

Nov. 4, 1969

L. H. KENTFIELD
TOOL FOR KNOTTING BANDS

3,476,423

Filed Jan. 17, 1968

2 Sheets-Sheet 1

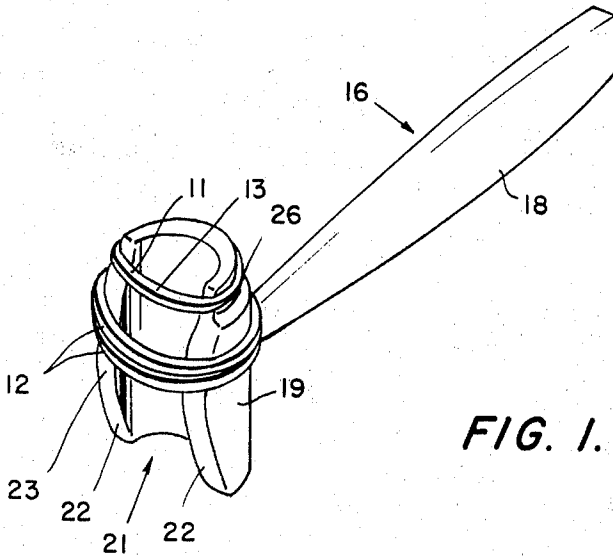


FIG. 1.

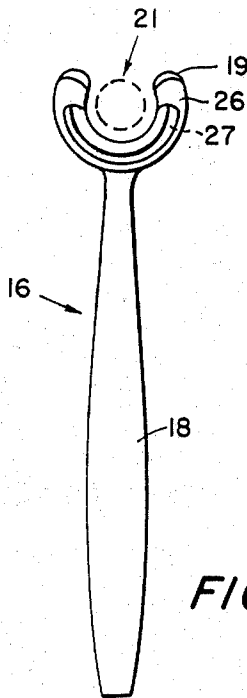


FIG. 2.

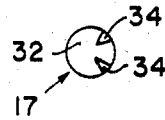


FIG. 4.

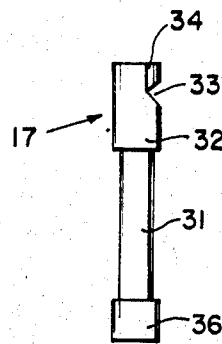


FIG. 3.

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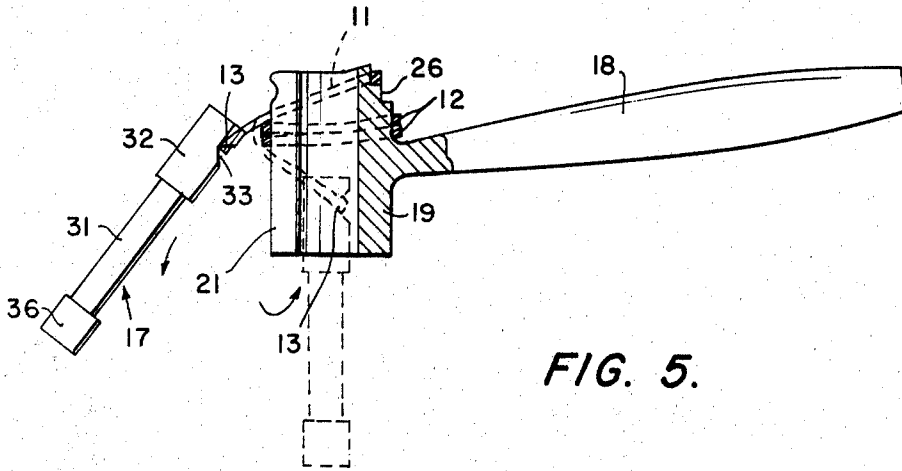


FIG. 5.

