(12) **United States Patent**
Pettee

(10) **Patent No.: X4055**
(45) **Date of Patent: Mar. 15, 1825**

(54) **MOTION, CHANGING**

(76) Inventor: **Otis Pettee**

Alex Feller

Letters Patent

The Schedule referred to in these Letters Patent and making part of the same containing a description in the words of the said Alex Feller himself, of his improvement in changing the motion of machinery,

To All whom it may concern that I the said Alex Feller have invented constructed and am desirous to use a new and useful improvement for producing any required change in the velocity of machinery while in motion. The following is a description of the said invention and of the manner of using the same.

I take two cylinders of iron or other metal placing the same parallel to each other at a convenient distance apart. One of the cylinders I cause to receive uniform rotary motion communicated to it by means of a wheel placed at either end. Then upon the other cylinder I fix a series of cog wheels contiguous to one another of various sizes. This is also placed upon the other cylinder a series of cog wheels contiguous to one another and bearing such a proportion to the former series as that being constantly in contact with the former there is communicated to each of the latter a certain required velocity. The latter wheels are not fixed but revolve separately on the cylinder on which they are placed. The object now is to give this cylinder at the same time the various degrees of velocity with which the wheels which are placed upon it move. This object is effected by fixing firmly upon the cylinder one of the wheels at a time and then disengaging it and immediately fixing the wheel contiguous to the different wheels thus communicating successively to the cylinder their various velocities. These wheels are severally joined and disconnected in the following manner. The cylinder on which they are placed is in the first place is mounted with a small iron frame made to the wooden frame of the machine which is made to receive easily within the opposite sides of this frame I fix a spring with a shoulder and a corresponding slit or groove made through the side of the cylinder. To each wheel I add a little without the cylinder. The inner surface of each of the wheels is notched so that when the wheel is moved the catch presses into

which on one of the wheels and there rests the wheel firmly to the cylinder. It is found convenient to have two separate springs catches fixed to the iron frame contiguous to each other so that if one of them should not strike a notch the other will. The detent frame above described is moved backwards & forwards by means of a rack to which it is attached with a central joint to allow the click to rise when the rack returns. At rest the upper side of the rack has a number of teeth equal to half the number of notches on the end intended for the detent & between the second teeth from these the first teeth of one of the wheels. Each tooth is rounded off on the upper & lower edges & one of which is placed forward of the other. Each notch of one of the wheels. These steps regulate the drawing out of the rack. There being two teeth alternately so that when one is passing off a tooth. The other is about to enter the next. The time of the motion of these steps is accurately regulated so as to allow the cylinder to make as many revolutions as may be required. When the cylinder is to be changed the hammer which lifts the rack is released from and the rack is drawn out the whole length of the teeth when it is stopped again by the other hammer. The rack is drawn out by means of a cord and weight. When all the wheels have been released from the rack by means of a pinion working against the teeth on the underside of the rack near to its ends. The cylinder pivots & wheels have their bearings in cocks fixed to the bottom plate of the frame which is then screwed on to the end of the wood which the whole passes through in the manufacture. From a great variety of changes is required it is best that the first described cylinder should be shifted to render it less liable. The manner above described of using and releasing the wheels is that which I have adopted to use. But the same effect may be produced by having the cylinder & wheels as above described and the detent moving on a pivot on the side of the cylinder. The rack in this case being a simple plate of iron with a spring catch at one end which is to the wheels same pitch as in the other case. The groove being the whole length of the cylinder and sufficiently deep to admit the click to move freely in it while the cylinder is turning. The outer end of the

slide should be bent at right angles so as to come in a line with the axis of the spindle, and in contact to the rack and pinion as shown in the drawings. Second, the slide may have a groove in it, as may be convenient to have the groove in the spindle, instead of the projection on the slide, as specified, but I prefer the projection on the slide as above described. Third, the manner in which the slide is acted upon by the cam, as above described, is not essential to the invention, as any other suitable means may be employed for that purpose. Fourth, the peculiar manner in which the rack is connected with the spindle, so as to allow the latter to be turned independently of the rack, when required, for the purpose of setting the tool, is not essential to the invention, as any other suitable means may be employed for that purpose. Fifth, the peculiar manner in which the rack is connected with the slide, so as to allow the latter to be moved independently of the rack, when required, for the purpose of setting the tool, is not essential to the invention, as any other suitable means may be employed for that purpose. Sixth, the peculiar manner in which the rack is connected with the slide, so as to allow the latter to be moved independently of the rack, when required, for the purpose of setting the tool, is not essential to the invention, as any other suitable means may be employed for that purpose.

In testimony that the above is a true specification and description of my said invention, I have hereto set my hand and seal this third day of February, in the year of our Lord one thousand eight hundred and twenty five.

Witnesses:

Benjamin Sadler

Benjn. L. Nichols

(1190 words)

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DRAFTSMAN'S DIVISION.

All communications should be addressed to
"The Commissioner of Patents.
Washington, D. C."

DEPARTMENT OF THE INTERIOR,

United States Patent Office,

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SIR:

The printed ..... copies ..... *of Patent No.* D. Pettee

..... are ..... *exhausted.* Mar 15 1825

As soon as printed a copy will be mailed you to complete your order.

By direction of the Commissioner:

Very respectfully,

Chief Clerk.

314306-97-5m

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