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Simple Wire Splicer Makes Quick Work Of Breaks

"This tool makes it almost fun to splice wire," says Leon Sowers, farmer/inventor from Kingman County, Kansas. He says he can make a 14-gauge wire splice in 30 seconds using his lightweight tool.

The Kansas farmer says he invented the Wire Splicer after years of gouging his hands and ripping his clothing, only to end up with a poor splice. "It seems like we're constantly having to splice electric fences due to breaks caused by cattle and especially deer," Sowers says. "Hand-wound splices never have good

electrical conductivity. I knew there had to be a better way, and I actually had this idea in my mind for a couple of years before making the first model."

Sowers built several prototypes in his farm shop, then eventually partnered with a machine shop to perfect the tool and build them in quantity. The current version is made from aircraft aluminum to keep it light and free from rust.

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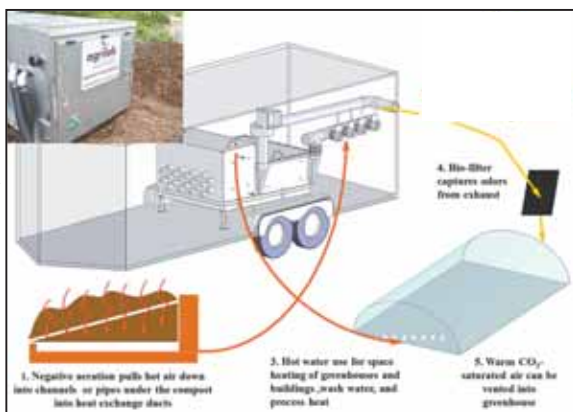
grip to hold the wire tight during splicing. The tool makes a tightly wound splice that conducts electricity as well as unbroken wire, Sowers says. "The splice is also as strong, or stronger, than the original fence wire. It will never unravel."

Sowers Wire Splicer costs \$25 plus \$5 shipping. It's bored to fit 14-gauge wire, the size of wire most commonly used in electric fencing. He says several customers have used the tool to splice together two rolls of baling wire for wire balers. Sowers hopes to build

a website for the fence splicer and maybe produce a YouTube video that shows how the Wire Splicer works. In the meantime, the best way to order one or more splicers is to call Sowers by phone or e-mail. He also sells and installs solar-powered well pumps and in the past has built farm sprayers and small feed wagons.

Contact: FARM SHOW Followup, Leon Sowers, 13103 SE 40 St., Murdock, Kansas 67111 (ph 620 243-4497; Lcsfarms@yahoo.com).

Compost Heat Wagon can extract up to 150,000 btu's an hour from a variety of compostable materials, resulting in big energy savings.



Compost Power Heat Wagon

Gaelan Brown is the inventor of the Compost Heat Wagon, a mobile heat generator that extracts 50,000 to 150,000 btu's an hour from a variety of compostable materials. He also runs the website CompostPower.org, which might be the best source of information anywhere on capturing compost heat.

Brown has been involved with compost heat recovery and doing educational workshops for 5 years. He also consults on the construction of systems.

Beyond that, Brown, through his company Agrilab Technologies, LLC, has developed the Isobar® Heat Exchange System.

"Isobar systems can capture up to 1,500 btu's/hr. per ton of material being composted during the first four weeks of active aeration for most feed stocks, which equates to about 1 million Btu's captured per ton of material composted. One million btus of heat energy is worth around \$30 compared to electric/fuel-oil/propane energy sources, so this in essence doubles the economic value of the compost," Brown explains.

With four Isobar demonstration projects built on dairy farms in recent years using manure and bedding from calves and heifers, existing Isobar systems are capturing up to 195,000 btu's/hour to preheat 50°F well water to 110 to 130°F. Besides saving \$9,200 a year on fuel costs, one farm saves more than

\$80,000 annually on bedding costs by using the composted manure for bedding.

The Isobar system uses aerated compost production pads with in-floor aeration channels. A fan pulls air down through the material keeping the composting microbes active and hot, then the hot compost vapor is drawn into ductwork and through the Isobar heat transfer tubes to warm tanks of water.

Brown's next step has been to mount a version of the Isobar system in an enclosed trailer to create The Compost Heat Wagon™.

"The Compost Heat Wagon is designed for operations that have 50 to 150 tons of compost feed stock in production," Brown says. "The Compost Heat Wagon offers the potential for \$13,000 to \$39,000 per year in energy savings."

Payback varies from 2 to 5 years, Brown says. The Compost Heat Wagon can be deployed for as little as \$5,000 down with existing lease-to-own financing programs for the \$55,000 system.

Brown welcomes inquiries about setting up systems.

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They Make Compost All Winter And Get Heat, Too

A prototype insulated compost bin made high quality compost in the dead of an Iowa winter and produced heat for a greenhouse as a bonus. Practical Farmers of Iowa energy consultant Rich Schuler said the idea showed a lot of promise but needs more work to be economical.

"The idea was to make quality compost without turning by pushing air through the pile and pulling heat from the center of the pile to keep it under 150°F," says Schuler. "We had to put a 100-ft. coil of stainless steel in the center of the pile, which required hand labor for loading and unloading."

The key to the system is the combination of insulation and heat storage with 2 heat exchangers moving heat from one to the other. The 4 by 4 by 9-ft. composting chamber is designed around 4 by 8-ft. sheets of plywood with 2 by 4-in. framing. Insulation was placed between the 2 by 4's and 1 1/2-in. sheets of insulation were mounted to the insides of the plywood sheets. Cedar fencing was used on the inside to protect the sheets of insulation during filling and removal of compost.

An adjacent heat storage chamber of four, 275-gal. commercial food totes filled with water is similarly insulated.

Water pumped through the stainless steel tubing harvests the 145°F heat at the center of the compost pile and carried it to the water tanks.

A second set of copper tubes carries tank water through an air exhaust system exchange. It consists of a bank of 8 pvc pipes running the length of the pile. A blower pushes air into the bottom of the chamber. As it passes through the compost, the air feeds the composting process. It also picks up heat and moisture. The warm air moves through a manifold into the pvc tubes. Water pumped through 4 copper pipes in each tube harvested heat from the air and transferred it to the tanks.

The cooled air recirculates with retained moisture back through the compost. Oxygen



Rich Schuler says his insulated compost bin system provides heat all winter long.

sensors let Schuler know if fresh air needs to be added. The low volume blower that moves the air, as well as the low power water pumps, are powered by a 135-watt solar panel.

"The blower barely provides positive pressure," says Schuler. "The heat exchangers work like a trickle charger. It generates the equivalent of about 1/2 gal. of LP a day in BTU's and raises the temperature of the water about 10°F a week. I don't think we broke 110°F, due in part to the poly composition of the tanks."

The final step in the process was to use the heat to warm greenhouse beds. Although the water tanks are heated gradually, the heat can be pulled out as quickly as needed.

PEX tubes laid under beds in an adjacent greenhouse are designed to warm the soil in the beds and speed seedling growth.

The goal was to replace an expensive LP space heater mounted near the ceiling of the plastic-covered greenhouse. Even though temperatures fell to 20°F below zero, the system was able to keep the soil from freezing.

This year he plans to try a heat exchanger with a vertical tube and 2 horizontal tubes in the center.

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