

The opinion in support of the decision being entered today was not written for publication and is not binding precedent of the Board.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. 23

UNITED STATES PATENT AND TRADEMARK OFFICE

BEFORE THE BOARD OF PATENT APPEALS
AND INTERFERENCES

Ex parte SEIICHI UCHIDA, TOSHINOBU KURAZONO,
SEIGO ISHIBASHI and ETSURO MATSUDA

Appeal No. 1998-0305
Application 08/385,110

ON BRIEF

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

DECISION ON APPEAL

This is an appeal from the examiner's refusal to allow claims 5-9 as amended after final rejection. These are all of the claims remaining in the application.

THE INVENTION

The appellants' claimed invention is directed toward a tower for removing residual monomers from a slurry of

Appeal No. 1998-0305
Application 08/385,110

polymerized vinyl chloride resin. Claim 5 is illustrative:

5. A tower for removing residual monomers from a slurry of vinyl chloride resin which has undergone a polymerization reaction which comprises the following structural features:

1) the tower has at least upper and lower sections of a generally cylindrical shape with different inner diameters,

2) the uppermost section of the tower has a port for introducing a slurry of vinyl chloride resin into the tower,

3) the inner diameter of the uppermost section of the tower is greater than that of the lower section of the tower,

4) at least one perforated tray is provided at the upper section of the tower,

5) at least one perforated tray is provided at the lower section of the tower,

6) a flow-down section for flowing down the vinyl chloride resin slurry to the lower perforated tray is provided between the perforated trays,

7) a means for ejecting steam in an upward direction in the tower is provided at the bottom of the tower,

8) a port for discharging the treated vinyl chloride resin slurry is provided at the lowermost section of the tower, and

9) at least one hot water-ejecting device is located proximate at least one of said perforated tray in the tower.

THE REFERENCES

Ohso1 et al. (Ohso1)
1947

2,433,060

Dec. 23,

Appeal No. 1998-0305
Application 08/385,110

Thomson 1958	2,845,444	Jul. 29,
Ellis et al. (Ellis) 1971	3,607,041	Sep. 21,
Aruga et al. (Aruga) 1984	4,483,747	Nov. 20,

Appeal No. 1998-0305
Application 08/385,110

THE REJECTIONS

The claims stand rejected under 35 U.S.C. § 103 as follows: claims 5 and 6 over Ohsol in view of Thomson, and claims 7-9 over Ohsol in view of Thomson and either Aruga or Ellis.

OPINION

We reverse the aforementioned rejections. We need to address only the independent claims, which are claims 5 and 7.

Rejection of claim 5

Ohsol discloses a column for removing residual monomers from a latex prepared by emulsion polymerization (col. 8, lines 26-51). The column has upper and lower sections (figure 1), each of which contains perforated trays (2). The column includes a port (7) at its top for introducing the latex, a flow down section (6) for flowing latex to lower trays, a device (8) at the bottom for injecting steam in the upward direction, and a port (12) in the lowermost section for discharging treated latex. Ohsol's column can be operated under vacuum (col. 5, lines 23-26). The examiner apparently considers Ohsol's water spray (11) above the upper tray to be

capable of injecting hot water (answer, page 3), and the appellants do not challenge the examiner on this point. Ohsol is primarily concerned with minimizing foaming, when the monomer is stripped from the emulsion polymerization latex, without prolonged exposure of the latex to stripping temperatures (col. 2, lines 31-45; col. 8, lines 60-75). Ohsol does this by floating a layer of heavy anti-foam agent such as lanolin or candelilla wax on each plate (col. 5, lines 28-31), using a disengaging space and water spray above the top plate (col. 5, lines 51-59; col. 6, lines 35-43), designing the column diameter for low vapor velocities (col. 5, lines 66-68), using a well controlled constant pressure in the column (col. 5, lines 71-72), and removing most of the light ends prior to introducing the latex into the stripping column (col. 6, lines 3-6). Ohsol's column differs from that recited in the appellants' claim 5 in that the inner diameter of the uppermost section is not greater than that of the lower section.

