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VENTILATED SEAT CUSHION

Filed April 22, 1959

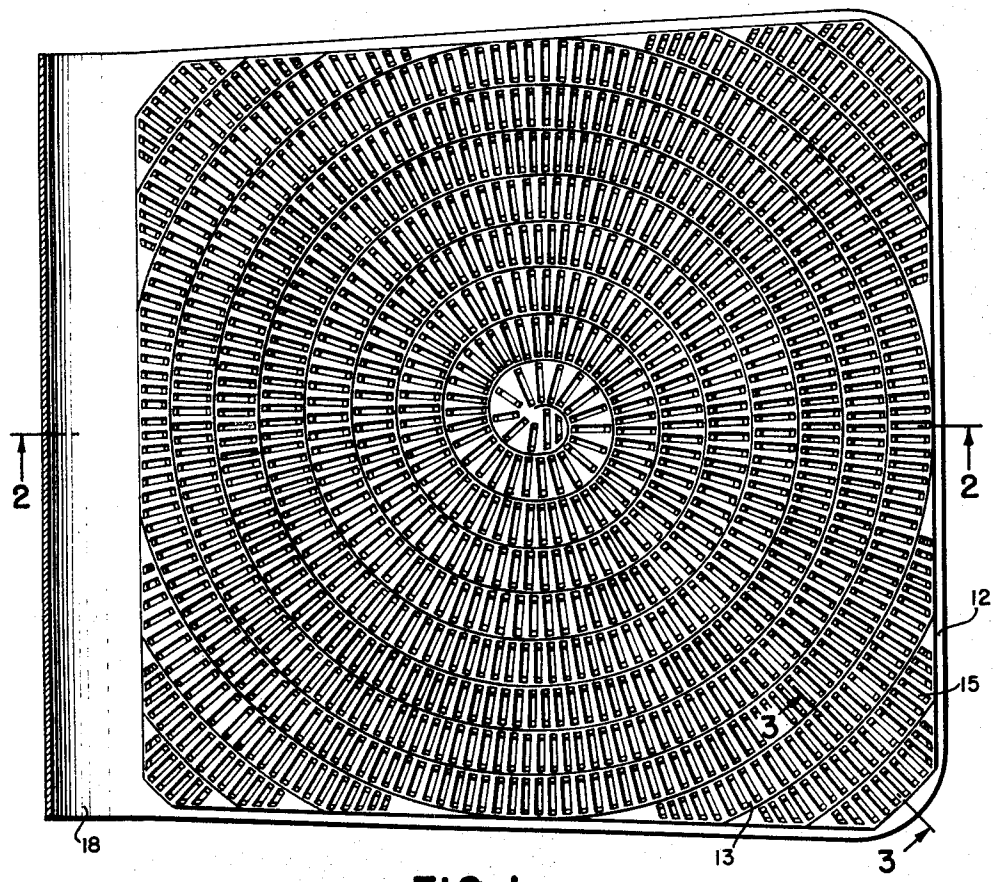


FIG. 1.

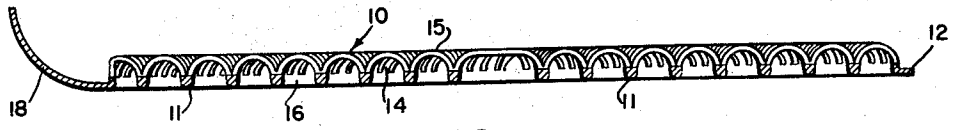


FIG. 2.

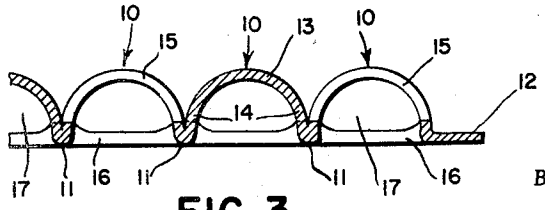


FIG. 3.

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VENTILATED SEAT CUSHION

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5 Claims. (Cl. 155—182)

The present invention relates to ventilated seat cushion, and has for an object to provide a cushion having permanent and adequate ventilating characteristics for use in automobiles, on chair seats and the like which will have adequate support for the occupant and sufficient rigidity to maintain ventilation, resisting at all times any tendency to collapse and shut off the ventilation due to incumbent weight of the occupant of the seat.

Another object of the invention is to provide a ventilated seat cushion which will lend itself particularly to molding in one piece, plastic material or synthetic resin, possessing sufficient rigidity to avoid collapse under weight and at the same time adequate resiliency to yield within limits to avoid fracture of the material and the consequent deterioration of the cushion.

A still further object of the invention resides in providing a ventilated seat cushion composed of a base and a plurality of tiers of supporting and ventilating units all joined together and to the base to provide a mat of desired dimensions with the units all lying in substantially the same plane and preferably being wound in a volute curve providing successive coils from the center outward of progressively increasing diameters.

A still further object of the invention is to provide a ventilated seat cushion in which slots made in arched members of the units of the cushion are staggered or relatively offset to contribute to the strength of the cushion and at the same time to provide adequate access of external cooling air to the ventilating spaces within the units.

A still further object of the invention is to provide a ventilated seat cushion in which the units may be disposed in substantial parallelism with the arched members of the units forming continuous air channels accessible through openings in end walls of the units to the external atmosphere and to transverse slots in the crown and side wall portions of the arched members.

