

Reverse Rollers Leave Concrete Smooth

Ken Vandevetter has worked with concrete for 60 years, and his shop-made screed rollers are real labor savers. Vandevetter uses a reverse spinning roller to push excess concrete the length of a slab.

"I had seen commercial rollers, but none that worked the way I wanted," says Vandevetter. "Some are powered by a hydraulic pump on a stationary engine off to the side. I didn't want to deal with possible hydraulic oil spills on fresh concrete."

A 3 hp. Briggs & Stratton engine with 10 to 1 gear reduction provides the spin. It works with nine different roller lengths and two frames. The frames were fabricated mostly from 1 by 1-in. steel tubing. The rollers were a lucky find.

"The first roller I used was a piece of irrigation tubing, but it was too light," says Vandevetter. "It would float up and required a second person to push down on the other end, even on a narrow job."

During a visit to a local salvage yard, he ran across 4 1/2-in. dia., 1/4-in. wall, aluminum alloy pipe. It was left over from the construction of a nuclear power plant.

"I took a piece home and tried it," says Vandevetter. "It was ideal. I went back and bought all they had, in lengths from 10 to 22 1/2 ft."

The frames include a wheeled unit pulled by a worker with the roller to one side. The frame supports the motor and a winch and anchors one end of a roller.

The wheels are height adjustable, so it can run on a form or alongside as needed. The throttle control and clutches for the roller and the winch are mounted to the handlebar.

On narrower pours, the operator pulls it down grade or down the slab against the spin of the roller. If a second trip is needed, the operator revs the motor, and the roller pulls itself back up the slab.

For wider jobs, a winch and a system of anchored pulleys pull the roller forward, pushing the concrete ahead. The Briggs & Stratton powers the winch and the roller simultaneously, but with separate clutches and at different speeds, thanks to different



Vandevetter used a leftover piece a 4 1/2-in. aluminum alloy pipe for his roller.

size pulleys on the jackshaft.

"The output shaft on the motor has a 1 1/2-in. pulley that drives a 6 or 7-in. pulley on a jackshaft," explains Vandevetter. "A roller chain from a 2-in. sprocket on the right side of the jackshaft drives a 3 1/2-in. sprocket on the pipe drive, giving it a 10 to 1 gear reduction. There's a 1 1/2-in. pulley on the jackshaft and a 7-in. pulley on the winch to gear it down even further."

The pipe drive is a steel core with two raised cogs. The roller pipes are notched to match the cogs that hold them in place. Switching rollers is a simple matter of sliding one off and the other on.

When he uses the winch, Vandevetter sets a ground anchor to the left side of the end of the concrete slab. Pulleys are anchored at the start of the slab and to either corner at the end of the slab.

"We make one short pass of about 4 ft. with the winch pulling the roller, release the winch clutch and rev the motor," says Vandevetter. "The roller pulls itself back to the start. The first pass strikes the concrete down, but on a wider slab, we often need to go back and forth."

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Denny Michels converted an old riding lawnmower into a handy spray rig that he uses around his campground.

Riding Mower Converted To Spray Rig

"I used to walk around our campground spraying weeds with a hand-held sprayer, but that got old, so I put together a rig that makes my job a lot easier," says Denny Michels of North Mankato, Minn.

Michels had bought a new zero-turn mower but didn't want to junk his 20-year-old AGCO Allis 1316H riding mower. Instead, he modified it to carry a portable sprayer and supply tanks that let him spray broadleaf weed killer or a burndown herbicide from the same rig.

First, he removed the front mower deck and built a small frame over the lift arms using 2 1/2-in. angle iron. The frame holds two covered 5-gal. buckets that carry his burndown herbicide. He rebuilt the rider's back box to carry a 15-gal. spray tank and battery-powered pump. His "one-of-a-kind spray vehicle" is powered by the mower's original Vanguard V-twin 16 hp. engine. The

rider has a deep cycle battery that starts the engine and also powers his portable sprayers.