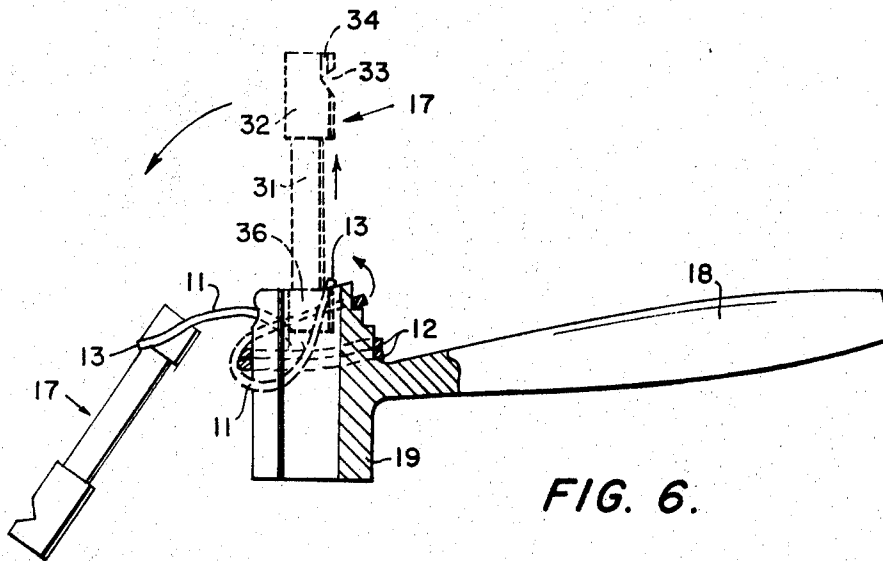


FIG. 6.

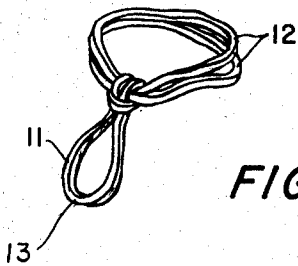


FIG. 7.

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3,476,423

TOOL FOR KNOTTING BANDS

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Filed Jan. 17, 1968, Ser. No. 698,501

Int. Cl. D03j 3/00

U.S. Cl. 289—17

6 Claims

ABSTRACT OF THE DISCLOSURE

An implement for knotting several bands together consists of a holder and a pick. The holder is a hollow cylinder open along one side having a handle. The cylinder is shaped at the top to hold one band separated from the other bands, all the bands being stretched around the cylinder. The pick engages one portion or area of the first band, brings it down the outside of the holder, then inside the cylinder and up to the top. Thereupon the portion of the first band which had been retained on the holder is released and the first-mentioned portion drawn tight. Thus, the first band is knotted around all the others.

This invention relates to a new and improved tool for knotting bands. More particularly, the invention provides means for knotting together two or more discrete rubber bands and has particular application in forming as a unit a plurality of loops used to join together a plurality of construction members. Reference is made to co-pending application of Lucius H. Kentfield and Jack Dreyfuss, Ser. No. 423,059, filed Jan. 4, 1965, on Construction Toy, now Patent No. 3,422,565. In FIG. 4 of said application is shown a plurality of flexible elastic links which are there disclosed fabricated of a tube of rubber sliced into individual links by transverse slices but joined together because the tubing is not sliced completely through, but one element left uncut. As an alternate to such construction, a plurality of discrete rubber bands may be used which are knotted together. The knot may be performed manually without any implement by passing one end of a first loop through the other loops and then inserting the other end of the first loop through the first end and pulling the second end until the knot is drawn tight. However, this operation requires considerable manual dexterity and is time-consuming. This present invention provides an implement which simplifies the operation and also reduces the time required.

Although the invention has particular application in the construction toy referred to, and a preferred use of the implement is in tying rubber bands together, nevertheless the same implement may be used for other purposes as will readily occur to one skilled in this art.

A feature of the invention is the inexpensiveness and simplicity of construction of the implement.

Still another feature of the invention is the fact that little skill is required in order to use the device.

Other objects of the present invention will become apparent upon reading the following specification and referring to the accompanying drawings in which similar characters of reference represent corresponding parts in each of the several views.

In the drawings:

FIG. 1 is a perspective view of a holder which is one of the two elements of the implement.

FIG. 2 is a top plan of the structure of FIG. 1.

FIG. 3 is a side elevation of the pick or second element of the implement.

FIG. 4 is a top plan of the structure of FIG. 3.

FIG. 5 is a sectional view showing initial steps in the forming of a knot using the implement of FIGS. 1-4.

FIG. 6 is a view similar to FIG. 5 showing subsequent steps in the formation of the knot.

