

(12) **United States Patent**  
**Hoeksma**

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(54) **TOUCH-SCREEN INPUT DEVICE**

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(\*) Notice: Subject to any disclaimer, the term of this patent is extended or adjusted under 35 U.S.C. 154(b) by 0 days.

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(51) Int. Cl.<sup>7</sup> ..... **G09G 5/00**

(52) U.S. Cl. .... **345/168; 345/169; 345/171; 345/179**

(58) Field of Search ..... **345/168, 169, 345/171, 172, 179**

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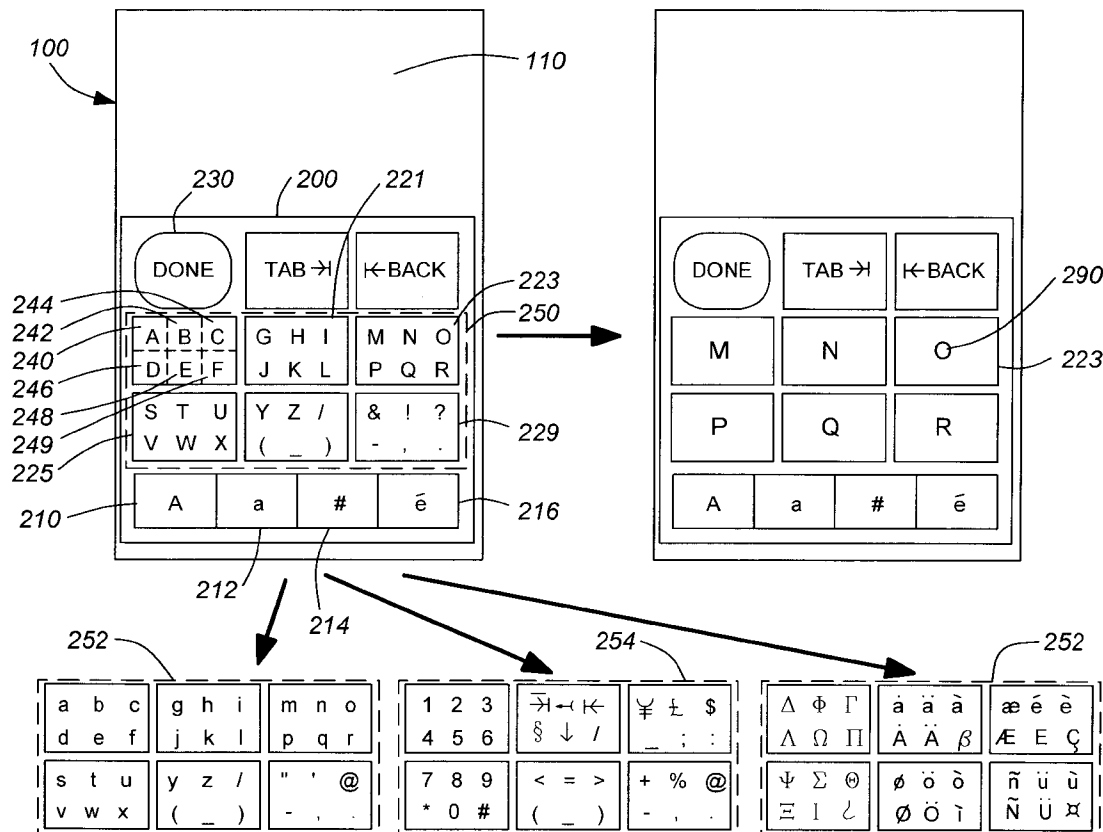
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(57) **ABSTRACT**

A touch screen input device for improving the input of alphanumeric data in an area of limited space. The input device employs a multi-touch method of input which is intuitive to a first time user. The device maps a plurality of characters to each of its input keys and upon selection of a key subsequently re-labels the input keys with the characters displayed on the selected key. The device is intuitive to a first time user since the input keys are re-labeled in manner which corresponds to their relative position within the selected input key. In comparison to single stroke input devices this device reduces the number of keys required for data input. Alternatively a user could select a single character without employing the multi-touch method by selecting a pre-defined element of a particular input key.

