

# Ultimate Mobile Workbench

## Intro: Ultimate Mobile Workbench

For those of us with small garages or workshops, or those who are unable to install permanent shelving and storage in their work spaces, it can be difficult to tackle ambitious projects that require larger materials and more room for maneuvering. That's where the **Ultimate Mobile Workbench** comes in. This design incorporates a vertically adjustable and expandable workbench top that allows you to bolt-down larger bench-top power tools, a ton of interior storage via shelves, drawers and a pegboard wall, and a sturdy tank-like structure that provides safety and dependability in a mobile form that allows you to work on your projects virtually anywhere.

Many of the tools and methods that I used can be substituted to **adapt to what you have access to** (you can use a jigsaw or router or chisel for the same task, for example), but I'll list below everything that I used during this build. I had a few of the materials needed standing by in my garage, but everything I list below can be found at your local hardware store. If you were buying all of the materials new, I would estimate this project to cost somewhere in the neighborhood of **\$150-200**, depending largely on the type of woods you choose to use.

Speaking of which, in the following steps I'll give detailed dimensions of the sizes of wood that you'll need for my version of this project, but since anyone who builds this for themselves will likely adapt the dimensions of the Ultimate Mobile Workbench (UMW) to **suit their own needs**, I won't list bulk lumber specs here. And, as I detail in Step 3, you can use nearly any type of material you'd like for the body of the UMW, depending on your budget and other factors.

### Tools Needed:

Table Saw (or circular saw)

Miter Saw (or circular saw)

Power Drill & Bits (I used various standard drill bits, spade bits, and Forstner bits)

Jigsaw

Sander (I prefer a random orbital sander)

Clamps (I used both vise and bar clamps)

Hammer

Chisel Set

Safety Gear! (Seriously, **always** use gloves, eye and ear protection, and a respirator or mask, even when you think it may only marginally be needed!)

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### Materials Needed:

Assorted Hardware (nuts, bolts, washers, screws, nails, carpet tacks - all sized to fit your needs)

Narrow Utility Hinges (I used six 1" hinges, two 2" hinges and four 3" hinges)

Heavy Duty Double-Locking Casters (x4)

2" Angle Brackets (x4)

1" Lynch Pins (x4)

Two Cabinet Handles

1/2" Ceramic Disc Magnets (x8)

Epoxy & Superglue

Velcro

Double-Sided Tape

Danish Oil (or other wood stain)

### Oh... And Wood!

Depending on how you decide to tackle this project, and depending on how much of a budget you'd like to commit, you can use nearly any type of wood that you'd like. I used various lengths of the following (specific dimensions listed in the subsequent steps):

2x4, 2x2, and 1x2 Pine Boards

MDF (3/4" and 1/2")

1/2" Plywood

1/8" Tempered Hardboard Sheeting

1/8" Pegboard



## Step 1: Construct Frame

This workbench will only be as solid as it's foundation, so we'll be constructing a **2x4 frame** that will serve as the skeleton for the UMW. We'll build two identical pieces that will serve as the top and bottom faces of the frame, and then attach the two together with side supports. Here are the cuts of 2x4 you'll need:

27" (x4) - X Boards

28" (x4) - Y Boards

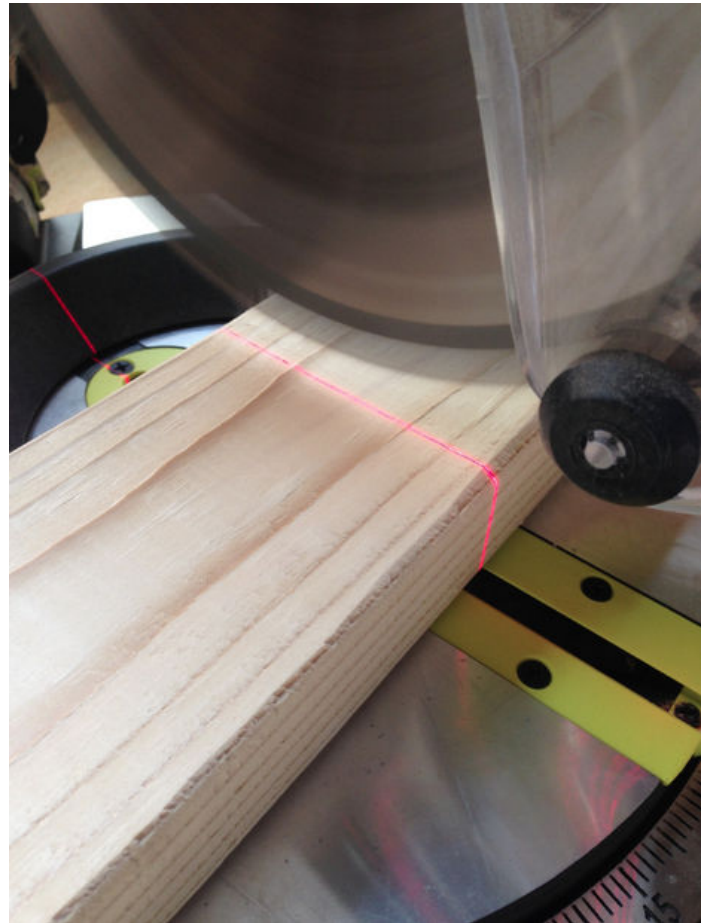
25" (x6) - Z Boards

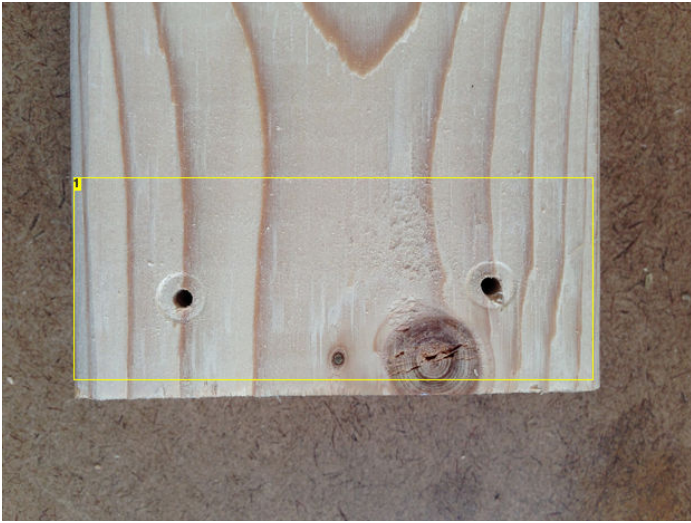
Using a miter saw, ensure that all of your boards are being cut at identical lengths. Use a straight edge or clamp to line up your boards precisely. Small variations in lengths during this step can cause major headaches as we get further into this build.

Our top and bottom faces will consist of three Z boards running parallel, secured with two X boards on the ends perpendicularly. Then, we'll attach the four Y boards on the outside edges of the front and back of the frame (see pictures above for more info).

In order to avoid having to mention it throughout this instructable, I highly recommend drilling pilot holes for your screws whenever possible. Nothing is more frustrating when inserting one of your final screws into a board than having the wood split along the grain because you didn't drill a pilot hole. This is especially true when using cheaper-grade lumber like I did in this build.

We will be adding pieces to this frame in every subsequent step, so this is your chance to ensure that your frame is totally level and doesn't wobble at all.





**Image Notes**  
1. pilot holes

**Image Notes**  
1. Z boards  
2. X boards





## Step 2: Cut Sides & Bottom Panels

Let's talk briefly about materials - You can use nearly any type of mats you want for the body of the UMW, but I suggest you think about going the most cost-effective route. This would mean considering plywood, MDF and particle board for your sides, interior bottom shelf and table top. **Plywood** is the strongest of the three, but finding good-quality plywood that's completely true (flat and unwarped) can be a challenge at the larger big-box hardware stores. **MDF** is cheaper but not as strong as plywood. It is very easy to cut and you don't have to worry as much about splintering and cracking since there is no wood grain, and it also can be quite heavy (which is advantageous in this design, to a point). Lastly there is **particleboard** - the ugly stepchild of the wood-esque materials group. It is fairly lightweight and inexpensive, but is much weaker than the other two options and is more susceptible to warping and wear due to changes in weather conditions, which our UMW will definitely encounter. And to top it all off, it is not very environmentally friendly, as there are several chemicals used during it's manufacturing process (though, to be honest, MDF is no darling in this department either).

All of that said, I used a combination of plywood and MDF in this build, primarily in an effort to **minimize costs, maximize strength**, and utilize some of the leftover scrap wood sitting around in my garage. Another element I would recommend is to consider using **tempered hardboard sheeting** as the very top layer of your workbench surface. This material is cheap, completely smooth to the touch, moisture and scratch resistant, and can be easily removed and replaced if damaged. I used hardboard sheeting (1/8" in thickness) on previous workbench builds and I can't recommend it enough for the reasons mentioned above.

Here are the specs for the top, two sides, and bottom shelf of the UMW:

Top (3/4" MDF and 1/8" Hardboard): 31" x 28"

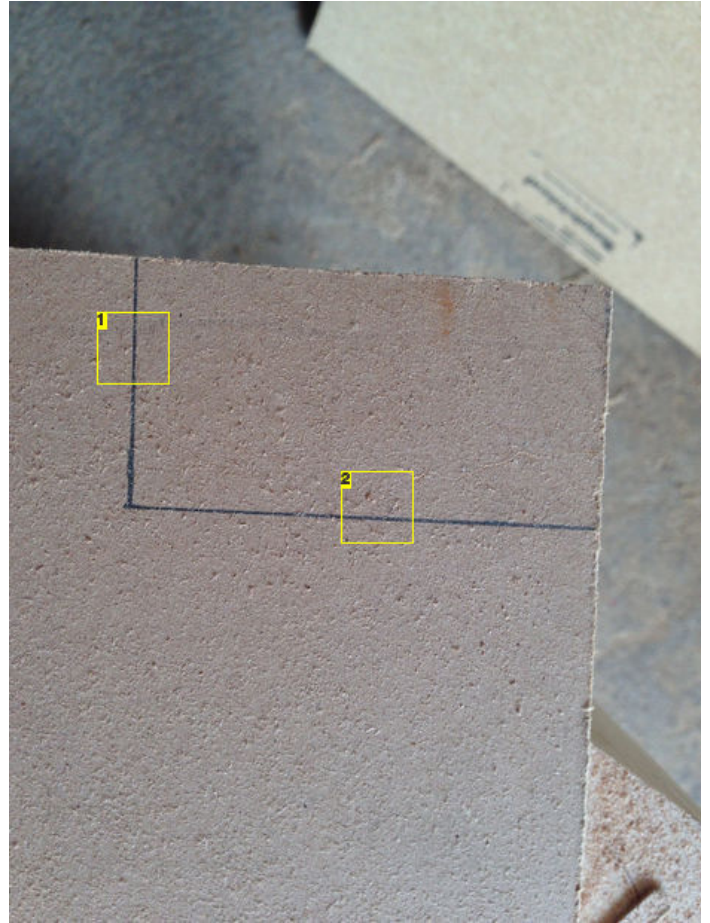
Side Panels (3/4" MDF x2): 28" x 26"

Bottom Shelf (3/4" MDF): 28" x 23 1/4"

As far as your side panels go, you can tell from the pictures above that I built them to sit on the inside of the 2x4 frame rather than be attached to the outside. This was done to accommodate the pegboard siding and the expandable bench-top shelf that we will install later. As such, you want your side panels to be **cut as tight-fitting as possible**, otherwise there will be gaps between the sides of your panels and the frame. Also, you may need to temporarily remove the center supports from the top and bottom of your frame to allow easy access to the inside of your workbench.

