threads onto the filter, sealing it so you can get the filter out without spilling a drop." Sells for $29.95 plus S&H.

Frank Heraghty, Claremore, Okla.: "I had trouble trying to hold up a big extension ladder and guide it while raising the upper half of the ladder at the same time. So I came up with a simple and cheap solution. I inserted a 1-in. dia. pipe through one of the rungs towards the bottom of the ladder. A 10-in. long, L-shaped handle is welded onto one end of the pipe. A rope wound around the pipe leads up and over the top part of the ladder, then back down to its bottom rung. Four or five cranks of the handle will raise the top ladder about one foot."

Brian Lough, Indian Head, Md.: "When repairing items with J-B Weld epoxy or other adhesives, I first apply a layer of epoxy. Then I place strips of storm window screen onto the epoxy to add strength to the repair. For even more strength, you can add an additional layer of screen diagonally to the first one. Prior to using the epoxy, I clean all surfaces with acetone to remove any contaminates.

"I used this idea a couple of years ago on an old tractor that I was restoring. It had a cast iron engine with a cracked block. I was worried that expansion and contraction of the metal might cause problems so I cleaned the cracked area, then used a die grinder to rough up the metal around the crack and applied a layer of epoxy. Then I placed a screen over the epoxy and added another layer of epoxy on top of it. Problem solved.

"To keep penetrating oil from dripping away from seized or rusted fasteners and mechanical parts, I place cotton balls on the seized part and then saturate them with penetrating oil. This technique allows the oil to continuously penetrate into the part instead of dripping away."

Roy Phlipot, Scott, Ohio: "When applying caulk or silicone, wear rubber gloves and coat them with liquid hand soap. Then use your finger to smooth out the caulk or silicone. It won't stick to the gloves."

Jerry Lanser, Longmont, Colo.: "I have a 4 by 8-ft. freestanding workbench which works great, but there was never enough room to store commonly used tools close by.

So I built a storage carousel that keeps my tools readily accessible, yet I can quickly move it out of the way if necessary. I keep the carousel on a nearby table.

"An old truck brake drum serves as the base. I welded an 11-in. length of 3/4-in. dia. pipe vertically to the center of the base, then inserted a 45-in. long, 3/4-in. dia. solid vertical rod onto which I had welded three 10-in. angle iron wings. The wings support a 3/4-in. thick by 24-in. dia. plywood tray.

"I drilled a series of different size holes about 1/2 in. from the outside edge of the tray in order to store screwdrivers and pliers, etc. The inner part of the tray holds an assortment of items, including tape measures, a drill bit rack, knives, pencils and other general use items. I located the tray at least 12 in. above the table so larger screwdrivers won't drag on it.

"I also placed a layer of pegboard on either side of the vertical bar. The pegboard can either be attached to the rod or allowed to spin independently of the bar and tray."

Randolph Walker, Charlotte Court House, Va.: "After about 15 years of use, my Marlow irrigation pump wouldn't prime any more. When I took it apart I discovered that not only was the seal on the impeller shaft bad, but also the shaft itself was so badly pitted that a new seal wasn't going to solve the problem. The shaft and impeller is a one-piece unit and is quite expensive to replace.

"After cleaning the shaft thoroughly, I put a liberal coating of J-B Weld epoxy on the pitted part and continued to rotate the shaft by hand until the epoxy began to harden. After letting the patch thoroughly cure for a couple of days, I ran the pump at idle and used a file and sandpaper to work the epoxy down so the new seal would be air tight. I made this repair more than 20 years ago and it's still working great."

Jill Tuttle, Charlestown, N.H.: "I use ordinary plastic cups to keep the plugs on outdoor extension cords out of the weather. I cut a hole in the bottom of the cup, then slide the cord through until the plug is inside the cup. Then I tape a lid onto the cup."

John Stuber, DeSoto, Mo.: "I use a lot of blades for utility knives and keep the blades in a jar. To prevent them from rusting, I spray clothes dryer lint with WD-40 and then place the lint in the bottom of the jar. The same idea works good for storing other small metal parts.

