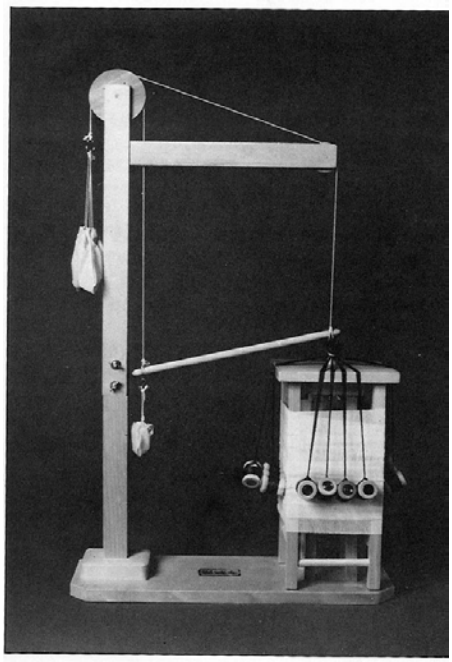
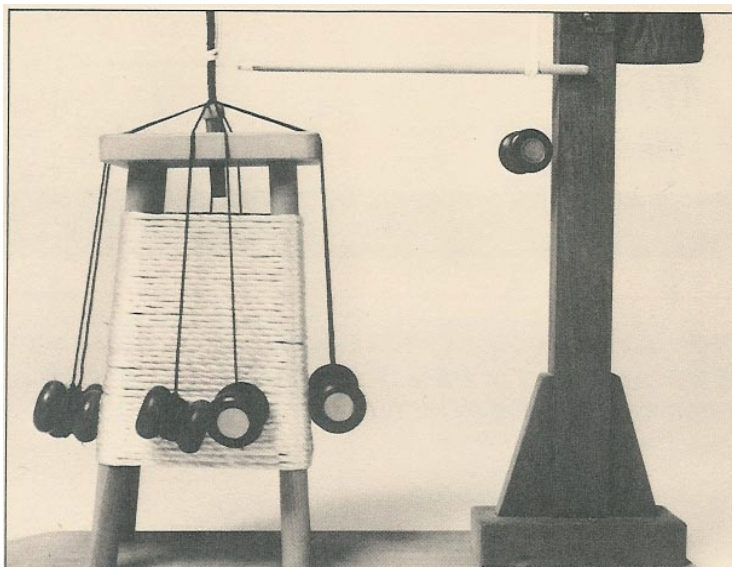
Adapting a Marudai for Upward Braiding

by Herbert Wohl

I recently sold my extra kakudai, and discovered there is great interest in this hard-to-find braiding stand. It can make braids that can not be made on any other stand. Unfortunately, it is difficult to find one in the U.S. and the only maker I know of (Len and Daphne Crisp, of LEANDA, in Britain) is no longer making them. I think many braiders have never seen a kakudai, and know little about how it is used. Here are a few paragraphs to acquaint you with this braiding stand, how it differs from the marudai, and how to adapt a marudai to function
as a kakudai.





On the left is a "dressed" kakudai, and on the right a closeup of a stand showing the braid growing upward above the kagama (mirror). The stand itself is basically a marudai with a square kagama, and an apparatus to support the upward growing braid. In the right hand figure, you can see a vertical rod just above the surface of the kagama... this is the " core ", a short length of dowel fixed into a central hole in the kagama, into which is permanently fixed a projecting length of metal rod about 2 " long. This rod is one of three shapes: needle, square, or flat, and the developing braid wraps around the core, which keeps the braid centrally placed and of the proper shape. As it grows the braid must be pushed up periodically, off the core.

The remainder of the stand is there to provide a means of keeping the growing braid raised and out of the way, and the counterweight keeps pulling the braid upward. The slender transverse rod is there to provide a structure on which to hang the braid as it grows longer. Remember that the warp for traditional Japanese kumihimo is 2.7 meters long, and the braid itself perhaps 50-60% of that length. It would flop down and get in the way if there were not a way to keep it moving upward and out of the way. Some kakudai do away with that support and instead hang a kind of wire cage from the cross arm, and the braid is wound onto that as it grows.

