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APPLICATION NO.	FILING DATE	FIRST NAMED INVENTOR	ATTORNEY DOCKET NO.	CONFIRMATION NO.
14/373,843	07/22/2014	Dror Saaroni	83991701	7029

146568   7590   08/27/2020

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EXAMINER
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ART UNIT	PAPER NUMBER
2143	

NOTIFICATION DATE	DELIVERY MODE
08/27/2020	ELECTRONIC

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PTOL-90A (Rev. 04/07)

UNITED STATES PATENT AND TRADEMARK OFFICE
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BEFORE THE PATENT TRIAL AND APPEAL BOARD
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Ex parte DROR SAARONI, MARINA GAMMER,
YONATHAN LIVNY, and MORDECHAI LANZKRON
_____

Appeal 2019-001874
Application 14/373,843
Technology Center 2100
_____

Before JEFFREY S. SMITH, JASON V. MORGAN, and
JAMES B. ARPIN, *Administrative Patent Judges*.

MORGAN, *Administrative Patent Judge*.

DECISION ON APPEAL

STATEMENT OF THE CASE

Introduction

Pursuant to 35 U.S.C. § 134(a), Appellant appeals from the
Examiner's decision to reject claims 1, 2, 4, 9, and 16–27. Claims 3, 5–8,
and 10–15 are canceled.[1] Appeal Br. 19–20. We have jurisdiction under 35
U.S.C. § 6(b).

We affirm.

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[1] We use the word "Appellant" to refer to "applicant" as defined in 37
C.F.R. § 1.42. Appellant identifies ENTIT SOFTWARE LLC as the real
party in interest. Appeal Br. 3.

Summary of the Disclosure

Appellant's claimed subject matter relates to "an image-based application automation system [that] detects an input event relative to a graphical user interface and associates a plurality of images with the input event." Abstract.

Representative Claims (Disputed Limitations Emphasized)

1.   A non-transitory processor-readable medium storing code that when executed by an automation system causes the automation system to:

during a record phase to create an automation action:

detect an input event relative to a graphical user interface (GUI);

generate a plurality of different images associated with the input event, each respective image of the plurality of different images including a graphical element affected by the input event and differing in appearance from the graphical element included in another image of the plurality of different images, wherein generating the plurality of different images comprises capturing the different images of a portion of the GUI including the graphical element in response to respective different events including the input event;

output a selection interface including the plurality of different images to a display;

receive, based on a user selection made in the selection interface, a selected image of the plurality of different images as a target for the input event during a replay of the automation action; and

replay the input event during a replay phase such that the input event is replayed at a same location in the GUI at which the input event occurred during the record phase.

18.   The non-transitory processor-readable medium of claim 1, *wherein the selected image that is selected as the target of*

> *the input event is used as an image displayed during the replay*
> *in response to occurrence of the input event.*

<center>The Examiner's Rejections And Cited References</center>

The Examiner rejects claims 1 and 4 under 35 U.S.C. § 102(b) as anticipated by Amichai et al. (US 2011/0131551 A1; published June 2, 2011, hereinafter "Amichai"). Final Act. 3–6.

The Examiner rejects claims 2, 9, and 16–27 under 35 U.S.C. § 103(a) as unpatentable over the combined teachings of Amichai and Chang et al., *GUI Testing Using Computer Vision*, CHI '10: Proc. of the SIGCHI Conf. on Hum. Factors in Computing Systems, 1535–44 (Apr. 2010) (hereinafter "Chang").[2]

<center>ADOPTION OF EXAMINER'S FINDINGS AND CONCLUSIONS</center>

We agree with and adopt as our own the Examiner's findings as set forth in the Answer and in the Action from which this appeal was taken, and we concur with the Examiner's conclusions. We have considered Appellant's arguments, but do not find them persuasive of error. We provide the following explanation for emphasis.

