

The opinion in support of the decision being entered today was not written for publication and is not binding precedent of the Board.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. 16

UNITED STATES PATENT AND TRADEMARK OFFICE

**BEFORE THE BOARD OF PATENT APPEALS
AND INTERFERENCES**

Ex parte JOE FADER, CHRIS KEENEY, JIM HAWKINS,
MARK CLEMENTS and STEVE YOLLIICK

Appeal No. 2003-0292
Application No. 09/584,032

ON BRIEF

Before FRANKFORT, McQUADE, and NASE, Administrative Patent Judges.
NASE, Administrative Patent Judge.

DECISION ON APPEAL

This is a decision on appeal from the examiner's final rejection of claims 1 to 10 and 15 to 20, which are all of the claims pending in this application.

We REVERSE.

BACKGROUND

The appellants' invention relates to a method of depositing an anti-corrosion material onto a surface subject to corrosion, wherein the deposition of the coating is performed during a shot peening process (specification, p. 1). A copy of the claims under appeal is set forth in the appendix to the appellants' brief.

The prior art references of record relied upon by the examiner in rejecting the appealed claims are:

Louis	2,788,297	Apr. 9, 1957
Babecki et al. (Babecki)	3,754,976	Aug. 28, 1973
Lienert	4,604,881	Aug. 12, 1986

Claims 1, 3 to 8, 10 and 15 to 19 stand rejected under 35 U.S.C. § 103 as being unpatentable over Louis in view of Babecki.

Claims 2, 9 and 20 stand rejected under 35 U.S.C. § 103 as being unpatentable over Louis in view of Babecki and Lienert.

Rather than reiterate the conflicting viewpoints advanced by the examiner and the appellants regarding the above-noted rejections, we make reference to the answer

(Paper No. 11, mailed August 29, 2002) for the examiner's complete reasoning in support of the rejections, and to the brief (Paper No. 10, filed July 24, 2002) and reply brief (Paper No. 12, filed August 29, 2002) for the appellants' arguments thereagainst.

OPINION

In reaching our decision in this appeal, we have given careful consideration to the appellants' specification and claims, to the applied prior art references, and to the respective positions articulated by the appellants and the examiner. Upon evaluation of all the evidence before us, it is our conclusion that the evidence adduced by the examiner is insufficient to establish a prima facie case of obviousness with respect to the claims under appeal. Accordingly, we will not sustain the examiner's rejection of claims 1 to 10 and 15 to 20 under 35 U.S.C. § 103. Our reasoning for this determination follows.

In rejecting claims under 35 U.S.C. § 103, the examiner bears the initial burden of presenting a prima facie case of obviousness. See In re Rijckaert, 9 F.3d 1531, 1532, 28 USPQ2d 1955, 1956 (Fed. Cir. 1993). A prima facie case of obviousness is established by presenting evidence that would have led one of ordinary skill in the art to combine the relevant teachings of the references to arrive at the claimed invention. See

In re Fine, 837 F.2d 1071, 1074, 5 USPQ2d 1596, 1598 (Fed. Cir. 1988) and In re Lintner, 458 F.2d 1013, 1016, 173 USPQ 560, 562 (CCPA 1972).

The claimed subject matter

The independent claims on appeal read as follows:

1. A method of treating an outer surface of a component comprising the steps of:
 - (1) providing a component in a shot peening chamber;
 - (2) providing shot peening particles having an outer surface including a sacrificial metal coating selected to provide sacrificial metal corrosion resistance to said component; and
 - (3) directing said shot peening particles against said component, and depositing said sacrificial metal coating on an outer surface of said component.

16. A method of treating an outer surface of a component comprising the steps of
 - (1) providing a component in a shot peening chamber;
 - (2) providing shot peening particles having an outer surface including a sacrificial metal coating selected to provide sacrificial metal corrosion resistance to said component; [and]
 - (3) directing said shot peening particles against said component at a velocity to indent an outer surface of said component, and deposit said sacrificial metal coating on an outer surface of said component.

The teachings of the applied prior art

Louis

Louis' invention relates to electrical insulators having electrically conductive surfaces and method of making same. In many applications for electrical insulators

such as glass and plastics it is desirable that an electrically conductive surface be provided in order to eliminate electrostatic charges.

