

[54] **SYSTEM FOR DETERMINING THE EXTENT OF OVERLAP BETWEEN TWO POLYGONS**

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Related U.S. Application Data

[63] Continuation of Ser. No. 434,306, Jan. 17, 1974, abandoned, which is a continuation of Ser. No. 266,187, Jun. 26, 1972, abandoned.

[51] Int. Cl.² **G06F 15/46**

[52] U.S. Cl. **364/300**

[57] **ABSTRACT**

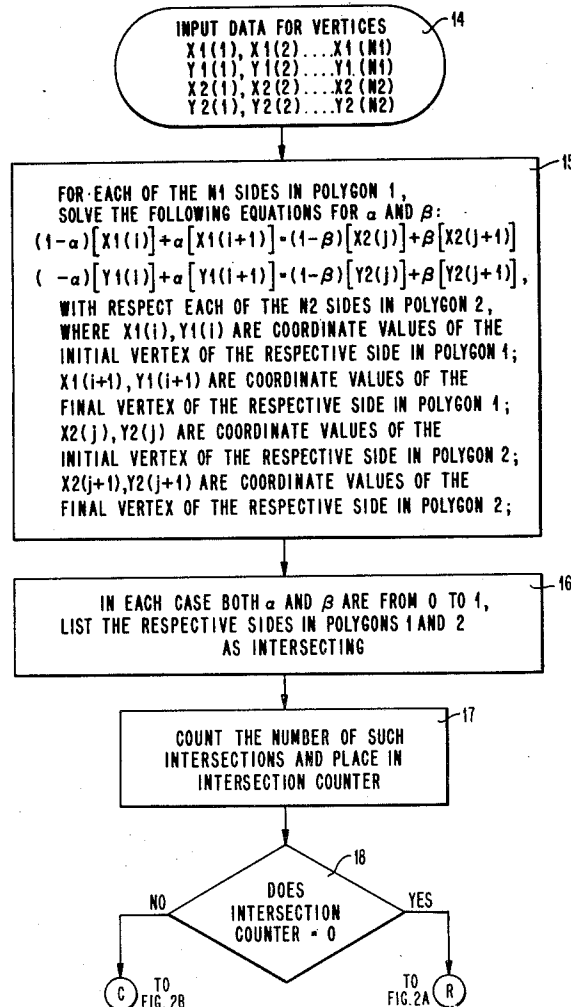
A system for determining the extent of overlap between two primary polygons which are simply connected and have vertices of known coordinate values. Each of the sides in each polygon is first defined in terms of parameters which have limits of constant values as shown by block 14 in FIG. 2. Then, as set forth in block 15 in FIG. 2, a determination is made as to whether each of the sides in one of the polygons intersects any side in the

other polygon by respectively equating the parametric definitions of each of the sides in the first polygon with the parametric definitions of each of the sides in the second polygon. A pair of sides so equated will intersect if each side has a resultant parameter within said limits. Routines are provided for determining when intersections will be non-degenerate, and when they will be degenerate, and when there will be no intersections thus indicating that the polygons either completely overlap or have no overlap at all. Intersections will be non-degenerate if the resultant parameters for each of the sides is somewhere between said limits. Intersections will be degenerate if the resultant parameter for either side is at one of its limits. A non-degenerate intersection is defined as one involving only one side from each of the two polygons while a degenerate intersection involves an additional side from at least one of the two polygons. The non-degenerate intersections are vertices in subsidiary polygons formed by the overlap of the two primary polygons.

25 Claims, 11 Sheets Drawing,

84 Pages Specification

The file of this unexamined application may be inspected and copies thereof may be purchased (849 O.G. 1221, Apr. 9, 1968).



