

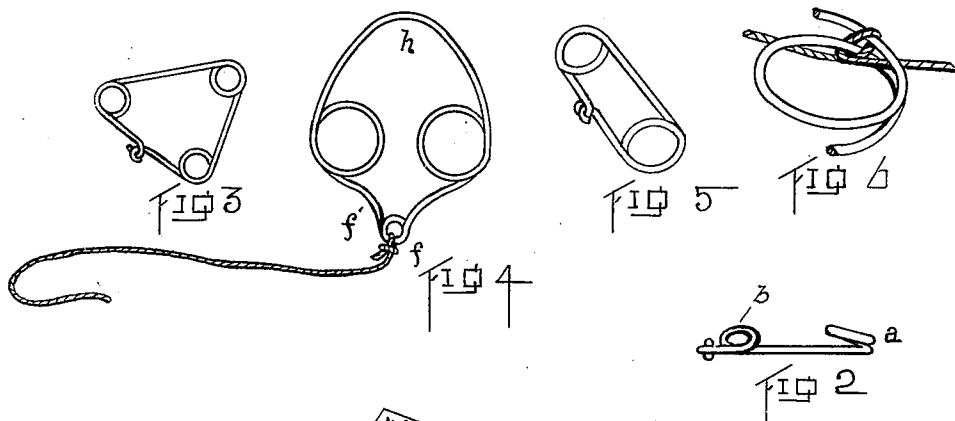
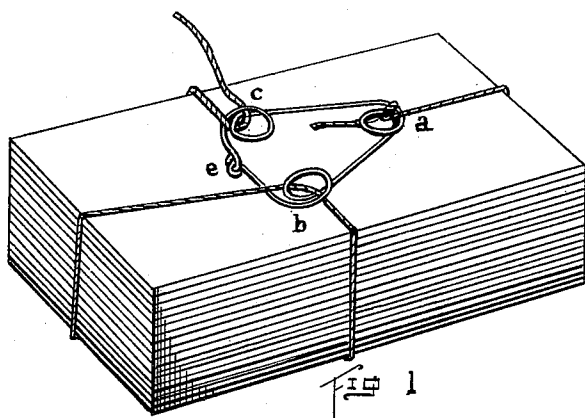
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Patented Aug. 14, 1900.

C. J. W. HAYES.
CORD FASTENER.

(No Model.)

(Application filed May 15, 1899.)



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CORD-FASTENER.

SPECIFICATION forming part of Letters Patent No. 656,114, dated August 14, 1900.

Application filed May 15, 1899. Serial No. 716,858. (No model.)

To all whom it may concern:

Be it known that I, CHARLES J. W. HAYES, a citizen of the United States, residing at Detroit, county of Wayne, State of Michigan, have invented a certain new and useful Improvement in Cord-Fasteners; and I declare the following to be a full, clear, and exact description of the invention, such as will enable others skilled in the art to which it pertains to make and use the same, reference being had to the accompanying drawings, which form a part of this specification.

This invention relates to cord-fasteners for securing packages, and has for its object an improved cord-fastening device by means of which a package or bundle can be bound with cords and the ends of the cords secured easily and quickly. The cords can be attached to or released from the fasteners with equal readiness and without injury to the fastener or the cord, thus making it possible to use either or both repeatedly and so obtain economy, as well as speed and convenience, by the use of this device. It is especially adapted for use in those classes of business such as the mail-service, in which it is required that letters be quickly fastened together in packages and the contents of packages examined without destroying the means of fastening and where heretofore generally the fastening has been done by means of a cord passed around a package and tied in such a way that it is necessary to break or cut the string or spend much time in tying and untying it.

In the drawings, Figure 1 is a view in perspective of a cord-fastener of three loops in a position of use on a package of envelopes. Fig. 2 shows a side elevation of a three-looped fastener. Fig. 3 shows a three-looped fastener of symmetrical form and having all its loops wound in the same direction. Fig. 4 shows a fastener of two loops and having eyes in which a cord is tied. Fig. 5 shows a fastener of two loops and having no provision for tying a cord to it. Fig. 6 is an enlarged detail of one loop and shows the manner of attaching the cord to the fastener. Fig. 7 shows the manner of holding a package of letters and a fastener in position for use and shows the package bound in one direction.

The fastener consists of a bent wire the ends of which are linked together, so as to

make the wire practically endless, and the wire is bent to a polygonal form, with coils of one turn at the angles of the polygon. The coils in each instance are turned inward, so as to form what may be called a "hook," that extends from the angle inward toward the middle or center of the polygon.

In the forms shown in Figs. 1, 2, 3, and 7 the polygon is a triangle having a coil at each angle.

In the form shown in Fig. 4 the polygon may be considered a quadrilateral having only two coils and located at opposite angles.

In the form shown in Fig. 5 the polygon may still be considered a quadrilateral having two coils located at opposite angles, but the coils of such size in relation to the short sides of the polygon as to entirely absorb them. The form shown in Fig. 5 may be produced from the form shown in Fig. 4 by linking the ends together and straightening the sides or by winding the coils larger.

