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APPLE c/o MORRISON & FOERSTER LLP LA  
707 Wilshire Boulevard  
Los Angeles, CA 90017

EXAMINER
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MOON, SEOKYUN

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UNITED STATES PATENT AND TRADEMARK OFFICE

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BEFORE THE PATENT TRIAL AND APPEAL BOARD

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*Ex parte* STEVE PORTER HOTELLING and  
JOHN Z. ZHONG

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Appeal 2014-004664  
Application 11/818,498  
Technology Center 2600

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Before CARL W. WHITEHEAD JR., JON M. JURGOVAN, and  
MICHAEL J. ENGLE, *Administrative Patent Judges*.

JURGOVAN, *Administrative Patent Judge*.

DECISION ON APPEAL

Appellants<sup>1</sup> seek review under 35 U.S.C. § 134(a) from a Final Rejection of claims 1, 3, 4, 6–12, 14, 15, 17–29, 31, 32, and 34–40.<sup>2</sup> We have jurisdiction under 35 U.S.C. § 6(b).

We affirm.<sup>3</sup>

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<sup>1</sup> Appellants identify Apple Incorporated as the real party in interest. (App. Br. 2.)

<sup>2</sup> Claims 2, 5, 13, 16, 30, and 33 were canceled.

<sup>3</sup> Our Decision refers to the Specification (filed June 13, 2007) (“Spec.”), the Final Office Action (mailed Jan. 3, 2013) (“Final Act.”), the Appeal Brief (filed Aug. 29, 2013) (“App. Br.”), and the Examiner’s Answer (mailed Dec. 20, 2013) (“Ans.”).

CLAIMED INVENTION

The claims are directed to a touch-sensitive display using dummy shapes to cover traces to produce optical uniformity. (App. Br. 14 – Claims App.) Claim 1, reproduced below, is illustrative of the claimed subject matter:

1. A substantially transparent touch sensor panel, comprising:
  - a plurality of first traces of a first substantially transparent conductive material supported on a top side of a substantially transparent substrate, the plurality of first traces including a plurality of first necked-down areas;
  - a plurality of first dummy shapes of the first substantially transparent conductive material formed between the first traces and supported on the top side of the substrate;
  - a layer of substantially transparent dielectric material formed over the first traces and the first dummy shapes;
  - a plurality of second traces of a second substantially transparent conductive material supported on the dielectric material, the plurality of second traces including a plurality of second necked-down areas; and
  - a plurality of second dummy shapes of the second substantially transparent conductive material formed between the second traces and supported on the dielectric material;
  - wherein the first and second traces are arranged with respect to each other to form an array of sensors, each sensor centered at a point at which a first necked-down area crosses a second necked-down area;
  - wherein the first traces and first dummy shapes are arranged with respect to the second traces and second dummy shapes to substantially cover the top side of the substrate with a uniform stackup of material for producing substantial optical uniformity; and
  - wherein the first dummy shapes substantially cover the second traces except for the second necked-down areas, and the second dummy shapes substantially cover the first traces except for the first necked-down areas.

## REJECTIONS

Claims 1, 3, 4, 6–10, 12, 14, 15, 17–21, 23–29, 31, 32, 34–38, and 40 stand rejected under 35 U.S.C. § 103(a) based on Mulligan (US 6,970,160 B2, iss. Nov. 29, 2005) and Hotelling (US 2006/0097991 A1, pub. May 11, 2006). (Final Act. 3–13.)

Claims 11, 22, and 29 stand rejected under 35 U.S.C. § 103(a) based on Mulligan, Hotelling, and Richter (US 2005/0126831 A1, pub. June 16, 2005). (Final Act. 13–15.)

## ANALYSIS

### *Claims 1, 12, 27, 28, 29, and 40*

#### *A. Argument concerning motivation to combine Hotelling and Mulligan*

Appellants argue that Mulligan’s touch-sensing system already has a degree of optical uniformity, so one of ordinary skill would not have been motivated to add Hotelling’s dummy features to Mulligan in order to achieve optical uniformity. (App. Br. 10–12 (citing Hotelling Figs. 9, 11A, 11B, ¶¶ 79–83, 90, Mulligan Fig. 5, 6:61–7:9).)

In the Final Office Action, the Examiner states the reason to modify Mulligan with Hotelling as follows:

Therefore, it would have been obvious to one of ordinary skill in the art at the time of the invention to modify the touch sensor panel of Mulligan to include a substantially transparent substrate, a plurality of first dummy shapes of the first substantially transparent conductive material between the first traces, on a top side of the substantially transparent substrate (on the same layer as the first traces), and a plurality of second dummy shapes of the second substantially transparent conductive material between the second traces, on the same layer as the second traces, such that the first traces and first dummy shapes are arranged with respect to the second traces and second dummy shapes to

substantially cover the top side of the substrate with *a uniform stackup of material for producing substantial optical uniformity, as taught by Hotelling, in order to provide optical uniformity for different layers of conductive materials.*

(Final Act. 6.)

Thus, the Examiner's stated reason to modify Mulligan with Hotelling is to *improve* optical uniformity with a uniform stack of conductive layers, not merely to provide the degree of uniformity that Mulligan already has.

