISH KNOT:** See Knot, Double-English.

DOUBLE MESH: Mesh with all the parts made of double twine. Certain portions of the net, namely the cod end fly meshes, quarter junctions, upper portions of the square belly etc., require special strengthening. This strengthening is affected by braiding double meshes in these portions. Double meshes are made either by double needle or by a single neeele; in the latter case by the repetition of making half meshes in successive rounds. (Fig. 6)

**DOUBLE
TRAWL KNOT:** See Knot, Double English.

**DOUBLING OF
YARN:** Combining several strands to form a single strand without twisting.

DRESS: See 'Apron'.

DYNELL: A synthetic fibre belonging to the Modacrylic fibre group (U. S. A.)

ELASTICITY: Property of a material with which it returns to its original dimensions and shape on release of the deforming force.

ELONGATION: The extension in the direction of load, caused by a tensile force and is expressed as a percentage of the original length of the material.

ENGLISH KNOT: See Knot, English.

**ENGLISH KNOT
DOUBLE:** See Knot, Double English.

EXTENSION: See 'elongation'.

EXTRA
BUOYANCY: See Buoyancy.

EXTRA HARD
LAID: Twine or rope twisted extremely hard.

FABRIC: Any kind of cloth, irrespective of its material, construction or manufacture.

FALSE-BELLY: Old pieces of thick webbing or raw-hides etc., attached below the belly of trawl net as a chafing gear. It is also known as 'Rubber'. It is not very common now.

FELLING: See 'Take up'.

FIBRE: The basic material used in the fabrication of yarns.

FIBRE,
CHEMICAL: Refers to Fibre Man-made.

FIBRE,
MAN-MADE: Fibre manufactured by chemical or synthetic process. Several kinds of synthetic fibres are produced under different names and utilised in the fabrication of fishing gear. These fibres can be classified into a few groups. The group names and names of a few fibres in each group are given below.

polyimide	(PA)	Nylon, Perlon, Kapron.
Polyester	(PE)	Terylene, Dacron.
Acrylic		Acrilan, Orlon, Courtelle.
Modacrylic		Dynel, Verel.
Nitril		Darvan
Polyvinilidene Chloride	(PVC)	Saran
Polyvinyl Chloride		Rhovyl, Vinyon HH
Polyvinyl Alcohol	(PVA)	Kuralon
Polyethylene		Courlene, Vynena.
Polypropylene		Reevon, Ulstron.

FIBRE,
NATURAL: Fibre obtained in the natural form from Animal (silk, hair, wool) different parts of plants (cotton, Kapok from seed; Jute, Hemp, Linen, from bast; Manila, Sisal from leaf; coir from fruit) and mineral (asbestos)

FIBRE, STAPLE: Any fibre of average length. Some of the man-made fibres are manufactured in the staple form also.

FIBRE,
SYNTHETIC: Refers to Man-made fibre.

FILAMENT: Endless fibre. There are two kinds of filaments namely monofilament and multifilament.

FILLING: Yarn which runs cross-wise (from edge to edge) in a fabric. Also called as "Weft".

FINISHING

THREE LEGGER: A knot having three strands (legs) in tact and one strand cut off (damaged) In repairing the damage of the webbing mending is completed at this knot. See Fig. 7 Knots 4.

FISHERMEN'S

BEND: See Anchor Bend.

FISHERMEN'S

KNOT: See Knot, English.

FISHING GEAR: See Gear, Fishing.

FIXATION OF

TANNIN: Treating the tanned net in a solution of some chemicals like Potassium bichromate etc. to make the tannin insoluable in water so that it will stay longer in the twines and ropes. This process is also known as "curing", "Pickling" etc ,

FIXING A NET: Affixing a piece of net to a line or rope around all or some of its edges at any definite degree of closeness or openness of the meshes is termed as "fixing" or "mounting" or "hanging" a net. Also see "Setting".

FLAPPER:

A small piece of trapezium shaped or rectangular netting attached just forward of the cod-end near to the intermediate section, to act as a trap to prevent fish from escaping once they have entered the bag. "Funnel", "Pocket", "Valve", etc., are some other names for flapper.

FLAT KNOT: See Reef Knot.

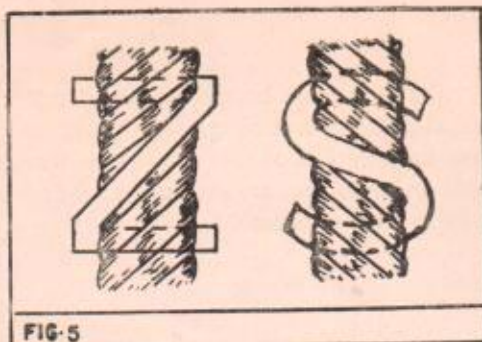
FLAX:

A bast fibre obtained from the plant *Linum usitatissimum*. Grown in U. S. S. R and West Europe. Yarns and clothes made from flax are called Linen.

FLEXIBLE

WIRE ROPE: See Wire rope, Flexible.

FLEXIBILITY: Property of a material enabling it to be bent repeatedly without causing breakage or rupture.