<center>ANALYSIS</center>
<center>Claims 1, 2, 4, 9, 16, 17, 19–21, 23, and 25–27</center>

Claim 1 recites an automation system that, during a record phase, detects an input event (e.g., a mouse click) relative to a graphical user interface (GUI) and "replay[s] the input event during a replay phase such

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[2] The copy of Chang in the record does not include page numbers. Herein, we rely on the page numbers in Chang, as published. The first page in the record corresponds to page 1535 as published.

<center>3</center>

that the input event is replayed at a same location in the GUI at which the input event occurred during the record phase." The Examiner finds that Amichai—which discloses controlling an application with simulated input computed as a function of user generated input—discloses replaying an input event in the claimed manner. *See* Final Act. 5–6 (citing Amichai, ¶¶ 23, 27, 28, and Figs. 2, 3).

Appellant contends the Examiner erred because Amichai "does not address replaying an input event <u>at the same location</u> as a location at which an input event occurred." Appeal Br. 9; *see also* Reply Br. 6–7. Specifically, Appellant contends Amichai fails to disclose "<u>replay[ing] the input event during a replay phase at a location appropriately offset from the center of such images such that the input event is replayed at the same location as the location at which the input event occurred during the record phase</u>." Appeal Br. 9 (quoting Spec. ¶ 1031); *see* Reply Br. 5.

Appellant's contentions are not commensurate with the scope of claim 1 and, therefore, are not persuasive. *See* Ans. 18. During examination of a patent application, pending claims are given their broadest reasonable construction consistent with the Specification. *In re Am. Acad. of Sci. Tech Ctr.*, 367 F.3d 1359, 1364 (Fed. Cir. 2004). A claim construction analysis begins with, and is centered on, the claim language itself. *See Interactive Gift Express, Inc. v. CompuServe, Inc.*, 256 F.3d 1323, 1331 (Fed. Cir. 2001). "While we read claims in view of the [S]pecification, of which they are a part, we do not read limitations from the embodiments in the [S]pecification into the claims." *Hill-Rom Servs., Inc. v. Stryker Corp.*, 755 F.3d 1367, 1371 (Fed. Cir. 2014). Finally, construing claims broadly during prosecution is not unfair to the applicant, because the applicant has the

opportunity to amend the claims to obtain more precise claim coverage. *Am. Acad.*, 367 F.3d at 1364.

Here, Appellant relies on a particular embodiment found in the Specification in which "the same location as the location at which the input event occurred" is a "location appropriately offset from the center of" image copies "cropped about a location (or point) other than the location of the input event." Spec. ¶ 1031 (cited in Appeal Br. 9). But claim 1 does not recite "any features regarding '*a location appropriately offset from the center of such images*.'" Ans. 18. Moreover, the Specification discloses that "a second location is the same as a first location if the second location is identical to the first location or is sufficiently similar or close to the first location that an input event at the second location has the same effect at a GUI or GUI element as that input event at the first location." Spec. ¶ 1031. That is, the broadest reasonable interpretation of the claimed "same location in the GUI" encompasses a location that is identical to the first location or is sufficiently similar or close to the location where the input event was recorded such that replaying the event at the location has the same effect at the GUI or GUI element as the recorded input event.

Amichai discloses "providing data identifying [a] GUI element" by "storing a test script" comprising "[d]ata describing . . . user generated input." Amichai ¶ 23. This data "may facilitate replaying the same or a similar input to the application at a later time." *Id*. Amichai discloses embodiments of "data describing the GUI element" that include "a region of the GUI containing the GUI element" or "a specific location of the GUI element in the GUI" to "facilitate finding the same . . . GUI element in a GUI associated with the application." *Id*. This data enables control of an

application to receive simulated input "computed as a function of the user generated input," where the "simulated input may be generated to be identical to the user generated input." *Id.* ¶ 28. That is, Amichai's application testing includes identifying "an input to provide to [the] application-under-test 399 through the GUI element." *Id.* ¶¶ 31, 32, Fig. 3. Thus, Amichai provides an input (i.e., simulated input) during testing of an application that has the same effect at the same GUI element (i.e., is provided through the GUI element) affected by the received user generated input.

