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作品名稱

Comfortable Equipment for Pedestrians

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四等獎

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Abstract

The phenomenon of pedestrians nowadays is still found. Due to frequent walking, sometimes our legs feel tired and hard to move. This is become the basis for developing tools that are convenient for pedestrians. An easy tool for humans is needed for our activities, especially walking. The Synergy between our hands and feet provides a big and significant contribution to the appliance. Normally, the movement of our hand gets along with its motion with a different side of the foot. When the right foot step, then the left hand is swung forward, and vice versa.

The tools can be developed by utilizing a variety of systems. The system includes the tools concentric wheel and axles system, spring system, and pulley system. The concentric wheel and axles system is useful in controlling the rope. Movement on the rope could activate the entire system on the appliance. Wheel that related with the hand is three times bigger than wheel that related with pulley that is applied on foot. Spring system is able to lighten the pressure of the foot with a given upward force, and able to provide downward force when the spring returned to its original position. While the pulley system on the tool used to provide mechanical advantage two times is also useful to lighten the pressure of the foot when walking. The tools can be designed with simple, and able to provide benefits to users.

By trial and error, it shows that the tool is able to lighten human's activity when they walk. The tool can be able to lighten the leg's load by utilizing arm muscles work. Utilization of the arm muscles which helps to ease the pressure of the foot can provide more benefits. One of them is that it can strengthen the arm strength, so the tool can be used as sport equipment. Utilization of the tool can also be reserved for special people who have difficulty in walking due to an accident or birth with leg defect.

Key words: *pulley system, wheel and axles systems, spring system, walk equipment*

評語

1. This is a small, inexpensive device which can provide additional power to the walking process. The idea is innovative and useful.
2. More quantitative studies might be useful in the improvement of the design in the future.
3. The author can consider including a small electric generator in their device to provide small electric power to small circuits (such as heart rate monitors, mp3 player, etc...).