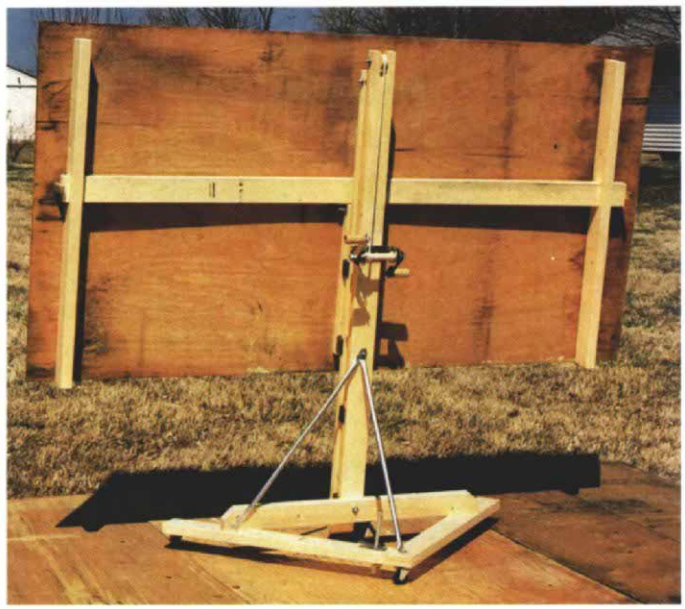
Shop-Built Drywall Lift

An inexpensive alternative to a bad back

by Tim Hanson

Four years ago, my wife and I decided to build a summer home in northern Wisconsin. I had just retired, and we wanted to do all of the work on the home ourselves. Installing the drywall was the one part of the job that had me worried. My good wife is an outstanding construction helper, but I could foresee a severe break in a wonderful relationship if I asked her to help me hang the drywall. So before construction started, I built a lift that could raise the drywall from the floor to the ceiling. The lift allowed me to hang all the drywall single-handedly, and it made putting up the ceiling the easiest part of the job.



I have since refined the design of the lift several times. The latest change I've made is the addition of a jack to the base, which means the lift (photo at right) can now be used for walls as well as for ceilings.

The lift will easily handle ⅝-in. drywall 8 ft. to 12 ft. long, but I don't use it for sheets longer than 12 ft. because it's too unwieldy. Drywall, or any other panel, can be loaded onto the lift right off the floor, a feature I haven't seen on the commercially made lifts, and I can also wheel the loaded lift through doorways.

The lift works for ceilings 7-ft. 9 in. to 10 ft. high and for walls up to 11 ft. high. The whole thing weighs 50 lb. and is easy to transport from job to job. While a commercially made lift can cost from $400 to $600, my lift costs around $35 (I make the winch and pulleys myself).

The base and cradle—My lift consists of a triangular base, a telescoping mast and a cradle attached to the top of the mast, which holds the drywall (drawing next page).

The base is basically an A-shaped frame on casters. The frame is built out of a pair of half-lapped 2x4s, and a 2x4 on edge makes the crosspiece. The bottom edge of the crosspiece is beveled 7½° so that the piece is angled inward, toward the center of the base. This in turn serves to tilt the mast, which is bolted to the crosspiece, toward the center of the base, and produces a very stable rig, especially when the mast is fully extended.

The casters I use on the bottom of the base have plastic wheels. Steel wheels work fine, too, but I don't like to use rubber wheels. The lift must often be jockeyed about to bring the sheet into position, and rubber wheels fight this every inch of the way.

There is a jack built into the base (detail C, facing page). The jack is stepped on while the lift is against a wall, and that holds the drywall in position until it can be secured with nails or screws. The jack is a ½-in. by 8-in. bolt with a plastic or rubber crutch tip on the bottom. The bolt passes through a ½-in. hole drilled near the apex of the 2x4 base and through a spring-loaded strap-iron lever. When the bolt is stepped on and the lift is tilted forward, the lever will hold the bolt fast in any position.