"Instead of buying a magnetic holder for my nuts and bolts, I make my own using a small can and magnets removed from discarded microwave ovens. A typical microwave oven has about 4 good magnets in it. I use contact cement to glue each magnet to the bottom of the can.

"I've used this idea to make several magnetic holders so I can store nuts and bolts for various projects that take an extended period of time to finish. That way the parts are always there when I come back to the project."

Ted Kalvitis, Romney, W. Va.: "Congratulations to the FARM SHOW reader who beat a proposed $1,800 repair bill when the clutch cross-shaft on his Kubota tractor seized in the bell housing. While he realized success with a mixture of acetone and transmission fluid, the method I've been using in my mobile tractor repair business works well when a more permanent arrangement is called for.

"I simply drill a small hole in the bell housing until the drill reaches the cross-shaft. This is easy to determine because the shaft is much harder than the cast bell housing. After extracting all the cuttings, I then thread the hole and install a grease fitting. Sometimes it takes some heat to get the grease moving. I warn my customers not to over-grease the fitting so that excess grease doesn't get on the clutch surface.

"I mentioned my idea to the service manager at a Kubota dealership where they customarily split the tractor in half to gain access to this shaft – at a $2,000 cost for labor. He just stared at me for a very long moment before the conversation resumed."

Lyle Mack loves gear making so much that he started his own business custom cutting gears, sprockets, splined shafts and other items.

Where To Buy Custom-Cut Gears

Lyle Mack loves gear making so much he'll even help you make your own. The young machinist set up LM Gear and Machine on his family's farm to make gears, sprockets, and splined shafts.

"I got started a while back while building my own tractor, including the gears and shafts," explains Mack. "I got so busy making the tooling for gears that I never finished the tractor."

What he has done is build a business of his own. He can make a wide range of spur, helical, worms and worm gears, rack and pinion systems, and bevel gears of all sizes. He can work in any material in sizes from 1 to 15-in. diameter. He works in metric, standard and non-standard scales.

Mack has also built up a nationwide network of contacts and resources in custom machining.

"I'm ready to try anything, and I won't laugh at any idea," he says. "I like to work with do-it-yourselfers, people with an idea, but who don't know what size gears are needed based on horsepower and material, I can help them. If I can't, I know a lot of small shops I can direct them to."

If readers want to make their own gears, Mack is happy to help. He refers wannabe gear makers to "Gear Design Simplified" by Franklin D. Jones and Henry Ryffel.

"Another recommendation is 'Gears and Gear Cutting' by Ivan Law," says Mack. "There are tons of resources on the internet, but those two cater to people getting started."

He notes that lots of machine shops will charge a lot for calculations and won't work with crude drawings. "If you can come up with your own calculations, you can avoid that," says Mack. "When people need a specific gear or spline they can spend a lot of time trying to find one. It's often easier to make it yourself. It's not as hard as people think."

Mack will not only help with the math needed, he'll help find the lowest cost way to fix the problem of a busted gear or splined shaft. He understands that if a specialty gear breaks on an older machine, a replacement may not be available.

"If a person wants to get a machine going again, we'll figure out a way," he says.

Part of being able to do the job is having the right equipment. Mack is still "gearing up" with more expensive equipment, like a special mill to cut spiral, bevel gears. In the meantime, he is making the chucks and tooling he needs to get jobs done and has cut worm gears and bevel gears on his milling machine.

"A lot of shops will rent tooling for specialty internal splining," notes Mack. I've made internal splines and can produce internal gears and special shapes. I also have sources for off-the-shelf gears of most any design."

Prices vary with the job, from a minimum of $50 for the simplest gear work on up to several hundred for milling jobs. He describes his business goal as doing precise work at a farmer's price.

"If a farmer doesn't want to spend $700 on a single gear, I'll try to mill it for him," says Mack. "It may not be quite as precise, but it will get him up and running and should last for quite a few years."

If a part is needed, he suggests sending the damaged piece. However, he can work from basic drawings or even a crude sketch to replicate the part.

"I love helping people restore older equipment or make a prototype of something new," he says. "I'll consider most anything from little gears on older equipment to gears for pedal cars."

Mack is even willing to consult with people wanting to start their own shops like he has done. It is his way of paying back for the help and advice he has received.

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