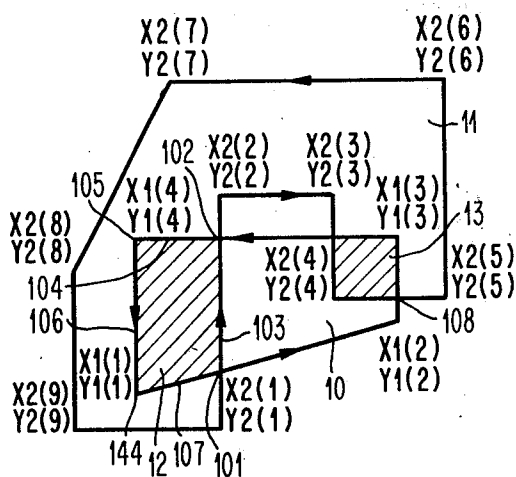


FIG. 1

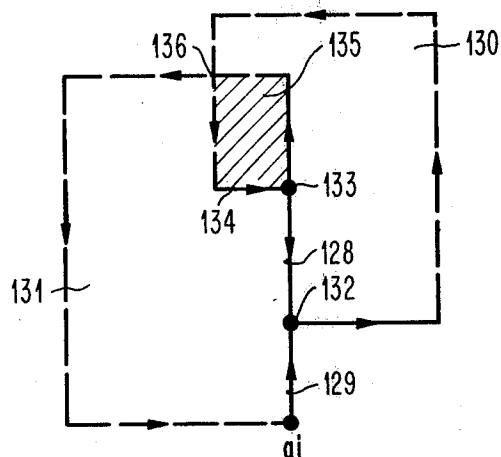


FIG. 7

FIG. 8

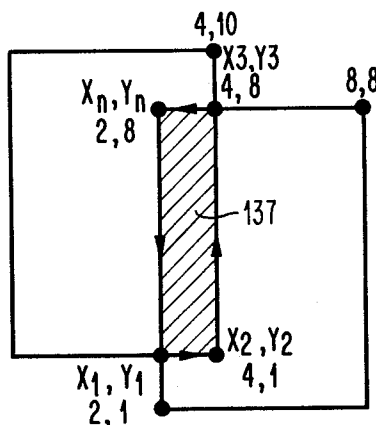
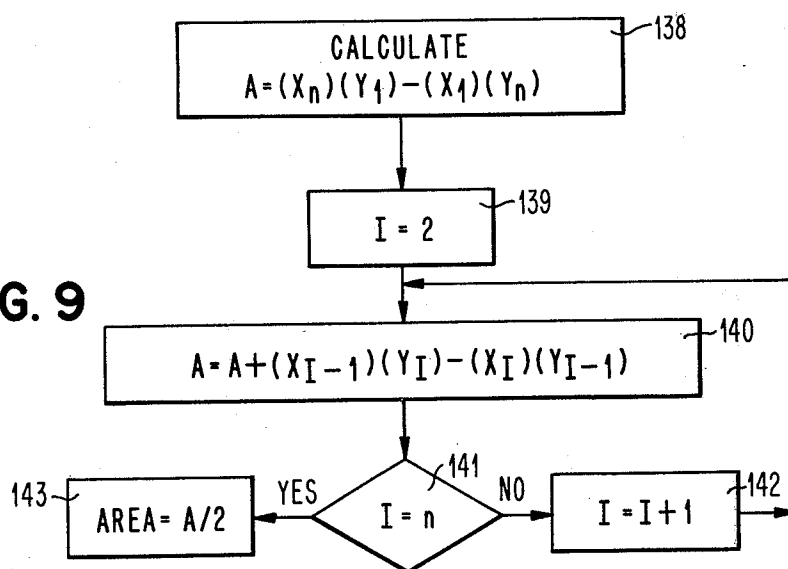