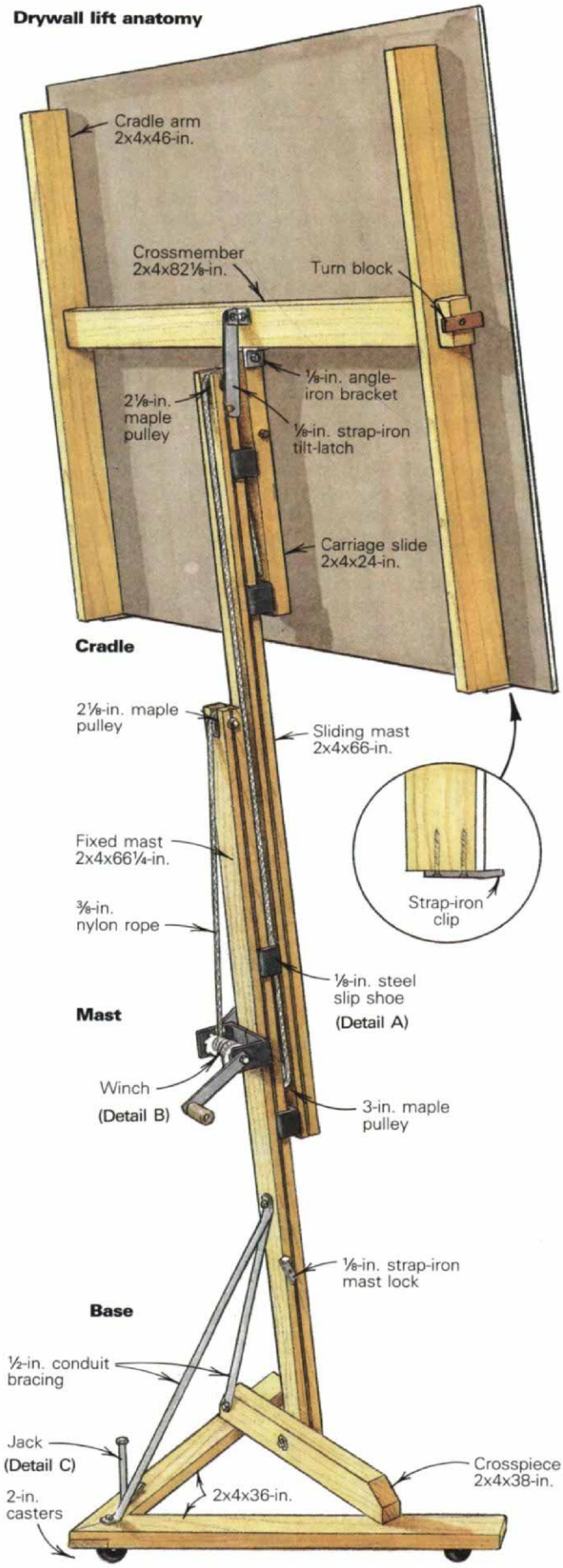
The cradle is as simple as the base. It consists of a pair of 2x4 arms mortised so that they slip over opposite ends of a 2x4 crossmember to form an "H." The arms aren't fastened to the crossmember, so they can be removed for portability. Small 1x wood blocks (I call them "turn blocks") are fastened to both ends of the crossmember. Once the arms are installed, the blocks can be rotated 90° to keep the arms from sliding off (drawing, facing page). To support drywall in a vertical position, I screwed a strap-iron clip to the bottom of each arm.

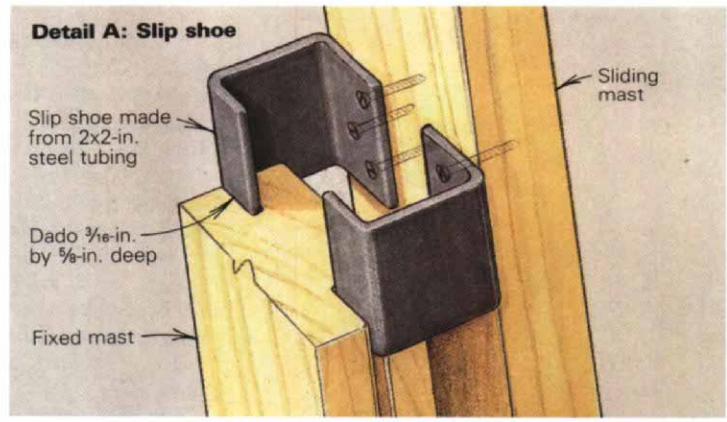
The mast—The mast, along with the parts attached to it, is the most complicated part of my drywall lift. It has three separate sections: a fixed mast, a sliding mast and a short section attached to the cradle. All three sections are made of clear, dry, structural wood. The stock must be straight and of uniform width or the lift will bind. I run the wood through a thickness planer on edge, shaving off just enough stock to ensure that each piece is identical. The fixed mast incorporates a winch and three pulleys, all of which I make in my shop.

