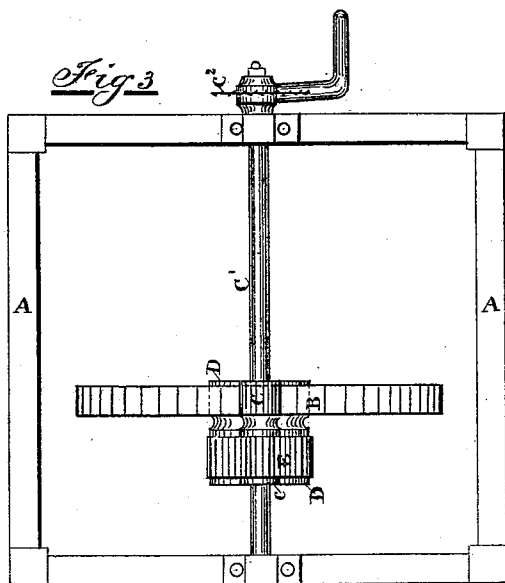
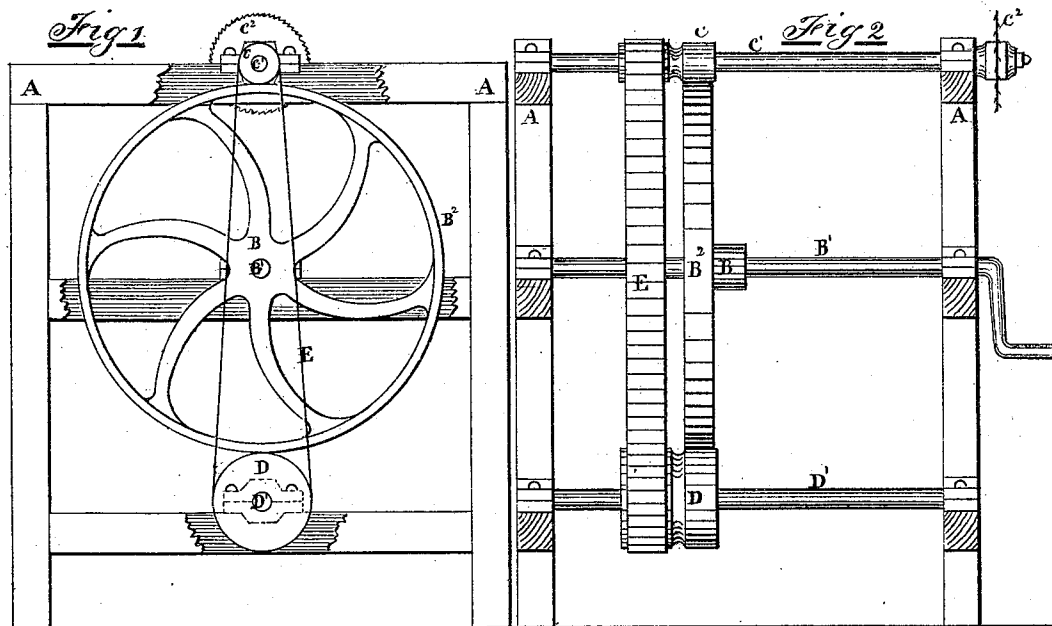


W. D. WESTMAN.  
MECHANICAL-MOVEMENT.

No. 179,241.

Patented June 27, 1876.



Witnesses

William Gill  
James Morrison

Inventor

William Douglas West  
= man

# UNITED STATES PATENT OFFICE.

WILLIAM D. WESTMAN, OF TORONTO, CANADA.

## IMPROVEMENT IN MECHANICAL MOVEMENTS.

Specification forming part of Letters Patent No. **179,241**, dated June 27, 1876; application filed February 14, 1876.

