REMARKS

Objection to the Drawings

The action objected to the drawings submitted on May 16, 2007 for failing to have the "Replacement Sheet" header. Drawings submitted herewith respond to this objection.

Objection to the Specification

The above amendment amends the specification in response to the objection.

Objection to Claim 11

Claim 11 now ends with a period as required.

Claim Rejections Under 102, 103

The action rejected all of the claims as anticipated or obvious over US 4,750,921 to Sugita and US 6,547,860 to Buchwald. As amended, theses references neither anticipate or render obvious the pending claims.

Sugita shows a conductive spacers 24, as shown in Sugita Figures 4 and 6 reproduced below. Sugita applies a high voltage through adjacent conductive spacers 24 located *on the same side* of the mini-pleat 21. Thus, voltage is applied through adjacent pleats either on the upstream side of the mini-pleat 21, or on the downstream

side of the mini-pleat—but importantly not through the material. This is described at Col. 3, lines 16-25, also reproduced below.

FIG. 4

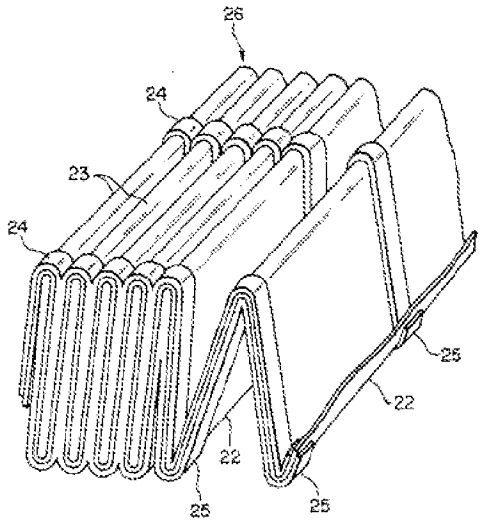
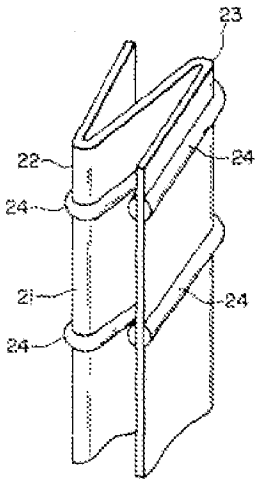


FIG. 6



Although in the above-described embodiment the conductive spacers **24** are provided on the downstream side of the filter member **21**, the present invention is not necessarily limitative thereto. For example, the arrangement may be such that, as shown in FIG. **6**, a plurality of conductive spacers **24** are provided on both the downstream and upstream sides of the filter member **21**, and a high voltage is applied between the adjacent spacers **24** on the upstream side, and a high voltage is also applied between the adjacent spacers **24** on the downstream side. Further, it is also possible to employ an

Buchwald at best discloses a triboelectrically charged material, but not one actively charged in an electric field.

Neither of these cited references teaches or suggests what is claimed.

--All claims: The cited art does not teach or suggest voltage-loaded conductive beads located on either side of a filter as claimed.

Sugita's teaching of running voltage through adjacent spacers 24 on the same side of the filter 21 creates a field "across" the face of the filter 21. This is different than what is recited in all claims, namely, "a voltage power supply that provides a voltage differential between the first conductive bead and the second conductive bead to produce an electrostatic field that passes through the filter media," [1] where the first and second beads are located on opposed faces of the filter material.

This feature was described in the current application's paragraph [0031]:

> [0031] Alternate ways of connecting the high voltage power supply 108 to the conductive beads on top and bottom of the filter media are shown in FIGS. 5 and 6. In FIG. 5, one terminal of the high voltage power supply 108 is connected to a first conductive bead 16B below the filter media 14. The other terminal of the high voltage power supply 108 is connected to a second conductive bead 18A above the filter media 14. Applying a high voltage potential to conductors on alternate sides of the filter media 14 forces the electrostatic field to pass through the filter media 14 and may provide a stronger electrostatic field within the interior of the filter media 14.

Thus, Sugita does not teach what is claimed, and lacks the advantage mentioned that the claimed field "forces the electrostatic field to pass through the filter media 14 and may provide a stronger electrostatic field within the interior of the filter media 14." See paragraph [0033].

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[1] This is quoted froerm claim 1. Independent claim 11 similarly recites "a voltage power supply that provides a voltage differential between the first conductive bead and the second conductive bead, and the third conductive bead and fourth conductive bead, to produce an electrostatic field that passes through the filter media."

For these reasons, all of the claims should be allowed.

--*Claims 19 and 22: Sugita does not teach a pleated material that is not a mini-pleat material.*

Sugita's filter material is a mini-pleat and its small spacer is well-known with mini-pleats that are typified by small densely packed folds as described in Sugita Col. 3, lines 42-55.

