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A REVIEW PAPER ON CONCEPT AND UTILITY OF TREADMILL

V. R. Gandhewar[1] Priyanka H. Kakade[2] Himani. S. Lonkar[3]

[123] *Dept. of Mechanical Engineering, JDIET, Yavatmal, (India)*

ABSTRACT

In an ancient days concept of treadmill was invented for generating mechanical energy with the help of animals such as horse, dogs etc. First treadmill was introduced by Roman Empire for heavy loading like conveyer belt which we use in industries. Some of those invention required electric power for initial torque. After study the history of treadmill bicycle we get idea to develop new concept of treadmill which will manually operated so that no external energy source is required to run treadmill bicycle.

Our main objective while developing this concept is 'A Treadmill with more outputs in less time along with surface cleaning'.

Keywords- Treadmill, Freewheel, Roller, Spur Gear, Cleaning Material, Bicycle.

I . INTRODUCTION

As we all know a manual treadmill does not consume any electricity, thus using treadmill and some arrangements of gears and chain drive, we make a treadmill bicycle. With a less effort this bicycle can be drive as well as a new format of the bicycle design can be launched in the market for exercise with cleaning.

As the user walk on the treadmill the belt moves to the rear side and rotates rollers of treadmill which gives the starting torque. Gear assembly is connected with roller shaft by which whole assembly get sufficient torque and moves treadmill ahead. Brake system is provided for speed control. Treadmill walking platform is slightly inclined for better torque. This inclination is done by different diameter of front wheel and rear wheel or framing arrangement.

Spraying arrangement for cleaning purpose is placed at bottom side of treadmill. Spraying will be done by hand lever arrangement. Floor cleaner mops also placed at bottom side of treadmill. As the treadmill moves, mop will clean the floor. Several mops are provided for better cleaning.

II. LITERATURE SURVEY

There has been great deal of research on this treadmill bicycle fabrication. The origin and use of the treadmill bicycle system began from several years ago and develop throughout the new concept revolution. At the late first century AD Roman Empire introduce first treadmill, as they need to lift heavy weight they incorporate this new invention. The workers walk within the treadmill having large diameter they could lift double the weight with half the crew. Nicholas potter also work in this field and invented a treadmill which is powered by animal

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and reduce human effort with more output. In 18's new concept of treadmill for prisoners as a punishment, this idea was brought in gaol by Sir William Cubitt. Before the development of Bruce protocol there was no safe, standardized protocol that could be used to monitor cardiac function in exercising patients. To address these problems Dr. Robert Bruce and Dr. Paul Yu began work on developing exercise test.

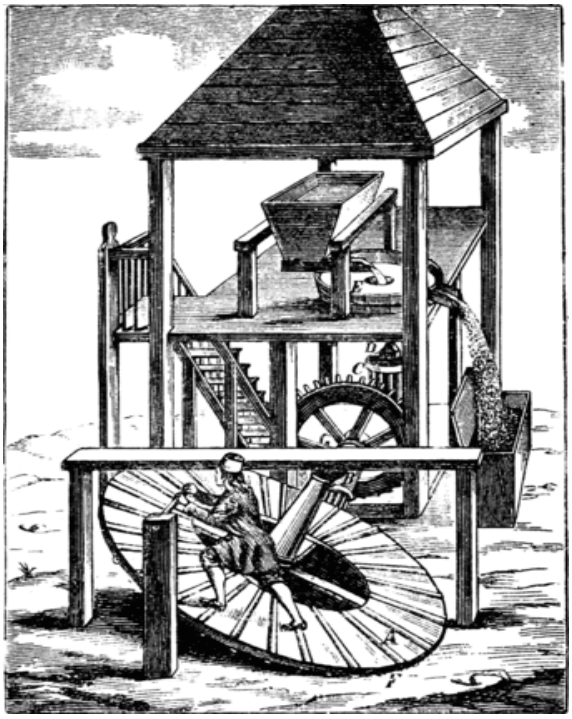

Fig 1. Human Powered Grinding Machine

Nicholas Potter- He invented "Dog Power Treadmill" to tackle domestic work and produce rotary and reciprocating motion for use with light machinery. To run the treadmill animals like horses and dogs energy are used. Nicholas Potter, of Troy PA noted as the father of the first dog treadmill this machine is then marketed as a practical devise for dogs. The first patent issued in 1871 and the final patent in 1881.

