



Jonas Kissling: Acoustic Crochet

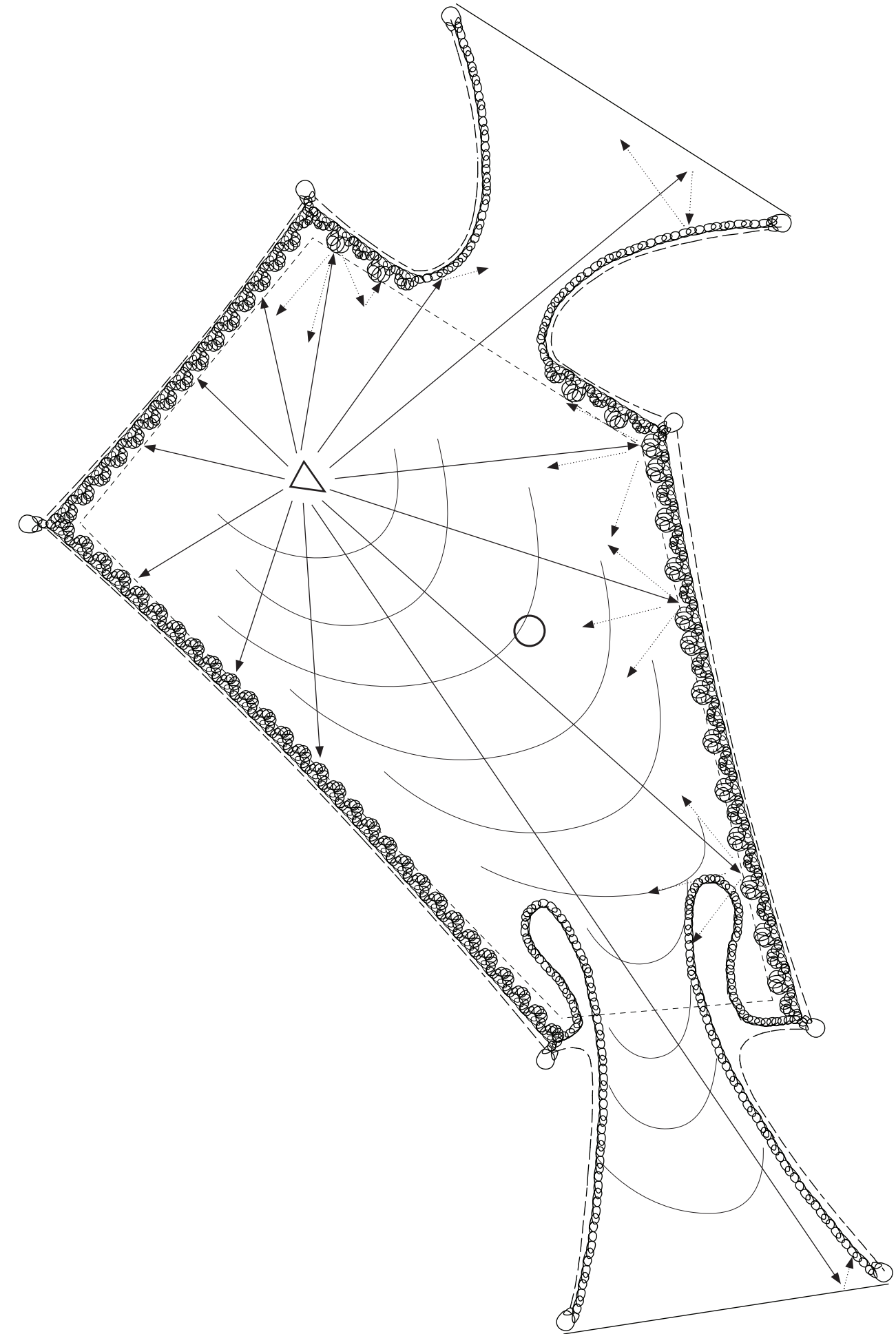
Acoustic Crochet

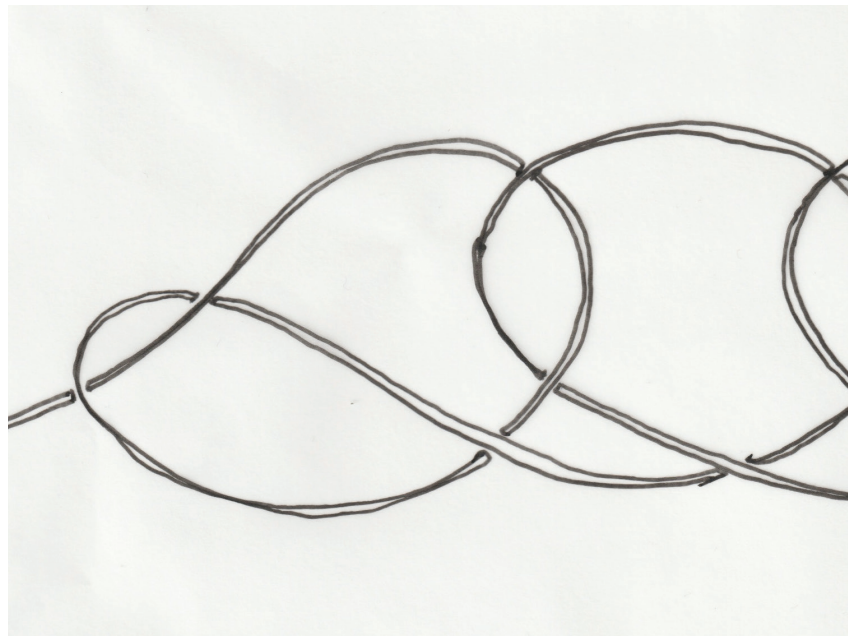
The experience of crochet enabled me to create a connection between the crochet structures and acoustics. And this connection led to the idea of making a space for music in which reminds me the particular moments of creation, failure and fragility.

The loop technique is using a single crochet stitch to navigate loops of thread through previously formed loops. It keeps the synthetic material pure, because it joins the thread without glueing. After untangling the crochet, the thread can be reused without any process. Stitches can be freely increased and decreased, 3D structures can be developed, and open non-slip webs can be created. The single thread technique generates no waste and can solve acoustics and tensile strength.

