Title of invention: Automatic and Manual Can Crusher for Efficient Waste Management

Field of Invention:
The present invention relates to a can crushing device, particularly an automated or manually operated mechanism designed for compacting aluminum beverage cans and similar waste materials to facilitate recycling and reduce environmental waste.

Background of the Invention:
Waste management and recycling have become essential in today's world due to increasing environmental concerns. Aluminum beverage cans contribute significantly to domestic and industrial waste. Manual disposal and transportation of uncrushed cans require excessive storage space and handling effort. Current crushing solutions are either labor-intensive or inefficient. Thus, there is a need for an improved can crusher that is simple, effective, and energy-efficient for household and industrial use.

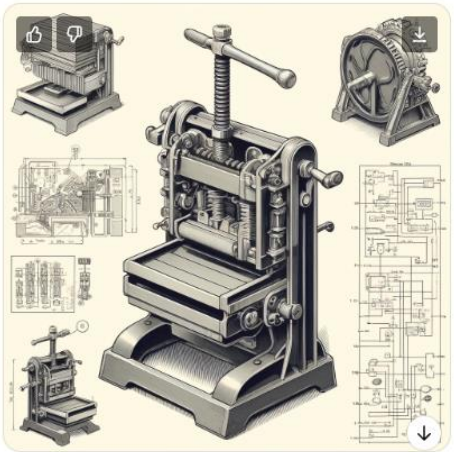
Summary of the Invention:
The invention provides an efficient can crusher mechanism that can be operated manually or automatically. The device comprises a sturdy frame, a crushing plate, a guiding mechanism, and an actuation system. The crusher is designed to exert adequate force to compress aluminum cans into compact shapes, significantly reducing their volume.

Objects of the Invention:

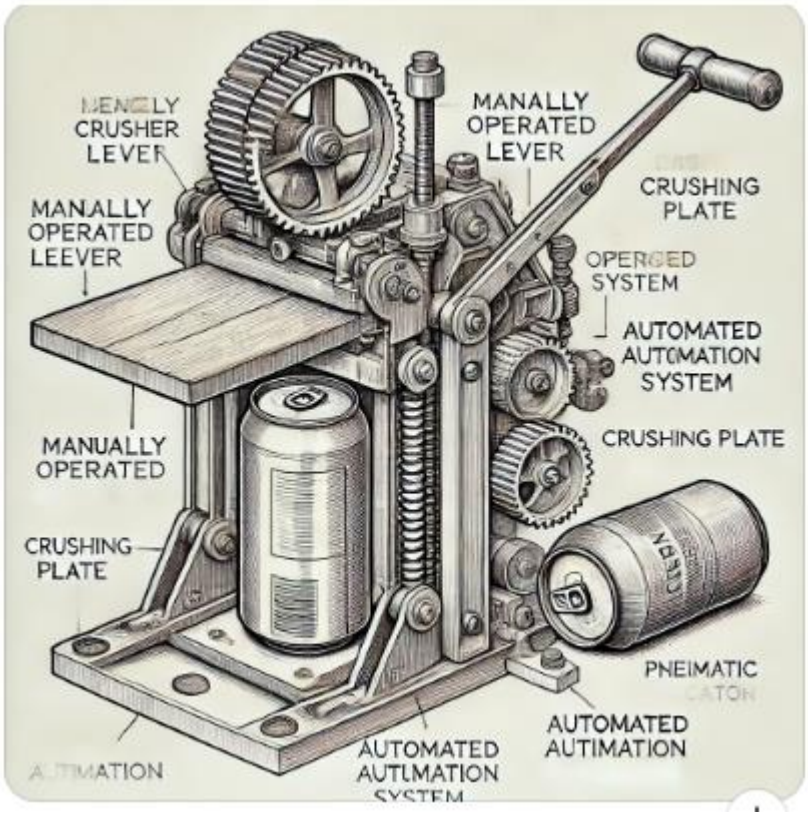
1. To provide a compact, efficient, and user-friendly can crusher.
2. To develop a device capable of reducing the size of cans effectively with minimal effort.
3. To offer an automated solution for bulk can crushing with minimal human intervention.
4. To enhance safety and ease of use in domestic and industrial applications.
5. To contribute to better waste management and recycling efforts.

Brief Description of Drawings:

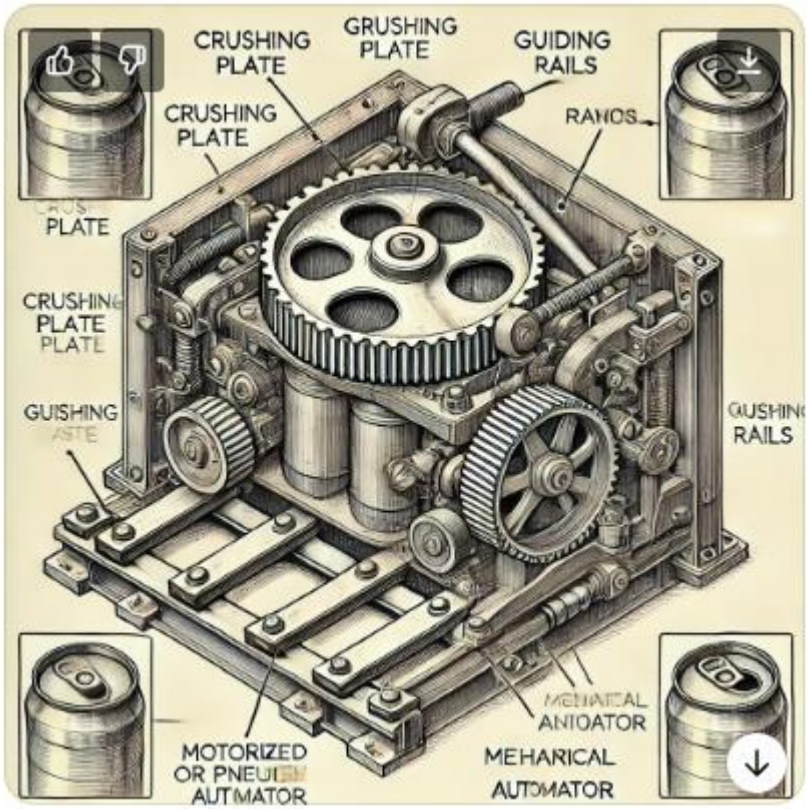
- **Figure 1:** Perspective view of the can crusher device.



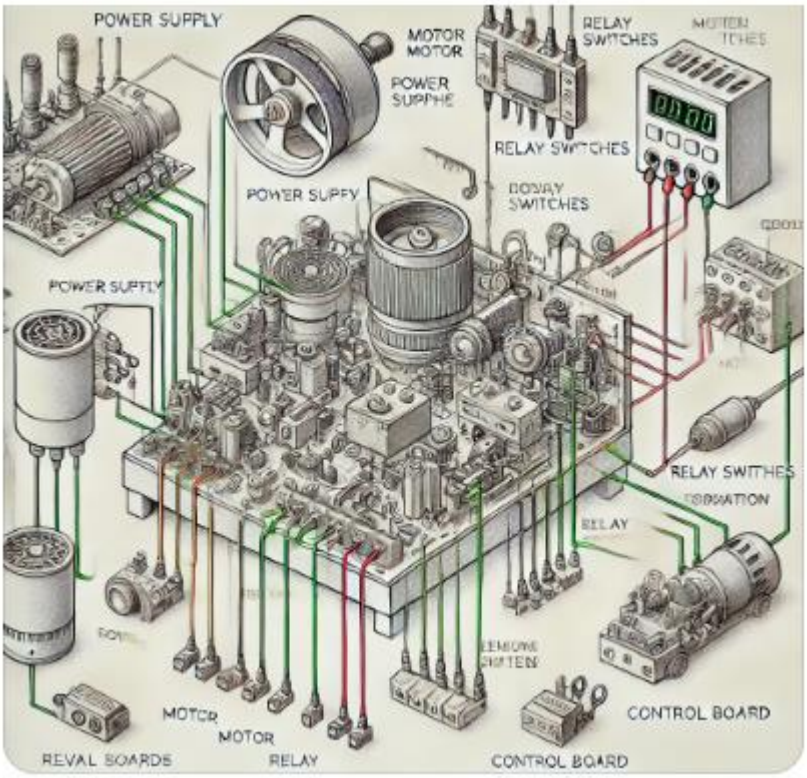
- **Figure 2:** Side view illustrating the crushing mechanism.



- **Figure 3:** Cross-sectional view showing the internal components and actuation system.



- **Figure 4:** Electrical circuit diagram (for automated versions).



Detailed Description of the Invention:
The can crusher consists of a base frame that supports the entire mechanism. A vertical guiding mechanism ensures the proper alignment of cans before crushing. A crushing plate, which moves along a predefined path, exerts pressure on the can, flattening it against a fixed plate.

For manual operation, a lever mechanism is provided, wherein the user applies downward force to crush the can. The automated version includes an electric motor or pneumatic actuator that controls the crushing plate, allowing bulk crushing operations with minimal user effort.

A safety locking mechanism prevents accidental activation, ensuring user protection. Additionally, the crusher is designed with a collection tray for easy disposal of crushed cans.

Claims:

1. A can crusher device comprising a base frame, a crushing plate, and a guiding mechanism designed to compact aluminum cans efficiently.
2. The crusher as claimed in claim 1, wherein a manual lever is used for applying force to the crushing plate.
3. The crusher as claimed in claim 1, wherein an electric motor or pneumatic actuator is employed for automated crushing.
4. The crusher as claimed in claim 1, wherein a safety locking mechanism is included to prevent unintended activation.
5. The crusher as claimed in claim 1, wherein a collection tray is integrated for the storage and disposal of crushed cans.

Conclusion:
The proposed can crusher is an efficient solution for waste management, offering both manual and automated operations to cater to different user needs. Its compact design, ease of use, and safety features make it an ideal choice for households, businesses, and recycling centers.