May 22, 1951 A. A. MORTON 2,553,931

CORD GRIPPING DEVICE

Filed Sept. 23, 1946 2 Sheets-Sheet 1

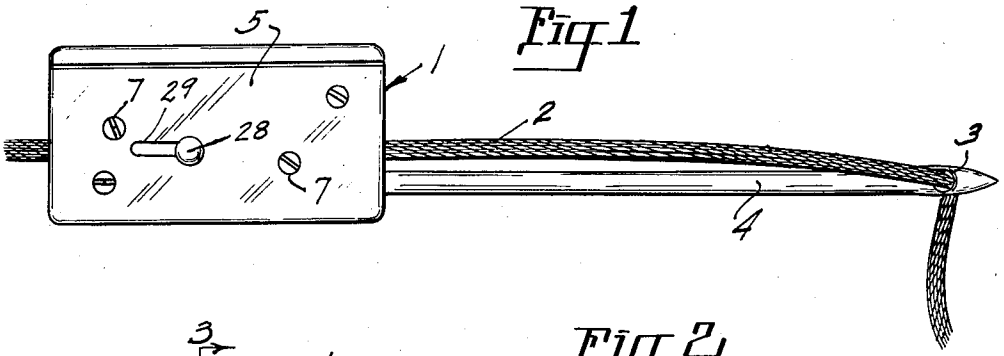


Fig 1

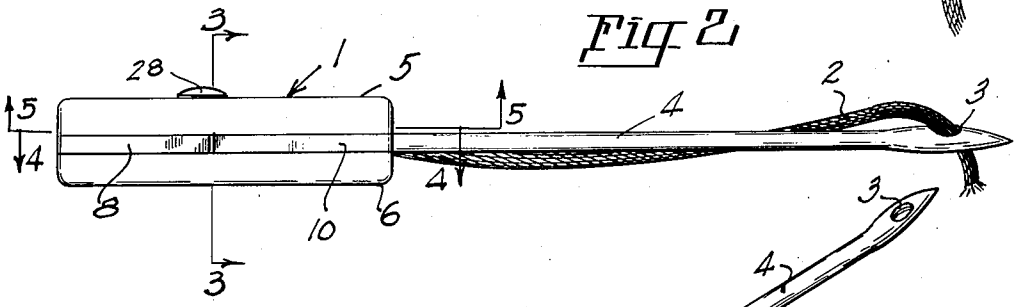


Fig 2

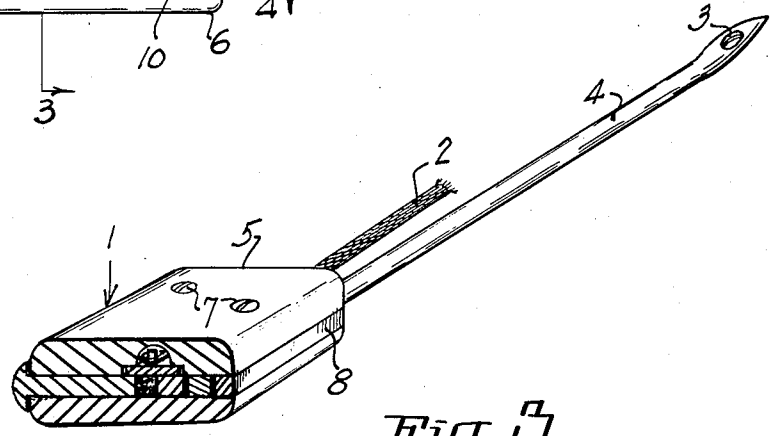


Fig 3

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May 22, 1951 A. A. MORTON 2,553,931