With the foregoing and other objects in view, the invention will be more fully described hereinafter, and will be more particularly pointed out in the claims appended hereto.

In the drawings, wherein like symbols refer to like or corresponding parts throughout the several views:

Figure 1 is a plan view of one form of ventilated seat cushion pursuant to the invention, showing volute coil arrangement;

Figure 2 is a transverse section taken on the line 2—2 of Figure 1, and

Figure 3 is a fragmentary sectional view taken on an enlarged scale on the line 3—3 in Figure 1.

Referring more particularly to the drawings, the improved ventilated seat cushion comprises a plurality of tiers of supporting and ventilating units **10** joined together by ribs **11** which, together with base flanges **12** which extend outwardly from the outer margin of the mat formed by such units, form a base.

Each unit comprises an arched member composed of a crown **13** and side wall portions **14**, which latter at their lower portions are merged into the ribs **11**.

Across the arched members are ventilating slots **15** which are cut through the crowns and extend down at least partially into the side wall portions **14** but do not extend into the ribs **11** or the outer marginal base flange **12**.

As shown in Figure 1, these various units are assembled together in a design in which the units progress from a center outwardly in a succession of concentric tiers of progressively increasing diameters until the completed pattern is formed of desired dimensions. Where the pattern is rectangular, as indicated in Figure 1, the flat sides of the rectangle will require cutting into the design but the concentric loops or coils are continued fragmentarily in the corner portions. The whole design may be in the form of a geometrical volute curve, all loops being substantially in the same plane but adjoining loops preferably having their ventilating slots **15** disposed in endwise staggered or offset relation so that the ventilated seat cushion as a whole is not weakened by the presence of the slots **15** as blank portions of the crowns **13** lie between adjoining slots **15** as shown more particularly in Figure 3.

In this Figure 3 the units are or may be disposed in a straight line parallel to one another. Thus it will be understood that these units may be assembled or molded into any design desired. Where the units are substantially parallel and arranged in side by side relation, they will include end walls **16** having apertures **17** therein.

In Figure 2 a flexible hinge member **18** is illustrated in case it is desired to assemble a back cushion to the seat cushion. The back cushion may be of any particular design.

In manufacture, it is preferred that the seat cushion of this invention be formed of a plastic or synthetic resin, advantageously of the polyethylene family of plastics, all of the units and tiers of units being molded simultaneously in an integral piece.

In the use of the device, the ribs **11** and the base flange **12** which lie in substantially the same plane will rest upon an automobile seat cushion, or the seat of a chair, or other support in such position that the crowns **13** will extend upwardly, and due to their curvilinear or rounded form they combine the strength of the arch with the smoothness of the curved surface so that these ventilating units will be adequate to support the weight of an occupant and due to their elastic characteristic they will yield to a small degree involving slight flattening of the arches but not sufficiently to lower the person of the occupant to a point where he would block the slots **15**. At the same time the material of the plastic will possess a rigidity characteristic which will resist the flattening of the arches beyond any fracturing point, it being understood that the resilient or elastic factor introduced into the composition of the plastic will provide a material which by its very nature is non-frangible.

As will be seen more particularly from Figure 3, the ribs **11** are formed by the V-junction of two side walls **14** and they thus possess substantially twice the thickness of the side walls, thus enabling the ribs to act as backbones throughout the entire mat or cushion which is formed by the pattern of tiers. Thus these reinforced ribs at the bases of the arches augment the natural architectural strength of the arch. As a result the ensemble unites to provide an exceedingly strong, durable, light in weight, flexible and convenient cushion wherever situations calling for such a cushion are wanted or desired.

Due to the fact that the slots **15** are curved and extend down into the side walls **14** and due to the strength of the arches, lower portions of the slots **15** are always open

at both sides of the units to the surrounding atmosphere so that cooling air may constantly flow through these slots transversely of the units and thus they have access at all times to the person of the occupant of the seat cushion. Where the units are parallel to one another and possess end walls **16** which afford further support to the arches, the apertures **17** in these end walls may also provide for the ample entrance of cooling air from the surrounding atmosphere into the ventilating channels which are encompassed within the arches and such ventilating air from the channels has access to the person of the occupant upwardly through the slots **15**.

Although I have disclosed herein the best forms of the invention known to me at this time, I reserve the right to all such modifications and changes as may come within the scope of the following claims.

What is claimed is:

1. A ventilated seat cushion comprising a plurality of units, each unit being arched and comprising spaced side wall portions joined by a crown, said crown being higher than said side wall portions so that said units are convex on the upper surfaces thereof, said units lying adjacent each other in tiers, the side wall portions of one unit at their lower ends being joined with the side wall portions of adjacent units at the lower ends of said side wall portions of said adjacent units, the junctures of said side wall portions constituting ribs for engaging a support

for said cushion, said arched units having slots transversely thereof extending through the said crowns thereof and also partially through the side walls thereof, whereby said units provide high strength with flexibility and said slots permit circulation of air from within said arched units.

2. The seat cushion of claim 1, the slots in one unit being staggered relative to the slots in the adjacent unit.

3. A ventilated seat cushion as claimed in claim 1 in which the tiers are substantially concentric and in a substantially common plane.

4. A ventilated seat cushion as claimed in claim 1 in which the tiers are in a volute coil.

5. A ventilated seat cushion as claimed in claim 1 in which the units are disposed side by side in parallel relation and have end walls with ventilating apertures.

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