Sept. 29, 1964 R. L. KOSROW 3,150,892

STRAND LACING IMPLEMENT

Original Filed Sept. 10, 1962

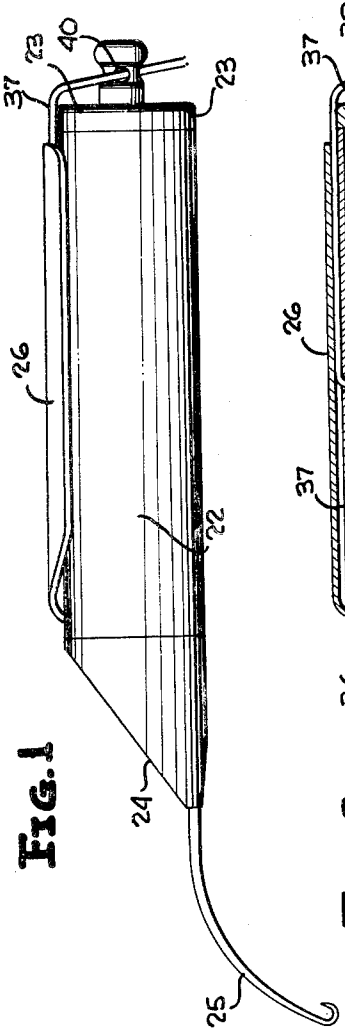


FIG. 1

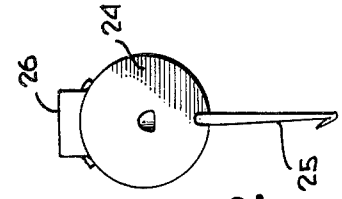


FIG. 2

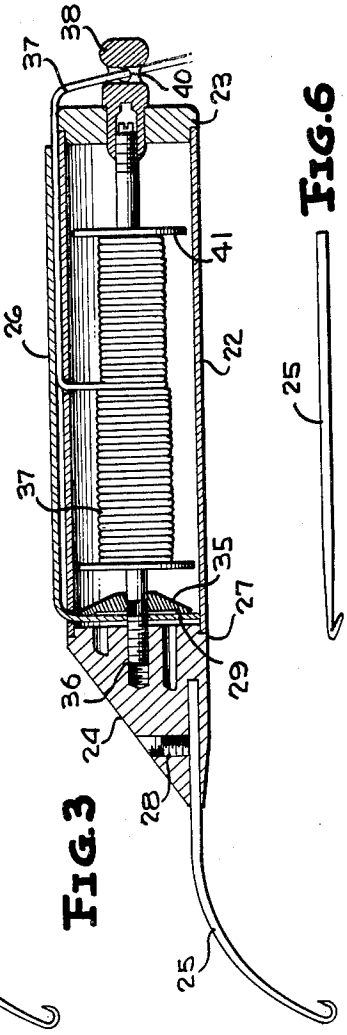


FIG. 3

FIG. 6

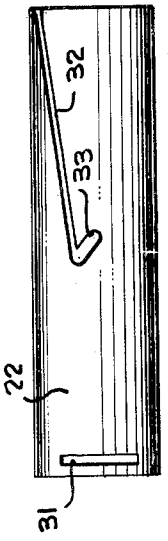


FIG. 4

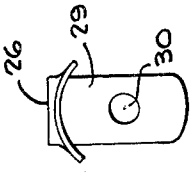


FIG. 5

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STRAND LACING IMPLEMENT

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Original application Sept. 10, 1962, Ser. No. 222,723, now Patent No. 3,138,394, dated June 23, 1964. Divided and this application July 24, 1963, Ser. No. 297,363

5 Claims. (Cl. 289—17)

The following specification relates to an improved strand lacing implement for lacing bundles of strands such as insulated wires for telephone or related purposes, textile working and the like.

Numerous instances occur where it is necessary to assemble a considerable number of strands, wires and the like in compact bundles of minimum dimensions. As an example, the wire conductors for telephone switchboards and the like, are systematically tied together in bundles. This is done in small spaces seriously handicapping the operations of tying the strands together in bundles. In the case of telephone switchboards, the wires are tied together in groups for neatness, orderly arrangement, and in order to make the handling of the wires as simple as possible. Thus bundles of wires are tied together by lacing cords being knotted from one to four inches apart.

The manual operation of lacing wires and the like is a tedious operation. The operator tying these wires together by hand must exert a considerable pressure on the cord being used. This results in injury and callouses to the fingers. In fact, such work soon results in a distortion or disfiguration of the fingers.

The present invention enables one to rapidly make an improved knot at spaced intervals from a common supply, whether it be a ball or a bobbin.

One of the objects of the invention is to improve the knot itself so that it will be easily located in the desired position and rapidly fastened without undue strain upon the hand of the workman.

A further object of the invention is to increase the amount of compression exerted upon the strands which are being knotted.

Among the objects of the invention is to enable the knot to be provided on the bundle of wires or the like even though the latter may be located so close to the surrounding surface as to prevent the ready passage of the winding cord.

A still further object of the invention is to make possible the use of a long cord of indeterminate length as contrasted to the limited length possible in the manual handling of binding cord where the knots are made bare-handedly.

The preferred form of the invention is shown by way of example in the accompanying drawings in which:

FIGURE 1 is a side view of the implement;

FIGURE 2 is an end view of the implement;

FIGURE 3 is a longitudinal vertical cross-section of the implement;

FIGURE 4 is a side view of the shell;

FIGURE 5 is an end view of the hand grip, and

FIGURE 6 is a plan view of the needle.

