

1
2 UNITED STATES PATENT AND TRADEMARK OFFICE

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4
5 BEFORE THE PATENT TRIAL AND APPEAL BOARD

6
7 VALVE CORPORATION,
8 Petitioner,

9 v.

10 IRONBURG INVENTIONS LTD.,
11 Patent Owner.

12
13 Case IPR2017-00136
14 Patent 8,641,525

15
16 *and*

17 Case IPR2017-00137
18 Patent 9,089,770

19
20 **EXPERT DECLARATION OF DAVID REMPEL, M.D., IN SUPPORT OF**
21 **PETITIONER'S REPLIES TO THE PATENT OWNER RESPONSES**

22 Mail Stop: PATENT BOARD
23 Patent Trial and Appeal Board
24 U.S. Patent and Trademark Office
25 P.O. Box 1450
26 Alexandria, VA 22313-1450

27 I, David Rempel, M.D., hereby declare as follows:

28 ***EXHIBIT LABEL:***

Valve Corporation's Exhibit No. 1013
Valve Corporation (Petitioner) vs.
Ironburg Inventions Ltd (Patent Owner)

1
2 1. I have been retained by Valve Corporation to provide my opinions as
3 an expert witness regarding certain questions regarding the Patent Owner Reponses
4 filed in the subject IPR proceedings.

5 2. In forming the opinions stated in this declaration, I reviewed the expert
6 declarations by Dr. Glen Stevick and the Patent Owner Reponses filed in cases
7 IPR2017-00136 and IPR2017-00137, U.S. Patent 8,641,525 (hereinafter the “’525
8 patent”), U.S. Patent 9,089,770 (hereinafter the “’770 patent”), U.S. Patent
9 6,362,813 to Wörn et al. (hereinafter “Wörn”), U.S. Patent 6,153,843 to Date, et al.
10 (hereinafter “Date”), U.S. Patent 6,364,771 to Lee (hereinafter “Lee”), U.S. Patent
11 Application Publication 2010/0073283 to Enright (hereinafter “Enright”), and U.S.
12 Patent 4,032,728 to Oelsch (hereinafter “Oelsch”).

13 3. Information about my education, experience, publications, and awards
14 are provided in my previous declarations filed as Exhibits 1009 and 1011 in the
15 subject IPR proceedings, and in my CV filed as Exhibit 1010 in the subject IPR
16 proceedings.

17 OPINIONS

18 4. The specification and claims of the ’525 patent, and of the ’770 patent,
19 are focused on the superficial ergonomic characteristics of a disclosed controller,
20 which affect finger and thumb positioning relative to buttons and levers. Such
21 ergonomic characteristics are potentially applicable to all controllers that are shaped
22 to be held in the hand of a user, not just controllers that are used to control video
23 games. For example, such ergonomic characteristics are potentially applicable to
24 hand-held controllers that are used to control a robot, like the controller disclosed by
25 Wörn, or any of the video game controllers that have been commonly repurposed by
26 hobbyists to control so-called “battle bot” hobby robots since before 2011, etc.

27 5. None of the structural limitations in the body of claim 20 of the ’525
28 patent, or in the body of claim 1 of the ’770 patent, is exclusive to only controllers

1 that are used to control video games, but rather each also provides utility to
2 controllers that are used outside of the statement of intended use in the preamble.
3 Accordingly, one of ordinary skill in the art would consider the statements of
4 intended use in the preambles of those claims to be exemplary rather than exclusive
5 and limiting.

6 6. In 2011, hand-held controllers, such as those described and claimed in
7 the '525 patent and in the '770 patent, provided inputs to a downstream
8 microprocessor, so that it would make no substantial difference to the hand-held
9 controller whether the downstream microprocessor interpreted such controller inputs
10 to operate a game (making that microprocessor a “game console”), or instead
11 interpreted the controller inputs for a non-gaming purpose such as operating a real
12 robot.

13 7. It was well known in 2011 that programming a downstream
14 microprocessor could flexibly enable the same hand-held controller to operate many
15 different games, and even to control systems that are not games. For example, it was
16 common in 2011 for programmers to leverage the same inputs from the same hand-
17 held controller for both a primary purpose (e.g. to control a video game), and also
18 for secondary and alternative purposes such as allowing a user to navigate menus for
19 selecting system settings.

