## **MD.10.**

# TitlePRECESSIONAL GEAR TRANSMISSIONViorel BOSTAN; Ion BOSTAN; Valeriu DULGHERU;

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**Description** The technical result of the invention consists of:

### INTERNATIONAL EXHIBITS 111

#### EUROINVENT 2024

- Increasing the carrying capacity of the transmission by engaging the teeth in contacts with convex-concave geometry and the minimum difference in the curves of the mating flanks;

- Increasing the mechanical efficiency by changing the tooth shape, reducing the pressure angle between the flanks and at the expense of increasing the roll rate of the gear teeth by decreasing the relative friction slip between the flanks with a reduction in the degree of frontal overlap and a compensatory increase in the degree of longitudinal overlap with pure lamination of the tooth in the sphero-spatial interaction of the mating wheels with the nutation angle;

- Expanding cinematic and technological possibilities.

The transmission contains the housing, the satellite gear with two bevel gears and driven with the crankshaft in spherospatial motion around a fixed point, two central bevel gears and one fixed fixed in the housing and another movable mounted on the driven shaft.

The teeth of the crowns and the satellite wheel have a flank profile in a circular arc, and those of the central bevel wheels and variable curvature, depending on the angles  $\theta$  and  $\delta$ , the number of teeth Z and the ratio of the numbers of teeth of the conjugate wheels in the gears  $(Z_1 - Z_2)$  and  $(Z_3 - Z_4)$ , as well as the radius r of the circular arc of the tooth profile of the crowns. The configuration of the numerical values of the mentioned parameters determines the geometry and kinematics of the convex-concave contact of the teeth, the degree of front coverage, expressed by the number of pairs of teeth simultaneously in gear, and defines the pressure angle between the conjugate flanks.

The technical project and the industrial prototype are developed.