

The opinion in support of the decision being entered today was not written for publication and is not binding precedent of the Board.

Paper No. 36

UNITED STATES PATENT AND TRADEMARK OFFICE

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BEFORE THE BOARD OF PATENT APPEALS  
AND INTERFERENCES

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Ex parte THOMAS P. BRODY

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Appeal No. 1998-2976  
Application No. 08/326,049

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ON BRIEF

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Before URYNOWICZ, THOMAS, and HAIRSTON, Administrative Patent Judges.

URYNOWICZ, Administrative Patent Judge.

DECISION ON APPEAL

This appeal is from the final rejection of claims 1, 16, 22-29, 32-34, 39 and 40, all the claims pending in the application.

The invention pertains to a flat-screen display. Claim 1 is illustrative and reads as follows:

1. A display, comprising:

a plurality of display modules adapted to be removably joined to a plurality of similar display modules to form the flat screen display, each of said flat screen display modules comprising:

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a substrate with first and second major surfaces and edge surfaces;

a matrix of transparent conductive pads capable of defining picture elements and extending over the entire first major surface of the substrate with boundary conductive pads adjacent the edge surfaces of the substrate at distances such that when a similar module is positioned adjacent any one of said edge surfaces of said module, visual image produced by said modules is substantially uninterrupted at the adjacent edges of said modules;

a matrix of thin film transistors extending over the first major surface of the substrate with each transistor capable of activating one of the conductive pads upon receiving electrical signals through both row and column conductive strips;

the row and column conductive strips each extending over the first major surface from adjacent an edge surface to adjacent an opposite edge surface of the substrate such that each transistor can be electrically activated by a row conductive strip and a column conductive strip;

an electrical drive circuit positioned on the second major surface of the substrate and capable of electrically activating the transistors in correspondence to desired visual images to be formed by the picture elements over the first major surface of the substrate; and

interconnecting conductors each extending over one of said edge surfaces from the first major surface to the second major surface, the conductors electrically connecting the drive circuit on the second major surface of the substrate with the row and column conductive strips on the first major surface of the substrate and said conductors being electrically insulated from similar interconnecting conductors of an adjacent module.

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The references relied upon by the examiner are:

Unotoro et al. (Unotoro)	0 035 382	Sep. 9,
1981		
(Published European Patent Application)		
Matsukawa et al. (Matsukawa)	0 179 913	May 7,
1986		
(Published European Patent Application)		

Claims 1, 16, 22-29, 32-34, 39 and 40 stand rejected under 35 U.S.C. § 103 as being unpatentable over Unotoro in view of Matsukawa.

The respective positions of the examiner and the appellant with regard to the propriety of these rejections are set forth in the examiner's answer (Paper No. 33) and the appellant's brief and reply brief (Paper Nos. 32 and 34, respectively).

#### Appellant's Invention

The invention is a flat-screen television display made up of a plurality of display modules positioned adjacent each other to form an array the size of the desired flat-screen. Each module has a substrate 14. A matrix of conductive pads 19 defines picture elements 18 and it extends over the first major surface 15 of the substrate in a regular pattern. A matrix of electrical switching elements 20 extends over the

first major surface 15, with each switching element 20 for activating a conductive pad 19 upon receiving electrical signals through both row and column conductive strips 21, 22. An electrical drive circuit 29 is positioned adjacent the second major surface 16 of the substrate 14 and electrically activates the switching elements 20 in correspondence to desired video images to be reproduced by the picture elements 18 over the first major surface 15 of the substrate. Each module has interconnecting conductors 30 adjacent the edge surface 17 of the substrate which electrically connect the drive circuit 29 on the second major surface 16 and the row and column conductive strips 21, 22 along the first major surface 15. Conductors 30 are electrically insulated from like interconnecting conductors 30 on adjacent modules.

#### The Prior Art

Unotoro discloses a flat-screen display made up of a plurality of display modules 1. The structure 1 comprises an insulating substrate 4 provided with connecting pins 2 and 3; a semiconductor display module IC chip 6 on which required driving circuit elements are integrated corresponding to

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picture element electrodes 5 arranged in the form of a matrix; a liquid crystal display medium 7; and a cover 9 with a transparent electrode 8 at its lower surface.

In Figure 1, Matsukawa discloses a liquid crystal display element comprising liquid crystal 3 between glass plates 1a and 1b. Sealing resin 2 is positioned around the plates. Transparent electrodes 4a and 4b are positioned on the glass plates and are connected to a drive circuit (not illustrated). Polarizing plates 5a and 5b are attached to the glass plates. A light source 6 is located beneath the display element and a diffusion plate is located between the light source and plate 5b.

#### Opinion

After consideration of the positions and arguments presented by both the examiner and the appellant, we have concluded that the rejection should not be sustained.

The module of Figure 1 of Unotoro has but one substrate 4. The examiner is correct that it has a means 5 for activating picture elements in medium 7 and means 6 built into the module 1 for driving means 5. However, both of means 5 and 6 are on the same major (upper) surface of substrate 4 and

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there is simply no showing that it would have been obvious to one of ordinary skill in the art at the time the invention was made to put drive means 6 on a second major surface of the substrate, the lower surface, and to provide an interconnector extending over one of the edge surfaces of the substrate from one major surface to the other for interconnecting the built-in driving means 6 to the activating means 5.



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