

(No Model.)

J. C. CLARK.

DEVICE FOR APPLYING FOOT POWER TO CRANK WHEELS.

No. 359,559.

Patented Mar. 15, 1887.

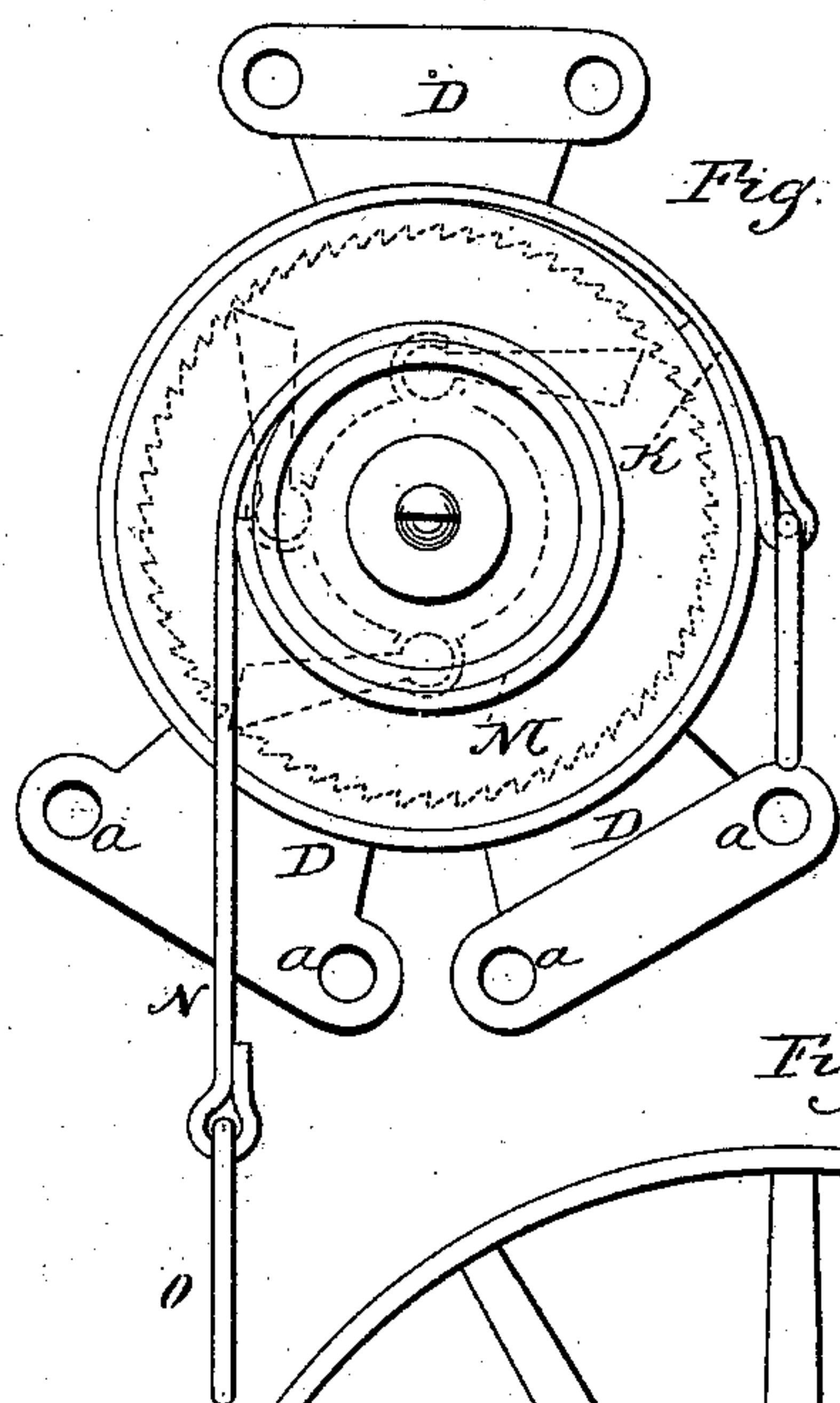


Fig. 1

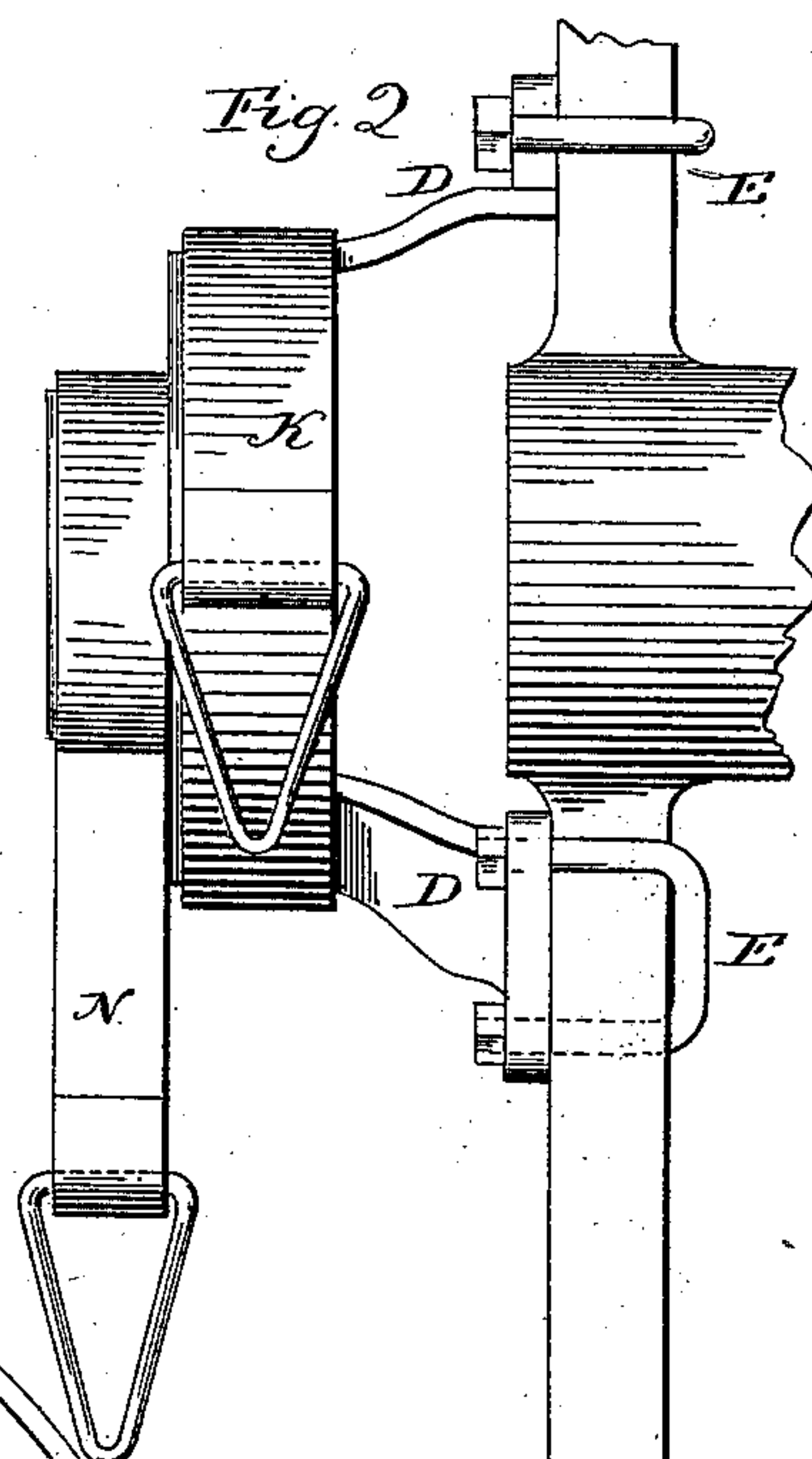


Fig. 2

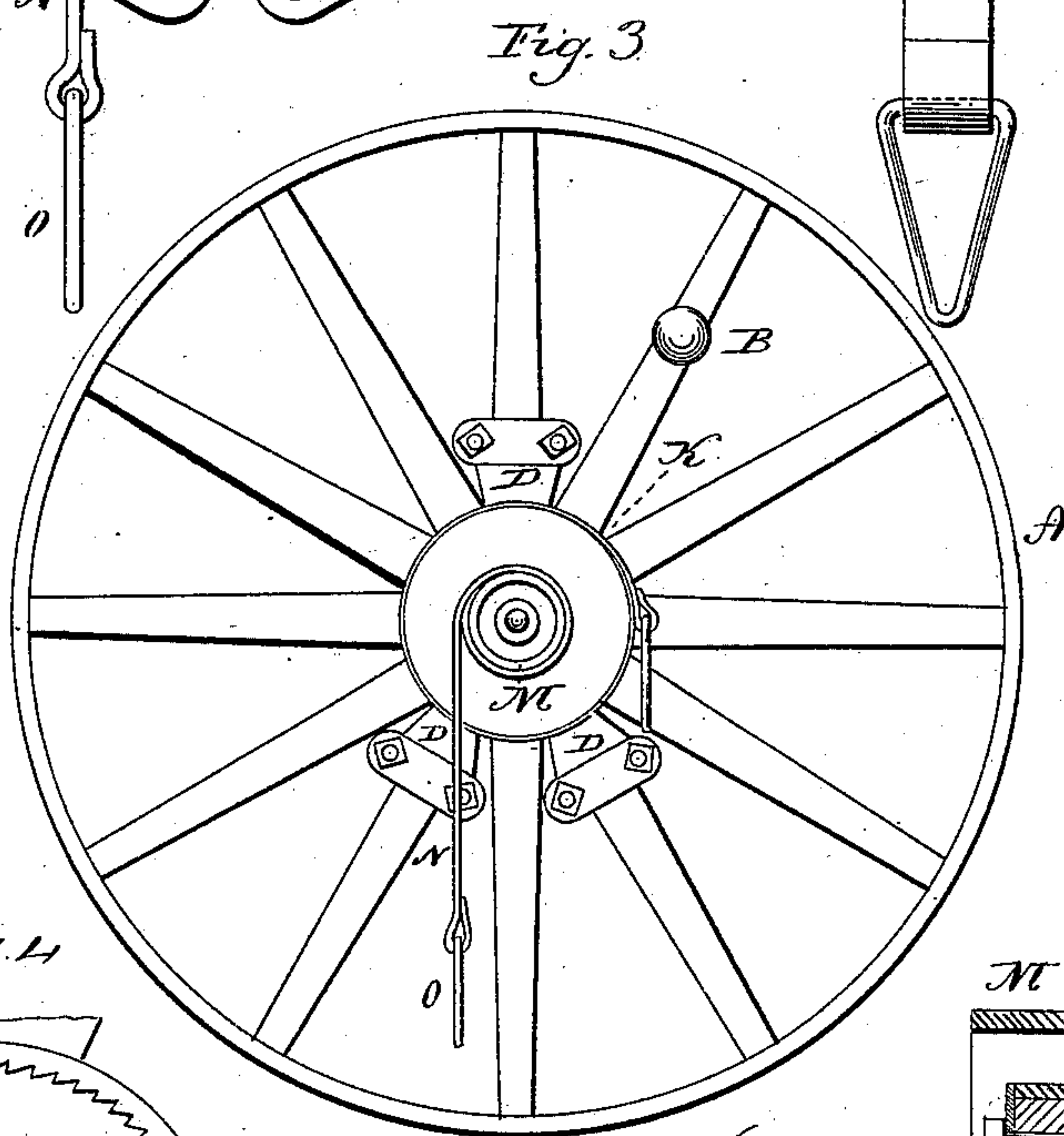


Fig. 3

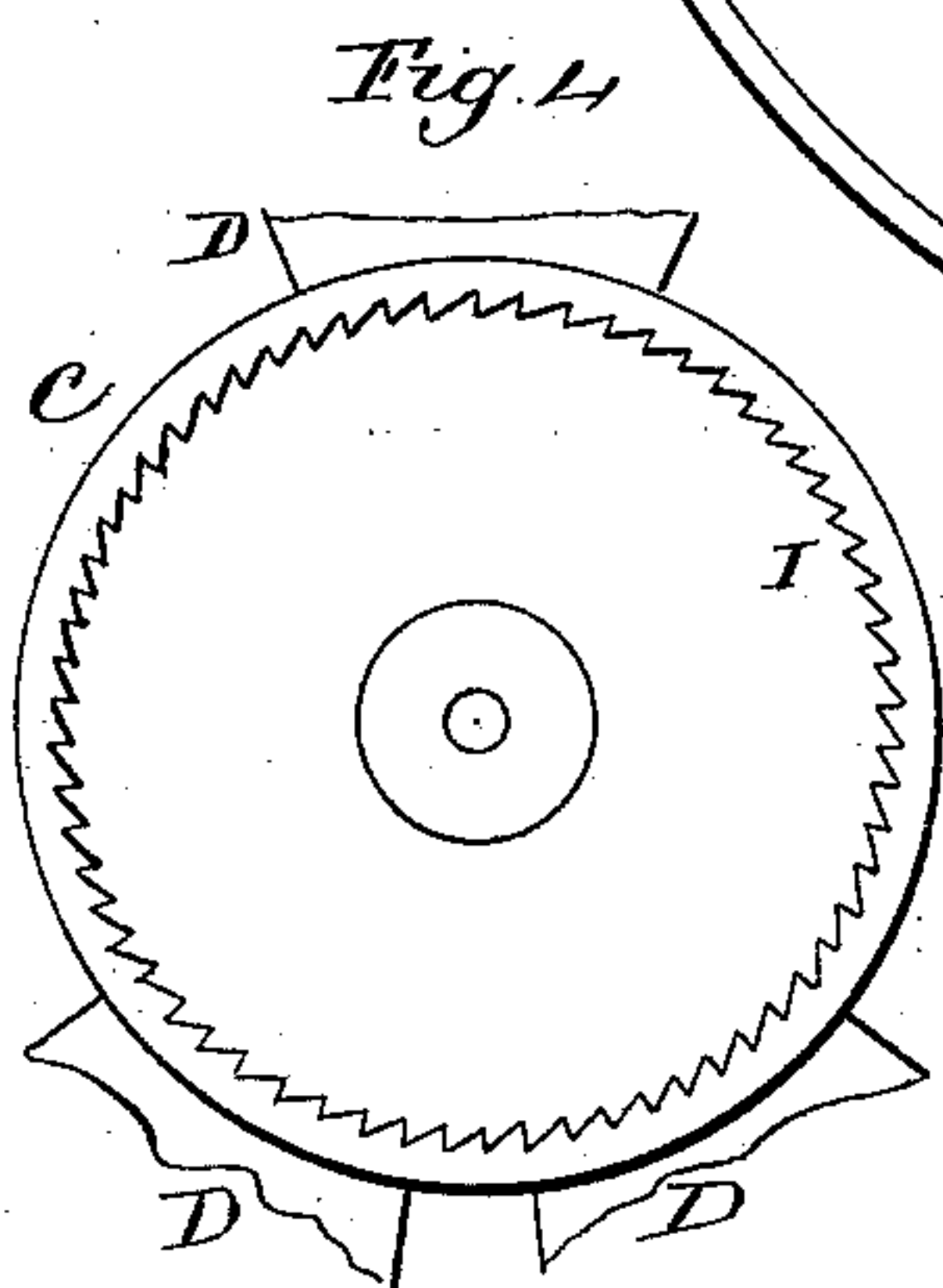


Fig. 4

