

Electrical Circular Projectile Accelerator and Its Operation

Objectives of the system:

The principal object of the invention is to provide a novel electric circular projectile accelerator system that offers several advantages over existing solutions using chemical propellants.

The objective of the present invention is to utilize an electric motor-driven centrifugal force launcher. This reduces the weight of projectiles and overall system cost.

Another objective of the invention is to eliminate heat and gas generation associated with conventional system which extends the lifespan of the hollow cylindrical barrel and reduces maintenance needs.

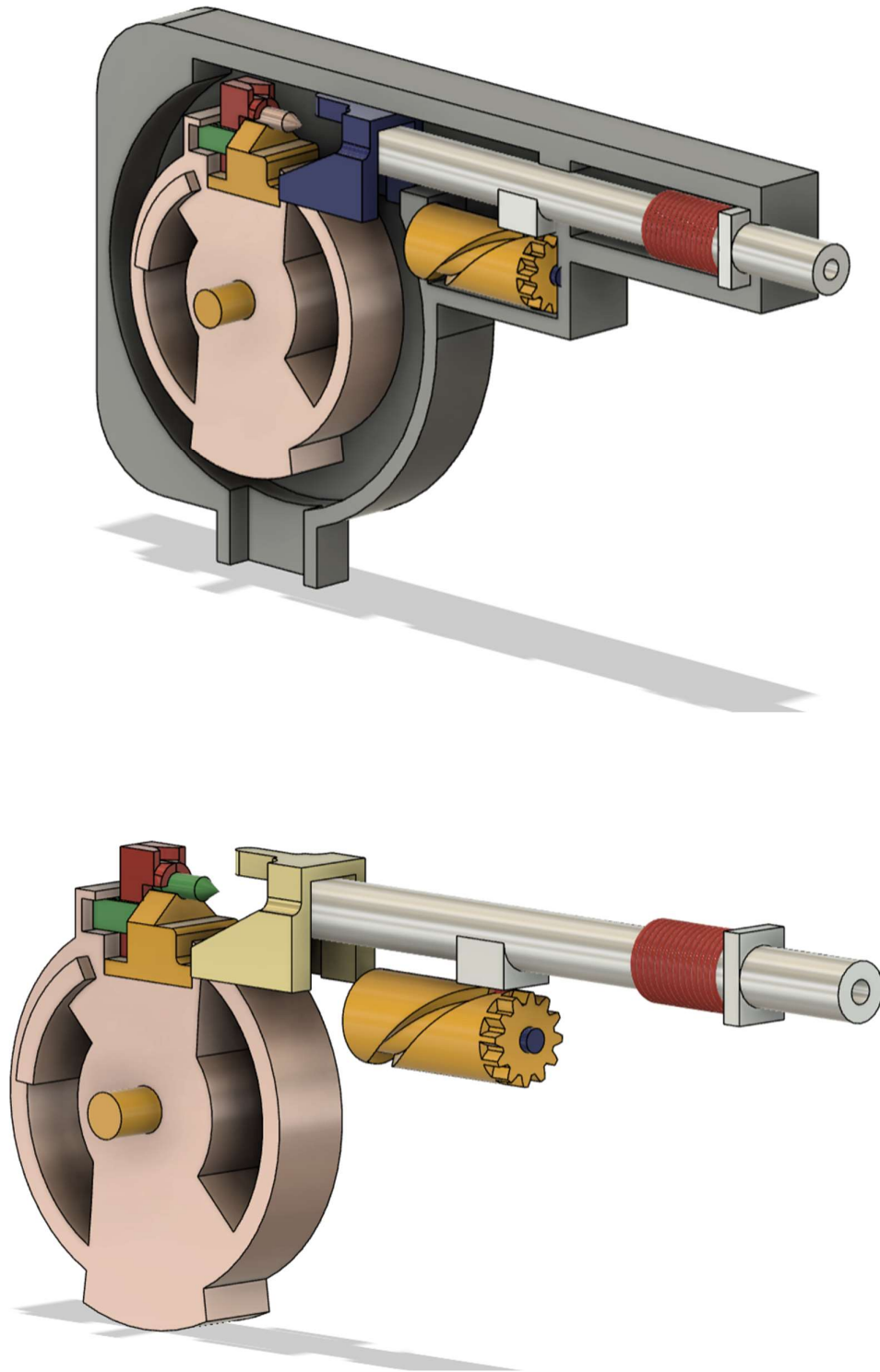
Another objective of the invention is to achieve high projectile launching rates by employing a mechanism that seamlessly transfers projectiles from a circular motion chamber to the hollow cylindrical barrel.

