Dec. 28, 1948. M. A. BECKMANN 2,457,197

PACKAGING ARTICLES

Filed May 18, 1945

FIG. 1.

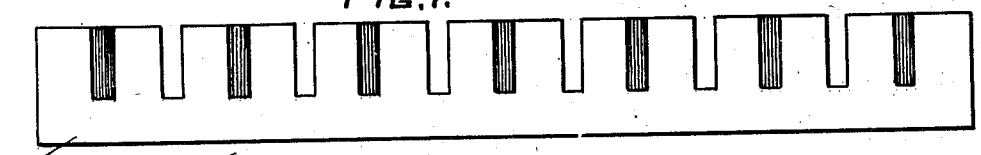


FIG. 2.

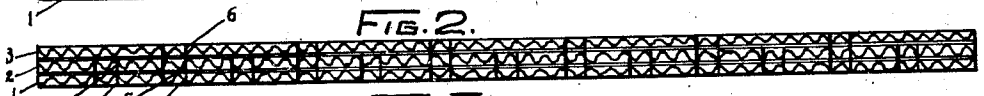


FIG. 3.

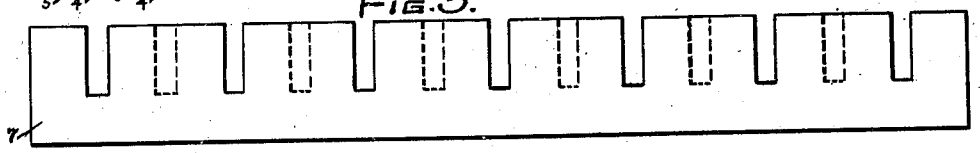


FIG. 4.

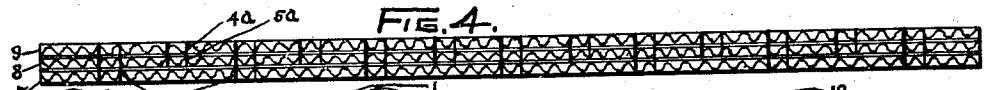
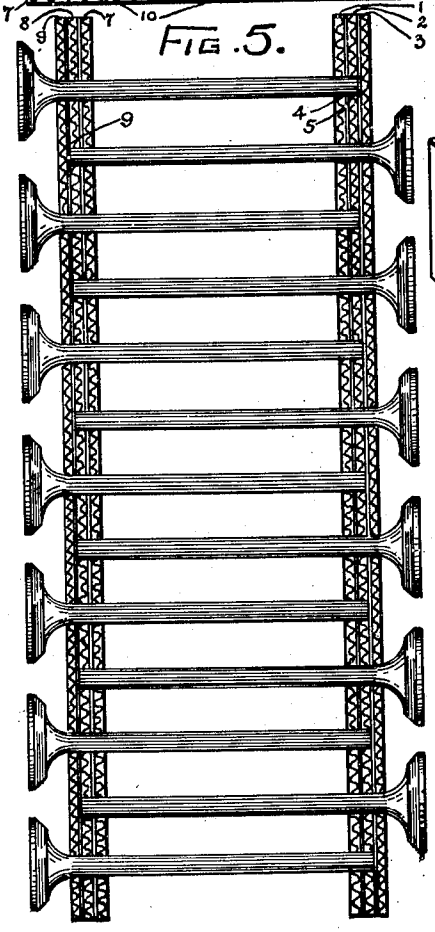


FIG. 5.



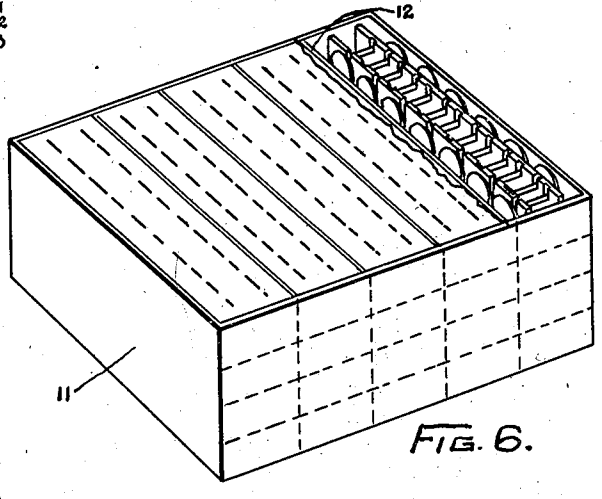


FIG. 6.

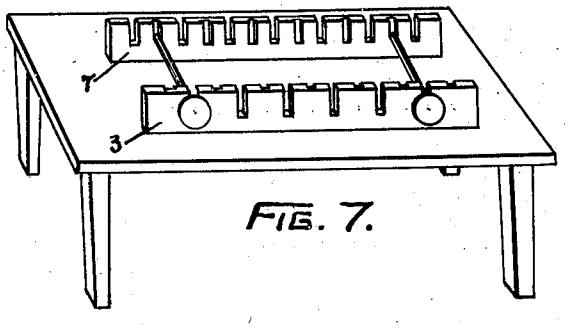


FIG. 7.

