No. 800,849. PATENTED OCT. 3, 1905.

C. F. HOLLY.

KNOT TYING IMPLEMENT.

APPLICATION FILED JAN. 30, 1905.

Fig. 1.

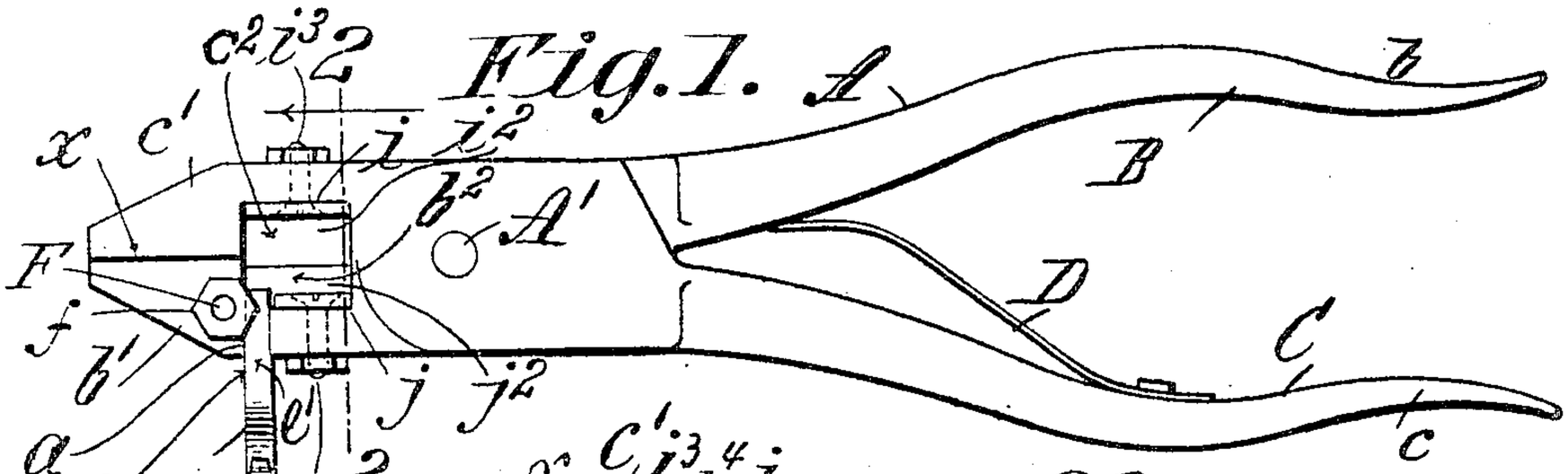


Fig. 2.

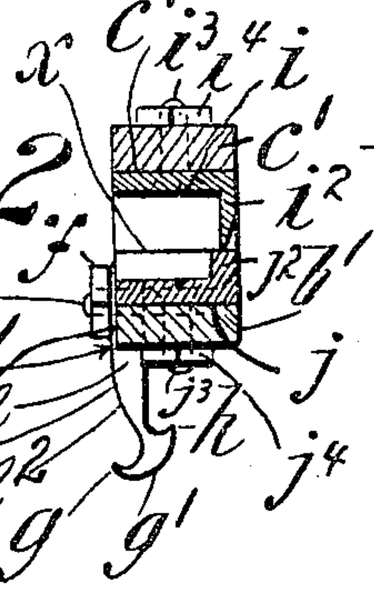


Fig. 3

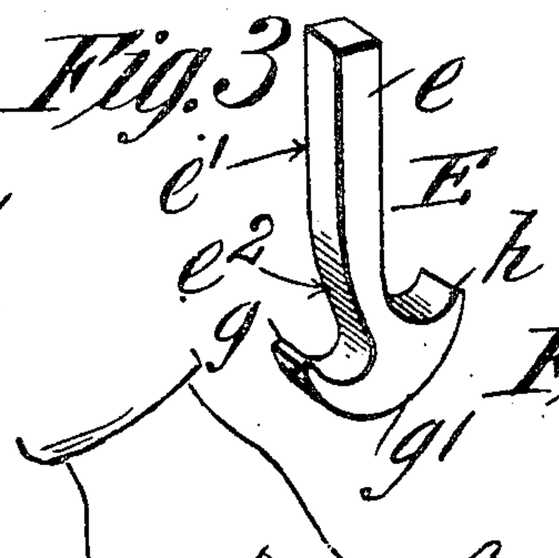


Fig. 4.

