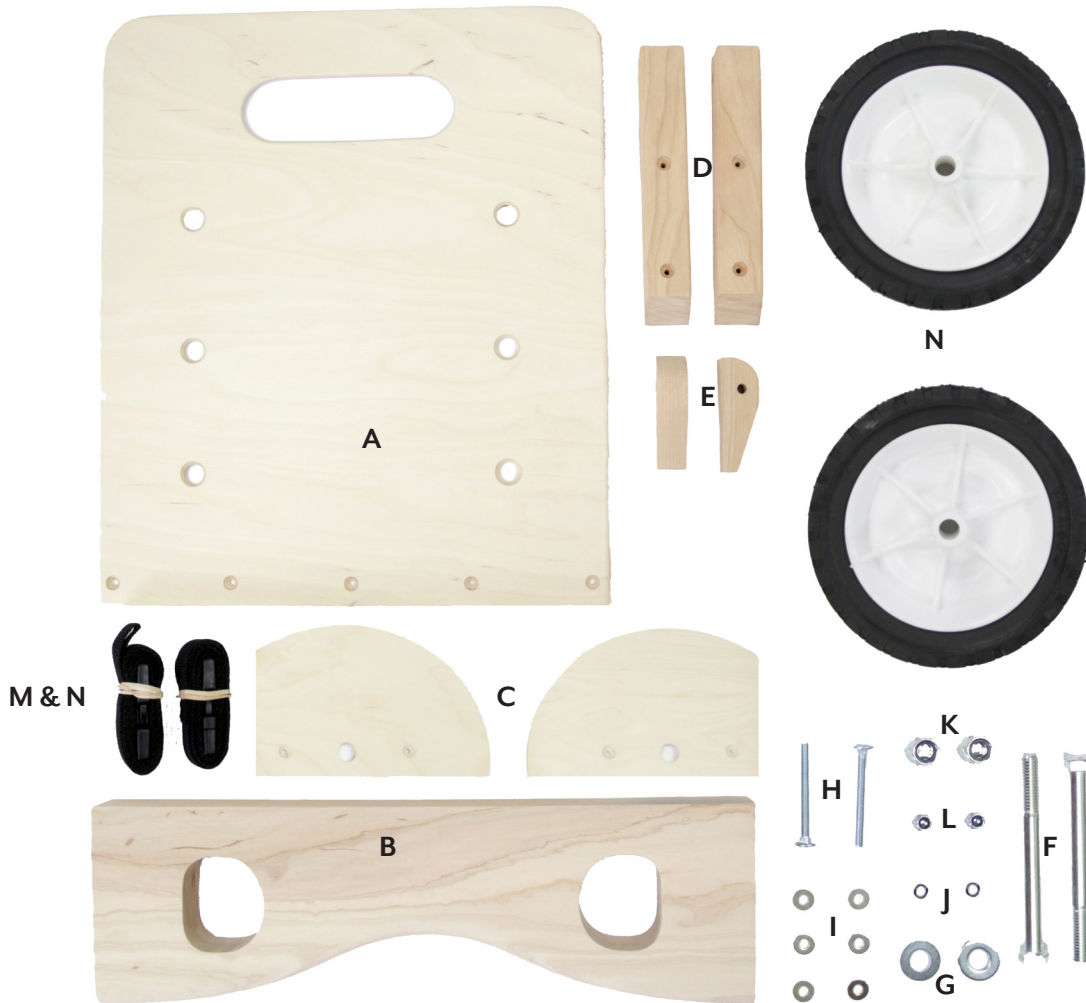


## HARP WHEELS KIT

### Assembly Instructions

Updated October 2022



#### Wood Parts:

- A. Wheel Paddle
- B. Axle for Wheels
- C. (2) Fenders for Axle
- D. (2) Brake Main Parts
- E. (2) Cams for Brakes

#### Hardware Parts:

- F. (2) Bolts for Wheels 1/2" - 13x5"
- G. (2) Washers for Bolts, 1/2"
- H. (2) Square Neck Carriage Bolts, 1/4"-20x2-1/2"
- I. (6) Washers, #12
- J. (2) Spring Washers
- K. (2) Lock Nuts, 1/2"
- L. (2) Lock Nuts, 1/4"
- M. (2) Nylon Straps w/ Buckles
- N. (2) Wheels, 7"
- (9) Wood Screws, 1" (not pictured)
- (4) Wood Screws, 1-5/8" (not pictured)
- 7/64" Drill Bit (not pictured)
- (2) felt pads (not pictured)

Musicmakers  
14525 61st ST CT N  
Stillwater, MN 55082

## BEFORE YOU BEGIN

\_\_\_A. Inventory and inspect all your parts carefully. If anything is missing or defective, please call us right away.