FIG. 9



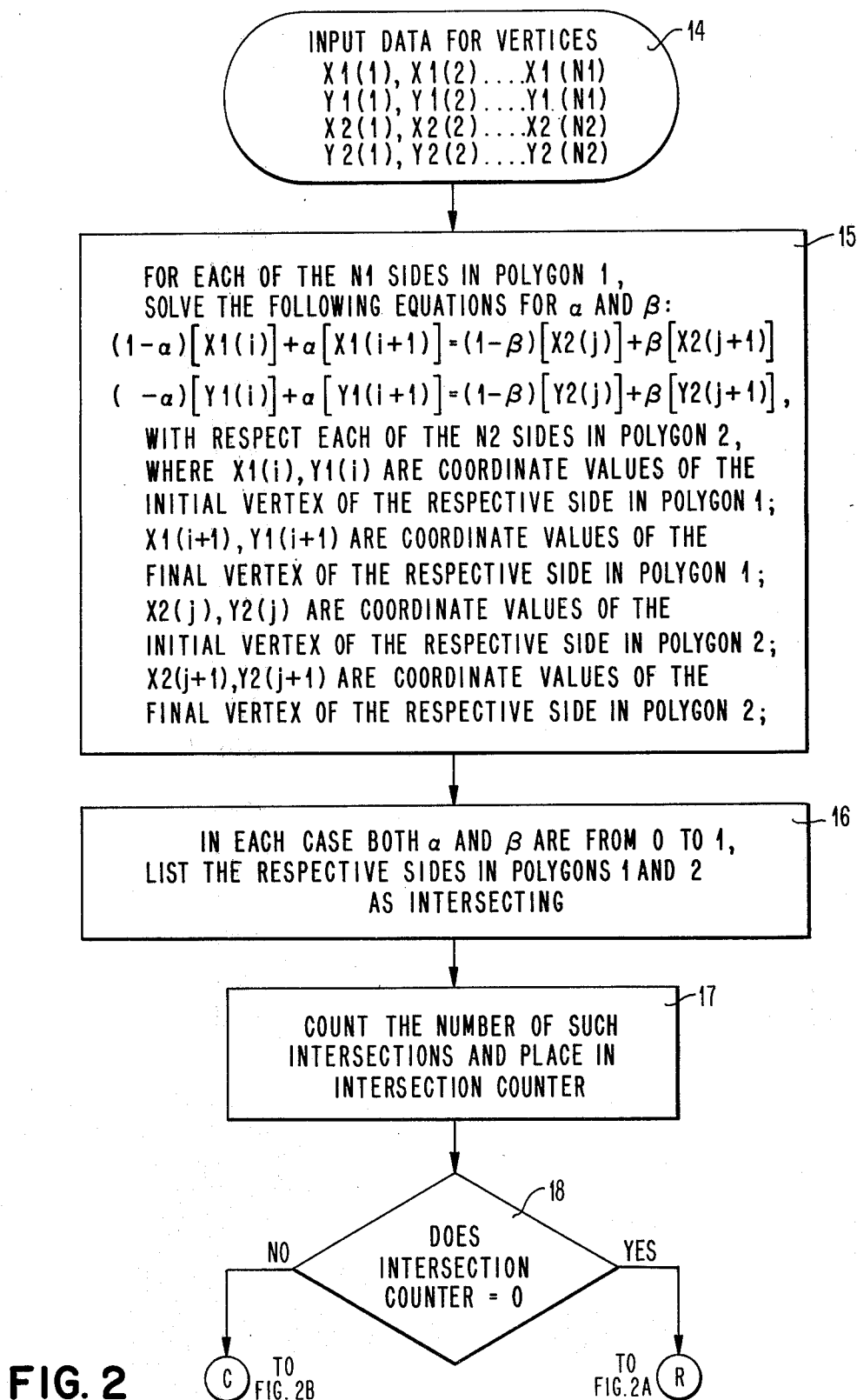


FIG. 2A

