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T918,013

NATURAL SELECTION PROGRAM WITH RANDOMIZATION TRAFFIC-JAM MECHANISM

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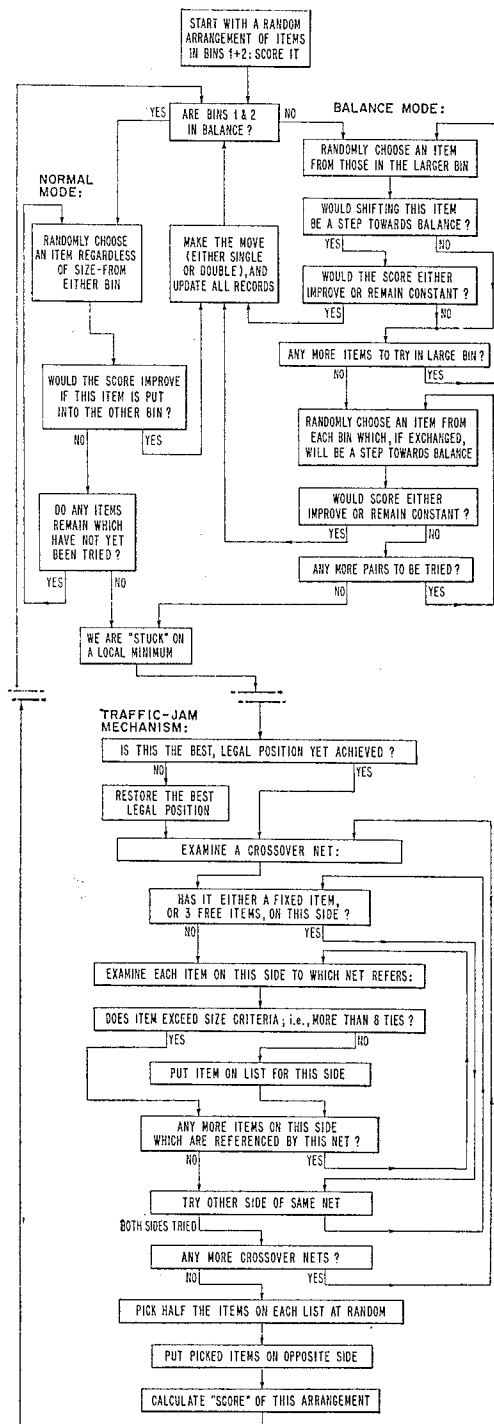
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U.S. Cl. 444-1

4 Sheets Drawing, 17 Pages Specification

The present invention relates to an automatic process for preventing a "natural selection" design automation computer program that is optimizing a specified objective function, for example, the location of a plurality of objects, from becoming permanently "stuck" at an unsatisfactory local minimum. The innovation presented in the disclosure is in the application of a novel "traffic-jam" routine which enables the optimization process to continue after it has reached such a local minimum. This routine operates most effectively in certain traffic-jam situations caused by unrecognized coalitions of objects where it is difficult to recognize the coalitions in question and difficult to maneuver them when unrecognized. Such coalitions can be broken up by an appropriate randomization of certain subsets of the total data, the subsets in question being demonstrably of high relevance to those unrecognized coalitions whose incorrect location has caused the unsatisfactory local minimum to be reached. The normal natural selection process may then continue to a more successful point even though the coalitions themselves remain unrecognized.