Briefly described, the invention consists in an implement having a bobbin carrying a lacing thread, cord or the like of indeterminate length. This is released under manual control to a hook by which the cord is manipulated in tying together a bundle of strands and forming one or a succession of spaced knots without severing the cord between the knots.

The invention is part of the disclosure in the applicant's pending application filed September 10, 1962, Serial No. 222,723, now U.S. Patent No. 3,138,394 and of which the present application is a division.

The method of lacing is carried out by providing an implement by which a supply of cord is carried, materially greater than what is possible for an operator to manipulate by hand. The handling of the cord is accomplished by means of a hook closely analogous to a knitting needle and operating much the same way. The structure includes the lacing implement **21** which is in the nature of a shuttle used in weaving to carry the thread in a bobbin. Thus the implement includes a hollow handle **22**. One end of the handle is closed by means of a cap **23**, which fits over one end of the hollow handle **22**.

The opposite end of the handle carries a head **24** which is in the form of a tapering cylinder. This head carries a hook **25**. One side of the hollow handle **22** is provided with a grip plate or clamp **26** which serves as a brake to prevent undesired release of the cord from the bobbin.

The head **24** has a peripheral recess **27** in which is received the front end of the handle **22**.

The head **24** is drilled lengthwise as shown in FIGURE 3 to receive a hook **25**. The hook is held in place by means of a set screw **28**.

The grip plate or clamping member **26** is a flat blade having curvature similar to that of the hollow handle. The plate is turned down at one end **29** and provided there with a central hole **30**.

The hollow handle **22** has two diametrically spaced transverse slots **31, 31** through which the end **29** of the plate **26** is passed.

A diagonal slot **32** is cut in the cylindrical wall of the hollow handle **22** from the end opposite the head. This slot ends in an angular transverse slot **33**. These slots operate similarly to the slots found in the shuttle of a sewing machine and for the same purpose, namely to permit threading and withdrawal of the cord from the bobbin.

A central bolt **34** passes longitudinally through the handle **22**. At its front end it carries a thrust washer **35**. Beyond the thrust washer the end of the bolt **34** is screw threaded to fit within an axial screw threaded hole **36** in the head. The opposite end of the bolt is slotted to permit it to be inserted with a screw driver.

In assembling the implement, the bolt **34** with the thrust washer is passed through the hole **30** in the end of the grip plate **26** before fastening.

The bobbin **41** with a full supply of the cord **37** is then inserted in the open end of the handle. The free end of the cord **37** is passed through the slot **32** into the transverse slot **33** where it is held under the grip plate **26**.

The cap **23** has a peripheral recess or rabbet which fits in the end of the hollow handle. The cap **23** has a stud **38**. This stud is knurled on its outer surface so that it may be driven into tight frictional engagement in the cap **23**. The stud has an axial screw threaded hole **39** by which it is fitted over the screw threaded end of the bolt **34**.

The stud **38** is drilled to provide two right angled holes **40** through which the free end of the cord **37** is passed.

It is evident that the cord **37** may be drawn at will through the stud **38**. In order to prevent too rapid delivery of the cord, it is only necessary to grip the plate **26** more closely against the hollow handle **22**, thus clamping the cord and arresting its removal.

The implement above described is useful in facilitating the making of a series of knots from a single cord and at spaced intervals along a bundle of wires or the like. The implement is convenient to handle. The discharge of the cord is always under positive control. This cord is delivered at the end opposite the hook, so that there is no likelihood of tangling. The case is readily opened

for the insertion of a full bobbin replacing an empty one.

The invention has been described in its preferred form. However, it will be readily understood that numerous changes in minor details of structure, materials and proportions are possible within the scope of the appended claims.

What I claim is:

1. A device for lacing strands which comprises a hollow handle having a thread outlet in its side wall, a head fitted on one end of the handle, a hook on the head, a grip plate overlying the thread outlet and having a portion held transversely in the handle, an axial bolt having a thrust washer, said bolt extending through the said portion of the plate and into the head, and a cap closing the opposite end of the handle and fastened to the bolt.

2. A device for lacing strands which comprises a hollow handle having a thread outlet in its side wall and having diametrically spaced transverse slots, a head fitted on one end of the handle, a hook on the head, a grip plate overlying the thread outlet and having a portion in the slots in the handle, an axial bolt having a thrust washer, said bolt extending through the said portion of the plate and into the head, and a cap closing the opposite end of the handle and fastened to the bolt.

3. A device for lacing strands which comprises a hollow handle having a slot running inwardly from one end in a generally longitudinal direction, a head fitted on the opposite end of the handle, a hook on the head, a grip plate overlying the slot in the handle, said grip plate having a portion held transversely in the handle, an axial bolt extending through the said portion of the plate and into the head and a cap closing the end of the handle opposite from the head and fastened to the bolt.

4. A device for lacing strands which comprises a hollow handle for holding a bobbin, said handle being slotted longitudinally inward from one end to receive a cord from the bobbin, a tension plate overlying the slot and having a transverse portion held in the handle, and a cap on said end of the handle, said cap having an eyelet for the cord.

5. A device for lacing strands which comprises a hollow handle for holding a bobbin, said handle being slotted longitudinally inward from one end to receive a cord from the bobbin, a tension plate overlying the slot and having a transverse portion held in the handle, an axial bolt in the handle for said bobbin, and a cap on said end of the handle in threaded engagement on said bolt and having an eyelet for the cord.

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