

# **AUTOMATION FOR PRESS FEED OPERATIONS**

**Applications and Economics**

Edward Walker



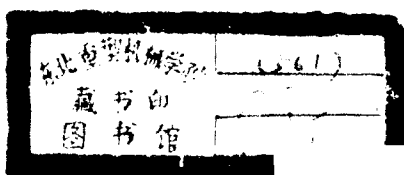
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# AUTOMATION FOR PRESS FEED OPERATIONS

## Applications and Economics

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## Preface

Obviously, any manufacturing plant's success is measured by its profitability. This, in turn, is directly related to productivity, or the amount of output per worker. Productivity has received a great deal of attention recently and should take giant strides in the next few years. One way to improve productivity in the metal-stamping industry is by automating feeding and stamping lines of coiled flat sheet stock. It is for this purpose that this book has been written.

I have spent 50 years in manufacturing — in production control, in

machine tool design, as an employee, as an administrator, and as an employer. The last 25 years have been dedicated to the founding and development of Regal Industries, a manufacturer of equipment for automatic feeding of coiled sheet stock into the punch press or power shear. This equipment has been sold to customers large and small, drastically reducing their stamping manufacturing costs and increasing their productivity and profitability. For example, a major manufacturer of home appliances tripled its gross output by changing over several stamping lines to more modern equipment and also streamlining its production-control system. Repeat orders from many stamping plants for automated coil-handling and feeding equipment and widespread growth in the use of this equipment indicate the need and desire for improved productivity throughout the metal-stamping industry.

The following chapters contain specific information about the functions of various machines composing automated lines. The book also includes "hands-on" advice on selecting coil-handling and feeding equipment suitable to a pressroom. In addition, information on basic economics is included regarding the cost benefits of automated lines. Whereas this volume is specifically directed to manufacturing engineers and pressroom foremen, much of the material is useful to general management as well. It can give managers good insight into what is going on, and what can be done to develop efficient cost-cutting production methods in their plants. This book should also be of value to machine tool sales engineers: their understanding (which should be thorough) can help customers make the right decisions to get the particular equipment that is most suitable for their needs. In today's market, a salesperson's application knowledge provides a distinctly competitive edge because customers are far more interested in what a machine can *do* than what it is. In addition, coil-handling and feeding equipment designers should find this book of considerable interest, since it is written by a machine designer and contains many design tips concerning the function and application of pressroom equipment.

I have directed the setup of automated press feeding equipment, observed its operation, and customized it to suit customer

needs. This has involved traveling extensively throughout the United States and Europe to render help and service to customers using this equipment. I trust that in passing on this practical experience, I can help you make cost-saving decisions in your press-room operations.

I would like to thank the many engineering and business colleagues who contributed to the knowledge expressed in this book, a few of whom are listed below:

Herb Ensom

Ed Clute

Jack Yackee

Ed Van Dalson

Carter Newlove

Porter Laird

Hank Weber

Harry Heath

Sam G. Longo

Herman Green

Phil Walker

Glen Tipton

George Carlson

Helene Walker—my loving wife  
and secretary

Edward Walker

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# 1

## Introduction

### **1.1 PUNCH PRESS LINES ARE MONEY-MAKERS**

The ever-increasing popularity of automated punch press stamping lines (which are terrific money-makers) warrants a comprehensive outline of their economics and function. This book should provide you with a clear understanding of what equipment is required to suit your needs and achieve the productivity needed for a profitable stamping operation. The following chapters describe popular sheet metal coil-handling and feeding machine tools, their applications,

and how they can be combined to make a complete coil-handling line. Most of the commentary on stamping production in this book does not apply directly to superproduction specialty lines, such as can manufacturing. Those lines require a very specialized type of equipment, which can run the same product, day in and day out on a continuous basis. This book is directly applicable for stamping lines making parts for the automobile, truck, home appliance, aircraft industries, the building and electrical trades.

When reading this book, keep in mind that only you can decide what is useful and practical to suit your production stamping needs.

The book concerns practical production improvements in most stamping plants, large and small. For high-technology specialized equipment, it is advisable to consult the machine-tool manufacturers of that type of equipment for details.

Productivity is the only word in the tough competitive stamping business. Stampings should be produced automatically with only the press operator to monitor the operations and control console.

Obtaining this productivity takes the cooperation and direction of management, product engineering, manufacturing engineering, production control, and sales.

## 1.2 ROBOTS

Robots never can replace those wonderful machines we use for transportation—airplanes, boats, trains, trucks, and automobiles. In manufacturing, robots never will replace high-speed automated machinery. They are a popular subject in the news media: The image of a robot working precisely and continuously, possibly in a (humanly) hazardous environment, is a common one. But the general public is unfamiliar with the realities of high-production automated machine tools. For the people who read this book, productivity, not batch processing (where a robot may be useful), is the main concern.

Product design's biggest contribution to productivity will not be linked to what a robot, or its manipulator, looks like, but to the design or redesign of work pieces for ease of manufacturing, coupled with material saving possibilities.



