

UNITED STATES PATENT AND TRADEMARK OFFICE

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BEFORE THE BOARD OF PATENT APPEALS  
AND INTERFERENCES

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*Ex parte* JASON GENE CSIDA, LLOYD CARL HIETPAS, MICHAEL  
LEE LOHOFF, CHARLES ROBERT TOMSOVIC, and  
BRIAN ROBERT VOGT

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Appeal 2008-0036  
Application 10/423,547  
Technology Center 3700

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Decided: March 31, 2008

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Before WILLIAM F. PATE, III, JENNIFER D. BAHR, and  
JOHN C. KERINS, *Administrative Patent Judges*.

JENNIFER D. BAHR, *Administrative Patent Judge*.

DECISION ON APPEAL

STATEMENT OF THE CASE

Jason Gene Csida et al. (Appellants) appeal under 35 U.S.C. § 134  
from the Examiner's decision rejecting claims 1-8 and 32-36. Claims 9-31

and 37-42 have been canceled. We have jurisdiction over this appeal under 35 U.S.C. § 6 (2002).

## THE INVENTION

Appellants' invention is directed towards a process and apparatus for folding a web material suitable for making prefastened garments such as disposable absorbent garments (Spec. 1, ll. 1-5). The apparatus includes a transport system (alignment conveyors 256, 258) defining a machine direction 108 and a machine center line, a pair of air knives 290, 310 located on opposite sides of the machine center line at fixed locations in the machine direction 108 (Spec. 32, ll. 13; Spec. 34, ll. 9-15; Spec. 36, l. 16; and figs. 3 and 14). Each air knife 290, 310 includes a nozzle 294, 314 and a curved Coanda surface 296, 316 (Spec. 34, ll. 32-35; Spec. 36, ll. 35-36; and figs. 13-14). Each Coanda surface 296, 316 defines a curvature from the nozzle to a terminal edge 301, 322 (Spec. 35, ll. 10-11; Spec. 37, ll. 11-12; and figs. 13-14). During operation, a jet of compressed air that is expelled from nozzle 294 forms a pressure differential across the web material which causes the web material to attach to and follow the curved Coanda surface as the material travels in the web direction (Spec. 35, ll. 20-32 and fig. 13).

Claims 1 and 32 are illustrative of the claimed invention and read as follows:

1. A method of folding a material, comprising:  
transporting a material comprising a panel in a machine direction;

transporting the panel in operative proximity to an air knife, the air knife comprising a nozzle and a curved Coanda surface; and

expelling air from the nozzle such that the panel is folded over the curved Coanda surface as the material is transported in the machine direction.

32. An apparatus for folding a pair of garment side panels, comprising:

a transport system defining a machine direction and a machine center line and;

a pair of air knives located on opposite sides of the machine center line at fixed locations in the machine direction, each air knife comprising a nozzle and a curved Coanda surface, each air knife aligned generally parallel to the machine center line such that a nozzle flow direction is generally perpendicular to the machine direction.

### THE REJECTIONS

The Examiner relies upon the following as evidence of unpatentability:

Tsien	US 3,773,315	Nov. 20, 1973
Vogt	US 6,113,717	Sep. 5, 2000

The following rejections are before us for review:

Claims 1, 5-8, 32, and 33 stand rejected under 35 U.S.C. § 102(b) as anticipated by Tsien.

Claims 2 stands rejected under 35 U.S.C. § 103(a) as unpatentable over Tsien in view of Vogt.

Claims 3-4 and 34-36 stand rejected under 35 U.S.C. § 103(a) as unpatentable over Tsien.

The Examiner provides reasoning in support of the rejections in the Answer (mailed August 14, 2006). Appellants present opposing arguments in the Appeal Brief (filed May 22, 2006). A Reply Brief has not been filed.

### OPINION

#### *Claims 1, 3-8, and 32-36*

The Examiner explains where the elements of claims 1 and 32 are disclosed in Tsien. The Examiner found that Tsien discloses a process and apparatus for folding a material 101A and 101B in a machine direction using a pair of air knives 4A, 4B to expel air and fold the material over the curved surfaces of trays 3A and 3B (Ans. 3).

The crux of Appellants' argument is that the curved surface of either tray 3A or tray 3B does not constitute a "curved Coanda surface" as required in each of claims 1-8 and 32-36 (Br. 6). The Examiner takes the position that each of the curved surfaces formed by trays 3A and 3B constitutes a "coanda curved surface" (Ans. 7).

