

(No Model.)

J. J. ITEN.
MACHINE FOR IMPARTING MOTION.

No. 401,168.

Patented Apr. 9, 1889.

Fig. 1.

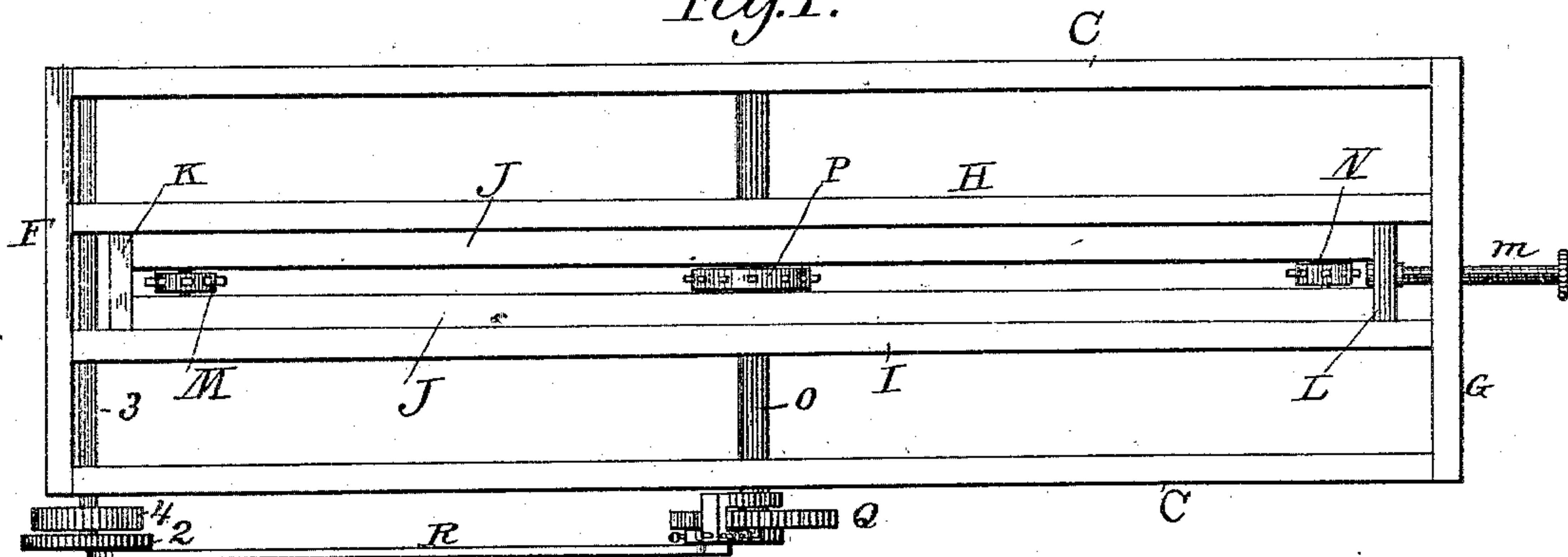