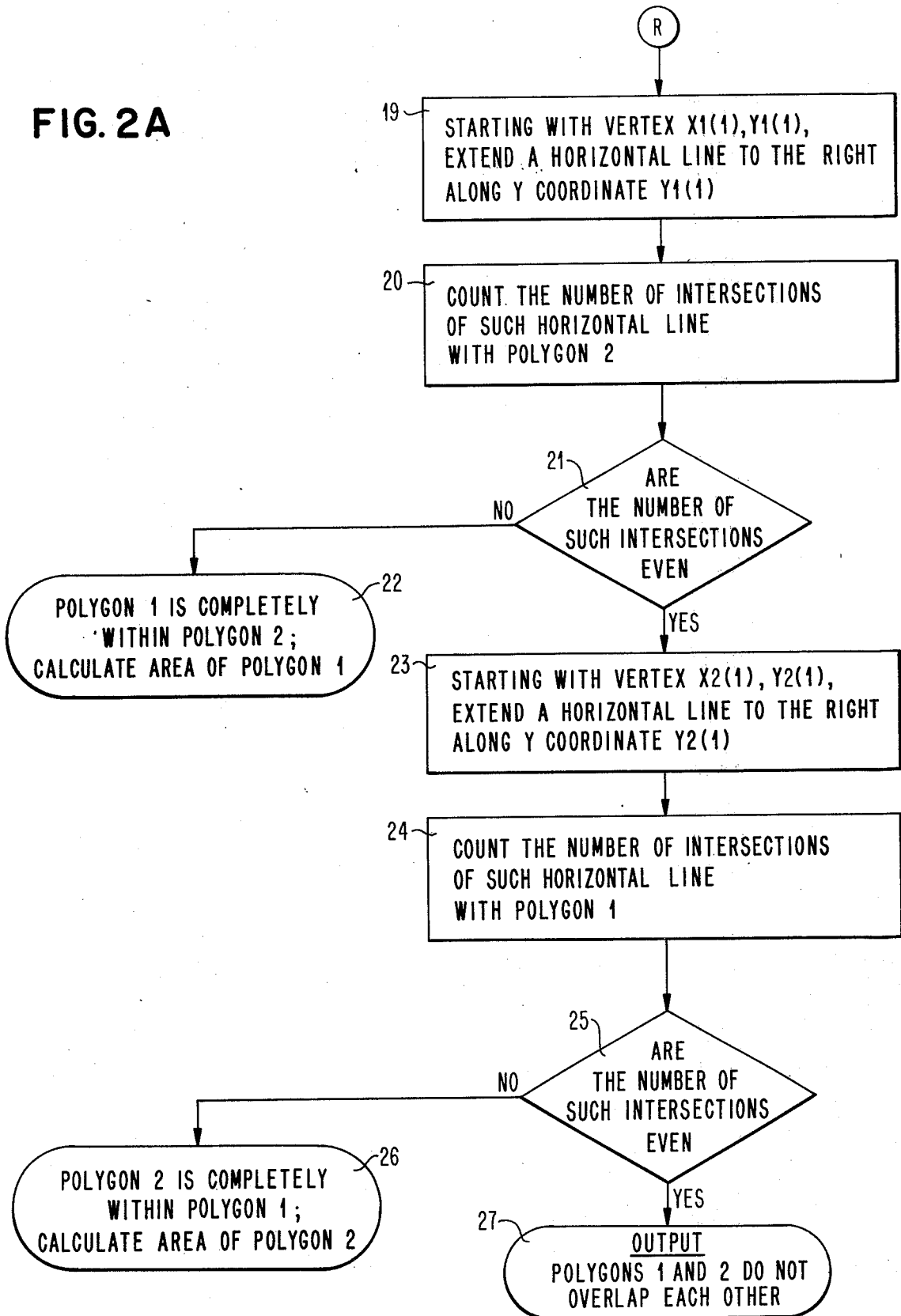
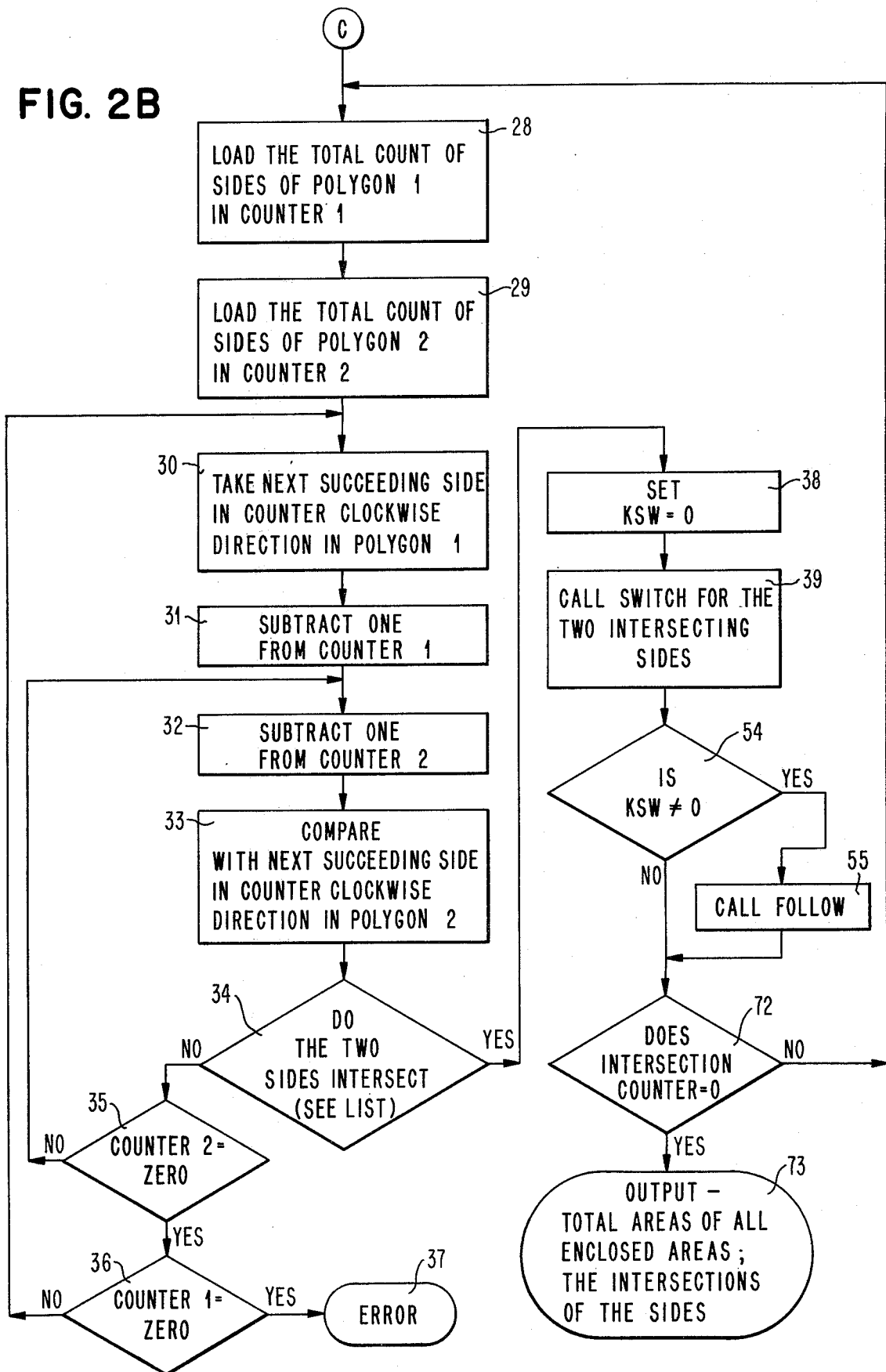