Once the two side pieces are cut, you'll need to **notch out the four corners** to allow them to sit securely inside the frame. The size of these notches are 1.5" x 3" (see picture above for layout). Once cut, you may need a hammer or mallet to gently pound the side panels into place. Once there, you can secure your panels with wood screws.

As far as the bottom shelf goes, this should easily slide into place between the side panels. Before you secure it in place, consider if you want to **install power in your workbench**. If so, it may be advantageous to use a jigsaw to notch out a small slot for the cable of an extension cord now before you permanently install your bottom shelf (see pictures above). I didn't think to do this until a later point in my build, so I suggest doing so now.









### Step 3: Workbench Top: Drill Mounting Holes & Attach Hardware

Part of the reason I wanted to build the UMW was to have more room to accommodate the cutting of large panels on my table saw and long boards on my miter saw. In order to do this, I needed to come up with a way to **bolt down my large table-top machines to my workbench top**. But an important part of this is being able to unscrew the bolts and swap out a different machine or saw without having to dismantle part of the workbench.

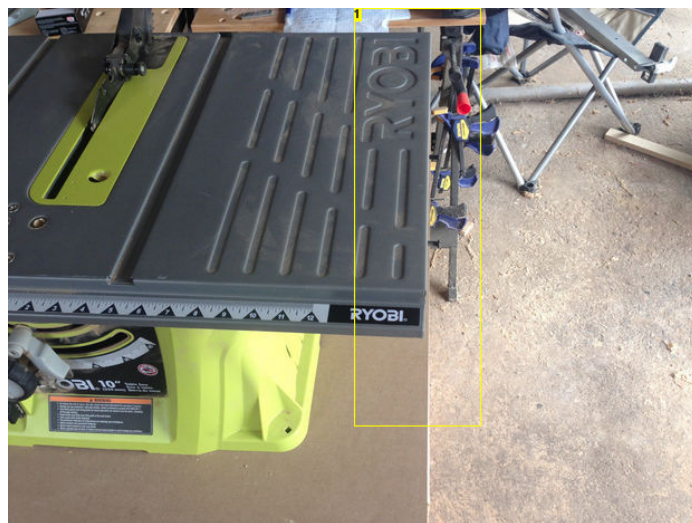
To accomplish this, I determined that the best plan of action was to drill holes in the MDF and hardboard top panels that aligned with the mounting holes for my table and miter saws. Then, on the underside of the table top, I would **permanently attach washers and nuts** that would allow me to crank down machines on the workbench top, and then unbolt them later after use. This design makes it easy to swap larger machines in and out while not interfering with the drawers on the inside. And, when (not if) I buy more large table-top tools, I can simply detach the workbench top, drill another set of holes, and be ready to go with the new machine.

The first step here is to place your table top onto the frame and align it where it will be screwed in. Then lay out your saw, planar, drill press, etc on your table top, making sure that the edge of your machine's surface is close to **flush with the edge of your workbench top**. This will ensure that the expandable side shelf we build later on will function perfectly. Once in place, use a pen, punch or even screwdriver head to mark the exact points of your machine's mounting holes (I'll be doing this for my table saw and miter saw in this build).

Once marked, use a small drill bit (1/8", for example) to drill fully through the MDF top at the exact point you marked previously. Then, on the underside of your workbench top, use a spade bit to **recess hole slots** for your nut hardware. Whatever size bolts you're using to mount your table-top machines with, you'll want to drill recessed holes that will allow the nuts for these bolts to sit flush. Once these slots have been drilled, use a regular drill bit (large enough to accommodate the bolts) to finish drilling from the underside of your panel all the way through the top side.

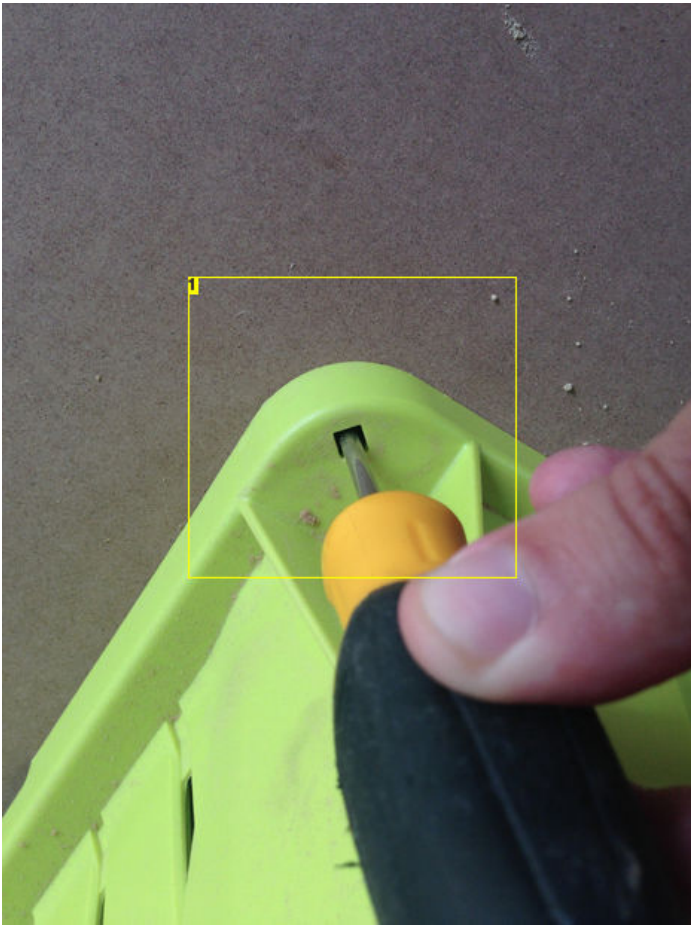
You can now **test** to make sure that your bolts slide smoothly through your holes and that the nut on the other side sits nicely within the recessed hole. If you're happy, you can now drill the same holes in your hardboard top sheet (if you decided to use one). When you do this, you can use your MDF top as a guide for these holes, but be sure to **drill from the top of the hardboard through the bottom side**. The reason for this is that whichever side the drill bit comes out of last will get a little torn up, just due to the nature of this material (see pictures). You'll be happy you drilled it upside down when you see how scarred up the bottom side becomes. You can use a chisel/file/sandpaper to clean up and remove any burs you may have as a result of the drill bit.

Lastly, we'll need to **permanently secure the hardware to the underside of the table top**. On a clean surface in an area with plenty of ventilation, grab your **epoxy** (I prefer JB Weld ClearWeld) and your hardware. Apply a generous amount to your washers and nuts (this will get messy...), pressing them together and letting them set for about an hour. Be sure **not to get any epoxy in the thread** of your nuts here, or it will lead to obvious problems down the line. Once the epoxy has hardened, line up the appropriate nuts with their corresponding mounting holes. Apply another generous dose of epoxy here and secure the nut/washer combos into their slots. After these have been given a chance to fully set, test out your bolts on each hole to ensure that they fit properly.

