Dec. 16, 1941. J. F. CAVANAGH 2,266,534

PACKAGING FASTENER

Filed March 7, 1940 2 Sheets-Sheet 1

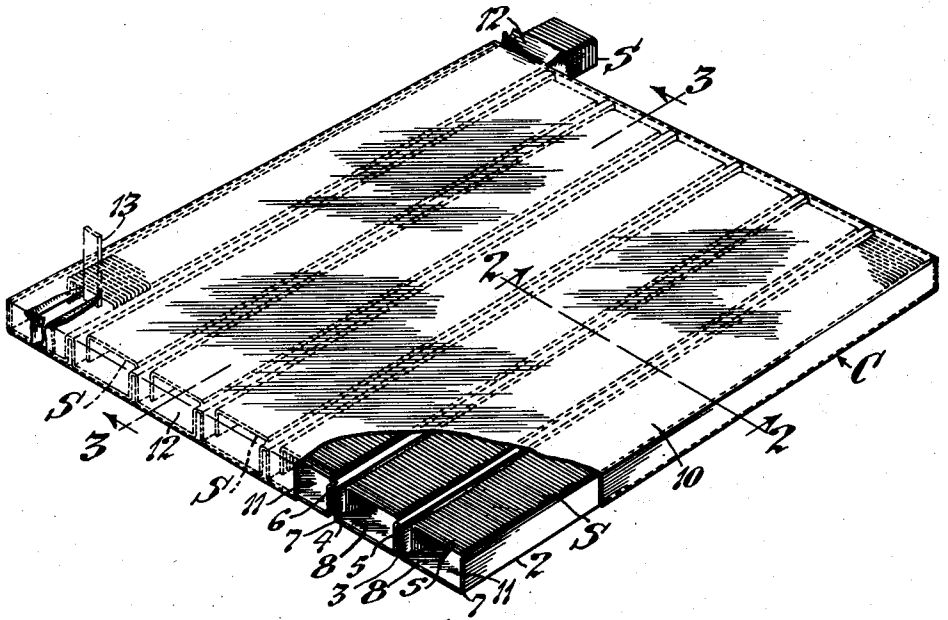


Fig. 1.

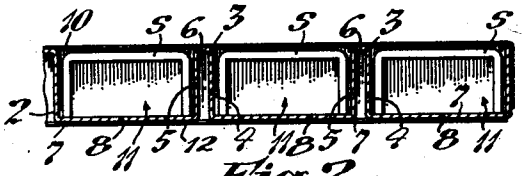


Fig. 2.

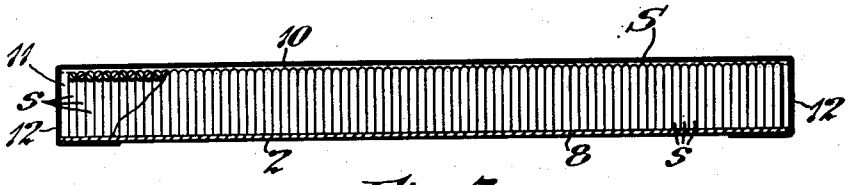


Fig. 3.

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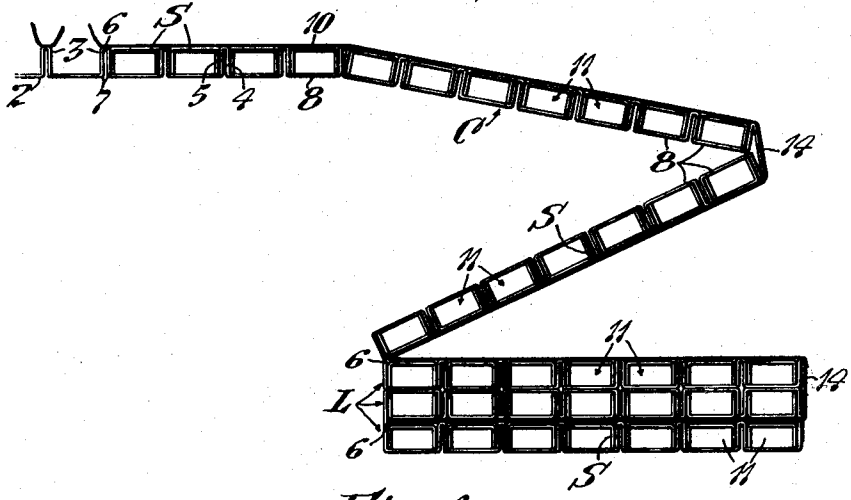


Fig. 4.

