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**Goldstein et al.**

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(54) **SYSTEM AND METHOD OF WAVELENGTH  
ADD/DROP MULTIPLEXING HAVING  
CLIENT CONFIGURABILITY**

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patent is extended or adjusted under 35  
U.S.C. 154(b) by 573 days.

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**Related U.S. Application Data**

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1999, and provisional application No. 60/204,452, filed on  
May 16, 2000.

(51) **Int. Cl.**<sup>7</sup> ..... **H04J 14/00**; H04J 14/02;  
G02B 6/26; G02B 6/42

(52) **U.S. Cl.** ..... **398/45**; 398/51; 398/54;  
398/83; 385/17; 385/18

(58) **Field of Search** ..... 398/45, 51, 54,  
398/83, 82; 385/17, 18

(56) **References Cited**

**U.S. PATENT DOCUMENTS**

5,581,643 A \* 12/1996 Wu ..... 385/17

5,671,304 A \* 9/1997 Duguay ..... 385/17  
5,841,917 A \* 11/1998 Jungerman et al. .... 385/17  
6,144,781 A \* 11/2000 Goldstein et al. .... 385/18  
6,335,992 B1 \* 1/2002 Bala et al. .... 385/17  
6,356,679 B1 \* 3/2002 Kapany ..... 385/18  
6,445,841 B1 \* 9/2002 Gloeckner et al. .... 385/17  
6,480,645 B1 \* 11/2002 Peale et al. .... 385/18  
6,519,060 B1 \* 2/2003 Liu ..... 398/49

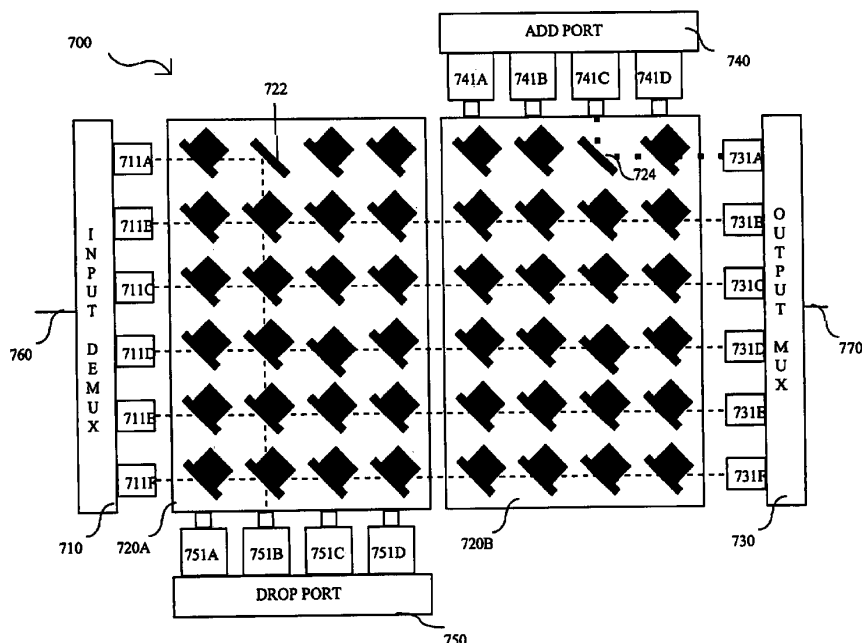
\* cited by examiner

*Primary Examiner*—M. R. Sedighian

(57) **ABSTRACT**

An optical carrier drop/add transmission system and method  
for adding a signal to multiplexed input optical signals  
conveyed by an optical multiplex input line. The multi-  
plexed input optical signals are demultiplexed to provide  
isolated input optical signals to an optical switch matrix  
comprising switches in an array of lines and columns, the  
isolated input optical signals being inputted in a direction  
parallel to a line of switches in the optical switch matrix. The  
added optical signal is input in a direction parallel to a  
column in the optical switch matrix. An output line is  
selected and the switch that is on the column on which the  
added optical signal is inputted and on the selected output  
line is switched.