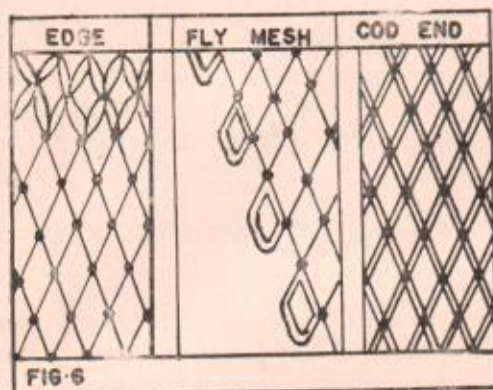


FLOAT:

Materials like light wood, cork, glass, aluminium alloy, steel, plastics etc., in different shapes and size used for keeping the head line of a net upwards.

FLY-MESHES:

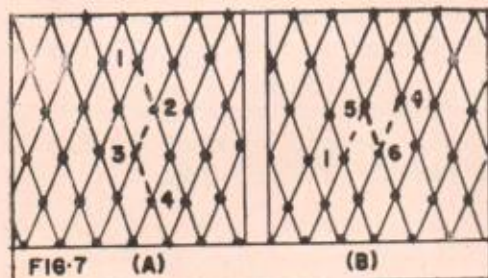
Full sized meshes, but having only two knots instead of the usual four knots. These are made on the edge of the webbing by missing out the last mesh of the previous round. Also called as "Dog ear".



FOOT OF A

NETTING:

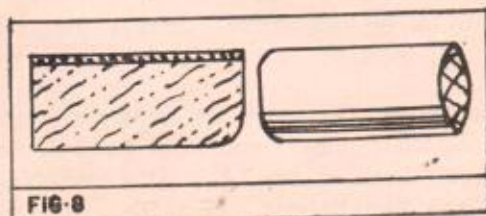
The edge of the net webbing where it was finished is the foot of the webbing or lower edge of the netting.



FOOT ROPE:

The rope to which the foot of the netting is finally attached is called Foot Rope, Foot line, Lead line or Ground rope.

The foot rope is usually of thick rope, and often carries lead weights or iron chain or such other weights to stretch the webbing downwards from the head rope.



FORCE,

BREAKING: Strength, Breaking.

FOUNDATION

- LINE:** A strong but too thick twine, stretched between two supports on which begins the making of a webbing. The foundation line is removed after the completion of the first few rounds and the first row of half meshes are moved on to another line or rod and the braiding is continued.
- FUNNEL:** Another name for Flapper.
- GARNOL:** A chemical preservative for fishing nets, used especially in Denmark.
- GUAGE, MESH:** An implement used in the braiding of nets. Made of wood or some cheap metals, it regulates the size of the meshes of the webbing. The twine is wound round the "Mesh-stick" (Guage) and a knot is tied, thus making one round of half meshes. Sometimes, especially while mending nets, expert net makers use their fingers as a guage.
- GUAGING MESH:** Measuring the mesh of the webbing with mesh guage or fingers.
- GEAR, CHAFING:** Materials like old pieces of thick webbing, raw hides, ropes etc., attached to different parts of trawl net, to save wear and tear.
- Netting or raw hides attached beneath the belly is called "False Belly" or "Rubber". Webbing attached below the cod-end is called "dress" or "arpon". The rope wrapped around the foot-rope (Wire rope) is known as "Rounding".
- GEAR, FISHING:** A general term for equipment and implements excluding boats to catch fish, etc.. Several kinds of materials are sometimes employed to fabricate a single gear.
- ROUND ROPE:** See Foot rope.
- HALF MESH:** Upper or lower half of a full mesh.
- HALVERS** A straight side, length of which is equal to two bars, with a knot in the centre, of a broken mesh, caused by the breaking of a leg.
- There are four types of halvers, namely left hand and right hand upper halvers and left hand and right hand lower halvers. All holes whether large or small, in the webbing should have two and only two halvers. (Fig. 9)

HANG OF A

NET: It is the ratio between the length (l) of the line or rope to which the webbing is hung, and the original length (L) of the webbing. Hang of a net or hanging is, therefore: l/L .

HANGING A NET: See Fixing a Net.

HANGING LINE: The line or thin rope to which the webbing is first hung, before attaching to the head rope or foot rope is known as hanging line or "Bolch line". See Fig. 10.

HANGING MESH: The loops, or "bights" which are reefed through the upper or lower end meshes and fastened to the hanging line are called hanging meshes. These are made with double twine or Manila Twine.

HANGING

TWINE: Twine used to secure the end meshes to the hanging line. See Fig. 10.

HANK: A unit of length (840 yards) used to determine the size (count number) of the cotton yarn.

HARD LAID: Twine or rope twisted hard.

HAUL UP LINE: Rope fastened to the splitting strap (sling) for hauling up of the bag (cod-end). The rope is given sufficient slack and the other end is fastened to the head rope or some times to the otter board. Some fishermen call it "Lazy line" or "Pull-rope".

HEAD LINE: See Head Rope.

HEAD OF A

NETTING: The upper edge of the webbing where the braiding was started.

HEAD ROPE: The rope or line to which the head of the net is finally attached is called "head rope", "head line", "float line", or "cork line". Head rope is provided with cork or other floats to keep the net upwards.

HEAT SETTING: Process of stabilizing the fibres by subjecting them to heat. This improves its resistance to creasing.