It is elementary that to support an obviousness rejection all words in a claim must be considered in judging the patentability of that claim against the prior art. *In re Wilson*, 424 F.2d 1382, 1385 (CCPA 1970). Furthermore, when construing claim terminology in the United States Patent and Trademark Office, claims are to be given their broadest **reasonable** interpretation consistent with the specification, reading claim language in light of the specification **as it would be interpreted by one of ordinary**

**skill in the art.** *In re Am. Acad. of Sci. Tech. Ctr.*, 367 F.3d 1359, 1364 (Fed. Cir. 2004).

We agree with the Examiner that the surfaces formed by trays 3A and 3B are “curved surfaces.” However, for the reasons that follow, we do not find that Tsien’s air-knives (nozzles) 4A, 4B and surfaces formed by trays 3A and 3B constitute an “air knife comprising a nozzle and a curved Coanda surface” as understood by a person ordinarily skilled in the art.

Our analysis begins with an explanation of the “Coanda effect,” which is also known as the “wall attachment effect.” The “Coanda effect” is a phenomenon that occurs when

...a free jet emerging from a nozzle will tend to follow a nearby curved or inclined surface and will “attach” itself to or come in contact with and flow along the surface if the curvature or angle of inclination is not too sharp. This attachment tendency lies in the fact that the jet stream entrains or picks up nearby fluid molecules. When the supply of these molecules is limited by an adjacent surface, a partial vacuum develops between the jet and the surface, and if the pressure on the other side of the jet remains constant, the partial vacuum which is a lower pressure region will force the jet to bend and attach itself to the wall.”

(U.S. Patent No. 4,756,230, issued Jul. 12, 1988, col. 2, ll. 5-20).

As shown in Figure 3 of U.S. Patent No. 2,052,869, issued Sep. 1, 1936 to Henri Coanda, in the “Coanda effect,” the fluid stream flowing from nozzle 2 attaches itself to the surface 4 and changes its flow direction in accordance with the contour of surface 4 rather than maintaining its original upward direction as it emerges from the nozzle.

Figure 3 of U.S. Patent No. 2,052,869, issued Sep. 1, 1936, is reproduced below:

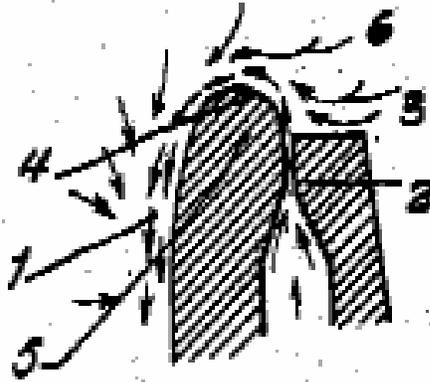


Figure 3 of U.S. Patent No. 2,052,869, issued Sep. 1, 1936, depicts the “Coanda effect.”

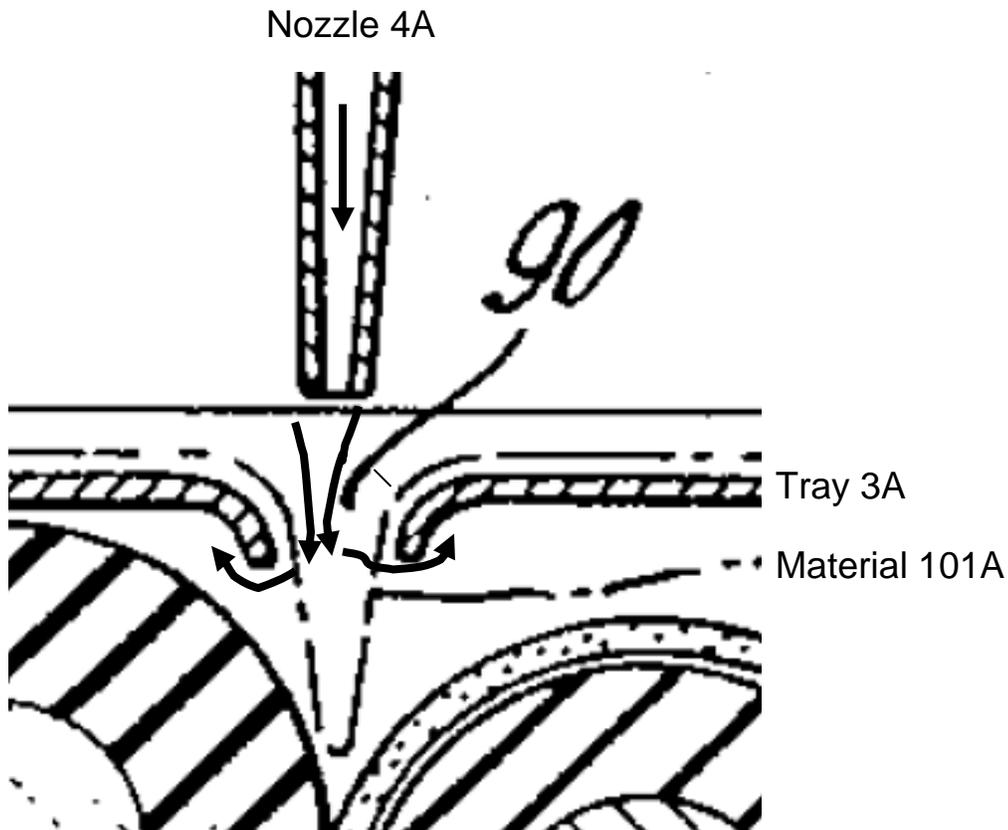
The Examiner improperly interprets the limitation in claims 1 and 32 of an “air knife comprising a nozzle and a curved Coanda surface” as simply requiring a nozzle and a “curved surface,” without regard to how they are positioned relative to each another. We find a nozzle and “Coanda surface” combination to be a nozzle-surface combination that requires the nozzle and the surface to be arranged such as to permit the fluid emerging from the nozzle to attach itself to the surface and hence achieve the “Coanda effect.”

