THE FORCE OF ACTION IS ALWAYS EQUAL TO THE SUM OF OPPOSITE REACTION AND ABSORPTION

Nrusingh Charan Mohapatra

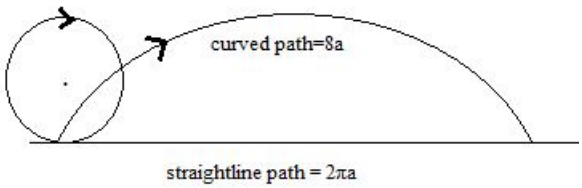
Abstract- Everybody moves on a curved path to cover a straight line path .This implies that to cover a straight line path, everybody moves on a curved path .The following law is derived from the above fact as follows,"THE FORCE OF ACTION IS ALWAYS EQUAL TO THE SUM OF OPPOSITE REACTION AND ABSORPTION ".

Key words - Absorption, Action, Inertia, Motion, Rest, Reaction.

INTRODUCTION

Action means the force exerted by one body on the other body. Reaction means the force exerted by the second body on the first body .Absorption means the force absorbed in the second body .When a force is applied on a body, the body moves some distance .That is, by the action on the body, the body moves some distance by its reaction. So the action and reaction relation is obtained from the motion of a body.

A deer jumps in a curved path to cover a straight line path. A frog jumps in a curved path to cover a straight line path. A bird flies in the air making curves by its wings. A fish swims in the water making curves by its fins. A stone thrown in the air, moves in a curved path to cover a straight line path. Snake moves on the ground by making many curves to cover a straight line path. Water flows in the river by making numerous curves to cover a straight line path. While walking, every foot of a man moves in a curved path to cover a straight line path. The following motion law is derived from the above type of motions.



MOTION LAW - EVERYBODY MOVES MORE DISTANCE ON A CURVED PATH TO COVER LESS DISTANCE ON A STRAIGHT LINE

The wheel of a vehicle moves uniformly on a road. So the action and reaction relation can be derived accurately from the motion of the wheel on the road.

SUBJECT MATTER

When a force is applied to a wheel, the wheel rolls on the road so that every point on it which touches the road moves vertically on a curved path to cover horizontally on a straight line path in its every rotation .The curved path is a cycloid, Whose length is calculated by the length formula of calculus as '8a' and the length of the horizontal straight line path is $2\pi a$ where 'a' is the radius of the circle which generates the cycloid. Hence in a single rotation the point of the wheel, which touches the road moves vertically '8a' length and in the same time, It covers horizontally '$2\pi a$' length on the road.

As the point on the wheel moves on a cycloid path which is the part of a circular path, so the centripetal force acts on it.

Centripetal force is a force, which is required to move a body uniformly on a circle. This force acts along the radius and towards the centre of the circle. While moving along a circle the body has a constant tendency to regain its natural straight line path .This tendency gives rise to a force, which is called the centrifugal force.

It acts along the radius and away from the centre of the circle .Centripetal force is the action force and centrifugal force is the reaction force. The centripetal force and the centrifugal force are equal in magnitudes and opposite in directions. So where is centripetal force, there is centrifugal force also. Every point on the wheel moves vertically '8a' distance by the centripetal force but at the same time the same point covers 2πa distance horizontally by the centrifugal force.

Suppose s_1= length of the cycloid path and s_2 = length of the straight line path

So s_1 = 8a and s_2 = 2πa,

Here 8a > 2πa => $s_1 > s_2$

Let v_1= Velocity of any point on the cycloid path $= \frac{ds_1}{dt}$

And v_2= Velocity of the same point on the straight line path $= \frac{ds_2}{dt}$

As $s_1 > s_2$ => $\frac{ds_1}{dt} > \frac{ds_2}{dt}$ so

$v_1 > v_2$ => $mv_1 > mv_2$

=> $m\frac{dv_1}{dt} > m\frac{dv_2}{dt}$

So $ma_1 > ma_2$

where $\frac{dv_1}{dt} = a_1$ and $\frac{dv_2}{dt} = a_2$.

Hence $F_1 > F_2$

where $F_1 = ma_1$ and $F_2 = ma_2$

here F_1 = centripetal force,

which is applied on the point of the wheel, So that it moves 8a length on the cycloid path. The magnitude of the centripetal force is equal to the magnitude of the centrifugal force.

Hence $F_1 = F_2$ + SOME ABSORBED FORCE,

As $F_1 > F_2$

Here F_2 + SOME ABSORBED FORCE = CENTRIFUGAL FORCE,

which is utilized on the Straight line path. This implies that,

action force = reaction force + absorption force.

Here 8a > 2πa

and 8a - 2πa = (8-2 x 22/7)a

=((56-44)/7)a =(12/7)a .

Equal force must cover equal distance but centripetal force covers more distance than centrifugal force.This implies that some amount of centrifugal force could not be utilized in the motion purpose on the horizontal straight line path, for which (12a/7) distance could not be covered there.