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In Catherine Martin's book ("Kumihimo- Japanese Silk Braiding Techniques " , 1986, Old Hall Press), there is a picture of an old Japanese wood block print showing the use of a marudai in upward braiding. It occurred to me that with some simple modification of the marudai, and addition of some kind of overhead support for the growing braid, it is possible to use the marudai in a manner similar to the kakudai. After trying a variety of approaches, I came up with the one explained below.

This brief exposition is offered to anyone interested in exploring kakudai braids made on a marudai, and provides detailed instructions and plans to modify the marudai in a simple and easily reversible way to allow such use.

To adapt the marudai for use as a kakudai, for upward braiding, the following three steps must be followed:

1. Provide a support for the upward growing braid, to keep it from falling onto the work in progress.

2. Adapt the marudai mirror to accept the cores needed to hold the working portion of the braid in place. These cores also provide the needed shape to the braid.

3. Obtain or make the three cores, mounted into properly shaped wooden dowel supports. Needle, square and flat cores are the most common. This third step is perhaps the most difficult requirement.

I. Overhead support for the upward growing braid.

Several methods can be used:

a. Attaching a hook to the ceiling to allow a loop of cord to be suspended over the marudai, with a weight attached to one side and the other to be attached to the braid at the start of braiding. The usual counterweight weight is 300 grams but smaller or larger weights can be used. Even better is two hooks a foot or so apart, with a cord through both. One end for the weight, the other centered over the point of braiding and attached to the uppermost portion of the braid. The weight can thereby be suspended out of the way of the braider. Of course you have to be willing to keep these hooks in place even when not in use, and having an out of the way place to use them is preferable.

b. For those unable or unwilling to deface a ceiling, an alternative is to attach the hooks to a narrow length of board, e.g. a 2 ft length of 1 x 2 x 3/4" , which in turn can be fixed with screws to the topmost surface of any convenient wooden door.

At the outer end of the board, hooks or hook eyes can be fixed as with the ceiling. The door should be kept from swinging, such as with a few books on the floor on either side, or a door wedge. Of course, the board need not remain in place between sessions, but can be left in place if convenient. A typical plan for a suitable board is shown if Fig. 1.

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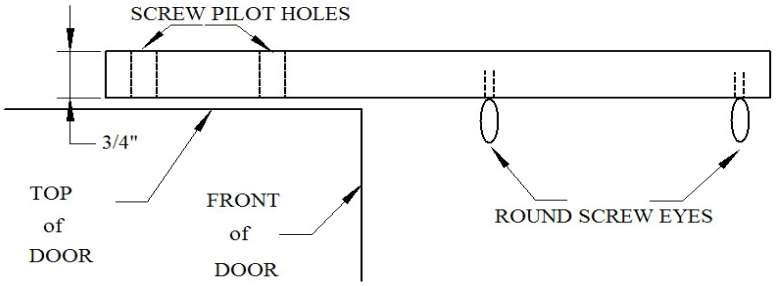


Fig. 1. A length of pine or fir board, such as 1" x 2" x 2' , is used. Place one screw eye, or cup hook about 1" in from the front of the board, the second 10-12" further in. Drill pilot holes for screws to hold the board to the top of the door, and fix the board in place on top of the door, with about 2 feet extending out. The cord for the counterweight is fed through the eye hooks. Small pulleys can be used instead, if available. The counterweight is to be attached to the end of the cord near the door, and the other end to the top of the braid.

