Dec. 24, 1968 K. S. OMER 3,417,866

REED SWITCH FOLDER PACK

Filed Sept. 18, 1967

FIG.1.

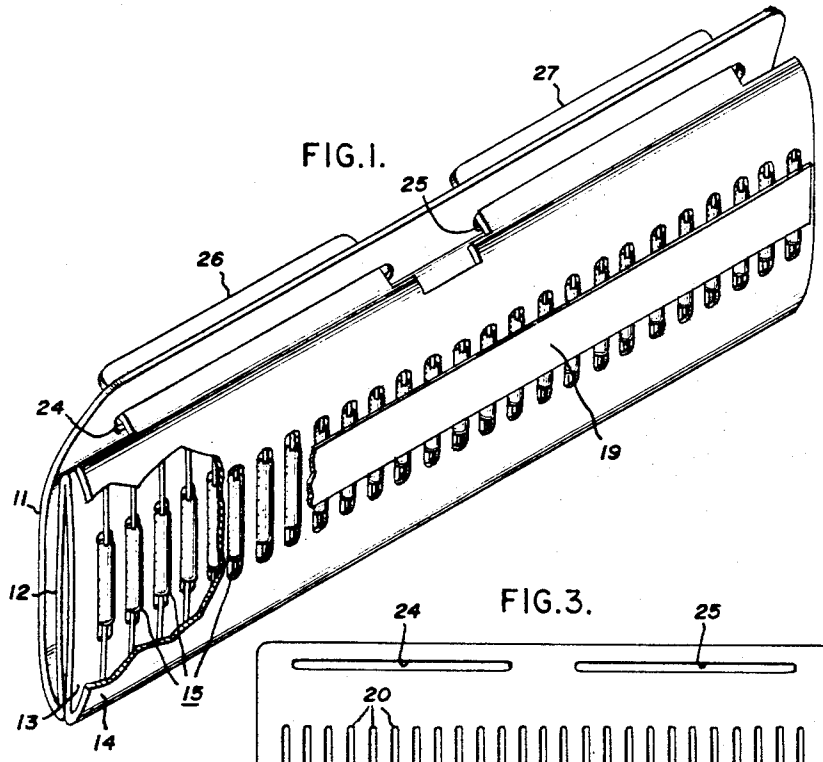



FIG.2.

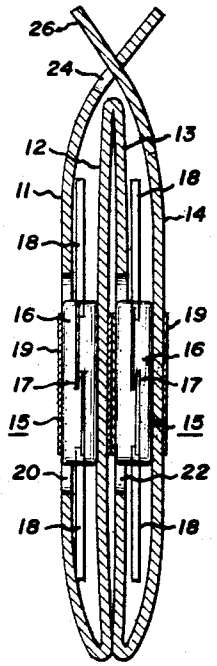
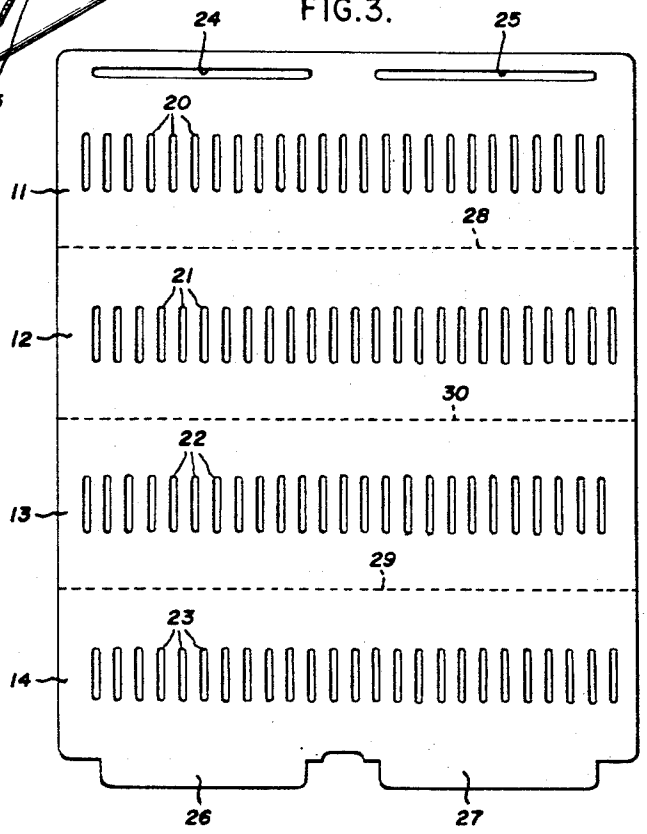



FIG.3.