FIG. 7 is a perspective view showing the knot as formed.

The implement hereinafter described in detail is used to form a knot. A first band 11 is used to form a knot around the other bands 12; the number of bands 12 to be knotted to the band 11 being subject to modification. A first end 13 of band 11 is brought through the inside of band 12, around the outside thereof and up through the loop of the opposite end of band 11 and then drawn tight. Thus, the band 11 is looped around the bands 12 holding the bands 12 together and also holding band 11 therewith.

The implement consists of two elements, a holder 16 and a pick 17. Holder 16 has a handle 18 which may be gripped by the user. A cylindrical portion 19 is fixed to one end of handle 18, the side of cylinder 19 opposite handle 18 formed with a slot 21 which is approximately 180 degrees of the circumference of the cylinder 19. The edges 22 of slot 21 converge to a narrow portion 23 immediately above the level of handle 18 and then diverge so that the slot is narrower at the middle than at either end. Above handle 18, the exterior of cylinder 19 is formed with a reduced diameter portion 26 which has a shallow groove 27 therein. The so-called second rubber bands 12 are slipped over the upper end of holder 16 as viewed in FIG. 1 and stretched around the outside of the cylindrical portion 19 resting on the top of handle 18 which limits downward movement of bands 12. The so-called first rubber band 11 is slipped over the top or reduced diameter portion 26 of the cylinder 19 resting in the groove 27. Thus, the band 11 is held separate from the bands 12 so that it is conveniently engaged by the pick 17 without interference from the bands 12.

Pick 17 has a narrow central portion 31 and an enlarged upper portion 32 which is formed with a notch 33 extending in from one side. Angular notches 34 which are longitudinally disposed intersect from the upper end of the holder to notches 33. An enlarged diameter portion 36 is formed at the bottom of pick 17.

In using the pick, the outer end 13 of first rubber band 11 is engaged by the notches 33, 34 of pick 17 as is best shown in solid line in FIG. 5. The band 11 is stretched and the first end 13 is brought down around the outside of cylindrical portion 19 around the bands 12 and down to the bottom of cylindrical portion 19. The pick 17 is then pushed up through the hole in cylindrical portion 19 and out through the top. The commencement of this operation is shown in dotted lines in FIG. 5.

As the pick 17 is pushed up through the hole in the cylindrical portion 19, the first end 13 of band 11 slips out of the notch 33, but is caught by the enlarged diameter end 36 which has a outside diameter closely approximating the inside diameter of cylindrical portion 19. Such positioning of the first end 13 is shown in FIG. 6 in the upright or vertical position of pick 17. The pick 17 is then brought around the outside of the holder to the downward slanted position to the left of the holder as shown in FIG. 6. The "second end" of band 11 is then released from the groove 27 around to the outside of cylindrical portion 19. The first end is pulled, tightening the first band 11 around the bands 12. The bands 12 are then slipped off the upper end of the holder and the completed knot shown in FIG. 7 has been formed.

What is claimed is:

1. An implement for forming knots comprising a holder and a pick, said holder comprising a hollow cylinder formed with an opening along one side parallel to the axis of said cylinder, and a handle transverse to the axis of the cylinder, said cylinder formed with an external groove

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at its top; said pick comprising a rod formed with a hook at one end, said rod dimensioned to slide longitudinally through said cylinder with a relatively close fit.

2. An implement according to claim 1 in which said opening is narrower in the middle than at the top of said cylinder.

3. An implement according to claim 2 in which said opening extends around about half the circumference of said cylinder at said top end when viewed in top elevation.

4. An implement according to claim 1 in which said cylinder is formed with a lesser external diameter portion at said top, said groove formed in said lesser external diameter portion.

5. An implement according to claim 1 in which said rod

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is formed with an enlarged diameter portion at the end opposite said hook.

6. An implement according to claim 1 in which said hook is formed by a first notch in said rod inward from the periphery of said rod spaced down from said first end and a pair of second notches extending longitudinally along the exterior of said rod from said first end intersecting said first notch.

References Cited

UNITED STATES PATENTS

2,175,633 10/1939 McDermott ----- 189—17 X

LOUIS K. RIMRODT, Primary Examiner