> Since the present invention employs a mini-pleat type filter member as mentioned above, the width of the fold thereof can be reduced, and the proper folded condition thereof can be retained accurately by the plurality of spacers bonded thereto. This enables the thickness-reduced, miniaturized dust collecting section to be assembled simply. Moreover, the distance between the adjacent ridge portions of the filter member is short, and the contacting area of each spacer with respect to the filter member is small. Therefore, the dust collecting area can be increased. Since it is possible to obtain a sufficiently large insulating distance l betwen the adjacent conductive spacers, insulating of the spacers can be done easily. Even when a high voltage is applied be-

These densely-packed folds maximize the filtering surface area over a short distance, for example in Sugita, its peaks are not more than 5mm apart. See Col. 2, line 50. Unfortunately, the tradeoff with mini-pleats, as would be known to a person of skill in the art, is that ~~it is impractical to run a voltage through a deep mini-pleat~~mini-pleats have known disadvantages over non-mini-pleats.[2] ~~The mini-pleat's disadvantage is that it would require impractical voltages if the mini-pleat had a greater depth.~~ First,

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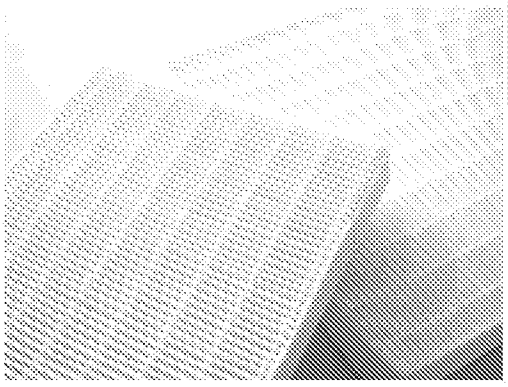
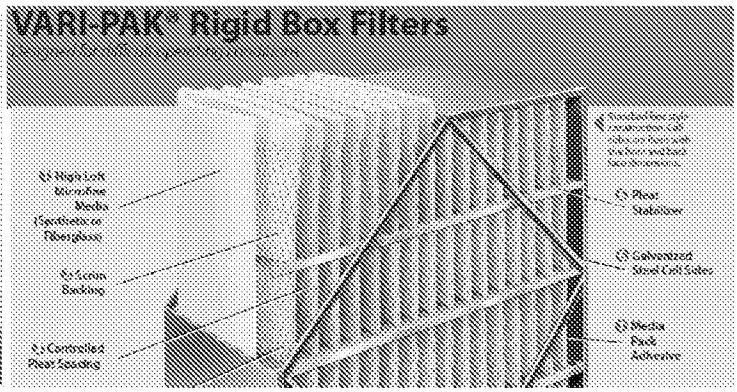
[2] By definition, a deep mini-pleat is not a mini-pleat.

mini-pleats are limited to small depths by definition (a mini-pleat with a greater depth would require more than the standard simple spacer). Second, due to their shallow and tight folds, the mini-pleat filter material cannot be layered without losing the surface area advantage inherent in the mini-pleat. Third, the non-minipleat would require something more than Sugita's spacers to hold its pleated (and possibly layered) form—Sugita's spacers add Fourth, Sugita's spacers pre-suppose a self-supporting material (such as in a mini-pleat), but that is different what a non-mini-pleat material comprises.

For the examiner's convenience, the undersigned encloses publicly available pictures of a mini-pleat filter and a non-mini-pleat filter.

Mini-pleat[3] **Non-mini-pleat**[4]





Thus, Sugita's mini-pleat does not teach or suggest a pleated filter "that is not a mini-pleat" as recited in claims 19 and 22.

[3] http://www.handanhy.com/ut/wz78_1.jpg
[4] http://www.airguard.com/downloads/A-VPAK.pdf

--*Claim 20: Sugita does not teach a flat filter material.*

As just discussed, Sugita does not teach or suggest anything but a mini-pleat and thus relies on its spacers to keep the spacing between the folds consistent. Thus, the flat filter recited in claim 20 is neither shown nor suggested in Sugita.

--*Claims 21 and 24: Sugita does not teach a layered filter material.*

The dense folds in mini-pleats preclude layering the filter layer. Thus a layered filter is neither taught nor suggested in Sugita.

--*Claim 25: Neither reference teaches a bag filter.*

Neither Sugita's mini-pleat nor Buchwald's material teach or suggest a bag filter, or particularly a bag filter that has an electrostatic field that passes therethrough.

For all of the above reasons, the pending claims should now be allowable. If the examiner has any question, he is invited to contact the undersigned by telephone.

Respectfully submitted,

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