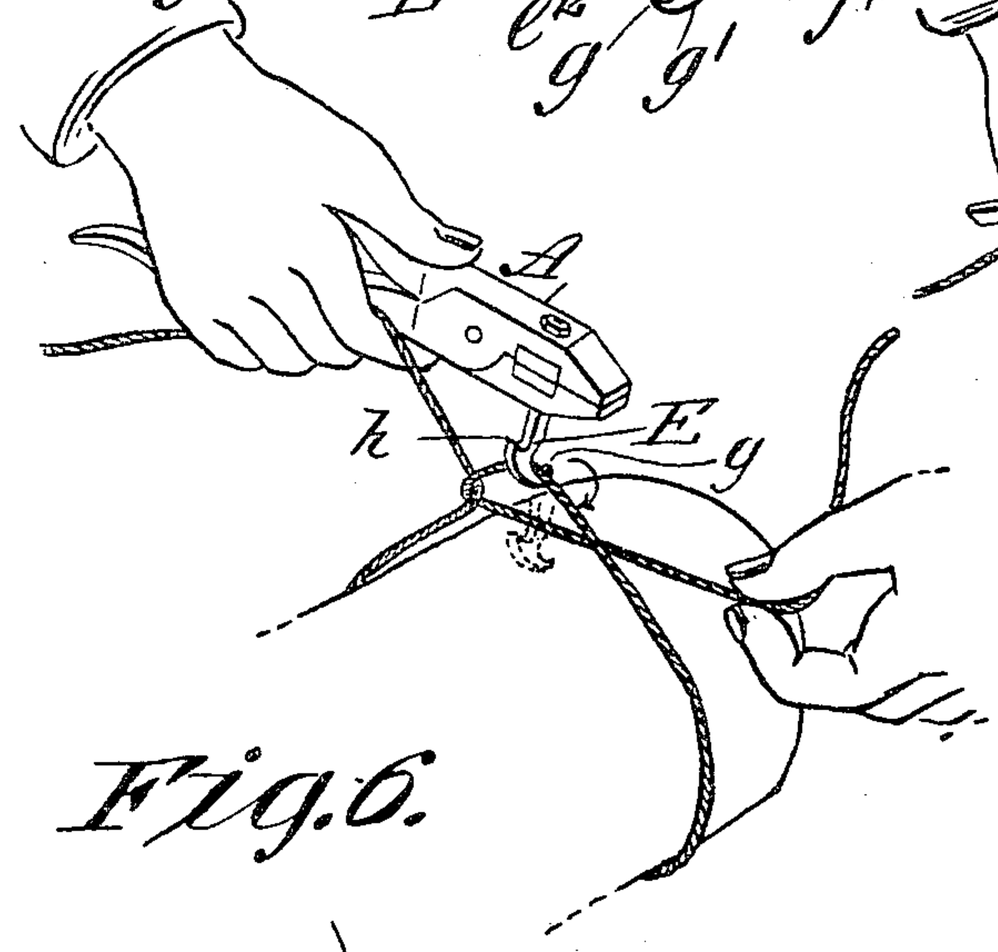


Fig. 5.

