June 4, 1957 W. G. MILLER 2,794,546

CARTONS

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FIG. 1

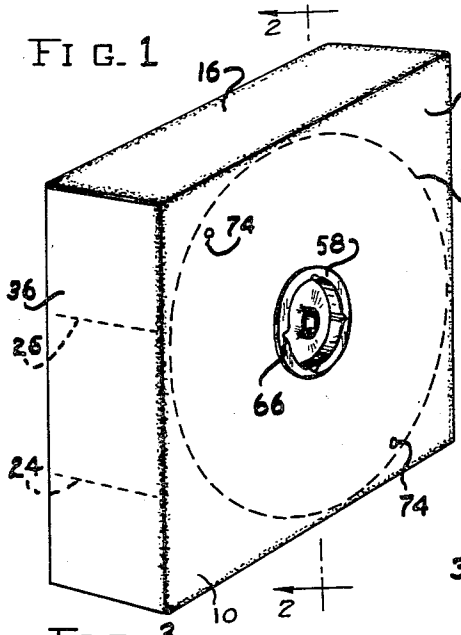


FIG. 2

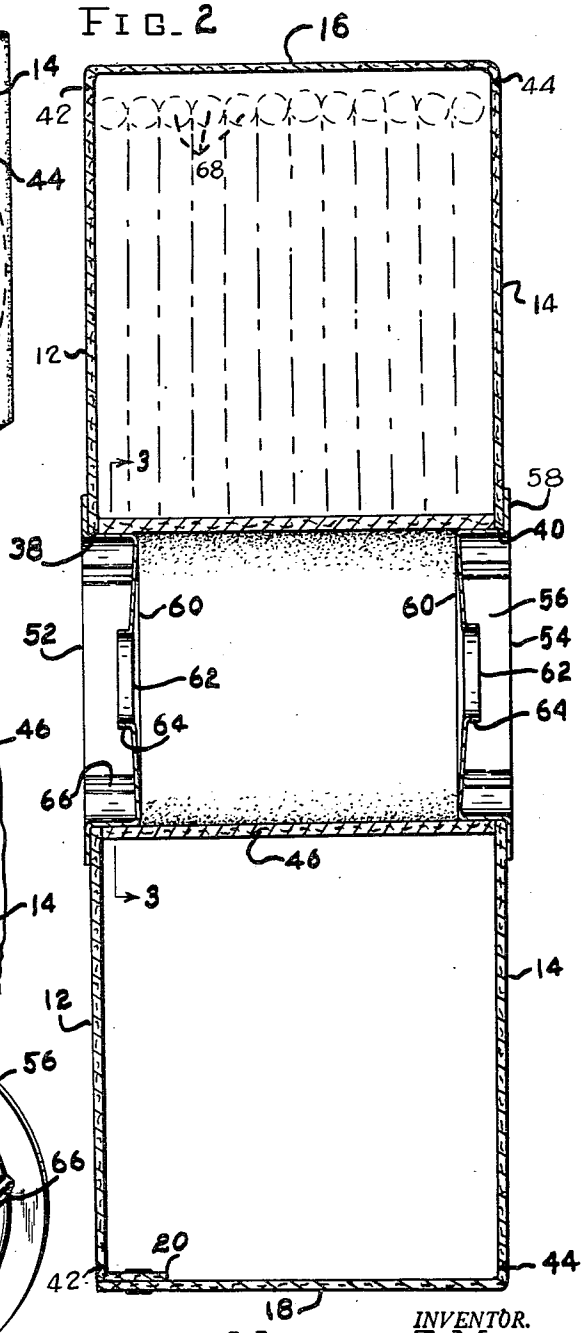


FIG. 3

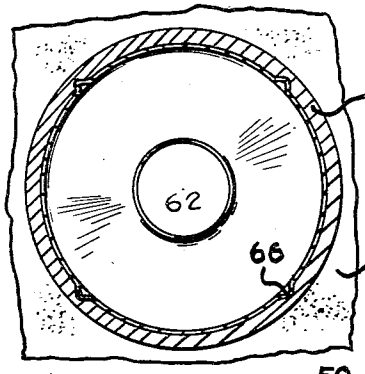
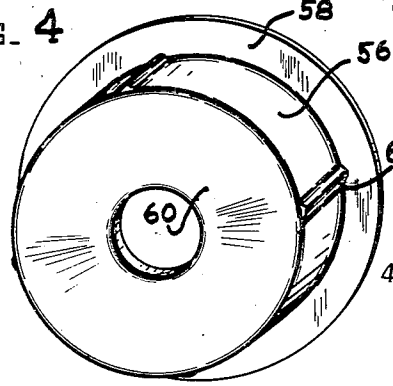


FIG. 4



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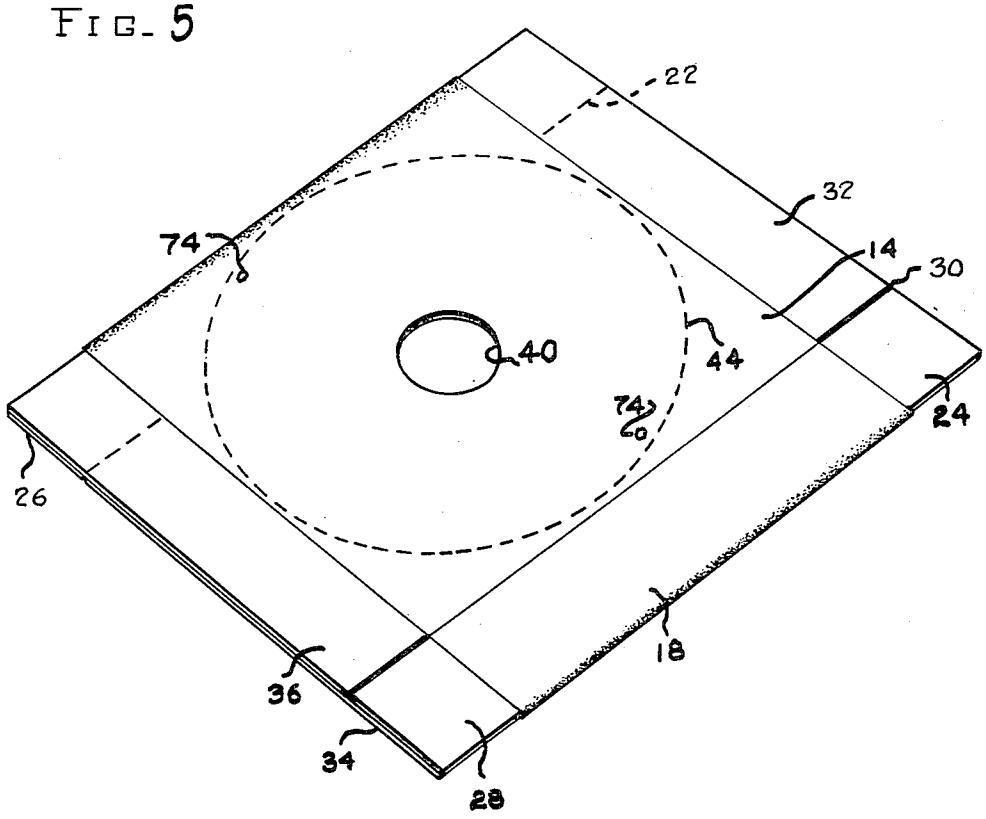
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FIG. 5



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CARTONS

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Application July 2, 1954, Serial No. 441,025

3 Claims. (Cl. 206—52)

This invention relates to cartons, and more particularly to a carton for coiled insulated electrical conductor wire or similar wire, which carton may be converted to serve as a reel for dispensing the wire on the job or when sold in short lengths at retail.

