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Susil Kumar Jena* (susil_kumar@yahoo.co.uk), Professor, Dept. of Electronics and Telecom Engineering, KIIT University, Bhubaneswar, Orissa 751024, India. *The Congruent Number Problem.*

After a thousand years the 'congruent number problem' still asks us to check if a positive integer n is the area of a right triangle with rational side lengths. Tunnell's Theorem published in 1983 gives a partial answer to the problem; and if the 'Birch and Swinnerton-Dyer Conjecture' is proved, we would be able to get its complete solution. In this paper, our attack to the problem would be radically different basing on the discovery of certain algebraic identities. The approach would be constructive and independent. With the new tools, we would go still further in establishing more facts on this problem and would show its surprising links with some other Diophantine dilemmas. (Received March 11, 2008)