HEMP, ITALIAN: Refers to true hemp.

HEMP, TRUE: Fibre obtained from the bast of the hemp plant, *Cannabis Sativa* grown in Italy and U. S. S. R.

HEMP, SUN

(SUNN, SANN): Bast fibre got from the Leguminous plants (*Crotalaria juncea*) grown almost all over India. Hence it is also known as Indian Hemp or by local names like Benarese Hemp, Bengal Hemp, Travancore Flax etc.

HOT STRETCH: Stretching under heat to increase the modulus of elasticity of twine, thread etc.

ITALIAN HEMP: Refers to true hemp.

JIB: Triangular pieces of webbings, attached to both sides of upper and lower edges of the mouth portion of the trawl net. Due to its triangular shape, it is also called as "Wedge".

JUTE: A rather weak fibre obtained from the bark of *Corchorus capsularis* or *C. olitorius* plants. Grown abundantly in India and Pakistan.

KALASAM BARK: Bark of the Kalasam tree (*Odina woderi*) well known in India as a source of tannin.

KAPOK: White fibre attached to the seeds of Kapok tree, (*Celiba pentandra*.) Not used for spinning.

KAPRON: A synthetic fibre belonging to the Polyamide fibre group (USSR).

KINK: A twisted loop in the rope or wire-rope.

KNOT: A tie made by two ends of a twine or rope, etc., to join the ends or a tie made by one end at some part of its own body to make a loop or over some other object to get it fastened to it.

The Knots used in making a fishing net are English Knot and Double English knot. Reef knot (square knot) is used for some small nets where it is found convenient to use this knot instead of the English knot. English knot is known by different names such as Fishermen's knot, mesh knot, sheet knot, standard knot, trawl knot etc.

Other knots commonly used in net fabrication are ring hitch, clove hitch, rolling hitch, reef knot, etc.

KNOT, BOTTOM: Knot at the bottom of a mesh. See Fig 3.

KNOT, COD-END: Knot tied to fasten the cod-end rope, after closing the tail of the cod-end.

KNOT, DOUBLE

ENGLISH: A type of knot used in making a webbing. This knot is employed especially when synthetic twine is used for the braiding of the webbing. Also called as "Double trawl knot". See Fig. 11.

KNOT, DOUBLE

TRAWL: See Knot, Double English.

KNOT, ENGLISH: Most common knot in the making of webbing. Known by many other names, such as sheet, bend, standard knot, trawl knot, Fishermen's knot, mesh knot etc., see "Knot". See Fig. 11.

KNOT, FISHER-

MEN'S: Another name for English Knot.

KNOT, FLAT: Another name for Reef Knot.

KNOT, MESH: Knot made to make a half-mesh, therefore, it is also called "half mesh knot"; Knots made in the subsequent row of half meshes create full meshes. Sometimes referred to as "English Knot".

KNOT, PICK-UP: A knot tied to a pick-up mesh See Fig. 7 (b) Knot 5.

KNOT, REEF: A very common knot used by fishermen in net making. Though it is used for uniting ends of threads, twines, ropes, etc., of the same size, it is not used for joining the twines in net making since it is very slippery. Flat knot, square knot, etc., are the other names for Reef Knot. See Fig. 11.

KNOT, SETTING: Fixing the knot of the webbing by heat treatment or tightening it by stretching the webbing to avoid stoppage.

KNOT, SHEET

BEND: Another name for English knot.

KNOT, SIDE: Knot on either side of a mesh. See Fig. 3.

KNOT, SIDER There are two types of sider knots, namely "sider on the right" and "sider on the left" depending on which side of the damage they are located. See Fig. 7 (A) Knots 2 and 3.

- KNOT,**
SLIPPAGE: Sliding or slipping of the knots of the webbing, caused by bad workmanship or by the smoothness of the material with which the webbing is made.
- KNOT, SQUARE:** Reef Knot.
- KNOT,**
STANDARD: Another name for English Knot.
- KNOT,**
STRENGTH: See Strength, Knot.
- KNOT, THREE**
STRAND: Knot on a broken mesh where three strands are in tact.
- KNOT, TRAWL:** Refers to English Knot.
- KNOT, TWO**
STRAND: Knot on a broken mesh where two strands are in tact.
- KNOT, UPPER:** Knot at the head of a mesh. See Fig. 3.
- KNOTLESS NET:** Netting with no knots. Made by an interlacing of the two twine strands. The twine in the knotless net has 'S' twist of two strands of 'Z' twist
- KURALON:** A synthetic fibre belonging to the Polyvinyl Alcohol fibre group. (Japan)
- LACEAGE:** Laced edge or the seam formed by the meshes of the two webbings gathered and laced together.
- LACING:** Seaming or joining the upper and lower halves of a trawl net by winding a twine around a few meshes gathered from the edge of each half, and fastening at intervals with a jam hitch or stop hitch
- Reeving a line or rope through meshes is also called lacing.
- LAYING:** Refers to twisting of twine, cable etc. See "Twist"
- LAZY LINE:** See Haul-up line.
- LEA:** Unit of length (300 yards) used to determine the size number of linen yarn.
- LEAD:** Often said to mean lead sinkers which are very common and widely used by fishermen.

LEG: 1) Bar or a side of a mesh.
2) Extension of the head and foot ropes of the trawl net beyond the end of the wing, to connect the trawl with the otter board.

