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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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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

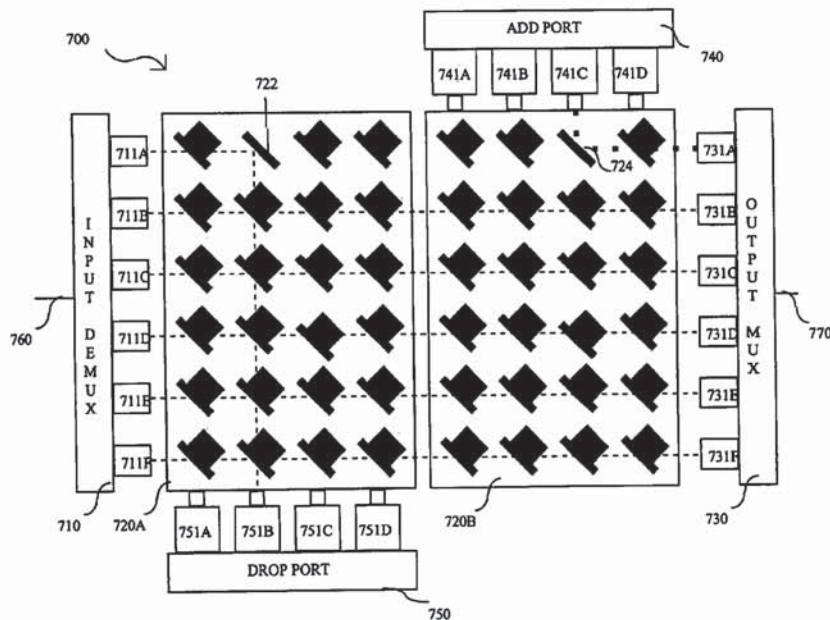
\* cited by examiner

*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 multiplexed 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**