CORD GRIPPING DEVICE

Filed Sept. 23, 1946 2 Sheets-Sheet 2

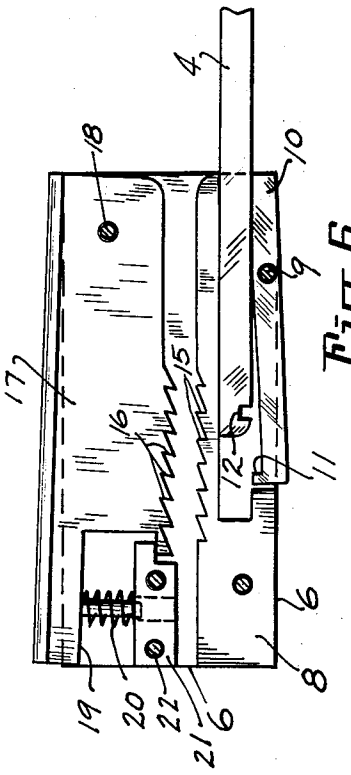


Fig 6

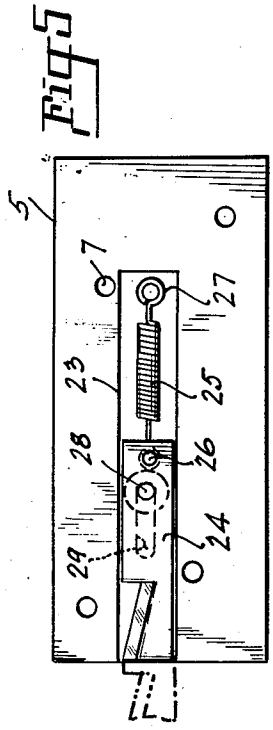


Fig 5

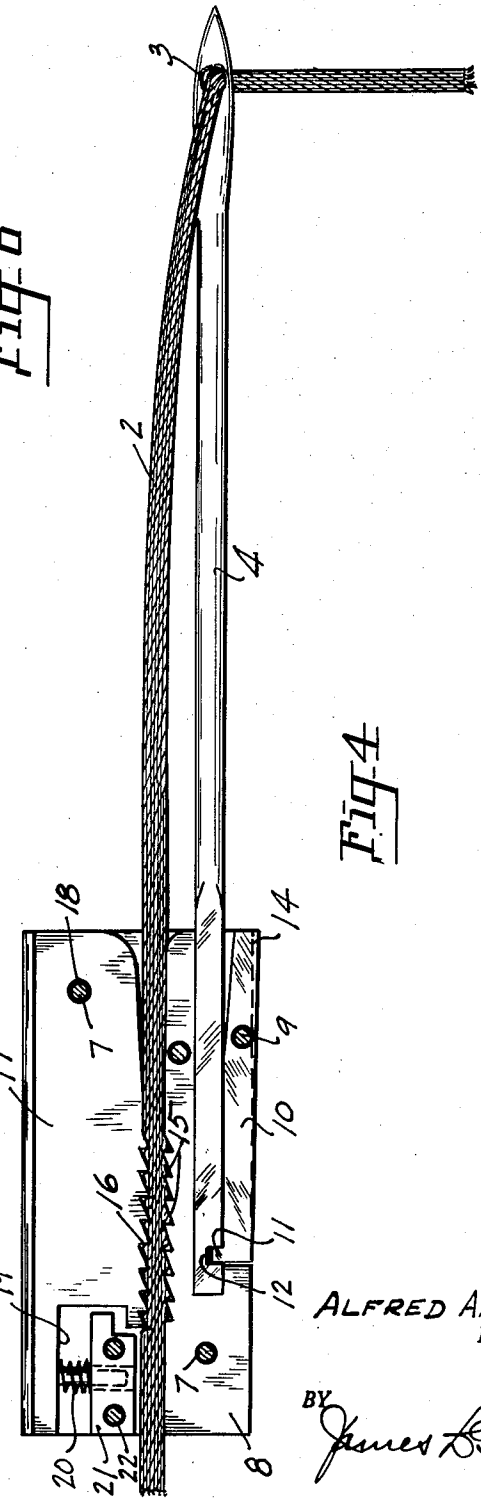


Fig 4

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UNITED STATES PATENT OFFICE

2,553,931

CORD GRIPPING DEVICE

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Application September 23, 1946, Serial No. 698,703

1 Claim. (Cl. 24—132)

1

This invention relates to a cord gripping device for hand use to enable a person to obtain a firm grip on cord, twine, and the like in binding and tying articles such as meat, boxes, bags, cartons, packages and bundles of material.

Reference is made to applicant's application Serial No. 534,662, filed May 8, 1944, now abandoned.

The general object of the invention is to provide a device which may be held in the hand to grip or release a cord passing therethrough in accordance with the application or release of pressure on a particular part of the device.

