UNITED STATES PATENT AND TRADEMARK OFFICE

BEFORE THE PATENT TRIAL AND APPEAL BOARD

DYNACRAFT BSC, INC.,
Petitioner,

v.

MATTEL, INC.,
Patent Owner.

Case IPR2018-00039
Patent 7,950,978

DECLARATION OF ROBERT E. MIMLITCH, III

I, Robert E. Mimlitch, III, declare as follows,

1. I am one of the named inventors of U.S. Patent Nos. 7,222,684 and 7,950,978, both entitled "System, Apparatus, and Method for Providing Control of a Toy Vehicle."

2. I am the Chief Technological Officer and a Co-Founder of Innovation First International Inc., a company with its headquarters in Greenville, Texas.

3. Innovation First is a design and engineering company that focuses in large part on robotics-based toys for educating and entertaining children. Specifically, Innovation First currently sells its HEXBUG and VEX Robotics to children of varying ages.

4. I joined Innovation First in 1999, and have worked there continuously since.

5. Prior to Innovation First, I was a Senior Mechanical Engineer at Raytheon E-Systems. I worked at Raytheon for the 11-year period from 1988 to 1999.

6. Prior to Raytheon, I was a student at Texas Tech University. I graduated from Texas Tech in 1988 with a Bachelor of Science degree Mechanical Engineering.

7. Prior to focusing on child robotics, Innovation First was involved in motor speed control. It was during that time period that Innovation First worked with Mattel's Fisher-Price Power Wheels group on designing speed control circuitry for children's ride-on products.

8. With respect to the '684 and '978 patents, Innovation First worked with Mattel to seek to find a way to more safely design the drive system of a battery-powered ride-on. These products present several unique challenges to developers. First, there are several safety considerations that are critical. Many of these concerns stem from the unpredictable way in which children drive these vehicles. For example, children often slam the direction shifters from forward to reverse, or vice versa, while the motor is fully powered. This, and the on/off nature of

these motors, can lead to jerkiness and lurching. When this is combined with other variables such as driving on hills or heavy child occupants, there is even a rollover threat.

9. Making the situation even more challenging is that the safety concerns need to be addressed within very specific cost and design constraints. On the cost side, ride-ons are often cost challenged because consumers will only spend a certain amount on these items, usually topping out at a few hundred dollars. This factor prevents the ability to add costly, overly complicated components that consumers will not pay for, and safety innovations must still allow the final vehicle to fit within these price ranges. One way to make these safety innovations acceptable with respect to cost is to incorporate them into existing drive systems. Total redesigns are more costly.

10. Working within a more established drive system also helps address several of the design constraints that are present. Children drive these vehicles erratically at times by, for example, stomping and releasing the foot pedal forcefully when they jump into and out of the vehicle. As a result, these foot pedals tend to be basic, two-state, on-off buttons that are covered by a plastic cap made to look like a car's gas pedal. The button is spring loaded to the off position so that the motor is immediately disengaged when the child releases the pedal to, for example, jump out of the vehicle. The direction shifters also present a challenge because they must be easy enough to operate for a child, but the child can often almost immediately switch motor direction from forward to reverse.

11. Prior to these patents, Mattel approached Innovation First and requested that we make a speed controller for use with their Fisher-Price Power Wheels battery-powered ride-on vehicles. One of the ideas that Mattel suggested was a proportional throttle pedal that would allow the child to more gently and gradually increase the speed of the vehicle. We did not feel

that to be a practical solution at the time. Children are still prone to stomp this type of pedal and override the proportional nature of the pedal. These controls also added considerable cost that made this approach impractical at the time.

12. After considerable effort, it was determined that the best course would be to add soft-start circuitry to the existing on/off drive system that would be able to first detect a change in the signal created by the on/off throttle pedal, and delay the time over which that change in motor speed was implemented. That work is reflected in the '684 and '978 patents. We were working with a throttle signal that only had two possible levels, one correlating to "off" and one to "on." A two-state, digital signal like this is commonly referred to as a binary signal.

13. I have reviewed Dynacraft's proposed level of ordinary skill in the art, and feel that it does not adequately include experience with the design concerns particular to children's battery ride-ons. I have designed many types of speed control systems, and the design and engineering considerations relevant to children's ride-ons are quite different in several respects. Accordingly, I feel that at least a year designing these products is important in the person of ordinary skill in this art. Children's ride-ons have several technical and cost considerations that are simply relevant to other types of vehicles. Many of these considerations are discussed above and set forth in the '684 patent.

14. At the request of Mattel, I have reviewed U.S. Patent No. 4,634,941 to Klimo and understand that it is being used in an obviousness challenge to the '684 and '978 patents. One of skills in the art at the time of the '684 and '978 patents would not have used the Klimo patent in designing a battery-powered children's ride-on for several reasons:

- The circuitry of Klimo is far too complicated and costly for inclusion in a children's ride-on in my opinion.

- As described in the paragraphs above, the proportional controls that Klimo requires would not in my opinion have been conducive to a child's ride-on at the time. If anything, Klimo reinforces and illustrates why our decision to go away from these sorts of controls was the correct one, because this sort of circuitry would not work and would not be affordable in the context of a child's battery-powered ride-on.
- In my reading, the essence of the invention in Klimo is a wheelchair that employs particular circuitry that maintains wheelchair speed, particularly under low-battery conditions. Such circuitry has no relevance to designing children's ride-ons, in part because low battery conditions, if anything, make children's ride-ons safer. While motor ramping is mentioned, motor ramping in a general sense was known. What was not known, and what the '684 and '978 patents generally relate to, was motor ramping under the specific drive system parameters most conducive to making a child's ride-on better performing and safer, and doing so in a cost effective manner.

I declare under penalty of perjury pursuant to 28 U.S.C. § 1746 that the foregoing is true and correct.

2018 JAN 18
Date

Robert E. Mimlitch, III