Fig. 2

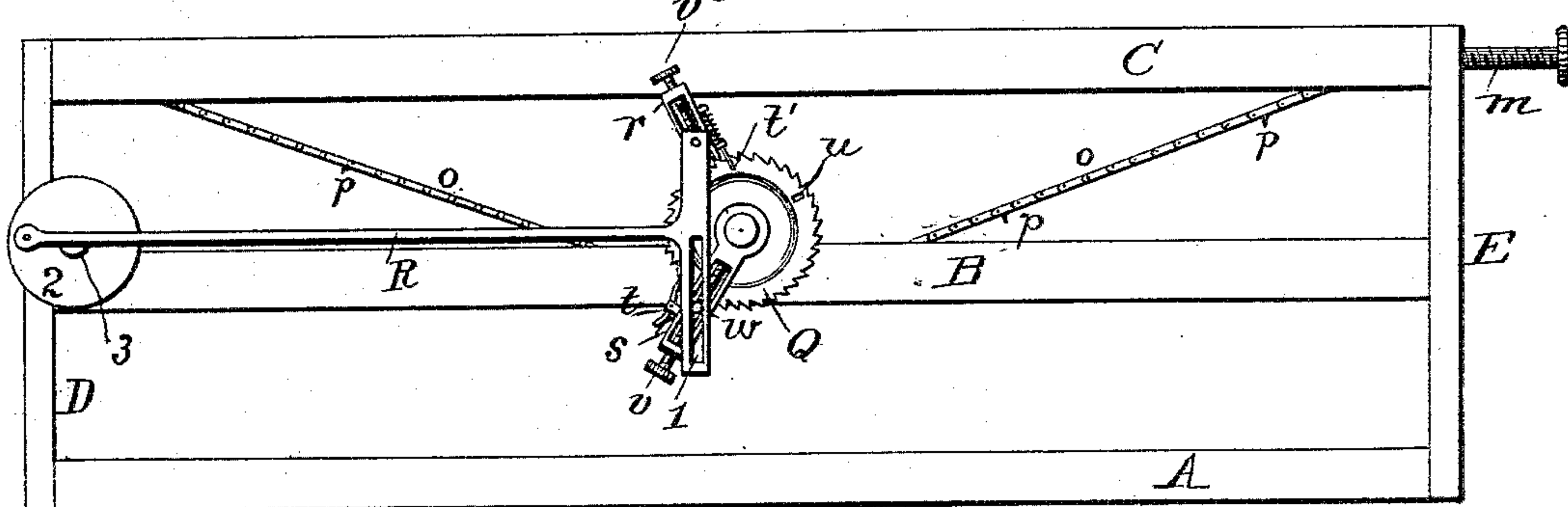


Fig 6
Fig. 3.^s

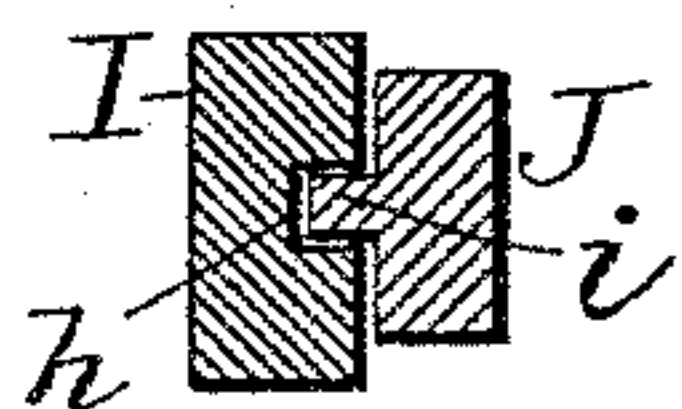


Fig. 5.