Thomson discloses a column for steam deodorizing fats and oils (col. 1, lines 15-16; figure 1). The column has a progressively increasing cross-sectional area in the upward

direction (col. 2, lines 24-26). Thomson teaches that deodorizing fats and oils requires a great deal of agitation of the fats and oils by the stripping steam to tear molecules of undesirable vaporizable material from the fats and oils (col. 1, lines 50-54). Thomson uses a column having an upwardly-increasing cross-sectional area because the large volume of steam cannot be admitted to the bottom of a constant cross-section column without the increased volume of steam traveling toward the top of the column, where the vacuum is the highest, causing flooding and excessive entrainment (col. 1, lines 45-46 and 54-60).

The examiner argues that it would have been obvious to one of ordinary skill in the art to use Thomson's column shape for Ohsol's column because Ohsol wants to maintain uniform mass transfer throughout the column (answer, page 4). The portion of Ohsol relied upon by the examiner in support of this argument (col. 2, lines 9-30) discloses benefits of continuous stripping over batch stripping, the advantage particularly relied upon by the examiner (answer, page 6) being less foaming tendency due to steady pressures (col. 2, lines 14-15). Thus, the examiner argues, in effect, that it

Appeal No. 1998-0305
Application 08/385,110

would have been obvious to one of ordinary skill in the art to use Thomson's upwardly increasing column cross-sectional area in Ohsol's column to inhibit foaming. Ohsol, however, does not indicate that the great deal of steam used by Thomson, which is what renders desirable the use of Thomson's upwardly increasing column cross-sectional area, is desirable in the process for which Ohsol uses his column, i.e., removing monomer from an emulsion polymerization latex. Instead, Ohsol teaches that it is advisable to design the column for vapor velocities which are about 10 to about 50% of the entrainment velocities that might be used for nonfoaming liquids (col. 5, lines 66-71), and warns that use of a very low steam rate to minimize foaming causes incomplete stripping or overexposure of the latex (col. 4, lines 41-43).

The examiner has not adequately explained why, in view of the above-discussed teachings by Ohsol of controlling foaming by limiting vapor velocity and by various other means in the process for which Ohsol's apparatus is used, i.e., removing monomer from an emulsion polymerization latex, one of ordinary skill in the art would have been led by Thomson, which is directed toward deodorizing fats and oils using a high vapor

Appeal No. 1998-0305
Application 08/385,110

velocity process, to incorporate Thomson's upwardly increasing column cross-sectional area in Ohsol's column. The examiner, therefore, has not carried the burden of establishing a *prima facie* case of obviousness of the apparatus recited in the appellants' claim 5. Accordingly, we reverse the rejection of claim 5 and claim 6 which depends therefrom.

Rejection of claim 7

The examiner does not rely upon Aruga or Ellis for any teaching which remedies the above-discussed deficiency in the teachings of Ohsol and Thomson. Hence, we reverse the rejection of claim 7 which, like claim 5 discussed above, requires that the inner diameter of the tower's upper section is greater than that of the lower section.

Moreover, the examiner has not adequately explained why Aruga or Ellis would have fairly suggested, to one of ordinary skill in the art, the limitation in claim 7 for which these secondary references are applied, i.e., the partition walls on the baseplate at the tower's uppermost section being lower than those on the baseplate at the lower section. The examiner argues that Aruga (col. 8, lines 40-52) and Ellis

Appeal No. 1998-0305
Application 08/385,110

(col. 2, lines 3-7) teach that the liquid retention time on each tray can be varied by changing the partition wall height, and that in view of these teachings it would have been obvious to one of ordinary skill in the art to optimize the partition wall height to obtain the desired separation (answer, pages 4-5 and 7). The examiner, however, does not explain why these references would have led one of ordinary skill in the art to optimize such that the partition wall height on the uppermost baseplate is lower than on the baseplate at the lower section of the tower. For this additional reason, we conclude that the examiner has not carried the burden of establishing a *prima facie* case of obviousness of the apparatus recited in the appellants' claim 7. Consequently, we reverse the rejection of claim 7 and claims 8 and 9 which depend therefrom.

DECISION

The rejections under 35 U.S.C. § 103 of claims 5 and 6 over Ohsol in view of Thomson, and claims 7-9 over Ohsol in view of Thomson and either Aruga or Ellis, are reversed.

REVERSED

Appeal No. 1998-0305
Application 08/385,110

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

FAY SHARPE BEALL FAGAN
MINNICH AND MCKEE
1100 SUPERIOR AVENUE
CLEVELAND, OH 44114-2518

TJO:caw