The present invention relates to an inflatable seat and back rest unit of the type in which the supporting and cushioning effect is provided by a body of air or other gas contained within the unit. And it more specifically relates to an inflatable seat and back rest unit containing clearance pockets therein to relieve the pressure from the lower back and rectal regions of a person occupying the unit.

It is, therefore, a principal object of this invention to provide an inflatable seat and back rest unit containing clearance pockets therein to relieve the pressure from the lower back and rectal regions of a person occupying the unit.

A further object of this invention is to provide an inflatable seat and back rest unit wherein the amount of the cushioning and supporting effect may be independently controlled by separately adjusting the air pressure of the back and seat cushions. It is also possible to maintain either the seat or back cushions in the deflated condition while inflating the other so as to fulfill individual needs. Also, when the combination is in the deflated condition it is easily folded to a small compact condition which is readily transportable.

A further object of this invention is to provide an inflatable seat and back rest unit wherein the individual cushions thereof may be separated whereby either the seat or back rest may be used independently.

A further object of this invention is to provide an inflatable seat and back rest unit of cellular construction wherein the cells are proportionally sized to provide the proper supporting and cushioning effect for different portions of the body.

A still further object of this invention is to provide an inflatable seat and back rest unit that is adaptable for use by individuals that spend considerable time operating trucks, cars, tractors, boats or other similar type vehicles having rough and bumpy rides. It is also adaptable for use by individual having local lower back and rectal irritations. It is also an object of this invention for the seat and back rest combination to function as a life preserver when the combination is used in connection with marine vessels.

A still further object of this invention resides in its simplicity of design and construction whereby it is inexpensive to make and readily adaptable to mass production manufacturing techniques.

Other and additional objects will become manifest from the ensuing description taken in conjunction with the accompanying drawings.

To the accomplishment of the foregoing and related ends, the present invention then consists of the means hereinafter fully described and particularly pointed out in the claims, the annexed drawings and the following description setting forth in detail certain means in carrying out the invention, such disclosed means illustrated, however, but a few of the various ways in which the principle of the invention may be employed.

The present invention is illustrated by way of example in the accompanying drawings in which:

FIG. 1 is a perspective view of the seat and back rest unit in the inflated condition;
FIG. 2 is a plan view of the seat and back rest unit;
FIG. 3 is an enlarged fragmentary sectional view taken along line 3—3 of FIG. 2;
FIG. 4 is a side view of the seat and back rest unit in the inflated condition;
FIG. 5 is a perspective view of another form of the seat and back rest unit in the inflated condition; and
FIG. 6 is a plan view of another form of the seat and back rest unit.

Referring now to the drawings in detail and more particularly to FIG. 1, it will be seen that the seat and back rest unit consists of a seat cushion 20 and a back cushion 21 connected along a marginal edge by a non-inflatable elongated web 22 which acts as a hinge to permit selective positioning of the seat and back cushion with respect to each other. Web 22 is provided with releasable fastening facilities such as a zipper 23 for connecting and disconnecting the cushions for independent or combined use thereof.

Seat and back cushions have a generally rectangular peripheral shape with generally rectangular external clearance pockets or openings 24 therein. Clearance pockets 24 take the form of a flat non-inflatable panel. These clearance pockets 24 relieve the pressure of sitting from the lower back and rectal regions. It has been found to be extremely useful to those individuals experiencing surgery and also those who have chronic irritations in the lower back and rectal region. In addition, it is of use in trucks, cars, tractors and other vehicles having rough and bumpy rides.

The seat 20 and back 21 cushions are formed from two generally rectangular sheets 25 and 26 or a single folded sheet of substantially flexible air impermeable material, the sheet or sheets are superimposed upon each other to form the upper and lower walls of the unit (see FIG. 3). The sheets are composed of clear or colored flexible vinyl resin plastic, rubber or other similar type materials. These materials may be adapted to heat sealing, solvent sealing or any other suitable sealing material. They should be able to withstand a wide variety of temperature ranges, both hot and cold and also withstand deterioration over an extended period.

In the preferred form the peripheral edges of the upper and lower walls are heat sealed together to form inflatable compartments. Intermediate areas are heat sealed intermittently along a plurality of elongated seal lines 26 which are spaced sufficiently apart and generally parallel and longitudinal of the unit to form a series of differently sized and randomly positioned inflatable communicating cells 27 which are in communication by means of passageways 28. It is important to note that in the preferred form of the invention a communicating air cell or duct 27a is positioned between the clearance pocket 24 and the hinge web 22.

