

UNITED STATES PATENT AND TRADEMARK OFFICE

BEFORE THE BOARD OF PATENT APPEALS
AND INTERFERENCES

Ex parte GEORGE V. PAUL, GLENN J. BEACH, CHARLES J. COHEN,
and CHARLES J. JACOBUS

Appeal 2007-2866
Application 09/798,594
Technology Center 2600

Decided: November 14, 2007

Before: JOSEPH F. RUGGIERO, JOHN A. JEFFERY, and
KEVIN F. TURNER, *Administrative Patent Judges.*

TURNER, *Administrative Patent Judge.*

DECISION ON APPEAL

STATEMENT OF CASE

Appellants appeal under 35 U.S.C. § 134 from final rejections of claims 1 and 3 through 14. We have jurisdiction under 35 U.S.C. § 6(b).

Appellants disclose a real-time computer vision system capable of tracking moving objects in a scene, where the system tracks objects based on the color, motion and shape of the object in the image. (Specification 4: 2-10).

The independent claim 1, which is the sole independent claim, reads as follows:

1. A method of tracking a target, comprising the steps of: inputting a sequence of images representative of a scene; selecting a point in an initial image to identify a target; determining an initial location of the target using visual characteristics, such characteristics including the color and shape of a region around the selected point; and comparing the center of the region in one or more subsequent images to the location of the target region in the initial image to determine movement of the target within the scene.

The prior art relied upon by the Examiner in rejecting the claims on appeal is:

Sakamoto	US 5,574,498	Nov. 12, 1996
Hunke	US 5,912,980	Jun. 15, 1999
Marks	US 6,061,055	May 9, 2000

The Examiner rejected, under 35 U.S.C. § 102(b), claims 1, 3, 4, 11 and 14 as anticipated by Sakamoto; and

The Examiner rejected, under 35 U.S.C. § 103(a),:
claims 5 and 6 as unpatentable over Sakamoto and Marks, and
claims 7-10, 12 and 13 as unpatentable over Sakamoto and Hunke.

Appellants contend that the Examiner erred in indicating that the claimed subject matter would have been anticipated or obvious. More specifically, Appellants have argued that Sakamoto uses chrominance differences rather than chrominance itself and Sakamoto has been misinterpreted in the rejections. (Br. 3 & 4). With respect to the arguments traversing the anticipation rejection, we note that Appellants have only raised those arguments with respect to claim 1. Appellants also argue that

the Examiner has failed to establish a case of prima facie obviousness in the latter rejections. (Br. 4 & 5). The Examiner finds that Sakamoto teaches all of the elements of the anticipated claims and that proper motivation to combine the references was supplied to present a case of prima facie obviousness in the latter rejections. (Answer 6-8).

We affirm.

ISSUE

Have Appellants shown that the Examiner erred in finding claims 1 and 3 through 14 anticipated or rendered obvious in view of the cited prior art references?

FINDINGS OF FACT

1. As disclosed in the instant application, a program captures live images from the camera and displays them on the screen. It then allows the user to select the target manually and, at the point of initialization, the color, the shape and location of the target are computed and stored. Once the target is initialized, an estimate of the target location is made using target dynamics and then the actual location is computed based on color, shape and motion information with respect to a region centered at the estimated location. (Specification 6:1-7; Fig. 2).

2. Independent claim 1 requires determining an initial location of the target using the color and the shape of a region around the selected point. The subsequent step in that claim determines movement of the target by comparing the center of the region from the initial image to the subsequent

images. That subsequent step does not require the tracking of the region through color and/or shape. (Claim 1).

3. Sakamoto discloses a target tracking system. Images from a television camera are digitized and input into the system, and a region of an image D0 is set as the target. The center of gravity of the target is computed by integrating over horizontal and vertical directions in the target region and a characteristic color of the target object is also set. The center of gravity in subsequent images is evaluated to provide tracking of the target. (Col. 3, ll. 35-37, col. 5, ll. 31-34, col. 10, ll. 19-23, and col. 11, ll. 15-38 & 50-57; Fig. 9, elements 70 & 71).

4. With respect to the rejection of claims 5 and 6, the Examiner does not explicitly acknowledge any deficiencies of Sakamoto, but does provide motivation to combine Marks and Sakamoto. (Answer 5). With respect to the rejection of claims 7-10, 12 and 13, the Examiner acknowledges that Sakamoto fails to teach all of the elements of those claims. (Answer 5).

5. Marks discloses a method of tracking a target object using a computer system. The computer system digitizes images from the video camera that are then displayed on the CRT and a user then selects the image of a target object from the displayed images. The target is selected in the captured frame by selecting a bounding box that corresponds to a target selection window. (Col. 2, ll. 27 & 28; Fig. 4, elements 152, 410 & 440).