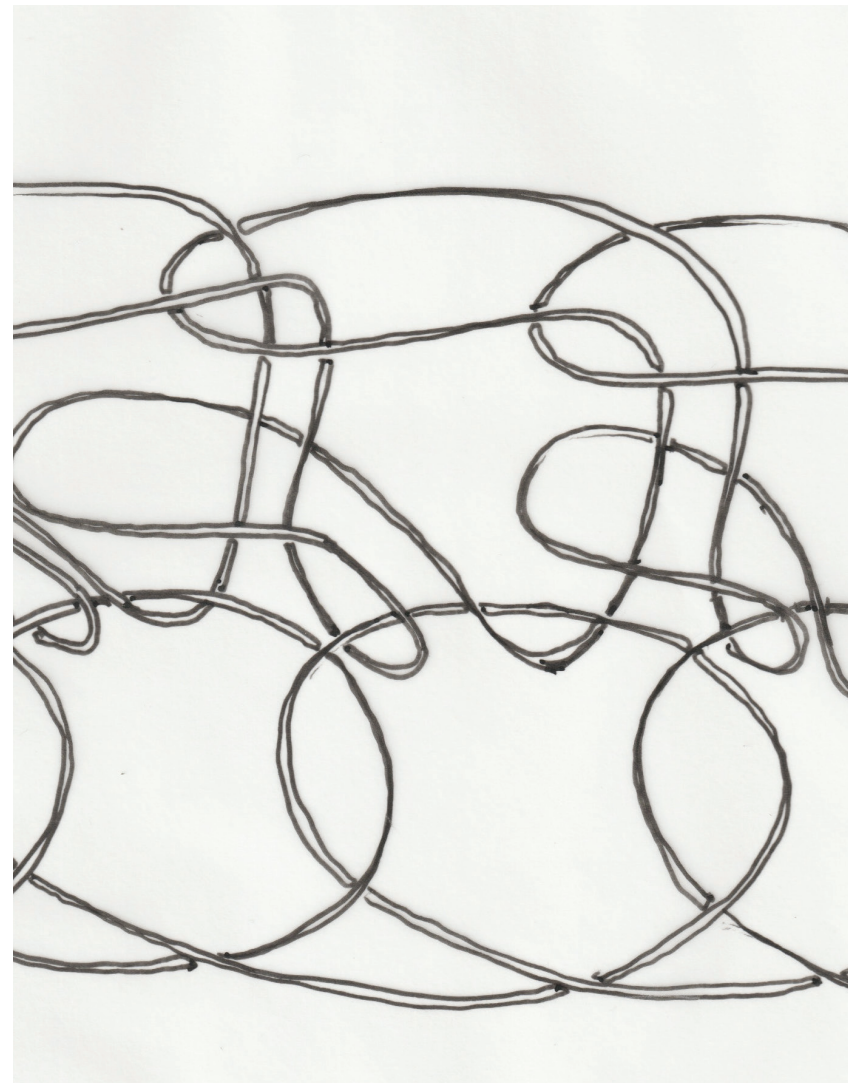
Dr. Bart Van Damme from EMPA concluded that crochet 3D structures can improve absorption in diffuse sound fields because the effective surface becomes larger. Prof. Kurt Eggenschwiler from EMPA furtherly concluded that a combination between absorption and reflection is possible, if the non-porous structure (front of the bubbles) is heavy and stiff enough (for singing 10kg/m^2). To have an impact on low frequencies, a further reflecting layer ($<15\text{ cm}$) is needed (plexiglas $1,5\text{mm}$).

Form stability (pore control) and a high specific weight ($1,37\text{ g/cm}^3$) encourage an interest in the use as a crochet 3D acoustic structure, where it performs as absorber and reflector (diffuser). The PES thread is made from many small threads and enables a flexible behavior, easily joining through the loop technique. The used Thread is 20 mm .