Fig 2. Dog Power Treadmill

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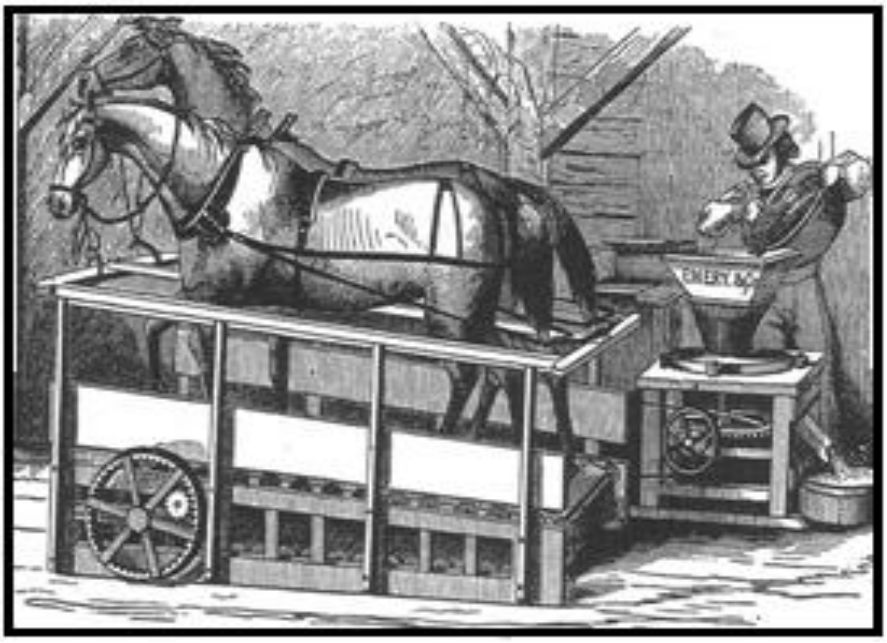

Fig 3. Horse Power Treadmill

William Cubitt(1818)- He invented prison treadmill for punishment. The prisoner would simply work the wheel to produce power to grinding and pump water. The main motto behind this invention want to punish the prisoner.

Fig 4. Treadmill Used To Punish Prisoners

Dr. Robert Bruce (1952) - A cardiologist from University of Washington conducted research to monitor and diagnose various heart conditions and diseases. He gives the idea of treadmill for exercise. First experiment involved a single stage test in which person walked for 10 minutes on treadmill with a constant speed. Dr. Bruce published his first paper on treadmill in 1949 "analyzed minute by minute change in respiratory and circulatory function of normal adult and patients with heart or lungs ailment.

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William Staub (1968) - A Mechanical Engineering William Staub and Dr. Kenneth H. Cooper brought the first household exercise treadmill to market. He called his first treadmill "The PaceMaster 600" at his plant in Clifton, New Jersey.

Fig 5. The Pacemaster 600

III. PROBLEM STATEMENT

Treadmill is no longer a way to mobilize farm operation, but an effective exercise alternative for challenges like weather, hectic schedules, physical limitation, busy streets and crowed area. Over the years, American wardens gradually stopped using the treadmill in favor of other backbreaking tasks, such as picking cotton, breaking rocks, or laying bricks. In England, the treadmill persisted until the late 19th century, when it was abandoned for being too cruel. The machine was all but lost to history. But when Dr. Kenneth Cooper demonstrated the health benefits of aerobic exercise in the 1960s, the treadmill made a triumphant return.

IV . BASIC IDEA

After studied on literature review of treadmill from all the above inventors we come to know that all the invention are steady while working and work for single purpose but in different forms of design. From this we get a new idea in this field to design a model which will be mobile and provide multiple output that will include human exercise and floor cleaning.

V. BASIC PRINCIPLES

Till now all these invention in treadmill are used only at steady stage and by means of external drive, only for single purpose. By considering these entire factors we evolve the manual treadmill bicycle with cleaning material and mobility. These concepts of bicycle achieve more work in minimum time without use of electric power. These concepts provide dual work at a time i.e. exercise and cleaning.

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VI . CONCLUSION

A brief summary of the work completed and significant conclusions derived from this investigation are:

-Treadmill bicycle perform multi operation in minimum time.

-Treadmill bicycle is completely manual operated.

-Treadmill bicycle provide more exercise with cleaning.

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