FIG. 2B



SUB-ROUTINE SWITCH

FIG. 3

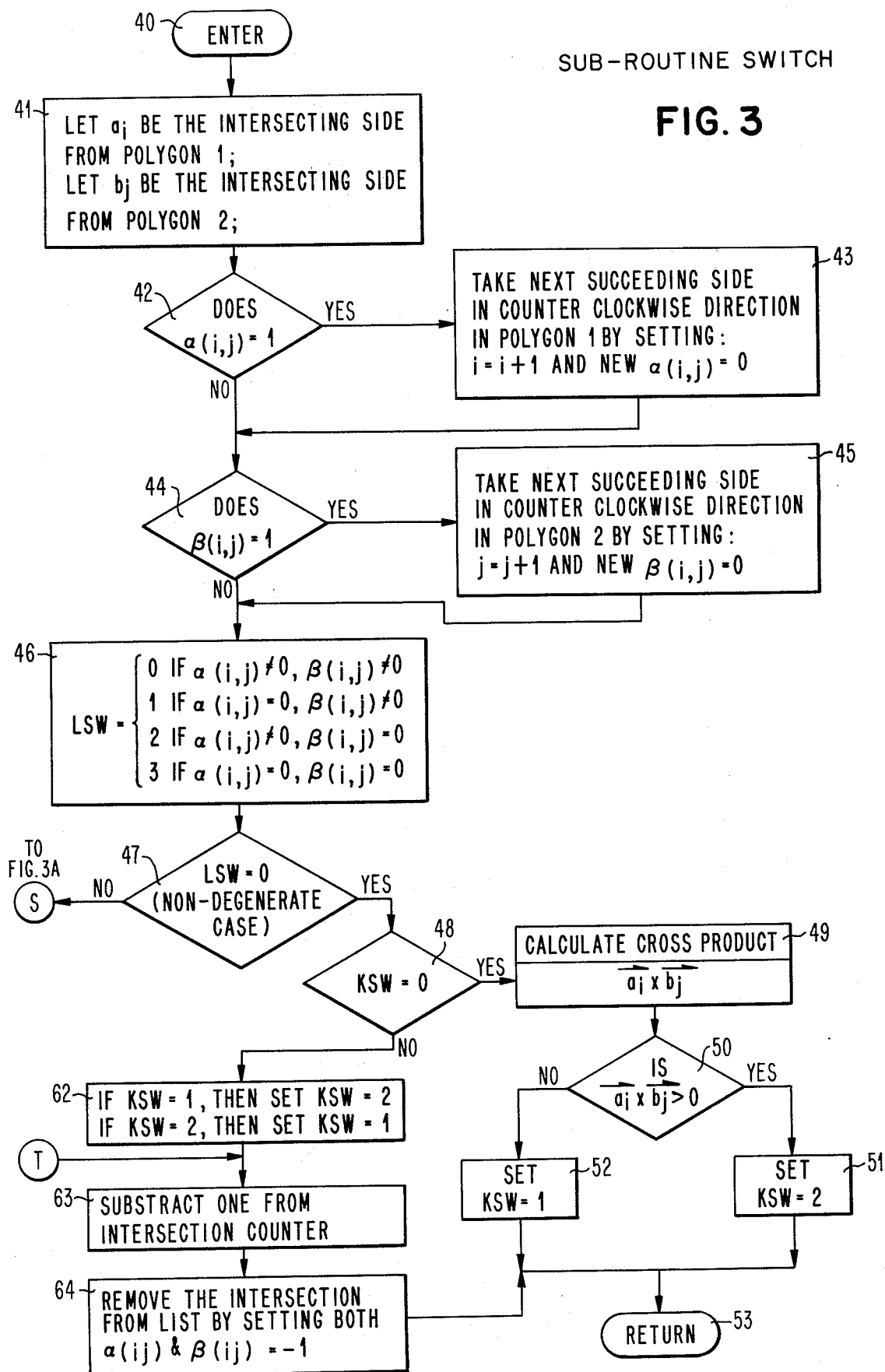


FIG. 3A