Conductor wire such as #12 and #14 B & S gauge insulated, which is used to wire houses, commercial establishments, and the like, and which is handled by electricians, is packaged in coils. It is the practice of the electrician on the job to open a carton from the side and withdraw wire from the spiral coil by withdrawing the inner turns gradually. The turns emerge from the package in helical coils of every-increasing diameter, until the supply of the carton is exhausted. Such coils put a twist in the wire, cause kinking, and leave the wire in a sprung helical condition, which, when drawn through a conduit, results in much skin friction against the conduit inner wall, as well as abrasive wear on the wire at points where attempts have been made to straighten kinks. If the insulation wears through, a short circuit occurs, fusing the wire to the conduit with dire consequences.

The present invention is directed to a modification of that shown in copending application Serial No. 411,819, filed February 23, 1954, and relates to a shallow square carton for such wire, having a hub therein extending between opposite square side walls, and over which the coiled wire is placed, and provision for breaking out substantially circular portions of the opposite square side walls whereby such portions may serve to form flanges in respect to the hub and thereby provide a reel for dispensing wire from the coil. The invention further has to do with economical means for securing the hub in place within the carton after positioning the coil of wire therein prior to closing the end flaps.

The above and other novel features of the invention will appear more fully hereinafter from the following detailed description, when taken in conjunction with the accompanying drawings. It is expressly understood that the drawings are employed for purposes of illustration only and are not designed as a definition of the limits of the invention, reference being had for this purpose to the appended claims.

In the drawings, wherein like reference characters indicate like parts:

Figure 1 is a perspective view of the carton, with the flaps closed;

Figure 2 is a sectional view taken on the plane 2—2 of Figure 1;

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

Figure 4 is a perspective view of a stamped cup for securing the hub in place; and

Figure 5 is a perspective view of a collapsed carton adapted to the invention.

Referring to Figures 1, 2 and 5, there is shown a carton **10** having square opposed side walls **12** and **14**, such side walls being connected by top and bottom walls **16** and **18**, the bottom wall **18** being connected to the side wall **14** by a connecting flap **20**. The carton is provided with the usual end flaps at either end, the end flaps **22** and **24** at one end, and **26** and **28** at the other being formed as extensions of the top and bottom walls **16** and **18**. The side walls **12** and **14** also have end flaps formed as extensions thereof, such flaps at one end being **30** and **32**, and at the other, **34** and **36**.

Each of the side walls **12** and **14** is provided with central circular apertures **38** and **40**, and is perforated as by a series of spaced arcuate slits **42** and **44** arranged on a circle of a diameter, substantially tangent with the edges of the side walls. Within the box is a hollow cylindrical core **46** having an internal diameter substantially that of the apertures **38** and **40**, and such core is of a length to span the distance between the side walls **12** and **14**.

The core is held in alignment with the apertures **38** and **40** by flanged cups such as **52** and **54**, such cups having a cylindrical portion **56**, flange **58**, and an annular end wall **60**, having a central aperture **62**, flanged as at **64**. The cylindrical wall is fluted as at **66**, and of an outside diameter such as to snugly fit the apertures **38** and **40** and grip the internal wall of the hollow core **46**. The flutes engage the peripheral edge of the apertures **38** and **40**, as well as stretch the core, so as to key the parts against relative rotation.

In practice, the carton is prepared in the manner set forth and a collapsed carton so prepared is shown in Figure 5. When it is desired to fill such a carton with a coil of wire, as is indicated at **68**, the coil is positioned on a core **46**, the collapsed carton expanded, and the core and coil slid into the carton. When the core is aligned with the apertures **38** and **40**, the flanged cups are forced in place, securing the side walls **12** and **14** between the flanges **58** and core end. After closing the end flaps, the carton is ready for shipment.

When the carton arrives on the job, or in the wire-dispensing establishment, and it is desired to remove wire from the carton, the circular sections defined by the circular perforations of each side wall are broken from the remainder, providing a dispensing reel formed by the core, and the circular side walls secured by the flanged cups. The remainder of the carton is disposed of. The reel thus provided can be mounted upon a shaft by projecting such shaft through the apertures **62** of the flanged cups **52** and **54**. Such shaft may be a piece of pipe, the handle of a tool or any convenient bar which may be handy.

