

UNITED STATES PATENT AND TRADEMARK OFFICE

BEFORE THE PATENT TRIAL AND APPEAL BOARD

APPLE INC.
Petitioner

v.

MAXEL, LTD.
Patent Owner

Case No. IPR2020-00200
Patent No. 10,084,991

SUPPLEMENTAL DECLARATION OF DR. ANDREW LIPPMAN

I, Dr. Andrew Lippman, hereby declare the following:

I. INTRODUCTION

1. I have been asked to respond to certain issues raised by Patent Owner in Patent Owner's Response dated October 7, 2020 ("POR"). All of my opinions expressed in my original declaration (Ex. 1003) remain the same. I have reviewed the relevant portions of the POR and the relevant portions of Dr. Bystrom's declaration and deposition transcript in connection with preparing this supplemental declaration.

II. OPINIONS

2. As I discussed in my original declaration (Ex. 1003) at ¶¶ 128-129, Asmussen teaches that the user may set the default state of the video camera to "on" or "off," and that when the default state of the camera is "on," a POSITA would have understood the camera is rendered operative upon receipt of an incoming video call. (Ex. 1003, ¶¶ 128-139; *Asmussen*, 21:34-42). I understand that Maxell's expert, Dr. Bystrom, has proposed that Asmussen's camera could be modified to have the camera *always* on, regardless of receipt of an incoming video call. I note the POR states "[a] POSITA would certainly have understood that a camera could remain on [with] minimal operations, such as simply storing a few frames...." (Paper 16, 18; Ex. 2021, ¶ 109).

3. As an initial matter, I find Dr. Bystrom's opinion that the camera would always be on and capturing and storing a few frames of data without any basis in the prior art. When a default state of the camera is "on" in the communications context, e.g., for videocalls, a POSITA would understand the camera is rendered operative when communications need to be performed, i.e., when a videocall is received. Dr. Bystrom's opinion that an "on" default state of the camera means the camera is always on and capturing data turns the camera into a *surveillance* tool as opposed to Asmussen's teaching of the camera being a *communications* tool for videocalls.

4. It is also my opinion that Dr. Bystrom's proposal to have the Asmussen camera powered on all the time and only performing minimal operations when not in use is an undesirable design. As I previously stated in my original declaration, "[a] camera that is always "on" ... would unnecessarily waste power and computational resources." (Ex. 1003, ¶ 128). Asmussen contemplates the camera as being either integrated into the set top terminal (e.g., hardwired) or being separate and plugged into the set top terminal via input ports (e.g., stand-alone). (Ex. 1004, 16:34-38, Fig. 5b). A POSITA would have understood that two ways to power the camera would have been via battery or grid power (e.g., AC power from an outlet).

5. If the camera of Asmussen were to receive its power from a battery source, the conservation of power would have been important. Having the camera on all the time would limit its overall operation time and waste battery power. It

would have been a nuisance to a user if they had to constantly replace or recharge batteries due to the camera being on all the time.

6. Likewise, if the camera were to receive power from a constant electrical source (e.g., AC outlet), there would have been other factors (like the generation of heat) that would have been a concern due to the continual consumption of electricity. As I stated during my deposition, the unnecessary consumption of power “is a concern in the design of any electronic system[,]” regardless of whether or not the system (or in this case a set top terminal) were to be plugged into a power source. (Ex. 2020, 62:18-63:8). The consumption of power in a device is a concern for engineers for multiple reasons, “including heat dissipation, design of the power supply, [and] design of the overall system.” *Id.* at 63:10-18. All electronic components generate heat to varying degrees, and consequently, electronics designers are concerned with heat production. Conserving power and reducing heat generation are therefore desirable goals for any electronics design—regardless if the conserved power or the heat generation are relatively small to the overall system. A POSITA would have understood that the continual consumption of electricity by an electronics device that is always on would generate heat, and this heat would need to be removed or dissipated from the device/system. This is why most consumer electronics have some mode for removing heat, whether it be in the form of a cooling fan or a heat sink of some kind.

7. Any time power can be conserved in an electrical system by making electrical components either more efficient in their use of power or by removing power from them when not needed provides benefits. These benefits can be a reduction in the amount of heat generated by the system (as described above), the freeing up power for use by other components when necessary, as well as a reduction in the electrical cost incurred by a user for the operation of the system. Therefore, in my opinion, a POSITA would not design a videocall system to have the camera always on and capturing and storing unused frames of data because the camera would otherwise be unnecessarily using power resources, with the attendant consequence of heat generation.

8. With respect to the unnecessary consumption of computational resources, as I stated in my deposition, any time a component (in this case a camera) is on and actively processing information, then the camera would be using some portion of the overall or total available computational (i.e., processing) capability of the system. (Ex. 2020, 63:25-64:18). Thus, if the camera were to always be on as Dr. Bystrom proposes, then the camera must be processing some form of information (e.g., a few frames every so often); or in the example I provided in my deposition, a scene that is dark if the lens cap were to be on the camera. *Id.* Additionally, the processed data would need to be handled as well (e.g., stored in memory for use if needed). This means that the “frames” that were captured by the camera and

processed would need to be stored in some form of memory, even if for a short period of time. A camera that is always on yet not being used would then consume a portion of both the processing and memory resources available to a system that could otherwise be allocated to system components that are actively being used. The use of both computational and memory resources for something that is not going to be used in any way by the system is simply a waste of those resources. Furthermore, for all the reasons that I have pointed out above, just because a camera could be designed to be always on does not mean that a POSITA would have found it desirable to do so, as Dr. Bystrom suggests.

9. Finally, A PHOSITA would have understood that allowing the camera to be rendered operative upon the receipt of an incoming video phone call would have been sufficient to reduce the lag time yet still provide the end user with privacy when not performing a videocall. As I stated in my deposition, “[any time] there is a camera that is aimed at you, it has the potential to violate your privacy....” *Id.* at 59:24–60:6. Thus, only rendering the camera operative when there is a need for it (i.e., performing a video call) ensures that a person’s privacy is maintained the remainder of the time. To reduce lag time, it would be desirable to render the camera operative upon receipt of the videophone call, as opposed to the system waiting to render the camera operative upon the called party answering the call. With the camera being rendered operative in this way, as soon as the called party answers the

call, the camera would capture, process, and transmit video data without delay. This is the same reasoning that I put forth in my declaration. *See* Ex. 1003, ¶ 141.

10. A camera that operated in this way would be off when not in use to ensure that the user maintains their privacy while minimizing the consumption of power and processing resources in the system, yet still allow for quickly rendering the camera operative for video calls. It would have been simple to utilize the same signal that notifies the set top terminal of an incoming video call to also notify the camera to become active and start generating frames for output to another set top terminal. From the viewpoint of the end user, this would have provided a seamless transition from watching a video program to performing a video call without any unnecessary wait time.

III. CONCLUSION

I declare that all statements made herein of my knowledge are true, and that all statements made on information and belief are believed to be true, and that these statements were made with the knowledge that willful false statements and the like so made are punishable by fine or imprisonment, or both, under Section 1001 of Title 18 of the United States Code.

Date: 29 December, 2020

By: 

Andrew Lippman, Ph.D.