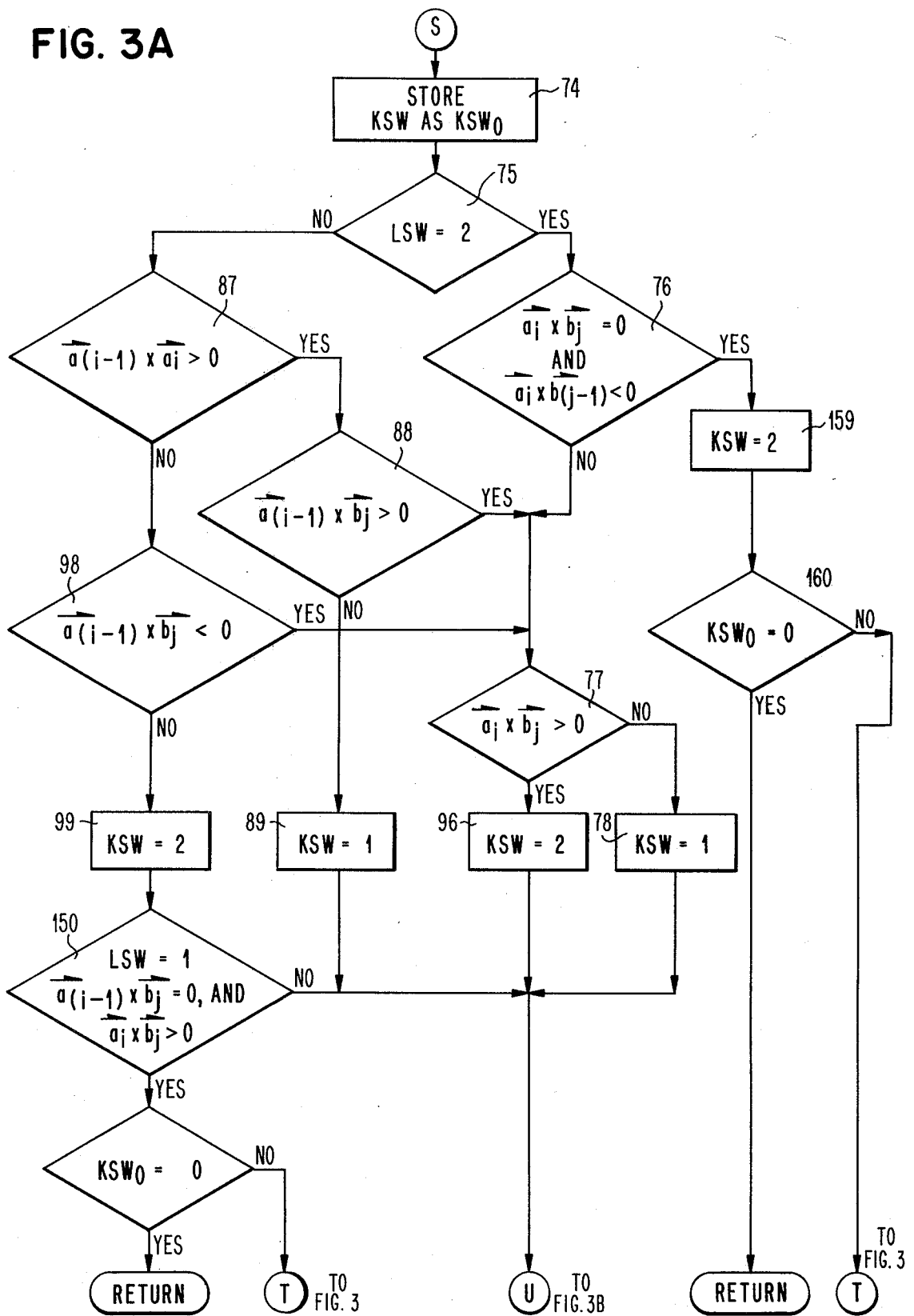


FIG. 3B

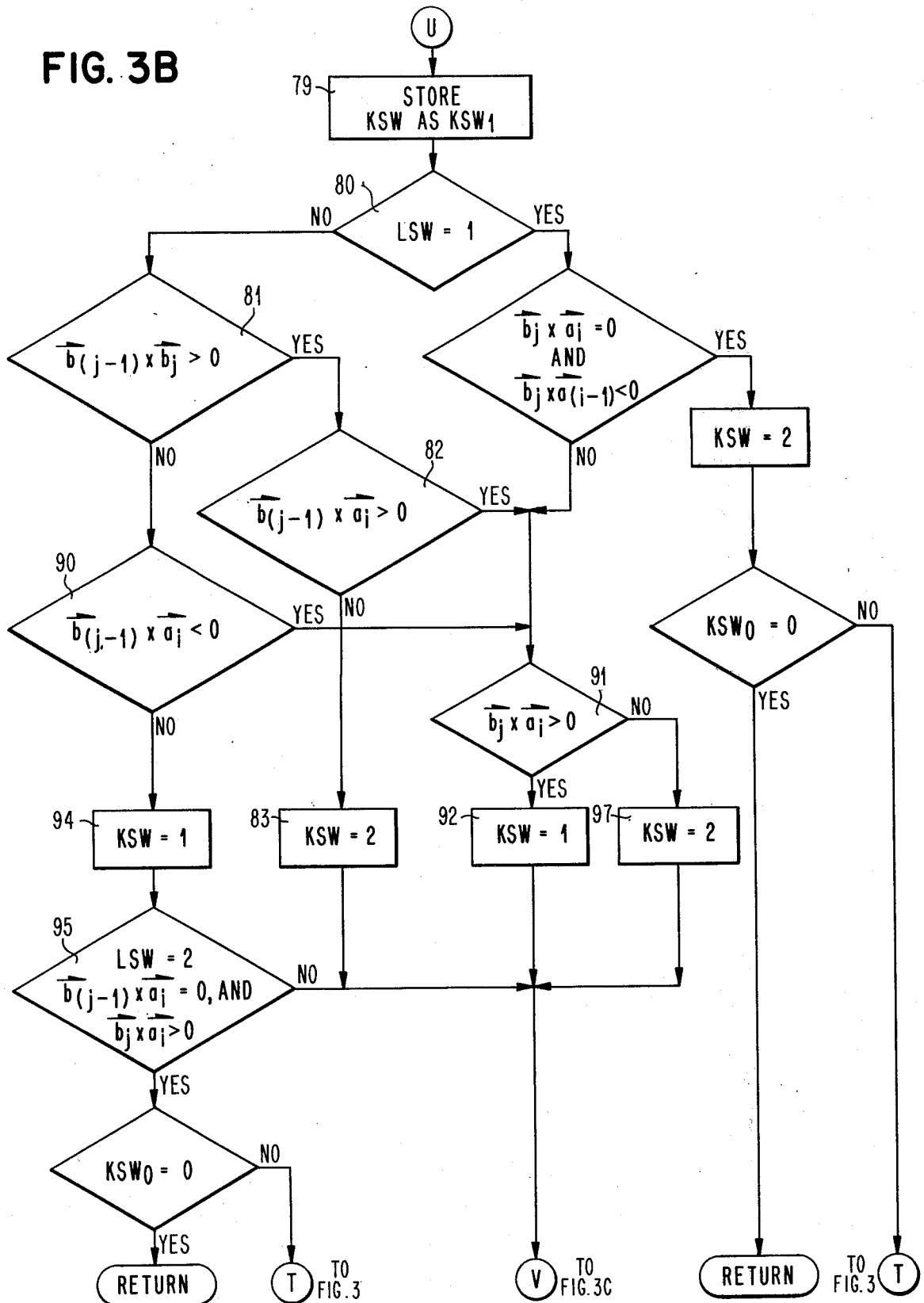