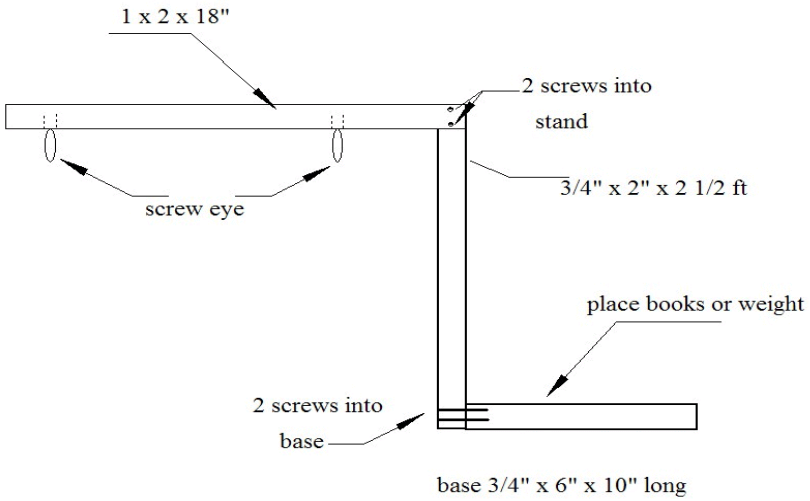
If the board needs to be removed and re-fastened at frequent intervals, it would be better to replace the screws with bolts and hexnut inserts inserted into holes in the upper surface of the door. This would allow the use of short bolts which can easily be removed and replaced. An insert can be made of a hex nut that fits the 1 1/4"-20 tpi bolt, with the nut hammered into a ½" deep 7/16" diameter hole in locations matching the screw holes in the board. The sharp edges of the hexnut will cut a groove in the walls of the hole, and fix the nut in place. The nut should be hammered in so that the upper surface is flush with the surface of the door. A bead of epoxy around the upper outer edge of the bolt will secure it even more. When the bolts and board are removed, nothing is visible to the room occupant. The hexnuts in the door top can remain indefinitely and are invisible.

c. A readily available standard metal right angle shelf bracket can be attached to a wall, and the board above attached to this. These brackets are available in any hardware shop, are usually gray in color, have screw holes, and come in various sizes. Of course this leaves screw holes if taken down.

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d. Construct a simple stand with an overhead arm from which to hang the hooks. See Fig. 2 . This has the advantage of disturbing neither ceiling or door, and can be stored easily. However, the height of the upright has to be chosen with care. The cross arm should be about 16" above the surface of the marudai. If the marudai is used on the floor in traditional fashion, the height of the upright is usually acceptable, and has to be adjusted for the height of the marudai. If the marudai is used by being placed on an elevated platform to allow the braider to sit in a chair (common in the West), placing the stand on the floor will call for an unduly long upright. The height indicated of 2.5 feet has to be adjusted for the users preferences.

Fig. 2. Into one side of the base, the upright is fixed with 2 screws. At the top of the upright, along one side, the arm is fixed with 2 screws. The screw eyes are placed about 1 foot apart, along the bottom of the arm, which is a piece of 1 x 2 about 18 inches long. One screw eye is placed about 1 inch from the end of the arm, the second about 12 inches further in. In use the base is weighted with books or similar to prevent the stand from tipping over in use.



II. Adapting the marudai.

The kakudai braids form in an upward direction, and the square kagama (mirror) has a small (½ inch or so) hole in the center. Into this hole is fixed a wooden pin with a projecting metal core, which is either a needle shape, square, or flat. The braid is formed around this core and the core serves to maintain both the shape and central position of the braid. To use the marudai for this purpose, a wood adapter plate for the core pin can be attached centrally on the under surface of the marudai, and cores must be available. Figure 3 shows the needed dimensions for the support, which can be either round or square (or any other shape!). The adapter plate should be aligned so that the hole for the core is lined up with the center of the hole in the marudai before screwing the plate to the underside of the marudai kagama. A means for assuring this

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is provided further down in this discussion. Instead of ordinary wood screws to attach the plate, it is better to substitute a 1/4" threaded rod (with 20 teeth per inch, a standard form), cut from a bolt with a hacksaw. One end of the threaded rod is glued into a 1/4" hole in the underside of the marudai, and the adapter plate with 1/4" screw holes placed over the bolts and held in place with a nut or wingnut. Be careful not to drill the bolt hole deeper than 1/4 to ½ inch, and it must not penetrate the top surface of the mirror.This allows the adapter plate to be installed or removed rapidly. Foam board marudai are too thin to be adapted in this way. Wood marudai must be at least 3/4" thick in the places where the bolts are to be placed. The bolt positions must match the holes in the adapter plate, and the latter holes can be 3/8" or even ½" diameter to allow some adjustment when the plate is fitted to the marudai undersurface.