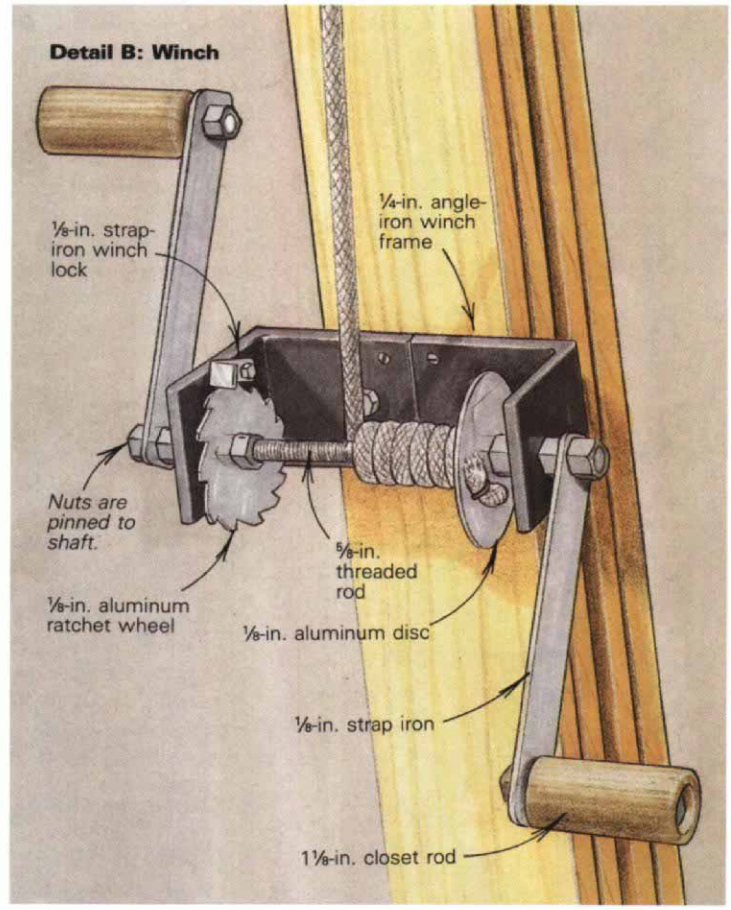
A system of metal "slip shoes" and dadoes holds the adjoining sections together and allows them to slide over one another (detail A, facing page). I cut the slip shoes out of 2x2 square steel tubing with a sidewall thickness of ⅛ in., which I get as scrap from a fabricator of ornamental fencing.

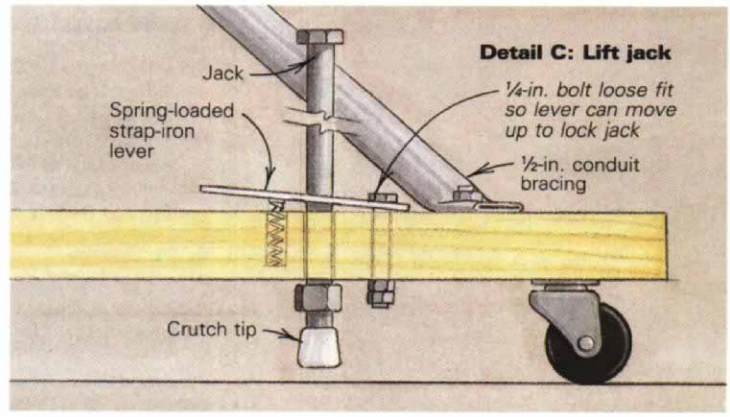
Making the winch and pulleys—Light-duty winches are available that can be adapted to the drywall lift (I often see them on boat trailers), but I prefer to make them myself (detail B, facing page). My winch consists of a metal shaft supported by a pair of ¼-in. angle-iron brackets, which are attached to the fixed mast. Two aluminum discs on the inboard side of the brackets confine the rope on the shaft. One of the discs also serves as the ratchet wheel. I cut the 3-in. dia. discs from ⅛-in. aluminum-sheet stock using a "fly cutter" chucked in my drill press. Then, using a ratchet-wheel pattern that I drafted myself, I trace the pattern onto one of the discs and cut out the new ratchet wheel on a bandsaw fitted with a fine-tooth blade. I use plenty of cutting oil to lubricate the cut.

A winch lock works in conjunction with the ratchet wheel to hold the cradle in position. It's simply a bent piece of ⅛-in. strap iron loosely bolted to the frame of the winch so it can pivot. When the cradle is raised,









Drawings: Bob LaPointe

How it works

First, the cradle is lowered to the floor in the vertical position. Drywall is then tilted up against the cradle, with the bottom edge of the drywall resting on the support clips.

Next, with the mast lock engaged, the cradle is winched up to the top of the masts. The cradle pivots on ⅛-in. angle-iron brackets, and is locked in place with the tilt latch.

Finally, the mast lock is unhooked, and the drywall is winched up to the ceiling. The lift works for ceilings up to 10 ft. high or, in the horizontal position, for walls up to 7 7 ft. high.

gravity holds the winch lock against the ratchet wheel. I use two handles instead of a single handle to turn the shaft, one on either end. I make them from ⅛-in. strap iron and 1⅛-in. closet rod.