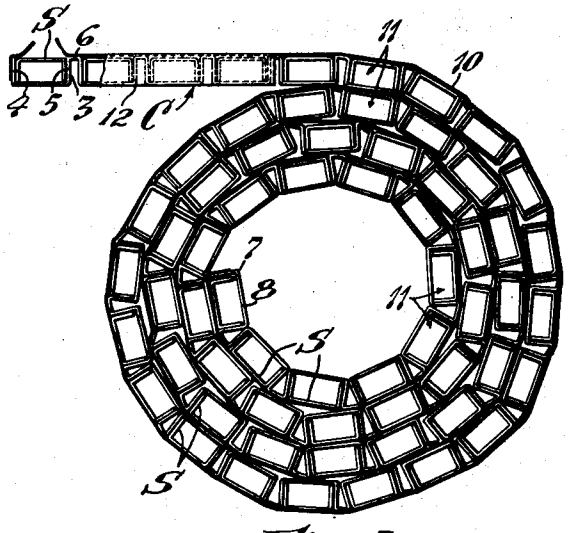


Fig. 5.

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PACKAGING FASTENER

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Application March 7, 1940, Serial No. 322,752

10 Claims. (Cl. 1—56)

The present invention relates to a method of packaging fasteners and the fastener-package produced thereby and more particularly to packaging fasteners used for attaching papers and other sheets, for securing tags and labels to articles of commerce and for use generally in fastening and stapling together various objects and articles.

One of the objects of the present invention is to provide a method of packaging preformed fasteners to produce a continuous flexible strip of self-sustained sticks of fasteners adapted to be folded into overlying layers to form a stack or rolled into a spiral pack.

Another object of the invention is to provide a method of packaging preformed fasteners to facilitate the refilling of the magazines of the machines in which they are used.

Another object of the invention is to provide a fastener-package having self-sustained sticks of fasteners mounted in pockets in a cellular carrier with one side of the pockets covered with a frangible material to adapt the pockets to be opened readily.

Still another object of the invention is to provide a fastener-package of the type indicated for assembling a large number of fastener-sticks in compact arrangement and one which is of simple construction to adapt it for economical manufacture.

Further objects of the invention are set forth in the following specification which describes, by way of example, the method of packaging fasteners, a preferred form of construction of the package and several ways in which the package can be used, as illustrated by the accompanying drawings. In the drawings—

Fig. 1 is a perspective view of a portion of a package produced in accordance with the present invention and showing a series of self-sustained sticks of fasteners assembled in closely-adjacent parallel relationship on a flexible carrier;

Fig. 2 is a longitudinal sectional view through the package on line 2—2 of Fig. 1 showing the pockets enclosing the self-sustained sticks of fasteners;

Fig. 3 is a transverse sectional view through the package on line 3—3 of Fig. 1 showing the frangible material covering the top and ends of the pockets in which the sticks of fasteners are enclosed;

Fig. 4 is a sectional end view of the package shown as folded in overlying layers to form a stack, the portions of the covering at the ends of the pockets not showing; and

Fig. 5 is a view similar to Fig. 4 showing the package rolled to form a spiral pack and illustrating the frangible covering at the ends of several of the pockets.

The stitching machines used commercially for heavy work in mass production comprise means for feeding lengths of wire from a spool, cutting relatively short lengths from the wire, forming the lengths into U-shaped fasteners and driving the formed fasteners into the work. Such machines are of somewhat complicated construction and are necessarily quite expensive to manufacture. Certain types of work, however, can be stitched as well with preformed fasteners driven by machines of much simpler construction. The usual type of machine for inserting preformed fasteners comprises a magazine-arm for holding and feeding a supply of fasteners, a driver for inserting the fasteners and clinching means for clinching them on the underside of the work. Such machines, however, are not particularly adapted for mass production as their magazines have a limited capacity and must be refilled at frequent intervals.

In accordance with the present invention self-sustained sticks S of preformed fasteners *s* are mounted in closely-adjacent parallel relationship on a carrier C which is adapted to be bundled in compact arrangement by either folding it to form stack or winding it into a spiral roll to provide a shipping package. Such a form of package is adapted for use as a refill for desk-type implements or the like, and also particularly well adapted for supplying the magazines of commercial machines, either automatically or semi-automatically, to speed up the operation of such machines used in mass production. The preformed fasteners *s* are herein illustrated as a type of U-shaped wire staples assembled in contiguous side by side relationship to provide a self-sustained stick, but the fasteners may take other forms. The staples *s* may be assembled in any suitable manner to provide a self-sustained stick S as by mounting them on a core, providing integral connecting portions between adjacent staples, joining them with strips of paper, or by soldering, electroplating or the like. Preferably, the staples *s* are joined in a stick by means of a suitable adhesive coating in the manner illustrated and described in United States Letters Patent to A. H. Maynard, No. 1,792,235, issued February 10, 1931.

