

## “Breakthrough” System Makes Building Panels Out Of Straw

According to the story about the three little pigs, straw isn't a good building material. But that hasn't stopped David R. Ward, a former building contractor from Ashland, Ore., from putting 10 years of research into his Strawjet process that converts straw into a low-cost building material.

Ward was recently named the 2006 Inventor of the Year by The History Channel, National Inventors Hall of Fame Foundation, and Time Magazine for his invention that's expected to make a significant global impact. He beat out nearly 4,500 other inventors and was awarded a \$25,000 grant.

His Strawjet technology is actually a multi-stage system that involves four machines.

“The Strawjet system harnesses the strength of straw by tightly bundling the plant stems into tightly-bound 2-in. diameter cables. These cables can be used in a variety of ways,” says Ward.

Three prototypes of the main field machine have been built so far. Here's how the system works:

The machine works a lot like a baler. It picks up a windrow of straw, and makes four cables out of it. These four cables are dropped on the ground behind the machine. Depending on the crop, a clay-based binding material can be applied to the straw during this process to keep the individual pieces from sliding against each other. In this case, the cables then need to dry in the field for a day or two. Some crops, such as sunflowers or cotton, don't require this application.

Another machine picks up the four cables, cuts them into 8-ft. lengths, and weaves them into a mat, similar to a giant bamboo window blind. The machine then rolls the mats into 5-ft. dia. rolls.

A third machine unrolls the mats and sprays on a layer of binding material to bond one layer of mat to another in stacks, until the desired thickness is achieved.

Once the stacks are dry, a fourth machine cuts them to size, based on the design of the building to be constructed. At this point the machines can also be used to cut out windows and doors, saving labor after they're delivered to the construction site. At the building site, all sides of the panels are then coated with plaster.

Ward points out that Strawjet panels replace the drywall, studs, insulation, and siding.

Strawjet Inc., hopes to introduce a stationary, hand-fed version of the machine in countries where people harvest small grain crops by hand. Although the hand-fed machine will be more labor intensive, it will be able to turn almost any type of straw or fiber into a uniform building material.

Ward has successfully experimented with the straw from wheat, hemp, flax, cotton, sunflowers, tobacco, rice, bamboo and palm fronds.

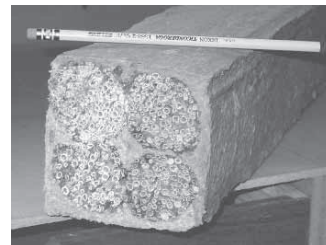
He expects the Strawjet system to be priced at under \$200,000.

Contact: FARM SHOW Followup, ASET, 5765 Colver Road, Talent, Ore. 97540 (ph 541 535-5822; [dward@jeffnet.org](mailto:dward@jeffnet.org) or [greeninventor@jeffnet.org](mailto:greeninventor@jeffnet.org); [www.strawjet.com](http://www.strawjet.com) or [www.greeninventor.org](http://www.greeninventor.org)).

**Strawjet cables can be joined together into virtually any thickness or length, depending on the application.**



Strawjet machine makes tightly compressed, wrapped cables of straw from windrows in the field, above. Compression wheels, below left, pack the straw. Cables are “cemented” together with a clay-based adhesive and then plastered over, below right, to make beams and panels.



## Pickup-Mounted Loader Built To Last

A Minnesota inventor who first put a front-end loader on a farm pickup 16 years ago (Vol. 14, No. 4) says he's updated the loader for his Dodge Ram 250, including a patent-pending new “safeloader” feature that he thinks may revolutionize the design of front-end loaders on tractors and pickups.

The problem is what happens when a bucket hits an immovable object. It has happened more than Grant Hanson cares to remember. He's driving along pushing snow in a parking lot, and suddenly he hits a section that has frost-heaved up. The jolt snaps his neck, the loader framework breaks, and he limps his equipment back home to add another weld.

After many years of use, Hanson's old IH Scout with his first front loader has nearly rusted away. He says the loader has about 25 lbs. of welding rods from repairs over the years.

An inventor since he was a kid, Hanson started working on a better loader two years ago.

“What I designed into this thing is a cushion and a new pivot point,” Hanson explains. His loader arm has a “knee” that gives when the bucket hits an object. The bucket automatically raises over the object and levels off again. The vehicle pushing the bucket keeps moving ahead, and the driver only feels a slight jar from the impact of hitting the object.

Hanson says the leading edge of the bucket raises up to various heights, according to how the linkage is designed. In addition, when put on new tractors or skidloaders with computer sensors, the arms can be set according to the

speed the machine is operated. And during slower operations, the system can be deactivated so that the loader frame stays rigid.

Hanson has used his new loader the past two years pushing snow and for landscaping and other projects he's very pleased with its performance.

“Nothing has broken, because the bucket has always freed itself,” he says.

People who look at it can't figure out how it works, but they see that it works, Hanson says. (His website, [www.safeloader.com](http://www.safeloader.com), has a video that shows how it works.)

“I did this simply so I wouldn't have to weld the loader,” Hanson explains, “but the deeper thing is that it could literally save lives.”

His wife, Debbie, has been doing Internet research and discovered many incidents where drivers have been thrown from tractors when their loader buckets caught the ground and stopped suddenly, resulting in injuries or death.

Hanson hopes to connect with an existing loader manufacturer to incorporate his invention. He also plans to contact insurance underwriters to inform them that technology for safer loaders exists.

Hanson understands the difficulties about getting an invention onto the market. He's learned lessons from past ideas, but he's excited about the Safe Loader.

“We're on the right track,” he says. “And if it can save one life, it's worth it.”

Contact: FARM SHOW Followup, Grant Hanson, 186 N. Hwy. 55, Glenwood Minn. 56334 (ph 320 760-1485; [grant@safeloader.com](mailto:grant@safeloader.com); [safeloader.com](http://safeloader.com)).



Hanson built his first pickup-mounted loader 16 years ago to mount on an International Scout. (Photo at right shows the old and new versions of loader.) He's been working on the design of his new loader (above) for the past two years. Loader has a new feature (shown at lower right) that allows bucket to lift up automatically over immovable objects. It has a “knee joint” (see arrow) that lets the bucket tip up instantly without slowing the forward progress at all.

