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H. S. MEYERS
SPARK PLUG PACKAGE

3,276,574

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2 Sheets-Sheet 1

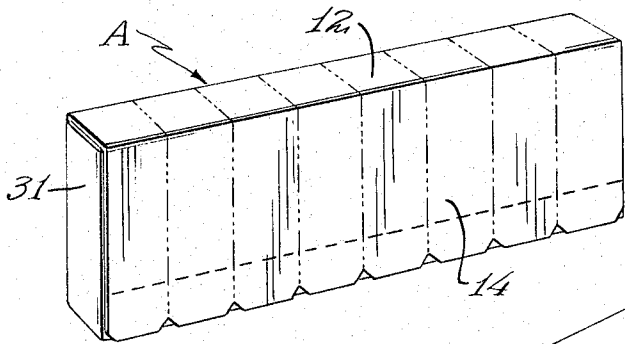


FIG. 1

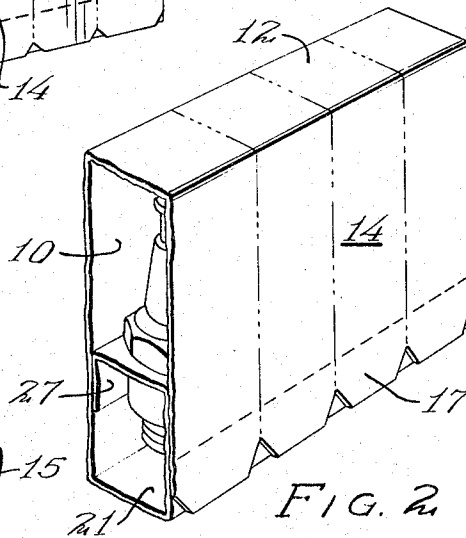


FIG. 2

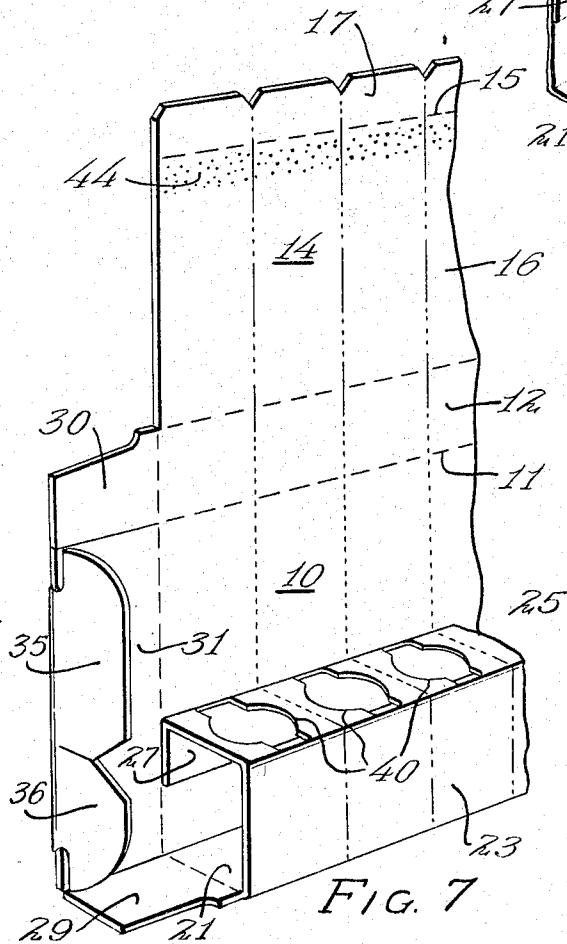


FIG. 7

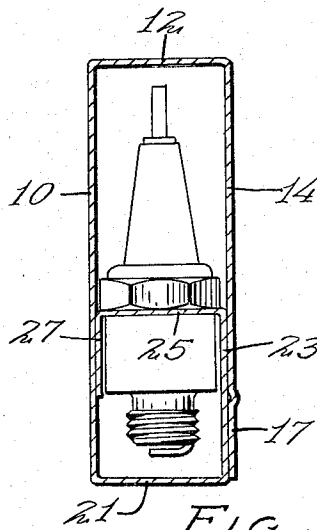


FIG. 3

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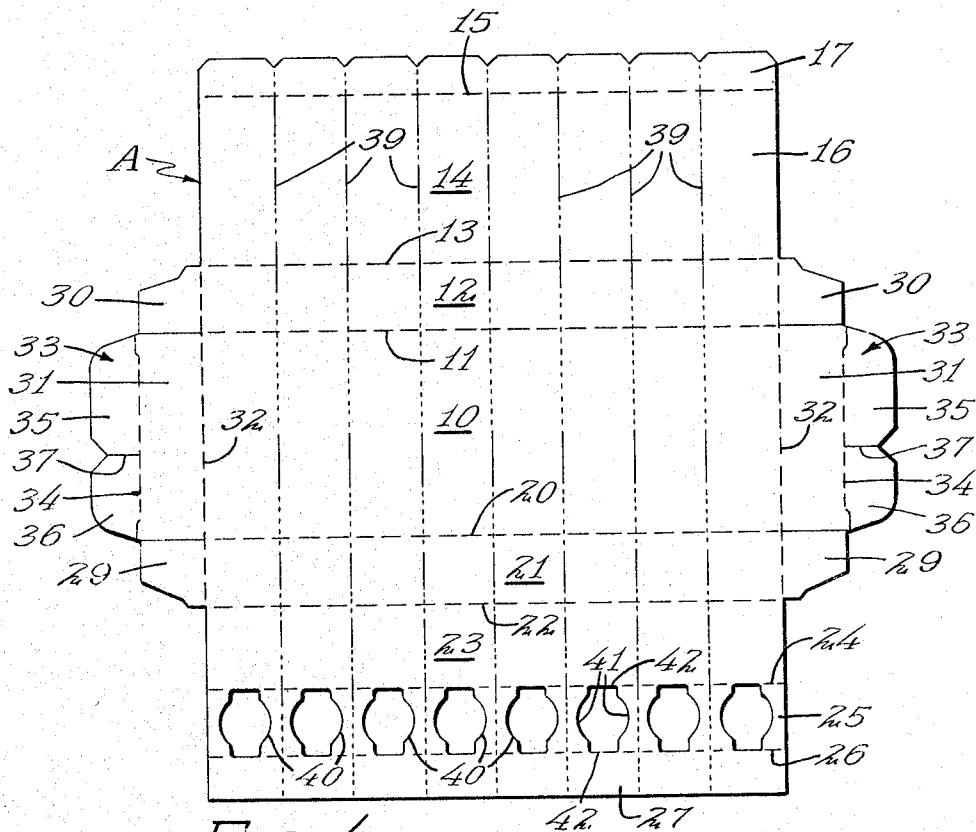


FIG. 4

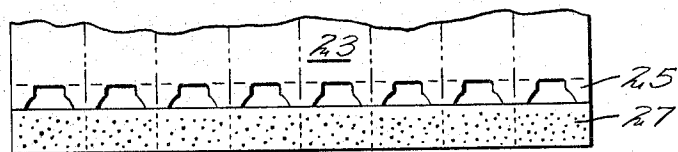


FIG. 5

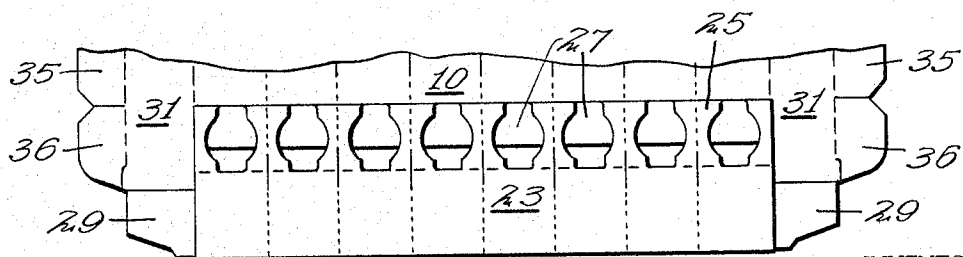


FIG. 6

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SPARK PLUG PACKAGE

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6 Claims. (Cl. 206—56)

This invention relates to an improvement in spark plug packages and deals particularly with an economical carton which may be used for containing a set of spark plugs and which may be divided to permit the sale of individual plugs.

The cost of packaging spark plugs is very high compared to the selling price of the plugs. Each spark plug has its threaded end inserted into a paper board tube in order to protect the electrodes. The spark plug is then placed in a tuck end carton which is attractively printed and which discloses the style or type of plug contained. Eight such spark plugs are then enclosed within an outer container which is also printed. This outer container is made somewhat similar to a cigaret carton and is recloseable so that spark plugs may be sold individually if desired.