LENGTH,
BREAKING: Length of a specimen whose weight is equal to the breaking load.

LENGTH OF A
NET: Indicated either by the number of meshes or by Metre or fathoms of stretched webbing.

LINE: A rope, usually of prescribed length, for a well defined use

LINE, BELLY: See Belly line.

LINE, BOLCH: See Hanging line.

LINE, CORK: See Head Rope.

LINE,
FOUNDATION: See Foundation line.

LINE, FOOT: See Foot Rope.

LINE, HANGING: See Hanging line.

LINE, HAUL UP: See Haul up line.

LINE, HEAD: See Head Rope.

LINE, LAZY: See Lasy line.

LINE, LEAD: See Foot Rope.

LINE, PURSE: See Purse line.

LINE, RIB: See Rib line.

LINE, SNAG: See Snag line.

LINE SWFEP: See Sweep line.

LINEN: Yarns and cloth made from Flax.

LOAD,
BREAKING: See strength, Breaking.

MAN-MADE
FIBRE: See Fibre, Man-made.

- MANILA: Hard fibre taken from the leaf stem of Abaca Plant. *Musa textilis* grown abundantly in the Phillipina Islands. Strong twine (for heavy nets) cord, ropes, etc., are made from abaca fibre.
- MEDIUM LAID: Twine or rope twisted in Medium strength.
- MENDING THE
NET: Repairing the holes or other damages in the net.
- MESH: Interspaces of a fixed dimension formed by a sequence of loops or bights (half-meshes) which are inter-woven by knots.
- MESH GUAGE: See Guage, Mesh.
- MESH GUAGING: See Guaging mesh.
- MESH, HALF: See half mesh.
- MESH,HANGING: See Hanging mesh.
- MESH, PICK-UP: The half mesh on the base or lower part of the damage in a net. See Fig. 7 (B), mesh No. 5.
- MESH SIZE: See size of mesh.
- MESH SIZE,
SQUARE: See Square Mesh Size.
- MESH SIZE
STRETCHED: See stretched Mesh Size.
- MESH, SQUARE: Mesh of the net when it is fully opened so that it looks like a square, since all the bars are of equal size.
- MESH, STICK: See Guage, mesh.
- MESH
STRETCHED: Mesh of a net when it is pulled shut.
- MOBILKOT: A petroleum by-product used as a net preservative.
- MONOFILAMENT: A single continuous filament which can be considered as yarn.
- MOUNTING A
NET: See Fixing a Net.
- MULTIFILA-
MENT: Filament yarn having several number of individual filaments.

NATURAL FIBRE: See fibre, Natural.

NEEDLE,

DOUBLE: See Needle, Net.

NEEDLE, NET: Implement which acts as a shuttle in the braiding or mending of a net. It is made of wood, metal, plastic or even ivory.

When a needle is filled with single twine it is known as "single needle" and when filled with double twine (twine once folded) it is known as "double needle".

NEEDLE, SINGLE: See Needle, Net.

NET, FISHING: A fishing gear of definite design, made from net webbing with or without ropes, floats, sinkers etc.

NET, KNOTLESS: See Knotless net.

NET NEEDLE: See Needle, Net.

NETTING: Fish netting or webbing is a fabric of thread. Twine or cord formed by a sequence of loops or half meshes of uniform size which are interwoven by knots. Knotless net has no knots. (See Knotless Net). It is exclusive of lacings, ropes, floats etc.,

NORSELS: See Ossels.

NORSELLING: See Osselling.

NYLON: A synthetic fibre belonging to the Polyamide fibre group (USA)

Note: Unfortunately though, it is often misused to denote 'synthetic fibre' as a whole.

OMFAR: System of measuring the size of mesh, practised in Sweden and Norway. Omfar is indicated by the number of half meshes in one 'alen' (0 594 Mtrs. in Sweden and 0. 628 Mtrs. in Norway)

ORLON: A Synthetic fibre belonging to the Acylic Fibre group (USA)

OSSELS: Short piece of twine or line, about a foot long, used to attach the hanging line to the head line at regular intervals of meshes. It is also called "Norsel". (Fig 12)

- OSSELLING:** The method of attaching the hanging line to the head line by Ossels is called Osselling or norselling.
- OTTER BOARD**
(DOOR): Board made of planks and steel plates in rectangular or oval shape used for keeping the mouth of trawl net open while in operation. Also called as Board' or 'Door'.
- PANICHIKKA:** Fruit of a tree, used in the tanning of fishing nets.
- PERLON:** A synthetic fibre belonging to the Polymide fibre group (Germany).
- PICK-UP KNOT:** See Knot Pick-up.
- PICK-UP MESH:** See Mesh Pick-up.
- PICKLE:** Solution used for the fixation of tannin in twine after the tanning of net, since tannin dissolves in water. Copper sulphate and Potassium dichromate are commonly used to make the pickle.
- Linseed oil (raw or boiled) is also used as a pickle
- PLY:** Number of yarns in a strand or total number of yarns in a twine. 20/4/3 means twine consisting of 3 strands, each strand having 4 yarns (plys) of 20 counts. This can also be written as 20/12 ply.
- POCKET:** See Flapper.
- POINT:** A knot with one or two legs, along the edge of a webbing. (See Fig. 1.)
- POINT OUT:** Cutting of two legs in each knot All points out gives a right angle webbing. (Fig 13)
- PRESERVATION OF NET:** Treatment of the net with preservatives to reduce deterioration caused by rotting, mechanical wear and tear, heating etc. Cutch extracts, tar, copper compounds etc., are used as net preservatives.
- PULL ROPE:** Rope tied to the splitting strap at one end and fastened to the head rope or Otter board at the other end. Also see Haul Up Line.
- PURSE CABLE:** Manila or wire rope employed to purse (close) the purse-seine.