"The old mower was too good to junk because the engine, seat, steering and transmission were still good," Michels says. "It works great as a spray rig because I can maneuver easily around trees and campsites. I have a 24-in. wide boom on the front that does a nice job around the campsite pads. I can also use a hand spray wand from either tank."

Michels calls his business the Sawmill Campground because he has a working sawmill on the grounds. "The mill came in real handy to cut old power poles into lumber that I used to build the restrooms. I also do a little custom sawing, so it's a good rig to have around."

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Midwest Military Equipment retrofits military vehicles into heavy-duty equipment for farmers, ranchers, and the logging and construction industries.

Surplus Military Equipment Experts

Joe Thatcher fell in love with military equipment at a young age and has turned his passion into a business. Thatcher started buying and selling military equipment 11 years ago and about 7 years ago opened Midwest Military Equipment (MME) in Washington, Mo. People looking for a hard-to-find military vehicle or attachment will likely find it at Thatcher's shop.

"All of our vehicles come from military surplus bases," Thatcher says. "They're from National Guard, Army or Marine Corps depots." Thatcher says his business can outfit military vehicles as silage trucks, feeding trucks and manure spreaders for farmers and ranchers. All vehicles are inspected, and his staff makes sure everything is fully operational before it's sold. "We provide a street legal title for the vehicle so you're able to register it in your state," Thatcher says.

MME also manufactures and sells parts for military vehicles, including tops, doors, bumpers, roof racks, suspensions and electronic accessories. They also sell marine radio systems, air conditioning, retro-fit systems, LED lighting and more for LMTV and MTV trucks. Painting services are also available.

MME is an after-market supplier for replacement parts including ignition switches,

gaskets, lights, tires, wheels, axle seals, U-joints and other parts.

Thatcher says, "We can pretty much do all the work on the vehicles we sell ourselves, so we know the quality is excellent. We can fabricate or build anything a person wants for Humvees, LMTVs or 900 Series trucks and also deal in heavy equipment."

MME customers include farmers, logging companies and utility line maintenance companies. "And of course, we do get some guys who just want a great big Army truck," Thatcher adds. He's also sold unusual military vehicles like armored personnel carriers, M114s and M548 track vehicles.

The business has about 8 acres of trucks and equipment, and he feels there's still room to grow.

"We're trying to build and manufacture as much as we can in-house," Thatcher says. "If a person buys from us, we will design, fabricate, build, paint, refinish and get the vehicle to your door. We're a one-stop-shop." MME offers delivery anywhere in the continental U.S. and Canada.

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Schmucker modified a manual grinder to run on two DeWalt Flex Volt batteries.



Battery-Powered Meat Grinder

Make venison burgers at hunting camp or grind up meat at home with the battery-powered meat grinder from Schmucker's Country Sales.

"The manual grinder is off the shelf, as are the batteries," says Ervin Schmucker, Schmucker's Country Sales. "I modified it to run on DeWalt FlexVolt batteries."

Schmucker removed the original hand crank handle and made an adapter to connect the grinder's driveshaft to a corner gearbox with a 10:1 ratio. He mounted a belt drive DC motor to the corner gear and connected it to a power plate from a DeWalt tool.

"The corner gearbox slows the motor down and adds torque," says Schmucker. "I also replaced the original knife with a carbide knife for a longer-lasting edge."

Schmucker has used the battery-powered grinder on pork and beef. He reports that

while beef is often harder to grind than pork, he ground 51 lbs. of tough beef with lots of ligaments in half an hour with two 9 aH batteries.

"I can grind 200 lbs. of pork for sausage on two batteries and feed it faster than I could the beef," he says.

Schmucker developed the battery-powered grinder to make life easier for women in the Amish community. However, he sees it having a place in hunting camps and other off-grid sites.

"I hoped to price them for under \$1,000, but with the different components, they retail for \$1,499," says Schmucker. "I use high-quality components like the carbide knife. The goal is that it is a lifelong product."

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