THIS OPINION WAS NOT WRITTEN FOR PUBLICATION

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opinion in support of the decision being entered today (1) was not written for publication in a law journal and (2) is not binding precedent of the Board.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

Appeal No. 1997-1698
Application No. 08/348,447[1]

ON BRIEF

Before URYNOWICZ, BARRETT, and HECKER, Administrative Patent Judges.

URYNOWICZ, Administrative Patent Judge.

DECISION ON APPEAL

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[1] Application for patent filed December 2, 1994.

This appeal is from the final rejection of claims 8-10, 13 and 14, all the claims pending in the application.

The invention pertains to a device for determining the presence or absence of surface roughening. Claim 8, the only independent claim, is illustrative and reads as follows:

> 8. A portable device for determining the presence or absence of surface roughening, comprising:
>
> a hand-held enclosure including a window to be placed adjacent and moved along a surface to be characterized;
>
> a light source disposed within the enclosure to project a beam of light through the window and onto a localized area of the surface, the path of the beam reflected by the surface and back through the window defining an optical axis;
>
> a light-sensitive detector disposed on the optical axis within the enclosure to receive light scattered by the surface and output an electrical signal representative of the light received;
>
> an optical blocking element supported within the enclosure at a point along the optical axis between the window and the detector to block the beam when reflected by a substantially non-roughened surface;
>
> a lens supported within the enclosure along the optical axis at a point between the window and the blocking element to gather light scattered off-axis by a roughened surface and focus the gathered light onto the detector;
>
> a two-state indicator disposed on the enclosure;
>
> and

electrical circuitry disposed within the enclosure, including a source of an adjustable threshold signal and a comparator operative to compare the threshold signal to the output of the detector and deliver a signal to change the state of the indicator if the output of the detector exceeds the threshold signal.

The references relied upon by the examiner as evidence of obviousness are:

Horn	4,072,426	Feb. 07, 1978
Milana et al. (Milana)	4,296,333	Oct. 20, 1981
Frohardt	4,945,253	Jul. 31, 1990
Reinsch et al. (Reinsch)	5,179,425	Jan. 12, 1993

The appealed claims stand rejected under 35 U.S.C. § 103 as being unpatentable over Frohardt in view of Milana, Horn and Reinsch.

The respective positions of the examiner and the appellant with regard to the propriety of this rejection are set forth in the final rejection (Paper No. 6) and the examiner's answer (Paper No. 13) and the appellant's brief (Paper No. 12) and reply brief (Paper No. 14).

Appellant's Invention

Appellant discloses a portable device for determining the presence or absence of surface roughening. The device comprises a hand-held enclosure 150 including a window 126 moved along a

surface 130 to be characterized as smooth or rough. Light source 110 is disposed within the enclosure to project a beam of light through the window and onto the surface. The beam is reflected by the surface along an optical axis 122. A light-sensitive detector D is disposed along the optical axis within the enclosure to receive light scattered by the surface. The detector outputs an electrical signal representative of the light received. Optical blocking element B is

supported within the enclosure at a point along the optical axis between the window and the detector to block the beam when reflected by a substantially smooth surface. Lens L is supported within the enclosure along the optical axis at a point between the window and the blocking element to gather light scattered off-axis when the surface is roughened and focus the gathered light onto the detector. Electrical circuitry C is disposed within the enclosure and includes a comparator operative to compare an adjustable threshold signal to the output of the detector and deliver a signal to change the state of the indicator, meter M or lamps L, if the output of the detector exceeds the threshold signal.

The Prior Art

Frohardt discloses optical apparatus comprising a gloss sensor having a source of light 1 for emitting a light beam 2 toward a surface 4 to be characterized, an optical blocking element 10 positioned to attenuate the beam reflected by the surface, and a detector 5 for detecting light scattered by the surface. A circuit 14 receives the signal from the light detector, evaluates the signal by comparing the intensity of the

signal to the intensity of a signal which would be received from a known gloss standard, and then provides an output indicative of the gloss of the paper surface then being evaluated.

Milana discloses optical apparatus for detecting surface defects in a workpiece in which a comparator 42 is used to compare the output signal from the detector with a reference threshold to derive an indication of the roughness of the surface.

Horn discloses optical apparatus for determining the reflective characteristics of surfaces. The apparatus includes a converging or condensing lens 4 to cause a light beam to converge on detector 7.

Reinsch discloses a hand held optical device for measuring roughness of a surface.

Opinion

After consideration of the positions and arguments presented by both the examiner and the appellants, we have concluded that the rejection of sole independent claim 8 should not be sustained.

We agree with the examiner that Frohardt teaches a comparator to compare a threshold signal to the output of detector 5. This is evidenced by Frohardt's disclosure at column 3, lines 12-17, that circuit 14 receives the signal from light detector 5, evaluates the signal by comparing the intensity of the signal to

the intensity of a signal which would be received from a known gloss standard, and then provides an output indicative of the gloss of the surface 4. One of ordinary skill in the art would have recognized that comparing is done by a comparator. We also agree with the examiner that Reinsch would have suggested to one of ordinary skill in the art to make a sensor such as disclosed by Frohardt portable. However,

contrary to the position taken by the examiner, Horn does not disclose a focusing lens 4 disposed to focus light scattered by the surface of a sample 3 onto detector 7, 8. The scattered light in Horn is illustrated by dashed lines. This light passes through lens 4 unfocused to a concave mirror 6. It is only the principal unscattered light identified in the reference as solid lines that is focused by lens 4 on detector 7, 8. Accordingly, even if the teaching of the prior art relied on by the examiner were combined, there would be no lens to gather light scattered off-axis by a roughened surface and focus the gathered light onto a detector.

There is no purported obvious modification of Frohardt, Milana, Horn and Reinsch set forth by the examiner to meet the lens element of claim 8.

Whereas we will not sustain the rejection of sole independent claim 8, we will not sustain the rejection of claims 9, 10, 13 and 14 which depend therefrom.

Reversed

STANLEY M. URYNOWICZ Administrative Patent Judge	)	
LEE E. BARRETT Administrative Patent Judge	)	BOARD OF PATENT APPEALS AND INTERFERENCES
STUART N. HECKER Administrative Patent Judge	)	

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REVERSED

Prepared: August 10, 2000