



Larry Fulton came up with this self-propelled rig that lets one man lay down and pick up gated irrigation pipe without ever getting out of his seat.

## Rig Makes Laying Gated Pipe A Snap

A self-propelled rig designed and built by Larry Fulton, Cheyenne, Wyo., lets one man lay down gated irrigation pipe and pick it up again without ever getting out of his seat.

Fulton isn't a farmer and had never worked with gated pipe before building the pipe layer. While visiting his brother-in-law's farm, he saw a need and came up with a solution.

"We were eating lunch outside by a pile of pipe," recalls Fulton. "I asked my nephew how he liked gated pipe, and he said fine, but layout and pickup was a hassle."

A 30-ft. length of 10-in. pipe can weigh nearly 200 lbs. Over lunch, Fulton came up with an idea of how to make a machine to do the job. His brother-in-law said he would cover the costs if Fulton would build it. Sixteen months later a prototype machine was ready, and he applied for a patent.

Developing a way to hold groups of pipe was the first step in the process. He designed cradles made from 3-in. pipe. The frame underneath holds the gated pipe off the ground while the four uprights hold them in place. All corners are rounded, making the carriers easy to move around.

To build the pipe layer itself, Fulton used an engine, transmission and differential out of a front-wheel drive Ford Contour. He built the frame and nearly all the components out of scrap steel. A Massey Ferguson combine supplied the drive wheels and the hydraulic steering for a front-end pulled off an old Ford F600.

"I cut the axles off the Ford Contour and attached the drive to a gear reduction jack shaft that connected to the combine axle," explains Fulton. "I used a slip collar to tie in disc brakes on the combine drive wheels. The combine had individual steering brakes, so it had individual cylinders for the disc brakes."

The pipe layer is built to handle the 30-ft. pipe. The driver sits to the rear and just to the right of center. A set of hydraulic valves controls nearly all aspects of the pipe layer.

"To load the machine with a batch of pipe, you simply drive alongside a pipe cradle and lay the left hand arms down to the ground, hook cables onto the cradle, and winch it up

and over the arms," says Fulton.

A hydraulic pump and reservoir Fulton found laying around the farm powers all movements of arms, winch and other components as well as steering and brakes.

Once the pipe cradle is in place, the operator passes two belts from the right hand legs under the pipes to the left hand legs and begins to winch them tight. As the belts tighten, the pipes are lifted up and out of the cradle. The left hand legs are about two feet taller than the right hand legs. This causes the pipes to roll to the right. The operator adjusts the belts slowly to allow one pipe at a time to roll onto a receiving table and against transfer arms.

The transfer arms are attached mid height on the upright legs. As the operator lowers the transfer arms, the pipe rolls off the receiving table and is lowered with the arms to the support table.

Once on the support table, the operator can reach over and adjust it so the gates will be in the right position as they slide off the table onto the ground. The operator also pulls the first pipe most of the way off the table. When the second pipe comes off the arms, it is adjusted into place and clamped to the first, whether with a friction coupler or clips.

"Once the pipes are attached, as the operator drives ahead, they slide backward to make room for the next pipe," says Fulton. "To pick up pipes, the process is reversed."

The end of the pipeline is picked up and placed on the support table, and the operator backs up until he reaches the first coupling. Once the first pipe section is free, the arms are swung down to pick it up and returned it to the receiving table and then into the cradle.

Fulton has not priced out off-the-shelf components that he says could be used to build the gated pipe rig. Once he has received his patent, he hopes to find a company or individual interested in building the rigs for sale.

Contact: FARM SHOW Followup, Larry Fulton, 4504 E 17<sup>th</sup> St., Cheyenne, Wyo. 82001 (ph 307 634-7042; lhfulton@excite.com).



Cradles made from 3-in. dia. pipe are used to hold groups of pipe off the ground. To load the machine, cradle is winched onto machine's self-loading arms.

## Car-Powered "Portable" Air Compressor

Walter Rodler recently got in touch to tell us about a few of the unusual ideas he's come up with on his farm near Debert, Nova Scotia.

One of the ideas that at first seems a bit odd but is actually very useful is this car-powered portable air compressor. Walter came up with the idea because he wanted to be able to sandblast equipment all over the farm but it was difficult to get a high volume of air in remote locations.

His solution? Put a belt-driven air compressor in the passenger seat of a front-wheel drive Oldsmobile Frenza car. It's driven by a pulley that mounts in place of the right front wheel. The belt drives a pulley on a shaft that extends through a hole in the right front passenger door to another pulley that direct-drives the compressor.

An airline runs from the compressor to the back of the car where a fitting mounts in place of the original taillight. He simply hooks his sandblaster up to that.

"The car has a 3-speed transmission so it's easy to adjust the volume of air. It takes just minutes to put the wheel back on the car and drive away," says Rodler.

Contact: FARM SHOW Followup, Walter Rodler, 695 Plains Rd., Debert, Nova Scotia, Canada B0M 1G0 (swrodler@eastlink.ca).



Belt-driven air compressor sits in passenger seat of Rodler's front-wheel drive Oldsmobile car. Compressor is driven by a pulley that mounts in place of car's right front wheel.



Belt drives a shaft that extends through hole in right front passenger door to another pulley that direct-drives compressor.



An airline runs from compressor to back of car where a fitting mounts in place of original taillight. Rodler simply hooks his sandblaster up to that.



Bill Hickman built a simple hydraulic press to put the curve back into combine concaves. It can be swung in an arc to any spot over the concave, or beneath it.

## Press Puts Curve Back Into Concave

Concaves in combines take a lot of pressure, often enough to bend them out of shape. Bill Hickman decided to find a way to put the curve back in and build a simple hydraulic press to do so.

"I had a couple of badly bent concaves on the floor and studied them till I figured out a way to do the job," recalls the 80-year old craftsman. "Now I can fix most concaves for about \$100, including building up the worn bars, instead of the farmer having to pay \$400 to \$500 for a new one."

Hickman built a steel bench press out of I-beam and channel iron. A moveable top panel with a hydraulic jack on a shelf beneath it serves as the press. A section of box beam a couple of inches above the concave, and mounted to two channel iron arms that pivot from the bench's base, serves as the anvil. It can be swung in an arc to any spot over the concave, while the jack can be moved to any point beneath the concave.

To straighten a concave, Hickman uses aluminum templates patterned from new concaves to identify where the bend has occurred and how far out of round it has become. He then moves the jack to the side he

wishes to work on first, swings the anvil over the top of the problem, and applies pressure.

The concave sits on a flat plate with a round roller at one end. The roller lets the concave move as the jack presses against the anvil. One end has to give to take the bend out, notes Hickman.

"By moving the jack and the anvil back and forth, I can take the bend out regardless of where it is," he explains. "Some bend as much as an inch, but even a quarter of an inch can interfere with threshing a crop like bluegrass seed."

Hickman chose a small hand jack to deliver pressure to force the concave against the anvil because it's easy to position.

In addition to bringing concaves back to their true arc, Hickman also builds up worn bars on the concaves. "If they are worn down 3/16 in. or less, they are easy to build up," he says. "If they are worn down too much, it is hard to build them up without burning the wires behind them. My rebuilt concaves show no apparent wear after two years."

Contact: FARM SHOW Followup, Bill Hickman, 2834 W. Conkling Rd., Worley, Idaho 83876 (ph 208 686-1493).