



“Chunker” Makes Wood Gas Fuel Fast

Wayne Keith has driven 250,000 miles in vehicles powered by wood gas over the past 10 years (see Vol. 33, No. 2). Little chunks of wood work best in his wood-powered trucks. So, he designed a “chunker” that busts scrap wood into easy-to-handle pieces.

“If I had to buy wood, driving my trucks around would cost less than a penny a mile. But because I use waste from my sawmill, I am driving around for free,” he says. “My home-built chunker can chop enough sawmill slabs into fist-size chunks in a morning to take me to California and back.”

The wood chunker is crude, but it gets the job done. Keith used a rear axle from an International truck and attached a cutting surface to one end with the other end welded solid so it doesn’t rotate. A pto shaft attached to the differential extends through a heavy cast brake drum that serves as a flywheel.

“The flywheel smoothes out the power requirements and allows faster operation,” says Chris Saenz, Keith’s assistant.

The axle is reinforced by several pieces of channel iron. Other channel iron pieces serve as legs to provide a comfortable working height, bringing the pto shaft level with the small tractor that powers it.

The chunking action is provided by the inner edge of a heavy steel rim mounted on the axle. The inner rim edge has been trimmed on the bias like a spiral, so as it rotates, the edge varies from nothing to full width.

A length of cross-reinforced channel iron mounted just ahead of the cutting rim serves as an anvil. A steel plate welded perpendicular to the channel iron is a backstop for pieces of wood inserted into the blade.

As the drum rotates, Keith inserts a branch or piece of slab wood. As the drum edge rotates, it breaks off chunks at a rate of 70 to 80 per min.

A small nipper blade on the other side of the drum rotates through a notch in the anvil. “The nipper starts a split in wide boards,” explains Saenz. “Once inserted into the chunker, the split will continue down the length of the board, making two pieces instead of one.”

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Lawson helps customers develop fish and animal feed pellets.



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Start A Business With Pelletizer

Paul Lawson doesn’t just sell pelletizers; he helps customers add new products and even build new businesses. Lawson Mills Biomass Solutions’ LM-72 pellet systems are midsize machines that can process up to 1,000 lbs. per hour. The company works with customers to develop products and customize systems as needed in the company’s test facility.

“Our pellet systems can produce fuel pellets from virtually any biomass,” says Lawson. “However, we also help customers develop fish and animal feed pellets and other specialty uses. We have designed over 50 different die combinations and worked with hundreds of different products.”

Lawson pellet systems have turned recycled wallboard into gypsum pellets that can be spread on fields or added to ponds to reduce acidification. Lawson developed a die that helped a coffee roaster pelletize chaff otherwise discarded, yet worth \$13/lb. in coffee flavor and oils.

“One of our biggest success stories was working with a co-op of hops growers,” says Lawson. “Hops are very light and fluffy, and shipping them any distance is very expensive due to bulk. We redesigned the roller and die to pelletize the hops without generating the heat that would have affected flavor. It cut shipping and handling costs and made it easier for the brewers as well.”

Lawson’s low temperature pelletizing has proven beneficial for preserving medication and other feed additives. One small feed producer paid for his system in only three months by using it to make horse feed that included herbs and seaweed with the low temperature system. The pelletizers can handle mixed wet and dry materials, such as combining flax meal and alfalfa with molasses.

Lawson offers test pelletizing of various

ingredients at no cost to prospective and current customers. He says it can pay even if he doesn’t sell a machine.

“We had a guy in California ask us to pelletize pine cones for fuel pellets, as they are a fire danger in his area,” says Lawson. “We proved it could be done, and then he bought a larger industrial system. However, we learned how to pelletize pine cones if someone else wants to do it. We’ve pelletized pine needles, too.”

The pellet systems are assembled from German and Canadian-made parts for high quality and long life. His smallest mill is priced at \$31,000 (Canadian), installation and training included. The largest pelletizer offered by Lawson is \$46,000, with touch screen controls, feed, conditioners, moisture injection, cooling and screening mechanisms.

While Lawson admits much cheaper systems are available, they often don’t work up to expectations and sometimes not at all.

“You wouldn’t believe how many machines we have installed where a cheap Chinese-made pelletizer sat in the corner unused,” says Lawson. “Ours are built to run 24/7 and can be linked if greater volume is needed. Most pellets can be made for around \$10 per ton. Most of our customers pay for their systems within the first year.”

The company also offers hammer mills, hay bale breakers, grinders, augers and conveyers. Like the pellet systems, these too are high quality machines sized to match the LM-72 systems. Leased equipment is also available.

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