(No Model.) 2 Sheets—Sheet 1.

J. JETTER.

MECHANISM FOR IMPARTING SLOW OR FAST MOTION.

No. 403,756. Patented May 21, 1889.

Fig. 1.

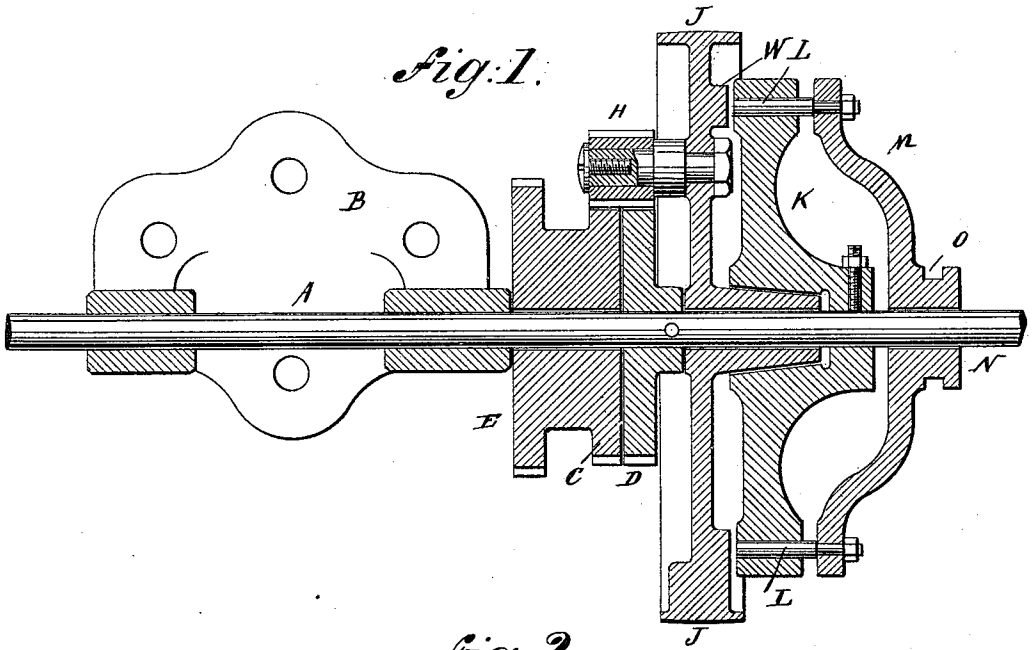
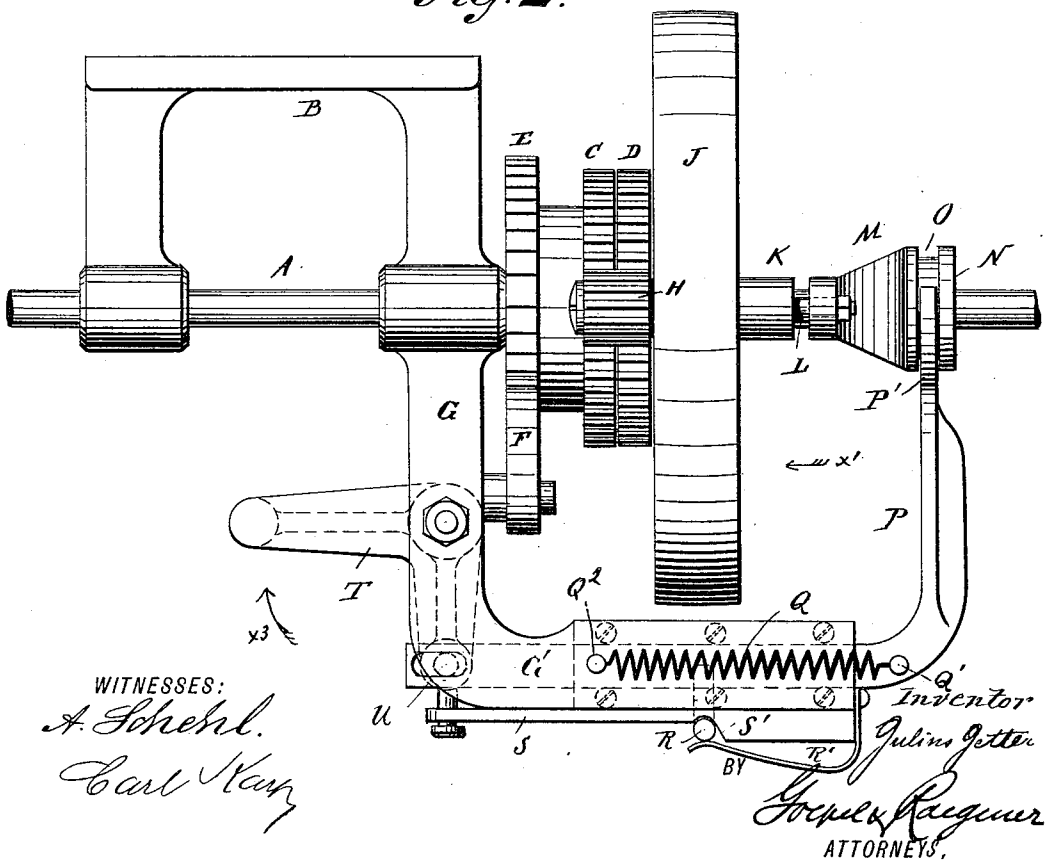