651-439-9120

\_\_\_B. It is a good idea to read through the entire assembly instructions before you start, just to get an overview of the project. (fig. A)

## SAND

\_\_\_1. Sand all the pieces of your kit with 120-grit sandpaper. Switch to 150- and finish with 180-grit after the previous scratches are gone. Sand with the grain.

If you have an orbital hand sander, this will make the job easy and quick. Sand away the machine marks, but be careful to not reshape the parts.

Do not sand over ends of axle where the fenders will go. (fig. 1A)

Soften edges with the palm of your hand and 150- or 180-grit paper. (fig. 1B)



FIG. 1A

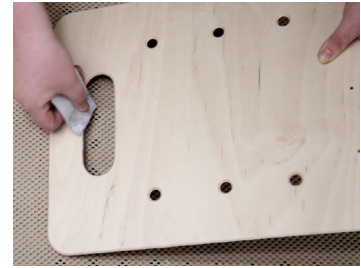


FIG. 1B



Be sure to sand all the pieces of your wheels before assembly.

## ASSEMBLE THE WOOD PARTS

\_\_\_2. Locate the fenders. Be sure to orient the counter-sink of the holes toward the outside. (fig. 2A)

Use the 1/2" bolt to line up the fender and the axle. Align the fender flush with the edge of the axle. Hold in place and drill pilot holes for wood screws with 7/64" drill bit. (fig. 2B) Drill deep enough for the 1" wood screws.

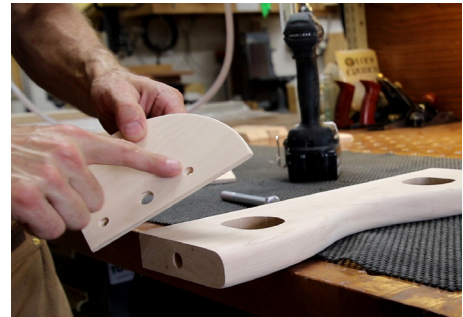


FIG. 2A

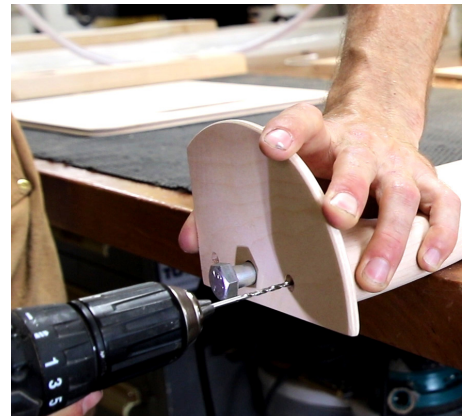


FIG. 2B

- \_\_\_3. Apply wood glue to the end of the axle. (fig. 3A) Once again, use the 1/2" bolt to line up the fender and the axle.

Partially thread the 1" wood screws into the pilot holes. Use a drill to drive the screws in until they are snug the glue squeezes out.

Clean up the glue with a wet rag and a putty knife. (fig. 3B)

Repeat the process for the opposite fender.



FIG. 3A



FIG. 3B

## ATTACHING THE PADDLE



Using a vice can be helpful to hold the axle while attaching the paddle.

- \_\_\_4. Be sure to orient the paddle correctly. The fenders should face the same direction as the paddle. (fig. 4A) Be sure the bottom of the paddle is flush with the axle.

Center the paddle with the countersunk holes facing upward. (fig. 4A) There should be about 1" space between the paddle and the fender on either side.