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United States Patent Office 3,417,866
Patented Dec. 24, 1968



3,417,866

# REED SWITCH FOLDER PACK

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Filed Sept. 18, 1967, Ser. No. 668,506
4 Claims. (Cl. 206—65)

## ABSTRACT OF THE DISCLOSURE

A folder pack for reed switches or similar elongated articles comprising a plurality of panels having rows of slots therein for receiving the articles. The slots in alternate panels are offset or staggered with respect to the next adjacent panel so that the articles nest together without touching each other, thereby protecting the articles from shock or vibration damage in a minimum volume of space.

This invention relates to packaging and more particularly pertains to a new and improved package for relatively small, fragile, elongated articles such as reed switches.

In packaging reed switches or similar elongated fragile articles it is desirable that the package be light weight and inexpensive to fabricate. Also, the package must provide means for holding the articles firmly in place and furnishing the necessary protection from shock and vibration to which the package may be subjected during storage, handling and shipping. Protection must also be provided for protrusions from such articles, e.g., in the case of reed switches means for preventing bending of the wire leads must be provided. To keep overall packaging costs at a minimum it is desirable that the package be adaptable to receive different sized articles such as reed switches of various diameters and lengths and further, that the package be of such construction as to facilitate the packing and unpacking of the articles therein. It is also desirable and expeditious that the package be adaptable for ink color code markings of the article without removing the product from the package.

Accordingly, it is the primary object of the invention to provide a new and improved package for reed switches or similar articles.

Another object of the invention is to provide a universal reed switch package of such construction as to separate and protect the reed switches and to accommodate a wide range of wire lead lengths, as well as different glass portion lengths and diameters.

Another object of the invention is to provide a package that will protect and prevent the delicate and flexible lead wires from bending. Flexing the lead wires may result in breaking the wire and/or the glass seal. In some instances excessive bending may cause stress or strain that may change the electrical characteristics of the product. Any of these defects would make the product unacceptable for its intended purpose.

Another object of the invention is to provide a package that will simplify and facilitate the packing operation and increase the packing production rate of speed without damage to the product. Similarly, these same advantages are applicable and realized when the user unpacks the product for installation or use.

A further object of the invention is to provide a reed switch package that is adaptable to ink color coding of the reed switches without removing the items from the package.

Briefly stated, the invention relates to a package for reed switches or similar articles comprising a scored, skip-cut and die cut folder card made of chip board or other suitable material. The card may have two rows



and preferably four rows of die cut elongated slots of appropriate size to receive the glass portion of the reed switches. To the back side of the slots an adhesive tape, such as masking tape or pressure sensitive tape, is applied which leaves the adhesive side of the tape exposed under each slot, the adhesive tape normally being applied as a continuous strip behind each row of the plurality of slots. The rows of slots are staggered in position relative to each other so that when the package is folded the packed rows of reed switches will nest together without touching each other and will be held in their position within the slot by the exposed adhesive side of the applied tape.

Further objects and advantages of the invention will be understood from the following complete description and the drawing wherein

FIG. 1 is a perspective view of the folder pack containing a plurality of reed switches;

FIG. 2 is a cross-sectional view thereof; and

FIG. 3 is a plan view of the folder pack blank.

As illustrated in FIG. 1, the folder pack in accordance with the invention comprises a plurality of panels **11**, **12**, **13** and **14** folded upon each other in accordion fashion and enclosing a plurality of reed switches **15**. The reed switches **15** include an envelope **16** containing a pair of reeds **17** therein and a pair of protruding lead wires **18** extending outwardly from the ends of the envelope **16** (FIG. 2).

As shown in greater detail in FIG. 3, the folder pack comprises a first panel **11**, a second panel **12** adjacent thereto, a third panel **13**, and a fourth or end panel **14**. The first panel **11**, has a row of article receiving slots **20** which are of proper width and length to receive the largest reed switch desired to be inserted in the folder pack and panels **12**, **13** and **14** have similar rows of slots **21**, **22**, and **23** respectively. The rows of slots **20**, **21**, **22** and **23** are centered in their respective panels so as to provide space for accommodating lead wires **18**. As indicated in FIG. 3, the longitudinal center line of the slots **20** and **22** are in alignment with each other and staggered with respect to the center lines of slots **21** and **23**, the latter slots, **21** and **23**, also being in alignment with each other. Thus, when the folder pack panels are assembled together as indicated in FIGS. 1 and 2, the articles are staggered with respect to each other and held spaced apart.