Fig. 2.



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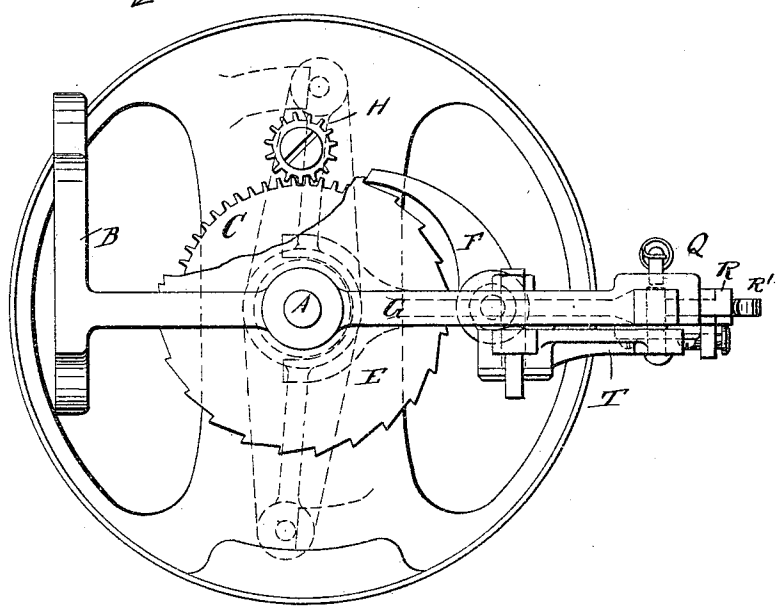
(No Model.) 2 Sheets—Sheet 2.

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Fig. 3.



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MECHANISM FOR IMPARTING SLOW OR FAST MOTION.

SPECIFICATION forming part of Letters Patent No. 403,756, dated May 21, 1889.

Application filed February 18, 1889. Serial No. 300,223. (No model.)

To all whom it may concern:

Be it known that I, JULIUS JETTER, of Elizabeth, in the county of Union and State of New Jersey, a citizen of the United States, have invented certain new and useful Improvements in Mechanism for Imparting Slow or Fast Motions, of which the following is a specification.

This invention relates to that class of improvements known as "slow" and "fast" movements, and which are used for turning a shaft or spindle rapidly or slowly, as the operator may desire.

The object of my invention is to provide a fast and slow movement which is simple in construction and which is safe and reliable.

The invention consists in the construction and combination of parts and details, as will be fully described and set forth hereinafter, and finally pointed out in the claims.

In the accompanying drawings, Figure 1 is a vertical longitudinal sectional elevation of my fast-and-slow-movement mechanism, showing the same adjusted to rotate the shaft slowly. Fig. 2 is a plan view of the same. Fig. 3 is an end view, parts being broken out.

Similar letters of reference indicate corresponding parts.