**10 Claims, 9 Drawing Sheets**



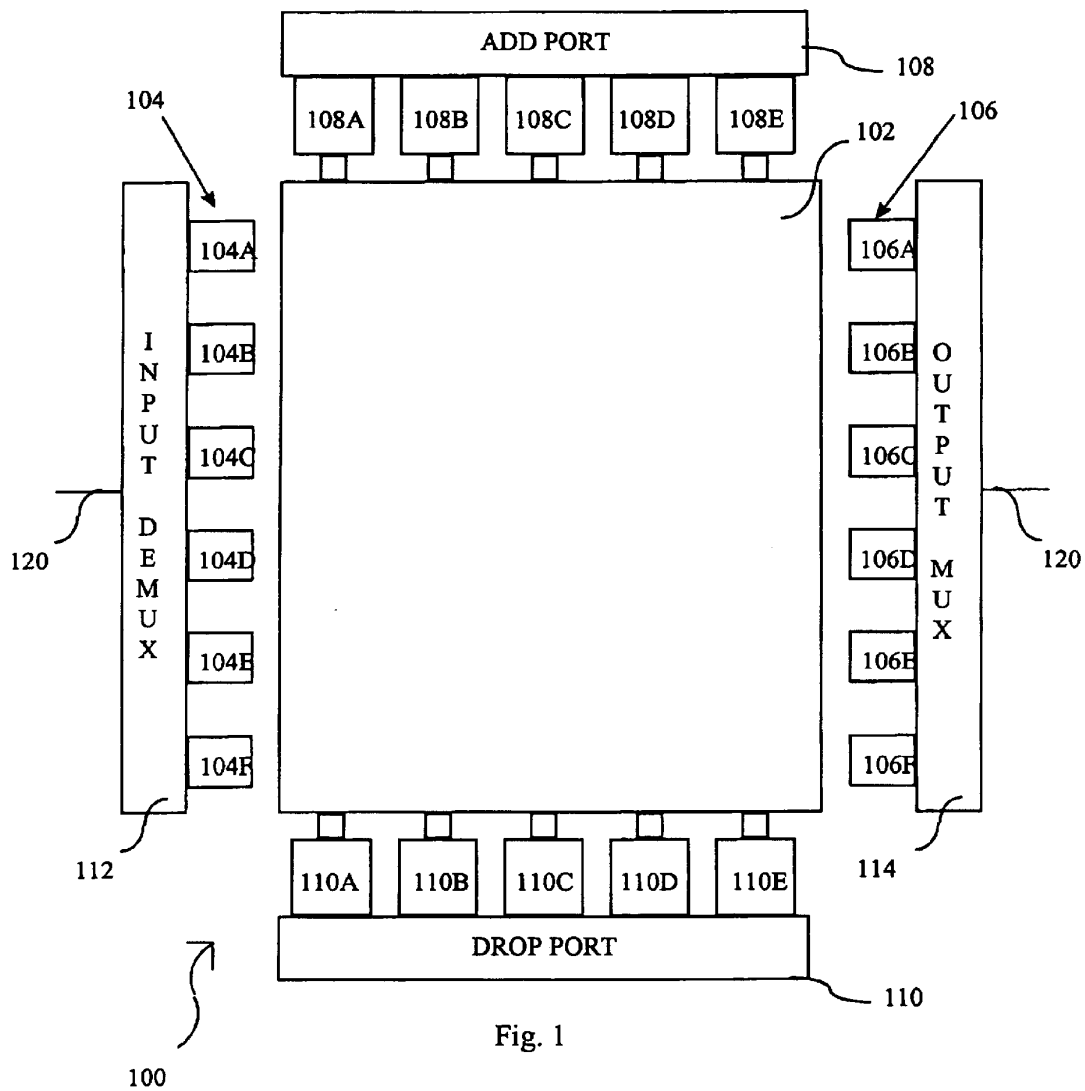


Fig. 1