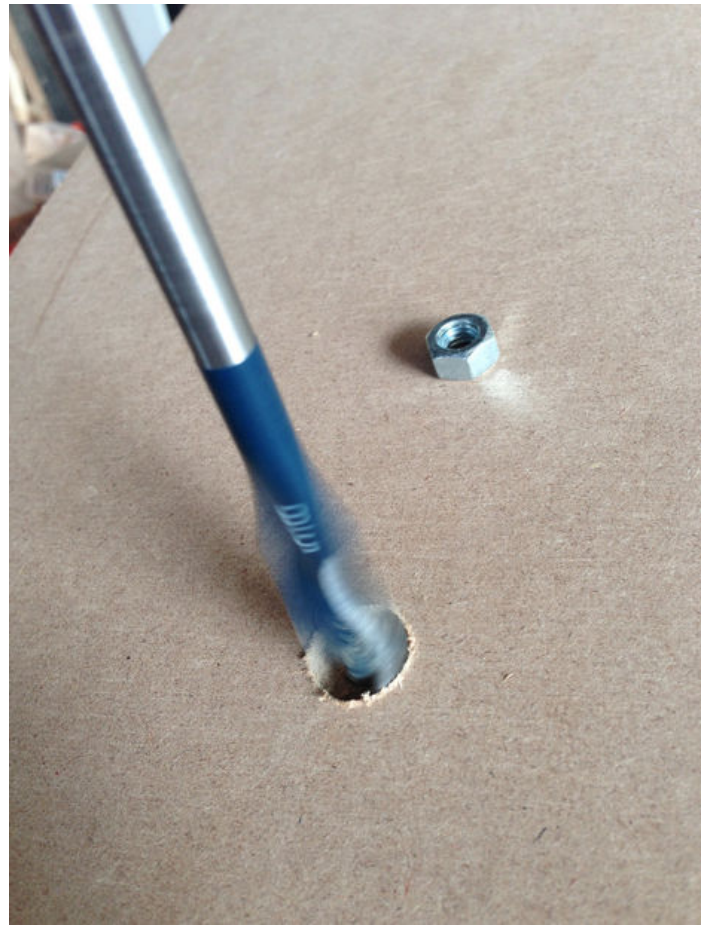
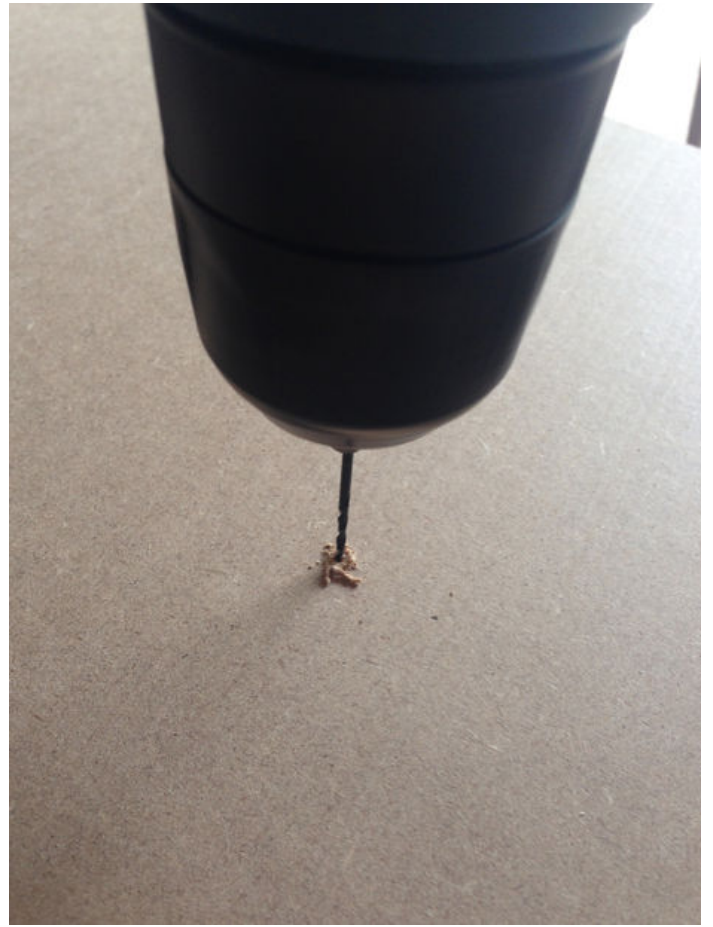


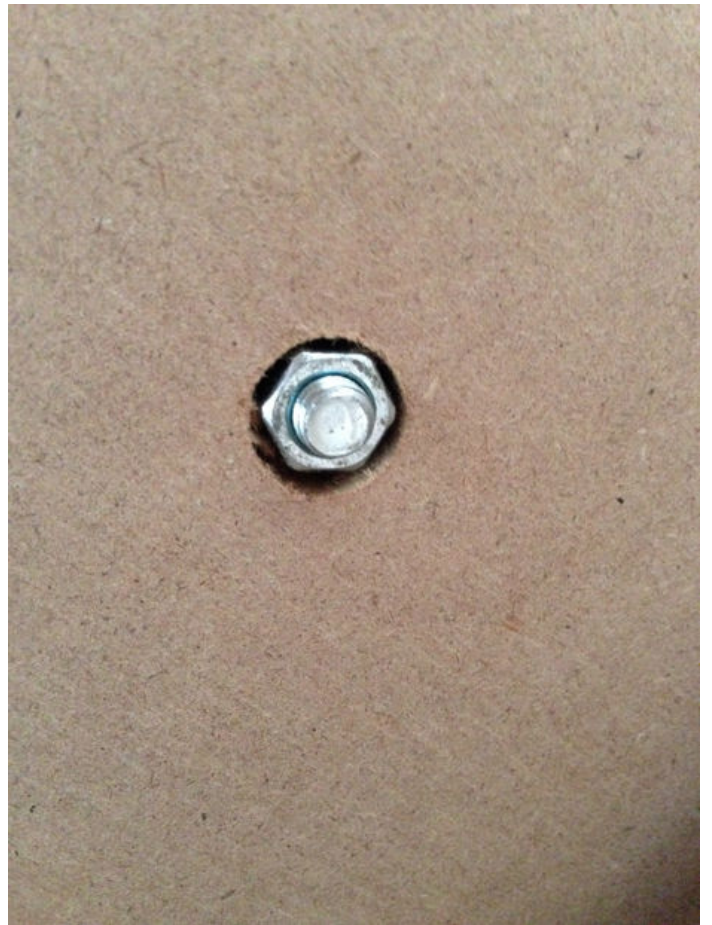
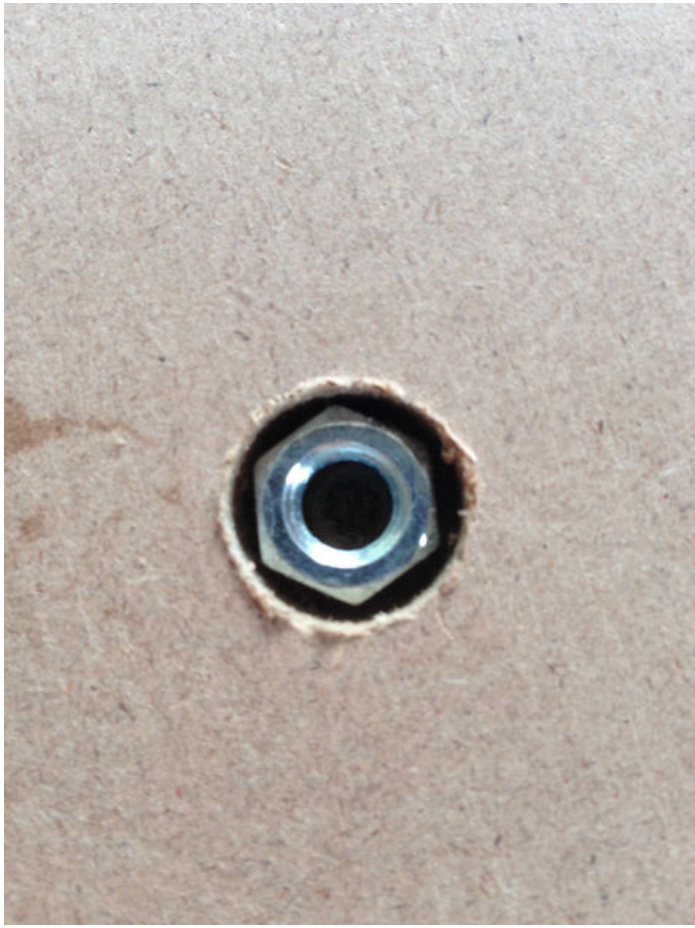
#### Image Notes

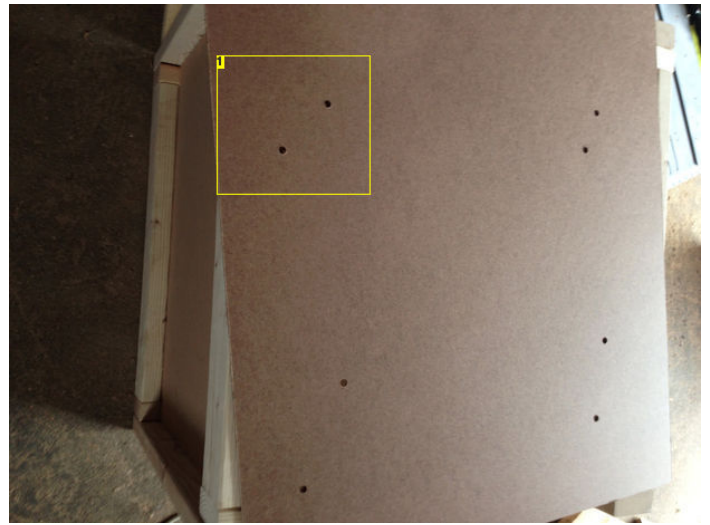
1. get the edge of your machine top CLOSE to flush with the edge of your workbench top



**Image Notes**  
1. punch a hole marker







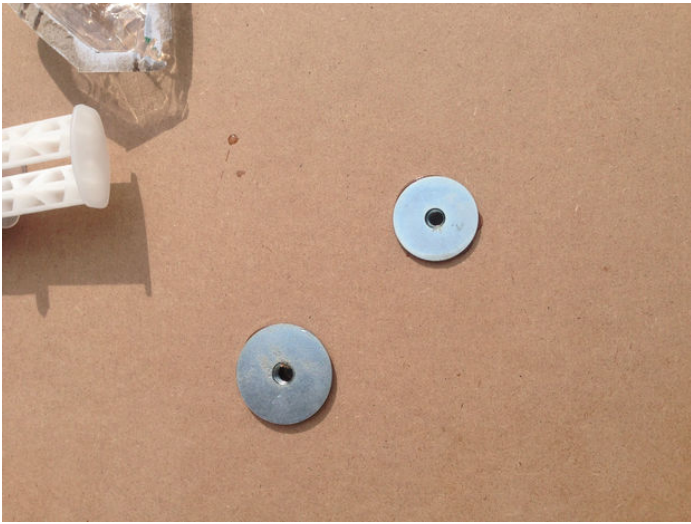
**Image Notes**  
1. clean topside of hardboard



**Image Notes**  
1. torn-up underside of hardboard







#### Step 4: Build & Install Drawers

What good is a workbench if it doesn't also incorporate some good storage? Yes, the shelf inside the frame will allow us to stack and store larger power tools, but having a couple of drawers will allow us to be better organized with our smaller tools. I decided that I wanted the UMW to be **equally useful from both the front and back** - much like a kitchen island. With your two side panels in place, we'll be able to install drawer slides that will allow us to have an easily accessible drawer on both the front and back of the workbench.

I'll preface what follows here by admitting that I've never built drawers before. I'm no cabinet maker and carpentry is still a work in progress for me. I'm sure there are better ways to assemble drawers, and smarter methods for constructing them. But that's why we, as makers, try to build new things! So let's get to it. First, you can go ahead and **cut all of your pieces to size**. I used 1/2" plywood for all of my drawer parts:

Bottom (x2): 18 1/2" x 12 1/2"

Sides (x4): 12 1/2" x 4"

Fronts/Backs (x4): 18 1/2" x 4"

Once cut, you can lay all of the pieces out and **mock assemble them** to make sure they fit. Using the picture above as a guide, the side pieces will lay along the outside edge of the front and back, and all four will align along the edges of the bottom.