The process of Louis' invention comprises repeatedly impacting a substrate to be coated with finely divided electrically-conductive material. Finely divided particles, in general, lack enough mass to hit the substrate with sufficient energy to become firmly attached to the surface. In carrying out Louis' process the finely divided coating material is temporarily affixed to a carrier particle having considerably greater mass, and then hurling the carrier particle at the substrate so as to utilize its kinetic energy to, "hammer" the finely divided particles onto the substrate. Louis teaches that steel balls, 1/8 inch in diameter, have been effective in applying conductive coatings to glass and have also been used to apply rather heavy conductive coatings to polymethylmethacrylate.

Impactor particles may be coated with conductive material by any of several techniques. The preferred method taught by Louis involves tumbling the carrier particles with finely divided conductive material until a uniform coating is obtained. Figure 3 shows a device for hurling coated carrier particles 2 at the article to be coated. Air gun 22 utilizes a stream of air to lift carrier particles 2 from a reservoir 24 through hose 26 and hurl them at the target 10. The carrier particles are returned by gravity to

the reservoir 24. The air gun may be a conventional sand blasting gun; however, Louis teaches that for a clear understanding of his invention it should be appreciated that in the conventional use of such apparatus the abrasive action of the missile particles remove material from the target surface whereas in the practice of his invention just the opposite and hence unobvious result is obtained wherein the target surface is coated. For large scale production, Louis teaches that conventional shot peening equipment will be found very useful.

In example 7, steel balls were coated with finely divided metallic silver and impacted against a piece of glass. In example 8, steel balls were coated with finely divided metallic lead and impacted against a piece of glass.

Babecki

Babecki's invention relates to the metal plating of substrates such as metal substrates. More particularly, his invention is directed to the deposition of metallic coatings on other substrates by peening metallic powder onto the surface of the substrates. Babecki teaches (abstract, lines 6-9) that his process has as one of its advantages providing mechanical working (hardening) of the surface simultaneously with the metal plating.

The plating process is preferably conducted in a suitable cabinet or work chamber. The preferred small peening particles of Babecki's invention are spherical peening particles such as glass beads, however, other suitable peening particles include metal shot, ceramic beads and the like. Any metallic powder of varying degrees of hardness and particle shape, (for instance, flake or spherical) is contemplated for use as the coating material. Illustrative of metallic powders that may be used are aluminum, nickel, silver, gold, tungsten, copper, zinc, etc. The substrates which can be metal plated or coated in accordance with Babecki's invention include any hard material having a peenable surface. Such materials include metals and alloys, such as copper, steel, magnesium, aluminum alloys, etc., wood, plastics such as nylon, polyethylene, polypropylene, polymethacrylates, etc., fiberglass, ceramics, and the like.

Figure 1 shows a conduit 3 attached to a source of compressed air (not shown) to provide a blast of air that propels the mixture of metal powder and particles onto substrate 15. A spray nozzle 6 is fitted onto conduit 3 for directing the air spray. A supply of small spherical particles such as glass beads 9 and metallic powder 12 are admixed in a hopper (not shown) and both propelled first through conduit 3 and then nozzle 6, exiting as a spray stream which impinges upon the substrate 15.

Lienert

Lienert's invention relates to an improved shot peening machine and more particularly to such a shot peening machine in which there is provided a minimum number of components within a critical blast region thereof which components are subjected to wear and must be periodically replaced. As seen in Figures 1A, 1B, 2A, 2B and 3, the shot peening machine 10 includes a blast cabinet 12, the top of which supports a pair of blast wheels 14. The blast wheels 14 are capable of directing a plurality of shot generally downwardly under sufficient force for cold working work pieces such as springs 16.

Ascertainment of differences

After the scope and content of the prior art are determined, the differences between the prior art and the claims at issue are to be ascertained. Graham v. John Deere Co., 383 U.S. 1, 17-18, 148 USPQ 459, 467 (1966).

Based on our analysis and review of Louis and the claims under appeal, it is our opinion that the differences include (1) providing a component in a shot peening chamber; (2) providing shot peening particles having an outer surface including a sacrificial metal coating selected to provide sacrificial metal corrosion resistance to the

component; and (3) directing the shot peening particles against the component, and depositing the sacrificial metal coating on an outer surface of the component.

Determination of obviousness

The examiner determined (answer, p. 4) that in view of the teachings of Babecki it would have been obvious at the time the invention was made to a person of ordinary skill in the art to have (1) coated Louis' carrier particles with zinc and (2) housed Louis' shot peening equipment in a chamber.

The appellants argue throughout both briefs that there is no motivation in the applied prior art to have modified Louis to arrive at the claimed method. We agree.