**14 Claims, 6 Drawing Sheets**



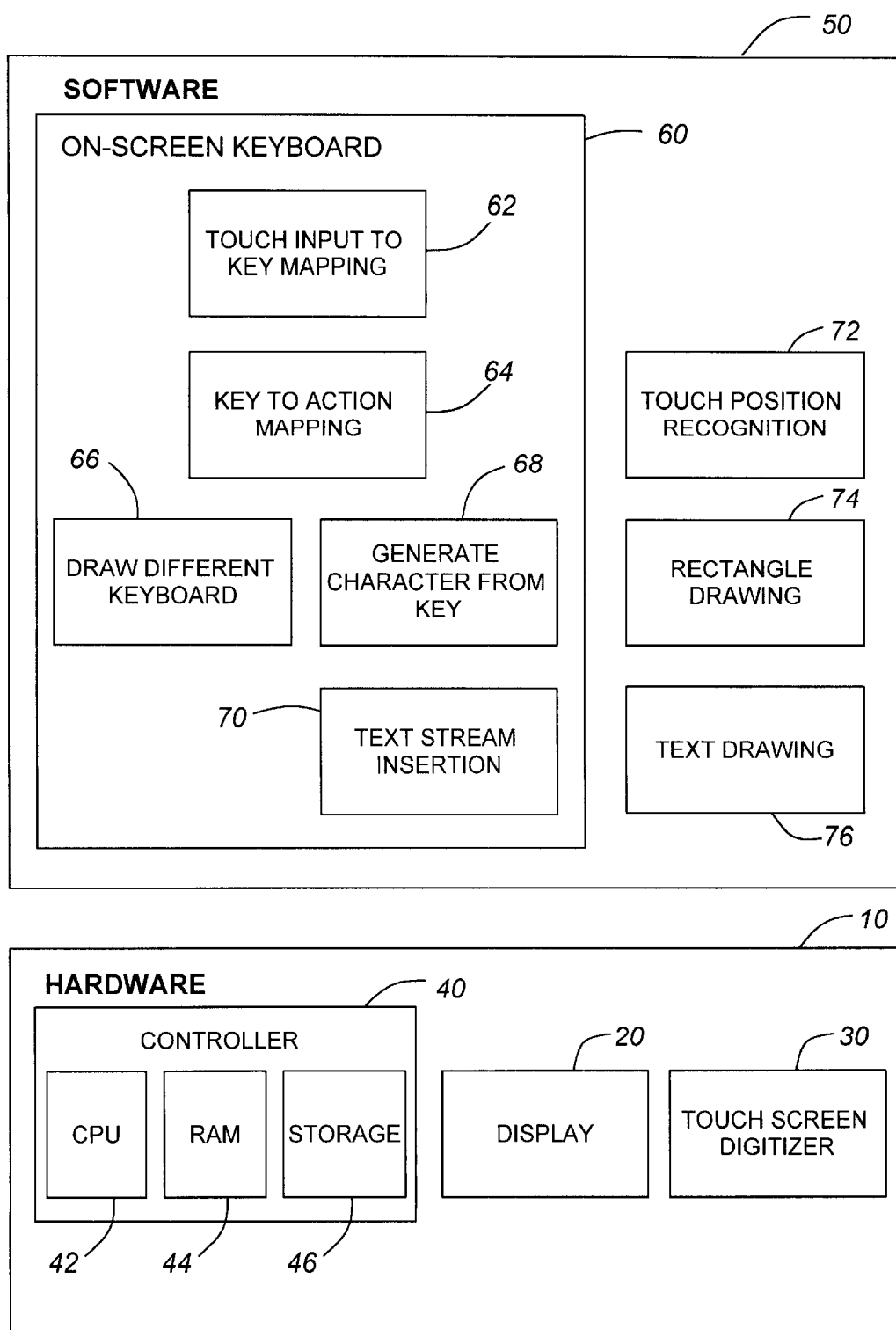
