CONTINUOUS SIEVING APPARATUSES FOR PUPAE SEPARATION

BACKGROUND

[0001] Generally, a sieve can be formed of a wire or plastic mesh held in a frame. The sieve can be used for straining solids from liquid or for separating coarser objects from finer objects. As objects are placed in the sieve, they can either pass through the mesh if they are of the right size or shape, or they will be retained within the frame if they are not suitably sized or shaped. Sieves can thus be used to separate different types of objects from each other according to size or shape.

SUMMARY

[0002] Various examples are described relating to sieving containers, systems including the sieving containers, methods for using the sieving containers, and methods for forming the sieving containers.

[0003] One general aspect includes an apparatus, including a frame, an actuation system connected to the frame, and an inclined sieving container connected to the actuation system. The inclined sieving container includes an inclined sieve comprising a sieve surface and a perimeter wall enclosing the sieve surface to define an interior volume of the inclined sieve, the sieve surface inclined with respect to a horizontal axis from a first edge of the sieve surface to a second edge of the sieve surface, the sieve surface defining a set of openings enabling movement of pupae through the set of openings from the interior volume of the inclined sieve. Individual openings of the set of openings defined by a length dimension measured along a longitudinal axis of a respective opening and a width dimension measured along a transverse axis of the respective opening, the width dimension corresponding to a cephalothorax width of a pupa, and the length dimension greater than the width dimension. The apparatus also includes a funnel positioned adjacent to an end of the sieve surface. The apparatus also includes a basin attached to the frame and including an outer wall and a bottom that together define a basin volume with an opening opposite the bottom, the basin sized to receive the inclined sieving container and to retain a liquid. The actuation system is configured to separate a population of pupae introduced into the interior volume of the inclined sieve based on size by moving the inclined sieving container along a substantially vertical lifting axis between a first position within the basin and a second position within the basin.