

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. 31

UNITED STATES PATENT AND TRADEMARK OFFICE

---

BEFORE THE BOARD OF PATENT APPEALS  
AND INTERFERENCES

---

*Ex parte* ROLAND HOURTICOLON, REINHARD ELTNER,  
JUERGEN LATZEL, GERD GOEBEL,  
PETRO MENDIA and AXEL GEISLER

---

Appeal No. 2003-2033  
Application No. 09/154,130

---

*ON BRIEF*

---

Before OWENS, KRATZ, and TIMM, *Administrative Patent Judges*  
OWENS, *Administrative Patent Judge*.

*DECISION ON APPEAL*

This appeal is from the final rejection of claims 10-12. Claims 2 and 4-9, which are all of the other claims pending in the application, have been allowed.

*THE INVENTION*

The appellants claim a liquid distributor which includes a drainage outlet cleaning element and is adapted for use inside a

Appeal No. 2003-2033  
Application No. 09/154,130

substantially vertical reactor, and claim a substantially vertical reactor which contains the liquid distributor.

Claims 10 and 12, directed toward the liquid distributor, are illustrative:

10. A liquid distributor adapted for use inside a substantially vertical reactor containing a fixed bed catalyst wherein the liquid distributor is in the form of a channel distributor comprising a drainage outlet and having a cleaning mechanism comprising a cleaning element which can be lowered into the opening of said drainage outlet, and wherein the cleaning element is attached to a holder, said holder contained within a guide for vertical displacement.

12. A liquid distributor adapted for use inside a substantially vertical reactor containing a fixed bed catalyst wherein said distributor is designed to be positioned in the reactor and said distributor is in the form of a channel distributor containing a drainage outlet and a cleaning mechanism containing at least one pin for cleaning the drainage outlet.

*THE REFERENCES*

Keller et al. (Keller)	4,569,364	Feb. 11, 1986
Muldowney et al. (Muldowney)	5,484,578	Jan. 16, 1996

*THE REJECTION*

Claims 10-12 stand rejected under 35 U.S.C. § 103 as being unpatentable over Muldowney in view of Keller.

*OPINION*

We reverse the aforementioned rejection.

Muldowney discloses (col. 4, lines 25-44):

In accordance with the present invention there is provided a distributor system for uniformly directing vapor and liquid across the surface of a fixed bed of solids in a downflow reactor comprising a distributor tray, and a plurality of vertical, open-ended downpipes extending through the tray. A first array of the downpipes has a plurality of vertically spaced elevations of holes above the level of the tray. A second array of the downpipes has at least one elevation of holes at substantially the same height above the level of the tray as one of the upper elevations of holes in the first array of pipes. But, the second array has no elevation of holes corresponding to the lowermost elevation of holes, and possibly other lower elevations of holes, in the first array of pipes. The absence of the lowermost holes in the second array of pipes causes the liquid flow rate through the distributor tray at a given liquid height to be reduced when that liquid height falls below the elevation of the holes second from the bottom in the first array. This maximizes the liquid height above the lowermost holes, preserving good distribution even when the distributor is subject to variations in level from one point to another.

Muldowney teaches that there can be "a general rise in the liquid level on the tray due to plugging of most of the downpipe holes" (col. 8, lines 43-44), but does not disclose a downpipe cleaning mechanism.

Keller discloses a pan-type liquid distributor that is particularly adapted for liquid distribution in a packed column fractionator but "may find utility for liquid distribution in other environments" (col. 1, lines 48-51; col. 2, lines 31-32).<sup>1</sup> Keller's liquid distributor has liquid distribution elements (62), each comprised of a hollow tube (90) extending through the floor of a distribution trough (29) (col. 4, lines 39-41; figure 4B). Each hollow tube has a longitudinally extending slot (96) in the part of the hollow tube above the floor of the trough, and has a discharge opening (98) below the floor of the trough (col. 4, lines 47-51; figure 4). A piston (92) which has an outer diameter closely approximating the inner diameter of the hollow tube is slidably mounted within the hollow tube such that the fit is snug but permits the piston to slide within the tube (col. 4, lines 41-47). Sliding movement of the piston within the hollow tube is effected by a flexible drive rod (94) attached to the upper end of the piston (col. 4, lines 52-53). Sliding the piston downwardly within the hollow

---

<sup>1</sup>No particular other environments are disclosed.

tube until the bottom end of the piston extends out of the discharge opening removes accumulations of fouling material from the interior surface of the hollow tube, the slot walls, and the rim of the discharge opening (col. 5, lines 9-22).

