

No. 179,499.

Fig. 1.

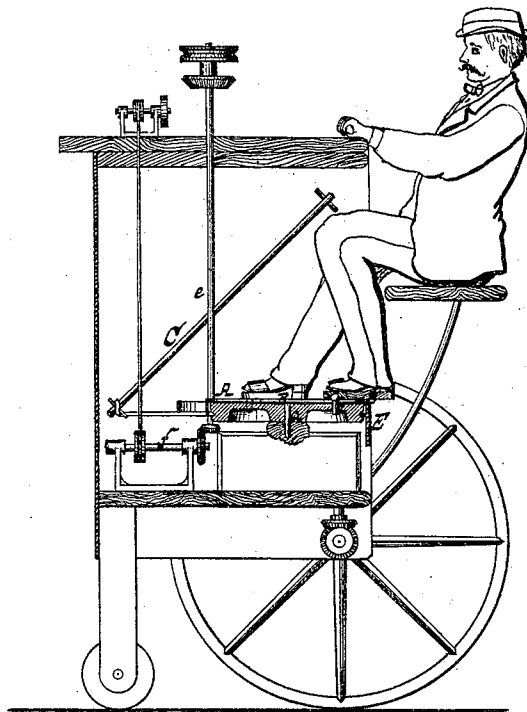
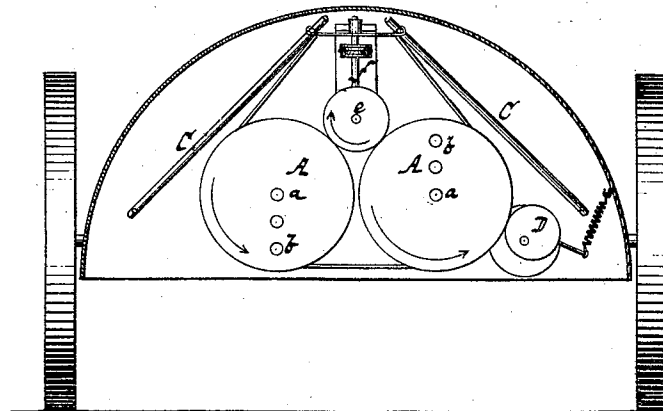


Fig. 3.



Fig. 2.



Otto Hufeland
Robt. E. Miller

Arthur M. Allen
per
Van Santvoord & Raupp
Attorneys

UNITED STATES PATENT OFFICE.

ARTHUR M. ALLEN, OF NEW YORK, N. Y., ASSIGNOR TO JOHN L. M. ALLEN,
OF SAME PLACE.

IMPROVEMENT IN TREADLE-MOVEMENTS.

Specification forming part of Letters Patent No. **179,499**, dated July 4, 1876; application filed
December 28, 1875.

To all whom it may concern:

Be it known that I, ARTHUR M. ALLEN, of the city, county, and State of New York, have invented a new and Improved Treadle-Movement, which invention is fully set forth in the following specification, reference being had to the accompanying drawing, in which—

Figure 1 represents a sectional side view. Fig. 2 is a sectional plan or top view. Fig. 3 is a detached section of one of the pedals on a larger scale than the previous figures.

Similar letters indicate corresponding parts.

This invention consists in the combination of an arm or disk, mounted on a vertical or inclined shaft, with a pedal provided with a pivot extending from its sole, and fitting a socket in the arm or disk, so that by placing a foot on the pedal and swinging the leg in the path of a cone, a revolving motion is imparted to the arm or disk and to the shaft supporting the same, and a treadle-movement is obtained which can be operated with comparatively little exertion.

The pedal is connected to its pivot by a universal joint, so that the same can accommodate itself freely to the varying position of the foot resting thereon.

In the drawing, the letter A designates a disk, which is mounted on the upper end of a vertical or inclined shaft, *a*. Instead of this disk, a simple arm may be used. This disk is provided with one or more sockets, *b*, for the reception of a pivot, *c*, which projects from the under surface of a pedal, *B*, a detached view of which is shown in Fig. 3. Said pivot may be rigidly secured to the pedal; but I prefer to attach it to said pedal by a universal joint, *d*, (see Fig. 3,) which is made either in the form of a ball-and-socket joint, or which may be of any suitable construction. The pedal is provided with suitable straps or other fastening devices, by means of which the same can be conveniently secured to the foot of the person intending to operate my treadle-movement. After the foot has been fastened to the pedal, the pivot *c* is inserted in one of the sockets of the disk A, and by moving the leg in the path of a cone a revolving motion is imparted to the disk. If the

operator is in a standing position, the apex of the cone described by his leg is in the thigh-joint; but if the operator is in a sitting position, the apex of said cone is in the knee-joint.

In most cases where my treadle-movement is to be operated from a sitting position, I propose to use two disks, A A, (see Fig. 2,) one for each foot. By providing each disk with several sockets the motion of the feet can be regulated.

It is obvious that the pivot may be secured in the disk, and the pedal provided with a corresponding socket.

The motion of the disk or disks A may be transmitted to the working machines in various ways; for instance, to an upright shaft, *e*, the motion may be transmitted by frictional or gear wheels, and from this upright shaft the motion can be transmitted to a horizontal counter-shaft, *f*. I can employ friction-gear with advantage, since the weight of the foot on the crank-disks keeps these gears in contact. If desired, brakes C may be applied to the disks A A, for the purpose of regulating or stopping the motion. A cam-disk, D, which is subjected to the action of a spring, prevents the disks A A from being turned in the wrong direction.

The disks A A are protected by a suitable guard, E. This guard is intended particularly to prevent ladies' dresses from being caught in the treadle mechanism.

This treadle-motion can be used with good advantage for propelling carriages or boats; and I have shown in the drawing its connection with a carriage.

My treadle-motion can also be employed in the reverse direction, the disks A A being rotated by a suitable spring-power, and serving to impart motion to a toy figure.

These devices, however, form the subject-matter of separate applications for patents, and I do not here give a detailed description of the same.

What I claim as new, and desire to secure by Letters Patent, is—

1. The combination of an arm or disk, mounted on a vertical or inclined shaft, with a pedal connected by a pivot and a socket in

the arm or disk, substantially as and for the purpose shown and described.

2. The combination of a universal joint, *d*, with the pivot *c*, pedal B, and arm or disk A, all constructed and operating substantially as set forth.

In testimony that I claim the foregoing I

have hereunto set my hand and seal this 21st day of December, 1875.

ARTHUR M. ALLEN. [L. s.]

Witnesses:

W. HAUFF,

E. F. KASTENHUBER.