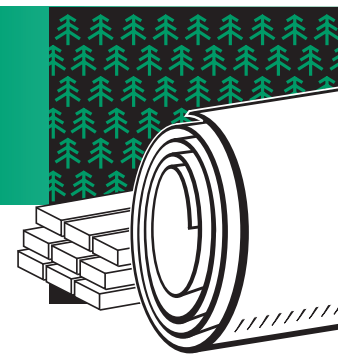


# FOREST PRODUCTS

## Project Fact Sheet



## APPARATUS FOR REMOVING BARK FROM WHOLE LOGS

### BENEFITS

- Energy savings of 33 percent in debarking energy requirements and less product damage
- Decreases transportation costs by eliminating need for off-site debarking
- Increases economic value of wood products by inflicting less damage on logs during debarking process so wood can be used for high-value economic products
- Saves trees by allowing greater portion of tree to be used
- Increases production efficiency by giving debarking operator greater process control

### APPLICATIONS

The current trend in the wood and pulp industry is to debark and size the logs on the site of the lumbering operations, then ship the pulp chips and logs to their respective processing facilities off site. The cradle designed debarking system is employed on-site and thus is considered to have promising commercial prospects. This invention was developed for the forest industry where almost 5,000 debarking units are used industrywide in the United States.

## REMOVING BARK FROM LOGS WITH THE CRADLE DEBARKER™ SAVES TREES, INCREASES PRODUCT VALUE AND LOWERS PRODUCTION

Debarking logs with the Cradle Debarker will save trees, production costs and increase the economic value of wood products. Unlike current debarking methods that require logs to be debarked at a special facility, then shipped to sawmills for further processing, the Cradle Debarker can be used on-site. This saves time and transportation costs. Its innovative open-top design allows for greater operator control and improves product quality.

A key feature of the Cradle Debarker is its open design. Unlike drum debarkers, which use a covered cylinder, the open top of this debarker lets the operator remove stems that have completed the debarking process and recycle others that require further processing. By opening the top of the debarker, more of the tree being debarked can be used, which saves trees. The open-top design also gives the debarking operator the opportunity to tailor the process to each species of tree being debarked, improving wood quality and increasing its use in the making of high-value wood products.

### CRADLE DEBARKER™



Replacing the “closed drum” debarking technology method used in the forest industry with the “open drum” debarking method saves time, production costs and trees.



## Project Description

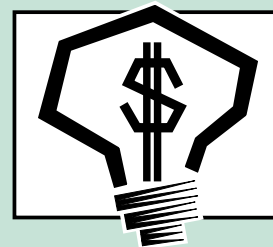
**Goal:** The goal of this project is to build a pilot plant to study and optimize operating parameters that are specific to the debarking needs of a particular product and tree type.

The invention is a machine designed to remove bark from delimbed tree stems. The stems are loaded into a long trough that contains a series of horizontal and vertical conveyor chains that move and raise the stems so they can be dropped back onto the stems remaining in the pile. The conveyor chains are oriented at a slight angle to the path of the logs so the logs move along the trough. The bark is loosened and removed due to the compressive and shear forces that result from the impact of the stems. Abrasion from moving the logs into position to drop onto the pile also contributes to the bark removal. Once the logs are debarked, they can be used for veneer, can be sawed into boards, or can be made into pulp chips.

Dieter Bryce, Inc., is developing this new technology with the help of a grant funded by the Inventions and Innovation Program through the Department of Energy's Office of Industrial Technologies.

## Progress and Milestones

- A prototype was developed and tested.
- The process performance was validated.
- The invention was developed to the commercial validation and production stage.



The Inventions and Innovation Program works with inventors of energy-related technologies to establish technical performance and conduct early development. Ideas that have significant energy savings impact and market potential are chosen for financial assistance through a competitive solicitation process. Technical guidance and commercialization support are also extended to successful applicants.

### PROJECT PARTNERS

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## INDUSTRY OF THE FUTURE—FOREST PRODUCTS AND AGENDA 2020

In November 1994, DOE's Secretary of Energy and the Chairman of the American Forest and Paper Association signed a compact, establishing a research partnership involving the forest products industry and DOE. A key feature of this partnership was a strategic technology plan—**Agenda 2020: A Technology Vision and Research Agenda for America's Forest, Wood and Paper Industry**. Agenda 2020 includes goals for the research partnership and a plan to address the industry's needs in six critical areas:

- Energy performance
- Environmental performance
- Capital effectiveness
- Recycling
- Sensors and controls
- Sustainable forestry

For each of these areas, task groups including industry, university and government representatives have developed detailed research agendas called research pathways—all of which are consistent with Agenda 2020's goals.

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