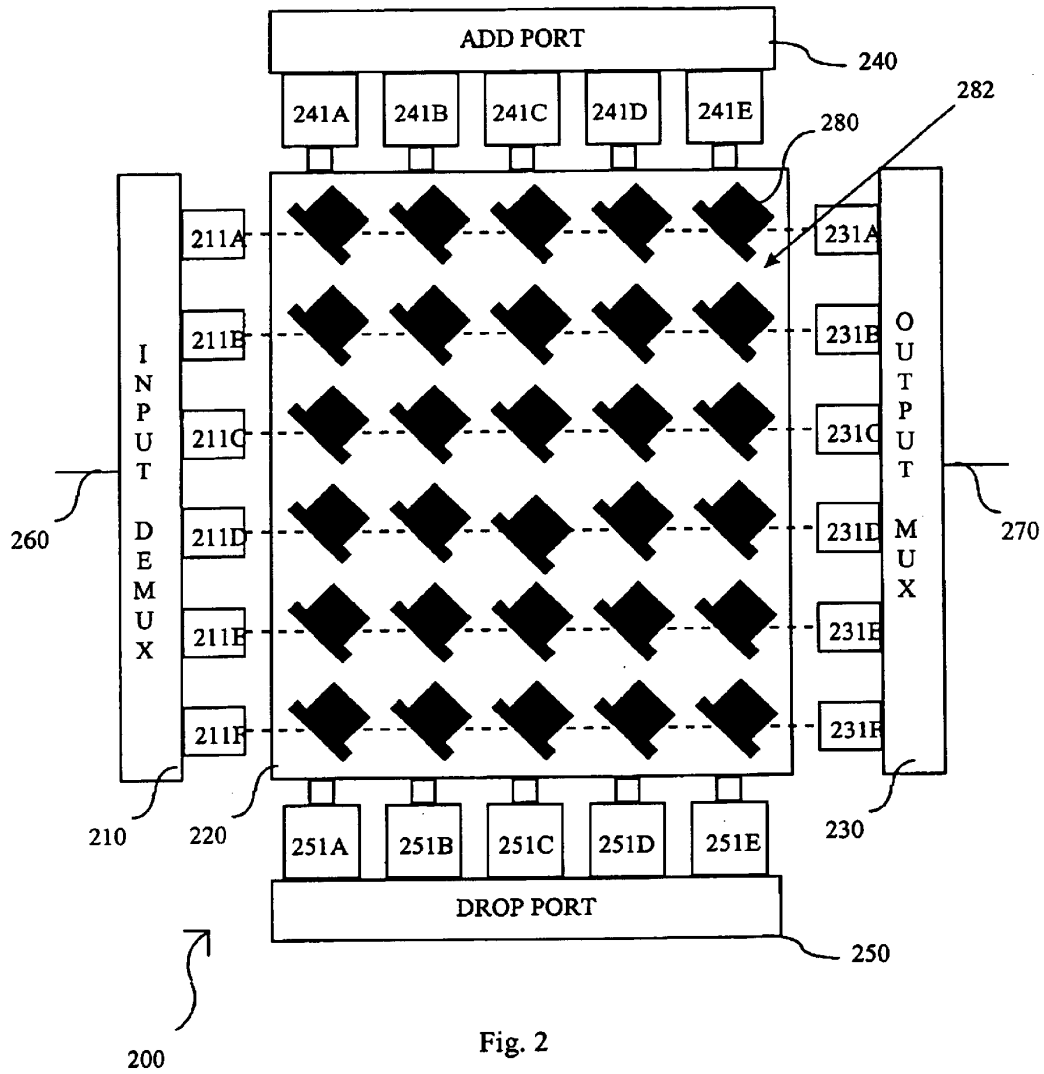


Fig. 2

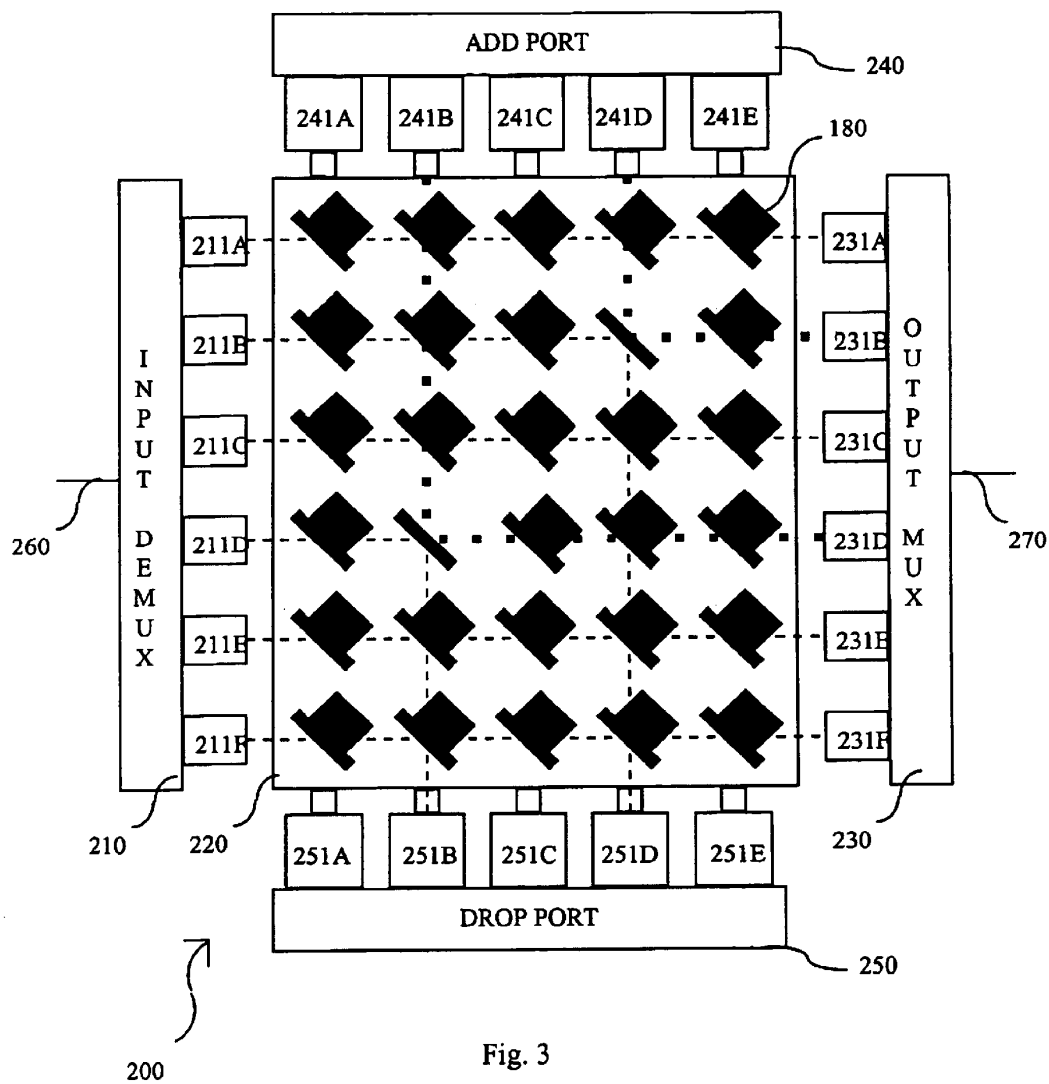


Fig. 3