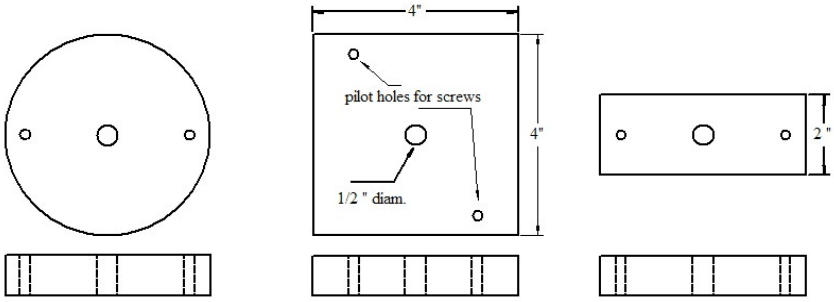


Fig. 3. Suggested alternate shapes for a core adapter plate for attachment under the marudai mirror. They can be made from ½" wood or plywood. Dimensions apply to both round and square plates. Top and front views are shown. If bolts are to be used, the pilot holes should be at least 3/8" in diameter, and should match the position of the bolts embedded in the undersurface of the mirror.

III. Cores

These consist of metal rods of different shape, inserted into the center of a wood dowel. In use, the dowel is inserted into the center hole of the support plate, into which it should fit snugly. About 1/4 to ½" of the dowel should project above the marudai, meaning the dowel must project up from the mounting plate a longer distance.

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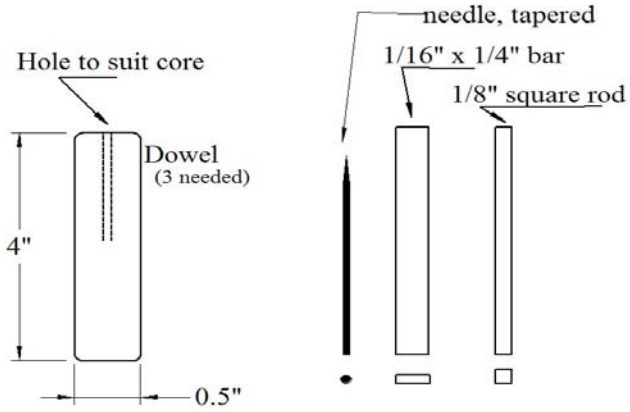


Fig. 4. Cores are about 3 inches long, the needle slightly shorter. The hole in the dowel should be about 1 inch deep, and the cores epoxy glued in place.

a. Dowel

A 3-4 inch length of wood dowel makes a suitable core support, but the hole for the metal core must be drilled carefully to ensure it is directly through the center, and not slanted to one side. If not, the metal core will tilt off to the side. A more suitable design is pictured:

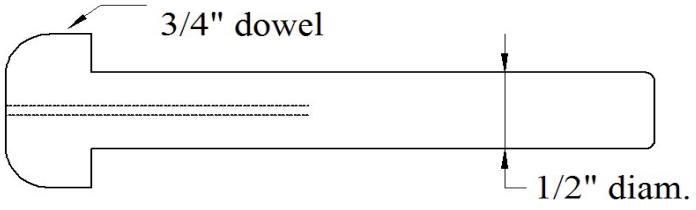


Fig. 4. 3/4" dowel turned on a lathe to provide a 3/4" diameter top and a ½" shaft. For the needle core, the hole is 1/16th", for the square rod it should be 1/8" and for the flat core, parallel holes of 1/8" diam. The cores should project perhaps two inches above

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the top of the core dowel, and for the needle about 1.5 inches. The metal cores can be glued into place with epoxy. The upper mushroom shaped section should be 1 1/4" long for a 3/4" thick marudai. The dowel must fit loosely through the center adapter hole.