Rather than attach a drawer handle or knob that will interfere with the doors we will add later, I decided to **cut out a recess on the face of each drawer** that will allow it to be pulled open. Just making it up as I went, I found the midpoint of the drawer face (9.25") and measured 2.5" out in both directions. Marking these points and measuring an inch inward from the edge, I drew out a box where the slot will sit. I then drew a line at about 30° from the two outer points of the slot. Using a jigsaw, I cut out this new trapezoidal shape which will serve as the handle slot. At this point, you can go ahead and **sand down all of the panels** for your drawers, rounding the edges on the face panel for safety's sake.

Before we assemble the panels together, it's time to give some thought to **where we will attach the drawer slides**. Since the slides will have to sit flush against the front edge of the drawer's side panels, I didn't want to accidentally place a screw during the assembly process that would interfere with attaching the drawer slides. Using a left and right slide rail as guides, I marked the hole positions on the side pieces for both drawers to ensure that I don't run into an issue later.

We can now **assemble our drawer panels** together using some small wood screws. I'm not going to be a pilot hole nazi here, but plywood really likes to splinter on you, so it would be smart to drill some holes to avoid this... Once all of the panels are screwed together, you can go ahead and **attach the slides** to the drawers noting the hole positions that you marked previously. Once you've done this, your drawers are finished! Now for the second half of the equation.

Based on the width of my drawers and the space between my two side panels of the UMW frame, I determined that 2x2 studs (which are actually more like 1.5"x1.5" studs) would provide the perfect width to make sure that my drawers sit in the precise position so as not to be interfered with by the frame. I **cut two 2x2s to 28"** and went ahead and **attached the other part of the drawer slides** to them, making sure that the slides butted up against the front edge of the studs exactly.

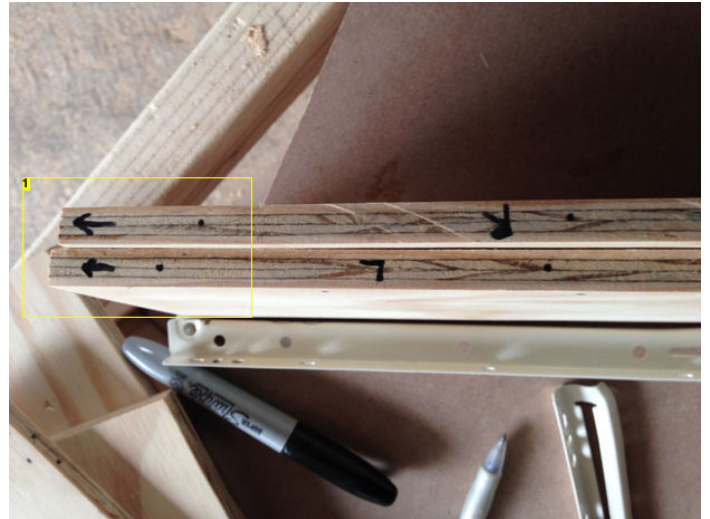
I wanted to screw these studs into place from the outside of the side panels, so I needed to figure out where to insert my screws. I decided that 6 1/2" from the top of my side panels was the perfect spot, and marked this out on the inside and outside of the side panels. Then, being very careful to measure multiple times, I **clamped the studs down to the inside of the panels**. This will allow me to drill from the outside of the panels into the studs while holding them in place. It's a good idea to use a level here to make sure your studs are perfectly positioned before drilling.

Ok! This is the point where you close your eyes, cross your fingers and try sliding the drawers in place... Mine fit almost perfectly - with one side a little more snug than the other, but totally usable. If you have a little too much of a gap for your drawers to fit, you can remove one of the studs, **add a thin shim along the inside edge** and reattach. If your studs are too close together and you can't get your drawer in place at all, you can use a table saw to **trim off a few millimeters** and try again. Hopefully you had success, and are inspired to keep going! If not, have a beer (or four) and pick back up the next day.



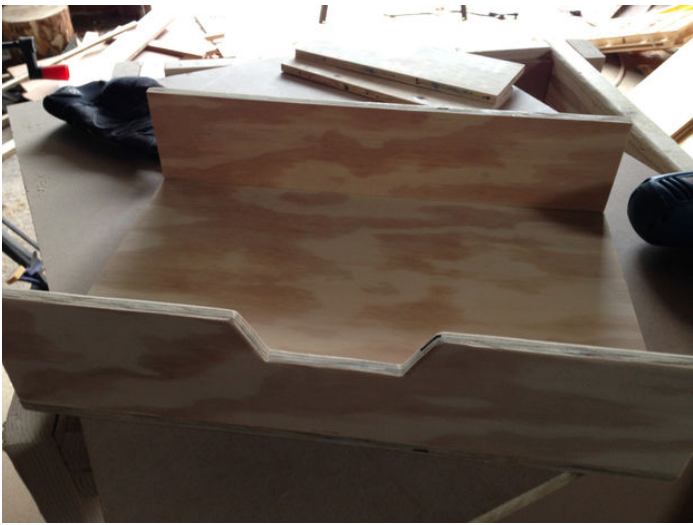
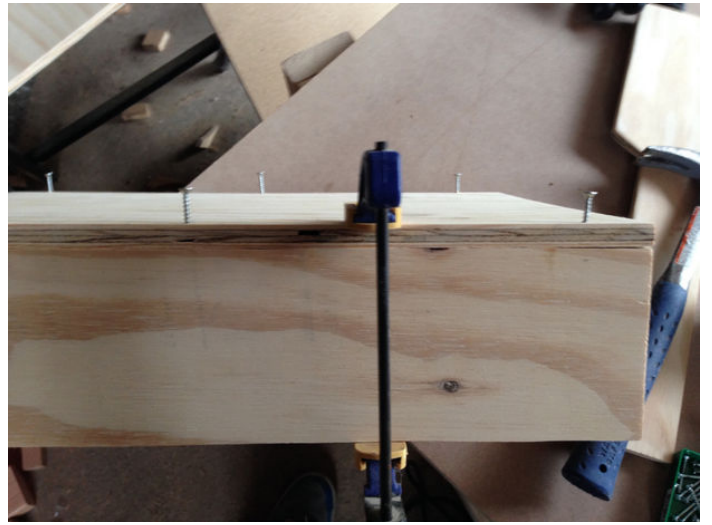




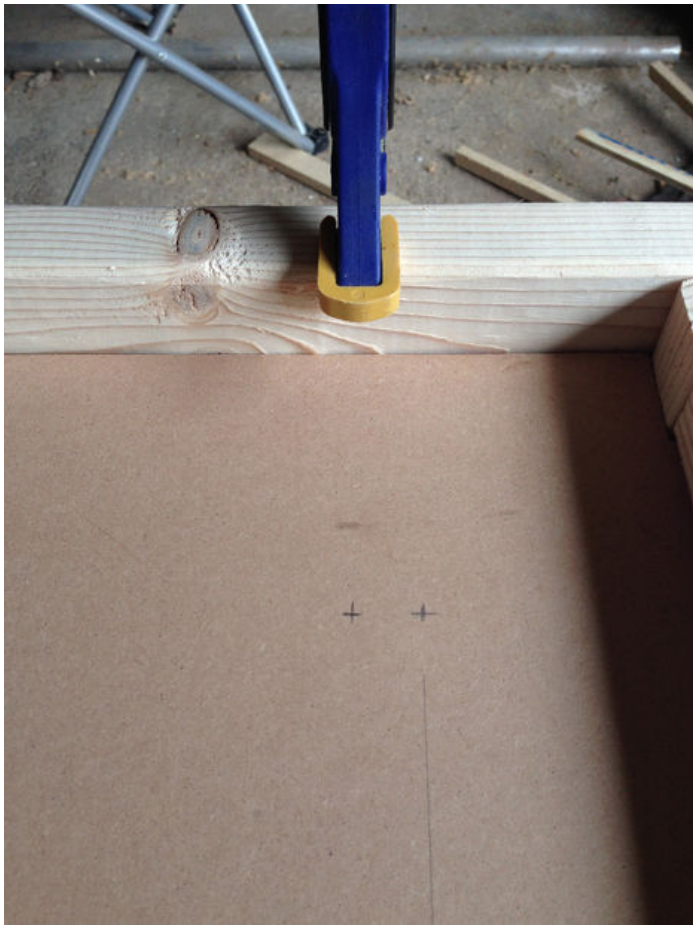


**Image Notes**

1. drawer slide hole positions marked











### Step 5: Build Doors & Interior Shelves

Before you go about constructing your doors, now is the perfect time to make the **interior hanging shelves** that will go on your doors. Since we'll be gluing and clamping these together, we can let them sit while we cut the doors. I used 1/2" plywood for both the doors and hanging shelves, and here are the **dimensions for the shelf panels**:

Front (x2) 15" x 3"

Bottom (x2) 15" x 2.5"

Sides (x4) 5" x 3"

You can certainly play around with these dimensions, but considering what I thought I would be putting in these shelves (glues, stains, drill bit sets, etc), these dimensions seemed right on the money. I wanted the sides of my shelf to have an **angled top edge**, so after cutting these to 5x3", I trimmed them down with my miter saw to have a 25° edge (see pictures). Once you dry-fit them together to ensure they were cut right, you can apply a **generous amount of glue along the edges and clamp them down**. I let these sit overnight, but depending on the type of wood glue you use they should be ready much sooner. Once they had dried, I carefully tacked in a few **small finish nails** to help improve strength.

In the mean time, we can get to work on the doors themselves. I **cut two 1/2" plywood panels to 21" x 26 1/2"** which slid right into the space in between the beams of my frame. Depending on how you want to mount your hinges, take their width in consideration when cutting your doors. You want to have these doors sit as snugly as possible once installed, as any gaps between the door and the frame will be noticeable.

