KINETIC AND DYNAMIC INVESTIGATION OF A NOVEL INERTIAL PROPULSION DRIVE

Stelica Timofte[1], Zoltan-Iosif Korka[1*], Attila Gerőcs[2], Elena Stela Wisznovszky (Muncut)[2], Camelia Rodica Sfetcu[1]

[1] Babeş-Bolyai University, Doctoral School of Engineering,
P-ta Traian Vuia no. 1-4, 320085 Resita, Romania
[2] "Aurel Vlaicu" University of Arad, Automation, Industrial Engineering, Textiles and Transportation Department, B-dul Revoluției no. 77, Arad 310032, Romania

zoltan.korka@ubbcluj.ro

ABSTRACT

Today there is a great deal of controversy over the operation of inertial propulsion drives (IPD), as they challenge the laws of Newtonian mechanics. Starting with the last decades of the previous century, many devices that use the centrifugal force to generate linear propulsion were patented. Regrettably, whether we are talking about the initial, or the most recent attempts, only a few of these systems passed the patent stage and were involved for practical applications. The aim of this paper is to present an IPD, developed by the authors, which uses for generating linear motion the kinetic energy of several masses, placed in the articulation points of the links of a chain drive. The masses placed equidistantly along the half-length of the chain perform a complex movement, consisting of the specific displacement of the chain elements and a rotation around an axis which is parallel to the line which joins the centers of the chain wheels. After deducting the equations of the geometric coordinates of the masses, the total propulsion force was computed. The obtained results are supporting the ability of the IPD to generate propulsive force and linear motion.

Keywords: dynamics, inertial force, kinematic, propulsion drive