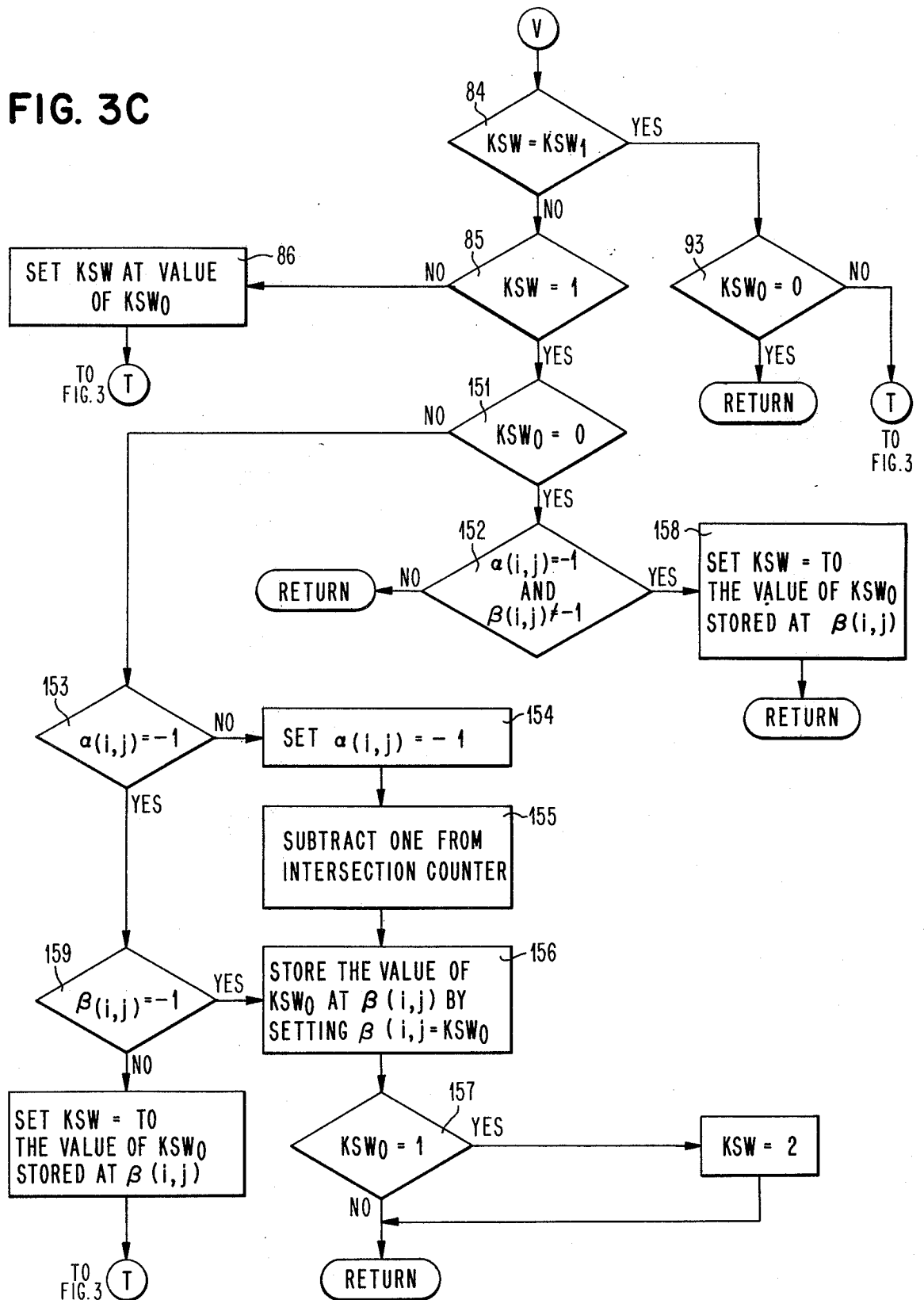
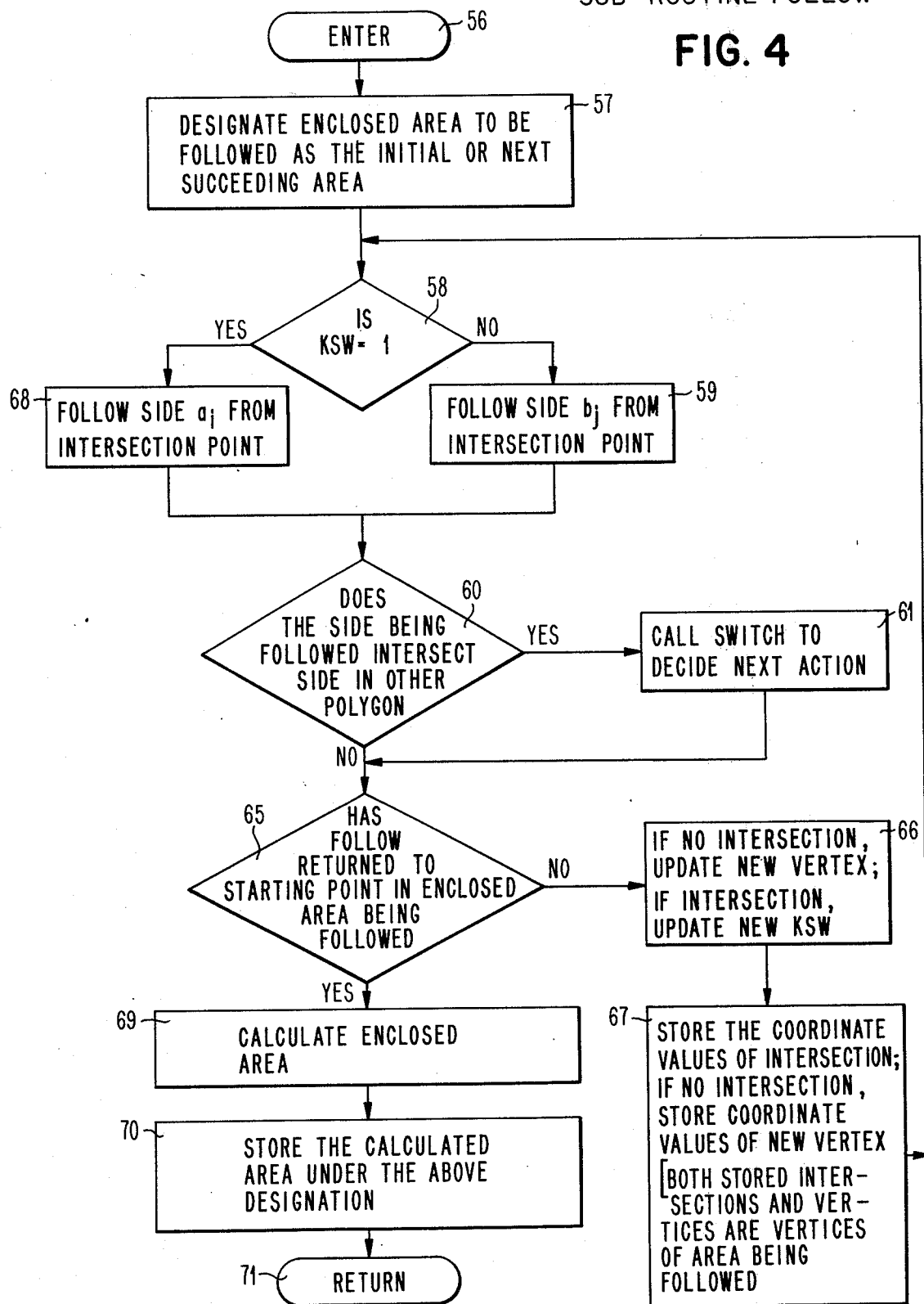