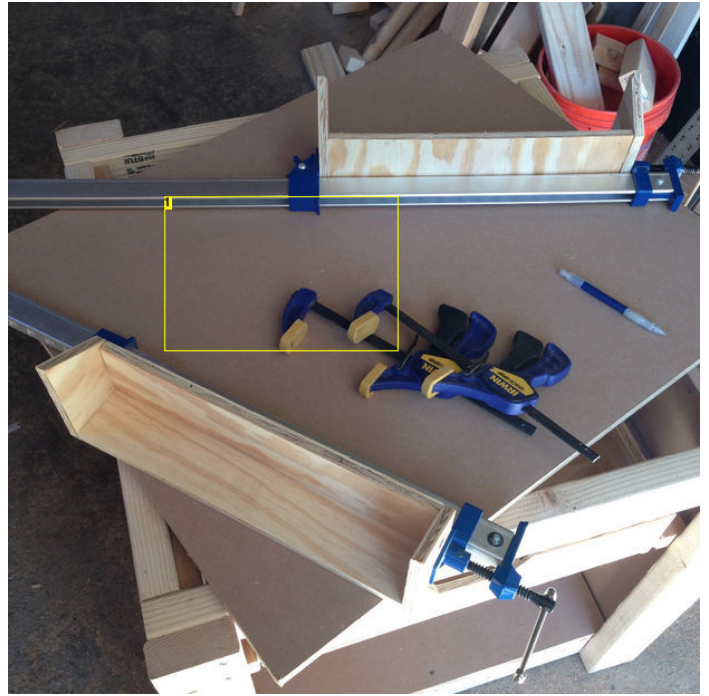
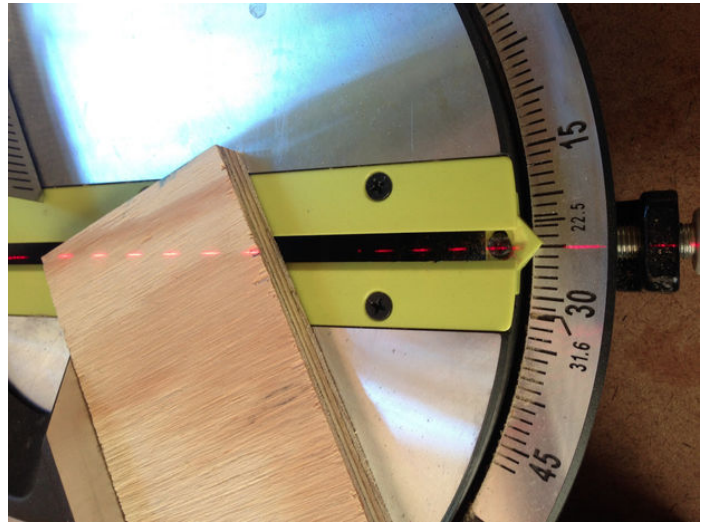
The way I intended to install the hinges required me to **recess a small slot** along the outside edge of my door to accommodate the hinge pin. I used a chisel for this task. If you don't have much experience with chisels, the best advice I can give you is to go slow, take your time and not to hammer your chisel blade too far into the wood. Go at it from all angles to ensure a clean cut. With my hinge slots cut I marked out where on the frame I needed to install hinges, and screwed them in. Now you can **attach the door** to make sure your fit is perfect.

I decided I wanted to use a few **disc magnets** on my doors and frame to keep them closed while I'm wheeling around my UMW. For this task I used a Forstner bit to drill a hole with a flat recess. Measure out the spots you want the magnets to sit in your frame and the inside of your door, and drill them out. Then apply some **superglue** to the hole and press a magnet into it. **Be sure you have the magnets facing the right way when you glue them in! If one of them is flipped around its polarity will never let your doors close!**

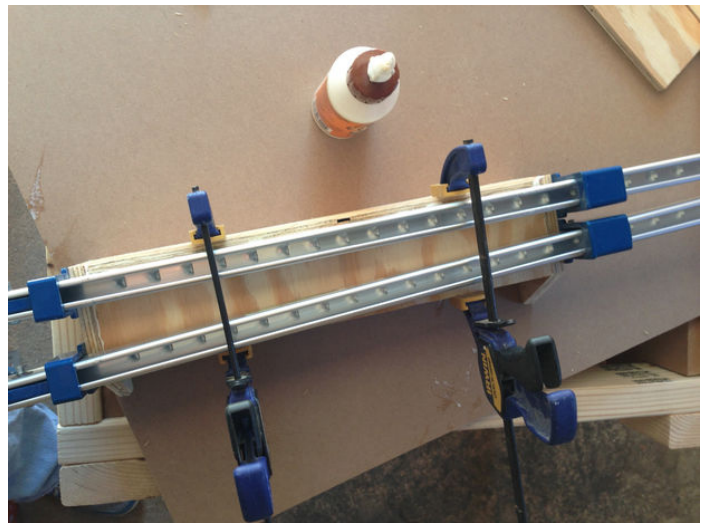
Your hanging shelves should be dry by now and ready to attach to your doors. I decided to use some **2" angle brackets** to attach these to the inside of the door, but wanted the shelves to sit completely flush with the face of the door. After marking the location of the angle brackets on the doors and shelves (my hanging shelves sit 9" from the bottom edge of the door, and the brackets are 8 1/2" apart), I used a jigsaw to **cut a slot 3/4" wide and 3/16" deep**. This will ensure that the edges of the shelves all sit completely flush against the door. The last holes you will drill are for your door handle hardware. I had to purchase some 3/4" bolts for the cabinet handles that I bought, as the included ones were too long for my 1/2" door width.

Once all of your holes and slots have been made, **sand each door down well**. I wanted to add some Danish Oil to my doors to keep them looking nice and help seal them. Finally, attach the angle brackets and the shelves to the inside of the doors. I finished up by placing a small finish nail on the top of the angled edge of the hanging shelf to help secure it to the door. Now that your doors are done, set them aside to be installed at the end of the build.



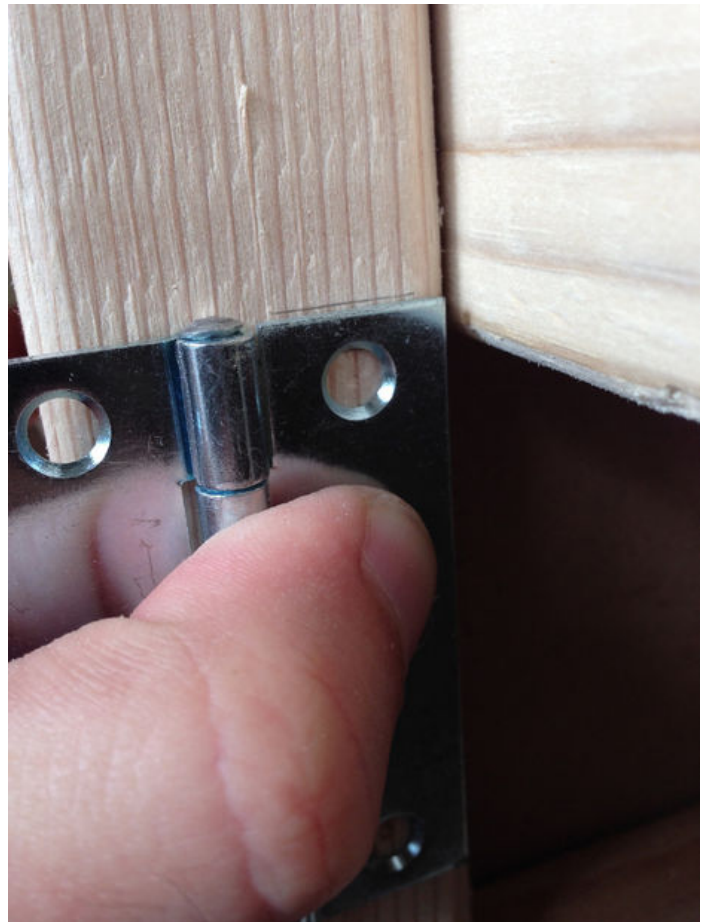
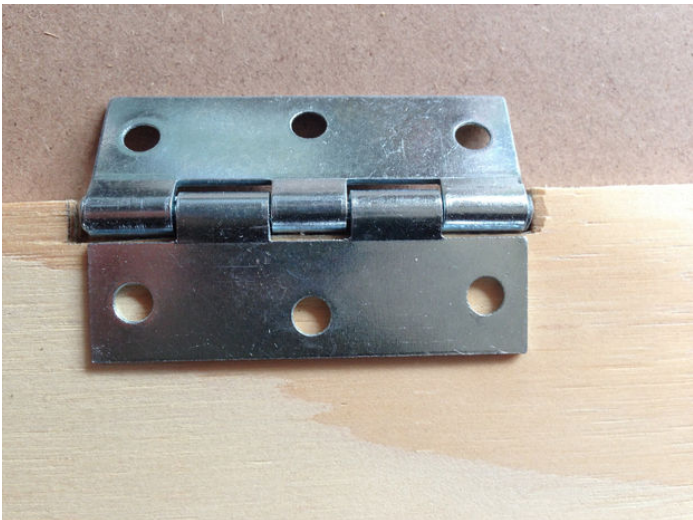
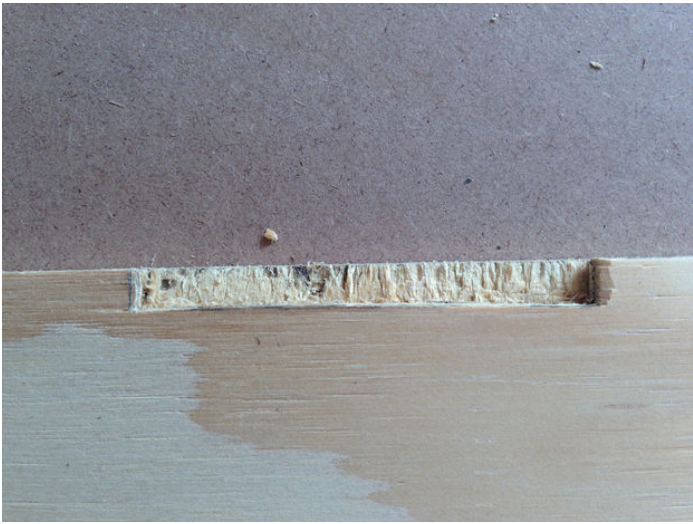