While such packaging is very effective, it is also very costly. Furthermore, expensive equipment is required in order to package the spark plugs individually. A means must be provided for not only inserting the individual spark plugs into their cartons, but also for inserting the series of individual cartons into the outer carton. One of the biggest difficulties lies in the fact that there are a great number of sizes and shapes of spark plugs sold, and the packaging equipment must be adjustable to handle the great number of sizes involved.

An object of the present invention resides in the provision of a carton provided with a partition which is apertured to accommodate the threaded ends of the spark plugs, and therefore will protect the electrodes. The partition wall includes eight apertures for accommodating the series of eight plugs. A portion of the carton is then wrapped around the opposite ends of the plugs and adhered in a closed position. The ends of the carton are then closed and sealed so that the plugs are completely enclosed. This single package thus takes the place of both the individual tuck end cartons and the outer carton.

The present invention resides in the provision of a spark plug carton in which the areas between the spark plugs are perforated so that the package may be divided into individual units or two units of a predetermined size containing the desired number of spark plugs. For example, the cartons may be separated in two to provide two packages each containing four spark plugs. Two of the spark plugs may be separated from the remainder to provide a set of spark plugs for six cylinder cars. If preferred, the package may be divided into eight individual units, each serving to protect the spark plug until it is used.

These and other objects and novel features of the present invention will be more clearly and fully set forth in the following specification and claims.

In the drawings forming a part of the specifications:

FIGURE 1 is a perspective view of the closed package.

FIGURE 2 is a perspective view of one half of the package shown in FIGURE 1 after the package has been separated into two parts.

FIGURE 3 is a vertical sectional view through the package, the section being taken between adjacent plugs.

FIGURE 4 is a diagrammatic view of the flat blank.

FIGURE 5 is a portion of the blank shown in FIGURE 2 after the first folding operation.

FIGURE 6 is a diagrammatic view of a portion of the blank after a second folding operation.

FIGURE 7 is a perspective view of the package in readiness for filling.

The blank A is formed as is best illustrated in FIGURE 4 of the drawings. The blank includes a rectangular wall panel 10, which, for the sake of reference, may be termed a rear wall panel and which is hingedly connected along a fold line 11 to a top wall panel 12. The top wall panel is hingedly connected along a fold line 13 to a front wall panel 14. A fold line 15 extends transversely across the front wall 14 near what will be the lower edge thereof. This divides the front wall 14 into what will become an upper portion 16 and a lower portion 17.

The rear wall panel 10 is also connected along a fold line 20 which is parallel to the previously described fold line to a bottom panel 21. The bottom panel 21 is connected along a fold line 22 to an inner front panel 23. The panel 23 is hingedly connected along a fold line 24 to a partition panel 25. The panel 25 is foldably connected along a fold line 26 to a glue flap 27.

A pair of flaps 29 are foldably connected to the ends of the bottom panel 21, and a similar pair of flaps 30 is hingedly connected to the ends of the top wall panel 12. Closure flaps 31 are hingedly connected to the ends of the rear wall panel 10 along parallel fold lines 32. Tuck flaps 33 are foldably connected to the closure panels 31 along fold lines 34. The fold lines 32 and 34 extend at right angles to the previously described fold lines such as 11 and 20. The tuck flaps 33 are divided into an upper portion 35 and a lower portion 36 by slits 37. The slits 37 are spaced from the fold line 20 a distance equal to the height of the inner front wall panel 23.

The rear wall panel 10, top wall panel 12, front wall panel 14, bottom wall panel 21, inner front wall panel 23, a partitioned wall panel 25, and a glue flap 37 are divided into potential sections by a series of parallel weakened lines of separation 39 which are at right angles to the various lines of folds connecting the panels. In the particular arrangement illustrated, there are seven such weakened lines of separation 39 to divide the carton into eight sections. In actual practice, the weakened lines of separation are formed by intermittently arranged slits and perforations to permit the carton to be easily divided. The partition panel 25 is provided with apertures which are equally spaced intermediate the weakened lines of separation 39. The apertures 40 may be of circular form, but due to the proximity of the apertures to the score lines connecting the partition panel to the inner front wall panel 23 and the glue flap 27, the apertures each include a pair of arcuate sections 41 which are connected by U-shaped cut lines 42, the bases of which extend along the fold lines 24 and 26 respectively.

