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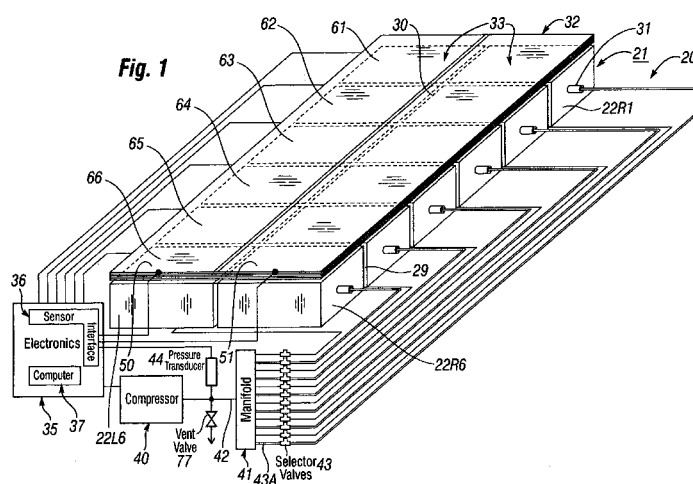
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(54) Title: ADAPTIVE CUSHION METHOD AND APPARATUS FOR MINIMIZING FORCE CONCENTRATIONS ON A HUMAN BODY



(57) Abstract: An adaptive cushion method and apparatus (20) for minimizing forces on body parts of a person on a chair or bed includes an overlay cushion (21) having a plurality of individual air bladder cells (22), each having thereon a novel stretchable piezoresistive force sensor (33), and an electro-pneumatic control system (20A) for inflating and deflating individual cells to pressures measured by a transducer (44). Force concentrations sensed by the force sensors are minimized using a novel algorithm by varying the inflation pressure in a first cell while measuring the sum of the forces exerted on all cells, repressurizing the first cell to that pressure for which a minimum total force was obtained, repeating the cyclical variation in pressure and re-inflation to a minimum force-obtaining pressure for each of the remaining cells, and repeating the sequence for all cells until the force variations are minimized below a predetermined threshold value.



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