PURSE-LINE: 1) See cod end rope.
2) Refers to Purse Cable.

PURSE-LINE
CORK: See Cork Purse line.

PURSE RINGS: Iron or brass rings attached along the foot rope of purse-seine.

PURSE SEINE: Movable nets, employed to catch fish by impounding (surrounding) the school of fish.

QUARTER
JUNCTION: Place where the wing of a trawl net meets the bosom.

QUARTER
ROPES: Ropes used for hauling the trawl net into the vessel. Standing from the quarter junctions, they pass thro' two baskets (eyes) on the head rope and are tied at the door-ends.

RAMI (RAMIE): A plant of the nettle family. Its pure-white, glittering fibre is used for making cloth, paper etc.

RATIO OF
TAKE UP: See Take Up, Ratio of.

RED CUTCH: See Cutch, Red.

REDUCING
MESHES: See Bating.

REEF KNOT: See Knot, Reef.

REEL: The equipment on which yarn is wound to turn into hanks or spindle etc.

REEVON: A synthetic fibre belonging to the Polypropylene fibre group (U. S. A.)

REEVING: Setting a well net on its head line by spreading the meshes evenly along the head line and hitching every sixth or eighth or twentyfifth mesh as desired. (Fig 14)

Through it is the easiest and quickest method of setting the net, it is the most unsatisfactory method.

RHOVYL: A synthetic fibre belonging the Polyvinyl chloride fibre group (France)

RIB-LINE: Rope or line that runs along the Seam (where the upper and lower halves of a trawl net are joined) from the wing tip to the far end of the cod-end, as a reinforcement to take strain on the net while trawling.

RIGGING

THE NET: See Assembling the net.

RINGS, PURSE: See Purse-Rings.

ROPE: A flexible continuous twisted yarn-strand structure of fibre generally greater than 3/16 inch diameter.

ROPE, COD-END: See Cod-end Rope.

ROPE

COMBINATION: See Combination Rope.

ROPE, FOOT: See Foot Rope.

ROPE GROUND: See Foot Rope

ROPE, HEAD: See Head Rope.

ROPE, PULL: See Pull Rope.

ROPE, QUARTER: See Quarter Rope.

ROPE, SIZE OF: See Size of Rope.

ROPE, TOWING: See Towing Rope.

ROPE, WIRE: See Wire Rope.

ROTTING: Deterioration in the strength of the net due to the action of moulds and bacteria in water. High water temperature quickens rotting.

ROUND: A horizontal line of half meshes. Also referred as distance between consecutive rows of knots, when the meshes are fully stretched.

ROUNDING: Rope, usually of low quality, wrapped over wire-rope used as foot rope, as a chafing gear.

ROVING: The process of giving the first twist to the yarn.

RUBBER: See False Belly.

- RUNNAGE:** Length of twine per unit weight expressed as:
Metre per kg. (M/kg)
Yards per lb. (yds/lb)
Feet per lb. (ft/lb)
- 'S' TWIST:** Left twist. See Direction of twist.
- SARAN:** A synthetic fibre belonging to the Polyvinylidene Chloride fibre group (Japan)
- SEAM;** Laced edge of a net. See 'Laceage'.
- SEAMING:** See Lacing.
- SEAM LINE:** Line laced along with the seam.
- SINE, PURSE:** See Purse-seine.
- SELVAGE:** The two sides (length-wise) of a netting are called selvages or selvedges.
- SELVEDGE:** See Selvage.
- SETTING:** The method of spreading or spacing the meshes of the netting on the head lines, to give a definite degree of openness to the meshes.
- When three meshes are spread to occupy the space of two fully stretched meshes on the line, the hanging is called 'setting in by the third'. When five meshes are made to occupy the space of four it is called 'setting in by the fifth'. 'Setting in by the half' is termed when two meshes are made to occupy the space of one.
- SETTING KNOT:** See Knot, Setting.
- SETTING UP:** Starting or commencing of the braiding of the webbing.
- SHEET BEND**
KNOT: See English Knot.
- SHELLMACE:** A by-product of petroleum used as a net preservative.
- SIDE KNOT:** See Knot, Side.
- SIDER KNOT:** See Knot, Sider.
- SILK:** A lustrous fibre produced by the larva of silk worm.

SILK, RAW: Silk as reeled out from the cocoon of a silk worm.

SILK, SPUN: Silk yarn made of short filaments obtained from silk waste.

SINGLE YARN: See Yarn.

SISAL: Fibre obtained from the leaves of a sisal plant, *Agavesisalana*. Fibre used for making thick twine, cord and ropes.

