

**UNIVERSITI TEKNOLOGI MARA**

**DESIGN AND FABRICATION OF  
ESCALATOR MODEL FOR  
EDUCATIONAL PURPOSE**

**AHMAD HARITH BIN ABDULLAH**

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## **ABSTRACT**

A lot of people nowadays know about escalators but did not know how escalators work. Most of them do not get a chance to see behind the scenes how escalators are functioning from the inside. By making an escalator model of a reasonable size it will ease people in learning how the machines work. A better understanding of this machine will help to improvise its weakness or even build more advanced machines by using this as a starting platform. The model is user-friendly for students and lecturers or anyone in the educational environment to learn more about the mechanical property of this machine. The main objective is to investigate the crucial key of an escalator, design a model that suits people's demand and try to build it as close as possible to the expected finished product. Material involved in this project are aluminium, sheet metal, acrylic glass, metal rod, and chain as these materials are easy to find and affordable. Expected fabrication process involved will be gluing, cutting, drilling and sheet metal forming. This model could be beneficial for anyone who is interested to gain an understanding of this machine.

## **ACKNOWLEDGEMENT**

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# INTRODUCTION

## 1.1 Background of Study

Despite the fact that no functioning model of his design was ever built, Nathan Ames, a patent attorney from Saugus, Massachusetts, is credited with inventing the first "escalator" in 1859. His idea, the "revolving stairs," is essentially hypothetical, and the patent specifications show that he had no preference for materials or prospective applications. Either manual or hydraulic motive power was considered.

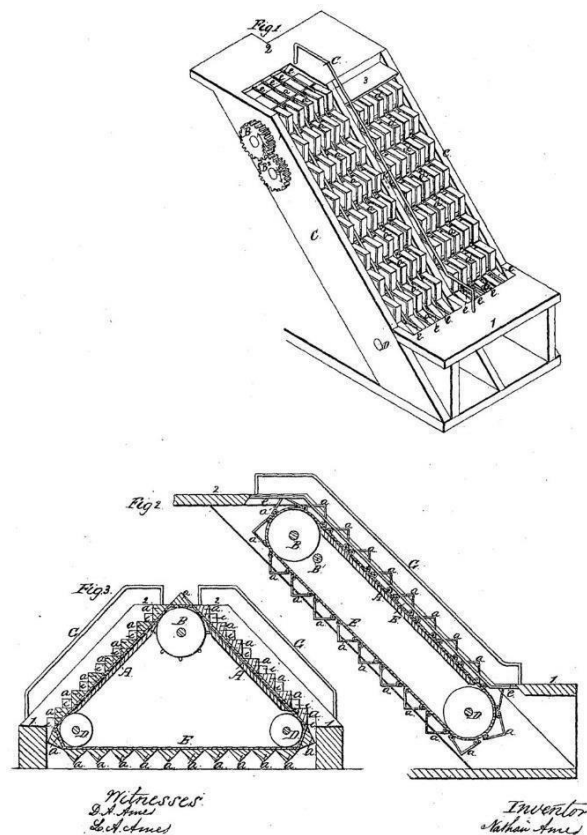


Figure 1.1.1 Illustration from U.S. Patent#25,076: Revolving Stairs. Issued August 9, 1859

Figure 1.1.1 shows design of the first “escalator” or more known as revolving stairs which is drafted by Nathan Ames, a patent solicitor. The sole purpose of this project is to design and fabricate an escalator model or prototype for educational purposes. According to the English Oxford Dictionary, a prototype is ‘A first or preliminary version of a device or vehicle from which other forms are developed’. In