Strong representability of 1-cycles on rationally connected threefolds

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We show that for any smooth projective rationally connected three-fold X, there exist a smooth projective variety M, which can be taken to be a surface, and a family of 1-cycles on X parameterized by M, such that the induced morphism from Alb(M) to J(X) is an isomorphism. This statement had been conjectured by Clemens in the 1980's and proved for many Fano threefolds. It implies that the degree 3 integral cohomology modulo torsion of X is of strong coniveau at least 1.