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PACKAGING ARTICLES

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6 Claims. (Cl. 211—60)

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My invention relates to packaging articles such as valve tappets including the tappet rods, and which might be broadly described as articles consisting of stems and an annular laterally projecting flange at the ends of the stems. Within this same category may be included certain types of bullets and shells, and a wide variety of machine parts.

In manufacturing valves for use in engines, ordinarily the valve or tappet and the tappet rod or stem constitute a unitary piece. The tappets may not be composed of the same metal as the tappet rod but by welding or other processing they are joined together. The grinding of the tappets to a nicety is of great importance and due to the awkward shape of the assembly of tappet and tappet rod, shipment and dispensing for assembly have long presented serious manufacturing difficulties. If the valves are not held distinctly apart, nicks and scratches which impair the utility of the tappets often result.

As long as eighteen years ago Lee L. Case invented a shipping package for tappets which resulted in the issue of U. S. Patent No. 1,744,211, dated January 21, 1930, to which reference is hereby made. The Case system has been almost universally used, as far as I am advised, prior to my invention as herein set forth. It consists in a series of perforated supporting walls into which the stems are inserted, with backing members against which the ends of the stems abut. The backing members themselves have perforations and, by alternate staggering, the arrangement is such that one supporting wall with its tappets in position in its perforations fits in face to end relation to another supporting wall with its tappets in position in its staggered perforations. Thus a compact assembly is formed for shipment. The disadvantages of the system are that it is a time consuming job to insert the valve stems, one in each hole, and due to the fact that the size of the perforations, to effectively retain the stems in position, must be a close frictional fit, it is just as laborious to remove the tappets. Further perforated backing sheets do not provide adequate dispensing facilities and often require that a number of tappets be removed from the perforated sheet for use in assembly as a necessary factory operation, and the valves then are unruly to handle and jostle against each other causing the very nicks and scratches which it was the objective of the packaging arrangement to prevent.

It is the object of my invention to provide a packaging holder both for shipment and dispensing wherein each tappet is held securely both at the neck and at the end of the stem from the time of original packaging until the actual use of the tappet in engine assembly. A further object is to provide a package wherein no laborious effort is required to insert or withdraw the end of a stem through a hole but wherein the tappet may be inserted in the holder and withdrawn by a simple manual lateral movement into slots in the holder. A further object is to provide a holder assembly which will retain its shape and condition even with as few as two tappets in the holder, and the parts of which may be used again and again since there is no strain on the holder walls in removing the tappets.

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The foregoing objects important from a point of view of saving in factory costs, coupled with more safety in preserving the ground surfaces of the valves against nicking, I accomplish by that certain combination and arrangement of parts of which I have illustrated a preferred embodiment incorporating the principle of my invention.

In the drawings:

Figure 1 is a side elevation of one slotted backing member.

Figure 2 is an end elevation of the member shown in Figure 1.

Figure 3 is a side elevation of the opposed slotted backing member.

Figure 4 is an end elevation of the member shown in Fig. 3.

Figure 5 is an end elevation of the assembled holder containing in this case, 13 tappets.

Figure 6 is a perspective view of a shipping container parts being broken away to show how the holders are inserted.

Figure 7 is a perspective view of an assembly table showing a holder with only two tappets remaining—the holder still retain its set-up condition.

The backing member shown in Figures 1 and 2 is preferably composed of three strips of corrugated board indicated at 1, 2 and 3. The strips are securely united together as by gluing or stitching.

Sheets 1 and 2 are similarly provided with slotted portions 4, 5, spaced apart a distance slightly more than the radii of the tappet valve heads. The object of this spacing is to economize space as much as possible consistent with insuring that the valve tappets do not jostle together. The third backing sheet 3 is alternately slotted with slots 6, spaced apart slightly more than the diameter of the tappet valve heads, but in registry with the slots of the sheets 1 and 2.

In Figures 3 and 4 I have shown the assembly forming the opposite wall of the holder. This wall is composed of slotted members 7, 8, 9, the members 7, 8, being slotted similarly to the members 1 and 2 with slots 4a, 5a. The only difference between the slotting of the members 9 and 3 is that the slotting is alternated in the sheet 9 so that its slots 10 are staggered midway between the slots 6 of the strip 3.

The slots and grooves extend down from the top walls to a line extending lengthwise of the strips slightly more than the radii of the tappet heads and in accordance with conventional practice may be made of cut corrugated paper strips.

This assembly provides two backing members forming the shipping and dispensing holder illustrated in Figure 5. Beginning at the top as illustrated, we have one tappet with its neck fitting within a slot extending clear through the strips 7, 8, 9, but with the end of its stem extending only through the slotted portions 4, 5, in the strips 1, 2, and abutting against the wall 3. Next we have a tappet with its neck inserted in the slots 4, 5, 6, and with the end of its stem inserted through the slots 4a and 5a of the members 7 and 8, and abutting against a solid walled portion of the strip 9.

The remainder of the tappets are positioned in the holder in a similar staggered end to valve relationship as will be obvious from Figure 5.

