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Dent-a-Crusher Aluminum Can Crusher

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DENT-A-CRUSHER
ALUMINUM CAN CRUSHER

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Descriptive Abstract

The following report will describe the successful technical plan for a can crusher, including the criteria, the design solution, the fabrication, the testing and the cost estimate. The appendix contains the computer program used in developing the design, graphs, test results and drawings.

Informative Abstract

The Dent-a-Crusher, by crushing will better use storage space, an endless requirement around the home, that saving aluminum cans for recycling takes up. The Dent-a-Crusher facilitates crushing by cutting the 300 pound crushing usually required to only 30 pounds. The Dent-a-Crusher resembles an alligator jaw and has five basic parts: base, pivot block, upper arm, denting device, and handle. The design solution was based on the following criteria:

1. weight less than 20 lbs.
2. required applied force less than 30 lbs.
3. operation easy for small people

Fabrication was completed at Hamilton Standard Controls, Hull Precision Machining, and the designer's workshop. Testing was conducted at Dana's Research and Development Laboratory in Auburn, Indiana. The weight of 3.8 pounds was under criterion of twenty pounds. The applied force averaged 21 pounds which was 9 pounds better than the criterion of 30 pounds. The ease of operation criterion, based on a seven year old, was bettered by a three and a half year old who was able to crush the can with little help. The project cost to the designer was \$14.43. The market value of the prototype is \$24.16. The production cost of the Dent-a-Crusher would be less due to quantity discount and substitution of aluminum U channel with a stamped base as part of fabrication. The Dent-a-Crusher was a huge success. The project was completed on schedule and the criteria was achieved or bettered.

Table of Contents

I.	Introduction	1
II.	Objective	3
III.	Design Solution: Computer Program	4
IV.	Fabrication	15
V.	Testing	17
VI.	Cost	21
VII.	Summary	24
VIII.	Bibliography	25
IX.	Appendix	26