Amichai further discloses that "the data describing the GUI element may allow the GUI element to be found even *if* the GUI element is not in the same place in a subsequent image of the GUI." *Id.* ¶ 23 (emphasis added). "For example, a check box to enable email solicitations may be identifiable even *if* a region containing the check box were moved from the left side of a first version of the GUI to the right side of a subsequent version of the GUI." *Id.* (emphasis added).

Anticipation "is not an ipsissimis verbis test." *In re Bond*, 910 F.2d 831, 832 (Fed. Cir. 1990). "[I]n considering the disclosure of a reference, it is proper to take into account not only specific teachings of the reference but also the inferences which one skilled in the art would reasonably be expected to draw therefrom." *In re Preda*, 401 F.2d 825, 826 (CCPA 1968). Even if a reference fails to explicitly spell out every detail of a claimed invention, such a reference would anticipate a claim if it discloses the claimed invention "such that a skilled artisan could take its teachings in combination with his own knowledge of the particular art and be in possession of the invention." *In re Graves*, 69 F.3d 1147, 1152 (Fed. Cir.

1995). A "reference can anticipate a claim even if it '[does] not expressly spell out' all the limitations arranged or combined as in the claim, if a person of skill in the art, reading the reference, would 'at once envisage' the claimed arrangement or combination." *Kennametal, Inc. v. Ingersoll Cutting Tool Co.*, 780 F.3d 1376, 1381 (Fed. Cir. 2015) (quoting *In re Petering*, 301 F.2d 676, 681 (CCPA 1962)).

Amichai's example of identifying a check box "even if a region containing the check box were moved" implies identifying the check box even if the region containing the check box were not moved. Here, an artisan of ordinary skill would have envisaged at once the GUI element of the GUI in Amichai can be left unmoved between versions of the GUI or that the same version of the GUI in Amichai can both be used to receive user generated input and be controlled with simulated input identical to the user generated input. Because Amichai discloses through implication not moving the GUI element controlled by user generated and simulated input, Amichai discloses replaying the input during testing of an application at a second location identical to the first location (i.e., at the location of an unmoved GUI element) of the recorded user generated input such that replaying the event at the location has the same effect at the GUI or GUI element as the recorded input event. Therefore, Amichai discloses "replay[ing] the input event during a replay phase such that the input event is replayed at a same location in the GUI at which the input event occurred during the record phase." Reply Br. 5.

Accordingly, we sustain the Examiner's 35 U.S.C. § 102(b) rejection of claim 1 and of claim 4, which Appellant does not argue separately. Appeal Br. 9. Appellant argues claim 9 is patentable for similar reasons, and

Chang fails to cure the alleged deficiency of Amichai. *See id.* at 11–12; *see also* Reply Br. 10. Because Amichai is not deficient, we sustain the Examiner's 35 U.S.C. § 103(a) rejection of claim 9, and claims 2, 16, 17, 19–21, 23, and 25–27, which Appellant does not argue separately. Appeal Br. 11–12.

<p style="text-align:center">Claims 18, 22, and 24</p>

Claim 1 further recites receiving, "based on a user selection made in the selection interface, a selected image of the plurality of different images as a target for the input event during a replay of the automation action." Claim 18, which depends from claim 1, recites "wherein the selected image that is selected as the target of the input event is used as an image displayed during the replay in response to occurrence of the input event." The Examiner finds that Chang—which teaches tester-generated visual test scripts that use images to define GUI widgets (i.e., GUI elements) to be tested—teaches or suggests the "wherein" limitation of claim 18. Final Act. 14 (citing Chang 1535–36).