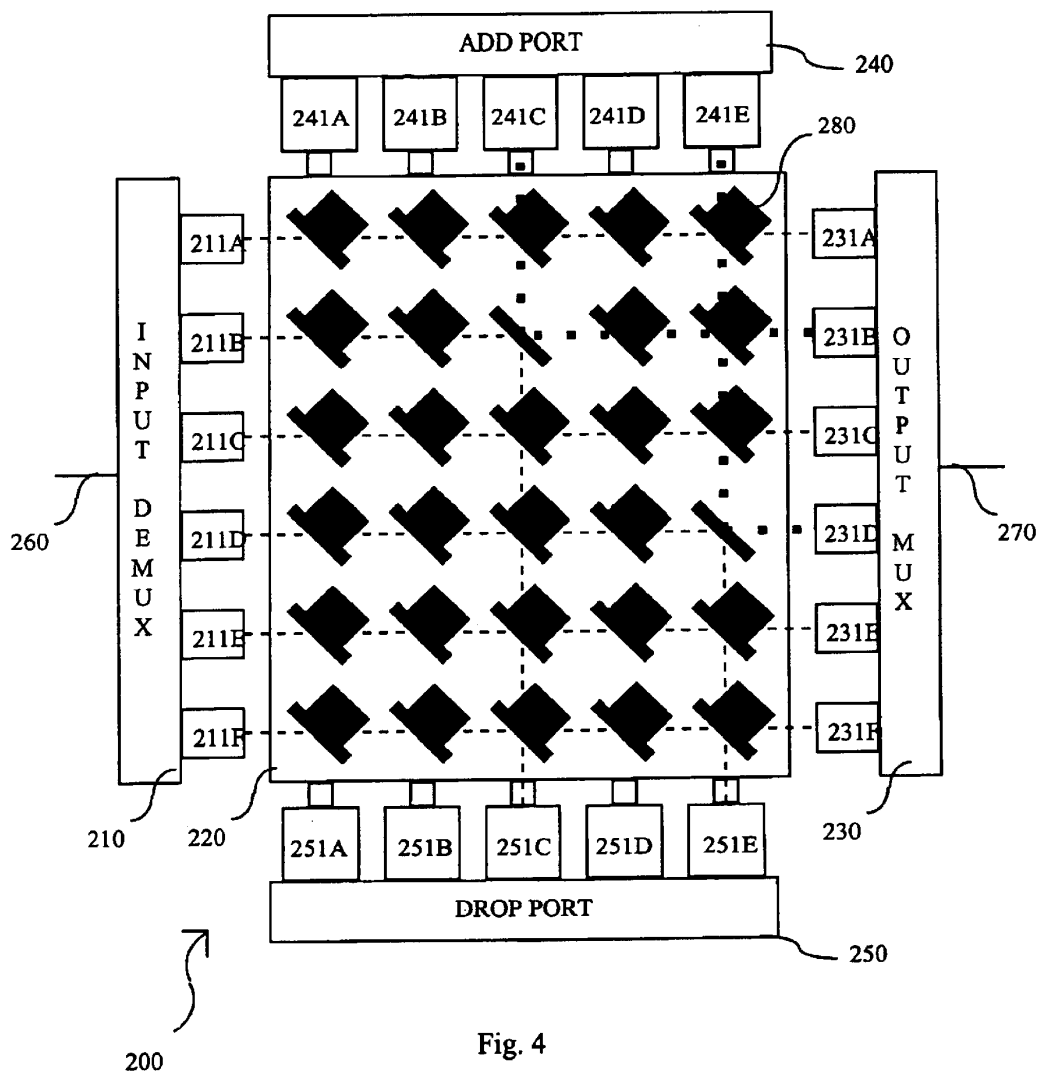


Fig. 4

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