Force cannot be destroyed, so the centrifugal force which could not be utilized in the motion purpose that was absorbed in the straight line path of the road.

This implies that

"action of centripetal force : reaction of centrifugal force"

= 8a : 2πa = 8 : 2π = 8 : (2 x 22)/7

= (8 x 7)/7 : (2 x 22)/7 = 56 : 44 = 14 : 11

This implies that,

" TO EVERY 14 PARTS OF ACTION , THERE IS 11 PARTS OF REACTION".

=>14 PARTS ACTION - 11 PARTS REACTION
= 3 PARTS ABSORPTION

Hence "To every 14 parts of action, there is 11 parts of reaction and 3 parts of absorption".

This implies that,

14 PARTS ACTION = 11 PARTS REACTION
+ 3 PARTS ABSORPTION

=> 1 part action = (11/14) part reaction + (3/14) part absorption

This implies that

ACTION = REACTION + ABSORPTION

APPLICATION

1.INERTIA OF MOTION

Inertia of motion occurs in a body due to the following law,

Action = Reaction + Absorption

Here Absorption > 0,

so inertia of motion takes place in a body due to absorption.

In every rotation of a wheel, the point of it which touches the road moves 8a distance in the vertical cycloid path by the centripetal force (mv^2/r) but at the same time that point covers $2\pi a$ distance on the horizontal straight line path by the centrifugal force . Centripetal force and centrifugal force are equal in magnitude and opposite in directions.

But $8a > 2\pi a \Rightarrow 8a - 2\pi a = (12a/7)$. This implies that the cycloid path length has (12a/7) more length than the horizontal path length. Equal forces should cover equal distances at the same time.

As the point moves 8a distance vertically in a curved path by the centripetal force (mv^2/r), so same distance should be covered horizontally by the same point on the same force (mv^2/r).

8a distance is covered by (mv^2/r) centripetal force.

1 distance is covered by ($mv^2/8ar$) centripetal force.

(12a/7) distance is covered by ($mv^2/8ar$) x (12a/7) = ($3mv^2/14r$) centripetal force.

So (12a/7) distance cannot be covered by the centrifugal force on the horizontal straight line path as ($3mv^2/14r$) centrifugal force is absorbed in the road. Since (12a/7) excess distance of the cycloid path is covered vertically by the centripetal force ($3mv^2/14r$), so this amount of centripetal force has a tendency to take the body to a distance of (12a/7) horizontal straight-line path in every rotation of the wheel. Now ($3mv^2/14r$) centripetal force = (3/7r) (1/2 mv^2) = (3/7r) kinetic energy. In every rotation of the wheel ($3mv^2/14r$) centripetal force is converted to (3/7r) kinetic energy. This implies that (3/7r) kinetic energy is conserved in the wheel to take it ta distance of (12a/7) horizontal straight line path in its every rotation. This is called the inertia of motion of a body.

2. INERTIA OF REST

Inertia of rest takes place in a body due to the following law.

Action = Reaction + Absorption,

If a force is applied on a body but the body does not move then the absorption becomes zero. As Absorption = 0, So

Action = Reaction + 0 = Reaction,

Hence Action = Reaction.

This implies that when Absorption = 0 , then the 'Action' will be equal to the 'Reaction', as a result of which the body will be at rest, which is called the inertia of rest of the body.

CONCLUSION

14 parts Action = 11 parts Reaction + 3 parts Absorption

1 part Action = (11/14) part Reaction + (3/14) part Absorption

Taking of medicine means action of the medicine in the body. If a medicine absorbs in the body of a patient then only it fights against the disease. According to this law if a patient takes proper medicine to cure his disease then (11/14) part of the medicine fights against the disease to cure the patient and also it runs the internal and external organs of the body.The rest (3/14) part of the medicine will be absorbed in the body .This (3/14) part absorption of medicine creates the immunity power and fulfils the requirements of his body.The absorption is the life of a living being.

If a patient takes wrong medicine to cure his disease then (11/14) part of that medicine will support the disease to increase it and (3/14) part absorption of the medicine in the body will destroy the immunity power of his body. So patients should be cautious about the taking of medicine according to the law.

If the man 'A' will slap the man 'B' then the man 'B' will absorb (3/14) part of it and he will react (11/14) part to the man 'A' .Then the man 'A' will absorb (3/14) of (11/14) of the slap = (3/14) x (11/14) =

(33/196) part of the slap. From the slap, the man 'A' will get (33/196) part pain of the slap and the man 'B' will get (3/14) = (3x14) / (14x14) = (42/196) part pain of the slap. So both the men will get pain by the slap.This law is applicable for mental action also.If a man thinks the ill of the other man then the man will get (33/196) part effect of the ill thought himself and the other man will get (42/196) part effect of the ill thought provided that the other man is guilty So this law cautions the human society for his actions.

N.B: <u>This revised article has been sent to</u>

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