Another object of the invention is to eliminate the noise and recoil associated with conventional system, improving user experience and potentially allowing for creation of efficient firearms.

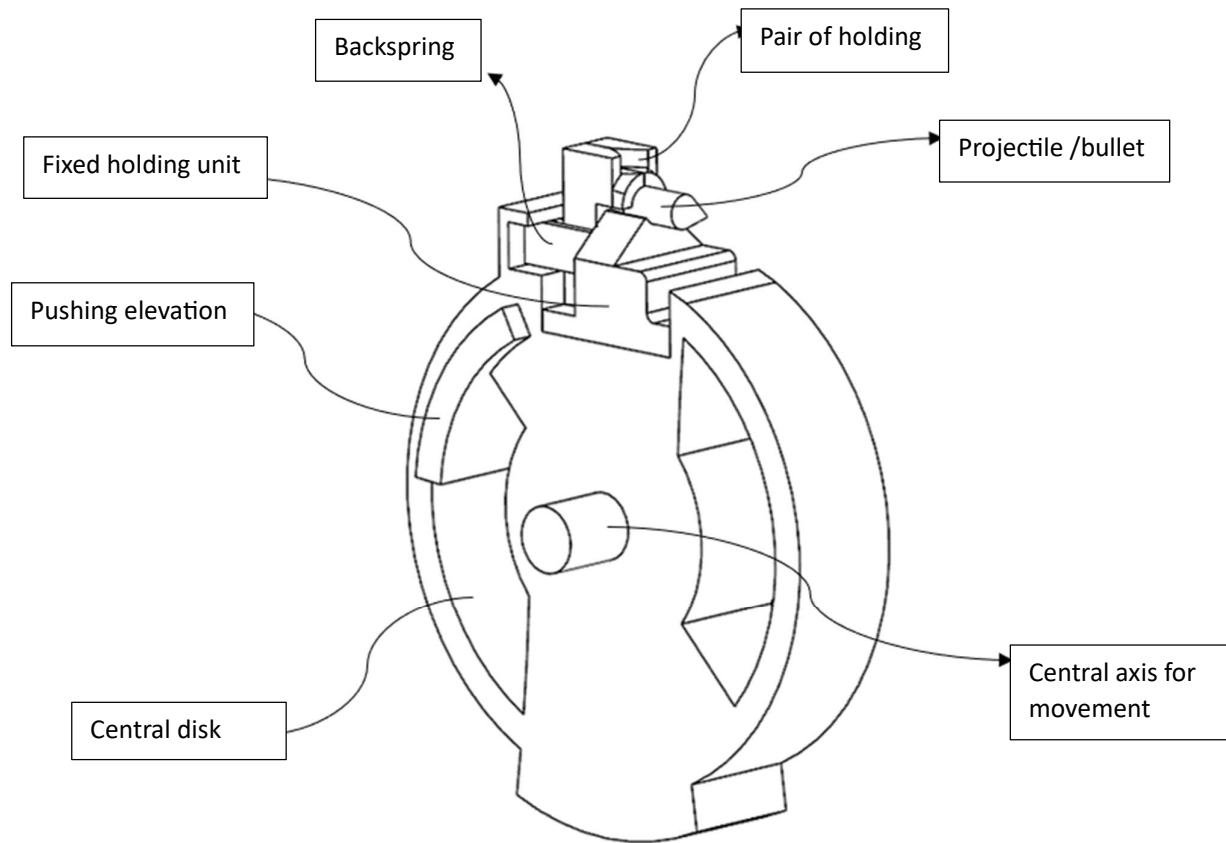
Another object of the invention is to implement a unique electric motor-driven barrel system that facilitates projectile loading and ejection while controlling projection rate of projectile.

