

## Patent Protection & Registration

[Patents](#) grant property rights on new and useful inventions, allowing the patent holder to prevent others from using, making, or selling that invention without permission for a limited time. U.S. patents are permitted by the U.S. Constitution and are designed to promote scientific progress and invention. By allowing inventors to profit from licensing or selling their patent rights, inventors can recoup their research and development costs and benefit financially from their inventing efforts. There are three main types of patents utility, plant, and design. Utility and plant patents can last up to 20 years, while design patents can last up to 15 years. When a patent expires, the patented material enters the public domain, making it free to use by anyone without a license. U.S. patents are issued by the [United States Patent and Trademark Office \(USPTO\)](#).

[U.S. Patent No. 11,649,182](#) entitled “Method of Regulating One or More Component Values in Monochloramine Production Using Real-Time ElectroChemical Sensing” issued May 16, 2023 to Buckman Laboratories International, Inc. of Memphis, Tennessee. Invented by Eddie Van Haute, Luc Masure, Edmund Scott and Mark Conyngham of Memphis, Tennessee. **Abstract:** System (100) and method of automatically controlling an active oxidant concentration (e.g. sodium hypochlorite) for a process of producing monochloramine comprising applying metered amounts of an oxidant solution and an amine solution to a defined area (114). An electrochemical measurement device is provided in association with the oxidant solution and prior to the defined area, N comprising at least first and second electrodes and an output terminal. A predetermined voltage potential is applied across the first and second electrodes, wherein an obtained amperometric measurement corresponds to a real-time concentration of the active oxidant in the oxidant solution. A feedback signal is generated based on the obtained measurement via the output terminal to a controller (108), which automatically regulates, in real-time and based at least in part on the control signal, the metered amount of oxidant solution provided to the defined area.

[U.S. Patent No. 11,647,686](#) entitled “System and Method for Communicating the Presence of Proximate Objects in a Working Area” issued May 16, 2023 to Deere & Company of Moline, Illinois. Invented by Michael G. Kean and Drew F. Harwell of Dubuque, Iowa. **Abstract:** A self-propelled work vehicle is provided with systems and methods for communicating the presence of nearby objects to an operator. A horizontally rotatable machine frame supports a work implement which is further vertically rotatable. Various object sensors are each configured to generate object signals representative of detected objects in respective fields of vision. A controller determines a working area for the work vehicle, corresponding at least to a swing radius of the machine frame and optionally further to a swing radius of the work implement at a given orientation and/or angle of rotation. The controller determines positions of each detected object relative to the machine frame based on the object signals and known positions of the respective object sensors, and generates output signals based on the

determined object positions with respect to the working area. The output signals may facilitate vehicle interventions, and/or visual alerts corresponding to bird's eye displays.

[U.S. Patent No. 11,648,618](#) entitled "Self-Sharpening Cutting Tooth for a Felling Apparatus" issued May 16, 2023 to Deere & Company of Moline, Illinois. Invented by Adam G. Harwood and Russell R. Reeg of Dubuque, Iowa. **Abstract:** A cutting tooth includes a tooth body having a mounting side, a front face spaced from the mounting side, and a plurality of lateral faces extending between the mounting side and the front face, the tooth body having an interior hardness, and a coating applied to at least one of the lateral faces to form a lateral hardface, the lateral hardface having a hardface hardness greater than the interior hardness, an edge of the lateral hardface closest to the front face and a portion of the front face adjacent the edge of the lateral hardface defining a cutting edge region of the tooth.

[U.S. Patent No. 11,653,127](#) entitled "Monitoring Voltage Measurements for a Vehicle Battery" issued May 16, 2023 to Webfleet Solutions B.V. of Amsterdam, Netherlands. Invented by Christian Meißner of Leipzig, Germany; Martin Marenz of Leipzig, Germany; Lydia Hopp of Leipzig, Germany; Lily-Belle Sweet of Leipzig, Germany and Paul Roeland Verheijen of Verheijen, Netherlands. **Abstract:** A server (16) arranged to automatically detect replacement of a vehicle battery (6) associated with a vehicle engine (5) comprises: a communications device (20) configured to receive vehicle battery voltage measurements from a telematics device (10) connected to or incorporating a voltage monitoring unit for the vehicle battery (6); and one or more processors (18) configured to process the vehicle battery voltage measurements. The processor(s) (18) monitor the voltage measurements in a first time window corresponding to an engine off state and assess when the voltage measurements in the first time window indicate a step change in voltage magnitude at a given time. The step change is then used to automatically identify a vehicle battery replacement event.

[U.S. Patent No. 11,649,951](#) entitled "Manufacturing of Light Emitting Modules" issued May 16, 20223 to Tractor Supply Company of Brentwood, Tennessee. Invented by Brian Kennemer of Chapel Hill, Tennessee; Christian D. Fogg of Columbia, Tennessee and Fan Shi Jun of Guangzhou, China. **Abstract:** The present disclosure relates to a method of manufacturing a tamper proof light emitting module comprising the steps of (a) pre-assembling the light emitting module into a testing configuration including a housing and one or more light emitting elements mounted within the housing, the housing including first and second housing components connected together using at least one removable fastener connecting the first and second housing components; (b) testing the light emitting module to confirm the light emitting elements are operable; (c) after step (b), removing the removable fastener; (d) replacing the removable fastener removed in step (c) with at least one breakaway fastener; and (e) tightening the breakaway fastener(s) until the head of the breakaway fastener(s) breaks off so that the breakaway



fastener(s) is no longer removable, thereby creating a final, tamper proof configuration of the light emitting module.