The self-sustained sticks S of preformed staples *s* are then mounted on a flexible carrier C to extend transversely thereof in closely-adjacent

parallel relationship. In its broader aspect, the present invention is not limited to any particular form of carrier C, or to the means for mounting the sticks S thereon, but for purposes of illustration the carrier is shown herein as a web 2 of any suitable material, such as strong paper, of a width substantially equal to the length of the self-sustained staple-sticks S. The web 2 is creased and folded to provide transversely extending looped partitions 3 having spaced vertical walls 4 and 5 with connecting portions 6. Thus, the partitions 3 provide a series of closely-adjacent transversely-extending channels 7 with each channel having a bottom 8 and opposite side walls 4 and 5 and the several channels flexibly joined by the intermediate connecting portions 6. The web is so creased and folded that the channels have a width and height substantially equal to the width and height of the staple-sticks S. After the web has been creased and folded in this manner a self-sustained staple-stick S is mounted in each of the channels 7 to be supported therein by the engagement of the ends of the staple legs with the bottom wall 8. A covering 10 of frangible material, such as thin paper or the like, is then attached to the carrier C to overlie the open tops and ends of the channels 7 to provide closed pockets 11 enclosing the staple-sticks S. The covering 10 is preferably in the form of a continuous web having marginal edge portion 12 folded down around the sides of the carrier C and underlying the bottom thereof, see Fig. 3. The covering 10 is attached to the carrier by gluing or by otherwise securing it to the connecting portions 6 at the top of the partitions 3 and the underside of the carrier adjacent its sides. It will be understood that the creasing and folding of the web 2, the insertion of the self-sustained sticks of staples S, and the application of the covering 10 may be accomplished automatically in suitable apparatus to provide for continuously packaging the fasteners.

The resulting package comprises a series of self-sustained staple-sticks S enclosed in adjacent cells or pockets 11 flexibly connected to each other on the carrier C. For ordinary use, to refill a desk-type stapler or the like the frangible covering at the top and ends of a pocket 11 is broken to remove a staple-stick. The staple-stick S may then be inserted into the magazine of a stapling implement in the usual manner. The package is also adapted for use with mechanism for automatically reloading the magazine of a stapling machine to further adapt it for use in mass production. For instance, the magazine of the stapling implement may be provided with a transverse slot of a size to adapt the carrier C to feed therethrough. The pockets 11 would then support the staple-sticks S to adapt them to be fed to the staple driving mechanism by a suitable pusher, indicated at 13 in Fig. 1, with the pusher acting to break the frangible covering 10. As another example, the carrier may be indexed along to aline successive staple-sticks with the end of the magazine after which they may be slid into the magazine in the usual manner by a suitable pusher or the like. Thus, it will be observed that the flexible carrier C adapts itself for feeding the staple-sticks S to a magazaine whereby they may be pushed longitudinally from their pockets 11 in any suitable manner such, for example, as indicated at 13 in Fig. 1. Due to the frangible covering 10 of thin paper or the like the pusher 13 or similar element applied at the rear of a staple-stick S will break the top and ends of the covering to facilitate the removal of the sticks.

To adapt the carrier C to be folded into overlying layers L to form a rectangular stack, as illustrated in Fig. 4, an unfolded portion 14 of the web 2 is provided between adjacent channels at predetermined intervals lengthwise of the carrier C, such portions being equal in length to the combined depth of two layers. For example, each layer may comprise seven pockets 11, as illustrated in Fig. 4, so that at the end of each length of the carrier comprising fourteen pockets an unfolded portion 14 is provided. The unfolded portions 14 being of a length equal to twice the depth of the pockets 11 adapts the carrier C to be folded back on itself at one side of the stack, the marginal folded portions 12 of the frangible covering material 10 extending across the space between the pockets merely folding inwardly as the carrier is folded back on itself. At the opposite side of the stack the carrier C is adapted to fold or hinge on the connecting portions 6 of the partitions 3 and the marginal portions 12 of the frangible material 10 at the ends of the pockets are ruptured between adjacent pockets to permit such folding. Thus, the carrier C is adapted to be folded in the manner of accordion pleating, as illustrated in Fig. 4, to form a rectangular stack which will fit into a case or box of conventional form to occupy a minimum of space.