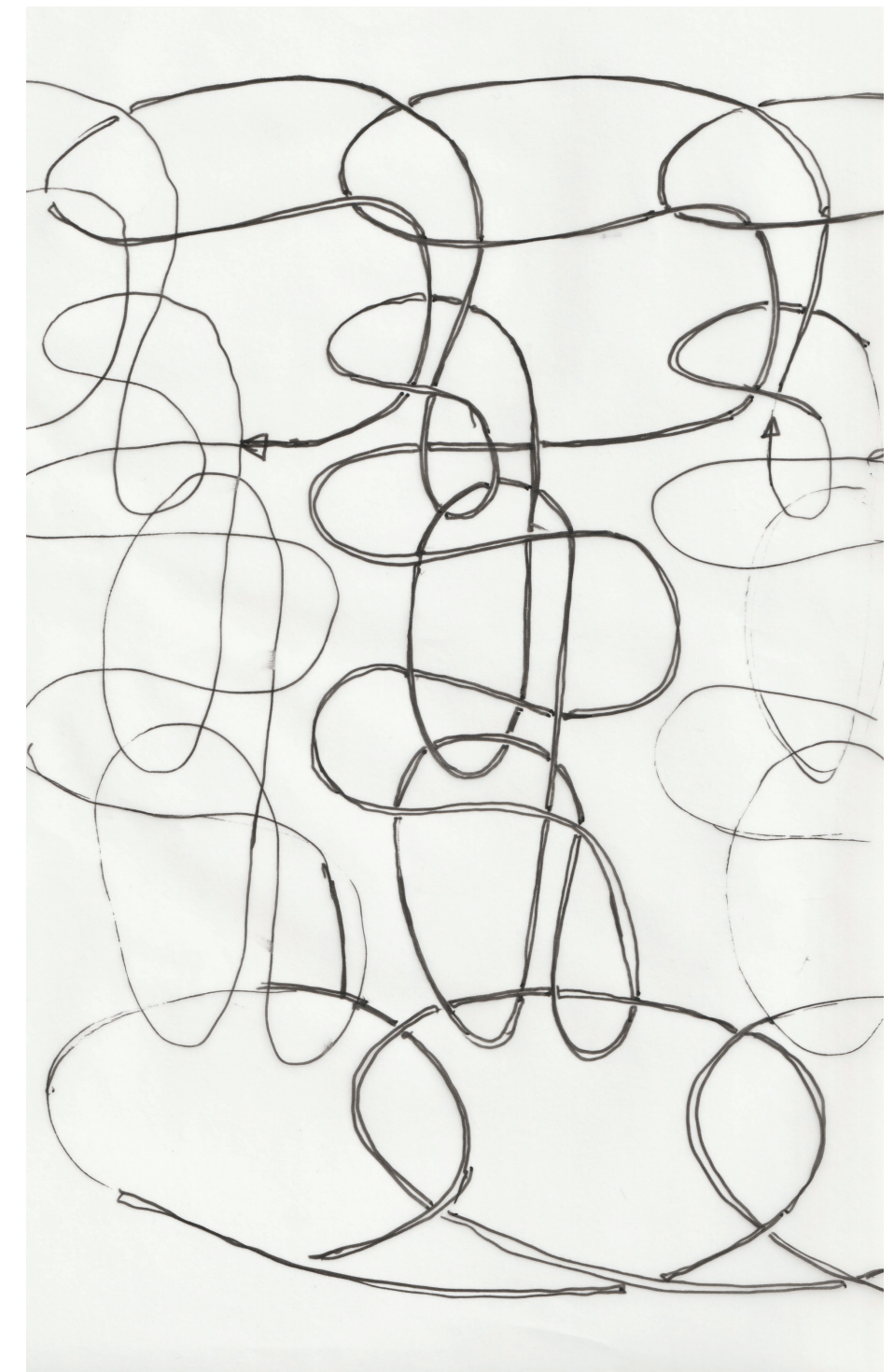
Chain-Stitch



Single-Crochet



Double-Crochet



Treble-Crochet

Prototyping



Non-Slip Web



Transparent Pipes



Self Supporting



Hybrid



Circular Growth



Increase Loops



Decrease Loops



Parabolic Circular