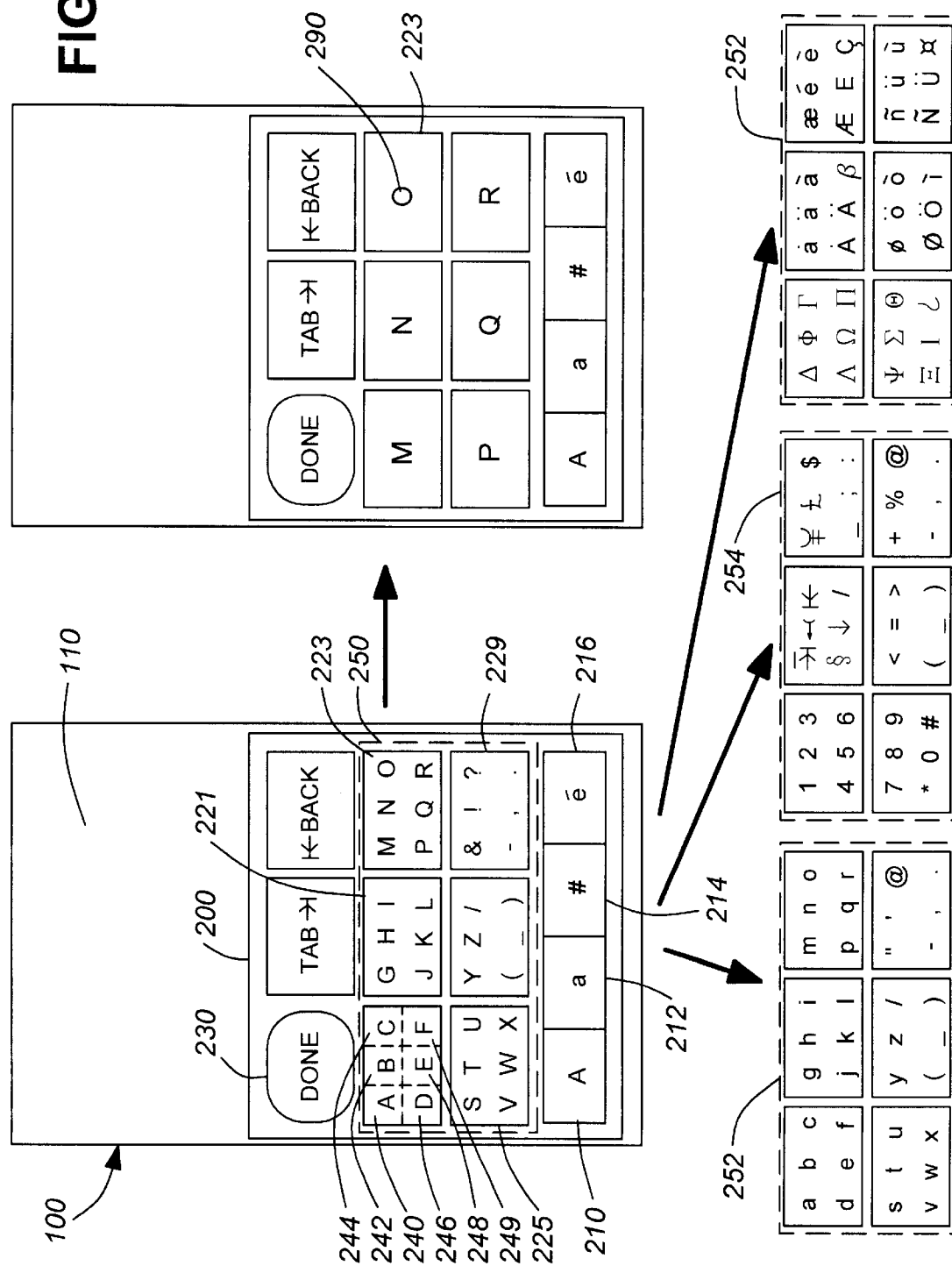
**FIG. 1**

