

THIS OPINION WAS NOT WRITTEN FOR PUBLICATION

The opinion in support of the decision entered today (1) was not written for publication in a law journal and (2) is not binding precedent of the Board.

Paper No. 10

UNITED STATES PATENT AND TRADEMARK OFFICE

BEFORE THE BOARD OF PATENT APPEALS
AND INTERFERENCES

Ex parte FANG CHEN et al.

Appeal No. 2000-0833
Application 08/985,676¹

ON BRIEF

Before McKELVEY, Senior Administrative Patent Judge, and LEE and MEDLEY, Administrative Patent Judges.

MEDLEY, Administrative Patent Judge.

DECISION ON APPEAL

This is a decision on appeal under 35 U.S.C. § 134 from the examiner's final rejection of claims 1-20.

A. Findings of Fact

1. The appellants state that the real party in interest is Ford Global Technologies, Inc. (Brief at 2).

2. The application on appeal contains claims 1-20.

¹ Application for patent filed December 5, 1997.

Appeal No. 00-0833
Application 08/985,676

3. Claims 1-20 have been rejected as being unpatentable under 35 U.S.C. § 103 over Kanduth et al. (Kanduth), U.S. Patent 5,757,473, issued May 26, 1998, based on application 08/748,956, filed November 13, 1996.

The invention

4. The disclosed invention pertains to a method of using a strain gauge before and after applying a load to an object surface for determining the strain on the object.

5. The disclosed invention includes 1) marking the object with a known pattern; 2) magnifying and imaging the known pattern; 3) recording a first image; 4) applying a load to the object surface; 5) again, magnifying and imaging the known pattern; 6) recording a second image; and 7) determining the strain by comparing the recordings of the first and second images.

6. Independent claim 17 is representative of the claims and is as follows:

A method of using a digital imaging strain gauge comprising the steps of:

creating a known mark pattern on an object surface;

positioning an image sensing device over the mark pattern a predetermined distance therefrom;

Appeal No. 00-0833
Application 08/985,676

magnifying the mark pattern with a microscopic magnification lens;

taking a first magnified image of the mark pattern from the microscopic magnification lens with the image sensing device;

applying a successive load to the object surface;

taking a successive magnified image of the mark pattern from the magnification lens with each successive load; and

utilizing a Young's fringe phase shift analysis processing means to calculate the dynamically loaded strain as derived from the first and successive magnified images.

The Kanduth reference

7. Kanduth discloses an optical strain gauge sensor for measuring deformations of the surface of an object (Kanduth abstract).

8. Kanduth describes taking photographs of a first and second area of the surface of the object before deformation of the surface and taking photographs of the first and second areas of the surface of the object after deformation of the object surface (Kanduth, abstract and column 5, lines 37-39).

9. The distance between the first and second areas to be photographed is determined by configuring two cameras side-by-side at a predetermined distance from each other² (Kanduth,

² Alternatively, a prism may be affixed to the end of each camera to orient the images viewed by the two cameras at

Appeal No. 00-0833
Application 08/985,676

column 6, lines 50-52), or by configuring a single camera with prisms located at the end of the objective of the camera for dividing the image of the surface into two separate images apart from each other at a known distance (Kanduth, column 6, lines 62-67).

10. After the photographs are taken, but prior to deformation of the object, the photographs are displayed on a computer display where an interactive cursor facilitates the selection of one template on each photograph (Kanduth, column 7, lines 21-24).

11. The photographs and the template information are then stored in a computer for further retrieval. (Kanduth, column 7, lines 24-27).

12. After the surface of the object has been deformed photographs are taken of the first and second area of the surface.

13. The computer searches for the previously selected templates on the third and fourth photographs and determines the new coordinates of the templates (Kanduth, column 7, lines 27-52).

a known distance. (Kanduth, column 6, 54-58).

Appeal No. 00-0833
Application 08/985,676

14. The reference distance between the templates is compared with the new distance between the templates, thus providing a determination of the strain of the object (Kanduth, column 7, lines 52-57).

The examiner's position

15. The examiner alleges that Kanduth teaches a known mark pattern on an object surface, stating that "Kanduth et al. disclose ... creating a mark pattern of a known fixed distance on the object", citing to column 5, lines 48-49 of Kanduth. (Answer at 3).