Mark your edges with a pencil to be sure nothing gets bumped out of place. (fig. 4B)

Drill 7/64" pilot holes, starting with either end. Thread 1" wood screws into place. This will hold the paddle in place while you drill the other pilot holes. (fig. 4C)

Countersunk holes facing upward

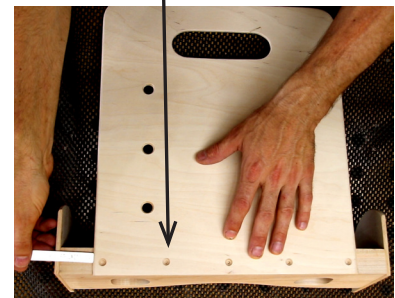


FIG. 4A



FIG. 4B



FIG. 4C

\_\_\_5. Apply glue to axle and screw the paddle to the axle using 1" wood screws. (figs 5A and 5B) Tighten the screws until the glue squeezes out. Be sure to clean up any glue squeeze out with a wet rag.

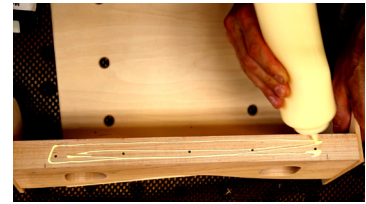


FIG. 5A

\_\_\_6. Sand over all the sharp edges and uneven seams from the assembly process.

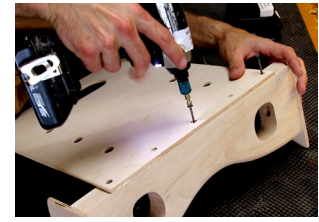


FIG. 5B

Round over the paddle/axle edge. (fig. 6) An orbital sander can make this a quick task. Be sure to remove all scratch marks and glue spots from the assembly process.

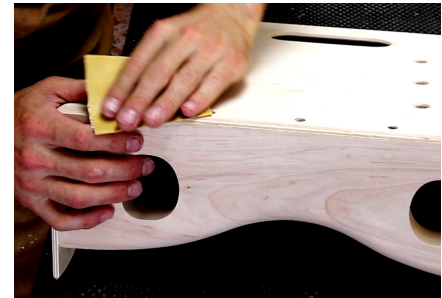


FIG. 6

## FINISHING



Here are some finishing options, along with a few hints from our experiences with finishing materials.

\_\_\_7. The wood in this kit is all raw and unfinished. You can take this opportunity to add stain to the wood, if you'd like. Choose the color you like and begin customizing your wheels.

Be aware that if the wood is stained, it will show wear and tear a little more than if just finished in a clear coat.

\_\_\_8. The finish for the wheels needs to be durable. These are going to move your harp across mountains and valleys (maybe!). We recommend multiple layers of polyurethane. This type of finish lends itself well to taking a beating and staying intact. Polyurethane also holds up well against moisture. Most hardware stores carry a variety of finishes that are suitable for this task.

\_\_\_9. Apply finish to one side of the set of wheels, using a spray (fig. 9A), brush (fig. 9B), or wipe on finish. Allow time for the finish to dry, then flip over and finish the other sides. Once the coat dries, you may want to sand with 400-600 grit sandpaper.



FIG. 9A

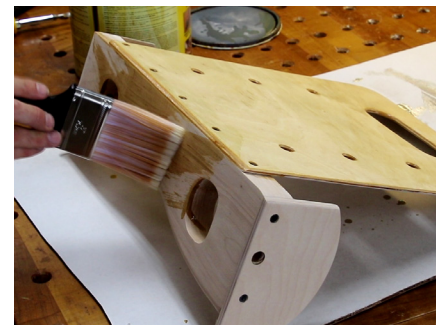


FIG. 9B

It's also possible to hang the wheels for the finishing process.

We typically apply 2-4 coats of finish. The thicker the finish, the better.

