ONE POSTULATE – AND MERE MEMORY REMAINS FROM INERTIAL FORCE

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"The laws of Physics must have one and the same form for all the observers, including those moving with acceleration."
Albert Einstein

Newton's third law of motion maintain that the forces, with which two bodies affect each other, are equal in modulus and directed to the opposite sides along the straight line connecting these bodies. The forces do not equalize each other:

$F_1=-F_2$ (1).

If $F_1 = F_2 = ma$ (2),

where m – is the body's mass, a – is the acceleration, then the equation will be written as follows:

$ma=- ma$ (3),

whence it follows that $a=- a$ (4).

The physical content of the equation (4) is known to the Lord alone, that is why let us give this equation its own physical sense with an introduction of a postulate.

Postulate

Any material point moving with acceleration creates an inert (gravitational) field equal to the acceleration and directed oppositely to it. The inert field, unlike the gravitational one, doesn't interact with material points and bodies.

Newton's laws have been formulated for inertial frames of reference – the systems connected with the bodies, which are affected by the outside forces. Within the systems moving with acceleration these laws fail. To use Newton's laws in noninertial frames of reference it is necessary to take into account that all bodies behave in these systems as if a change of the gravitational field occurred and the free fall acceleration vector nearby the Earth g_0 got an incrementation – a equal to the system's acceleration (in reference to the inertial system) taken opposite in sign. In other words, in noninertial frames of reference located nearby the Earth one can use the same laws, formulas and equations that are used in inertial ones, but everywhere it is necessary to change the vector g_0 with the vector g equal $g = g_0 + (-a)$ (5).

Weight is the force, with which a body, being gravitated to the Earth, affects the bearer or strains the suspension: $P=mg$ (6).

Inserting the equation (5) into the equation (6) we will get: $P = mg + m(-a)$ (7).

If $a = 0$, then the weight is equal to the gravity force: $P = mg_0$ (8).

Let us consider this theory as an example. Let a body with a mass of m is moving in a circle of the radius r at the speed of V. The body is affected by the gravitation force mg_0 and the funicular force T. The resultant of these forces is equal to the centripetal force equal (see Fig.1): $F_ц = ma$ (9).

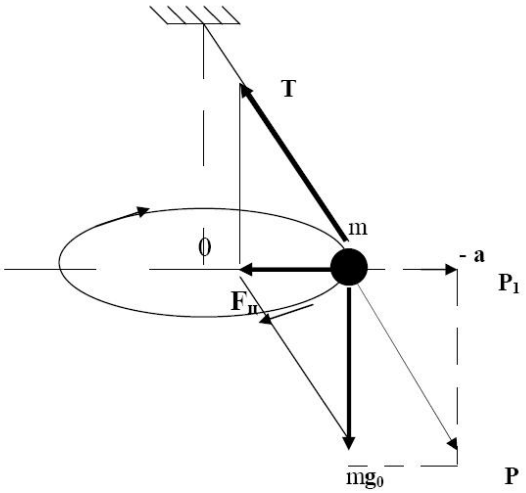

Figure 1.

According to the postulate mass creates an inertial field –a. Then the weight of the body will be equal

$P=mg + m(-a)$ (10) and it is attached to the funicle in accordance with Newton's third law of motion and weight metering.

From all the said we resume: Newton's laws are correct both in inertial and noninertial frames of reference.

As for the inertial force, it is substituted by one of the body weight components P_1.

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