The flange on this dowel should sit on the adapter plate. All dowels should have a ½" shaft. Dowels are often slightly undersize when purchased, which is desirable. In use, a short length of masking tape is wrapped around the dowel to provide a firm fit into the adapter plate. Wood naturally expands and contracts with changes in temperature and humidity, and if the dowel is precisely sized to fit snugly without tape, it may become too loose or too tight as it expands and contracts. Masking tape allows the fit to be adjusted as required. If the dowel is too large in diameter it must be sanded down to fit. As an alternative to turning the entire dowel on a lathe, a short length of 3/4" diameter dowel can be cut, and a ½" diameter hole drilled in one end to accept the ½" diameter dowel, which can be glued in place.

When gluing the metal cores, epoxy should be placed into the hole rather than applied to the metal core. In the latter case, pushing the core into the hole will force the glue up along the metal and produce a messy blob at the top. You know how I found that out !

The needle core can be any metal rod about 1/32" thick, and it is useful to taper the last half inch or so to a blunt point. Many fabric and sewing shops sell a large (3 inch) heavy needle used for sewing canvas and other heavy materials, and these are ideal. They fit well into a 1/16th inch hole.

The square rod is not as easy to find. Some machine shops or metal supply shops offer 1/8" square tool steel and these are fine. The edges should be filed or sanded smooth. Hobby shops and many hardware stores sell brass tubing and sheet, and a 1/8" square hollow tube is available at the same place.

The flat core is also available at machine shops: 1/16" inch thick by 1/4" wide is fine. If this exact size is not available they be able to cut or saw a piece to size. On the Web, www.MSCDirect.com carries O-1 tool steel in the proper dimensions.

To center the marudai and adapter plate in order to mark out the location for the screw holes, the diagram of the concentric circles will help. Make a photo copy for actual use. The following diagram will show the procedure:

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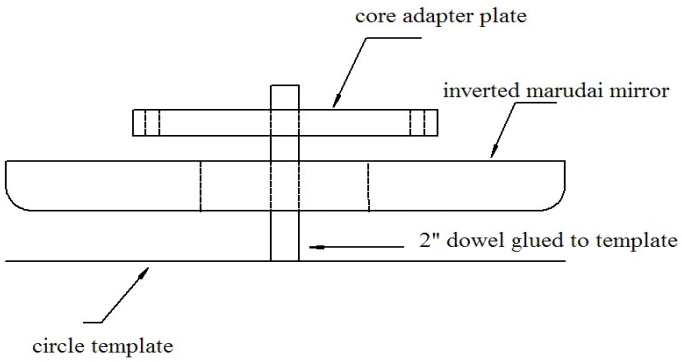


Fig. 5. Stacked components to prepare for marking out the location of screw pilot holes on the underside of the marudai mirror.

In order to center the core adapter plate on the underside of the marudai, follow these steps:

1. Make a photocopy of the circle template.
2. Place the copy on a flat surface
3. Cut a 2" length of 3/8" dowel, being sure the cuts are square to the dowel. Use a miter box or table saw as needed to ensure a perpendicular cut.
4. Glue one end of the dowel to the inner circle on the template, centering the dowel.
5. Place the inverted marudai over the circle template, lining up the center hole of the marudai with one of the printed circles to ensure it is centered.
6. Place the adapter plate on the inverted marudai, being careful to keep the dowel centered.
7. Mark the position of the screw holes on the marudai with a thin object (awl, heavy scribe or similar)

Remove the adapter plate and drill pilot holes in the bottom of the marudai. Be careful not to go deeper than ½" by wrapping a short length of masking tape around the drill bit to mark the proper depth. If a 1/4" bolt is to be used, drill a 1/4" hole instead, again not deeper than ½" inch. Apply epoxy glue to the inner surface of the hole, and insert the bolt by hammering gently. Be sure the bolt stands perpendicular to the undersurface of the mirror.

