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. 11,873,621 entitled "System and Method for Tracking Motion of Linkages for Self-Propelled Work Vehicles in Independent Coordinate Frames" issued January 16, 2024 to Deere & Company of Moline, Iowa. Invented by Michael G. Kean of Maquoketa, Iowa. **Abstract:** A system and method are provided for controlling movement of an implement for a self-propelled work vehicle, said implement comprising one or more components coupled to a main frame of the work vehicle. A linkage joint in defined in association with at least one implement component, wherein sensors are respectively associated with opposing sides of the linkage joint. Output signals from each sensor comprise sense elements which are fused in an independent coordinate frame associated at least in part with the respective linkage joint, wherein the independent coordinate frame is independent of a global navigation frame for the work vehicle. At least one joint characteristic (e.g., joint angle) is tracked based on at least a portion of the sense elements from the received output signals for each of the opposing sides of the respective linkage joint. Movement of implement components may optionally be controlled in view of the tracked joint characteristics.

U.S. Patent No. 11,872,850 entitled "System and Method for Tire Vertical Load Prediction" issued January 16, 2024 to Bridgestone Americas Tire Operations, LLC of Nashville, Tennessee. Invented by Thomas A. Sams of Akron, Ohio. **Abstract:** A computer-implemented method as disclosed enables predicting of vertical loads on a vehicle tire. Thermal characteristics for a particular vehicle-tire combination are retrievably stored, the thermal characteristics determined as corresponding to a range of temperature values further correlated with a plurality of operating conditions, and the plurality of operating conditions comprising at least a vertical load. A model for predicting transient temperature behavior is generated (e.g., empirically trained) based on one or more tire-specific time constants. During operation of the vehicle-tire combination and responsive to at least a first temperature value, a computing device residing on the vehicle or otherwise cloud-based in nature is configured to determine a predicted vertical load based on a predicted second temperature value from the model and further based on the retrievably stored one or more thermal characteristics.

U.S. Patent No. 11,873,622 entitled “Automated Detection of Mistrack Conditions for Self-Propelled Work Vehicles” issued January 16, 2024 to Deere & Company of Moline, Iowa. Invented by Amol Phadtare of Pune, India; Balkrishna Joshilkar of Gadhinglaj, India; Lance R. Sherlock of Asbury, Iowa; Pramod Karle of Bhosari, India and Abhishek Garg of Udaipur, India. **Abstract:** A system and method are provided for determining mistrack conditions in work vehicles such as excavators having first and second tracks. A controller uses data from onboard sensors (e.g., cameras, lidar) having an external field of view to detect a first position of, e.g., a track of the work vehicle relative to a first external point in a local reference system independent of a global reference system and to detect, upon the work vehicle having advanced from the detected first position a predetermined distance, a second position of the at least first component of the work vehicle relative to a second external point in the local reference system. The controller further determines an amount of mistrack error corresponding to a difference between the detected second position and an expected second position, and generates an output signal based on the determined amount of mistrack error.