6. Hunke describes a method of automatically locating a target in a video image stream. The system described is resistant to partial occlusions of a tracked target, keeps track when a target leaves the frame, erases non-target colors from regions, adjusting for changing lighting conditions, uses

RGB-values and examines the closeness of colors. (Col. 3, ll. 45 & 46; col. 5, ll. 60 & 61; col. 7, ll. 22-25 & 33-36; col. 8, ll. 50-58 & col. 9, ll. 25-30).

PRINCIPLES OF LAW

The Examiner bears the initial burden of presenting a *prima facie* case of obviousness. *In re Oetiker*, 977 F.2d 1443, 1445 (Fed. Cir. 1992). If that burden is met, then the burden shifts to the Appellants to overcome the *prima facie* case with argument and/or evidence. *In re Mayne*, 104 F.3d 1339, 1342 (Fed. Cir. 1997).

“When a claim covers several structures or compositions, either generically or as alternatives, the claim is deemed anticipated if any of the structures or compositions within the scope of the claim is known in the prior art.” *Brown v. 3M*, 265 F.3d 1349, 1351 (Fed. Cir. 2001). “Section 103 forbids issuance of a patent when ‘the differences between the subject matter sought to be patented and the prior art are such that the subject matter as a whole would have been obvious at the time the invention was made to a person having ordinary skill in the art to which said subject matter pertains.’” *KSR Int’l Co. v. Teleflex Inc.*, 127 S.Ct. 1727, 1734 (2007).

The claims on appeal should not be confined to specific embodiments described in the Specification. *Phillips v. AWH Corp.*, 415 F.3d 1303, 1323 (Fed. Cir. 2005) (*en banc*). During ex parte prosecution, claims must be interpreted as broadly as their terms reasonably allow since applicants have the power during the administrative process to amend the claims to avoid the prior art. *In re Zletz*, 893 F.2d 319, 321-22 (Fed. Cir. 1989). “The test for obviousness is not whether the features of a secondary reference may be bodily incorporated into the structure of the primary reference.... Rather, the

test is what the combined teachings of those references would have suggested to those of ordinary skill in the art." *In re Keller*, 642 F.2d 413, 425 (CCPA 1981).

ANALYSIS

With respect to the anticipation rejection of claims 1, 3, 4, 11 and 14 based on Sakamoto, Appellants argue that Sakamoto is silent "with respect to the use of color for tracking purposes," (Br. 3), and that Sakamoto uses luminance derived from chrominance differences, rather than chrominance itself, to track targets. The use of either chrominance differences or chrominance itself is immaterial since claim 1 does not recite the use of either. Claim 1 recites, in part, determining an initial location of the target using the color and the shape of a region around the selected point. Sakamoto makes use of both shape and color in determining a location of a target. The shape is used in the center of gravity determination and the color is set by characteristic color setting means. (Finding of Fact 3). While Appellants' arguments address "tracking," step three of claim 1 recites only determining an initial location; step four recites determining of movement of the target, which may be akin to tracking, but that step does not require the use of color. (Finding of Fact 2). Appellants also address the "purposes" of the system in Sakamoto, but we find these to be immaterial to the anticipation rejection.

Appellants also argue, with respect to the rejection of claims 5 and 6, that there is no teaching or suggestion from the prior art to combine the cited references, Marks and Sakamoto. We find the rationale proffered by the Examiner for the combination of the references, i.e. that the combined

system would allow the target object to be tracked even with the presence of noise, movement of other objects in the image and the improper control of the motor, to be sufficient to sustain the rejection.

Lastly, with respect to the rejection of claims 7-10, 12 and 13, Appellants argue that there is no teaching or suggestion to combine Sakamoto and Hunke, and that Sakamoto alone would have been deemed sufficient by one of ordinary skill in the art such that additional steps taught by Hunke would not have been applied by such artisans. In reviewing the rejection of claims 7-10, 12 and 13, we find that the motivation offered for the combination of Sakamoto and Hunke is sufficient. With respect to Appellants' latter argument, the test for obviousness is what the combined teachings of those references would have suggested to those of ordinary skill in the art. Absent some teaching away by one of the references, the fact that the teachings of the secondary reference may not have been necessary for the operation of the system does not mean that those teachings cannot render obvious variations of the base reference in view of the secondary reference. We agree with the Examiner that claims 7-10, 12 and 13 are rendered obvious in view of Sakamoto and Hunke.

CONCLUSION OF LAW

We conclude that Appellants have not shown that the Examiner erred in rejecting claims 1 and 3 through 14 and we affirm the Examiner's rejections of those claims under 35 U.S.C. §§ 102(b) & 103(a).

DECISION

The decision of the Examiner is affirmed.

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No time period for taking any subsequent action in connection with this appeal may be extended under 37 C.F.R. § 1.136(a).

AFFIRMED

tdl/gw

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