In the formation of the carton, the glue flap 27 is folded along the fold line 26 to overlie a portion of a partition panel 25, and adhesive is applied to the glue flap as indicated in FIGURE 5 of the drawings. The combined flaps 23, 25 and 27 are folded along the fold line 22 to lie inwardly of bottom wall 21 and rear wall 10. Alternatively, adhesive may be applied to the glue flap 27 while the blank is flat as in FIGURE 4, and the blank may be then folded along the fold line 22 and the glue flap adhered to the rear wall panel 10.

When the cartons are to be used, the cartons are folded into the general form of construction illustrated in FIGURE 7 so that the rear wall, inner front wall 23, bottom wall 21, and partitioned wall 25 are in rectangular relation. When in this position, the spark plugs are inserted through the apertures 40 in the partition wall 25. The top wall 12 can be folded along the fold line 11 to extend parallel to the bottom wall 21, and the front wall 16 may be folded into overlapping relation with the

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inner front wall 23. As is indicated in FIGURE 7, adhesives 44 is applied adjacent to the fold line 15 and in the upper section 16 of the front wall, the lower extremity 17, being free of adhesive attachment to the inner front wall 23. The purpose of the arrangement is to provide taps or flaps which may be grasped between the figures when the cartons are to be opened.

When the front wall 14 is adhered to the inner front wall 23, a rectangular tube is formed having open ends. These ends are then closed by folding the closure flaps 29 and 30 on the bottom and top walls respectively into a common plane, and closing the closure flap 31 to overlies the first folded flaps. The tuck flap 33 is folded inwardly of the front wall 14, the lower portion 36 of the tuck flap also extending inwardly of the inner front wall 23 and the slit 37 of each tuck flap accommodating the partition wall 25.

The carton thus provided protects the spark plugs during shipment and storage. The entire carton may be sold for the replacement of the plugs in an 8 cylinder engine. However, the package may be split apart at any of the weakened lines 39 to separate any desired number of plugs from the rest. After the carton has been divided, the spark plugs are not completely enclosed, as is evident from FIGURE 2 of the drawings. However, the structure still forms a tubular enclosure for the plugs which protects the electrodes and provides identification as to the type of plugs. By this arrangement, the paperboard sleeves may, if desired, be eliminated and the use of all of the individual cartons for enclosing a single plug may be eliminated.

In accordance with the patent statutes, an attempt has been made to set forth the best embodiment of the present invention. However, obvious changes may be made within the scope of the following claims without departing from the spirit of the invention.

I claim:

1. A spark plug package cut and scored to provide a glue flap, a partition wall, an inner front wall, a bottom wall, a rear wall, a top wall and a front wall connected in series along parallel lines of fold,
 - said bottom wall, partition wall and top wall being of substantially equal width,
 - said glue flap being adhered to said rear wall to maintain said partition wall parallel to said bottom wall,
 - said partition wall including a series of spaced apertures each adapted to accommodate the threaded end of a spark plug,
 - weakened lines of separation extending in parallel rela-

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tion across all of said walls between each pair of adjacent apertures,
said front wall overlapping said inner front wall and adhered thereto.

2. The construction of claim 1 and including end closure flaps hinged to the end edges of certain of said walls to form end closures.

3. The construction of claim 1 and including closure flaps hinged to said bottom wall and top wall foldable into a common plane, and a closure panel hinged to said rear wall and including a tuck flap adapted to lie inwardly of said front wall.

4. The structure of claim 3 and in which said tuck flap is slit to form two tuck flap sections on opposite sides of said partition wall.

5. A spark plug package for containing a series of spark plugs having threaded ends, the package including a sheet of paper board cut and creased to provide a glue flap a partition wall, an inner front wall, a bottom wall, a rear wall, a top wall and a front wall connected in series along parallel fold lines, said bottom wall, partition wall and top wall being of substantially equal width,

said partition wall extending parallel to said bottom wall and top wall and said glue flap being secured to said rear wall,

said partition wall including a series of spaced apertures through which the threaded ends of the spark plugs extend, said partition wall holding the extremities of said threaded ends in spaced relation to said bottom wall,

said sheet having a series of parallel weakened lines of separation extending across all of said walls and intermediate said apertures,

said front wall being secured in overlapping relation with said inner front wall and in parallel relation to said rear wall.

6. The structure of claim 5 and including end closure flap on certain of said walls secured in face contact to provide end closures.

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