

The opinion in support of the decision being entered today was not written for publication in a law journal and is not binding precedent of the Board.

UNITED STATES PATENT AND TRADEMARK OFFICE

BEFORE THE BOARD OF PATENT APPEALS
AND INTERFERENCES

Ex parte GRIGORIY GRINBERG, DAVID ROBERT COLLINS,
and RICHARD L. ALLOR

Appeal No. 2006-2231
Application No. 10/306,120

ON BRIEF

Before KIMLIN, PAK, and KRATZ, Administrative Patent Judges.

KIMLIN, Administrative Patent Judge.

DECISION ON APPEAL

This is an appeal from the final rejection of claims 1-11 and 21-29. Claims 12-20 have been withdrawn from consideration.

Claim 1 is illustrative:

1. A method of making an article having fluid passages, the method comprising:

- (a) forming a first component having a backing surface;
- (b) placing a flexible conduit capable of transporting fluid adjacent the backing surface; and

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(c) spraying metal droplets atop the backing surface to form a metallic adhesion layer,

wherein the metal droplets used to form the adhesion layer are sprayed in a sufficient amount that the adhesion layer at least partially encapsulates the flexible conduit whereby the conduit is fastened to the backing surface by the metallic adhesion layer.

The examiner relies upon the following references as evidence of obviousness:

Widmer	3,853,309	Dec. 10, 1974
Singer et al. (Singer)	5,875,830	Mar. 2, 1999

Appellants' claimed invention is directed to a method of bonding a flexible conduit that is capable of transporting fluid onto a backing surface. The method entails spraying metal droplets which adhere the conduit to the backing surface by encapsulating the conduit. The metal droplets may be zinc or a zinc alloy.

Appealed claims 1-11 and 21-29 stand rejected under 35 U.S.C. § 103(a) as being unpatentable over Singer in view of Widmer.

Appellants present separate arguments only for claims 9, 10, and 28, as a group. Accordingly, the remaining claims on appeal stand or fall together.

We have thoroughly reviewed each of appellants' arguments for patentability. However, we are in complete agreement with

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the examiner that the claimed subject matter would have been obvious to one of ordinary skill in the art within the meaning of § 103 in view of the applied prior art. Accordingly, we will sustain the examiner's rejection for the reasons set forth in the Answer, and we add the following for emphasis only.

There is no dispute that Singer, the primary reference, teaches a method of adhering a conduit for transporting fluid to a backing surface by spraying metal droplets which at least partially encapsulate the conduit. Singer does not disclose that the conduit is a flexible corrugated one. However, as explained by the examiner, Widmer teaches that a flexible corrugated conduit has the advantages of ensuring turbulent flow which prevents a temperature gradient across the fluid within the conduit, and providing a greater heat transfer surface area which enhances the heat transfer rate across the conduit. Accordingly, based on the collective teachings of Singer and Widmer, we are convinced that the examiner has drawn the proper legal conclusion that it would have been obvious for one of ordinary skill in the art to employ a flexible corrugated conduit in the method of Singer for obtaining the advantages described by Widmer. Also, from a somewhat different perspective, we find that it would have been obvious for one of

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ordinary skill in the art to employ the metal droplet spraying technique of Singer to bond a flexible corrugated conduit to a backing surface.

We are not persuaded by appellants' argument that the references are not combinable because "Widmer is directed to components that utilize **cast-in** cooling tubes" (page 3 of principal brief, second paragraph). While we appreciate that there are distinct differences in both the thermal spray process of Singer and appellants and the casting process of Widmer, the relevant teaching in Widmer is the benefit in utilizing flexible corrugated conduits for fluid material. Certainly, the advantage of using a flexible corrugated conduit is not contingent upon the casting process but, clearly, would transfer to the metal spraying process of Singer as well. Notwithstanding appellants' arguments to the contrary, we do not find that the examiner resorted to impermissible hindsight in combining the relevant teachings of the applied references. Although we certainly agree with appellants that "[t]he process of casting parts is a very different process than the spray forming process of Singer" (page 4 of principal brief, last paragraph), appellants have not explained why one of ordinary skill in the art would have been dissuaded from utilizing a

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flexible corrugated conduit in the metal spraying process of Singer.

As for separately argued claims 9, 10, and 28 which specify that the metal droplets are zinc or zinc alloy, we fully concur with the examiner that "[s]ince zinc and its alloy are compatible with the copper and steel and has good thermal conductivity, it would have been obvious to use the zinc or its alloy as the spraying metal in the process of Singer et al." (page 5 of Answer, second paragraph). Manifestly, one of ordinary skill in the art would have found it obvious to use any metal that is capable of spraying and has the requisite properties for bonding and thermal conductivity.

As a final point, we note that appellants base no argument upon objective evidence of nonobviousness, such as unexpected results, which would serve to rebut the prima facie case of obviousness established by the examiner.

In conclusion, based on the foregoing and the reasons well-stated by the examiner, the examiner's decision rejecting the appealed claims is affirmed.

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No time period for taking any subsequent action in connection with this appeal may be extended under 37 CFR § 1.136(a)(1)(iv) (effective Sep. 13, 2004; 69 Fed. Reg. 49960 (Aug. 12, 2004); 1286 Off. Gaz. Pat. Office 21 (Sep. 7, 2004)).

AFFIRMED

EDWARD C. KIMLIN)	
Administrative Patent Judge)	
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CHUNG K. PAK)	BOARD OF PATENT
Administrative Patent Judge)	APPEALS AND
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PETER F. KRATZ)	
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