There are four opposing pairs of nuts on the shaft. Once the winch is assembled and everything is tight, I drill a hole all the way through one nut in each pair, running the bit clear through the shaft. Then I use a larger bit to drill a shallow recess on one side. To pin the nut in place and keep it from slipping, I drive a 10d finish nail into the hole and use a punch to peen the end into the shallow recess.

A drill press can be one of the most valuable tools in a tinkerer's shop, and I get a lot of mileage out of mine. In fact, I use it like a lathe to shape the lift's pulleys. I start with clear ¾-in. maple stock, cut to the proper radius. Next, I drill a ⅜-in. hole through the center of each blank and run a ⅜-in. bolt through the hole. A nut and a washer secures the stock tightly against the head of the bolt. Then I chuck the free end of the bolt into the drill press and turn the groove for the pulley with a slotted screwdriver ground to the appropriate radius. Finally, I enlarge the ⅜-in. hole by running a 13/32-in. drill bit through it. This ensures that the pulley will turn freely on its axle.

The rigging—I use ⅜-in. braided-nylon rope with a 380-lb. tensile strength for my drywall lift. The rope works better than cable, which tends to kink excessively. The rope is connected to the short section of the mast at the bottom, and it travels around the three pulleys before dropping down to the winch (drawing, previous page).

Before using the lift for the first time, I oil the winch and spray silicone lubricant on the mast wherever the slip shoes will travel. After the silicone sinks in for 30 minutes, I spray again to make sure that the parts will slide up and down easily.

Working the lift—Drywall is usually stacked on the floor. I measure the stack lengthwise to locate the center and draw a pencil line down the edge of the stack. To load a sheet onto the lift, I align the mast with this mark because a sheet that's even 5 in. off center will cause excessive friction in the mast and make it difficult to crank the winch. Then I tilt the top sheet off the drywall pile and lean it up against the cradle, resting its bottom edge on the support clips at the bottom. With the mast lock secure, it's an easy task to raise the sheet 4 in. to 6 in. off the floor by cranking the winch. The mast lock is located on the fixed mast and pivots up against the upper slip shoe on the sliding mast. This prevents the sliding mast from telescoping upwards as the cradle is winched up.

By gently nudging the lift, I can wheel the drywall over to its destination. If I'm applying drywall to the ceiling, I winch the cradle up until the crossmember reaches the top of the masts. Then I rotate the sheet to a horizontal position and lock it in place with the tilt latch. That done, I unhook the mast lock and crank the sheet the rest of the way up until it lightly contacts the joists. I orient the lift so the support clips on the cradle don't interfere with the joint. This naturally places me in the best position to see what I'm doing. Once the drywall is where I want it, I tighten the winch so the drywall is snug against the joists. The winch lock holds it there while I place my ladder or scaffold, and nail or screw the sheet in place. Once the drywall is secure, I release the winch lock and reverse all the above steps to bring the cradle back down to within a few inches of the floor. Then I wheel the lift back to the drywall stack and start over.

When I'm using the lift for applying drywall to walls instead of to a ceiling, I don't tilt the cradle to the horizontal position. Otherwise, the lifting procedure is the same. Once I've wheeled the lift over to the wall and raised the drywall to the appropriate height, I step on the jack at the base of the lift while I tilt the whole thing up against the studs. Then I nail or screw the sheet in place. This might all sound complicated, but I'm able to hang a sheet of drywall faster than you can read about it. □

Tim Hanson is a retired general contractor from Indianapolis, Ind. Photo by the author.

Commercial drywall lifts

There aren't many commercial drywall lifts on the market. Here are the only two I've been able to locate.

***GYP-C-JAK* (Goldblatt Tool Co., P. O. Box 2334, Kansas City, Kan. 66110). This jack will handle drywall up to 16 ft. long. It can apply drywall to flat ceilings up to 9 ft. high, and with the optional extension it will lift the drywall an extra foot. The jack weighs 72 lb. and rides on 4-in. plastic casters. Drywall has to be lifted about 6 ft. in order to load it on to the carriage. List price is $415 and the optional extension costs $23.**

***Panellift* (Telpro, Inc., Rte. 1, Box 138, Grand Forks, N. Dak. 58201). This lift can apply drywall to walls and to flat or sloped ceilings. It will handle sheets 16 ft. long, and can lift 150 lb. to a height of 11 ft. The lift will raise an extra 12 in. or 18 in. with the use of optional extension posts, or it will extend a full 15 ft. high with the optional 6-ft. telescoping section. Drywall can be loaded onto the lift from a height of 34 in. The lift weighs 100 lb. and can break down into a small package for easy transport. List price is $444, and the optional 6-ft. extension costs $135. Add $7 for the 12-in. extension post and $9 for the 18-in. extension post.**

—Bruce Greenlaw