Concept design and dynamical simulation of a landing device for an asteroid surface probe

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The Rosetta lander will soon land on the surface of a cometary nucleus and carry out its scientific investigations. Thus, the technology about landing and attachment comes to the focus in the field of space research all over the world. In this paper, a mechanism for landing on an asteroid is presented including a detailed description about its operation. It has a novel configuration of side folding and deployment, different from the traditional ones, thus having a high efficiency of deployment to fold (nearly 2) and has a very strong landing stability. Besides, its position of locking significantly helps the stiffness design. This paper also gives some simulation results on touchdown dynamics of a lander based on the software ADAMS and its subroutines.