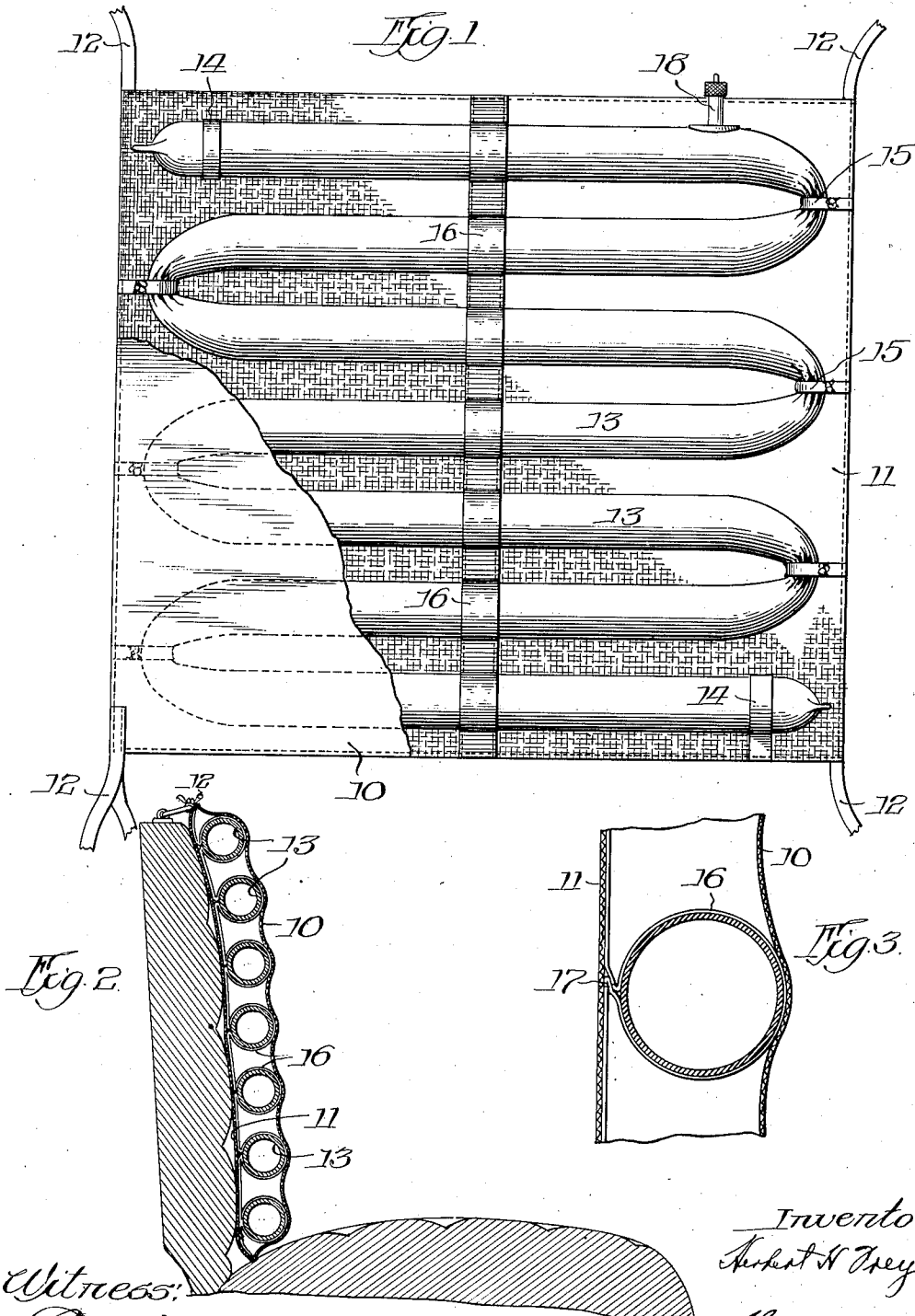


H. H. FREY,
CUSHION.
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1,361,453.

Patented Dec. 7, 1920.



Witness:
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UNITED STATES PATENT OFFICE.

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CUSHION.

1,361,453.

Specification of Letters Patent.

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To all whom it may concern:

Be it known that I, HERBERT H. FREY, a citizen of the United States, and resident of Chicago, in the county of Cook and State of Illinois, have invented certain new and useful Improvements in Cushions, of which the following is a specification.

My invention relates to cushions and has particular reference to a novel cushioning device adapted for use in association with the seats of automotive or other vehicles.

One of the particular objects of my invention is to provide an improved cushion adapted for use either as an addition to the conventional upholstery and springs provided for the seats of vehicles or as the sole cushioning means therefor.

In the usual form of spring-supported seats of automobiles and the like, the seat proper, and the back-rest therefor, and the associated covering for the spring elements are so arranged and related that when in action, as when the vehicle is passing over an uneven roadway and the weight of the passenger is being borne by the said springs, there is a practically constant relative motion taking place between the occupant of the seat and the back-rest of the seat. This is due to the fact that the cushion of the seat member is usually arranged to act in a substantially vertical plane while the back-rest-supporting assembly is designed to reciprocate in a substantially horizontal plane; thereby causing a rubbing action to take place between the passenger and the covering of the back-rest. This results in wear on the clothing and the generation of heat from the induced friction.