20 8. From an ergonomic viewpoint, and considering the placement and
21 length of buttons and levers relative to fingers and thumbs – which is the focus of
22 both the '525 patent the '770 patent – it makes no difference whether the hand-held
23 controller ultimately controls a downstream microprocessor that operates a real
24 robot or a virtual robot in a game.

25 9. One of ordinary skill in the art in 2011 would know that the hand-held
26 robot controller disclosed by Wörn would necessarily have an analog or digital
27 electronic output, and such output would inherently have utility to also control a
28 simulated robot as part of a video game running on a game console. Hence, one of

1 ordinary skill in the art would understand that the hand-held controller disclosed by
2 Wörn inherently has utility as a video game controller and provides an output that is
3 capable of use for a game console.

4 10. It was well known in 2011 that a personal computer could be
5 conventionally programmed to function as a game console to run a video game.

6 11. One of ordinary skill in the art would consider the rounded corners of
7 the Wörn controller to be convex portions of the bottom edge of that controller, as
8 those terms are used in claim 3 of the '770 patent. For example, each is convex
9 because it is not straight or concave, is part of the bottom edge, and helps to define
10 an outer portion of the Wörn controller that is held by the user (i.e., a handle). One
11 of ordinary skill in the art would consider the outermost portions of the Wörn
12 controller, including the grip strips and the outer edges of the housing, to serve as
13 and be handles. *See*, for example, Wörn at 4:63-5:3, and at 2:48-54.

14 12. One of ordinary skill in the art in 2011 would consider it obvious,
15 without reference to the '525 or '770 patents, to choose to use a conventional screw
16 fastener to mount a control (e.g. an elongate member as disclosed by Burgess) to the
17 back of a hand-held controller. The results of using a conventional screw for
18 mounting in this way would be predictable to anyone of ordinary skill in the
19 mechanical arts, including in the hand-held controller art.

20 13. Wörn is expressly concerned with ergonomic characteristics of a hand-
21 held controller, hand fatigue, and allowing the switching keys 21 to be operated
22 without moving the thumbs. *See*, Wörn at 2:48-3:13. Hence, one of ordinary skill in
23 the art would look to references and devices like and including that disclosed by
24 Wörn, when solving ergonomic problems with hand-held controllers – whether for
25 the control of robots or for the control of video games – including the ergonomic
26 problems addressed by the '525 patent and '770 patent.

27 14. One of ordinary skill in the art, would understand the phrase “hand-
28 held” in the context of the '525 and '770 patents, according to its ordinary meaning

1 as used commonly in the English language. One of ordinary skill in the art would
2 not assign a special narrow meaning to the phrase that differs from its ordinary
3 broad meaning. I disagree with Dr. Stevick's opinion that the phrase should be
4 construed to mean: "designed to be held in and operated by a user's hand or hands in
5 normal use and without the need for external support." On the contrary, one of
6 ordinary skill would not assume that the phrase excludes hand-held controllers that
7 use or rely upon some "external support," nor is there necessarily any "normal use"
8 requirement to the phrase "hand-held."
9

10 15. I carefully considered the arguments, support, and associated
11 annotations to Fig. 3 of the '525 patent shown in paragraphs 57-60 on pages 15-16
12 of the Declaration of Dr. Glen Stevick in Support of the Patent Owner Preliminary
13 Response (Ironburg's Exhibit 2002) in IPR2017-00136, and I disagree with its
14 conclusion for the reasons stated in ¶¶ 15-16 herein. The only type of convergence
15 that is actually shown in any figure of the '525 patent is convergence towards the
16 top edge of the controller (*i.e.*, towards the top edge of the page).

17 16. The lack of antecedent basis for "the front end" in claim 13 of the '525
18 patent, suggests that the phrase "the front end" in claim 13 was a typographical
19 error. Convergence of the elongate members 11 towards the "front" (into the page)
20 cannot possibly be shown from the viewing angle that the patentee chose for Figs. 2
21 and 3 of the '525 patent, and indeed is not shown anywhere in the '525 patent
22 drawings. Hence, it is unlikely that the phrase "the front end" in claim 13 of the
23 '525 patent was actually meant to refer to the front of the controller.

24 17. The convergence of the elongate members 11 that is actually shown in
25 Figs. 2 and 3 of the '525 patent, and the associated description at 3:51-56, suggests
26 to one of ordinary skill in the art that the meaning of "the top edge" was intended by
27 the claim phrase "the front end" in claim 13.

28 18. One of ordinary skill in the art would understand that, in the context of
the '525 patent, an inherently resilient and flexible elongate member need not be

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