SIZE OF MESH: Size of mesh is widely expressed as the distance between two diagonally opposite knots of a mesh, measured from centre to centre of the Knots, when the mesh is fully stretched lengthwise of the net. eg. 2" mesh (Practised in America, Canada, England, Africa etc.) It is also expressed as (1) the length of any bar. eg. 1" bar (Practised in Europe excepting England). (2) the number of rounds per yard of fully stretched netting. eg. 36 rounds (3) the number of knots in a unit length. eg. in 6 inches (practised in Japan. Korea, Formosa, Phillippines etc.) (4) The number of knots per metre or 'Pasada' (Knots per 20 cm) practised in Portugal and Spain. Fig. 15.

SIZE OF NET: Size of a webbing is designated by the number of meshes in length and depth. But, when a large quantity is involved, the length is expressed in feet or metres of stretched webbing.

SIZE OF ROPE: Size (thickness) of rope, cable etc. is expressed by its diameter or circumference.

SIZE OF TWINE: Size (thickness) of twine is expressed by the size of yarn with which it is made and total number of yarns in the twine or number of yarns in each strand and the number of such strands.

eg. Cotton Twine: 20/12 or 20/4/3
Nylon Twine: 210/12 or 210/4/3

SIZE OF YARN: Expressed by count, number, denier etc., See "Count".

SIZE, SQUARE MESH: See Square Mesh Size

SIZE, STRETCHED MESH: See Stretched Mesh Size.

SLING: Refers to splitting strap.

SLIPPAGE KNOT: See Knot Slippage.

SLIVER: A continuous strand of loose untwisted fibre, somewhat uniform in thickness.

SNAG LINE: Wire rope which drags ahead of the trawl net to catch any obstruction in the path of the net, thus preventing damage or loss of the gear. Each end of the wire rope is attached to an otter board on its inner side.

SOFT LAID: Twine or rope twisted soft.

SPINNING: Process of making yarns or twine from fibre.

SPLICING: Joining two ends of yarn or twine or rope by interweaving of its strands.

**SPLITTING
STRAP:** See Strap, Splitting.

SPREADER: Short stick or flat iron piece attached to the outer end of a trawl net wing to keep it stretched vertically or spread. It is also called as "Dhanleno", "Danleno" or "Brail" etc.,

SPUN YARN: Yarn spun from staple fibre.

SQUARE: The front portions of the upper said of a trawl net (between Batting and Head rope) which overhangs the lower part of the net.

SQUARE KNOT: Refers to Reef Knot.

SQUARE MESH: See Mesh, Square.

**SQUARE MESH
SIZE:** Size of a mesh expressed as the length of a bar see "Size of mesh" and "Mesh, square". It is also termed as "bar" or "bar measure". See Fig. 15.

STABILISING: Process by which shrinking and stretching of the twine is prevented. Such twine is called "Stabilised twine".

**STABILISED
TWINE:** See stabilising.

**STANDARD
KNOT:** Refers to English Knot.

- STAPLE FIBRE:** Any fibre of average length. Some of the man-made fibre are manufactured in staple form also.
- STAPLING:** Fastening the webbing to the head rope by the stapling line, which has been rove through the top meshes and taken up at regular intervals of meshes after giving the desired setting on the stapling line and allowing a little slack to form a loop or staple. Fig. 16.
- STARTER**
- THREE LEGGER:** A knot having three strands or legs in tact and one strand cut off (damaged). Mending of the damage is started at this knot.
- STEALING:** Another term for bating. See 'Bating' (1)
- SEIFNESS:** Resistance to deformation.
- STRAND:**
- (1) An assembly of a number of yarn, kept together by twisting them about its axis. Strands are twisted together (more often in the opposite direction) to form the twine.
 - (2) A bar or leg of a mesh. A mesh has four strands of equal lengths.
- STRAP,**
- SPLITTING:** Rope fastened loosely around and more or less at the middle of the cod-end.
- At the time of very heavy catch, the fish is unloaded in two or three parts and this is made possible by tightening this strap (thus splitting the catch.)
- The splitting strap, otherwise known as 'sling' is connected to head rope by another rope called haul up line.
- STRENGTH,**
- BREAKING:** Minimum load required to rupture a specimen length of fibre or yarn.
- Also termed as 'Breaking Load' or 'Breaking Force'.
- STRENGTH**
- KNOT:** It is the tenacity of a single fibre or yarn in which a simple knot has been tied.

STRENGTH.

TENSILE: Breaking force in terms of unit area expressed in grams per sq. mm. Tensile strength of the twine depends on the tensile strength of the material (fibre) and on the twist given to the strand and twine.

STRETCHED

MEASURE: Size of a mesh, measured when the mesh is pulled shut.

STRETCHED

MESH: See Mesh, stretched.

STRETCHED

MESH SIZE: Size of the mesh expressed as the distance between two diagonally opposite knots of fully stretched mesh. See Fig. 15.

SUN (SUNN)

HEMP: See Hemp, Sun.

SWEEP LINE:

Single line which connects the wing on either side of a trawl net to the otter board. It is much longer than the bridles.

SYNTHETIC

FIBRE: See Fibre, Man-made.

TAKE UP:

(1) Hanging a piece of a webbing on a rope (L') whose length is shorter than the stretched length of the webbing (L), thereby shortening the length of the webbing to some extent (L-L'), giving a certain degree of opening to the meshes. This process of shortening the total length of the webbing, while hanging is otherwise called "Felling".