It will thus be seen that the shipping carton is thus transformed into a reel, for dispensing the wire, so that the wire may be withdrawn from the reel evenly without kinks or the forming of helical convolutions.

The box may be made of corrugated paper board, well known in the manufacture of containers, while the core can be of rolled paper, of such thickness and diameter as is best suited to the particular coil of wire to be packaged. The flanged cups may be drawn from sheet metal, or sheet plastic, or molded, as may be found most convenient. If desired, the side wall may be provided with one or more holes such as **74**, which may be found convenient to hook the free end of the wire on the reel by extending the wire end therethrough, to prevent the coil of wire from loosening. The perforations or slits **42** and **44** will be such as to not substantially weaken the carton, but which will facilitate the ready severing of the outer portion of the carton from the part forming the reel.

Although a single embodiment of the invention has been illustrated and described, it is to be understood that the invention is not limited thereto. As various changes in the construction and arrangement may be made with-

out departing from the spirit of the invention, as will be apparent to those skilled in the art, reference will be had to the appended claims for a definition of the limits of the invention.

What is claimed is:

1. A carton for insulated conductor wire and the like in coiled form, having substantially square side walls spaced by the approximate axial thickness of a coil of wire to be placed therein, each of said square side walls having a central circular aperture, and each having perforations arranged on a circle substantially tangent to the edges of said sides and concentric with said aperture for facilitating the separation of the central circular portions defined by said perforations of each of the side walls from the remainder thereof, a hollow tubular core having an internal diameter corresponding to the diameter of said apertures, and of a length equal to the spacing between inside surfaces of the side walls, disposed within said carton coaxial with said apertures, and flanged cups each having a central aperture projecting through each of said side apertures and into said hollow core in gripping relation therewith, the flanges thereof bearing against the outer surfaces of said side walls, whereby said carton may act as a reel upon removal of the portion of the sides exteriorly of said perforations.

2. A carton for insulated conductor wire and the like in coiled form, having substantially square side walls spaced by the approximate axial thickness of a coil of wire to be placed therein, each of said square side walls having a central circular aperture, and each having perforations arranged on a circle substantially tangent to the edges of said sides and concentric with said aperture for facilitating the separation of the central circular portions defined by said perforations of each of the side walls from the remainder thereof, a hollow tubular core having an internal diameter corresponding to the diameter of said apertures, and of a length equal to the spacing between inside surfaces of the side walls, disposed within said carton coaxial with said apertures, and flanged cups each having a central aperture having

substantially cylindrical side walls projecting through each of said apertures and into said hollow core in gripping relation therewith, said cylindrical side walls being fluted exteriorly to grip the internal core wall and the peripheral edge of the apertures of said side walls to key the side walls to said core, the flanges of said cups bearing against the outer surfaces of said side walls, whereby said carton may act as a reel upon removal of the portion of the sides exteriorly of said perforations.

3. A carton for insulated conductor wire and the like in coiled form, having substantially regular polygonal side walls spaced by the approximate axial thickness of a coil of wire to be placed therein, each of said side walls having a central substantially circular aperture, and each having perforations arranged on a circle substantially tangent to the polygonal edges of said sides and concentric with said aperture for facilitating the separation of the central circular portions defined by said perforations of each of the side walls from the remainder thereof, a hollow tubular core having an internal diameter corresponding to the diameter of said apertures, and of a length equal to the spacing between inside surfaces of the side walls, disposed within said carton coaxial with said apertures, and flanged cups having substantially cylindrical side walls projecting through each of said apertures and into said hollow core in gripping relation therewith, said cylindrical side walls being fluted exteriorly to grip the internal core wall and the peripheral edge of the apertures of said side walls to key the side walls to said core, the flanges of said cups bearing against the outer surfaces of said side walls and the opposite ends of said tubular core bearing against the inner surfaces of said side walls.

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