In packaging the holders filled with tappets, containers are provided such as illustrated in Figure 6, and 11, which may hold as many as twenty holder assemblies. These are packed in stacks with sheets 11 of board between each stack.

In dispensing the tappets the assembler removes a holder assembly from the container and merely lifts out the tappets as he uses them. Thus in Figure 7 there is illustrated a holder having only two tappets left in position. It should be noted that the holder remains set up even in this position.

While corrugated paper board is at the moment the most economical material for use in the holder assembly, wood or other material may also be used. The wood may be prepared with the full slots and grooves formed by the two slotted plies of paper board with the solid backing by a shaping operation or by uniting plies of thin wood grooved like the corrugated paper board strips illustrated. Other modifications will occur to those skilled in the art. In the claims which follow I have used the word tappet to include both the valve head itself and the supporting stem.

Having thus described my invention, what I claim as new and desire to secure by Letters Patent is:

1. A dispensing holder for articles consisting of stem portions with enlarged annular laterally extending flanged portions, comprising two relatively stiff opposed end wall supports each being provided with alternately arranged slotted and grooved portions spaced slightly more than the radii of the annularly flanged portions of the articles adapted to be received in the holder, said slotted and grooved portions extending down from the tops of said end wall supports to a distance from the bottom of the walls slightly more than said radii and the slots and grooves of one wall support spaced to register with the grooves and slots, respectively, of the opposed end wall support.

2. A dispensing holder for articles consisting of stem portions with enlarged annular laterally extending flanged portions, comprising two relatively stiff opposed end wall supports each being provided with alternately arranged slotted and grooved portions spaced slightly more than the radii of the annularly flanged portions of the articles adapted to be received in the holder, said slotted and grooved portions extending down from the tops of said end wall supports to a distance from the bottom of the walls slightly more than said radii and the slots and grooves of one wall support spaced to register with the grooves and slots, respectively, of the opposed end wall support, said wall supports being composed of a three ply layer of relatively stiff strips of material secured together.

3. A dispensing holder for articles consisting of stem portions with enlarged annular laterally extending flanged portions, comprising two relatively stiff opposed end wall supports each being provided with alternately arranged slotted and grooved portions spaced slightly more than the radii of the annularly flanged portions of the articles adapted to be received in the holder, said slotted and grooved portions extending down from the tops of said end wall supports to a distance from the bottom of the walls slightly more than said radii and the slots and grooves of one wall support spaced to register with the grooves and slots, respectively, of the opposed end wall support, said wall supports being composed of a three ply layer of relatively stiff strips of corrugated paper board secured together.

4. A dispensing holder, for receiving and supporting a plurality of tappets in a container and for serving as a unit dispenser facilitating withdrawal of said tappets for use, comprising a pair of substantially rigid opposed end walls, each having alternate slotted portions interspaced with grooved portions having rigid back walled areas aligned with the grooved portions, the interspacing being slightly more than the radii of the tappet heads, the slotted portions and grooved portions extending down from the top wall adjacent a median line extending lengthwise of said wall and spaced from the bottom slightly more than the radii of the tappet heads, the slotted and grooved portions of one wall being staggered alternately with the slotted and grooved portions of the opposed wall, whereby said walls will receive tappets in alternating head for end relation, each tappet with its neck in a slotted portion of one wall and with the end of its stem in a registering grooved portion in the opposed wall.

5. A dispensing holder, for receiving and supporting a plurality of tappets in a container and for serving as a unit dispenser facilitating withdrawal of said tappets for use, comprising a pair of substantially rigid opposed end walls, each having alternate slotted portions interspaced with grooved portions having rigid back walled areas aligned with the grooved portions, the interspacing being slightly more than the radii of the tappet heads, the slotted portions and grooved portions extending down from the top wall adjacent a median line extending lengthwise of said wall and spaced from the bottom slightly more than the radii of the tappet heads, the slotted and grooved portions of one wall being staggered alternately with the slotted and grooved portions of the opposed wall, whereby said walls will receive tappets in alternating head for end relation, each tappet with its neck in a slotted portion of one wall and with the end of its stem in a registering grooved portion in the opposed

wall, said substantially rigid opposed end walls each being composed of slotted strips of material secured together.

6. A dispensing holder, for receiving and supporting a plurality of tappets in a container and for serving as a unit dispenser facilitating withdrawal of said tappets for use, comprising a pair of substantially rigid opposed end walls, each having alternate slotted portions interspaced with grooved portions having rigid back walled areas aligned with the grooved portions, the interspacing being slightly more than the radii of the tappet heads, the slotted portions and grooved portions extending down from the top wall adjacent a median line extending lengthwise of said wall and spaced from the bottom slightly more than the radii of the tappet heads, the slotted and grooved portions of one wall being staggered alternately with the slotted and grooved portions of the opposed wall, whereby said walls will receive tappets in alternating head for end relation, each tappet with its neck in a slotted portion

of one wall and with the end of its stem in a registering grooved portion in the opposed wall, said substantially rigid opposed end walls each being composed of cut strips of corrugated paper board secured together.

MELBOURNE A. BECKMANN.

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