Docket No.: 083874-0206 **PATENT**

IN THE UNITED STATES PATENT AND TRADEMARK OFFICE

In re Application of	:	Customer Number: 31824
Quoc X. NGO	:	Confirmation Number: 8066
Application No.: 12/869,539	:	Group Art Unit: 2826
Filed: August 26, 2010	:	Examiner: Tan N. Tran
For: FOUR-TERMINAL CARBON NANOTUBE CAPACITORS	:	

AMENDMENT

Mail Stop AMENDMENT
Commissioner for Patents
P.O. Box 1450
Alexandria, VA 22313-1450

In response to the Office Action dated May 25, 2012, entry of the following amendments and consideration of the remarks herein are respectfully requested.

Amendment to the Claims are reflected in the listing of claims that begins on page 2 of this paper.

Remarks begin on page 5 of this paper.

AMENDMENTS TO THE CLAIMS

This listing of claims will replace all prior versions and listings of claims in the application

LISTING OF CLAIMS:

1. (Currently Amended) A carbon nanotube capacitor, comprising:

a carbon nanotube film;

a substrate disposed below the carbon nanotube film;

a first end electrode disposed at a first end of the carbon nanotube film, wherein the first end electrode comprises an upper first end electrode disposed above the substrate and a lower first end electrode disposed in the substrate, and wherein the upper first end electrode and the lower first end electrode are connected;

a second end electrode disposed at a second end of the carbon nanotube film, wherein the second end electrode comprises an upper second end electrode disposed above the substrate and a lower second end electrode disposed in the substrate, and wherein the upper second end electrode and the lower second end electrode are connected;

an upper electrode disposed above the carbon nanotube film and in a middle region of the carbon nanotube film; and

a lower electrode disposed below the carbon nanotube film and in the middle region of the carbon nanotube film, wherein the lower electrode is disposed within the substrate,

wherein the substrate comprises a lower dielectric layer disposed below the carbon nanotube film, between the lower first end electrode and the lower electrode, and between the lower second end electrode and the lower electrode,

wherein the first end electrode is different from the second end electrode, the upper electrode and the lower electrode,

wherein the second end electrode is different from the upper electrode and the lower electrode,

wherein the upper electrode is different from the lower electrode, and

wherein the carbon nanotube capacitor is a four terminal device comprising four terminals, wherein a first one of the four terminals is the first end electrode, a second one of the

four terminals is the second end electrode, a third one of the four terminals is the upper electrode, and the fourth one of the four terminals is the lower electrode.

2. (Canceled)

3. (Original) The carbon nanotube capacitor according to claim 1,

wherein the upper electrode and the lower electrode are separated from each other by a first fixed distance vertically, aligned to each other horizontally, and extend lengthwise in a first direction,

wherein the first end electrode and the second end electrode are separated from each other by a second fixed distance horizontally, aligned to each other vertically, and extend lengthwise in the first direction, and

wherein the carbon nanotube film extends lengthwise horizontally in a second direction different from the first direction.

4-5. (Canceled)

6. (Currently Amended) The carbon nanotube capacitor according to claim 1[[5]],

wherein at least a portion of the upper first end electrode is disposed on an upper surface of the carbon nanotube film and is connected to the carbon nanotube film,

wherein at least a portion of the upper second end electrode is disposed on the upper surface of the carbon nanotube film and is connected to the carbon nanotube film,

wherein at least a portion of the lower first end electrode is disposed below a lower surface of the carbon nanotube film and is connected to the carbon nanotube film,

wherein at least a portion of the lower second end electrode is disposed below the lower surface of the carbon nanotube film and is connected to the carbon nanotube film,

wherein the first end electrode is physically separated from the second end electrode,

wherein the upper electrode is physically separated from the lower electrode,

wherein the first end electrode and the second end electrode are physically separated from the upper electrode and the lower electrode,

wherein the upper electrode is connected to the upper surface of the carbon nanotube film, and

wherein the lower electrode is connected to the lower surface of the carbon nanotube film.

7. (Canceled)

8. (Original) The carbon nanotube capacitor according to claim 1,

wherein the first end electrode and the second end electrode are configured to apply voltages to switch the carbon nanotube film from a conductive state to a non-conductive state, and

wherein the upper electrode is a capacitor anode or a capacitor cathode, and the lower electrode is a capacitor cathode or a capacitor anode, and the upper electrode and the lower electrode are configured to apply voltages to store charges in the carbon nanotube capacitor.

9-20. (Canceled)

REMARKS

This amendment is being filed in response to the Office Action dated May 25, 2012. Claims 1 and 6 have been amended, and claims 2, 4, 5, 7, and 9-20 have been canceled without prejudice or disclaimer. After entry of the amendment, claims 1, 3, 6, and 8 are pending in the application, of which claim 1 is the independent claim. Applicant believes that the present application is in condition for allowance, for which prompt and favorable action is respectfully requested.

Support for the claim amendments can be found throughout the originally-filed specification, including, for example, Fig. 1 and the accompanying written description. No new matter is believed to have been added.

Allowable Subject Matter

Applicant appreciates the indication that claims 5 and 6 would be allowable if rewritten in independent form including all of the limitations of the base claim and any intervening claims.

Claim 1 has been rewritten to include all of the limitations of claim 5. Accordingly, Applicant submits that all pending claims 1, 3, 6, and 8 are in condition for allowance.

CONCLUSION

The absence of a reply to a specific rejection, issue, or comment does not signify agreement with or concession of that rejection, issue, or comment. In addition, because the arguments made above may not be exhaustive, there may be other reasons that have not been expressed for patentability of any or all claims. Finally, nothing in this paper should be construed as an intent to concede, or actual concession of, any issue with regard to any claim, or to any cited art, except as specifically stated in this paper, and the amendment or cancellation of any claim does not necessarily signify concession of unpatentability of the claim prior to its amendment or cancellation.

In view of the foregoing, the application is believed to be in condition for allowance, and such action is respectfully requested at the Examiner's earliest convenience. Should the Examiner have any questions, please call the undersigned at the phone number listed below.

To the extent necessary, a petition for an extension of time under 37 C.F.R. 1.136 is hereby made. Please charge any shortage in fees due in connection with the filing of this paper, including extension of time fees, to Deposit Account 502624 and please credit any excess fees to such deposit account.

Respectfully submitted,

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