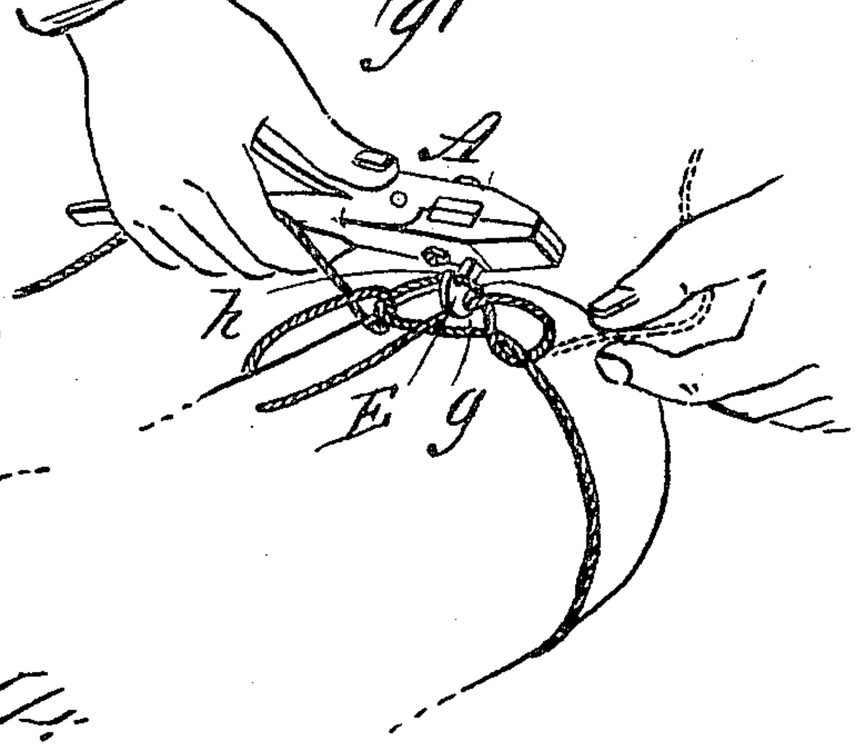


Fig. 6.

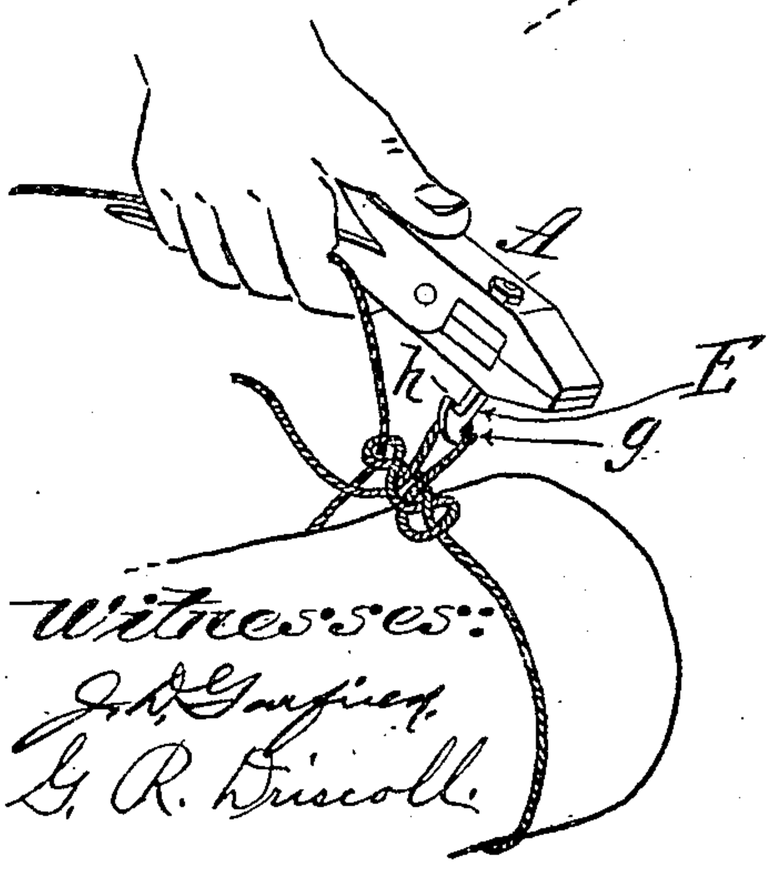
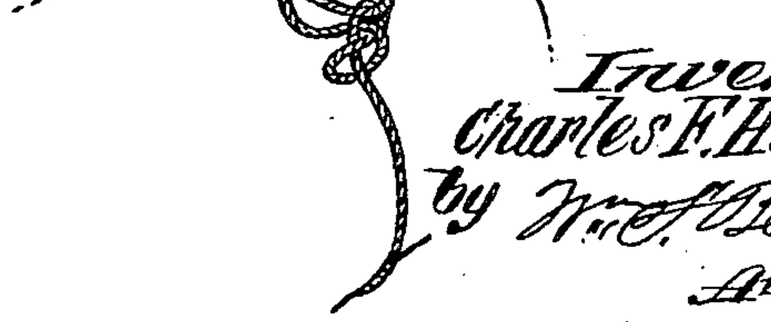


Fig. 7.



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UNITED STATES PATENT OFFICE.