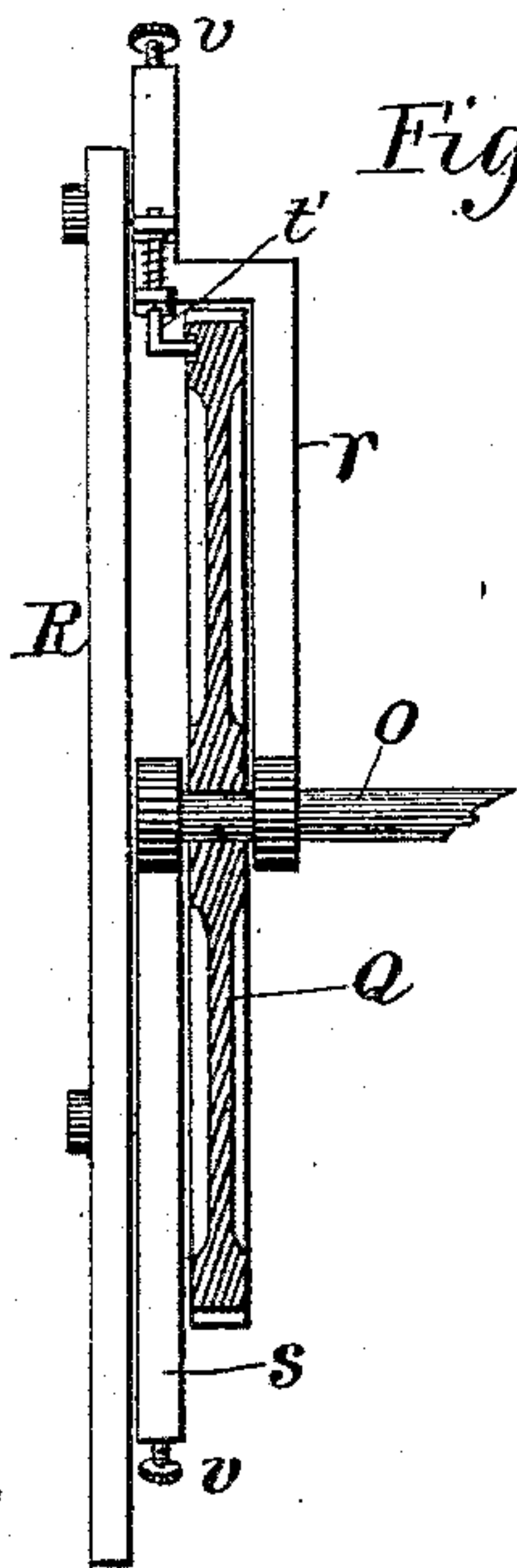
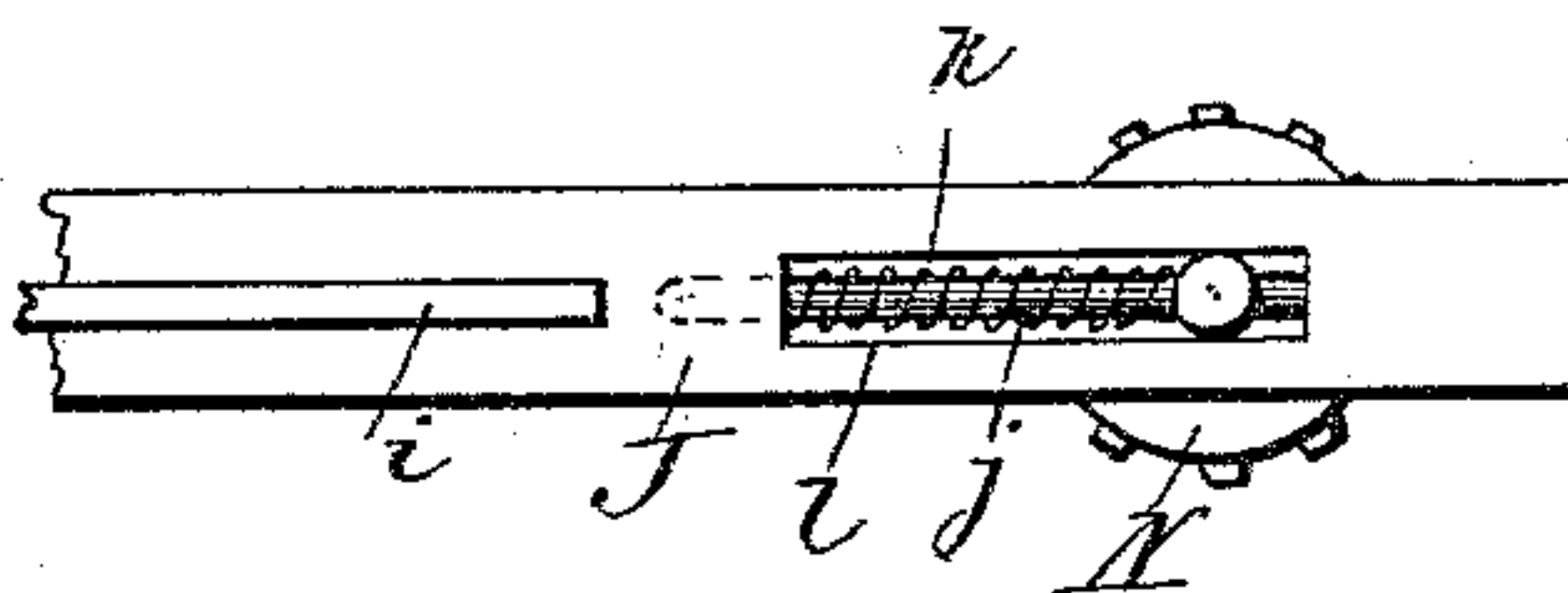


Fig. 4.