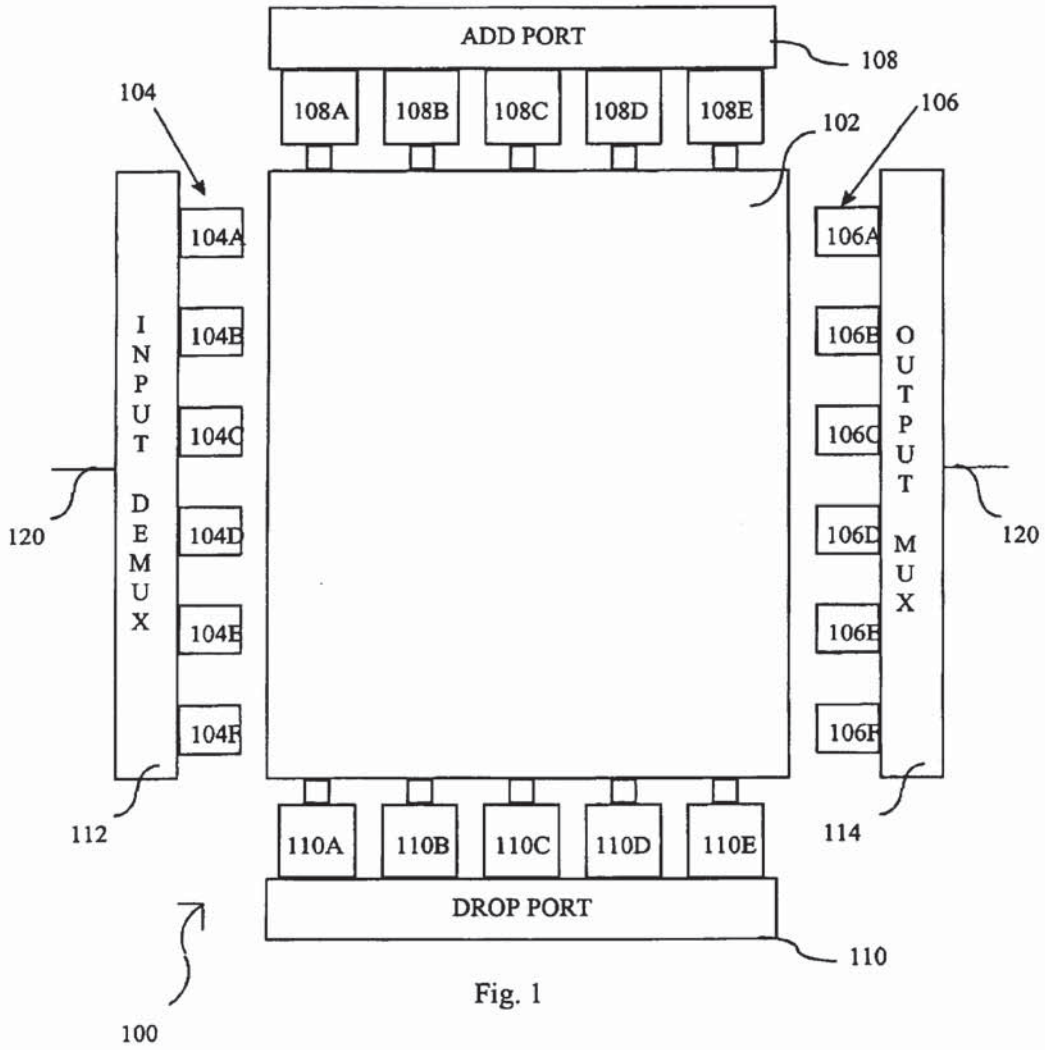


Fig. 1

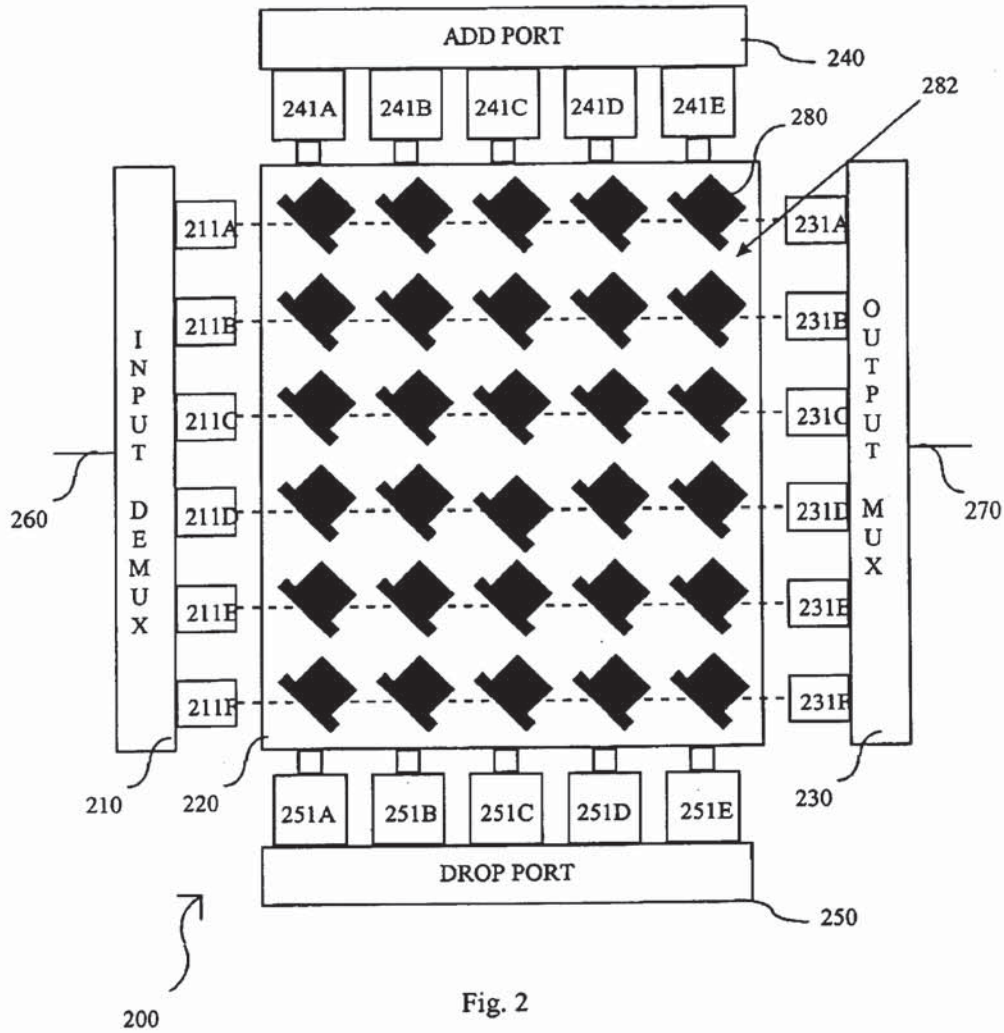