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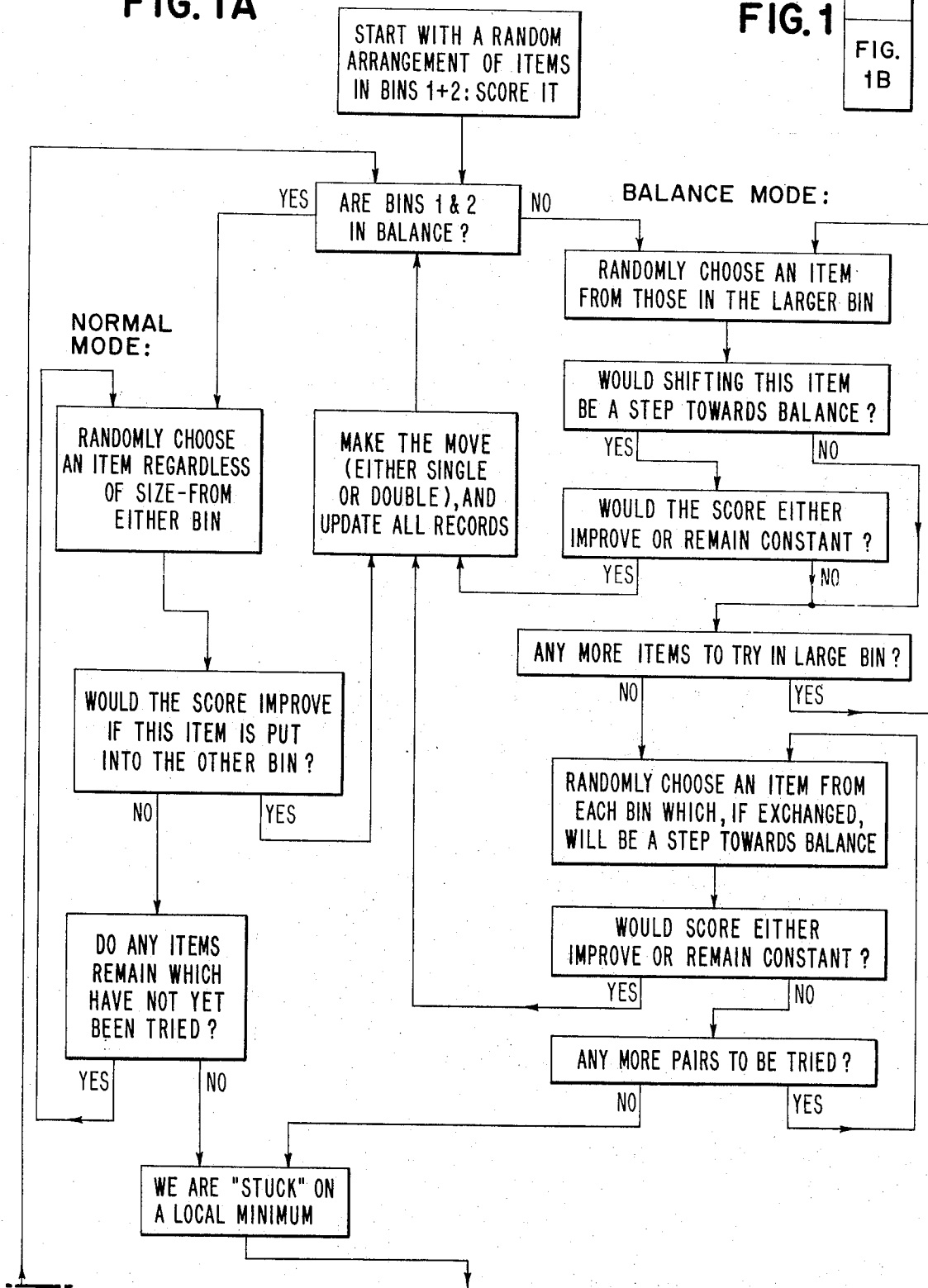
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FIG. 1A