In Fig. 1, *e* indicates the end of the wire of which the fastener is made. This is formed into an eye for engagement with another eye formed at the other end of the wire. From *e* the wire extends to *b*, where it is wound into a coil, having the side toward the center of the triangle raised slightly to form a hook, as shown in Fig. 2. From *b* the wire extends to *a*, where another coil-hook is formed similar to *b*, and from thence to *C*, where is located another similar coil-hook, and from thence to the end, which is formed into an eye and joined with the other end. These coils may be either right or left hand wound, but are preferably wound and arranged as in the drawings. Thus in Fig. 1 coil *b* is left-hand wound, coil *a* is right-hand wound, and coil *c* is right-hand wound.

In Fig. 3 all the coils are wound right hand, making the fastener symmetrical, so that any one of the coils may be used in the place of any other.

In Fig. 4 one coil is right-hand and the other left-hand wound.

In Fig. 5 one is right and one left hand wound.

The forms shown in Figs. 1, 2, 3, 4, and 7 are especially adapted for use in tying a package when it is desired to place the cord about the package in two directions. All of these

forms except that shown in Fig. 4 are also especially adapted to engage or disengage instantly a cord, as distinguished from the form shown in Fig. 4, to which form of device the cord is tied permanently through the overlapping eyes $f f$, formed at the ends of the wire. The part h of this form affords a convenient means for hanging it up and also additional holding-surface for the thumb when in use. This form is especially adapted for use with a good quality of cord or tape permanently attached and when so equipped may be used in lieu of strap and buckle in many places.

The double-looped form shown in Fig. 5 is especially adapted for use with packages around which the string passes in only one direction, although it may be used where the string is passed around the package in two directions.

All these forms of fasteners have more or less elasticity due to the spring of the wire, particularly at the coils, and so cause any slight looseness of the cord when in use to be taken up and the package always held firmly. The three-looped triangular form has the most elasticity, and the two-looped form (shown in Fig. 5) the least.

Many sizes of this device may be made, ranging from a size suitable for use with thread to a size suitable for use with rope. In the larger size the ends of the wire may be advantageously welded together.

In using a treble-looped fastener to attach the string the fastener is taken between the thumb and finger and the end of the string held likewise at about the center of the fastener. The string is then drawn between the upper and under laps of wire at the base of one of the loops. The string is then brought around and under the loop again, so that for a second time the string engages between the under and upper laps at the base of the loop. The string now has a complete turn around the two laps of the wire, and from the inner end to the outer end it passes first between the laps, then bends back over the upper lap, then bends forward again, embracing the lower lap and the string itself, and passes out between the laps at the base of the loop. If tension now be put on the string, it tends to pull the wires together and pinch that portion of the string lying between the laps, and the greater the tension the tighter the grip on the string. It will be thus seen that the hook-coils act and serve as clamping-coils.

To tie a package, having the string attached to the fastener, the package is taken in the left hand and held between the fingers and the thumb, with the fastener partially, or in the small sizes entirely, underneath the thumb and with that end of the fastener to which the string is attached pointing away from the hand which holds it. The string is now turned around the package and drawn

up beside the thumb or under it to catch the loop at the right, and then bent at right angles and turned the second time around the package, going this time the long way of the package. The string is finally brought up to the loop at the left and fastened by being wound around it, first passing over the upper lap and then down and around between the two. In this position the string will hold securely; but another turn may be made around the loop as a double security. A double turn instead of a single catch may be made around the right-hand loop, and when so fastened the string going either way around the package may be broken without releasing the other section of string and the package.

From the above description of winding the string around the loops it is evident that it is not material to the usefulness of the device whether the coils be right or left hand wound, but that a right-hand-wound coil would require that the string be wound in a different direction from the wind which would be given it if the coil were a left-hand-wound one, and certain combinations of windings would be more or less convenient, depending upon the right or left handedness, or personal peculiarities, of the user. To release the string, it is only necessary to unwind it from around the coils.

What I claim is—

1. In a cord-fastening device, a wire bent and the ends brought and secured together to form an elastic frame, said frame carrying one or more elastic helices tangent internally to the side bars of the frame formed from said wire, whereby a cord or tape may be clamped, substantially as described.

2. In a cord-fastening device, a wire bent into a plurality of separated single-coil elastic clamping-helices, the ends of said wire being brought together and secured to form an elastic frame, substantially as described.

3. In a cord-fastener, the device consisting of a wire having separate clamping convolutions forming hooks all pointing toward a common center, and the ends of the wire brought and secured together, each convolution-hook consisting in part of an overlapping portion formed by the crossing of the wire entering and leaving the convolution, substantially as described.

4. A cord-fastener, comprising a plurality of connecting elastic convolutions of wire, fashioned to form cord-clamps, and arranged within an endless frame formed by the portions of wire connecting said convolutions, substantially as described.

In testimony whereof I sign this specification in the presence of two witnesses.

CHARLES J. W. HAYES.

Witnesses:

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