

## Homework 10: Patent Liability Analysis

**Team Code Name:** The “Drink Mixer”                      **Group No.** 2

**Team Member Completing This Homework:** Adam Johnson

**E-mail Address of Team Member:** AJ@ purdue.edu

### Evaluation:

SCORE	DESCRIPTION
10	<i><b>Excellent</b> – among the best papers submitted for this assignment. Very few corrections needed for version submitted in Final Report.</i>
9	<i><b>Very good</b> – all requirements aptly met. Minor additions/corrections needed for version submitted in Final Report.</i>
8	<i><b>Good</b> – all requirements considered and addressed. Several noteworthy additions/corrections needed for version submitted in Final Report.</i>
7	<i><b>Average</b> – all requirements basically met, but some revisions in content should be made for the version submitted in the Final Report.</i>
6	<i><b>Marginal</b> – all requirements met at a nominal level. Significant revisions in content should be made for the version submitted in the Final Report.</i>
*	<i><b>Below the passing threshold</b> – major revisions required to meet report requirements at a nominal level. <b>Revise and resubmit.</b></i>

\* Resubmissions are due within **one week** of the date of return, and will be awarded a score of “6” provided all report requirements have been met at a nominal level.

### Comments:

## 1.0 Introduction

The “Drink Mixer” is a digital audio mixer with individual input equalizer control as well as master output control. The goal of this project is to create a great sounding board with low noise and effects processing capability. Naturally, other entities may have had similar aspirations in the past, and if so, there may be patents on the design we are creating. The goal of this report is to identify any patent liability issues the Drink Mixer may encounter should it enter production and market.

## 2.0 Results of Patent and Product Search

There are many patents for audio mixing devices. Most fall within one of two types. The first type consists of patents on a method or device for audio mixing. Usually these patents describe how signals are processed, the number and type of inputs and outputs, and include a detailed block diagram. The second type consists of patents on the “ornamental design” of a mixing device. These patents generally contain many figures of the mixer’s packaging and user interface layout. The following is an analysis of several patents which are representative of the variety of audio mixing patents in the U. S.

Patent #1: Integrated Audio Mixer, Issued Nov. 28, 2000

This patent was issued for “an integrated, multi-input audio mixer...digitizing the analog input signals, digitally processing and mixing the digitized input signals and producing both digital and analog representations of the mixed inputs” [1]. The patent is for a particular type of signal processing and mixing used in a device. Its pages are mostly filled with block diagrams indicating the particular niche of mixing that the patent protects. For this particular patent, the inventors are protecting the ability to do certain computations on analog signals and then converting them to digital versions to do other transformations. The “Drink Mixer” does not implement a signal processing scheme identical to that presented in the patent. Also, many diagrams of “prior art” are referenced by the patent. The prior art describes a general form of additive signal mixing more akin to the signal processing of our device.

Patent #2: Audio Mixer, Issued Apr. 20, 1999

This patent describes an audio mixer which has an effects processor whose output is separate from its “dry output” (mixed audio without effects). In the patented design, the effects output and dry output are computed separately and then mixed together by a mixing bus. While this

design is interesting and could have potentially posed a problem for us, the “Drink Mixer” is similar in design to the prior art which is referenced in the patent, and not the patented signal processing scheme.

Patent #3: Digital Audio Mixer, Issued Feb. 5, 2002

This patent is an example of a patent on “the ornamental design for a digital audio mixer as shown and described” [3]. The document consists primarily of figures detailing the device’s physical appearance and control layout. The patent is not for the processes that the device carries out, but rather for the unique physical design that the user interacts with. There are many examples of similar patents, each with a somewhat different user interface and package shape or style.

### **3.0 Analysis of Patent Liability**

Because our design is an audio mixer, many examples of similar devices exist in the market. There are numerous examples of prior art, and so the basic concept of our device, a machine that performs additive operations on signals, is not patentable. Patents (like the Integrated Audio Mixer) do not include the basic concepts that the “Drink Mixer” employs, and so there is no infringement. Also, the “Drink Mixer” does not infringe upon patents for ornamental designs of mixers, unless there exists somewhere a patented audio mixer with packaging and user interface identical to our project.

### **4.0 Action Recommended**

The Drink Mixer’s design is such that it does not infringe upon any patents known to the design team. Therefore, no legal action is necessary. This is because an audio mixer is based mostly upon prior art, which is not patentable. If we change our design to incorporate a novel and interesting feature (something more “inventive” than adding audio signals together and performing a few basic effects on them), then further research will be necessary to determine if the new features infringe upon any existing patents. For now, we seem to be legal.

### **5.0 Summary**

The “Drink Mixer” is a digital audio mixer, and will hopefully be a great sounding audio product. This report has shown that the “Drink Mixer” is free of patent infringement, both literally and under the doctrine of equivalents. This is because the concept of mixing audio is

rather old, and cannot be patented as it is not novel or interesting (in a legal way at least). This was demonstrated by citing patents of several types and discussing the reasons that the “Drink Mixer” does not infringe upon them. Patents on “ornamental design” are specific to a certain manufactured product’s packaging and control layout and do not pose a threat of infringement. Patents describing audio mixing systems reference the “Drink Mixer’s” functions as prior art, and so cannot claim infringement.

**List of References**

- [1] Carlos Azeredo Leme et al., "Integrated Audio Mixer," U. S. Patent 6,154,161, November 28, 2000.
- [2] Norman F. Williams, Jr, "Audio Mixer," U. S. Patent 5,896,459, April 20, 1999.
- [3] Haruki Takita et al., "Digital Audio Mixer," U. S. Patent US D453,327 S, February 5, 2002.