Eppendorf tubes are commonly used to hold a series of chemical or biological samples so that numerous test can be run on the samples. The purpose of an eppendorf tube is to provide a compact sealed environment that is easily accessible via a snap-on cap. In small numbers, the eppendorf is an extremely effective tool. However, in larger quantities, eppendorf tubes can actually hinder an experiment. The process of opening and closing a series of eppendorf tubes in a methodical and consistent way is tedious. A single eppendorf tube requires two hands to handle reliably, and if multiple actions per tube are being taken by a lab technician in sequence, the process can require a complex and often hectic juggling of multiple intruments, as well as the tubes themselves.

The purpose of the Speedy Capper is to alleviate this tedium and complexity. The goals of the Speedy Capper are to minimize the number of steps that need to be taken when working with eppendorf tubes. This will increase workflow while simultaneously minimizing human error. There are two parts that, together, allow the Speedy Capper to function.

Cap Design:

The cap design that the Speedy Capper utilizes is a symmetrical cap with a flap on both sides. The Speedy Capper grips these flaps and lifts the cap straight off. The tabs are designed so that when they are depressed, the center of the cap releases pressure off the inside walls of the eppendorf tube, reducing the amount of force required to remove the cap. It is also important to note that unlike a traditional cap, the Speedy Capper caps are not attached to the tube. The caps are molded separately from the tube, and this allows the cap to be completely removed from the tube. This reduces clutter, as the cap will not be free to wobble the entire tube as it dangles uselessly of the edge of the tube. Instead, the cap will remain inside the Speedy Capper until the tube is ready to be recapped.

Capper Design:

The Speedy Capper device is a simple handheld tube. The bottom end of the tube is tapered so that it can be easily slipped over the eppendorf tube caps. Within the center of the Speedy Capper is a plunger which is activated via the operator’s thumb. When the plunger is depressed, the cap is ejected from the Speedy Capper directly onto the eppendorf tube, recapping the tube. All the mechanics of the Speed Capper are actuated by the operator’s motions. A single internal spring is used to return the plunger to the retracted position in between uses. The Speedy Capper’s outer casing is shaped ergonomically to fit easily within the palm of the user’s hand.

Add some figures.