The examiner argues (answer, page 3):

It would have been obvious to one of ordinary skill in the art at the time the invention was made to use the specific liquid distributor of Keller et al. as the liquid distributor means of Muldowney et al. since it is merely the selection of liquid distributors known to be functional in vertical reactors.<sup>[2]</sup> In addition, it would have been obvious to one of ordinary skill in the art at the time the invention was made to select the distributor of Keller et al. as it solves the plugging problem which is recognized by Muldowney et al. (col. 8, lines 42-45).<sup>[3]</sup>

For a prima facie case of obviousness to be established, the teachings from the prior art itself must appear to have suggested the claimed subject matter to one of ordinary skill in the art. See *In re Rinehart*, 531 F.2d 1048, 1051, 189 USPQ 143, 147 (CCPA 1976). The mere fact that the prior art could be modified as

---

<sup>2</sup>Keller does not disclose that his distributor is functional in a vertical reactor. Keller's disclosure is that the distributor is useful in packed column fractionator units and may find utility for liquid distribution in other environments (col. 1, lines 48-51).

<sup>3</sup> The examiner has not provided evidence or reasoning which shows that Keller's piston would be effective for unplugging the holes in the side of Muldowney's downpipe.

Appeal No. 2003-2033  
Application No. 09/154,130

proposed by the examiner is not sufficient to establish a prima facie case of obviousness. See *In re Fritch*, 972 F.2d 1260, 1266, 23 USPQ2d 1780, 1783 (Fed. Cir. 1992).

The examiner's argument is that it would have been obvious to one of ordinary skill in the art to replace Muldowney's distributor with that of Keller.<sup>4</sup> Muldowney, however, as discussed above, requires two arrays of downpipes, one array having no holes corresponding to at least the lowest level of holes in the other array, in order to achieve the desired function of preserving good distribution when the distributor is subject to variations in level from one point to another. The examiner has not explained why one of ordinary skill in the art would have expected this function to be achieved by the longitudinally extending slots in Keller's hollow tubes. Hence, the examiner has not adequately explained how the applied prior art itself would have led one of ordinary skill in the art to replace Muldowney's liquid distributor with that of Keller.

---

<sup>4</sup>There is no issue before us, regarding the liquid distributor claimed in the appellants' claims 10 and 12, as to whether Keller's liquid distributor is adapted for use inside a substantially vertical reactor containing a fixed bed catalyst and, if not, whether the applied prior art would have fairly suggested, to one of ordinary skill in the art, adapting Keller's distributor in that manner.

Appeal No. 2003-2033  
Application No. 09/154,130

Accordingly, we conclude that the examiner has not carried the burden of establishing a prima facie case of obviousness of the invention claimed in any of the appellants' claims.

*DECISION*

The rejection of claims 10-12 under 35 U.S.C. § 103 over Muldowney in view of Keller is reversed.

*REVERSED*

TERRY J. OWENS	)	
Administrative Patent Judge	)	
	)	
	)	
	)	BOARD OF PATENT
PETER F. KRATZ	)	APPEALS AND
Administrative Patent Judge	)	INTERFERENCES
	)	
	)	
	)	
CATHERINE TIMM	)	
Administrative Patent Judge	)	

tjo/vsh

Appeal No. 2003-2033  
Application No. 09/154,130

COGNIS CORPORATION  
PATENT DEPARTMENT  
300 BROOKSIDE AVENUE  
AMBLER, PA 19002