The shaft A is journaled in arms of a bracket or hanger, B. On said shaft are mounted the cog-wheels C and D adjacent to each other. The cog-wheel C has fifty teeth and the wheel D fifty-one teeth, both cog-wheels being of the same size. The cog-wheel D is rigidly mounted on the shaft, and the cog-wheel C loosely. Said cog-wheel C is made integral with the ratchet-wheel E, and is adapted to be engaged by a pawl, F, pivoted on the arm G of the bracket. The pinion H engages the teeth of both cog-wheels C and D, and is mounted on a pin projecting from the belt-pulley J, mounted loosely on the shaft A. Adjacent to said pulley a cross-piece, K, is rigidly mounted on the shaft, and its ends guide clutching-pins L, projecting from the ends of a clutch-piece, M, mounted loosely on the shaft A, said clutch-piece M being provided at its center with a hub, N, having an annular groove, O, for receiving the forked end P′ of a rectangular arm, P, which is mounted to slide under the rectangularly-bent end G′ of the arm G of the hanger B. A spiral spring, Q, is secured at one end to a pin, Q′, on the arm P, and at opposite end to the pin Q^2 on the part G′ of the arm G, and pulls said arm P in the direction of the arrow x'. The arm P is provided with an aperture, as shown in dotted lines in Fig. 3, for receiving the end of a bolt, R, which slides at right angles to that part of the arm P sliding under the part G′ of the arm G, which bolt is pressed toward the arm P by a spring, R′. A slide, S, having a cam part, S′, that can act on the upwardly-bent end of the bolt R, is mounted on the outer surface of the part G′ of the arm G, and is connected at one end with one end of an angle-arm, T, pivoted on the under side of the arm G, which end of the angle-lever is also provided with a pin, U, projecting upward and into a longitudinal slot in the end of the arm P, as shown in dotted lines in Fig. 2.

The operation is as follows: As shown in Fig. 2 the mechanism is set for slow motion. The pulley J is revolved by the belt and turns loosely on the shaft in the direction of the arrow x^2, Fig. 3. The pinion H travels around the rims of the cog-wheels C and D, and as the cog-wheel D has one tooth more than the cog-wheel C it turns the cog-wheel D the distance of one tooth for each revolution of the pulley J, the pawl F preventing the rotation of the cog-wheel C. When it is desired to have fast motion, the pulley J is rotated in the inverse direction, and the angle-lever T is turned in the direction of the arrow x^3, whereby the slide S is moved in the direction of the arrow x', and its cam part S′, acting on the upwardly-projecting part of the bolt R, withdraws said bolt, permitting the arm P to be moved in the direction of the arrow x', whereby the clutching-pins L will engage with projections W on the pulley J, and are kept in such engagement by the spring Q. The motion is now transmitted from the pulley, through the pins R, to the cross-piece K, and from the same directly to the shaft, and the shaft thus makes one revolution for each revolution of the pulley. When slow motion is desired, the angle-lever T is moved in the inverse direction of the arrow x^3, whereby the arm P is moved in the inverse direction of the arrow x', the pins L disengaged from the projections W on the pulley J, and the slide S is moved in the inverse direction of the arrow x', permitting the

spring R′ to throw the bolt R into engagement with the arm P.

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

1. In a fast-and-slow-movement mechanism, the combination, with a shaft, of two cog-wheels of the same size mounted on the shaft, one wheel being fixed and the other loose, and the fixed wheel having one tooth more than the loose wheel, a ratchet for engagement with the loose wheel, a pinion engaging said two cog-wheels and mounted on the pulley, a cross-piece fixed on the shaft, and pins for engaging said cross-piece with the pulley, substantially as set forth.

2. In a fast-and-slow-movement me.hanism, the combination, with a shaft, of two cog-wheels on the same, one being fixed and the other loose, the fixed wheel having one tooth more than the loose wheel, a pawl engaging the loose wheel, a pulley mounted loosely on the shaft, a pinion on said pulley engaging the two cog-wheels, a cross-piece fixed on said shaft adjacent to the pulley, movable pins in said cross-piece for engaging the cross-piece with the pulley, a sliding clutch-piece carrying said pins, a movable arm for shifting said sliding clutch-piece, and a spring adapted to pull said sliding arm and the sliding piece toward the pulley, substantially as set forth.

3. In a fast-and-slow-movement mechanism, the combination, with a shaft, of two cog-wheels on the same, one being fixed and the other loose, the fixed wheel having one tooth more than the loose wheel, a pawl engaging the loose wheel, a pulley mounted loosely on the shaft, a pinion on said pulley engaging the two cog-wheels, a cross-piece fixed on said shaft adjacent to the pulley, movable pins in said cross-piece for engaging the cross-piece with the pulley, a sliding clutch-piece carrying said pins, a movable arm for shifting said sliding clutch-piece, a spring acting on said sliding arm and driving the same and the sliding clutch-piece in the direction toward the pulley, a spring-actuated bolt, a cam-slide which can act on said bolt, and a lever connected with the sliding arm and with the cam-slide, substantially as set forth.

In testimony that I claim the foregoing as my invention I have signed my name in presence of two subscribing witnesses.

JULIUS JETTER.

Witnesses:

ROBERT BEEZ,

WILLIAM RIEDINGER.