## FINAL ASSEMBLY

\_\_\_10. Make sure the bolt will spin freely in the hole. If it's a little tight, ream it out a little with a rat tail file or drill bit. (fig. 10)

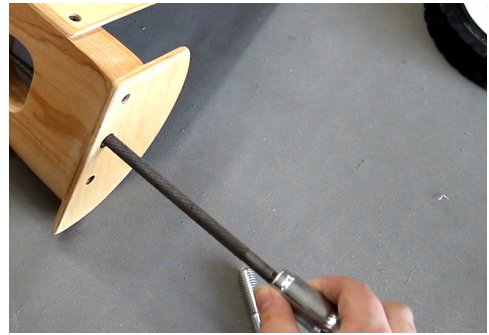


FIG. 10

\_\_\_11. Place the bolt through the wheel with the flat side of the wheel on the outside. Place the washer on the bolt and then install the locking nut. (fig. 11A)

Use two 3/4" wrenches or sockets to tighten the bolt. Be sure that the wheel is able to spin freely but is tight enough so that it doesn't wobble when it moves. (fig. 11B)

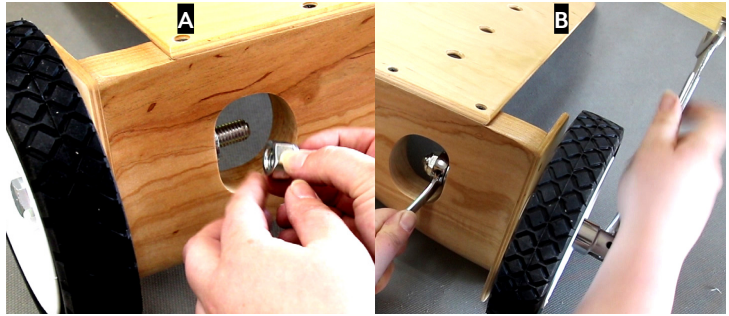


FIG. 11



You must assemble the brakes in a mirror image. Be sure that there is one right and one left.



Mirror Images

\_\_\_12. Use a solid surface as a foundation to pound the carriage bolt to seat it into the brake. (fig. 12)

Be sure the next bolt is installed on the opposite side. Double check yourself.

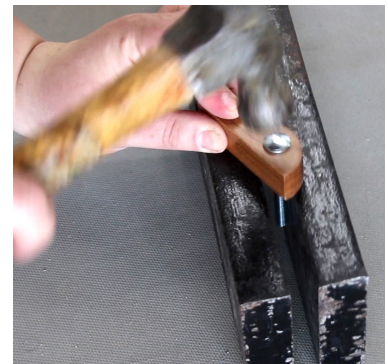


FIG. 12

\_\_\_13. Sandwich the spring washer with two 1/4" steel washers (fig. 13A)

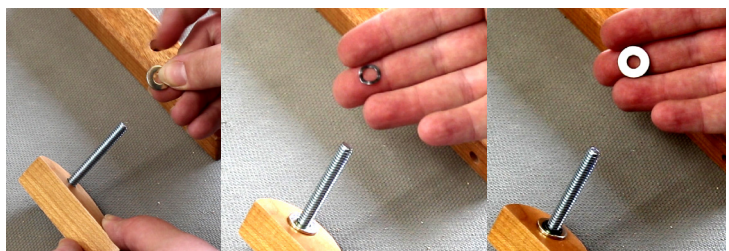


FIG. 13A

Insert the carriage bolt into the main brake part. Put the remaining 1/4" washer between the main brake part and the 1/4" lock nut. (fig. 13B)

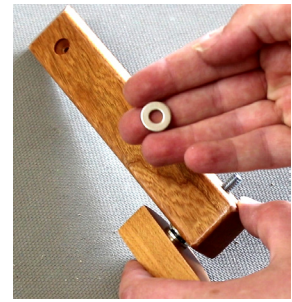


FIG. 13B

Use a 1/2" socket or wrench to tighten the lock nut. (fig. 13C)



FIG. 13C

This nut needs to be tight enough to keep the cam from moving when it's engaged on the wheel, but loose enough to be able to move it without too much effort.

- \_\_\_14. Tip the cam forward about 5 degrees. This will help hold the brake in place while you drill the top pilot hole. Align the brake next to the wheel. Let the brake rest on top of the wheel. (fig. 14A)

Keep the brake aligned and use a 7/64" drill bit to bore a pilot hole, in the top hole. Then insert the 1-5/8" wood screw into the pilot hole you just drilled. Do not tighten the screw all the way down.