Witnesses
H. M. Staunton.
W. C. Harriner

Inventor
John J. Sten
per Wm. White
Attorney

UNITED STATES PATENT OFFICE.

JOHN J. ITEN, OF DAVENPORT, IOWA.

MACHINE FOR IMPARTING MOTION.

SPECIFICATION forming part of Letters Patent No. 401,168, dated April 9, 1889.

Application filed September 18, 1888. Serial No. 285,754. (No model.)

To all whom it may concern:

Be it known that I, JOHN J. ITEN, a citizen of the United States, residing at Davenport, in the county of Scott and State of Iowa, have
5 invented certain new and useful Improvements in Machines for Imparting Motion Intermittently to a Sprocket-Chain having Engaging-Catches thereon, and for adjustment thereof, of which the following is a specification.

My invention relates to that class of machines in which a driving sprocket-wheel moves a chain intermittently through equal distances for a desired number of times, the
15 last of each series of which is continued by an additional movement, so as to increase the distance traveled by the chain, such alternating movements at such intervals continuing during the operation of the machine.

20 The objects of my improvements are, first, to so construct and arrange the parts that a single actuating-rod will impart vibration to the crank-arms, which intermittently move the ratchet-wheel and its shaft in partial rotations, and, second, to so construct the device that the sprocket-chain while moving
25 may be shifted and its catches adjusted with reference to the body to be encountered and moved. I attain these objects by the mechanism illustrated in the accompanying drawings, in which—

30 Figure 1 is a plan view of the machine, the sprocket-chain not shown. Fig. 2 is a side view of the same with the sprocket-chain shown. Figs. 3 and 4 are detail views of the chain-wheel slide-frame. Fig. 5 is a rear view of the ratchet-wheel broken away in part, the crank-arms, and rear end of actuating-rod; and Fig. 6 is a front view of the ratchet-actuating crank-arm.

40 Similar letters or figures refer to similar parts throughout the several views.

A B C are side bars, D E end posts, and F G end cross-bars of the main frame.

45 H and I are longitudinal parallel guide-beams, the inner sides of each provided with longitudinal grooves *h*.

50 J J and K L are respectively the side and end bars of the chain-wheel slide-frame, the outer side of each of said side bars being provided with a longitudinal projection or

tongue, *i*, arranged to slide in grooves *h*. At the respective ends of said slide-frame are pulleys M and N, or sprocket-wheels may be used, if desired, hung loosely upon pins. The
55 ends of the pin upon which is hung pulley N have bars *j*, each of which at its junction with the pin upon which the pulley N is mounted forms an elbow, over which coil-spring *k* is passed, said bars being seated in
60 longitudinal slots *l* in side bars, J, their outer ends entering longitudinal apertures extending in said side bars. The coil-spring *k* thus entwines bar *j*, and is seated one end against
65 the end of longitudinal slot *l* and the opposite end against the pin at its junction with bar *j*, exerting its force against the pin upon which pulley N is located, thus assisting to keep the sprocket-chain, hereinafter described, taut around said pulleys. Screw *m*
70 is swivelly attached to end bar L and passes rearwardly through an aperture suitably threaded in end bar G of the main frame.

Shaft O is journaled in the main frame beneath said slide-frame, and to which is rigidly attached sprocket-wheel P, and an end-
75 less sprocket-chain, *o*, is passed around said wheels M, N, and P, which chain at suitable distances apart is provided with catches *p*.

