

- [54] **LOW FORCE MEMBRANE SWITCH**
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- [73] Assignee: **AMP Incorporated**, Harrisburg, Pa.
- [21] Appl. No.: **178,666**
- [22] Filed: **Apr. 7, 1988**
- [51] Int. Cl.⁴ **H01H 13/70; H01H 11/00;**
B05D 5/12
- [52] U.S. Cl. **200/5 A; 29/622;**
178/18; 200/512; 427/58; 427/96
- [58] **Field of Search** **200/5 A, 159 B, 86 R,**
200/292, 308, 317; 29/622; 178/18; 427/58, 96

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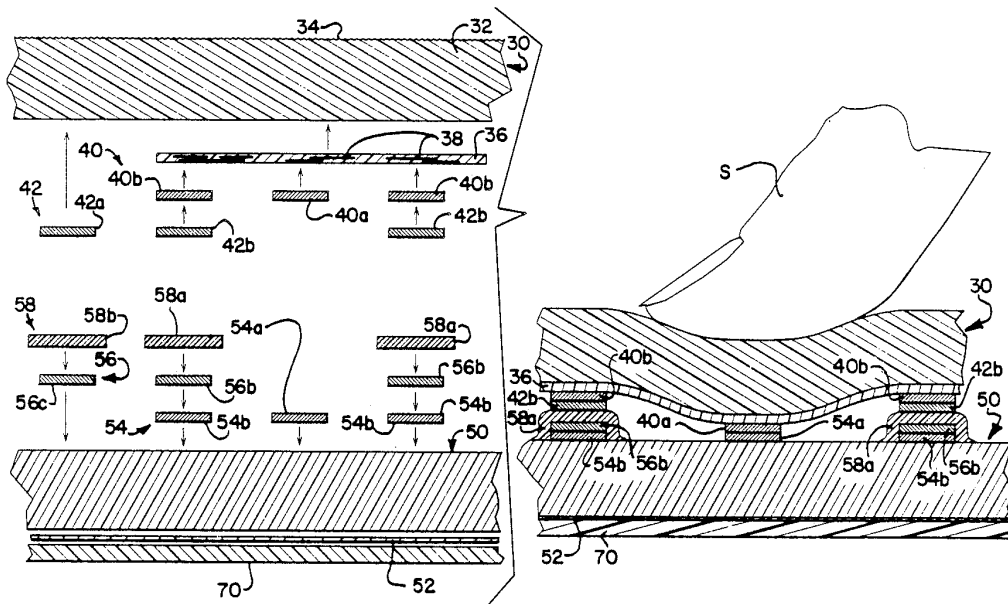
Primary Examiner—J. R. Scott
Attorney, Agent, or Firm—Katherine A. Nelson

[57] **ABSTRACT**

The invention is directed to a membrane switch com-

prising a first layer 30 of flexible insulating material and a second layer 50 having relatively inflexible characteristics, each layer 30, 50 having an array of conductors 40, 54 disposed thereon and defining a plurality of switch point areas over a substantial portion of the respective layers. The first sheet is transparent and carries visible symbols on the inner surface thereof formed by a first layer 36 of inks printed thereon and further includes a barrier coating over such symbols to provide contrast therefore. The first array 40 of conductors is printed on the barrier coating. The second array 54 of conductors is printed on the inflexible layer. The first and second arrays 40, 54 of conductors are connected to respective voltage sources, preferably by further arrays of conductors 42, 56 disposed over at least portions of the first and second arrays, 40, 54 the further arrays 42, 56 being of a material having a higher conductivity than the material used for the first and second arrays 40, 54. Spacer means 58 for the switch is formed by printing an array of spaced apart dots of a dielectric and insulating coating on top of at least one of the arrays of conductors in the defined switch point areas to hold the switch point areas normally apart until pressure is placed thereupon to deform the first sheet 30 and effect a switch closure between corresponding switch point areas of the arrays 40, 54. A method for making the switch is also disclosed.