The object of the present invention is to combine with the seat structure such suitable resilient, and preferably air-inflated means, as will permit the back of the passenger to move vertically relatively to the back-rest of the seat without friction.

The particular means adopted to accomplish this result in a simple, cheap and effective way, consists of a fabric or other flexible containing member, between the flexible covering walls of which are a series of resilient members, preferably inflated, so supported by the flexible side walls of the containing member, as to permit a relative displacement of the said flexible covering walls to each other in a plane parallel with the faces of the covering means and also per-

pendicular to surface of the flexible covering means, as by compression of the resilient members; the whole arranged to be placed between the back of the passenger and the surface of the back-rest. It should be understood that the above described structure is also adapted for use on the seat of the vehicle as well as for other uses to be mentioned later.

The invention will be more readily understood by reference to the accompanying drawings, in which:

Figure 1 is a plan view of a cushion constructed in accordance with my invention, a part of the casing being broken away;

Fig. 2 is a sectional view showing one of the uses of the device; and,

Fig. 3 is an enlarged sectional view showing in detail the manner of mounting the pneumatic rollers.

In the drawings it will be seen that I provide an envelop or casing consisting of superposed sheets 10, 11 of flexible material such as cloth, the sheets being united at their marginal edges by sewing or otherwise. These sheets comprise parallel inclosing walls within which the pneumatic rollers of my invention are held. Strips of tape 12 may be provided at suitable points such as the corners of the envelop in order to secure the device in a desired operative position.

The pneumatic rollers may be constructed in a plurality of different manners. In the form which I have provided a long rubber tube is doubled on itself thereby forming a series of parallel flexible tubes 13. The ends are held by suitable bands 14, as shown. At the point of the acute bend in the tube I provide similar fastening bands 15 which, while they constrict the tube, do not prevent the free passage of air. In order to maintain the tubes in spaced relation and at the same time permit of rolling motion I provide a tape 16 which passes around each tube at a point near the center thereof and is joined at a single point 17 to one of the sheets 11. Enough slack is left in the tape to permit of the desired rolling action. An inflating device 18 is connected to one of the tubes, suitable means such as a valve being associated with the device in order to retain a desired air pressure therein.

By reason of the looseness of the fasten-

ing device for the pneumatic tubes and the requisite slack in the sheets comprising the envelop, it will be seen that the two sheets are adapted for relative movement in a plane due to the fact that the pneumatic rollers have a corresponding movement. This obviates any rubbing action of the cushion between the clothing of the user and the support. Due to the flexibility of the rollers and the envelop therefor, the desired movement may be secured very readily. If a greater movement is desired it is only necessary to provide for such increased movement by increasing the amount of slack in the roller retaining strips.

It will be noted that in the light and convenient form shown, the device forms an effective seat-cover that may be used on all the present types of vehicle seat-cushions without alteration of said cushions and provides in one structure, both protection to the clothing and a readily detachable movement-absorbing cushion. It will be further noted that in the preferred construction shown, the structure is substantially entirely composed of fabric and rubber—no rigid members being employed, with the result that the cushion when in a deflated condition is flexible like a blanket and may as readily be rolled or folded into small compass for transportation.

In this form the cushion makes a very effective life-preserver or swimming-jacket when attached to the body. Being very flexible, light and conforming to the contour of the body it does not impede the action of the limbs. The cushion is preferably attached and supported when in use by suitable flexible and yieldable cords or straps attached at the corners of the containing envelop of the cushion.

While I have illustrated the device as an adjunct or accessory to the ordinary upholstery or cushions of a vehicle it will be understood that it may be employed or built into the vehicle and constitute the sole cushioning means. It will be understood also that many modifications may be made without departure from the spirit of my invention. The fundamental idea which is sought to be covered herein is that of em-

ploying suitable means which will permit of movement in a plane parallel to the surface of the cushion without friction. This is best accomplished by providing a series of pneumatic or other rollers together with suitable means for restraining their action and movement.

I claim:

1. In combination, the seat of a vehicle, a back-rest therefor, a cushion member adapted to be interposed between the said back-rest and the back of the passenger occupying said seat, said cushion member comprising flexible covering walls, cushioning means lying between said walls and arranged to permit relative displacement of said walls in a direction parallel with, and perpendicular to, each other, substantially as described.

2. Seat covering means for vehicles, comprising in combination flexible upper and lower walls, cushioning members interposed between said flexible walls and adapted to permit relative movement of said flexible walls in two or more planes, substantially as described.

3. A unitary cushion structure comprising in combination flexible and substantially parallel containing walls, resilient cushion members lying between said containing walls, said resilient cushion members being adapted to permit relative movement of the said containing walls in more than one plane, substantially as described.

4. A unitary cushion structure, comprising in combination flexible and substantially parallel containing walls, resilient cushion members lying between said flexible containing walls, said cushion members comprising a single length of flexible inflatable tubing secured to said flexible containing walls so as to form a series of substantially parallel pneumatic rollers permitting relative movement of said containing walls in more than one plane, substantially as described.

Signed at Chicago, Illinois, this 19th day of August, 1919.

HERBERT H. FREY.

Witness:

T. D. BUTLER.