Fig. 2

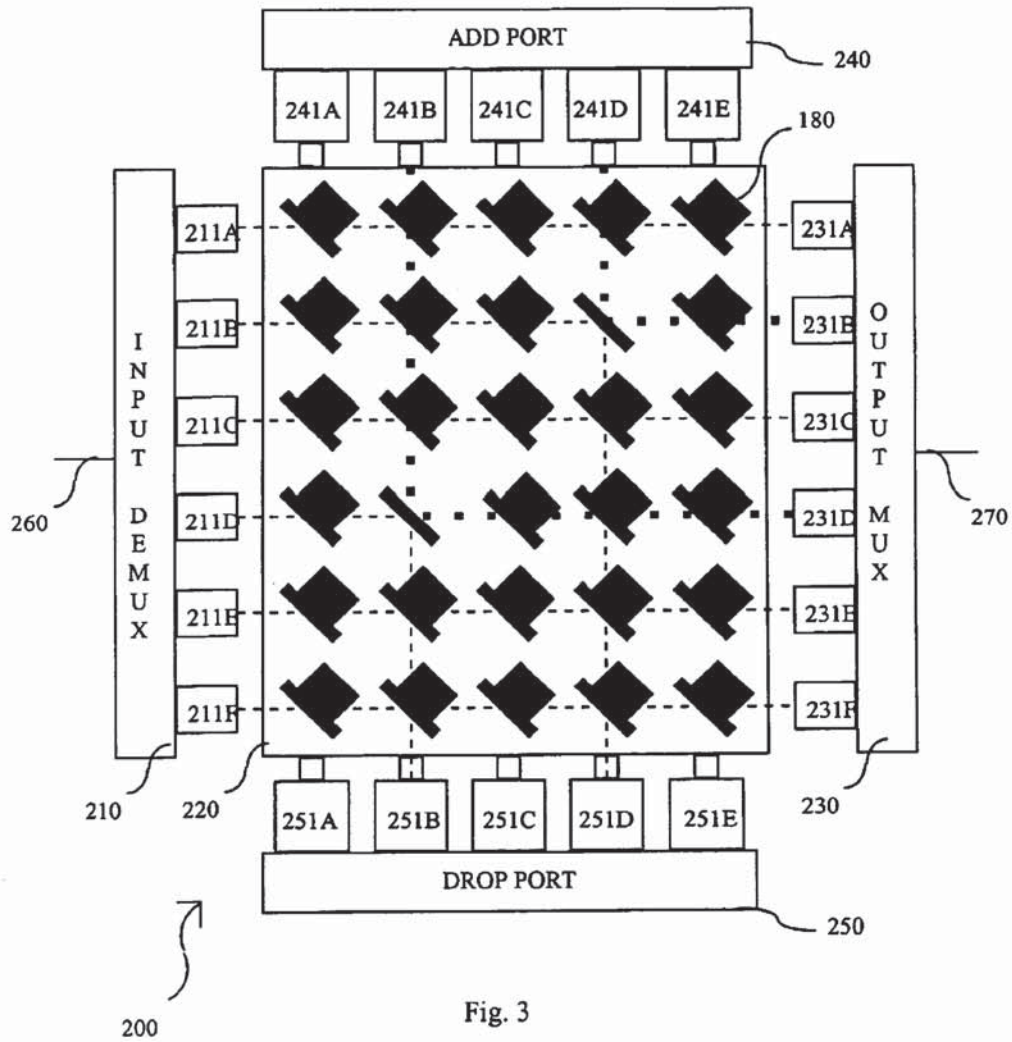


Fig. 3