12 Claims, 6 Drawing Sheets



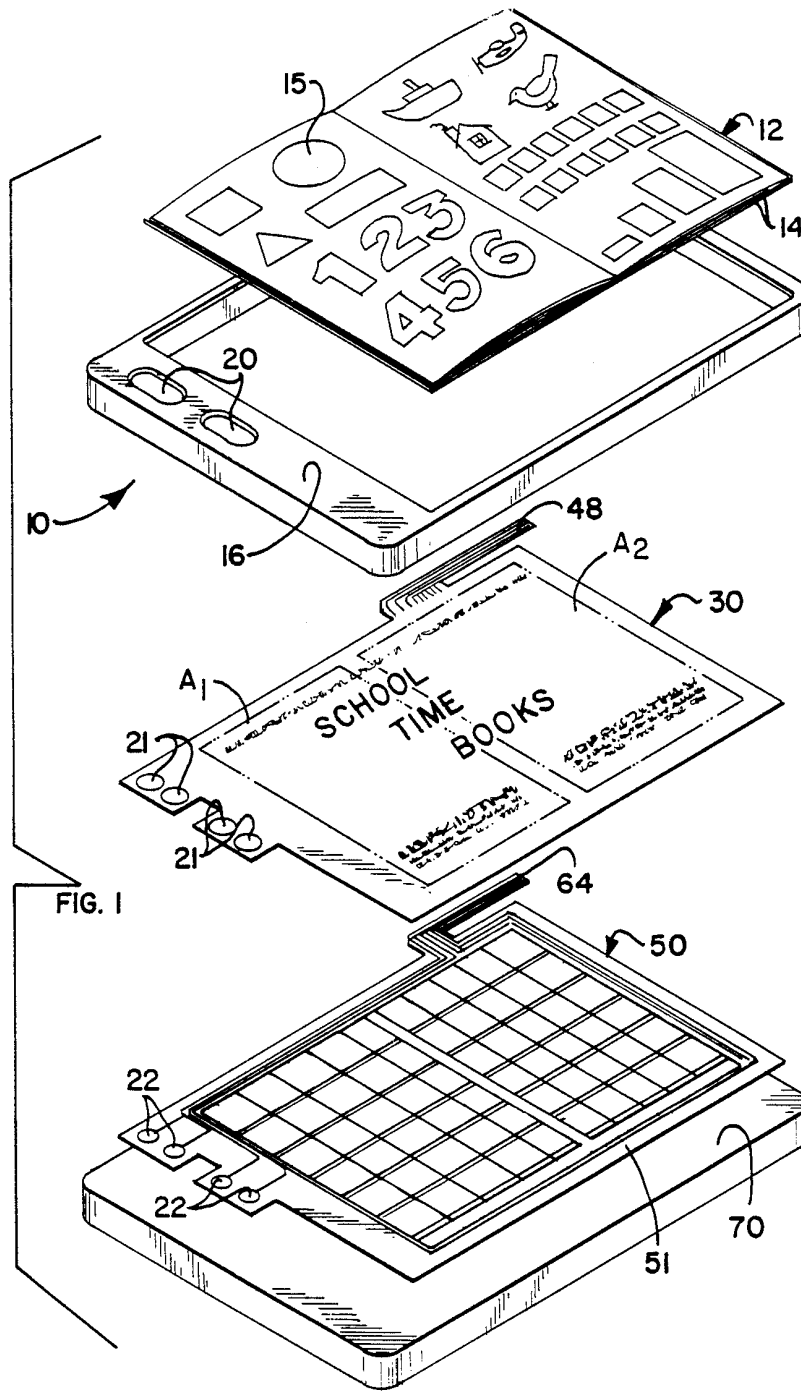


FIG. 1

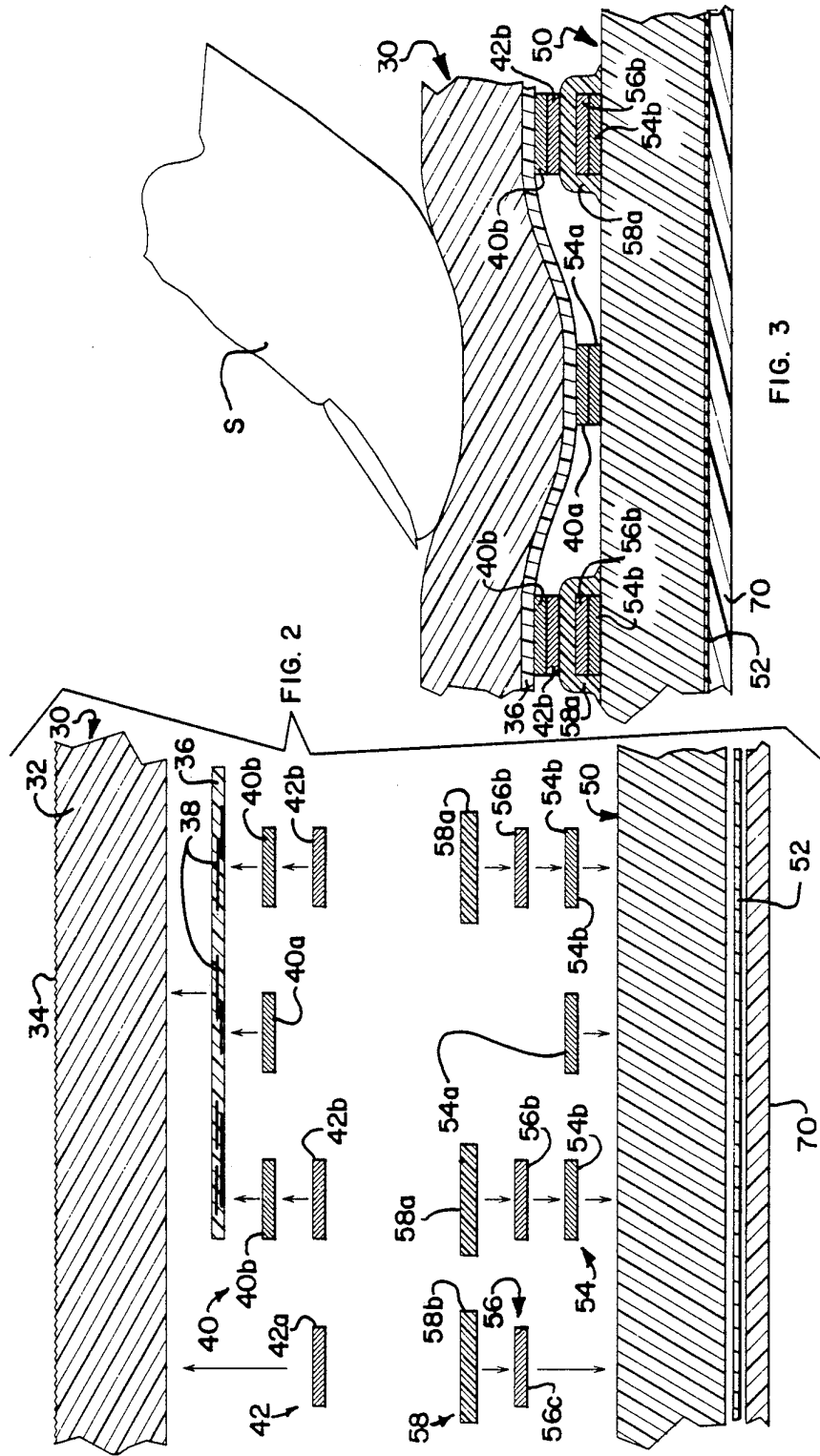


FIG. 2