Allowing a patentee to argue that physical structures and characteristics specifically described in a claim are merely superfluous would render the scope of the patent ambiguous, leaving examiners and the public to guess about which claim language the drafter deems necessary to his claimed invention and which language is merely superfluous, nonlimiting elaboration. For that reason, claims are interpreted with an eye toward giving effect to all terms in the claim. [Citations omitted.]

*Bicon Inc. v. Straumann Co.*, 441 F.3d 945, 950 (Fed. Cir. 2006).

Contrary to the Examiner's position, we do not find that the combination of air-knife 4A or 4B with curved surfaces of tray 3A or tray 3B of Tsien constitutes an "air knife comprising a nozzle and a curved Coanda surface," as recited in claims 1 and 32. In Figure 2 of Tsien the jet emerging from air-knife (nozzle) 4A is perpendicular to the tray 3A. If the curved surfaces of Tsien were Coanda surfaces, as the Examiner proposes, then the fluid expelled from nozzle 4A would "attach" to the outer radius of the curved surfaces and then diverge from its perpendicular direction by flowing along the inner radius of the curved surfaces as shown by the flow arrows below in the modified Figure 2 of Tsien.

A Modified Figure 2 of Tsien is reproduced below:



The Modified Figure 2 of Tsien depicts the “Coanda effect” if the curved surfaces of trays 3A or 3B were “curved Coanda surfaces.”

However, as Figure 2 of Tsien clearly shows, the jet emerging from nozzle 4A does not flow in such a manner. Contrary to the “Coanda effect” the emerging jet continues its perpendicular direction so as to directly push material 101A downwardly through slot 90 to create a first fold 102 (col. 2 ll. 56-60 and, figs. 2 and 3a). We finally note that when a “curved Coanda surface” is present, the fluid flows along the “curved Coanda surface.” In Tsien, the impinging jet does not flow along the curved surfaces of trays 3A and 3B, but rather impinges onto the web material 101A and 101B. In conclusion, we find that that the air-knife (nozzle) 4A or 4B and curved surfaces of tray 3A or tray 3B of Tsien do not constitute an “air knife comprising a nozzle and a curved Coanda surface,” as called for in claims 1, 5-8, 32, and 33. Accordingly, the rejection of claims 1, 5-8, 32, and 33 as anticipated by Tsien is reversed.

The rejection of claims 3, 4, and 34-36 as unpatentable over Tsien is also reversed, as it is grounded in part on the Examiner’s flawed determination that Tsien discloses an “air knife comprising a nozzle and a curved Coanda surface,” as called for in claims 1 and 32, from which claims 3, 4, and 34-36 depend.

### *Claim 2*

In rejecting claim 2, the Examiner relies on Vogt merely for the use of an item (panel) including a reclosable fastener (Ans. 4). The Examiner does not rely on Vogt for any teaching that would overcome the above-noted

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deficiency of the rejection of claim 1, from which claim 2 depends, as anticipated by Tsien. Hence, the rejection of claim 2 likewise cannot be sustained.

#### SUMMARY

The decision of the Examiner to reject claims 1-8 and 32-36 is reversed.

REVERSED

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