FIG. 2



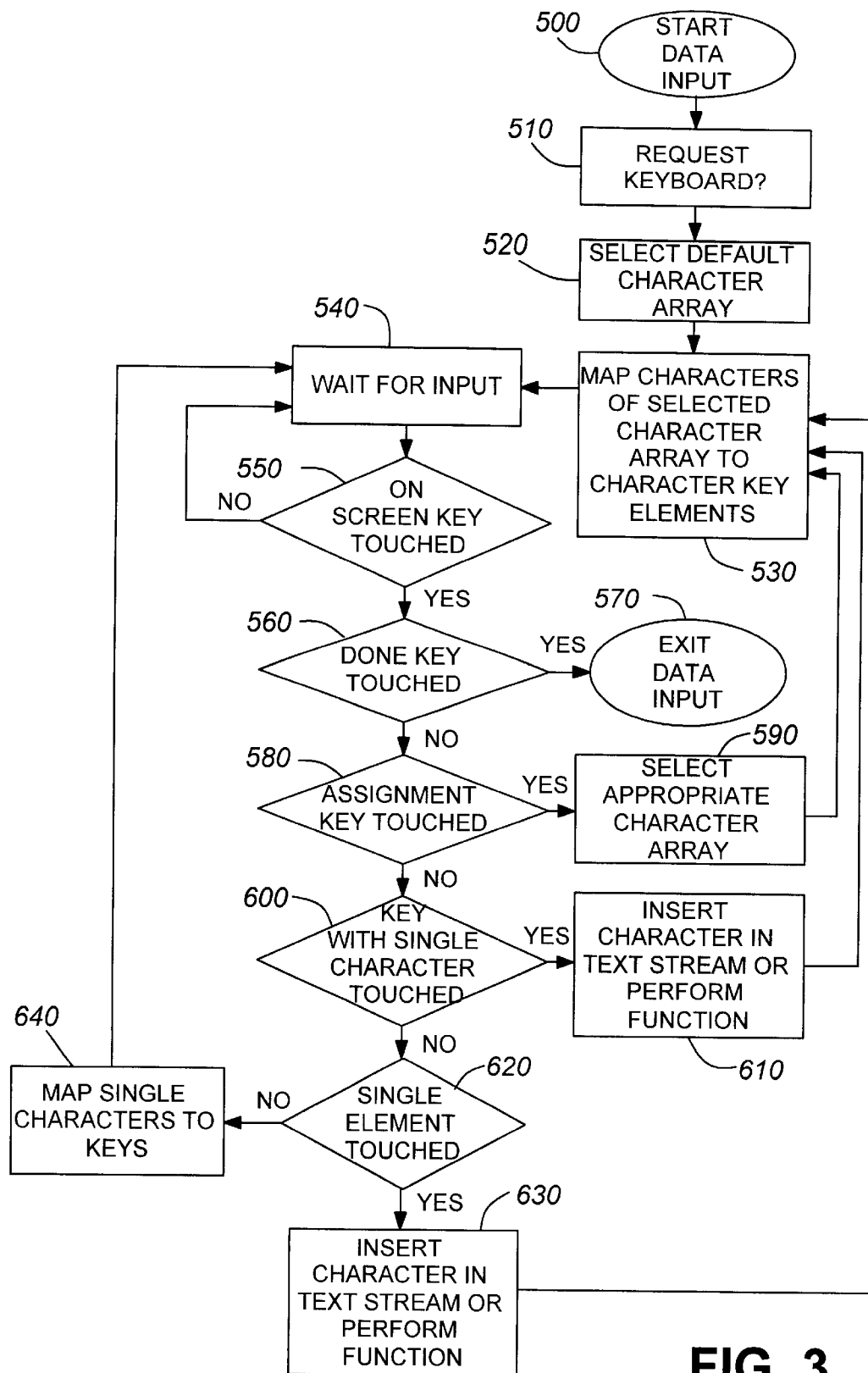
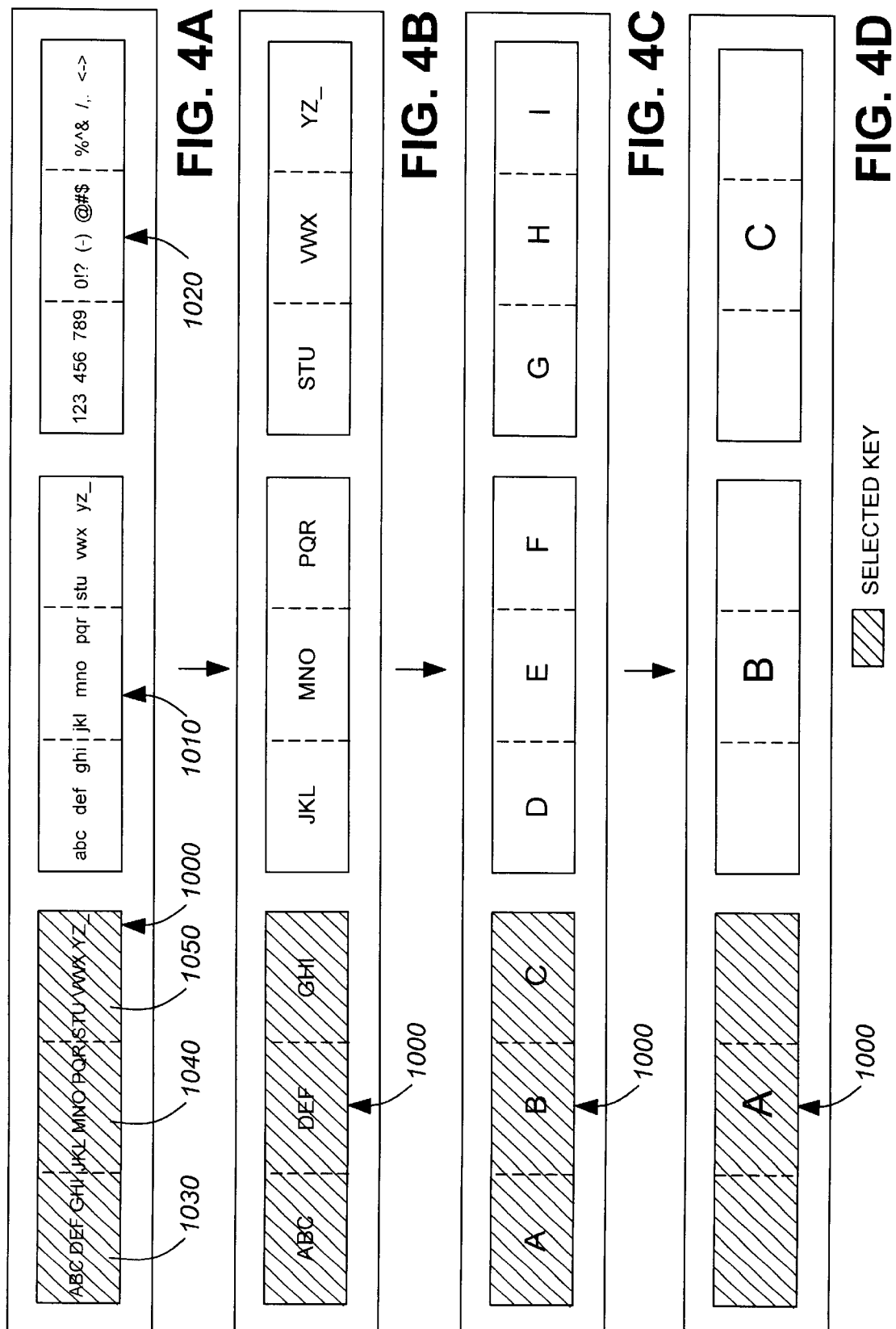


FIG. 3



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