Another object is to provide a cord gripping device of convenient shape and proportions to be comfortably held in one hand for tensioning cords, to save the hands of persons engaged in occupations involving the constant tightening and tying of cords for long periods of time.

Another object is to provide a cord gripping device which is constructed to exert a powerful gripping action upon a cord from an external source with a relatively light pressure by the hand of the operator, and which may be instantly released when it is desired to move the cord through the device.

Another object is to provide a cord gripping device of the type described with a cutting blade or knife normally concealed in the handle and adapted to be extended in a convenient position to cut the cord.

Another object is to provide a cord gripping device of the type described with releasable means for holding a needle for use in threading the cord through meat, bags, cartons, or other articles to be tied.

These and other objects will become apparent as the description proceeds in connection with the accompanying drawings illustrating a preferred embodiment of the invention.

In the drawings:

Figure 1 is a top plan view of a cord gripping device made in accordance with the principles of the present invention showing a tying cord extending therethrough and through an eye in the outer end of a sewing needle attached thereto;

Figure 2 is a side elevation view of the device shown in Figure 1;

Figure 3 is a perspective sectional view of the device taken on the line 3—3 of Figure 2;

Figure 4 is a view taken substantially on the line 4—4 of Figure 2;

Figure 5 is a view taken substantially on the line 5—5 of Figure 2; and

Figure 6 is a view taken similarly to Figure 4 with the cord removed and the needle partially removed from the device.

Although the present gripping device is illustrated with a sewing needle for threading the tying cord through meat, packages, bags, or the

2

like to be tied, it is to be understood that the gripping device is useful without the needle for tensioning cords and twine, particularly in binding and tying operations to prevent injury to the hands of the operator. A person working constantly with cords and twine, as in binding and tying, must have some protection for the hands. Gloves are not suitable for the purpose as they interfere with the manipulation of the cord in tying a knot, and quickly wear through in places where the cord is gripped in applying tension. The present gripping device enables the operator to work with bare hands or with relatively thin gloves through which he can feel the cord in tying knots and the like, and allows the cord to be taken from a large reel or coil conveniently located. When the removable needle is inserted in the gripping device, it is particularly well adapted for certain specialized uses as, for instance, by butchers in tying rolled meats and the like wherein the needle is used to sew the cord through the meat and the gripping device is used for tightly binding the rolled meat preparatory to tying.

In the preferred embodiment illustrated, the numeral 1 indicates generally the handle of the gripping device through which is passed the tying cord 2 from a reel or coil not shown. When the gripping device is to be used with a needle, the cord is threaded through the eye 3 in the outer end of a needle 4 which is adapted to be removably secured in the handle 1. The handle is preferably made of two halves 5 and 6 joined together by means of screws or bolts 7 so that when one of these halves is removed the cord and needle gripping elements are exposed as shown in Figure 4, being entirely self contained and mounted in the other half of the handle.

Upon the handle half 6 is mounted a plate 8 and a pivot 9 carrying a trigger 10 having one side exposed along an edge of the handle. One end of the trigger is formed with a lug 11 adapted to engage with a notch 12 formed at the inner end of the needle whereby the normal gripping action of the operator around the edge of the handle forces the lug into the notch and holds the opposite side of the needle rigidly against a wall of the plate 8 which functions as an abutment member. The trigger member is spaced from this abutment wall just sufficiently to allow insertion of a square needle shank therebetween. The needle is released from the handle by applying pressure to the narrowed forward end 14 of the trigger to swing the trigger about the pivot 9 to cause the lug 11 to disengage from the notch 12. When this is done the needle is free to be withdrawn from the handle as shown in Figure 6.

The inner edge of the plate 8 forms one side of a channel for receiving the cord 2 longitudi-

nally through the handle, and is formed with teeth or serrations 15 opposing teeth or serrations 16 formed on a gripping element 17 which constitutes the opposite side of the cord channel through the handle. The gripping element 17 is pivotally mounted at 18 on one of the bolts 7 near one end of the gripping element and handle. The opposite end of the gripping element is recessed at 19 where it bears against a compression spring 20 which in turn bears against a block 21 secured by bolts 22 to the handle. One side of the block 21 also forms a portion of the wall of the cord channel opposite one end of the abutment plate 8 and in continuation of the channel wall formed by the gripping element. The spring 20 normally holds the gripping element 17 in the position shown in Figure 6 with the serrations 16 retracted somewhat behind the block 21 to widen the serrated part of the cord channel so that a cord may slide freely through the cord channel without encountering resistance between the opposed serrations. The outward movement of the gripping element is limited by its engagement with the block 21.