FIG. 3C



SUB-ROUTINE FOLLOW

FIG. 4



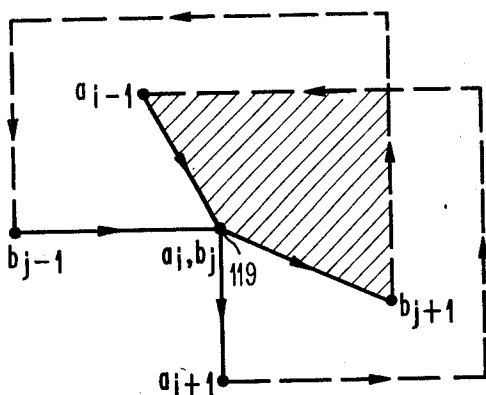


FIG. 6

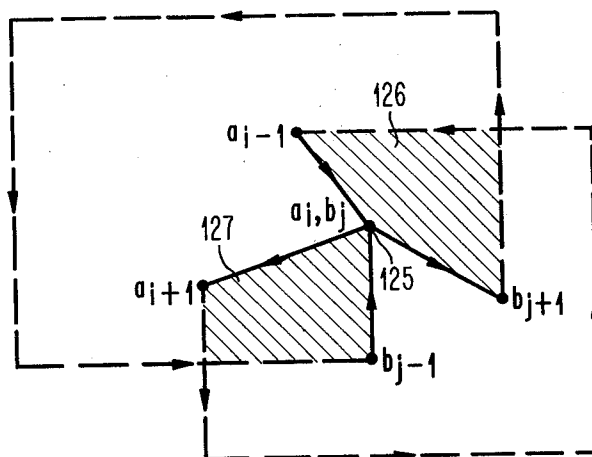


FIG. 6A

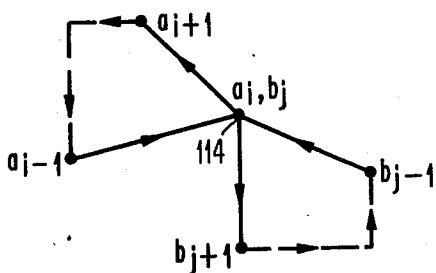


FIG. 6B

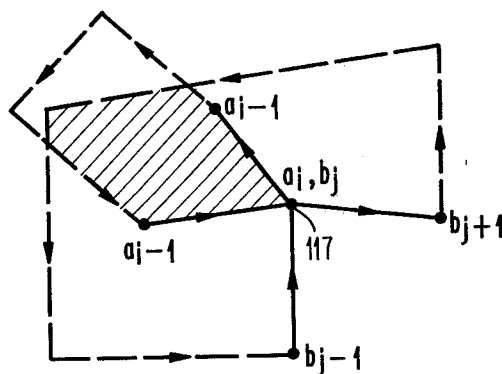


FIG. 6C

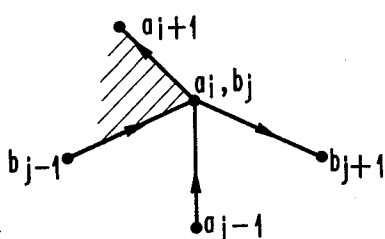


FIG. 6D

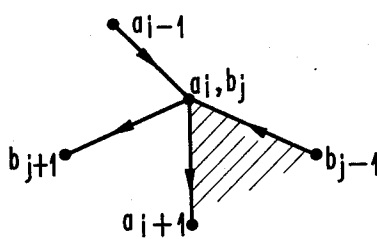


FIG. 6E

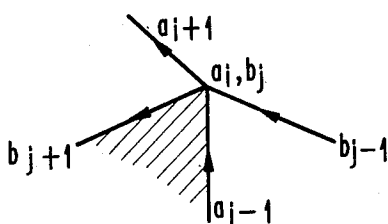


FIG. 6F

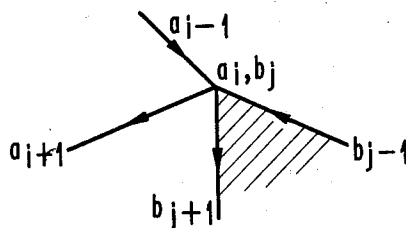


FIG. 6G