The present invention has for an object to provide improvements in semi-pneumatic spring cushions, or, "air-bound" cushions, as they are commonly called.

Such cushions usually have a rubberized envelope through which air can pass comparatively slowly. The envelope is normally kept in distended or inflated condition by means of springs but when the cushion is compressed it will not collapse suddenly because the resistance offered by the springs is aided by the air trapped within the envelope. However, as the air slowly escapes through the envelope the cushion will gradually settle. When the load is removed from the cushion the springs tend to restore the envelope to its distended condition and air will slowly find its way in through the envelope. By this means the highly resilient action of the ordinary spring cushion is pneumatically snubbed or damped.

One of the draw-backs to air bound spring cushions as heretofore made has been the fact that the pneumatic envelope has customarily been placed immediately under the outer upholstery covering. As a result, such cushions are uncomfortable in warm weather because the rubberized pneumatic envelope is not sufficiently removed from close contact with the body.

An object of the present invention is to overcome this difficulty by providing ventilation between the cover and the air retaining envelope.

A more specific object is to provide a thick padding between the envelope and the outer cover of the cushion.

Other objects and advantages of applicant's invention will appear in the following description of a preferred embodiment and therefrom the novelty and scope of the invention will be pointed out in the claims.

The accompanying drawing illustrates, in transverse section, an air-bound cushion embodying applicant's invention.

In the drawing, a series of springs 10 is shown. These springs may be connected to one another by clips or by any other of the well-known means employed in upholstery. The series of springs will, therefore, be referred to hereinafter as a spring unit.

Surrounding the spring unit is a layer 11 of suitable padding, such, for instance, as cotton wadding, and surrounding this layer of padding is an envelope 12 of rubberized material or of any suitable material which will offer high resistance to the passage of air therethrough.

Around the envelope 12 is provided a layer 13 of padding. This layer does not need to be placed under the envelope 12 but preferably is provided on all other sides of the envelope and is of greatest thickness on the top wall of the envelope.

The padding is kept in place by means of an outer cover 14 which completely surrounds the structure. This cover 14 may constitute the finished cover of the cushion or may be further covered by suitable upholstery material.

It will be observed that the cushion comprises a large inner air chamber 15 which is completely enclosed by the envelope 12, the latter being held normally in distended position by the springs 10. When a load is placed on the top of the cushion the springs must yield, but their resistance to yielding is aided by the air confined within the chamber 15. Gradually, however, this air escapes from the envelope and, passing through the padding 13 and cover 14, serves to ventilate the space between the cover and the envelope. Because of the wide separation of the envelope from the cover and because of the enforced circulation of air when the cushion is compressed under a load the cushion will be found very comfortable in service and there will be no tendency to overheating of the body.

When the load is removed from the cushion the springs 10 will tend to restore the cushion to its original distended condition and the air will gradually force its way through the envelope into the air chamber 15.

The padding 11 between the envelope 12 and the springs may be dispensed with, if desired, and the envelope may rest directly on the springs. However, I find in practice that this tends to wear the envelope and hence in my preferred embodiment I employ a padding between the springs and the envelope of a thickness merely sufficient to prevent such wear.

The terms "rubberized envelope" and "rubberized material" specified above and also in the following claims will be understood to include not only materials treated with rubber but also materials treated with rubber substitues or rubber-like substances.

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

1. A cushion of the character described, comprising a minutely porous rubberized envelope offering high resistance to the passage of air therethrough, the pores of the envelope constituting the sole passage for air into and out of the envelope, spring means tending to distend the envelope, such means comprising a series of resilient metal springs placed in the body of the envelope, a flexible rubberized envelope completely enclosing said springs, and a layer of resilient material placed within said envelope and disposed between said layer and said springs.
envelope, a cover surrounding the envelope, said cover being made of material freely pervious to air, and a thick layer of porous padding between the envelope and the cover.

2. A cushion of the character described, comprising a spring unit, an envelope surrounding said unit, said envelope being made of rubberized material having minute pores therethrough, the pores constituting the sole means of passing air into and out of the envelope and offering high resistance to such passage, a cover surrounding the envelope, said cover being made of material freely pervious to air, a thick layer of porous padding between the cover and the envelope and another layer of padding between the spring unit and the envelope.

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