(2) The term used by the fishermen in the States for bating. See "Bating" (1).

TAKE-UP

RATIO OF: Relation between the length reduced (L-L') while hanging, and the original length of the webbing (L). Thus the ratio of take up $S = \frac{L-L'}{L}$. Also see 'Take up'.

TAKING IN:

Refers to Bating, Stealing or Take up.

TAMARIND

SEED: Seed of Tamarind fruit used in the tanning of fishing nets as a source of Tannin.

TANNIN: Cutch extract used for tanning of nets, etc. See 'Cutch'.

TANNIN
FIXATION OF: See Fixation of Tannin.

TANNING: Soaking of net in a solution of cutch extract (tannin) in water, to prevent, or at least to reduce rotting of the net. Synthetic fibres do not require tanning.

TAR: See Coal tar.

TEAR: Cut or damage on the webbing of a net. When the cut occurs vertically on the webbing, causing sider knots, it is called a 'tear on the siders'. See Fig. 7 (A).
 When the tear occurs horizontally, causing pick up mesh and half meshes, it is called a 'tear along the meshes. See Fig. 7 (B).

TENACITY: Breaking force in terms of the fibre or yarn denier expressed in grams per denier.

TENSILE
STRENGTH: See Strength, Tensile.

TERYLENE: A synthetic fibre belonging to the Polyester fibre group (U. K.)

TEXACOAT: A petroleum by-product used as a net preservative.

THREAD: Strand or strands of yarn twisted into a fine line of twine.

THREE LEGGER
STARTER: See Starter three legger.

TICKLER CHAIN: Iron chain attached ahead of the foot rope of a trawl net to disturb the bottom fish to induce them to enter the net.

TOUGHNESS: The ability of a material to absorb work.

TOWING CABLE: Long wire rope by which the vessel drags the trawl net along the ocean floor.

TOWING ROPE: Thick Manila rope by which the vessel drags the trawl net along the ocean floor.

TRAWL, KNOT: See Knot, Trawl..

TRAWL KNOT
DOUBLE: Refers to Double English Knot.

TWINE: An aggregate of fibre or yarns compacted into a partially or completely balanced twisted structure of continuous length, used mainly for tying or binding.

- TWINE,
STABILISED: See 'Stabilising'.
- TWIST: Turns about the axis of the fibre, yarn or twine etc., to keep them together to the desired per inch or metre. Twine is twisted (laid) in soft, medium, hard and extra hard varieties according to their use.
- TWIST, CABLE: A kind of twist in which the individual yarns in the strand are twisted in the opposite direction to the twist of the strand. Most of the twines have cable twist. Fig. 17.
- TWIST
DIRECTION OF: See Direction of Twist.
- ULSTRON: A synthetic fibre belonging to the Polypropylene fibre group (Italy).
- VALVE: Another name for Flapper.
- VEREL: A modacrylic fibre (USA).
- VINYON HH: A polyvinyl chloride fibre (USA).
- VYNENE I
(WYNENE I): A polyethylene fibre (USA).
- WALL NETTING: A single piece of webbing hung from a rope along its upper edge.
- WARP: (1) The yarn running length-wise in a woven fibre at right angles to the wefts.
(2) The line usually of wire rope or thick Manila rope by which the vessel tows or drags the trawl along the ocean floor. Also called as "Towing Cable" or "Towing Rope".
- WEAVING: (1) Process of making a fabric by warps and wefts.
(2) Joining the sections of a net by a half mesh row of double twine so that it can be easily identified for repairing or replacing damaged portions.
- WEBBING: A sheet of netting used for fabricating fishing nets. See "Netting".
- WEDGE: See Jib.

- WEFT:** See Filling.
- WINGS:** The two end sections of the bag net, shore seine, boats seine, etc. In the case of the trawl net they project or extend forward from either side of the mouth, more or less in a tapering shape, the upper edges of the webbings attached to the head rope and the lower edges to the foot-rope.
- WIRE ROPE:** Rope made by twisting together several strands of thin steel wires, used as towing warp, foot rope, bridles, sweep lines etc., and also used for several other purposes on fishing vessels. Wire rope having a construction of six strands, each of 19 to 24 wires with hemp twine cores is usually used for fishing purpose.
- WIRE ROPE**
FLEXIBLE: Wire rope having a core of hemp twine in the centre. If there is a core of hemp twine in each of the strand in addition to the centre core, it is called a "Special flexible" wire rope.
- WYNENE. 1:** See Vynene.
- YARN:** A number of fibres twisted together or a number of filaments laid together with slight twist or without twist to form a single thin continuous line.
- YARN COUNT:** See Count.
- YARN, FOLDED:** The product formed by twisting together two or more single yarns or strands in one operation.
- YARN, NUMBER:** Count number of the yarn, indicating the size of the yarn.
- YARN NUMBER**
SYSTEM: Numbering of yarn differs according to the material, and also according to different system.
- Cotton: English:
 (Count or Number, Ne)
- It is the number of 'hanks' (of 840 yds. each, per pound, in the Cotton system)
 Continental or Metric.
 (Count Number, NM)
 It is the number of 'hanks' of 1000 metres per kg.

