

EXHIBIT 1031

U.S. PATENT NO. 4,000,418 TO WALDRON

(“WALDRON”)

TRW Automotive U.S. LLC: EXHIBIT 1031
PETITION FOR *INTER PARTES* REVIEW
OF U.S. PATENT NUMBER 8,599,001
IPR2015-00436

- [54] APPARATUS FOR STORING AND RETRIEVING ANALOG AND DIGITAL SIGNALS
- [75] Inventors: Wesley K. Waldron, Scotia; Charles W. Eichelberger, Schenectady, both of N.Y.
- [73] Assignee: General Electric Company, Schenectady, N.Y.
- [22] Filed: Nov. 26, 1975
- [21] Appl. No.: 635,702
- [52] U.S. Cl. 250/211 J; 307/304; 357/24; 357/32
- [51] Int. Cl.² H01J 39/12
- [58] Field of Search 250/211 R, 211 J, 578; 307/304; 357/24, 30, 32; 340/166 R
- [56] References Cited

UNITED STATES PATENTS

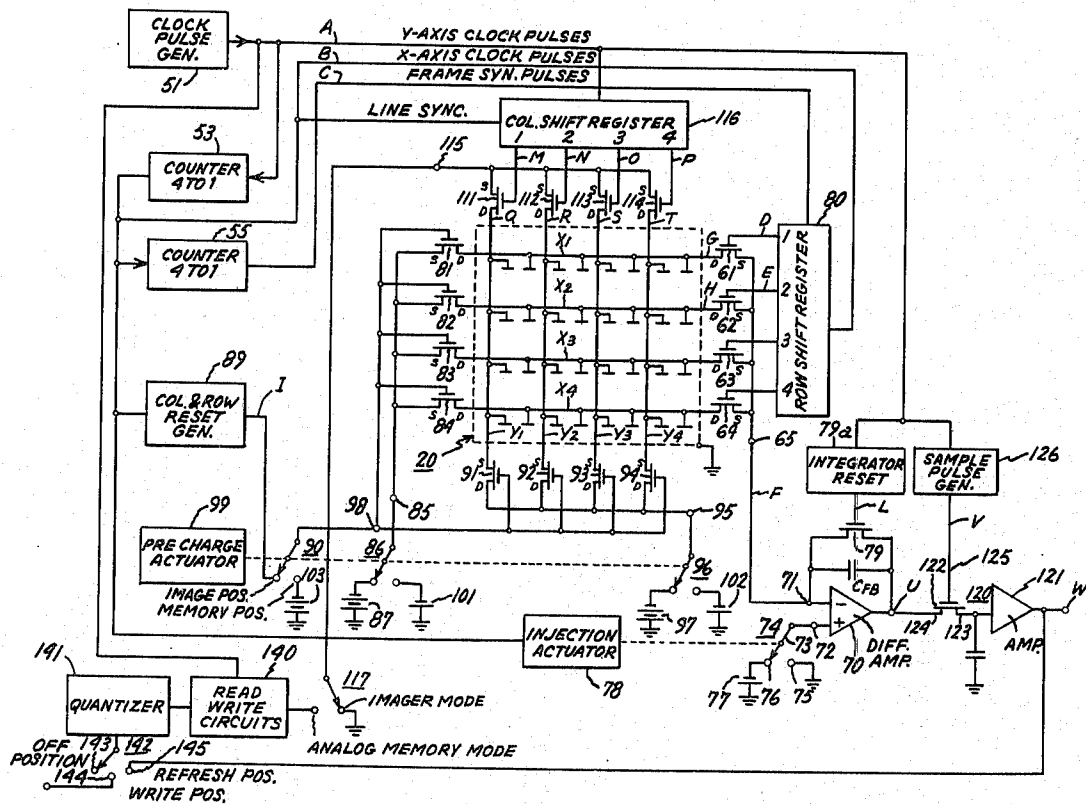
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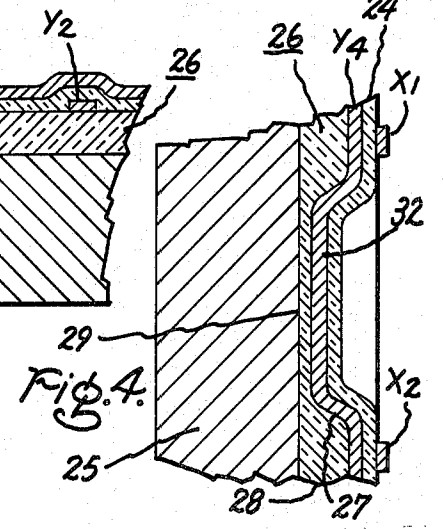
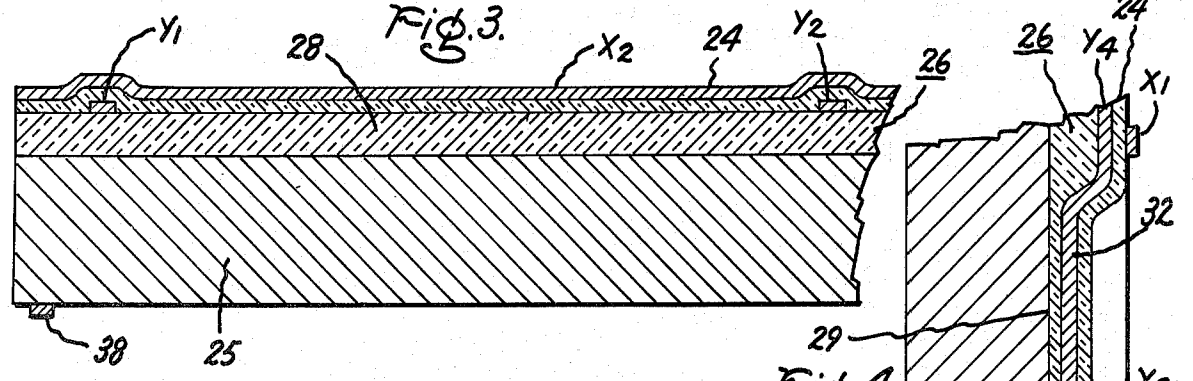
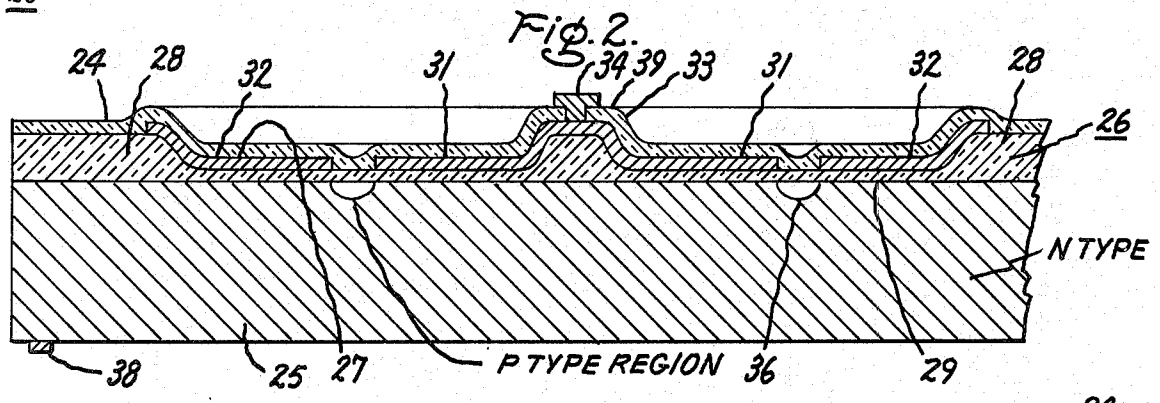
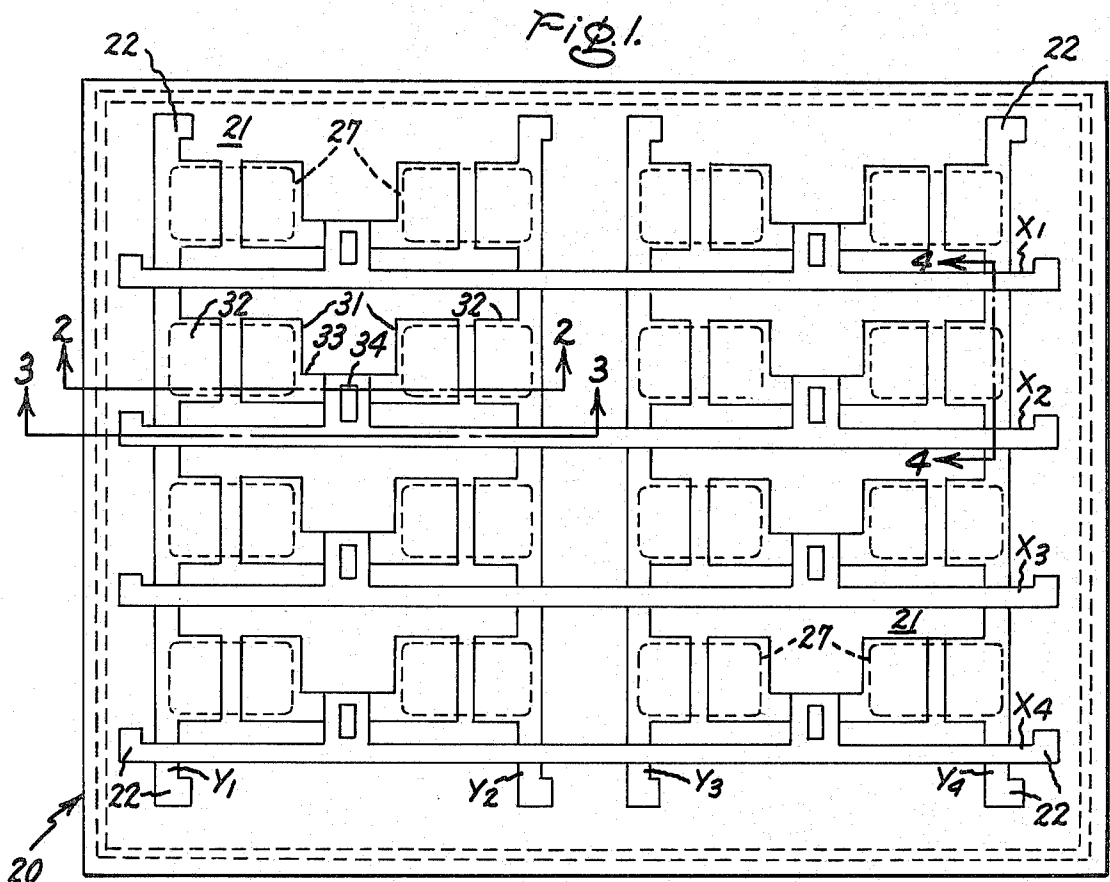
Primary Examiner—David C. Nelms
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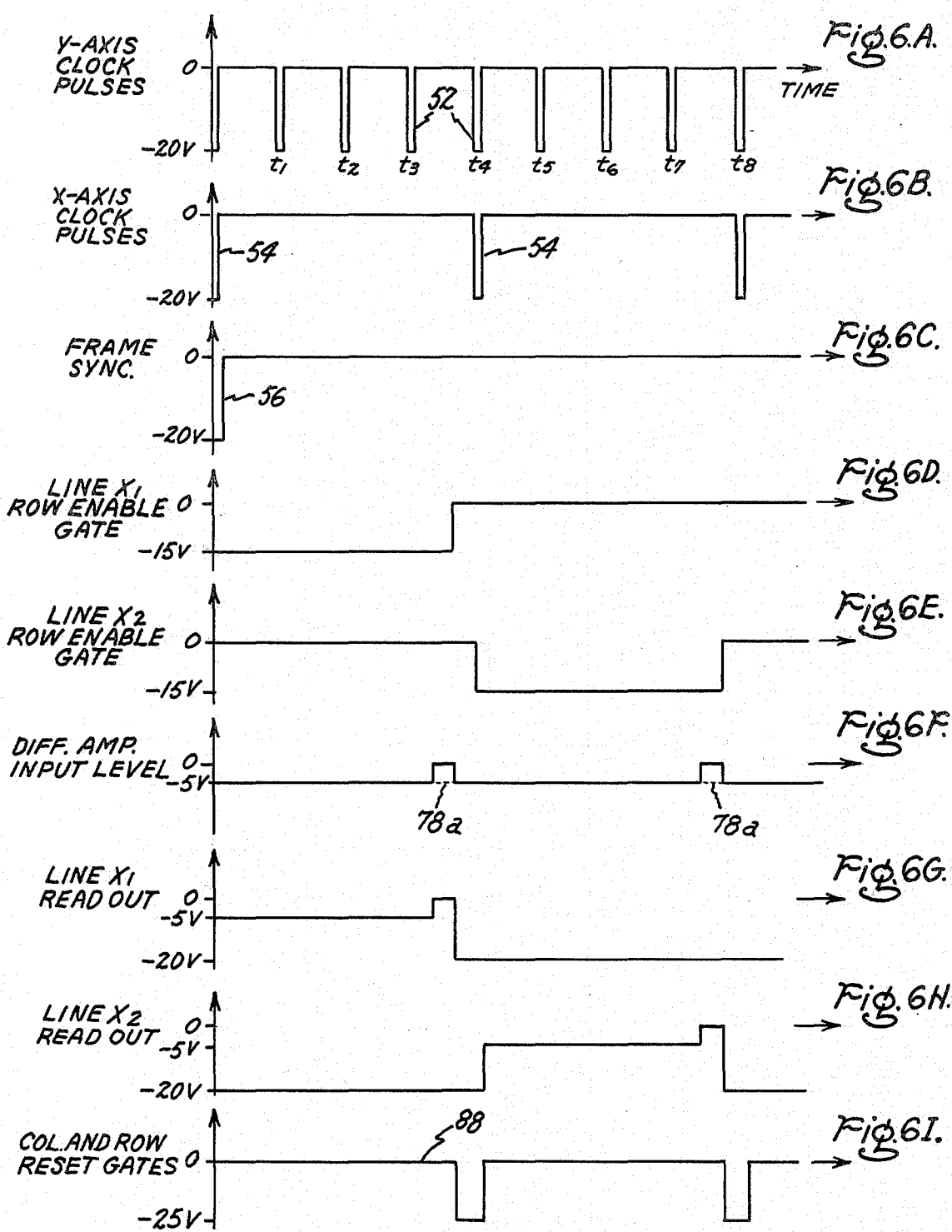
[57] ABSTRACT

An array of charge storage devices each including a pair of closely coupled conductor-insulator-semiconductor cells, one a row line connected cell and the other a column line connected cell, is provided on a common semiconductor substrate. The potential well associated with the row connected cell is deeper than the potential well associated with the column connected cell. Read out of charge stored in a row of devices is accomplished by lowering the absolute potential of the row line to a first level to cause the charges stored in the row connected cells to be transferred to column connected cells of the row. The voltage on each of the column lines is then lowered in absolute magnitude in sequence to a second level to cause the charges to be transferred from the column connected cells to the row connected cells. The charge induced on the row line during transfer of charge from the column connected cells to the row connected cells is sensed to provide non-destructive readout of the stored charges.

14 Claims, 33 Drawing Figures







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