To an outer end of shaft O is rigidly attached ratchet-wheel Q, upon the outer side
80 of which are one or more notches, *u*. Crank-arms *r* and *s* are loosely hung upon said shaft, so that ratchet-wheel Q is between the same, and crank-arm *s* is provided with a spring-
85 actuated pawl, *t*, which engages the ratchets upon said wheel Q, while crank-arm *r* is provided with a spring-actuated arm, *t'*, which bears against the outer surface of said wheel and engages notch *u* therein. Crank-arms *r*
90 and *s* are slotted longitudinally to receive swiveled screws *v*, upon each of which is a suitably-threaded nut, *w*, fitting nicely in said slot, to one of which nuts one end of the cross-head of actuating-rod R is pivoted, the other
95 end of said cross-head being slotted, as at 1. The headed pin of the other nut passes through such slot, permitting such pin to slide therein. The opposite end of actuating-rod R is pivoted to crank-wheel 2 on shaft 3, which is
100 journaled in the main frame. The crank-wheel 2 is rotated by means of belt-wheel 4

on said shaft by means of a belt connecting it with another belt-wheel actuated by well-known mechanism and power.

The revolution of the crank-wheel imparts 5 vibrating strokes to the rear end of the actuating-rod and vibrating swinging movements to the crank-arms, the slot in the cross-head permitting the pin connecting it with the crank-arm to slide therein to accommodate 10 said movements.

The swinging or vibrating movement of crank-arm *s* in one direction causes spring-actuated pawl *t* to engage the ratchets upon wheel *Q* and partially rotate said wheel and 15 its shaft, while the opposite or return swinging movement of said crank-arm permits said pawl to ride upon or pass over said ratchets without rotating said wheel. The swinging or vibrating movement of crank-arm *r* in one 20 direction causes its spring-actuated arm *t'* to engage the notch *u* in said wheel whenever the position of said wheel is such that said notch *u* is at a point or position for such engagement, and by means thereof to partially 25 rotate said wheel and its shaft, while the return swinging movement of said crank-arm causes its spring-actuated arm to bear against and slide upon the outer side and plain surface of said wheel without rotating it. The 30 partial rotation thus imparted to said wheel through crank-arm *r* takes place immediately after the last of a series of intermittent partial rotations caused by crank-arm *s*, and such rotation is in the same direction and constitutes substantially a continuation of the last 35 rotation of said series, and which is again substantially continued or added to by the return swing of crank-arm *s*; hence substantially the partial rotation thus imparted to 40 said wheel *Q* and its shaft is about three times greater than the shorter partial rotations imparted singly by crank-arm *s*. Sprocket-wheel *P*, being rigidly attached to said shaft, is thus similarly partially rotated 45 intermittently and moves its sprocket-chain *o* around the pulleys *M* and *N* at intervals through a series of similar distances, and then by the greater partial rotation herein described said chain is moved a greater distance. 50 Any object, like a pan or tray, placed upon the main frame over the sliding frame comes in contact by the movement of said chain with one of its catches *p*, which causes such object to move or slide on said frame correspondingly with the movements of said chain. 55 In order to regulate the position of catches *p* upon said chain with reference to the object to be moved on said frame—as, for instance, a pan or tray—and to insure the increased 60 movement of such object when occupying a desired location upon said frame, I move the chain-wheel slide-frame by means of screw *m* in either direction longitudinally to produce the desired adjustment, thus bringing 65 the catch *p* intended to come in contact with said object at a greater or less distance from

such object, as may be desired for such adjustment.

