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Roberts, Freudenburg, and Daigle and Freudenburg have given the smallest counterexamples to Hilbert's fourteenth problem. Each arises as the ring of invariants of an additive group action on a polynomial ring over a field of characteristic zero, and thus, each corresponds to the kernel of a locally nilpotent derivation. In positive characteristic, additive group actions correspond to locally finite iterative higher derivations, a more restrictive notion. We set up characteristic-free analogs of the three examples mentioned above, and show that, contrary to characteristic zero, in every positive characteristic, the invariant rings are finitely generated. (Received September 03, 2010)