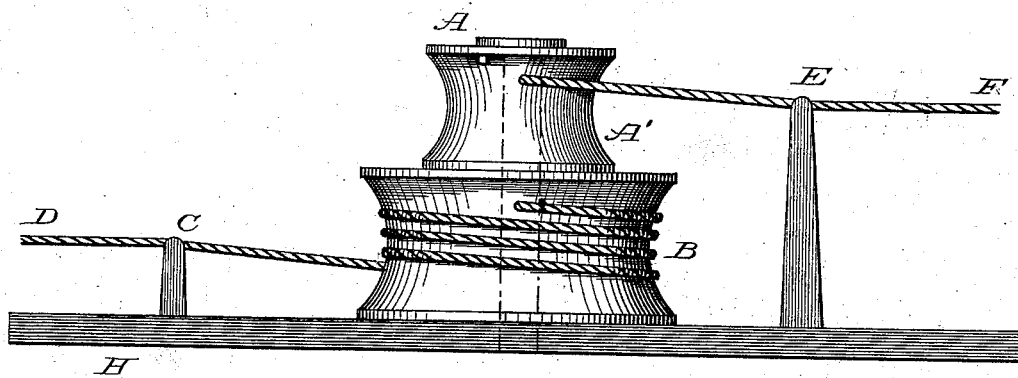


A. S. PENNINGTON.
Differential-Gearing for Toys.

No. 214,839.

Patented April 29, 1879.



Witnesses:

W. H. Williams
M. H. Blauvelt

Inventor:

Aaron S. Pennington

UNITED STATES PATENT OFFICE.

AARON S. PENNINGTON, OF PATERSON, NEW JERSEY.

IMPROVEMENT IN DIFFERENTIAL GEARING FOR TOYS.

Specification forming part of Letters Patent No. **214,839**, dated April 29, 1879; application filed March 5, 1879.

To all whom it may concern:

Be it known that I, AARON S. PENNINGTON, in the city of Paterson, in the county of Passaic and State of New Jersey, have invented certain new and useful Improvements in Differential Pulleys; and I do hereby declare that the following is a full, clear, and exact description of my invention, which will enable others skilled in the art to which it appertains to make and use the same, reference being had to the accompanying drawings and to letters of reference marked thereon, which form a part of this specification.

My invention consists in mounting a wheel or pulley with two grooves of different diameters in a block or frame. A hole is made through the division between the grooves, through which a string or its equivalent is passed; the string is then wound on the groove of large diameter, and both ends passed through guides at opposite ends of the block or frame.

The operation of this arrangement is as follows: On applying tension to the end of string or its equivalent, which is wound around the large groove, the wheel or pulley will revolve, unwinding string or its equivalent, and winding up other end of string on smaller groove, thus moving pulley and frame toward side of small groove. When tension is released the pulley and frame can return by gravity or otherwise to place of beginning, being useful as a gearing in the manufacture and movements of mechanical toys, &c.

In the drawings, A represents the wheel or pulley, C E the guides, D F the ends of string, and H the frame or block. The end of the

string or its equivalent D is passed through a hole between the grooves A' B, and wound on the groove B, then passed through the guide C. The other end of the string F is passed through guide E.

When tension is applied to end of string D it revolves the pulley or wheel A, unwinding string on groove B, and winding up string on groove A', thus moving pulley A, guides C E, and frame H toward end of string F. When tension is released, frame H, guides C E, and pulley A can be moved, by gravity or otherwise, toward end of string D, thus winding string on groove B, and unwinding string from groove A'.

I do not confine myself to exact shape of pulleys and guides, but to the general arrangement.

What I claim as my invention is—

A gearing for mechanical device or movement, which consists in mounting a pulley or wheel with two grooves of different diameters in a block or frame having a string or its equivalent wound around them, in such manner that when tension is applied to the string it will unwind from the large groove, and wind up on the small groove, thus causing the block or frame to move toward the end which is wound on the small pulley.

In testimony that I claim the foregoing as my own I affix my signature in presence of two witnesses.

AARON S. PENNINGTON.

Witnesses:

W. H. WILLIAMS,
W. H. BLAUVELT.