FIG. 1

FIG.
1A

FIG.
1B



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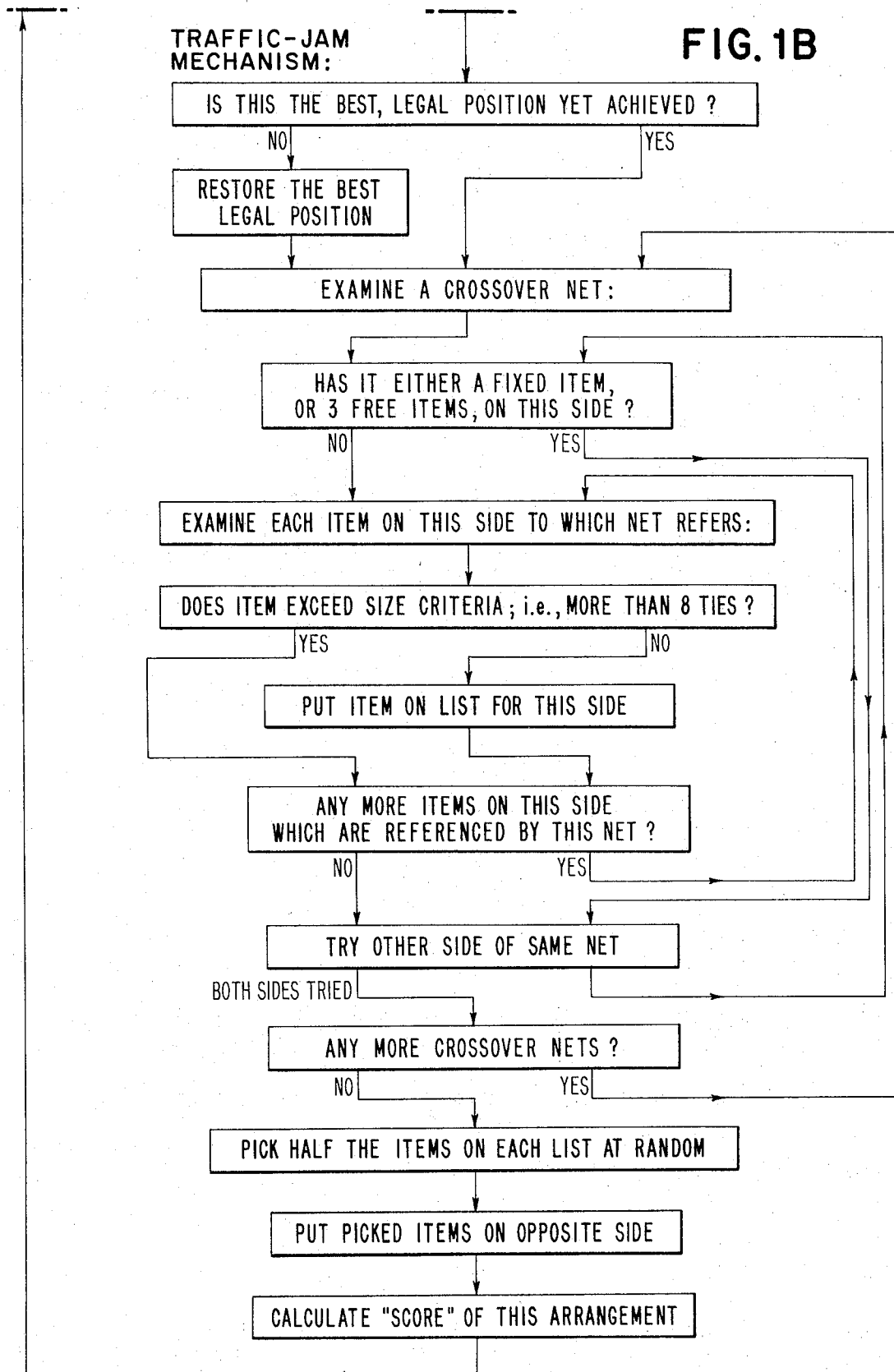
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TRAFFIC-JAM
MECHANISM:

FIG. 1B



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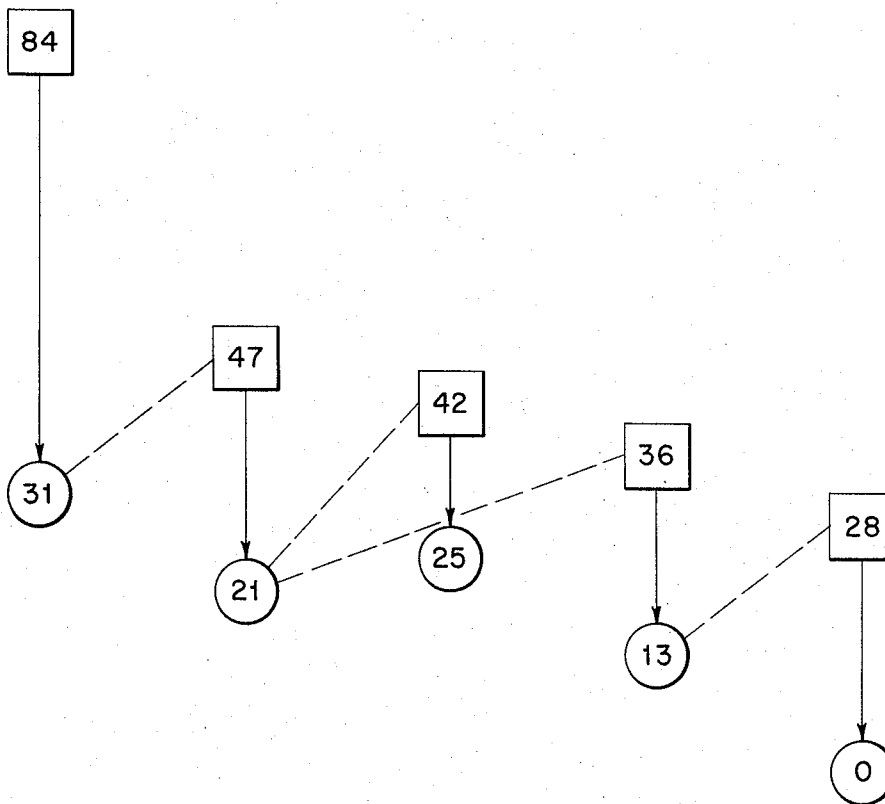
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FIG. 2



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