My device may be used in many ways by being incorporated in a mechanical structure 70 as one of its subcombinations, or being used as auxiliary to some other mechanical structure, and it is especially adapted for use as an auxiliary device to a cake or cracker cutting machine, for carrying the pans or trays be- 75 neath the carrier-apron in such machines and receiving therefrom on such pans or trays the cakes or crackers intermittently dropped from such apron. In such machines the sheet of 80 dough is stationary during the process of cutting from it the cakes or crackers, after which a movement takes place sufficient to clear the cakes or crackers from beneath the cutters and to pass the sheet of dough in position to be again operated upon by the cutters, these 85 intermittent movements continuing regularly during the operation of the machine, the cakes or crackers passing by like intermittent movements to the end of the carrier-apron, where they are dropped. 90

My device may be so adjusted and constructed to move the pans or trays beneath the carrier-apron with a like intermittent movement in corresponding distances, and the increased or longer movement may be so 95 arranged and adjusted to take place when one pan or tray is filled for bringing another in position to be filled, and if the pans or trays vary in length the operator may make the proper adjustment through screw *m* without 100 stopping the operation of the machine.

I have illustrated my device seated in a main frame and actuated from a crank-wheel upon a shaft driven by a belt. In actual use, however, the frame must necessarily be part of 105 the frame of the mechanical structure into which it is incorporated or must be constructed with reference to the mechanical structure which it is intended to be auxiliary to, and likewise the motive power and its form 110 and method of application for actuating rod *R* must be such as will harmonize with and be suitable for such other mechanical structure or parts thereof. Any skilled mechanic can so adapt and modify my device for such 115 use without departing from the scope of my invention.

I am aware that it is not new to impart intermittent movements to a sprocket-chain by means of a ratchet-wheel attached to a 120 sprocket-wheel shaft driven by crank-arms with engaging-pawls, such as described in Letters Patent No. 170,250, to Fowler, dated November 23, 1875. It is not new to impart such intermittent movements with an additional continued movement at intervals by 125 means of a disk-wheel and engaging friction-clutches, such as described in the English patent to Smith, dated November 24, 1884. I do not claim these features, broadly. 130

I am not aware that heretofore two swinging crank-arms for imparting a series of simi-

lar intermittent partial rotations to a fixed wheel thereon, and at intervals to impart a single greater rotation have been actuated through a single actuating-rod to which both are attached; nor am I aware that heretofore a sprocket-chain having engaging catches to which such movements are imparted has had its non-actuating pulleys, over which it passes, seated in a sliding frame, so that its catches may be varied in distance traveled from any given point or position on the fixed slideway in which such sliding frame is moved for the purpose of adjustment of such catches with reference to the place of coming in contact with any object situated for engagement therewith.

What I claim as new, and desire to secure by Letters Patent, is—

1. In combination with a journaled shaft carrying a fixed ratchet-wheel having one or more notches in its side, two crank-arms hung upon said shaft, one provided with an engaging pawl and the other with an engaging arm for imparting intermittent partial rotation to said wheel, an actuating-rod connected at one end to each of said crank-arms, one of said connections riding in a slot in said rod, and the opposite end of said rod attached to driving mechanism for imparting to the opposite end reciprocal motion, substantially as described.

2. In combination with a journaled shaft carrying a fixed ratchet-wheel having one or

more notches in its side, two crank-arms hung upon said shaft, one provided with an engaging pawl and the other an engaging arm for imparting intermittent movements to said wheel, and an actuating-rod connected at one end to each of said crank-arms, one of said connections riding in a slot in said rod, the opposite end of said rod attached to driving mechanism for imparting to its other end to-and-fro motion, and a sprocket-wheel rigidly attached upon said shaft, a sliding frame carrying two or more pulleys seated in a slideway in the main frame, an endless sprocket-chain with one or more catches upon its outer surface surrounding said pulleys and sprocket-wheel, and mechanism for adjusting said frame in its slideway, substantially as described.

3. In combination with a journaled shaft, mechanism for imparting to it intermittent partial rotations, a sprocket-wheel rigidly attached upon said shaft, a sliding frame seated in a slideway in the main frame, carrying two or more pulleys, an endless sprocket-chain, with one or more catches in its outer surface surrounding said pulleys and sprocket-wheel, and mechanism for adjusting said frame in its slideway, substantially as described.

JOHN J. ITEN.

Witnesses:

W. A. ACKLEY,
W. C. WARRINER.