**Image Notes**  
1. test fitting shelf parts











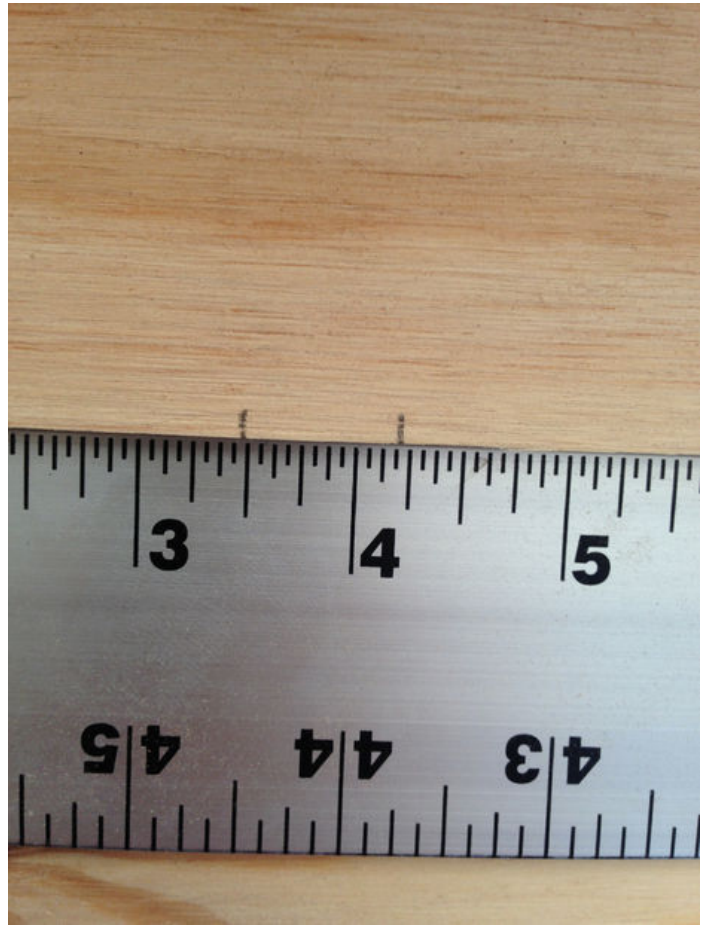
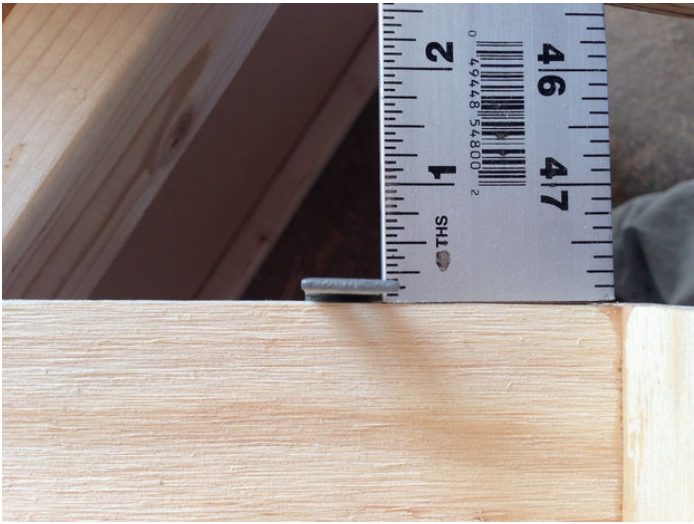




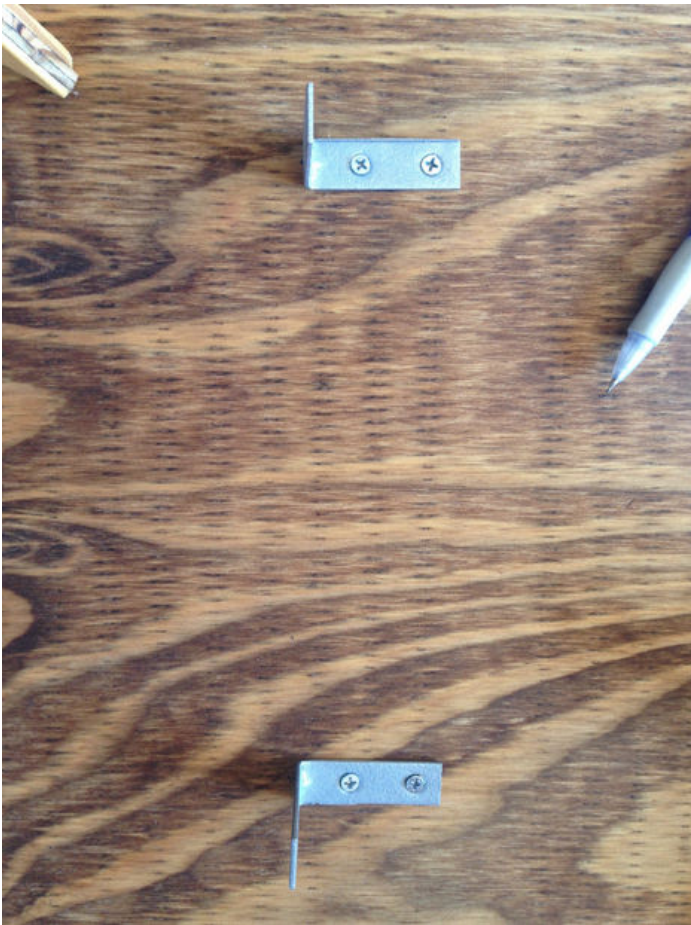
**Image Notes**

1. positive attracts negative!











### Step 6: Construct Extendable Side-Shelf

This is by far the most complex component of the UMW design, and I went through several different conceptual permutations before deciding on this design. There are a number of folding shelf locking mechanisms available online, but I wanted to build something out of wood that offered the best **stability and strength** and was built to fit the rest of my workbench. The idea for this extendable side shelf is simple: **I want a folding shelf that allows for more surface area to work on, and I want it to be able to raise to various preset heights to accommodate any table-top machines (table saw, miter saw, etc) that I might mount on to the UMW.** Making this idea work: not so simple. Flip through the images above to get a feel for how this works mechanically before reading on for the details.

The first step is to **create an outer edge using 2x2" studs**. These will hold the shelf frame in place when it is in its raised or normal positions. The bottom stud is cut to 31" in length, and the two side studs are cut to 25 1/2" in length. Go ahead and attach these to the 2x4" frame. Now you can **cut the pieces for the shelf frame** (I used 1x2" pine board for this): the two vertical boards were 26 1/2" in length and two horizontal boards were 26 3/4" in length.

Here's where your customization will come in to play, depending on **what type and how many** machines you'll be mounting to your UMW top. I decided only to plan for my table saw and miter saw, though adding additional machines is easy with this design. The table of for my table machines sits 11 3/16" from its base, and my miter saw table sits a more modest 3" from the base. **These are the heights that I will want my extendable side shelf to raise to.**

I'll be using **two lynch pins on each side** of my shelf frame to hold it in place at the various heights, so although I'll only be drilling two holes into the sides of my 2x2 edges, I'll be drilling two holes **per height** on the sides of my shelf frame. Measuring to accommodate my two machine heights, I marked the points on the side pieces of the shelf frame.

Using an angle or T square to line up the boards of your shelf frame, predrill some pilot holes for your screws and attach the boards together. With the frame built, line up your markings and **begin drilling the holes for your lynch pins**. As you can see in the pictures above, I used clamps to secure the shelf frame in place while drilling. I used a 5/16" drill bit for these holes, which offered a snug, secure fit for my lynch pins. After the first set of holes are done (for the normal, workbench-top position of the shelf), you'll be using the holes in your edge 2x2s as a guide for any further drilling you do to your side shelf pieces.

For my miter saw and table saw, I used a spare board laid along the table of the machine to make sure that the side shelf was at the right height, **flush against the board**. At this point I decided to insert a 2x4 board into the frame of the UMW, under the shelf frame, attached to the UMW side panel. This helps keep it level as I raise and lower the shelf. Once the holes are drilled, set the shelf frame aside temporarily.

We'll move on to the **triangular shelf supports**. These will fold inside the shelf frame when the shelf is not in use and in the down position, and will fold out to support the side shelf table top when in use. **Here are the dimensions for these pieces:**

X (height): 24 3/4" x 1 1/2"

Y (length): 26 3/8" x 2"

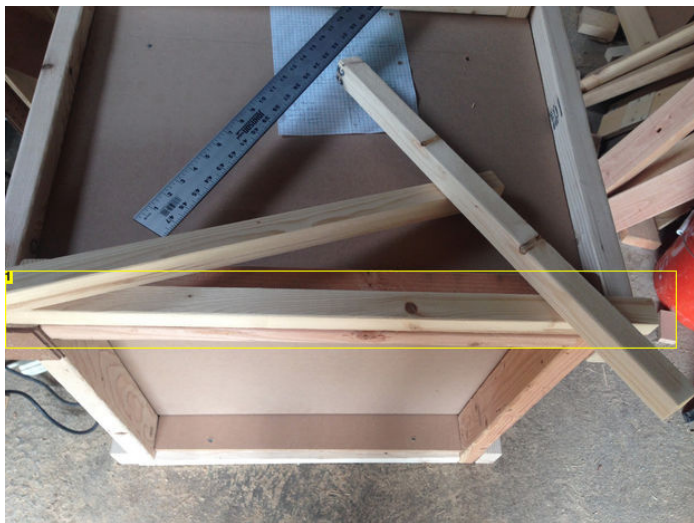
Z (diagonal): 3" x ??

Since the lengths of my X and Y boards were not identical due to the inside dimensions of my shelf frame, I knew that this board's edges couldn't be cut at 45° angles. To help figure out the angle and length of my diagonal piece, I found a **great triangle calculator** online. I told it the lengths of the two sides I knew, along with the fact that I had one 90° angle, and it spat out a diagonal length of 36.169", with two angles (43.179° and 46.821°). So, let's call that 36" with two angled ends at 43° and 47°. After using my miter saw to trim these up, the triangle fit together perfectly. Using a combination of thin screws and finishing nails, I **put the supports together**.

After laying the two triangular supports inside the shelf frame to ensure that they fit as intended, I lined up **three 1" narrow utility hinges per support** and marked off where to drill them. You want to be sure that the supports will both be able to open fully, but also close and be recessed inside the frame. Go ahead and attach two or three hinges along the edge of your frame, as seen in the picture. The one design flaw I encountered was the **pin of the hinges restricting the movement of the triangular supports** when the move in and out of the frame. To deal with this, I used a jigsaw to cut out a small slot where the hinges rubbed against the support arm so that they could move more freely.

At this point, you can **cut out the side shelf tops**, which will be similar to your main UMW top (MDF and tempered hardboard sheeting). I used 1/2" MDF here, and cut both it and the hardboard to **31" x 24"**. To attach the hardboard to the MDF, I used some small 1/2" carpet tacks (see picture). These have a fairly low head profile, and will allow me to easily remove the hardboard top if it gets damaged or stained. You don't have to go crazy with these - three per side is enough - but make sure that you **fully hammer down the nail head** so that it won't have a chance to damage any materials you place on it later.

