HIGHER TECHNICAL INSTITUTE

MECHANICAL ENGINEERING COURSE

DIPLOMA PROJECT

DESIGN OF A HAMMER FOR CRUSHING GRAVEL

M / 785

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JUNE 1997

DESIGN OF A HAMMER FOR CRUSHING GRAVEL

by

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Project Report

Submitted to

the Department of Mechanical Engineering

of the Higher Technical Institute

Nicosia Cyprus

in partial fulfilment of the requirements

for the diploma of

TECHNICAL ENGINEERING

in

MECHANICAL ENGINEERING

June 1997

ABSTRACT

The objective was to collect information on hammermills for crushing gravel and to prepare a study on the technology of metal powder synthesis. Emphasis was on the selection of proper materials and the design of a hammer for a full circle hammermill.

The method used is based on powder synthesis of all the elements which comprise both the Iron substrate and the electrode.

ACKNOWLEDGMENTS

I would like to thank my supervisor, Mr . G . Katodrytis, lecturer in mechanical engineering at H . T . I, for his assistance and guidance offered to me in writing this project .

I wish also to thank, Dr . N .Angastiniotis for his help in finding the subject, for his helpful offered to me by providing me useful books and information in my project.

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INTRODUCTION

The main purpose of this work was to select specific materials, find out the factors that cause the wear of the material and ways of improvement.

Firstly, relevant background theory on hammermills i.e. (Hammermill System, Grinding Theory, System Design Factor and Correcting Common Hammermill problems) has been surveyed. Further, description of the theory based on wear of material i.e. (Wear, Abrasive Wear, Adhesive Wear, Fatigue Wear, Erosive Wear, Chemical wear, Mechanics of Friction, Coefficient of Friction, Coefficient of Friction, Rolling Friction, Coil Friction, Frictional material, Untifrictional Material, Generation of Heat, Surface, Surface Hardness and Surface Temperature) has been analysed.

Emphasis has been given on the theory of melting and casting. The traditional method of producing wear resistant materials.

The alternative way of making finished products is by of powder processing and a detailed analysis is outlined.

The powder to be used is obtained by adding salts of the elements to be used i.e., Fe, Nb, Cr, Ni, Spray-drying of the salts and further processing of the powder mixture followed by consolidation has resulted the finished product.