FIG. 3

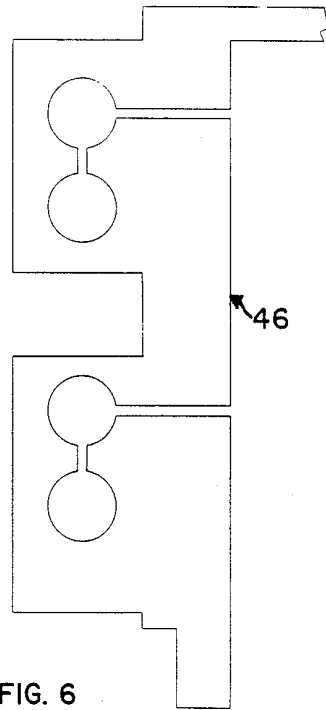


FIG. 6

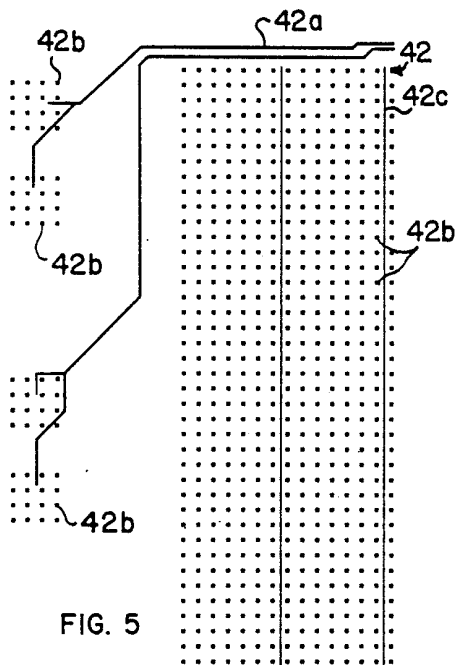


FIG. 5

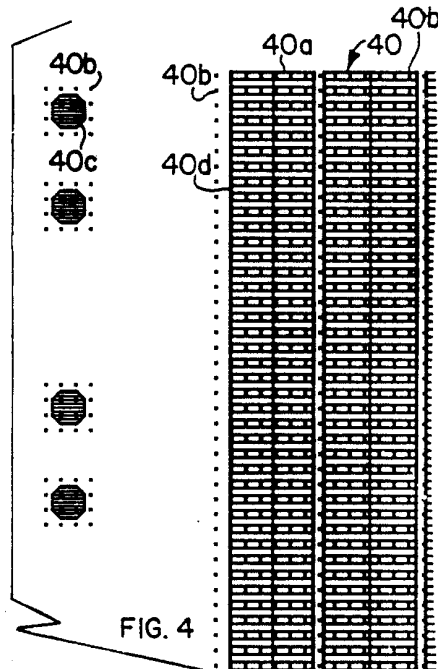


