

A little child cannot dress itself without first learning to tie one or two simple knots. Why, there is scarcely a day of our lives but we are confronted with this great problem in some form or other, and yet if I was to hand you a piece of cord and ask you to tie a knot such as you tie in your shoe-lace every morning of your lives, I doubt very much if you could do it in the first, second or even the third attempt. This may seem ridiculous, but nevertheless it is true. But many say, what is the use of me wasting my time learning to tie knots. How embarrassing it is for a mechanic, or a man who calls himself such, to be thrown a piece of rope by his boss and told to put two half hitches or a clove-hitch on a piece of timber or casting. He takes the rope, looks at it, then at the boss and then at the timber or casting as if to say what does he mean, and then goes over and makes some kind of twists and turns, and when he is through, he does not know what he has got or if it will hold, and when the piece begins to move, he trembles for fear it will slip and kill someone. Then if it does hold and when he comes to untie it, he may work fifteen or twenty minutes and have to give it up as a bad job, then go and look for the axe.

No doubt, some will say that the making of hitches and the tying of knots belong to the sailor aboard the old sailing craft of long ago, which has been superseded by the huge steamships of to-day. To this I would say that the making fast of rope is as essential to the engineer as it was to the sailor of long ago. The man who has acquired a small amount of knowledge in the art of tying knots may proceed as follows:

Fig. 1 : Is a loop, or as the sailors term, the bight of a line, and is used in almost every knot known to the nautical world.

Fig. 2 : Is a simple or overhand knot and is made by passing the end of the line through loop No. 1.

Fig. 3 : Is a double knot or twist and is made by passing the end twice through loop No. 1.

Fig. 4 : Is a boat or toggle knot, and is made by passing the bight of the rope through loop No. 1, and then passing a toggle, such as a piece of wood or iron through the bight and over loop No. 1.

Fig. 5 : Is the first stage of the bow-line, and is made by making loop No. 1.

Fig. 6 : The second stage by passing the end of the line up through loop No. 1, and under the standing part of the line.

Fig. 7 : The third stage, by passing the end down through loop No. 1, then pulling taut, and then we have the bow-line complete, and a knot which will not slip and can be easily untied.

Fig. 8 : Is a production of the "granny knot," and one that is pretty nearly always made by the inexperienced man. It is the most easily made of all knots. It is made by crossing