16. The examiner states in its answer that "Kanduth et al. clearly indicate the provision of known fixed distance, and as a result a known marking." (Answer at 4).

B. Discussion

The rejections of the claims on appeal cannot be sustained. A reversal of the rejection on appeal should not be construed as an affirmative indication that the appellants' claims are patentable over prior art. We address only the positions and rationale as set forth by the examiner and on which the examiner's rejection of the claims on appeal is based.

Appeal No. 00-0833
Application 08/985,676

The Examiner bears the burden of establishing a prima facie case of obviousness based upon the prior art. The Examiner can satisfy this burden only by showing some objective teaching in the prior art or that knowledge generally available to one of ordinary skill in the art would lead that individual to combine the relevant teachings of the references. The patent applicant may then attack the Examiner's prima facie determination as improperly made, or the applicant may present objective evidence tending to support a conclusion of nonobviousness. In re Fritch, 972 F.2d 1260, 1265, 23 USPQ2d 1780, 1783 (Fed. Cir. 1992) (quoting In re Fine, 837 F.2d 1071, 1074, 5 USPQ2d 1596, 1598 (Fed. Cir. 1988)).

In rejecting claims under 35 U.S.C. 103, the examiner is to establish a factual basis to support the legal conclusion of obviousness. In order to establish a prima facie case of obviousness there must be some teaching, suggestion or motivation in the prior art to make the specific combination that was made by the applicant. In re Dance, 160 F.3d 1339, 1343, 48 USPQ2d 1635, 1637 (Fed. Cir. 1998). Based on the record before us, the examiner has failed to set forth a prima facie case of obviousness.

Appeal No. 00-0833
Application 08/985,676

The claims include 1) creating a known mark pattern on an object surface, 2) positioning an image sensing device over the mark pattern, 3) taking a magnified image of the mark pattern, 4) applying a load to the surface of the object, 5) and again, taking a magnified image of the mark pattern. (Finding 6).

Kanduth fails to describe or teach creating a known mark pattern on the object surface and taking images of the mark pattern before and after loading. The portion of the Kanduth reference that the examiner cites for teaching creating a known mark pattern on the object is as follows:

Photographs of two or more small images of an area of the surface, the images being separated by precisely known distance from one another, are obtained by means of one or more conventional charge couple device camera(s) including optional suitable optical arrangements such as lenses and prisms that permits the surface to be photographed, preferably at a 12X magnification or higher (Kanduth, column 5, lines 46-53).

That the images, or the areas photographed are separated at a known distance from each other, does not teach or suggest creating a known pattern on the object, contrary to the examiner's assertion. (Finding 16). Kanduth describes orienting two cameras over two random areas (images) to be photographed, or alternatively orients one camera over a

Appeal No. 00-0833
Application 08/985,676

random area to be photographed and uses a prism for dividing the image of the surface into two separate images. In both embodiments, the images are separated at a known distance. This is accomplished by either orienting the two cameras at a fixed distance, or orienting a prism at the end of a single camera such that the image viewed by the camera is split into two images at a known distance. (Finding 9).

This is in contrast to the claimed invention which requires taking an image of (photographing) the known mark pattern created on the object. The claimed invention requires taking an image of (photographing) a specific image (the mark pattern), while Kanduth describes photographing random areas of an object.

The examiner provides no further explanation regarding the known mark pattern on the object. Based on the record before us, the examiner has failed to establish that there is a teaching, suggestion or motivation in Kanduth to create and photograph a known mark pattern on an object as claimed by the appellants.

Accordingly, we will reverse the decision of the examiner rejecting claims 1-20 as being unpatentable under 35 U.S.C. § 103 over Kanduth.

Appeal No. 00-0833
Application 08/985,676

C. Decision

The examiner's rejection of claims 1-20 as being unpatentable under 35 U.S.C. § 103 over Kanduth is reversed.

REVERSED

_____)	
FRED E. MCKELVEY, Senior)	
Administrative Patent Judge)	
)	
_____)	BOARD OF PATENT
JAMESON LEE)	APPEALS AND
Administrative Patent Judge)	INTERFERENCES
)	
)	
_____)	
SALLY C. MEDLEY)	
Administrative Patent Judge)	

Appeal No. 00-0833
Application 08/985,676

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