Figure 1. Dynamic thorax phantom designed for studies of the effect of motion on localization and characterization of moving targets during pretreatment CT. Images A and B are axial and sagittal drawings of the tissue equivalent thorax section depicted in C. Image B is a cut through the lung equivalent target adapted rod. A computer-controlled actuator applies complex three-dimensional motions to the target within the phantom body through the lung equivalent target adapted rod. S-I motion can be isolated from, or synchronized with, R-L and A-P motion in both frequency and amplitude, enabling sinusoidal and/or other complex motions to be achieved with sub-millimeter accuracy and reproducibility.