Now you can lay the shelf top down and line up the hinges so that it will **sit completely level** with the top of the shelf frame. Once attached, make sure the triangular supports sit flush along the underside of the shelf top. I used a couple pieces of scrap MDF to create buffers to **keep the supports from slipping out** from the sides of the shelf top when extended. That's it for the extendable side shelf! Slide the shelf frame in to place on the UMW, insert the lynch pins and give it a try!



**Image Notes**

1. 2x2 edge pieces

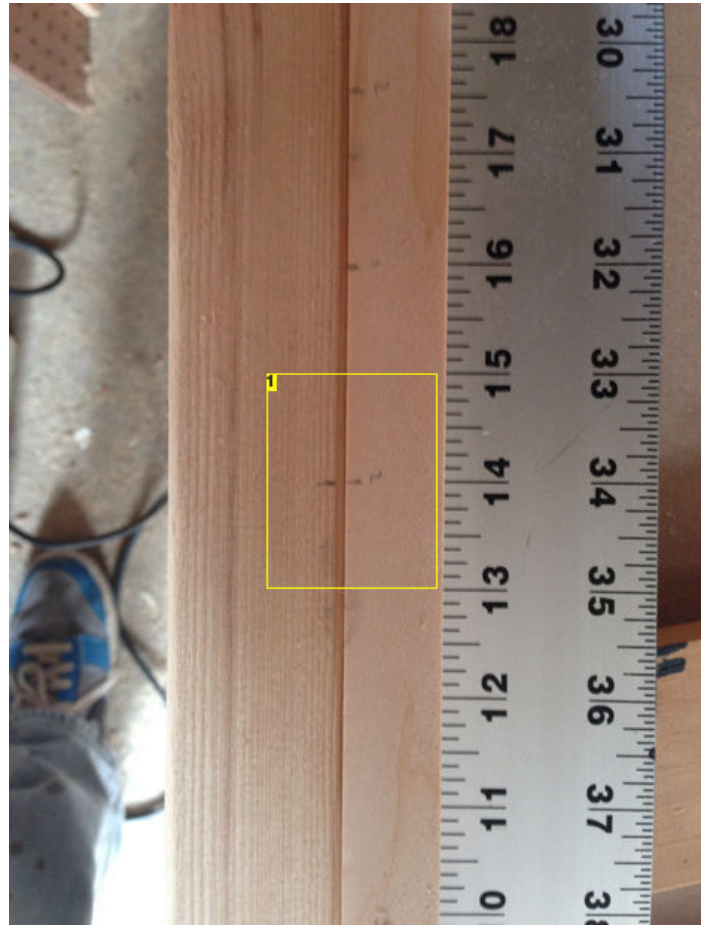


**Image Notes**

1. I ended up not using this piece

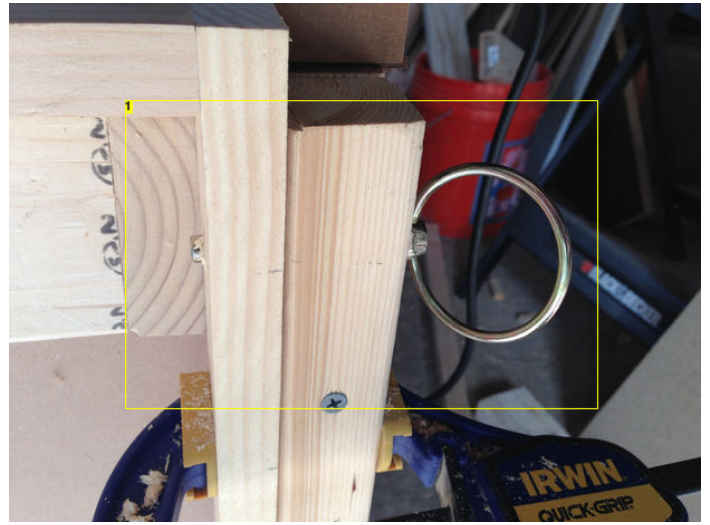


**Image Notes**  
1. top lynch pin hole

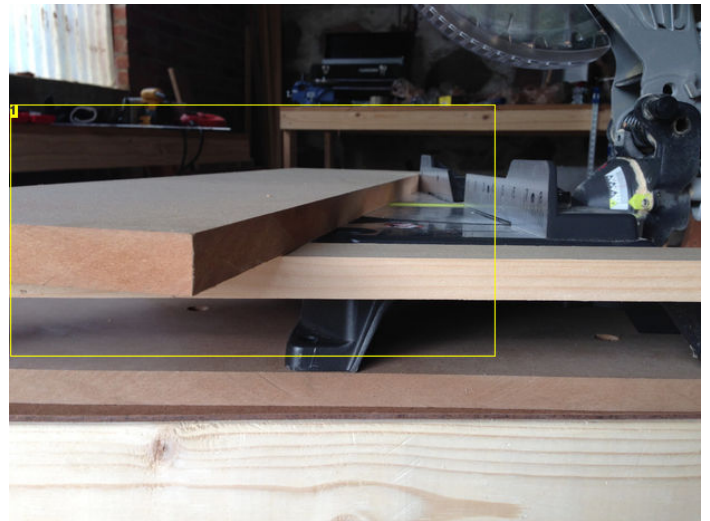


**Image Notes**  
1. bottom lynch pin hole

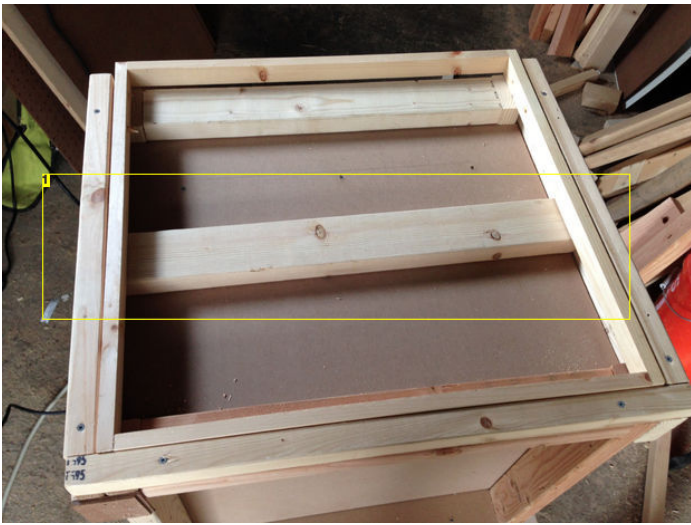




**Image Notes**  
1. lynch pin in place



**Image Notes**  
1. ensure shelf frame is flush against board

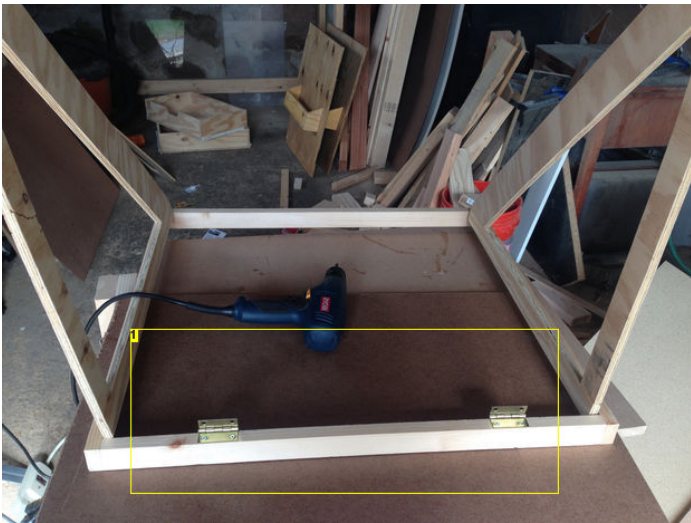


**Image Notes**  
1. added 2x4

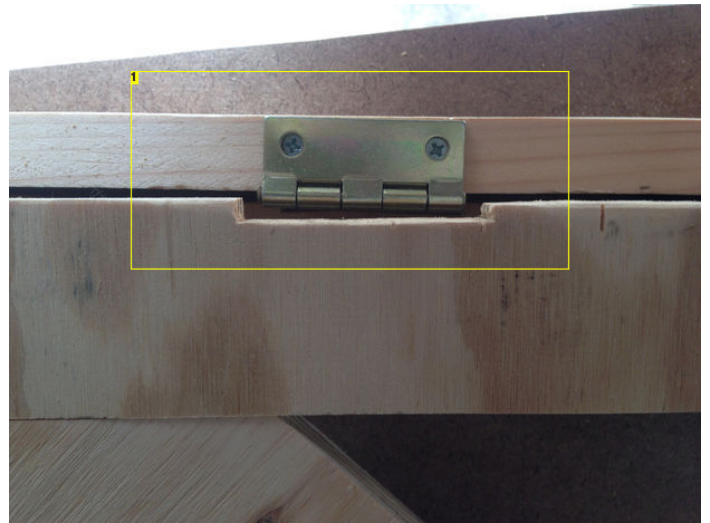




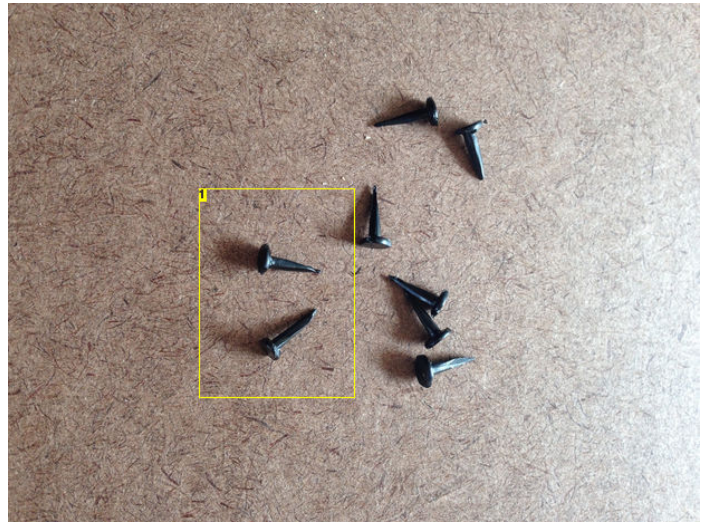




**Image Notes**  
1. hinges



**Image Notes**  
1. cut slot into triangular support



**Image Notes**  
1. carpet tacks

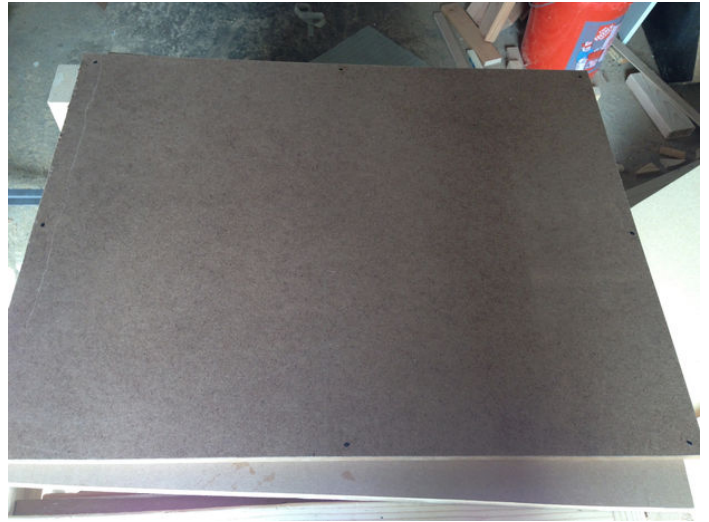




Image Notes  
1. MDF buffer



## Step 7: Install Casters & Table Top

We're almost there...