The carrier C may also be rolled to form a spiral pack in the manner illustrated in Fig. 5. Such a form of pack is particularly desirable for supplying the staple-sticks S to a machine for use in mass production. It will be noted that when the carrier C is rolled to form the spiral pack with the sticks arranged in the relationship illustrated in Fig. 5, the connecting portions 6 between the pockets 11 flex one with respect to another to adapt the carrier to assume its spiral form. It will be understood, however, that the carrier may be flexed in the opposite direction to obtain a closer relationship, the frangible material between the pockets at the sides of the carrier then breaking to permit such relative movement. Preferably, however, the carrier is flexed in the manner illustrated in Fig. 5, the frangible material between the pockets 11 at the sides of the carrier C merely folding inwardly to adapt the carrier C to be rolled.

While the invention is herein described in its preferred form as contemplating assembling the staples or like fasteners in self-sustained sticks, it may also be carried out by arranging the fasteners in contiguous relationship on the carrier, either flexible or substantially rigid, with the latter providing the means for retaining them in position without the use of other connecting means.

It will now be observed from the foregoing description that the present invention provides a novel form of package for fasteners and an improved method of packaging the same. It will also be observed that the present invention provides a shipping package for fasteners to be used in desk-type implements or for use with commercial machines designed for mass production.

While a preferred embodiment of the invention is herein described and illustrated, it will be understood that modifications may be made in the structure and arrangement of the parts of the carrier and the arrangement of the fasteners therein without departing from the spirit or scope

of the invention. Therefore, without limiting myself in this respect, I claim:

1. A method of packaging fasteners comprising assembling the fasteners in contiguous relationship to provide self-sustained sticks, mounting a series of such sticks in parallel relationship on a carrier to provide a continuous strip of sticks of fasteners, and bundling the strip into compact arrangement to provide a package.

2. A method of packaging fasteners comprising assembling the fasteners in side by side contiguous relationship in a plurality of separate rows, providing a flexible carrier with a series of pockets arranged transversely thereof, and mounting a row of fasteners in each pocket to provide a continuous strip of rows of fasteners adapted to be folded into overlying layers to form a stack.

3. A method of packaging fasteners comprising joining series of staples in side by side contiguous relationship to provide self-sustained sticks, providing a flexible carrier with a series of pockets arranged transversely thereof, and mounting a staple-stick in each pocket to provide a continuous strip of staple-sticks adapted to be bundled into a compact package.

4. A method of packaging fasteners comprising joining the fasteners in contiguous side by side relationship to provide self-sustained sticks, providing a flexible carrier having a series of pockets extending transversely thereof with open sides and ends, mounting a stick of fasteners in each pocket to provide a continuous strip of sticks of fasteners, and closing the open side and ends of each pocket with a frangible covering.

5. A method of packaging fasteners comprising joining the fasteners in contiguous side by side relationship to provide self-sustained sticks, providing a carrier folded transversely to provide a series of flexibly-connected pockets having open sides and ends, mounting a stick of fasteners in each pocket, and closing the open sides and ends of the pockets with a frangible covering to provide a continuous strip of fastener-sticks.

6. A fastener-package comprising a carrier having a series of parallel pockets arranged transversely thereof with a self-sustained stick of fasteners in each pocket.

7. A fastener-package comprising a carrier having a series of pockets formed therein, a row of fasteners in each pocket, and a covering of frangible material on one side of the pockets adapted to be easily broken to expose the row of fasteners therein.

8. A fastener-package comprising a carrier having transverse folds forming a series of flexibly connected channels, a self-sustained stick of fasteners in each channel, and a sheet of frangible material covering the open sides and ends of the channels to form pockets enclosing the sticks of fasteners, said frangible material being easily broken at the open side and ends of the carrier channels to adapt the sticks of fasteners to be slid out of the pockets longitudinally thereof.

9. A staple-package comprising a flexible carrier having pockets with a series of rows of contiguous staples mounted in the pockets in parallel relationship and the carrier being folded into overlying layers to form a stack.

10. A staple-package comprising a flexible carrier having pockets with a series of rows of contiguous staples mounted in the pockets in parallel relationship and the carrier being rolled to form a spiral pack.

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