In our view, the only suggestion for modifying Louis in the manner proposed by the examiner to meet the above-noted limitations stems from hindsight knowledge derived from the appellants' own disclosure.¹ While Louis teaches the use of shot peening equipment to perform his method, it is not clear from the teachings of Louis that the coated carrier particles ejected from such shot peening equipment would have sufficient force to actually peen the article being coated by Louis' method. In any event,

¹ The use of such hindsight knowledge to support an obviousness rejection under 35 U.S.C. § 103 is, of course, impermissible. See, for example, W. L. Gore and Assocs., Inc. v. Garlock, Inc., 721 F.2d 1540, 1553, 220 USPQ 303, 312-13 (Fed. Cir. 1983), cert. denied, 469 U.S. 851 (1984).

it is our opinion that due to the disparate nature of the inventions of Louis and Babecki (i.e., Louis does not peen the article being coated while Babecki does peen the article being coated) there is no reason in the teachings of the applied prior art for a person of ordinary skill in the art at the time the invention was made to have coated Louis' carrier particles with zinc as alleged by the examiner in the rejections before us in this appeal. It follows that we cannot sustain the examiner's rejections of claims 1 to 10 and 15 to 20.²

² We have reviewed the reference to Lienert additionally applied in the rejection of dependent claims 2, 9 and 20 but find nothing therein which makes up for the deficiencies of Louis and Babecki discussed above.

CONCLUSION

To summarize, the decision of the examiner to reject claims 1 to 10 and 15 to 20 under 35 U.S.C. § 103 is reversed.

REVERSED

JOHN P. McQUADE
Administrative Patent Judge

JEFFREY V. NASE
Administrative Patent Judge

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Frankfort, Examiner-in-Chief, concurring -- with additional views.

I share my colleagues' views regarding the outcome of this appeal and the reversal of the examiner's rejection of claims 1, 3-8, 10 and 15-19 under 35 U.S.C. § 103(a) wherein the examiner has relied upon Louis in view of Babecki, and also the rejection of claims 2, 9 and 20 under 35 U.S.C. § 103(a) where the examiner has relied upon Louis in view of Babecki and Lienert. However, I am of the view that the examiner should also consider a rejection of the claims on appeal, particularly claims 1, 7, 15, 16 and 20, under 35 U.S.C. § 103(a) based on Babecki in view of Louis.

The only difference I perceive between the method as described in Babecki and that set forth in claims 1, 7, 15, 16 and 20 on appeal is that Babecki does not specifically indicate that the peening particles used therein have “an outer surface including a sacrificial metal coating selected to provide sacrificial metal corrosion resistance to said component [i.e., the component being treated],” as set forth in independent claims 1 and 16 on appeal. Babecki teaches using suitable peening particles including metal shot, ceramic beads and the like (col. 3, lines 40-43) to achieve coating or plating of a metal or polymethacrylate substrate confined in a cabinet or work chamber (col. 5, lines 10-11) and teaches the use of a sacrificial metal such as zinc as a metallic coating material (col. 3, lines 54-59). However, Babecki does not expressly disclose that the peening particles are coated with the metallic powder (e.g., zinc) prior

to their impact with the substrate surface which is peened and coated when the mixture of metallic powder and peening particles are propelled against the surface (Fig. 1) at a high velocity sufficient to peen the surface and impact and bond the metallic powder onto the surface.

Assuming for argument sake that the shot peening particles in Babecki are not at least partially coated with a sacrificial metal such as zinc when the peening particles and metallic powder are admixed in a hopper prior to spraying (Example 1), or at the very least when they are propelled together through the conduit (3) and converging spray nozzle (6) of Figure 1, the examiner should determine if it would have been obvious to one of ordinary skill in the art at the time of appellants' invention to have the peening particles in Babecki coated with the sacrificial metallic powder disclosed therein in view of the teaching in Louis regarding coating a substrate by using carrier particles coated with metallic powder materials, which coated carrier particles are used to "hammer" the finely divided metallic particles onto the substrate (Louis, col. 2, lines 29-36), or the teaching in Louis column 4, lines 18-24 and Example 5, 6 and 7 wherein it appear that both powdered metallic material and coated carrier particles are used together to provide a coating on a substrate.

I would leave it to the examiner to also determine if rejections of the other claims on appeal would be appropriate, e.g., based on Babecki, Louis and Lienert or other prior art of record, or other prior art yet to be discovered.

CHARLES E. FRANKFORT
Administrative Patent Judge

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