Parabolic Linear



Parabolic Unsymmetric



Element Opening



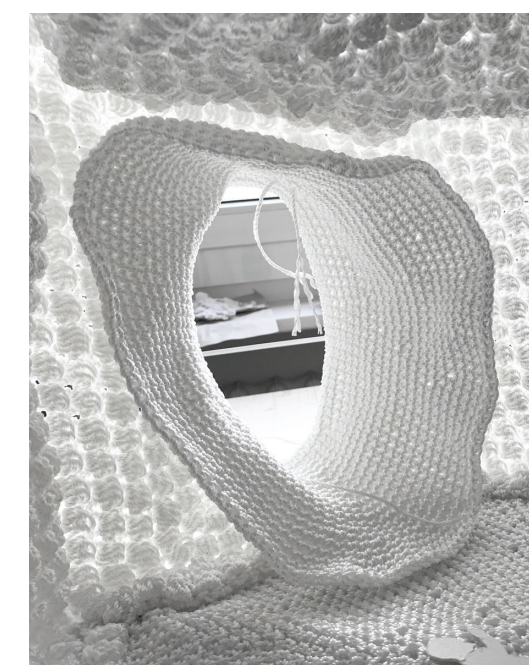
Joining Non-Slip-Web



Decrease & Increase

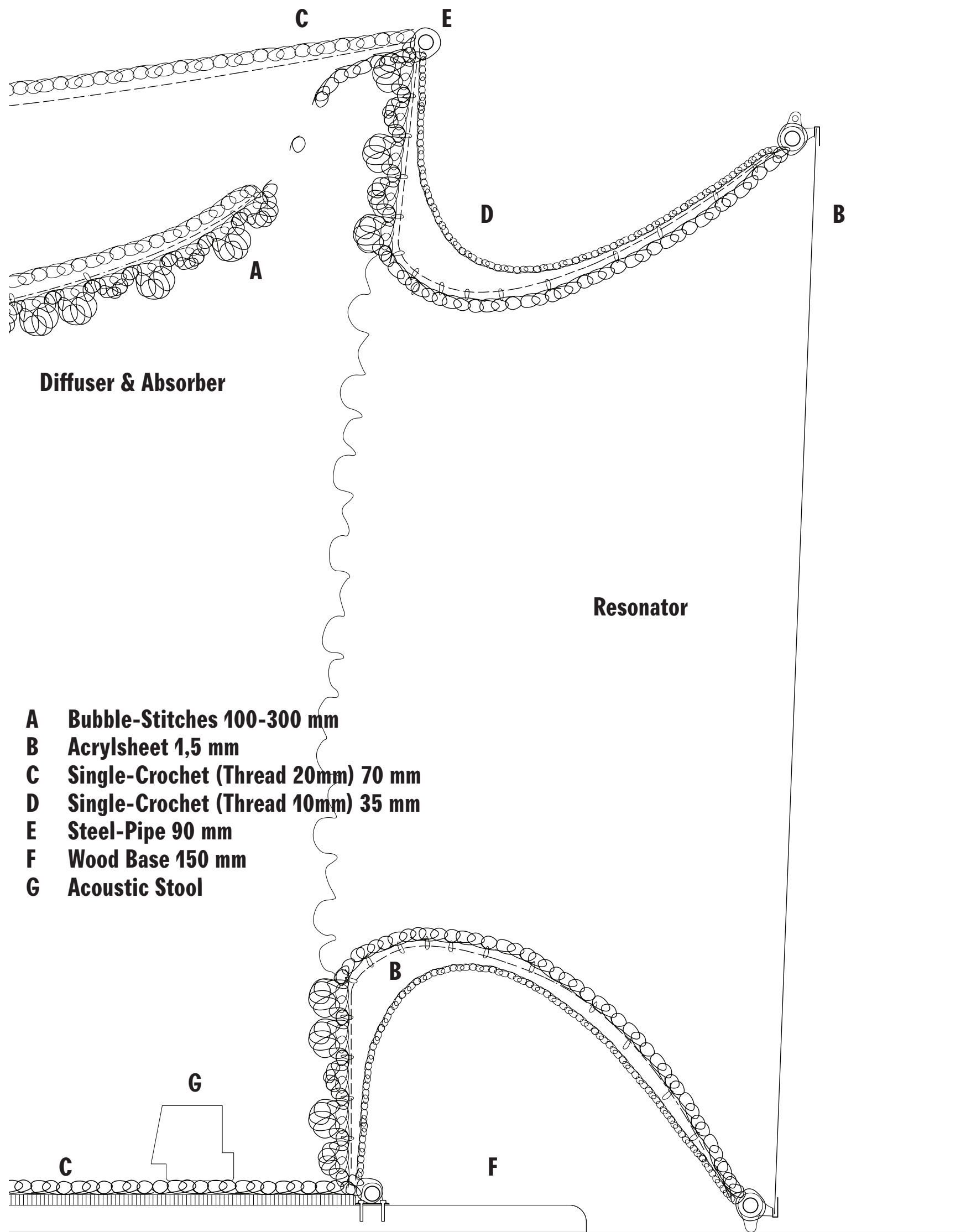


Elements



Frame





Detail 1:25



Photo Resonator