> Appellant contends the Examiner erred because
>
> Chang is not addressing a replay of the execution of a written test script. Specifically, Chang is describing the operation of the written script, <u>not</u> 1) a video playback of the script that 2) displays an external visual manifestation (e.g., an image) during replay. Chang, in the cited portions or in its entirety, does not teach or suggest "wherein the selected image that is <u>selected as the target of the input event is used as an image displayed during the replay in response to occurrence of the input event</u> (emphasis added)," as recited in independent claim [18].

Appeal Br. 14. That is, Appellant contends Chang describes "*composing* and *operation* of . . . a written script" rather than "1) replay of the script that 2)

<p style="text-align:center">8</p>

displays an external visual manifestation (e.g., an image) <u>during replay</u>."
Reply Br. 9.

Appellant's contentions are not persuasive because claim 18 fails to
recite "a '<u>video</u> playback' of a script." Ans. 21. Claim 18 also fails to recite
a script that "displays an external visual manifestation."[3] Rather, claim 18
merely recites that "the selected image . . . is used as an image displayed
during the replay" of the input event. Moreover, Appellant directs our
attention to support for claim 18 that is silent about how the selected image
is displayed during replay. *See* Spec. ¶ 1056 (cited in Appeal Br. 14). Thus,
a reasonably broad interpretation of the disputed recitation of claim 18
encompasses the selected image displayed by executing the application
being tested (i.e., by providing inputs to a GUI that lead to the GUI
reproducing an image generated during recording of user generated input).

We agree with the Examiner that Chang teaches or suggests such
image display. *See* Final Act. 14; *see also* Ans. 20–21. That is, Chang does
more than teach automatically generating a visual test script by extracting
"the images of components interacted with and the visual feedback seen by
the demonstrator" by "recording both input events and screen images"
associated with a tester demonstration of an application. Chang 1535. Chang
also teaches testing the behavior of the application using the recorded input
events and images of components.

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[3] We note that claim 18 depends from claim 1, and that neither claim 1 nor
claim 18 recite a "script." Claim 22—which Appellant does not argue
separately—depends from claim 4, which recites creating "a script to be
replayed" and "replay of the script." But claim 4 and claim 22 fail to recite
that the claimed script "displays an external visual manifestation."

For example, Chang teaches testing a video player by clicking on a play button, asserting that the pause button is in the GUI, and asserting that play button disappears, as is disclosed in Chang's example script (Chang 1535), which is reproduced below:

click(▶); assertExist(❚❚); assertNotExist(▶);

Chang's example script illustrates three operations: (1) click a play button; (2) assert the existence of a pause button; and (3) assert the non-existence of a play button. Both the play button and the pause button are depicted as images. Contrary to Appellant's arguments (Appeal Br. 9–10), we agree with the Examiner that by asserting the pause button exists, Chang teaches or suggests that "when the script is executed/played, the script will verify whether the clicked play button (now a pause button) image exi[s]ts on the screen after a simulated clicking" (Ans. 21). This further evinces that Chang's execution of scripts—which may be automatically generated by recording input events and screen images during a testing demonstration (Chang 1535)—leads to the tested GUI reproducing an image generated during recording of user generated input.

Accordingly, we sustain the Examiner's 35 U.S.C. § 103(a) rejection of claim 18, and claim 22, which Appellant does not argue separately, and claim 24, which Appellant argues is patentable for similar reasons. Appeal Br. 14–16; *see also* Reply Br. 10.

CONCLUSION

Claims Rejected	35 U.S.C. §	Reference(s)	Affirmed	Reversed
1, 4	102(b)	Amichai	1, 4	
2, 9, 16–27	103(a)	Amichai, Chang	2, 9, 16–27	
Overall Outcome			**1, 2, 4, 9, 16–27**	

No time period for taking subsequent action in connection with this appeal may be extended under 37 C.F.R. § 1.136(a). *See* 37 C.F.R. § 1.136(a)(1)(iv).

AFFIRMED