



One of the greenhouses that Cretella built out of 1 3/8-in. dia. galvanized tubing. Note the 4-ft. straight sidewalls.

He Makes His Own Low-Cost Greenhouses

Five years ago, Mike Cretella spent a lot of time trying to find a good way to bend tubing to make frames for greenhouses.

"I searched all the available literature and couldn't find one reference on making the metal tubing frames," he says. Cretella says he did find a manufacturer that would sell him just the frames but his budget was limited.

What he wanted was a way to bend 1 3/8-in. galvanized tubing - the kind used as a top rail for chain link fencing - into a smooth arch over which he could hang greenhouse plastic sheeting.

He tried bending the tubing with two different kinds of pipe benders and even took some of the tubing he wanted to use to a muffler shop and tried bending it with an exhaust pipe bender there. They all crimped and ruined the tubing.

So Cretella, of Harriman, Tennessee, decided to make his own bender. He started with a large discarded wire spool, which he uses as a worktop. He mounted three lengths of 2 by 8 pine boards side by side on one end, with their outside edges cut in an arc to match the degree of the bend he wanted to make in the tubing.

On one side of this jig, he attached a 3/4-in. wide steel strap to hold one end of the tubing while he bends it. He also nailed several short blocks on the top of the 2 by 8 arch, spaced all along it, to keep the tubing from slipping off the jig as he applies force to it to bend it.

To bend tubing with this jig, he slides the tubing through the strap and begins bending it along the arch. As it's bent, he pulls it through and bends it again, until he's made a smooth arch of the entire 21-ft. long tube.

Once he's done this, he bends about 8 in. of each end at an angle and crimps it slightly. To make his greenhouse frame, he drives a



Cretella made his bender out of a large discarded wire spool.

5-ft. 6-in. length of 1 5/8-in. galvanized tubing into the ground 18 in., leaving 4 ft. above ground for a sidewall, and then slips his bend tubing bows into them.

Cretella has written a brochure that presents all the details on how he made the tubing bender and how he puts his greenhouses together. His bending jig can make a long radius frame using tubing, pipe, rebar, or conduit. He sells the complete instruction brochure for a nominal fee.

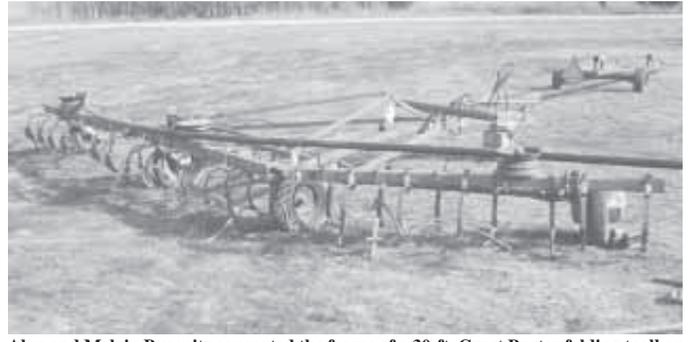
He says he can bend the bows for a 14 by 60-ft. greenhouse that measures 9 ft. at the peak in about half an hour. Of course, laying out, erecting and covering the greenhouse takes considerably longer.

He says his own greenhouses, using galvanized tubing and clear 6-mil. plastic from 20 by 100-ft. rolls, cost less than \$750. This includes the 4 by 8-ft. plexiglass sheeting he uses for the ends. It does not, however, include the cost of a ventilation system. He replaces the plastic covering every year, but notes that some types of covering can last several years.

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Three boards mount side by side on one end of spool, with several short blocks on top to keep tubing from slipping off as force is applied to bend it.



Alan and Melvin Busenitz converted the frame of a 30-ft. Crust Buster folding toolbar to bend 1 1/2 to 2-in. pipe, which they've used to make several 36-ft. wide hoop shelters.

Folding Toolbar Converted To Hydraulic Pipe Bender

The Busenitz brothers, Alan and Melvin, Potwin, Kansas, figured hoop buildings would be a lot less expensive if they could bend the pipe arches themselves.

But how to make a bender that could handle 1-1/2 to 2-in. pipe was a puzzler. Then one day they got an idea. "We had an old 30-ft. Crust Buster folding toolbar. It had been retired for some time but there was nothing wrong with the bar and cylinders," Alan Busenitz says. The toolbar's side wings folded forward manually.

They removed the hoe drill units and then proceeded to turn the toolbar into a pipe bender.

They started by mounting wheel rims at the center of the middle section and on the end of the wings. A hydraulic motor chain-drives the wheels on the center section.

The motor, chain and sprockets were taken from an old combine header they no longer used.

To bend pipe, they feed the pipe in front of a wing wheel, behind the center wheel and then in front of the wheel on the other wing. Then they set the angle of the bend they want by changing the angle of the wings. Once that's done, they start the hydraulic motor on the center wheel and roll the pipe through.

If they need several sections with the same bend, they add pipe to the input side by

welding lengths together as the pipe feeds in. On the opposite side, they added a bracket to mount their chop saw. When the arched section is the proper length, they cut it off. By welding and cutting as they go, they never have to remove the pipe from the bender, so the arch is the same on all pipe bent.

Working together, the Busenitz brothers can bend one hoop in about five minutes. They use 14 hoops for each of their hoop buildings, so it takes an hour and ten minutes to bend the hoops for one building.

Busenitz says they've used their bender to make several 36-ft. wide hoop shelters. In fact, they've rolled about 10,000 ft. of pipe through it. "We checked with one machine shop about bending pipe for us before we made this and they wanted \$1 a ft. for bending," he says.

"We've made only 36-ft. wide buildings with it so far, but I'm sure the angle of the arch could be more or somewhat less and you could make wider or narrower spans with it. The tighter the bend, the more pressure there would be on the center wheel and at some point, it would probably spin on the pipe," says Busenitz.

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Wheel rims mount at the center of drill's middle section and on the end of the wings. As pipe is fed through, a hydraulic motor chain-drives the center wheel rim.

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