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SUMMARIES

EQUATIONS OF TRAJECTORY OF CONNECTING POINT OF COUPLERS OF RRRRT TYPE SPHERICAL FIVE-BAR HINGED MECHANISM WITH TWO DEGREES OF FREEDOM AND ITS SYNTHESIS BY DESIRED CONDITIONS. **N. Davitashvili, G. Tabatadze.** “Problems of Mechanics”. Tbilisi, 2019, № 1(74), pp. 5-15, (Engl.).

Is stated the derivation of equations of trajectory of connecting point of couplers of spherical RRRRT type five-bar hinged mechanism with two degrees of freedom in the geographic and orthogonal coordinates. Based on the analysis of equations of trajectory of connecting point of couplers of spherical five-bar mechanism is solved the task of synthesis by desired conditions. 1 ill. Bibl. 13. Engl.; sum. in Russian.

OPTIMIZATION THE WEAR PROCESS AND CLEARANCES IN ROTATING NANOSURFACES OF THE KINEMATIC COUPLES OF RECIPROCATING MACHINES. **V. Bakhshaliev, I. Ismail, A. Bakirova.** “Problems of Mechanics”. Tbilisi, 2019, № 1(74), pp. 17-23, (Engl.).

The friction and wear processes and its results, i.e. clearances in kinematic pairs strongly act to the working processes in reciprocating machines. Specialized methods are developed for the determination of the clearances in joints that influence the mechanical impacts and vibrations, unified in a system model. The method of kinematical analyses of the wear process and clearances in rotating surfaces of piston machines are developed in this article. In parallel, theoretical expressions and diagrams for determination of the dimensionless clearances in kinematic pairs of the machine are deduced. The investigation brings in order to develop an integrated model of the piston machine system that is then used to evaluate and improve current designs. 3 ill. Bibl. 17. Engl.; sum. in Russian.

INVERSE TRANSFORMING MECHANISMS. **N. Natbiladze, Z. Uplisashvili.** “Problems of Mechanics”. Tbilisi, 2019, № 1(74), pp. 25-28, (Engl.).

In the article is considered the catalogue of the construction of the mechanisms based on the inverse transformation due that the constructor can easily select the desired mechanisms. It is noteworthy that geometric parameters of including in the catalogue mechanisms are absolutely characterized by the same principles and are based on the principles of the formation of inversion points. The only differences in the mechanisms are their overall dimensions. In the article are described the kinematic analysis of the including in the catalogue mechanisms determining the locations of their individual links. 1 ill. Bibl. 3. Engl.; sum. in Russian.

METHOD OF CALCULATION OF IMPACT COMPENSATORS IN THE TRANSMISSION OF THE ROLLING MILLS. **T. Natriashvili, S. Mebonia, G. Sakhvadze.** “Problems of Mechanics”, Tbilisi, 2019, № 1(74), pp. 29-36, (Engl.).

In article devices for damping the impact force in universal spindles and in the gear stand of the rolling mill are proposed. The method of calculating these devices is given. Spring compensators of shocks between the roll blade and the spindle liners and between the teeth of the gear rolls are proposed. The formulas for calculating of the maximal moment and stiffness of the sleeve spring is obtained. 9 ill. Bibl. 8. Engl.; sum. in Russian.

TO MODELING OF DYNAMICS OF ELECTROMECHANICAL FOLLOW-UP SYSTEMS. **T. Mchedlishvili, Z. Surmava, V. Chitaishvili, V. Iobadze, T. Kapanadze, N. Nikvashvili.** "Problems of Mechanics". Tbilisi. 2019, № 1(74), pp. 37-42, (Engl.).

Dynamic studies of modern high-speed electromechanical follow-up drives are coupled with consideration of the elastic properties and as well as backlash connections in the transmission elements of the mechanical part of the drive. This, in turn, requires further improvement of methods and methodologies related to the optimization parametric and structural synthesis of the systems under study. In this paper are considered issues related to the revealing of mathematical laws aimed on development of original models of the systems under consideration. 3 ill. Bibl. 7. Engl.: sum. In Russian.

AKTUAL ISSUES OF DYNAMICS OF VARIABLE MASSES BODIES IN AGRICULTURAL MACHINES. **R. Makharoblidze, Z. Makharoblidze.** "Problems of Mechanics". Tbilisi, 2019, № 1(74), pp. 43-47, (Engl.).

In the paper is stated the analysis of current state of variable mass bodies with respect of agricultural machines and are outlined the issues that requires the further researches and development. Bibl. 10. Engl.; sum. in Russian.

ECOLOGICAL TECHNOLOGY OF WOOD CUTTING PROCESS ON MOUNTAIN LOGGING AREAS AND MODERNIZED SELF-LOADED LOGGING UNIT. **M. Narimanashvili, Z. Chitidze, T. Gogishvili, R. Tkemeladze, Z. Balamtsarashvili.** "Problems of Mechanics". Tbilisi, 2019, № 1(74), pp. 49-58, (Engl.).

Is developed and created the modernized self-loaded aggregate with new multifunctional hinged-lever-gear mechanism of body-arrow that gives the possibility to implement complex mechanization of logging technological processes. In the article are stated theoretical and force calculation studies of the flotation ability parameters of modernized logging self-loading aggregate; are determined the critical values of the slope inclination angle on the ascent and descent at operation in extreme conditions; are justified from the ecological point of view the advantages implementing of lumbering technological process in mountain logging sites in conditions of fully loading of lumbers on the body. In the work by taking into account the carried out research is determined that the main and basic machine for the implementation of the logging working processes with inclination up to 36° is necessary to be used the modernized logging self-loading aggregate. 4 ill. Bibl. 9. Engl.; sum. in Russian.

METHODOLOGY OF CALCULATION BY FINITE ELEMENTS METHOD OF THE AMOUNT OF HEAT REALIZED AND TRANSFERRED IN THE CUTTING TOOL PLATE IN CUTTING PROCESS. **G. Gratiashvili, M. Sanikidze.** "Problems of Mechanics". Tbilisi, 2019, № 1(74), pp. 59-63, (Engl.).

The knowledge of cutting temperature has great importance to clarify the nature of the wear of cutting tools and calculation the strength of the cutting part of tool. Thus, there are two ways of measuring cutting temperature. The first is theoretical relating to the large and complex calculations with the great errors due the accepted assumptions. In addition, the second way is to determining the temperatures by experimental method and it required carrying out a number of tests that in turn is quite labor consuming and variable process in relation to new technologies, which require constant specification of experimental results.

Consequently, the development of a new methodology, the determination of heat transfer and distribution in the cutter, represents a rather topical task and stimulate us to develop a new programming method.

The aim of this paper is an attempt to develop a methodology based on new original method of heat transfer and distribution calculation in cutter that by application of finite elements method gives the possibility due application of object-oriented programming C ++ grounded on the synthesis and analysis to develop the simplified software methodology for calculating by this method and avoid the above mentioned difficulties. 1 ill. Bibl. 7. Engl.; sum. in Russian.