(Ans. 14.) Specifically, as the Examiner notes, Mulligan suffers from optical non-uniformity because the first and second layers 501, 502 (the claimed first and second traces) are different layers disposed at different depths relative to the surface of the touch-sensitive screen. (Ans. 14–15.) Hotelling solves this problem by providing dummy features between driving lines and sensing lines of respective layers of a touch panel. (*Id.*)

Hotelling's stacked ITO layers act as a uniform optical retarder to minimize non-uniformities in visual appearance. (Hotelling ¶ 83.) Thus, in each of the layers, light traveling through the transparent lines encounters approximately the same optical path as light traveling through the dummy features, leading to improved optical uniformity. Accordingly we find the Examiner's reasoning and underpinning adequate to support the modification of Mulligan with Hotelling to render the claims obvious. *KSR Int'l Co. v. Teleflex Inc.*, 550 U.S. 398, 418 (2007) (quoting *In re Kahn*, 441 F.3d 977, 988 (Fed. Cir. 2006)).

*B. Argument concerning dummy shapes of one layer covering traces on another layer*

Appellants argue that the claims require dummy shapes on one layer that cover traces on another layer, and vice versa, and that neither Mulligan nor Hotelling teach this feature. (App. Br. 12.) The Examiner contends that

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Appellants provide an inadequate explanation to show how the limitation is not met by the references. (Ans. 15.) The Examiner further finds the claimed limitation is taught by the modification of Mulligan with Hotelling because placing dummy shapes between traces arranged in column and row directions results in dummy shapes arranged in a column direction covering traces arranged in a row direction. (*Id.*)

We are not persuaded by Appellants' argument that the Examiner errs in finding that the claimed feature is taught by the modification of Mulligan with Hotelling. As the Examiner finds, modifying the traces shown in Figure 5 of Mulligan by adding dummy features between the traces as shown in Figures 11A and 11B of Hotelling results in dummy features of one layer covering traces on another layer. Figure 5 of Mulligan and Figures 11A and 11B of Hotelling are shown below with red rectangular labels added by this panel to assist in visualization of why the claimed limitation is disclosed by the references.

Thus, from our study of the record, we conclude that the claimed limitation is taught or at least suggested by the references for the reasons stated by the Examiner. (*E.g.*, Final Act. 3–7, Ans. 15.)

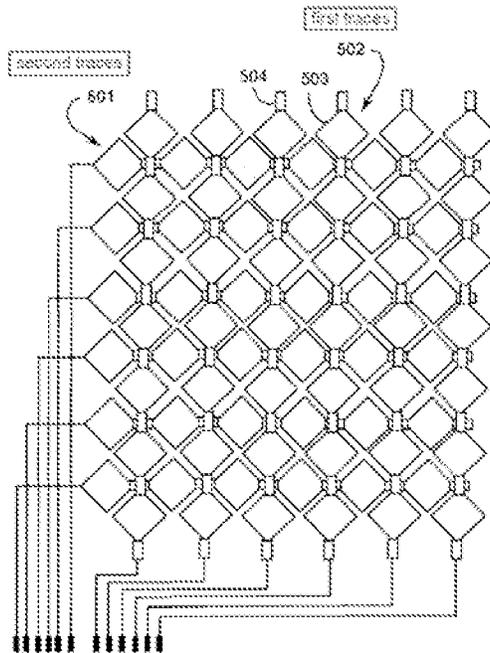


FIG. 5

Mulligan Figure 5 shows traces of different layers 501, 502.

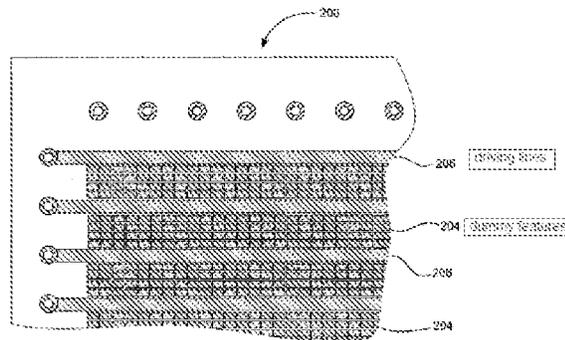


FIG. 11A

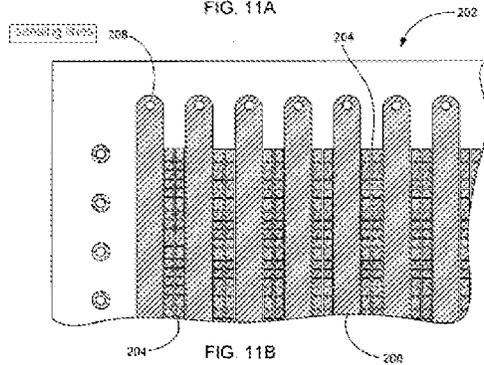


FIG. 11B

Hotelling Figures 11A and 11B show dummy features 204 between lines 206, 208 of respective layers 200, 202.

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*Remaining Claims*

No separate arguments are presented for the dependent claims and, therefore, we sustain the rejections for the reasons previously stated. 37 C.F.R. § 41.37(c)(1)(iv); *In re King*, 801 F.2d 1324, 1325 (Fed. Cir. 1986); *In re Sernaker*, 702 F.2d 989, 991 (Fed. Cir. 1983).

DECISION

We affirm the Examiner's rejections of claims 1, 3, 4, 6–12, 14, 15, 17–29, 31, 32, and 34–40 under 35 U.S.C. § 103(a).

No time period for taking any subsequent action in connection with this appeal may be extended under 37 C.F.R. § 1.136(a)(1)(iv).

AFFIRMED