Cell or air duct 27a provides additional lateral rigidity to the cushion, and therefore, prevents the cushions from collapsing inwardly while in use. The cells located near the outer periphery of the combination have a slightly greater width dimension to envelope the side portions of the body and therefore provide the proper support and cushioning of the body in such
3,112,956

3. The cellular construction in cooperation with the heat seal lines defines a series of air troughs which serve as a ventilation means between the body and the unit when the unit is in use.

Seat 29 and back 21 cushions are separately inflatable by individual air inlet facilities 29 which recesso into the cushion unit and protrude beyond the seating surface. They provide a unit wherein the amount of cushioning and supporting of the body may be independently controlled by adjusting the air pressure for each of the back and seat cushions independently. This gives flexibility to the combination for it may be the need of some individuals to have the back inflated more than the seat or not at all or vice versa as the case may be. When the combination is deflated it is quickly folded to a small compact condition which is readily transportable.

Perforated ears or tabs 30 are located midway along the outer marginal edges of the back cushion 21 to provide a means for securing the unit to seat or chair or other similar objects. The seat cushion may also be provided with tabs to suit individual needs thereof.

FIG. 5 represents a variation of the invention wherein a plurality of clearance pockets 24a are provided longitudinally along both the seat 20 and back 21a cushions with communicating cells 27a joining the major sections of the seat 20a and back 21a cushions. FIG. 6 represents another variation of the invention wherein the cell 27a and zipper 25 are eliminated.

While a preferred embodiment of the seat and back rest unit has been shown and described, it will be apparent that numerous modifications and variations thereof may be made without departing from underlying principles of the invention. It is therefore desired by the following claims to include within the scope of the invention all such variations and modifications by which substantially the result of this invention may be obtained through the use of substantially the same or equivalent means.

What we claim as new and desire to secure by Letters Patent is:

1. In a combination seat and back supporting cushioning unit having seat and back cushions of generally corresponding length and width dimensions and hingedly connected in fore-and-aft aligned adjacent relation by a flexible strap element extending generally coextensively along adjacent edges of said cushions, the improvement wherein each cushion is comprised of superposed upper and lower walls of substantially flexible, air-impermeable, stretch resistant material joined together in directly engaging relation along an endless external marginal seal line and along a plurality of laterally spaced fore-and-aft directed intermediate seal lines to provide an inflatable element having a pneumatic cell array that includes at least four adjacent intercommunicating, generally parallel, side-by-side arranged fore-and-aft elongated main pneumatic cells capable, when inflated, of affording lengthwise stability of shape and widthwise conformity of shape to each element, each cushion element also having its upper and lower walls joined together in directly engaging relation along an endless internal seal line to provide a clearance pocket at a laterally central location bordering said adjacent edge thereof to provide said unit with juxtaposed, fore-and-aft aligned cooperating clearance pockets flanking said strap element for affording relief from the pressure of sitting on the lower back and rectal regions of a person occupying the unit, with each cushion element having its pneumatic cell array of a width to extend laterally of the body of the person using it and having the laterally outermost ones of said main cells of greater width than intermediate ones of said main cells to enable each cushion element, when inflated, to conform concavely to the body and aid in centering the body laterally relative to said clearance pockets, said seat cushion also having its upper and lower walls joined together in directly engaging relation along an interrupted transverse seal lines extending forwardly from said transverse line, said transverse line being spaced closer to
the front of said seat cushion to provide a hingedly connected forward section defining a subarray of pneumatic cells in adjacentally communicating relation to some of the main cells and to each other, and each cushion element having separate air inlet facilities communicating therewith for selective regulation of each cushion element.

4. The cushioning unit of claim 3 wherein the subarray of said seat cushion comprises more fore-and-aft seal lines than does the array of main cells so that, when inflated, the cells of the subarray are substantially thinner than the main cells.

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UNITED STATES PATENT OFFICE
CERTIFICATE OF CORRECTION

Patent No. 3,112,956

December 3, 1963

Melvin Edward Schick et al.

It is hereby certified that error appears in the above numbered patent requiring correction and that the said Letters Patent should read as corrected below.

Column 4, line 35, before "with" insert -- directly --.

Signed and sealed this 9th day of June 1964.

(SEAL)

Attest:

ERNEST W. SWIDER
Attesting Officer

EDWARD J. BRENNER
Commissioner of Patents