For many kakudai braids, the tama and attached threads are twisted, to provide a rounded cord rather than a flat one as with a marudai. To keep the tama from untwisting while hanging from the mirror, it is necessary to wrap the legs of the stand with a heavy cord or cloth, so that the suspended tama will rest against the cloth rather than spin freely. The cord or cloth must be thick enough to provide this support. A

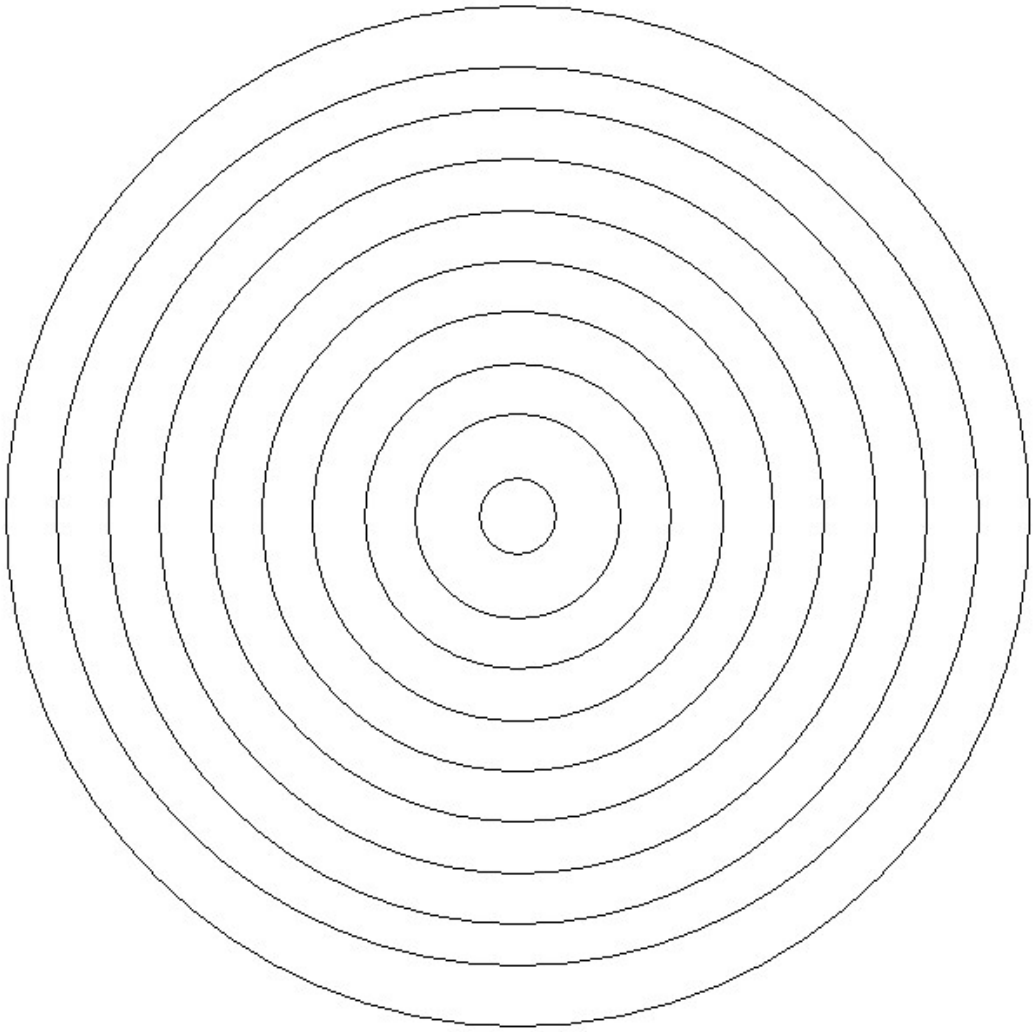
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folded long towel wrapped around the legs and taped in place is suitable. A thick board that can be taped on each of the four sides of the marudai is also suitable, and can be covered in a soft cloth glued to the outer surface.

The only book in English that has significant sections on kakudai braiding I am aware of is that sold by Lacis (www.lacis.com) . It is titled "Kumihimo: The Essence of Japanese Braiding" by Aiko Sakai and Makiko Tada. It is a translation of the same book in Japanese, in the Vogue series on kumihimo of some years ago. Unfortunately, I find it lacking in two respects: it does not show color patterns of the braids, and it lacks a real exposition of how to set up and use the kakudai.

If there are any errors in this exposition, I am solely responsible and apologize. Email me if there are questions. For anyone who finds it a problem to make or get the needed components to set up their marudai to do upward braiding, I can provide a kit of the finished necessary parts, wood and metal. For details and price, contact me by email at hwohl@san.rr.com.

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