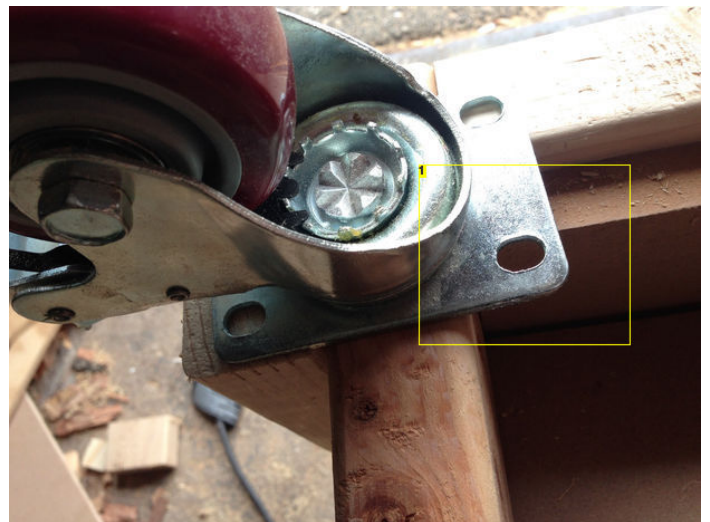
Before you go about installing your casters on the bottom feet of the UMW, now is a perfect time to **give your UMD a rough sanding**. No doubt that your 2x4 frame has gotten a decent dose of scratches and dings as you've been screwing on and attaching a number of pieces over the course of this build. No need to go overboard here - just make sure there aren't any lingering splinters waiting to get their revenge somewhere down the line.

Carefully flip your UMW frame upside down, and grab your casters and mounting screws. I purchased some **double-locking casters** on Amazon, though you can find similar ones at your neighborhood hardware store. The key to the double-locking variety is that, when the brake is fully engaged, both the **wheel AND the swivel mechanism** are locked down. Some locking casters only have a brake for the wheel, and the UMW wouldn't be very safe if you could still wiggle it around after the casters were locked.

The trick when installing these casters is that there are a number of **large wood screws hidden inside the boards** of the frame. You want to be cautious when screwing your casters in to avoid these. I was able to install screws in all four of my caster mounting holes except for one, which I had to settle for three. Now, being mindful not to

put too much pressure on your casters while doing so, **slowly flip your UMW back over**. Once on the ground, you'll be able to make sure that your casters are all level and the UMW has no wobble at all. If there are any issues here, you can go back and **add a shim of wood** under any caster bases that may require it.

**Time to put the top on!** Line up your MDF top piece in the correct orientation, and go about securing it. Since the corners of my frame have several woodscrews lurking beneath the surface, I elected to place my screws along the edges of the frame top. Four screws is plenty here - the top won't be going anywhere and it will make it **easier for you to remove the top** if you decide you want to accommodate mounting holes for future table top machines. After drilling my pilot hole, I like to use a standard Phillips drill bit to create a **counter-sunk hole** for my screw head. This will allow for a much cleaner final product with the head of the screw sitting under the top of my table. Finally, grab your hardboard sheet and **attach it to the MDF top** in the same manner you did previously on the shelf top: small nails or carpet tacks placed on the corners and edges of your top. Looks nice, doesn't it!?



#### Image Notes

1. the one that got away...



**Image Notes**  
1. counter-sunk hole



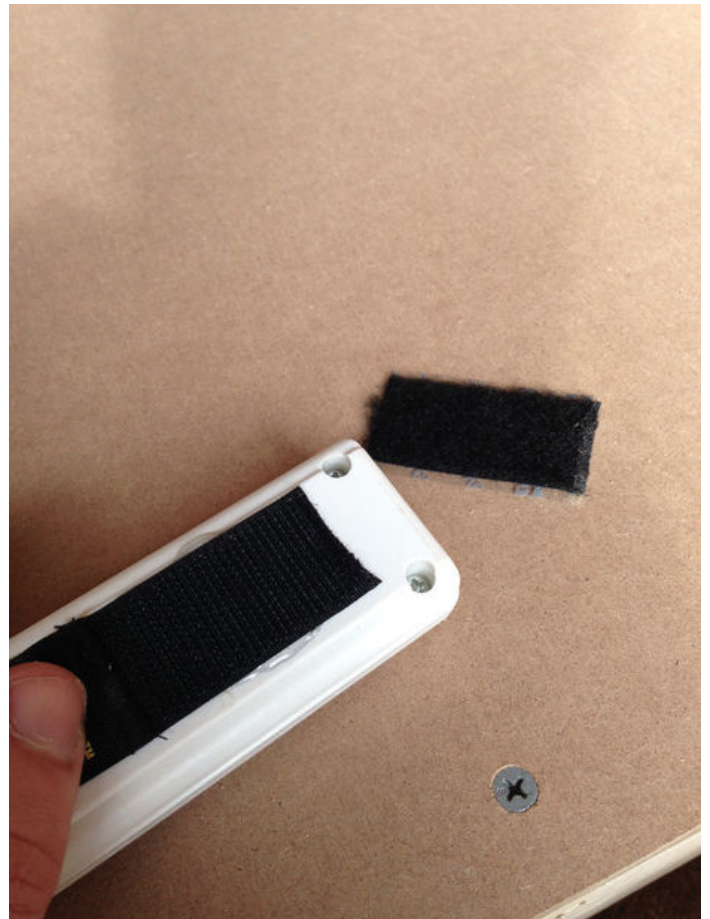
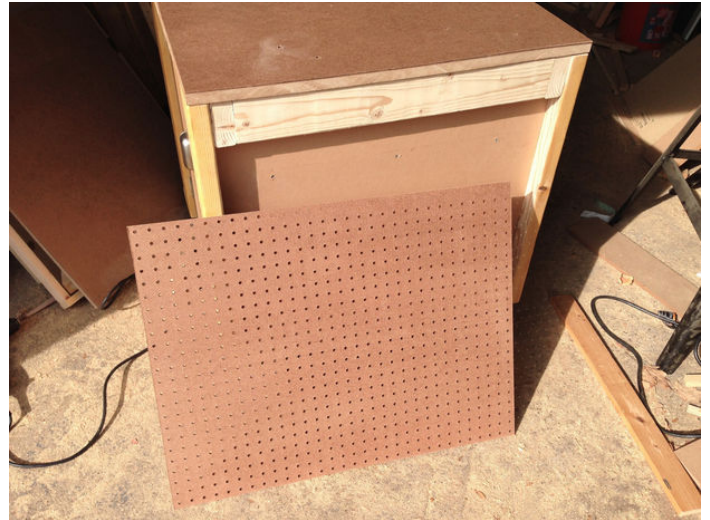
## Step 8: Final Touches...

There are a few small things left to do. The first is to **attach your pegboard wall** to the side of the UMW opposite the extendable side shelf. I **cut a sheet to 30 1/2" by 26"**, and used a few screws to put in in place. You can now add any pegboard mounting hardware to organize this however you'd like!

Remember that **extension cord** that we cut a hole for and set aside earlier? Well it's time to mount it up. I opted to mount it on the front left edge inside one of my doors. I used **velcro**, but certainly you could use screws or zip ties or whatever you like.

Since this UMW is meant to roll around wherever I feel like working, I thought that the contents of my drawers might get scattered around during transport. So I got my hands on some of the **non-slip padding** that you might see in people's kitchen drawers or cabinets, cut it to size, and tacked it in place using some heavy duty double-sided tape. Those wrenches and screwdrivers aren't going anywhere now!

Lastly, I decided that the contrast between my dark walnut Danish Oil-stained doors was a little too stark with the natural pine look of my frame. So I grabbed some more **Danish Oil** (of the golden oak variety), and gave the front face sides of my frame a once-over. The last picture above shows the difference between the unfinished pine (left side) and golden oak stain (right side). Danish Oil is by far my favorite type of stain to use when I'm not applying a clear coat to something. It brings out the wood grain like no other stain I've used.









### Step 9: It's... Alive!

I have to admit - **if any of my neighbors looked out of their back windows at a certain time this afternoon**, they probably wondered what the hell that weird guy who lives next door was up to. "He's always walking in and out of his garage at odd hours, covered in who-knows-what, wearing goggles and a mask, making loud noises all day. And now he's doing some sort of bizarre photoshoot in his back yard with some kind of workbench on wheels. And it looks like there's some type of elaborate folding side-shelf that raises up and down... and drawers and shelves and a pegboard wall... **AND** he can mount table and miter saws on it... **Wait I gotta go talk to this guy!**"

Well, that's probably not how it went down, but I can say for sure that this was one of the more challenging and rewarding builds I've committed myself to. I always waltz into projects with hyper-inflated plans and ideas and end up learning lessons the hard way, but that's what this is all about, right? And now I'll be able to over-extend myself on new projects in the future using the **Ultimate Mobile Workbench**, working nearly anywhere I can think of (...that has an extension cord).