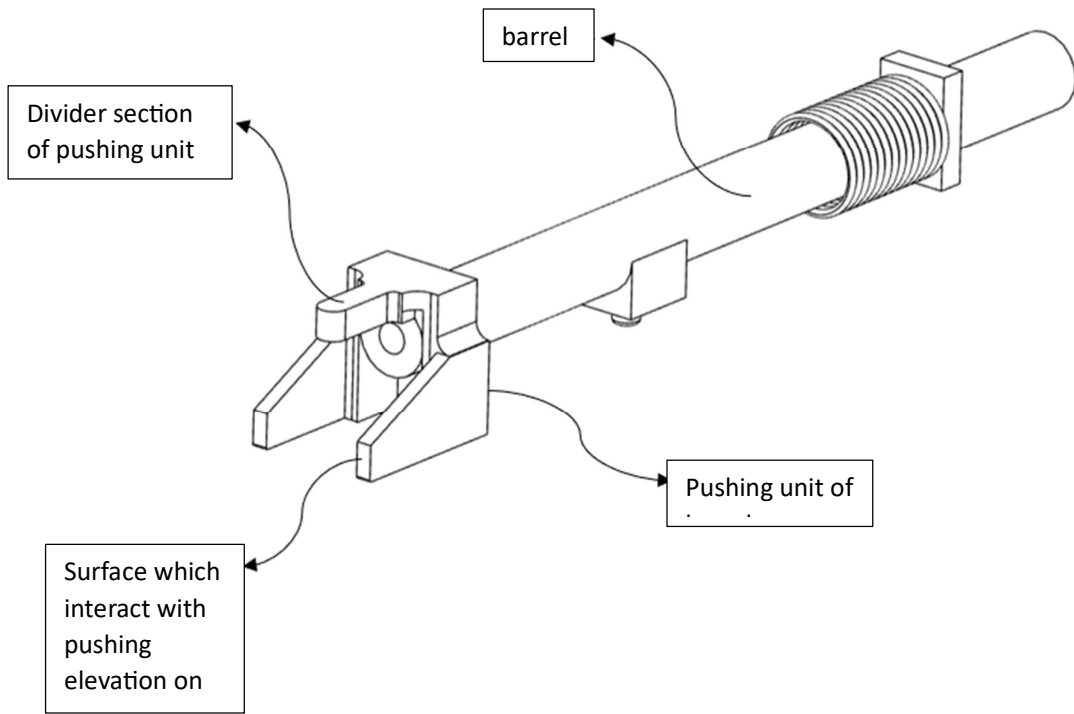
The yet another object of the invention is to develop an adjustable mechanism for holding projectiles within the circular motion chamber during loading and launch.

The overall Assembly of objects is as below:

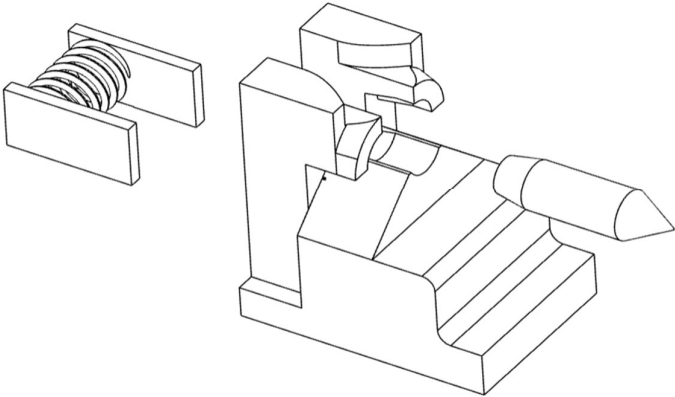
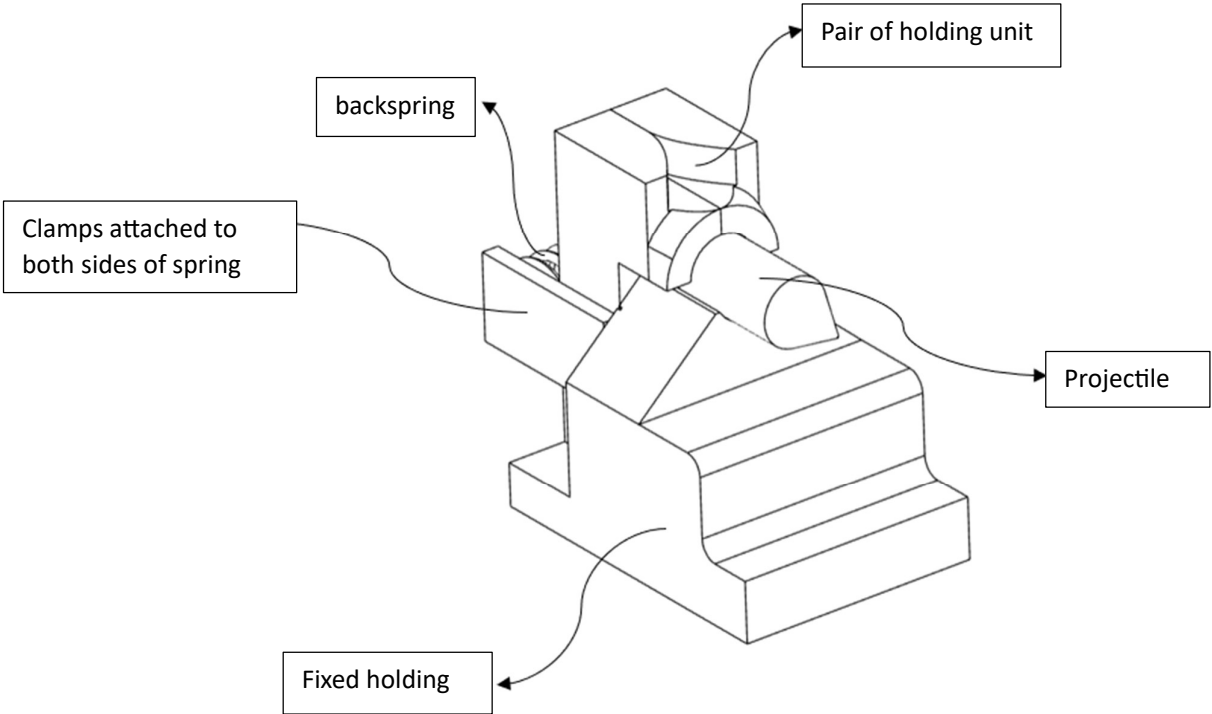


Components of assembly explained as below:

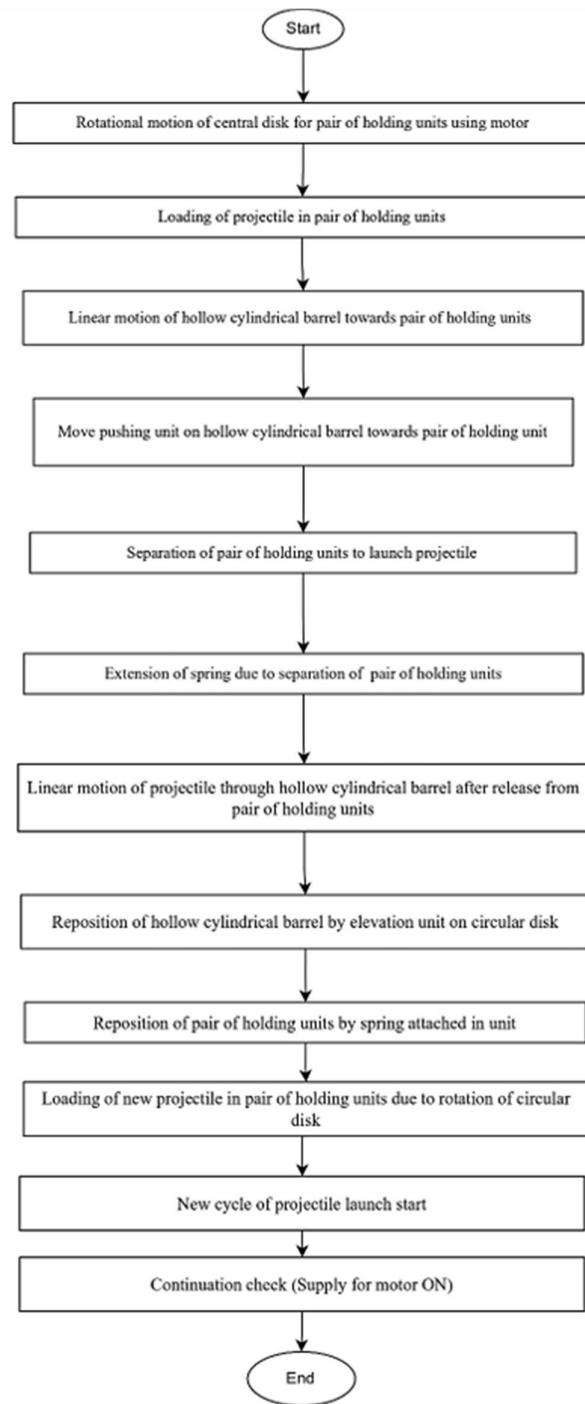




Holding unit that holds projectile or barrel:



Working procedure explained in detail:



The operational procedure commences with the activation of the central axis through any suitable electrical power source, thereby initiating the rotation of the central disc designed to accommodate a pair of holding units fixed holding unit and spring along with clamps holding the spring. Subsequently, upon rotation, the pair of holding units receive a projectile within the designated slot. Following the loading process, the cylindrical hollow barrel advances linearly, propelled by a pushing unit integrated with the hollow cylindrical barrel, towards the pair of holding units. Upon reaching a predetermined point, the pushing unit engages with the pair of holding units, effectively dividing them into two halves, thereby facilitating the release of the projectile in a linear trajectory towards the hollow cylindrical barrel. It is noteworthy that this division process may induce tension within the spring mechanism affixed to the holding unit. Upon successful launch of the projectile, the elevation unit situated on the rotating circular disk repositions the hollow cylindrical barrel to its initial position. Furthermore, subsequent to the repositioning of the hollow cylindrical barrel and pushing unit, the spring associated with the pair of holding units restores them to their original state, utilizing the energy stored during the separation of the holding units at the moment of projectile launch. In further rotation of circular disk the new projectile is accepted and secured in between pair of holding unit from predetermined position. This procedural cycle iterates continuously, enabling the repetitive launching of projectiles towards the intended target.

The basic physical principle of working of the solution is circular motion the projectile that is to be targeted is circulated in circular motion at high revolutions. Here the radius and circular motion revolutions per minute are specific for achieving desired linear speed of projectile. The proper mechanism is utilised to transfer projectile from circular motion to linear motion at high speed. The solution is built in such a way that this transfer of projectile could be done at high rate like 100s or 1000s of times per minute.

Summary:

This invention discloses a revolutionary electric motor-driven projectile launcher system in sector. Existing launchers rely on the chemical propellant source, leading to drawbacks like: significantly increase the weight of the launcher and it also generates substantial heat, reducing hollow cylindrical barrel lifespan and requiring bulky cooling systems. Chemical propellant explosions create loud noise, hindering user experience and potentially limiting applications.

This invention addresses these challenges by utilizing a centrifugal force launcher. Projectiles are spun at high speeds within a rotating circular disc, achieving adjustable launch velocity. The invention offers the method for transferring projectiles from the rotating circular disc to the hollow cylindrical barrel. The pair of holding unit splits into two sections upon movement of pushing unit of hollow cylindrical barrel, releasing the projectile.

This innovative approach offers significant advantages. Eliminating chemical propellant drastically reduces the overall weight of the system. The absence of combustion minimizes heat generation, potentially eliminating cooling systems and extending hollow cylindrical barrel life. Electric propulsion creates significantly less noise compared to conventional launchers. Additionally, the high launching rate and cost-effective projectiles due to the use of just the projectile itself make this a compelling alternative to traditional launchers. Overall, this invention provides a lighter, quieter, and more cost-effective solution with superior projectile launching rate and barrel life compared to conventional launchers.