Repeat process for the the lower hole. Be sure the brake stays aligned for this step.

Once both screws have been inserted, you can tighten them down all the way. (fig. 14B)

Repeat this process for the other brake.

- \_\_\_15. Engage the cam on the wheel, and make sure that it prevents the wheel from moving while it is in the locked position. Also, disengage the cam to ensure that the wheel spins freely while the cam is not in the lock position.

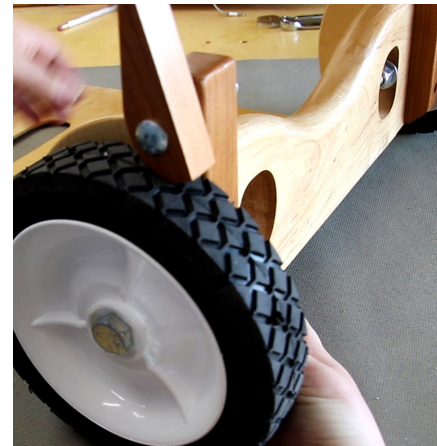


FIG. 14A

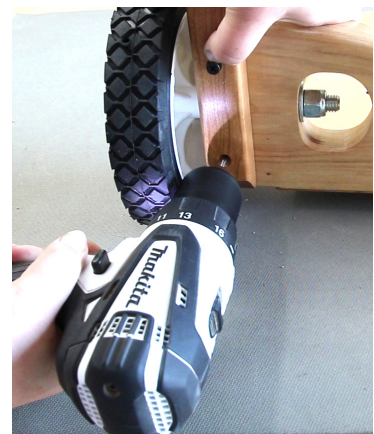


FIG. 14B

Congratulations! you have completed the kit for the Harp Wheels. Now you're ready to move your instrument across mountains and valleys.

## USING YOUR WHEELS

Set your harp on the wheels and install the adhesive backed felt on the axle where the feet will make contact. This will help prevent dings on the feet. (fig. A)



FIG. A

## USING WHEELS WITH A MUSICMAKERS CASE

Slide the wheels in the pocket on the bottom piece of the harp case. (fig. B)

Make sure the brakes are off.

Tilt the harp case back and away you go. (fig. C)



FIG. B

## USING WHEELS WITH OTHER CASES

If you don't have a Gig Bag from Musicmakers with the pocket on the bottom, you can still use the wheels with your gig bag. This might require some extra materials, like bungee cords, etc.

You need to find a way to hold wheel platform to the bottom of the case so that when you tilt the harp back, the paddle rises with the case allowing you to move around freely.

We have a video on our website with some helpful tips.



FIG. C

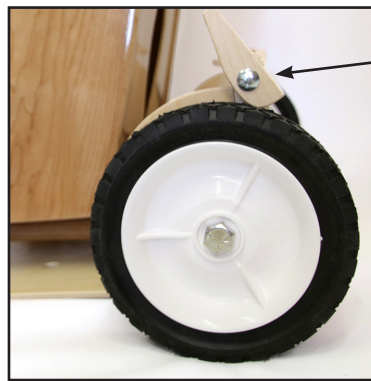
[www.harokit.com/wheels](http://www.harokit.com/wheels)

## USING THE BRAKES

There is a brake on each wheel.

Lift the cam up to engage the brake.  
(fig D)

Push the cam level to release the brake.  
(fig. E)



**FIG. D** Brake is ON



**FIG. E** Brake is OFF

## USING THE WHEELS WITHOUT A CASE

Your harp wheels include two straps.

The strap in front can go between the pillar and the soundboard (fig. F)

OR it can just go over the feet. (fig. G)



**FIG. F**



**FIG. G**

OR

The strap in back goes over the feet in back. (fig. H)  
This may not be possible for your harp and that is OK. The strap in front should be enough to lift the platform up when you tilt the harp back.

Pull the straps tight for the best results. A little wobble won't hurt but the more secure your harp is attached to the wheels, the better control you will have as you move your harp around.

Once the harp is secured to the wheels, make sure the brakes are off, tilt your harp back, and you are off to the races. (fig. I)



**FIG. H**



**FIG. I**