The first panel **11** and fourth panel **14** are of greater height than second and third panels **12** and **13** and are provided with means to secure the folder pack together in the folded accordion relation. Toward this end the first panel **11** is provided in the upper end thereof with a pair of elongated tab receiving slots **24** and **25**. Co-acting with the tab receiving slots **24** and **25** are a pair of tabs **26** and **27** provided in the outer edge of the fourth panel **14** of the folder pack. It will be noted that no fold line is provided intermediate the row of slots **20** or the row of slots **23** and the tab receiving slots **24**, **25** or the tabs **26**, **27**. Thus, upon the loaded folder pack being folded together as indicated in FIG. 2, the tab and slot arrangement provide a natural curvature to the packaging material to permit room for the enclosed articles.

In cutting the blank of FIG. 1 from a suitable type of material such as chip board, cut-score lines **28** and **29** are provided between first panel **11** and second panel **12** and third panel **13** and fourth panel **14** respectively. To permit the cutting of all score lines in a single operation without requiring reversing of the blanks, a skip-cut line **30** is provided intermediate second panel **12** and third panel **13**. Adhesive strips **19** of suitable length and width are provided over the rows of slots **20**, **21**, **22** and **23** to complete the package for loading.

The folder pack can thus be loaded (from the rear

side as shown in FIG. 3) either automatically or by hand with the reed switches or other similar articles. Each of the panels are of sufficient height to accommodate the lead length extending from either end of the reed switches so that the leads are easily maintained in a flat unbent position without risk of distortion. The exposed adhesive layer within the slots grips the glass envelope securing the same in position sufficently so that the reed switches are held out of contact with each other. If desired, ink color coding can be easily accomplished after the pack has been completely filled while it is still in a flat form by use of a roller coder or similar marking tool. In the flat position it is quite simple to roll a coder over the exposed glass surface of the reed switches since the circumference of the envelope of the reed switch is greater than the thickness of the chip board material. In this same manner, other operations may be accomplished if desired.

In the preferred embodiment of the folder pack, each row of slots will have 25 apertures therein so that a total of 100 reed switches may be contained in the folder pack. The slots will be 1 3/16" in length and 1/8" wide and will thus accommodate both a miniature or intermediate size reed switch. This pack conserves approximately 400% in packing space over presently used packaging.

After loading, the first panel **11** and second panel **12** may be laid back against the third and fourth panels **13**, **14** and then the first panel **11** reverse folded adjacent the second panel **12** and the fourth panel **14** reverse folded against the third panel **13** to form the accordion shape of the folder pack. The tabs **26** and **27** are inserted into the tab receiving slots **24** and **25** and the packaging of the reed switches is completed. If desired, means may be provided for securing the lower part of the pack together.

While the invention has been specifically described with reference to a specific embodiment thereof, it will be appreciated that several modifications can be made therein without departing from the spirit and scope of the invention. For example, the folder pack may, if desired, comprise only the first and fourth panels for containing smaller numbers of reed switches or a larger number of panels than the four depicted. Thus, the limitations as to total number of articles to be received in the folder pack are not to be considered as limiting the scope of the invention.

What I claim as new and desire to secure by Letters Patent of the United States is:

**1.** For use in bulk packaging reed switches and the like which articles comprise an envelope with electrical leads extending out of the ends thereof, a pack blank comprising first, second, third and fourth panels, each of said panels containing a row of die cut slots, alternate rows of slots being staggered with respect to the next adjacent row of slots whereby the articles will be retained out of contact with each other, adhesive tape means covering at least a portion of the length of slots of one side of said slots with adhesive layer exposed through said slots and package closure securing means provided on said first and fourth panels, on the edges of said panels away from said second and third panels respectively.

**2.** A package blank as recited in claim **1** wherein said closure securing means comprises a pair of tab receiving slots adjacent the outer edge of said first panel and a pair of tabs adjacent the edge of said fourth panel.

**3.** A blank as recited in claim **2** wherein said panels are defined by a skip-cut line between said second and third panels and by a cut-score line between said first and second panels and said third and fourth panels.

**4.** In combination a plurality of elongated articles and a foldable package for packaging said articles comprising a foldable pack including first, second, third and fourth panels, each of said panels having therein a plurality of elongated slots, the slots of adjacent panels being staggered with relation to the slots of the next adjacent panel, adhesive tape means covering at least a portion of the length of one side of said slot, a plurality of elongated articles contained in said slots and secured therein by exposed surface of said adhesive tape means, said first and second panels being folded together with the reed switches enclosed therebetween, said third and fourth panels being folded together with the elongated articles therebetween, said second and third panels being folded together in contacting relation and means on said first and fourth panels for securing the package together.


**References Cited**

UNITED STATES PATENTS

| | | | |
|---|---|---|---|
| 2,264,476 | 12/1941 | Linker | 206—79 |

FOREIGN PATENTS

| | | |
|---|---|---|
| 140,152 | 2/1951 | Australia. |
| 974,179 | 11/1964 | Great Britain. |
| 1,160,362 | 12/1963 | Germany. |


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