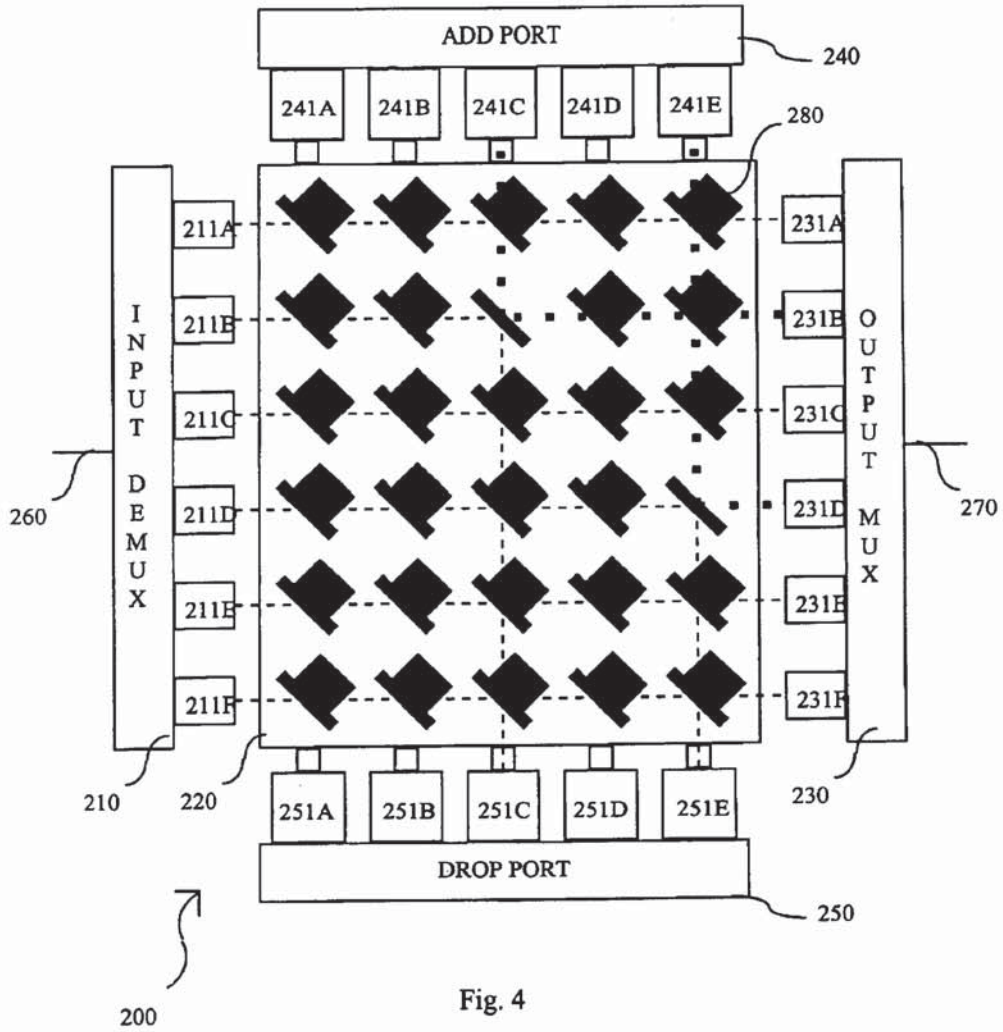


Fig. 4



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