

Photo courtesy Michigan Farmer

Homemade Hay Bale Compactor

Conventional hay bales take up only about half the space after the Ross Hay Company, of Rudyard, Mich., gets through re-compacting them.

Owner-operators Gene and Kenn Ross built their own bale compactor, which enables them to deliver a third more hay per trip.

"We don't have any plans or blueprints. We just built it. It's mounted on an old baler frame to give it mobility," explains Gene.

The compactor squeezes two conventional size bales into one (rather than squeezing one bale down to half size). It develops 80 tons of hydraulic power and will compress 150 bales (3½

tons) per hour. While squeezing two bales, the compressing action of the cylinder moves the next two bales to the compactor. When the cylinder contracts, a lever is manually tripped and the next two bales are dropped, one at a time, into the compaction chamber, Gene points out. The double-compacted bales are tied with high-tensile wire.

"There's absolutely no quality loss in re-compacting the bales, as long as the hay is dry," Ken explains. "We compact bales after an initial six week curing period, during which a natural sweat takes place."

The Rosses sell hay by the ton and can haul 23½ tons in their 45 ft. enclosed trailer.

Miniature Steam Engine

Like many other men who grew up a generation or two ago, James Johnson has fond memories of the old steam engines that used to power threshing machines. This past summer he decided to build a miniature of the behemoths of 50 years ago that really runs.

The boiler of Johnson's miniature steam engine is a section of 10-inch dia. pipe ¼ in. thick fitted with a fire box. The piston comes from a Honda snowmobile, flywheel from an air compressor, and whistle from an old steamer. The steering wheel is off a tractor, drive wheel from a pitman mower, and drive shaft from a Model T Ford connecting rod. The worm gear is from a threshing machine, rear wheels from a horse-drawn hay rake, and front wheels from a pump jack.

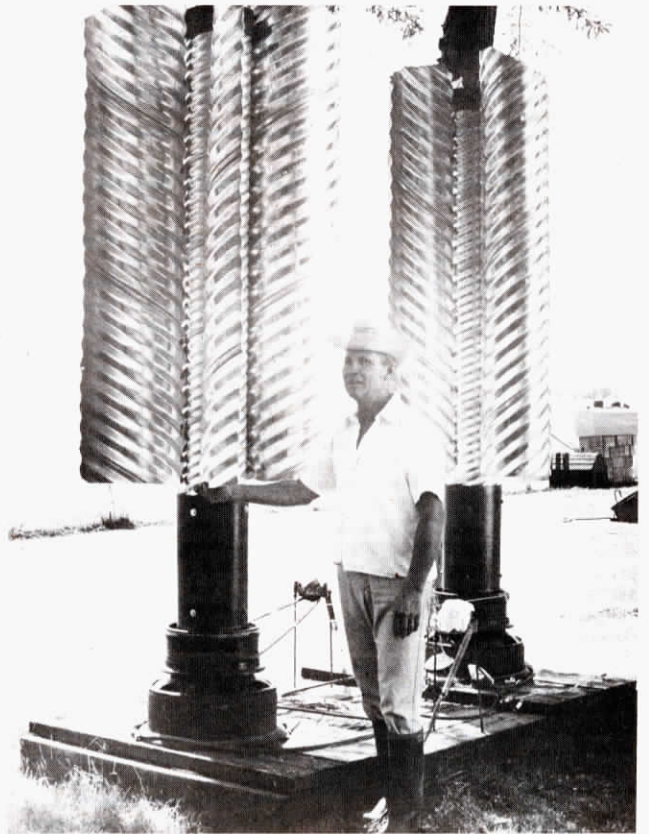
The boiler builds up 30 lbs. of pressure and must meet all the safety standards of steam engineering, so Johnson must install a governor before having the rig inspected. Other refinements will include a woodbox and a water tank, and a chain



drive to make the steamer self-propelled.

Most of the steamer parts have been collected over the years from junkyards and salvage yards.

For more information, contact: FARM SHOW Followup, James Johnson, 723 Arnold Ave. N., Thief River Falls, Minn. 56701 (ph 218 681-3910).



Homemade "Culvert" Windmill

"There's millions of dollars of machinery and parts going to waste in junkyards around the country," says Dick Graf, Emerson, Idaho, whose homemade culvert wind machine, built almost entirely from salvaged parts, generates electricity to help heat his house.

Using old wheels with hubs and bearings, and pieces of steel pipe, Graf took his main ingredient — 10-in. dia. metal culverts — and made several wind machines that generate electricity whenever wind blows through his farmstead.

Graf cut 8-ft. lengths of the culvert lengthwise into two equal-sized pieces and bolted these to 8-ft. lengths of steel pipe so that the culvert pieces form half circles to catch the wind. He then welded a car wheel, complete with hub and bearing, onto a truck wheel for support and mounted the steel pipe, with culvert attached, into the hub like a vertical axle.

Standing two of these windmill turbines on end about 10 ft. apart, he joined the two together with a nylon belt so they run together as the wind blows. A V-belt off one of the turbines drives a used 12-V auto generator. Electricity from the generator powers a "heat box" in his basement which contains automotive headlights, also salvaged, that Graf says generate as

much heat as a small wood stove.

Besides the two smaller windmills, Graf has also built a larger 18-ft. model which he suspends from the end of an unused hay derrick on his barn. This larger unit is used to power an air compressor which builds up pressures of 100 psi. Graf says one advantage of the design is that the machines can be mounted vertically, or horizontally along the peak of a barn roof or other structure.

Graf says the trick to building the culvert windmill is to cut the culvert exactly down the middle. He uses a \$20 carbon steel bit to cut the pieces then weighs them and trims them until they are of equal weight and will balance themselves out on either side of the windmill's center shaft.

Graf says that although each of his windmills now has 4 louvers, he plans to outfit his next one with five. All in all, he has spent less than \$300 for parts. He's working on a protective device which will shut down the windmills automatically in extremely high winds to prevent them from being damaged.

For more information, contact: Dick Graf, 850 W. 340 S., Heyburn, Idaho 83336 (ph 208 678-5717).