

Electromagnetic Launcher for Space Crafts

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Abstract— Electromagnetic space craft launcher is a launch pad for spacecrafts using the repulsive properties of like poles of magnets. This design reduces the significant costs, and the environmental impacts of the conventional fuel-based launching systems, and is ideal for future space transportation of goods.

Index Terms— Bitter electromagnet, colonization, electricity, ignition engines, launch pad, repulsive magnetic force, transportation

DESIGN

The design is basically a launch pad for space crafts, launched from a platform connected to a ground based bitter electromagnet, using the principle of generation of the repulsive magnetic force between the opposite poles of a magnet. The launched spacecraft must initially be attached to another electromagnet, with an opposite flow of current, so that the magnetic pole created at the bottom of this electromagnet is similar to the one at the top of the ground attached electromagnet, i.e., facing like poles to each other to create a strong launch force on the space craft.

CONSTRUCTION

The location of this setup must be ideally at an open place with no nearby technical facilities. The platform for the launch must be dug in a cylindrical shape of radius about 10 metres, and depth into the ground about 15 metres. A giant electromagnet of cylindrical shape with radius about 7 metres and height about 12 metres must be built, with circular conducting metal plates and insulating spacers stacked in a helical configuration, as in a bitter electromagnet, must be constructed and installed in the dug platform. An iron platform must be constructed on top of this electromagnet, with radius and thickness about 9 metres and 1 metre respectively. The iron platform would allow the permeability of this system become higher, and the thickness

of 1 metre would keep the separation between the two electromagnets at a minimum.

The space craft to be launched must be constructed in a conical fashion, so as to keep drag to a minimum. The base of the spacecraft must be attached another bitter electromagnet, but placed in such a manner so as to create the same magnetic pole facing down as the top of the platform electromagnet, creating magnetically like poles, which would repel each other. The body of the space craft must be constructed from a lightweight material, such as non-magnetic carbon composite structure. The base of the spacecraft must have a radius of about 8 metres, and the electromagnet must be of a suitable thickness and a radius same as that of the space craft. The electromagnet must be attached in such a manner that it can released on command from the space craft. Above the electromagnet in the space craft, there must be normal ignition engines, and the rest of the space craft must be constructed similar to normal aircrafts.

WORKING

During the time of the launch, the space craft must be set perpendicular to the platform, with the bottom of the space craft resting on the iron platform. Before the launch, the two electromagnets must not be provided with electricity, and must be completely discharged. To initiate the launch, both the electromagnets must be provided with immense amount of electric current in a very short span of time. The magnetic field produced because of the flow of current in the electromagnets would create like poles between the space craft electromagnet, and the platform-based electromagnet. The repulsive force generated because of the similar poles of

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electric fields would create immense force on the platform and the space craft. The space craft would get an immense force on its bottom, creating a giant upward push. The space craft would thus be able to launch up to a great height without utilization of any fuel.

While in mid-air, the space craft can detach itself from the electromagnet at its bottom to decrease its weight. The electromagnet must be attached to a parachute for its smooth descension towards the surface. At a suitable height, the ignition engines can be turned on to let the space craft continue its journey towards its destination.

CONCLUSION

The above-mentioned launching system can be used to launch space crafts at minimal costs, and almost no consumption of any fuel. The platform and the detached electromagnet can be reused numerous times for launching multiple space crafts. This setup will most preferably be able to transport material goods at essentially very low costs, like sending goods to a future colonized planet such as Mars.

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