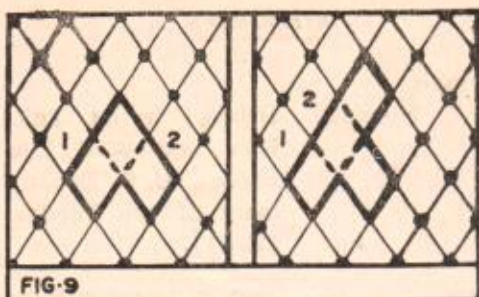


FIG-9

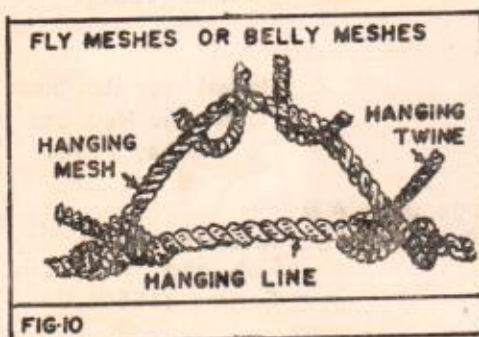


FIG-10

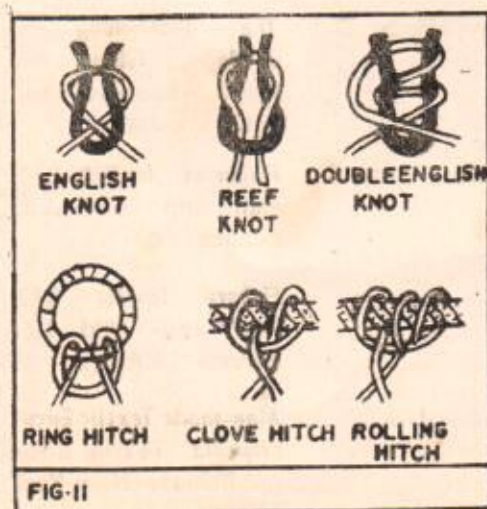


FIG-11

Hemp: (Number)
It is the number of leas of 300 yds. each per pound.

Jute: (Spyndle or Pound)
The weight in pounds of a 'spyndle' of 14,400 yds of yarn, expressed as pounds per spyndle.

Linen: (Lea Number)
The number of 'leas' of 300 yds each per pound.

Silk, Raw: (Denier)
The number of unit weights of 0.05 gms/450 metre length.

Silk, Spun: (Count)
The number of 'hanks' of 840 yds, each per pound.

Synthetic fibre: Staple and continuous filaments.

(Denier)
The number of unit weights of 0.05 gms per 450 metre length. This is equal to the number of grams per 9000 metre length.

Tex System: The number of grams per kilo metre length of yarn (N)

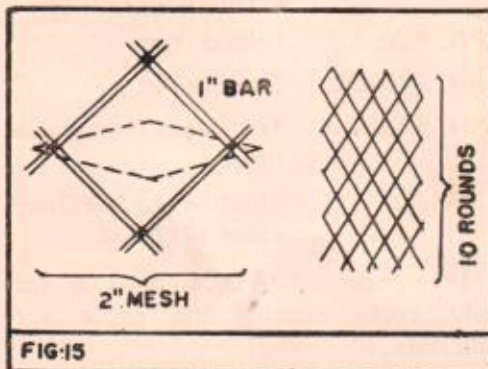
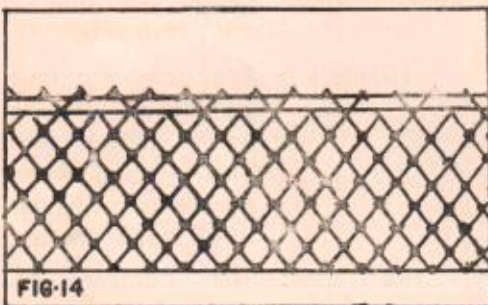
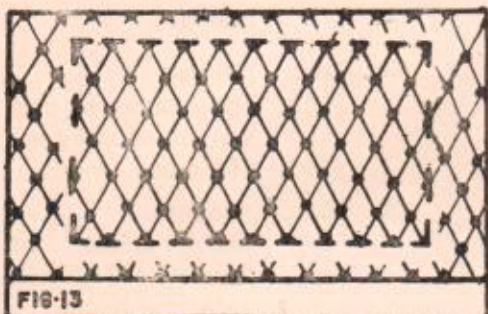
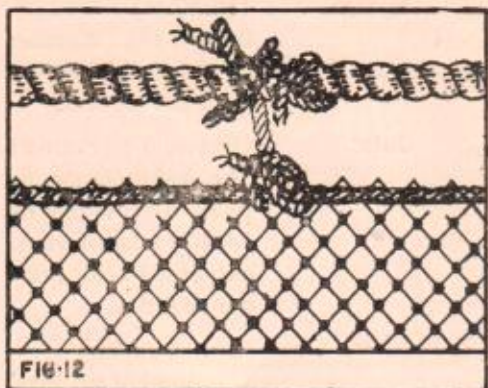
YARN, PLY: Folded Yarn.

YARN, SINGLE: See Yarn.

YARN, SPUN: Yarn made from staple fibre.

'Z' TWIST: Right twist. See Direction of Twist.

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