It will be apparent that the cord channel is of fixed width at one end of the handle between the plate 8 and block 21, and of substantially fixed width at the other end of the handle between the plate 8 and that portion of the gripping element adjacent its pivot 18, both portions of fixed width having smooth walls to facilitate threading the cord into the cord channel from either end thereof. Between these end portions of fixed width the parts 8 and 17 also form a substantially straight and parallel walled cord channel to guide the end of the cord when it is inserted and pushed through the handle. There is no enlarged interior cavity permitting the end of the cord to wander and double back upon itself. The length of the gripping element 17 provides an extended gripping surface to engage the cord over a considerable length instead of at only one point as heretofore proposed.

In the relaxed position of the parts it will be noted that one side, or edge portion, of the gripping element 17 is projected by the spring 20 outwardly slightly beyond the side margin of the handle where it is in a position to be squeezed inwardly when the handle is gripped. When the handle is gripped by an operator, the gripping element 17 is thereby swung inwardly on its pivot 18 to move the serrated edge 16 closer to the serrations 15. These serrations may be inclined in opposite directions in the members 8 and 17 to grip a cord effectively in either direction of pull, but it will be noted that when the handle is pulled to the left in Figures 4 and 6 the frictional engagement of the cord with the serrations 16 acts in a line at a distance from the pivot point 18 having a lever arm tending to rotate the gripping element 17 in a counter clockwise direction to maintain a self-energizing gripping action as long as a pull is exerted on the handle and in addition to the squeeeze applied externally to the gripping element. Whenever such pull is discontinued, the self-energizing action of the gripping element is also discontinued, and if the operator's grip be relaxed from the gripping element 17, the spring 20 will separate the parts 8 and 17 to immediately release the cord.

The above described construction embodying a cord channel extending entirely through the handle of the gripping device avoids the necessity for carrying the spool of cord within the handle itself, which obviously cannot be done

when the cord or twine is furnished in great length on large balls, cones or reels. Thus, the present gripping device may be used either at the end or in an intermediate portion of a long cord, and if desired, two of these gripping devices may be used in order to apply tension on both ends of a binding or the like. In such use the cord end will have to be removed from one of the gripping devices as it will then be on the bundle or article which has been tied, but it is an easy matter to insert the gripping device on the new cord end prior to the next binding and tying operation.

The handle half 5 is formed with a channel 23 within which is slidably mounted a cutting blade 24 normally held in a retracted position within the handle by means of a tension spring 25. One end of the spring 25 is secured at 26 to the blade, and its opposite end is secured at 27 to one of the bolts 7 extending through the handle. A projection 28 on the blade extends slidably through a slot 29 in the handle for sliding the blade into projected position to cut the cord after a binding and tying operation.

In clamping the two handle halves together, suitable means are provided to keep the half 5 from binding upon the trigger 10 and gripping element 17 and so preventing the proper functioning of these parts.

Various changes may be made in the construction and arrangement of parts within the spirit of the invention, and all such modifications within the scope of the appended claim are included in the invention.

Having now described my invention and in what manner the same may be used, what I claim as new and desire to protect by Letters Patent is:

A cord gripping device comprising a flat hand grip having a cord guiding and confining channel extending longitudinally therethrough from end to end, a fixed abutment surface in said hand grip defining one side of said channel, a fixed block defining the other side of said channel at one end of said hand grip, a pivoted gripping element defining said other side of said channel from said block to the remote end of said hand grip, a spring between said block and said gripping element to move said gripping element outwardly from said channel and into an exposed position to be squeezed into said hand grip, said outward movement being limited by engagement of said gripping element with said block, and said gripping element being adapted to grip a cord for a substantial length against said abutment surface in said cord channel when said gripping element is squeezed inwardly.

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