CHARLES F. HOLLY, OF SPRINGFIELD, MASSACHUSETTS.

KNOT-TYING IMPLEMENT.

No. 800,849. Specification of Letters Patent. Patented Oct. 3, 1905.

Application filed January 30 1905. Serial No. 243,231.

To all whom it may concern:

Be it known that I, CHARLES F. HOLLY, a citizen of the United States of America, and a resident of Springfield, in the county of Hampden and State of Massachusetts, have invented certain new and useful Improvements in Knot-Tying Implements, of which the following is a full, clear, and exact description.

This invention relates to knot-tying pliers; and an object of the invention is to provide a hand implement for tying knots and manipulating heavy cord or wire fastenings used in the doing up of bundles or packages, especially in such lines of business as the wholesale meat and provision houses, box-shops, lumber-mills, or foundries and hardware-stores, &c., where the tying of many knots, especially with tarred rope, cord, or wire. if done by hand, is necessarily slow of accomplishment and often causes the complete disability of the operator, because of resulting cut and sore hands.

Another object of this invention is to provide, in connection with the knot-tying device and as an important adjunct thereof, a convenient form of cutting-pliers especially adapted for engaging the cord or wire and for coacting with the knot-tyer in the forming and final completion of some of the various knots this implement is adapted to.

Other objects of the invention are attained by the means for effecting various adjustments of parts and also for the interchangeability of the same.

This invention is illustrated in the accompanying drawings, in which—

Figure 1 is a side elevation of a pair of pliers embodying my invention, the pliers in this view being shown in their closed or operative position. Fig. 2 is a vertical cross-section taken on line 2 2, Fig. 1. Fig. 3 is a perspective view of the knot-tyer hook as removed from the body of the implement. Figs. 4 to 7, inclusive, illustrate the various steps and the manner of using the pliers in the tying of one form of knot.

In the drawings my invention is represented as comprised in a pair of pliers A of the type in which the two pivoted members B and C, each having handle portions *b* and *c* and jaws *b'* and *c'*, respectively, are normally held in an open position—that is, with the jaws and handles of each held in separated relations thereto by the spring D.

In Fig. 1 the closed positions of the handles and jaws are shown. About midway of the distance from the point or apex of the jaw *b'* to the pivot A' a groove *a* is formed in said jaw and extends transversely across one side thereof. Closely fitting in this groove and rigidly supported by its engagement therewith is the shank or straight portion *e* of a transversely (downwardly) extending hook-ended bar E. This shank portion *e* is square in cross-section and is somewhat thicker than the depth of the groove *a*, whereby the face *e'* of said shank portion protrudes slightly above the face b^3 of the jaw *b'*. (See Fig. 2.) A screw-bolt F, which passes through the jaw *b'* adjacent the groove *a*, has provided thereon a nut *f*, the edges of which overlap and bear upon the raised face *e'* of shank *e*, forming a secure means for locking the hook-bar E to the jaw *b'*. The face *e'* of the hook-bar in its downward extent below the jaw *b'* is backwardly curved, as at e^2, (see Fig. 2,) and from the lower curved part projects forwardly and is formed into a hook-like end portion *g*, from which a continued rearward and upward curve *g'* of the back of hook *g* terminates in a rearwardly-projecting second hook *h*, the point of which is somewhat higher than that of hook *g*.

The exact shape and contour of the above-described hook-bar E may be varied somewhat, and for different styles of knots and varying sizes of cords or wire a number of interchangeable hook-bars may be supplied, differing in the size and position of the double hooks and adapted to the work required, a quick substitution one for another being easy of accomplishment by the convenient fastening means above described.

In forming a variety of knots and hitches that this implement is adapted to the convenience of the pliers to pull the free or "running" end of the cord taut at the completion of tying a knot by the utilization of the double hooks is apparent, and with some practice it is possible to do up with great rapidity bundles requiring a strain on the cord or wire used that would be impossible to accomplish by hand.

An important practical provision included in the implement is found in the cutting-off devices which I have provided for severing cord or twine, without which the rapidity of action of the device for the purposes designed would be greatly reduced, and a description of this matter is as follows:

The contacting faces *x* of the jaws *b'* and *c'* have cut therein and extending thereacross the recesses b^2 and c^2, respectively, the upper recess c^2 has fitted therein the plate *i*, one

edge of which has an angularly-extending knife i^2 formed thereon, and a screw-bolt i^3 passed upwardly through the plate i, and the jaw c' is provided with a tightening-nut i^4, whereby said knife is held securely in place or may be quickly removed.

