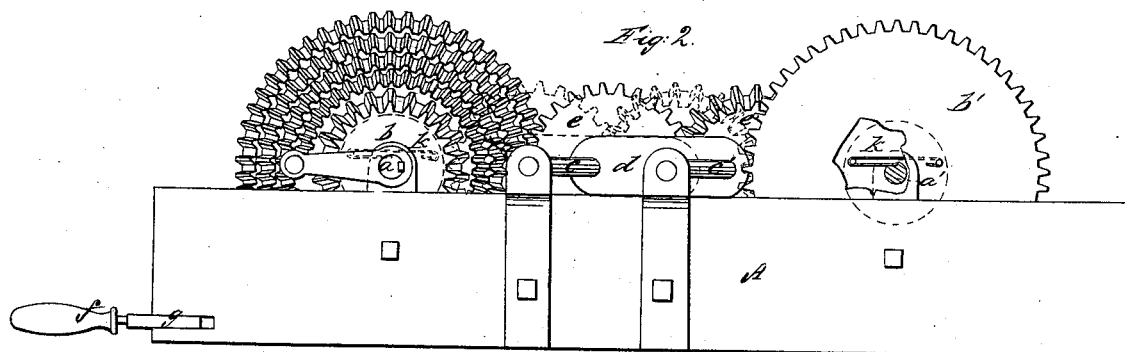
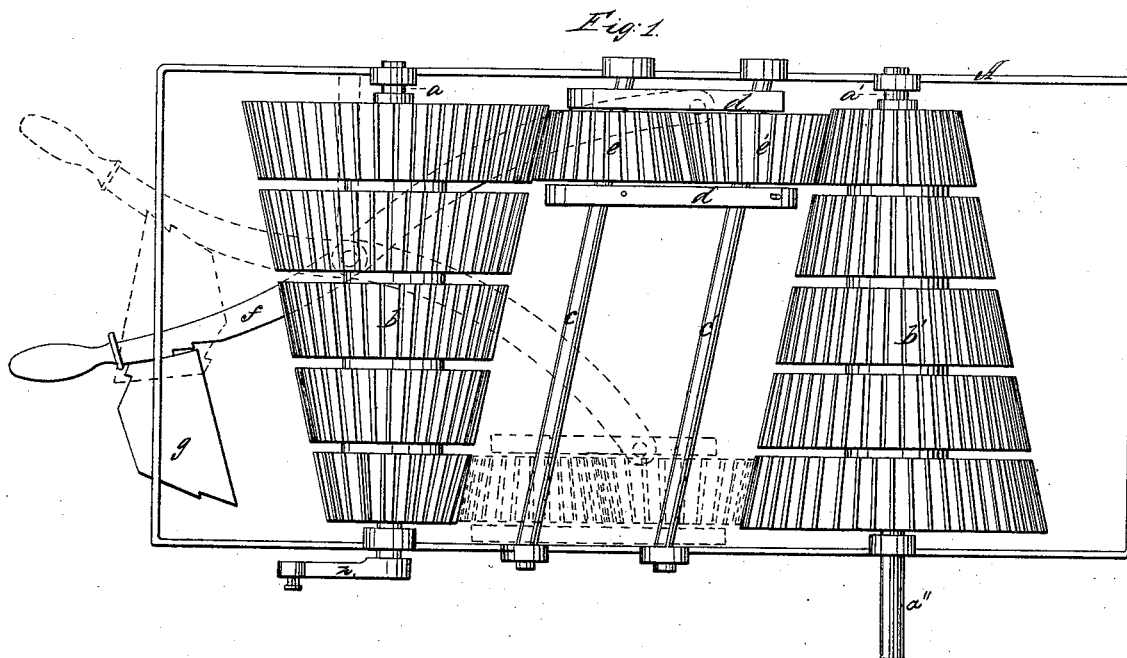


*J. H. Wait,*  
*Changing Speed.*

*N<sup>o</sup> 53,202.*

*Patented Mar. 13, 1866.*



*Witnesses:*  
*Geo. W. Newman*  
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*John H. Wait*

# UNITED STATES PATENT OFFICE.

JOHN H. WAIT, OF PORTSMOUTH, OHIO.

## IMPROVEMENT IN DEVICE FOR CHANGING SPEED.

Specification forming part of Letters Patent No. 53,202, dated March 13, 1866.

*To all whom it may concern:*

Be it known that I, JOHN H. WAIT, of the city of Portsmouth, Sciota county, Ohio, have invented a useful Improvement in Devices for Changing Speed; of which the following is a clear description thereof, reference being had to the accompanying drawings, and letters of reference marked thereon.

My invention relates to a series of conical gear-wheels so arranged as to readily admit of a change of speed in whatever mechanism it is applied to.

Figure 1 is a plan of my improved device for regulating or changing speed. Fig. 2 is a side or end view of the same.

A is a frame which bears the axles *a a'*. Upon the axles *a a'* is a series of conical gear-wheels, *b b'*. Between the series of gear-wheels are two parallel rods, *c c'*, firmly secured to the frame A, upon these rods *c c'*, a movable frame, *d*, having two conical gear-wheels *e e'*, which engage, respectively, the series of gear-wheels *b b'*. The movable frame *d* is thrown to and fro by means of the lever *f*, which may be locked in any desirable posi-

tion by the check-plate *g*. To the axle *a* is attached the crank *h*. The axle *a'* is prolonged (*a''*) to receive a drum or pulley. Each one of the gear-wheels in the series *e e'* is provided with a spring or ratchet, *k*, as shown in Fig. 2. This ratchet is secured to the gear-wheels. The end of said ratchet catches into a notch or groove in shaft, thus preventing the rotation of the machinery except in one direction. The diagonal position given the parallel rods *c c* in the frame A depends upon the amount of convergence of the gear-wheels. The amount in the change of speed depends upon said convergence and variation in number of teeth, the lesser wheel in cone always fast on shaft.

Having described my invention, I make the following claim:

The series of conical gear-wheels *b b'*, in combination with the movable frame *d* and two conical gear-wheels, *e e'*, arranged as above described, and for the purpose set forth.

JOHN H. WAIT.

Witnesses:

JAS. N. NEWMAN,  
GEO. O. NEWMAN.