FIG. 4

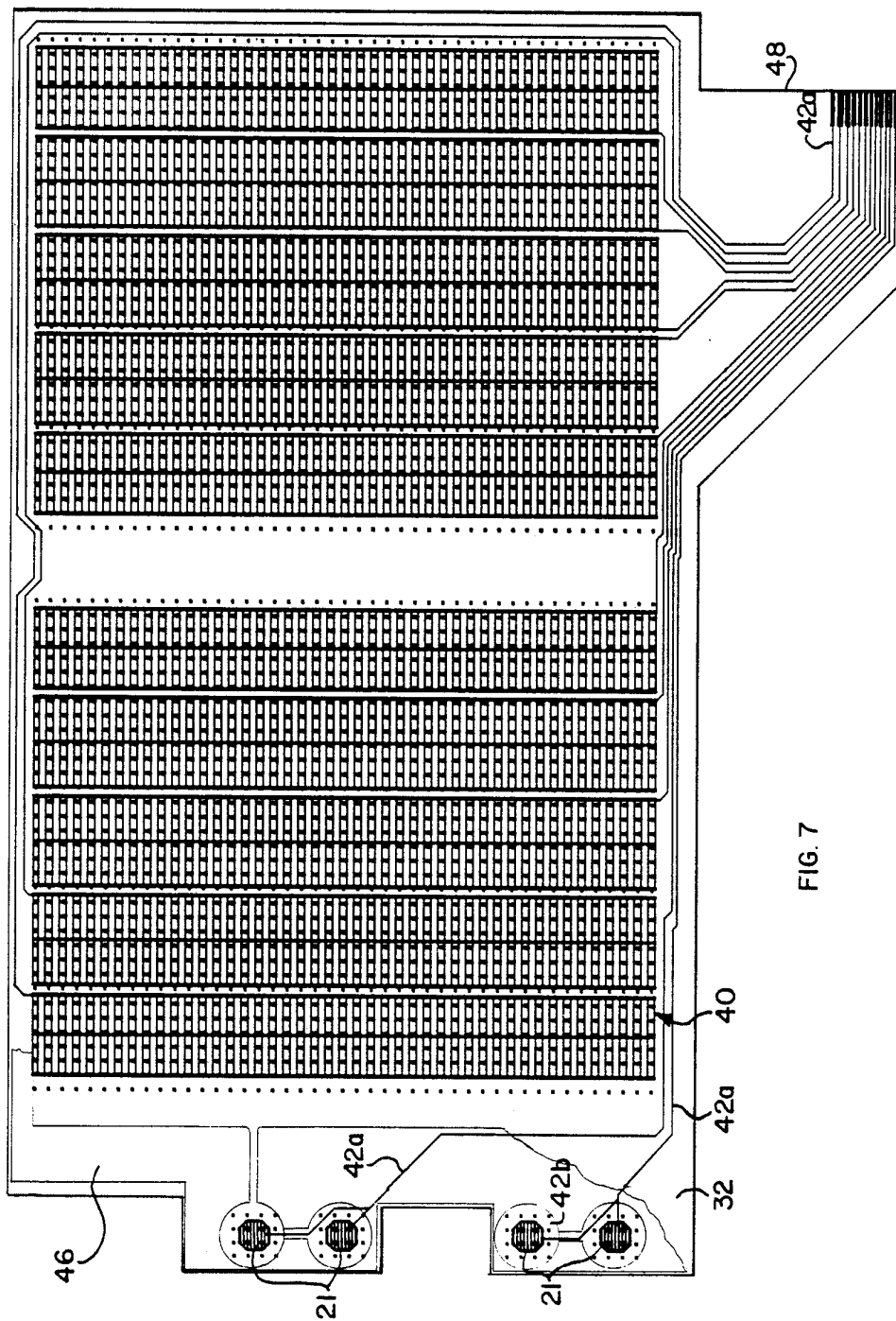


FIG. 7

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