Chris Banta

BASS FLAPAMBA

Technical Brief, 2010

Description:

A flapamba is a melodic bar percussion instrument. However, rather than utilizing the marimba two-point bar suspension system, the flapamba bars are suspended as single-point levers over the opening of a dedicated cavity (Helmholtz) resonator.

The "bass" in bass flapamba means that the range of pitches must go down to at least Cello C (65.4Hz). Since this particular instrument extends to low F (43.6Hz) it actually could be considered a contra-bass flapamba.

The mechanics of the flapamba result in a characteristically different sound than the marimba. Because of the stiffness of the bar, the sound has more of a punchy, thump sound. The resonant tone radiates forth from the mallet attack then tapers-off quite rapidly. You can somewhat replicate the sound by pinching one end of a marimba bar while striking the bar's center. The flapamba is a rather quiet instrument that requires close mic'ing for recording. As of this writing, the bass flampamba is untested as to its suitability for live performance situations. However, as with any bass instrument, corner placement within the room will enhance the propagation of the lower frequencies.

What is critical in this system is the bar clamping mechanism. The clamping components need to be anchored to a plate system, incapable of moving under the pressure and demands of the vibrating bar. The planar rigidity of the individual resonator partition edges, in which the plate sits on, provides the means to anchor the plate. As long as the plate or the clamping doesn't yield to the vibrations of the bar, tuning will be maintained. The clamp component itself is simply a down-bearing strut near the end of the bar with two underside spacing struts on either side of the primary clamp's center. The under-side strut, closest to the vibrating end is adjusted for tuning. Shorten the vibrating length raises pitch, increase the vibrating length lowers pitch. The down-bearing strut is held in place by drum tension screws, which interface with threaded holes in the plate.

The other notable difference is the orientation of the bars with the strike point of both the natural's and accidental's bars directly facing each other. The close proximity of the bar playing surfaces allows for quick mallet execution.

In order for resonance to occur, the cavity resonator needs to be adjusted to exactly match the intended pitch. (My write-up on accurate resonator tuning, at: http://www.dandemutande.org/Magazine/How-to-Measure-Resonators-C-C-BANTA.pdf is useful in this case.) Once the resonator is tuned, then the bar support struts need to be adjusted so the bar is in tune as well. The result is a full resonant musical note.

Specifications:

-Designer/Builder:	Chris Banta
-Date of Construction:	Nov 2009
-No. of Notes:	20
-Musical Range:	1-1/2 octaves
-Pitch Range:	F1 to C3
-Frequency Range:	43.6Hz to 130.8Hz
-Width:	38-1/2-inches
-Depth:	Low End - 39-inches / High End - 23-inches
-Bar Height:	35-inches
-Weight:	Approx 100 lbs.
-Resonator Materials:	Birch veneer plywood with oak edging
-Bar Material:	Cherry wood
-Clamp Components:	T-6061, 1/2-inch Aluminum Hex Rod T-6061 1/4-inch Aluminum Plate Stock
-Drum Tension Rods:	12-24 thread x 2-1/2 inch
-Finish:	Bars and Resonator Cabinet – Waterbase, clear coat, semi-gloss Top surface – "Nutmeg" satin coating

Still Photos (on-line):

http://www.dandemutande.org/Listserve/attachments/CCBANTA-Bass-Flapamba-1.jpg

http://www.dandemutande.org/Listserve/attachments/CCBANTA-Bass-Flapamba-2a.jpg

http://www.dandemutande.org/Listserve/attachments/CCBANTA-Bass-Flapamba-3.jpg

http://www.dandemutande.org/Listserve/attachments/CCBANTA-Bass-Flapamba-Construction-1.jpg

http://www.dandemutande.org/Listserve/attachments/CCBANTA-Bass-Flapamba-Construction-2.jpg

Video on YouTube

http://www.youtube.com/watch?v=sjUT0v7snPo

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