*To all whom it may concern:*

Be it known that I, WILLIAM DOUGLAS WESTMAN, of the city of Toronto, in the county of York, in the Province of Ontario, Canada, machinist, have invented a new and useful Mechanical Movement, being a new and useful improvement in first and intermediate drivers for mill-work or other machinery, in which the parts are so arranged that the speed can be raised from that of the first motion wheel to that of the highest speeded wheel of the machine, without the use of toothed gears or of a complication of belts and pulleys therefor; and I do hereby declare that the following is a full, clear, and exact description thereof, whereby others skilled in the art can make and use the same, reference being had to the drawings, and to this specification.

My invention relates to those parts of the main gearing of a mill or other machinery, which are in direct connection with the low-speeded motive power on the one hand, and with the high-speeded portion of the mill or machine on the other.

It consists of a smooth-rimmed driving-wheel, made of any suitable material, and two smooth-rimmed driving-pulleys, the rims of the pulleys being fully double the width of the rim of the driving-wheel, so that a belt can be applied over the two pulleys. One of the pulleys is placed on the top, and the other pulley is placed below the wheel, each of them being secured on its own shaft, which rotates in suitable journal-boxes.

The driving-wheel may be fastened upon the end of a shaft coupled to the shaft of the steam-engine or other motive power, and the pulleys may be placed on such shafts of a mill or machine which run at a high speed. The center line of the shafts will most frequently be in the same plane, which may be either vertical, horizontal, or diagonal, as may be suitable for the position in which it may be placed. A belt is made to pass over the two pulleys, which keeps the rims of the same in contact with the rim of the wheel, and absorbs the outward pressure from the action of the rim of the wheel on the rims of the pulleys, which would otherwise be transmitted

to the journals of the shafts, causing thereby additional friction, and a diminution of the useful effect of the engine or other motive power. The belt, by the absorption of this pressure, increases the adhesion of the points of contact of the rim of the wheel and the rims of the pulleys, thereby effecting a considerable saving of expense in the diminution of intermediate gears, and effecting an increase of power from the diminution in the number of journals and other rubbing surfaces of toothed gears.

In the accompanying drawings, the same letters of reference indicate the same parts in all the views, and in this specification.

Figure 1 is a side view of my device with a portion of each front cross-bar of the frame removed in order to show the parts of the invention more distinctly. Fig. 2 is a front view with all the front cross-bars removed for a similar purpose as in Fig. 1. Fig. 3 is a ground view or plan of the invention.

Returning to Fig. 1, A represents a frame; B, the driving-wheel, with axle B<sup>1</sup> and smoothed rim B<sup>2</sup>; C, a driven-pulley on top of the wheel B, with their rims in contact; C<sup>1</sup>, the axle thereof, on which is shown (for the purpose of illustration) a circular saw, C<sup>2</sup>; D, a second driven-pulley, with a portion of the rim in contact with the wheel-rim B<sup>2</sup>. E is a belt, and comprehending the two driven-pulleys C and D.

It may now be seen that on giving motion to the wheel B by means of the axle B<sup>1</sup>, it will transmit motion to the pulleys C and D, from adhesional contact, and that the belt E will retain that degree of adhesion from its being tightened sufficiently over both the pulleys. It will absorb the outward pressure from rim B<sup>2</sup>, and return the same on the pulleys C and D, thereby retaining the necessary degree of adhesion of the points of contact, and will also prevent the outward pressure from rim B<sup>2</sup> being transmitted to the journals of the shafts C<sup>1</sup> and D<sup>1</sup>, and thereby saving power from a diminution of working parts, and of frictional resistance consequent upon the operation of a combination of toothed gear or other combination of mechanism for this purpose, as generally used.

Having now described my invention, I claim as new and desire to secure by Letters Patent—

The construction of the driven-pulleys C and D, with their faces wider than the face of the driving-wheel B, so that a belt, E, may be placed on the said driven-pulleys C and D, comprehending both, and passing on one or on each side of the driving-wheel B, for the

purpose of holding the faces of the driven-pulleys C and D in contact with the rim of the driving-wheel B, the said driven-pulleys C and D, one assisting the other, all as shown and described, and for the purposes set forth.

WILLIAM DOUGLAS WESTMAN.

Witnesses:

WILLIAM GILL,  
JAMES MORRISON.