The lower recess b^2 has fitted therein a plate j, having an upturned ledge or cutting-block j^2 formed near one edge thereof and, as seen in Fig. 2 of the drawings, is adapted to meet the cutting edge of knife i^2, but being of a softer metal, as brass or copper, enables the knife which engages it to completely sever cord or small rope readily without dulling the edge thereof.

A screw-bolt j^3 is passed down through plate j and jaw b', which with the nut j^4 serves to removably secure this plate in its recess b^2.

When it is desired to use the implement to manipulate wire or small wire cable, the above-described cord-severing parts may be substituted by others having the double cutting edges of this form commonly used in cutting-pliers.

In Figs. 4 to 7 illustrations are given of the utilization of the implement in different stages of making a given knot or hitch.

Fig. 4 shows an intermediate portion or bight of the cord engaged by the hook g and by which it may by sidewise and downward motion be carried in the direction indicated by the arrow to the position shown for the hook by dotted lines, whereupon the hook g may be cast off by properly swinging the implement and the hook h engaged with the free end of the cord. This free end may be reversely turned, as represented in Fig. 5, to be engaged by the hook g, while the hook h engages the loop in the cord, and by a proper manipulation in any other stage of the knot-tying operation the hook g is serviceable to draw the free end of the cord through the loop, so that the part thereof shown in Fig. 6 has no loop or bight therein, as there shown, but is free to be grasped by the fingers, as represented in Fig. 7, whereupon the standing bight of the cord may be grasped by the pincer-jaws, and thereby carried to make a one-half hitch around the part grasped, as shown by the figures, and drawn tight to make the knot, a greater strain being imparted to the cord through the means of the pincers than could be done by hand and with the avoidance of injury to the hand. The standing part of the cord is then cut off suitably close to the hitch or knot by the cutting means.

Illustrations of the tying here given are only to render clear the availability of the devices in the quick accomplishment of different stages of knot-tying, and the implement described is useful in the making of knots or hitches of other characters, so that any extended or minute description of the operation of forming any one particular knot is not considered desirable.

Having thus described my invention, what I claim, and desire to secure by Letters Patent, is—

1. An implement for the purpose described, consisting of a pair of pliers having pincer-jaws, one of which is provided with an angularly-extending bar, having at its extremity oppositely-located hooks extending in directions transversely of the length of the said pincer-jaws.

2. In an implement of the character described, a pair of spring-opened pliers having pincer-jaws, one jaw of which has a groove formed in the side thereof, a bar supported in said groove, said bar having a cross-sectional thickness greater than the depth of the groove, a screw-bolt extending through the jaw adjacent the groove, a nut on the screw-bolt overlapping and engaging the projecting face of the bar, and said bar having a hook on one side of its end portion and a second hook on the opposite side thereof.

3. In an implement of the character described, a pair of spring-opened pliers having pincer-jaws, one jaw of which has a groove formed in the side thereof, a bar supported in said groove, said bar having a cross-sectional thickness greater than the depth of the groove, a screw-bolt extending through the jaw adjacent the groove, a nut on the screw-bolt, overlapping and engaging the projecting face of the bar and said bar having a hook on one side of its end portion and a second hook on the opposite side thereof, a second groove in the said jaw of the pliers extending across the contacting face of the jaw, a soft-metal plate having a raised cutting-block formed on one end thereof, supported in said groove, a securing screw-bolt passing through the jaw and plate; a similar groove in the opposite jaw of the pliers, a plate supported in the groove having a raised knife-edge on one end thereof, and a securing screw-bolt uniting the plate to the jaw, for the purposes specified.

4. A knot-tying implement comprising a pair of pliers and a bar consisting of a shank portion having a hook formed on one side at one end thereof, and a second hook formed on its opposite side, and detachable means of confinement whereby said knot-tying hook-bar may be removably secured to one of the jaws of the pliers.

Signed by me at Springfield, Massachusetts, in presence of two subscribing witnesses.

CHARLES F. HOLLY.

Witnessess:

WM. S. BELLOWS,

G. R. DRISCOLL.