

ABOUT TWO DIFFERENT DYNAMICALLY MODELING APPROACHES FOR A CAM MECHANISM FROM AN AUTOMATE FEEDING SYSTEM

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Abstract: The paper presents a comparative analysis of two different approaches for dynamically modeling a cam mechanism from an automate feeding system (Fig.1). In this sense, a dynamic model with rigid elements in contact and a dynamic model with elastic elements in contact, developed for the considered cam mechanism are proposed in the paper. The phenomenon of contact losing in the cam mechanism's functioning is analyzed in the conditions of the two mentioned models, within computer simulated experiments, using MATLAB programming and some obtained results are presented, together with the related conclusions. The obtained results include: graphical representations of the variation in time for the indicators of the jump phenomenon; matrix mathematical models describing the influence of the considered factors upon the jump of the follower, the mathematical model including, also, the interactions between the studied controlled factors; classification of the significance of the effects of factors and of their interactions; testing of the significance of the mathematical models; graphical representations of the average effects of the factors and of their interactions. Comparing the results obtained for the two presented dynamic models, it is shown that important differences appear in the behavior of the mechanism when the elasticity of the contact cam-follower is considered. The model with elastic contact between cam and follower is more credible because it is closer to reality.

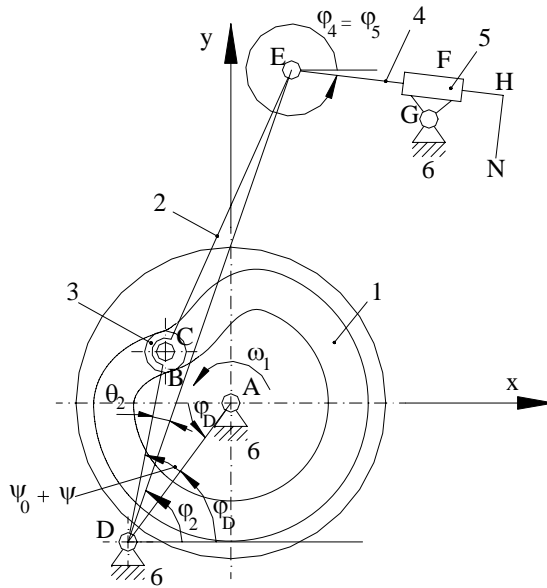


Fig. 1. Scheme of the studied mechanism

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