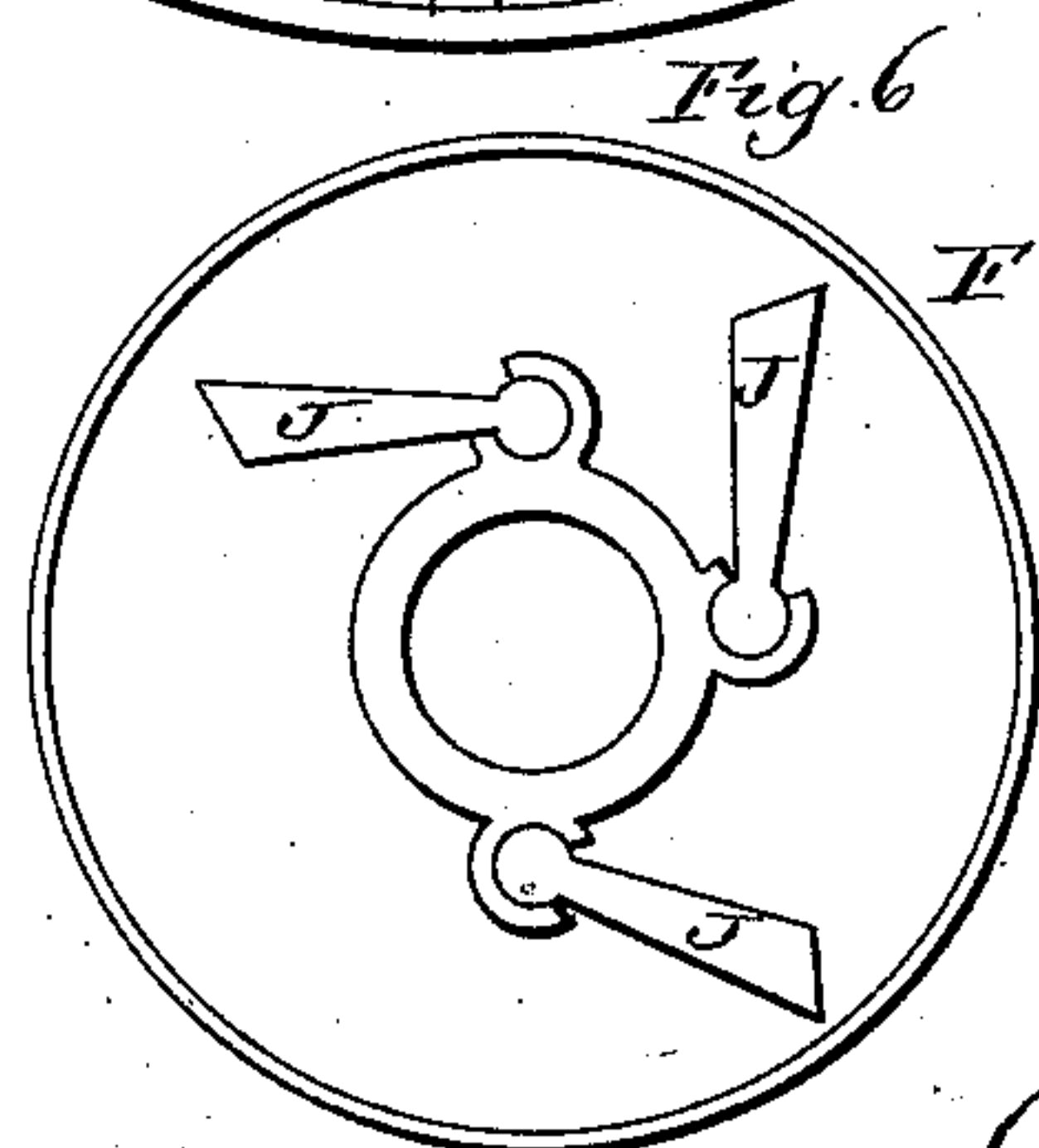


Fig. 6

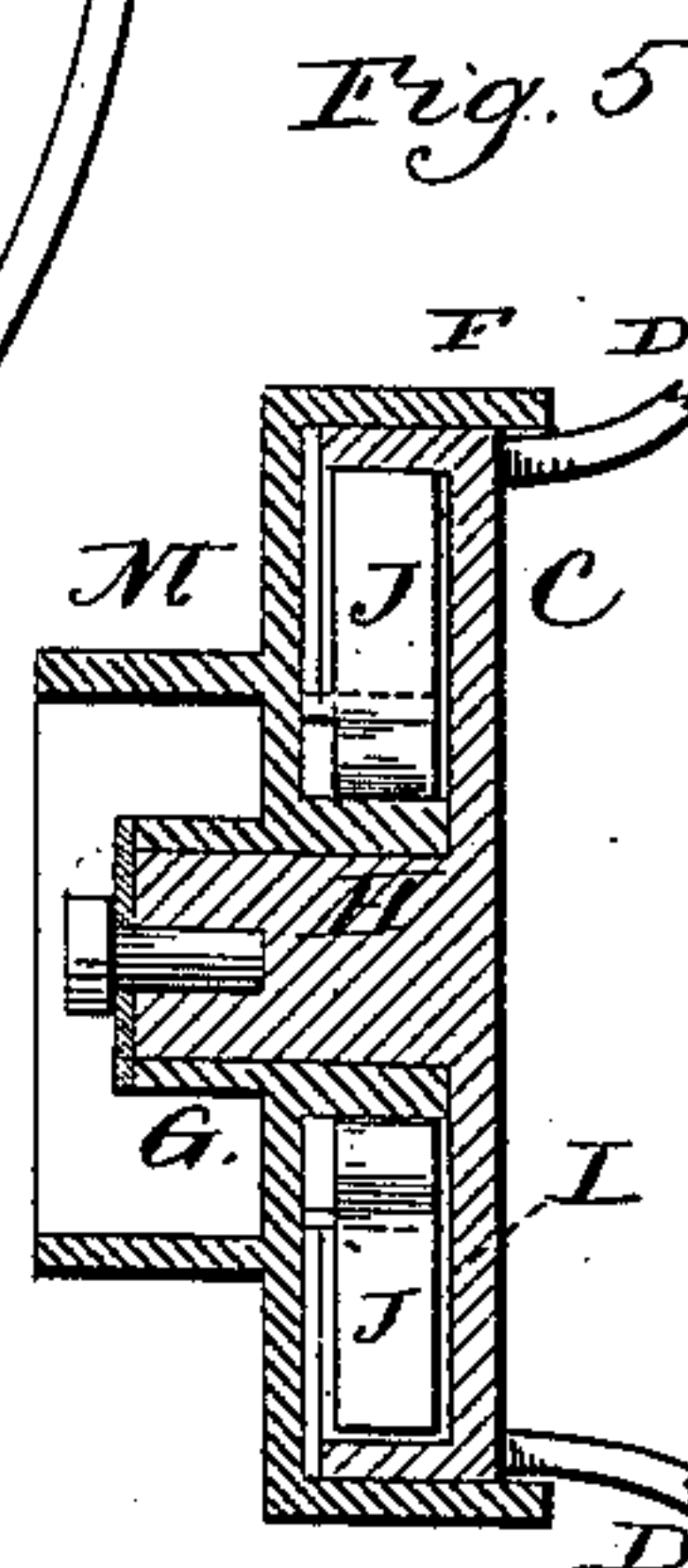


Fig. 5

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UNITED STATES PATENT OFFICE.

JOHN C. CLARK, OF DEEP RIVER, CONNECTICUT, ASSIGNOR TO CHRISTOPHER C. CLARK, OF SAME PLACE, AND CHARLES T. WARD, OF NEW HAVEN, CONNECTICUT.

DEVICE FOR APPLYING FOOT-POWER TO CRANK-WHEELS.

SPECIFICATION forming part of Letters Patent No. 359,559, dated March 15, 1887.

Application filed November 4, 1886. Serial No. 217,928. (No model.)

To all whom it may concern:

Be it known that I, JOHN C. CLARK, of Deep River, in the county of Middlesex and State of Connecticut, have invented a new Improvement
5 in Devices for Applying Foot-Power to Crank-Wheels; and I do hereby declare the following, when taken in connection with accompanying drawings and the letters of reference marked thereon, to be a full, clear, and exact descrip-
10 tion of the same, and which said drawings constitute part of this specification, and represent, in—

Figure 1, a front view of the attachment as a complete article; Fig. 2, a side view of the
15 same, showing it as applied to the hand-wheel; Fig. 3, a face view of a hand-wheel, showing the attachment applied; Fig. 4, a face view of the bracket, showing the internal ratchet; Fig. 5, a vertical central section
20 through the bracket and pulleys; Fig. 6, an inside view of the pulley F, showing the pawls.

This invention relates to an attachment for the fly-wheel of machines which are adapted to be driven by a hand-crank.

25 One class of machines to which this invention is adapted is grinding-mills, such as used in stores for grinding coffee. These mills are usually provided with a fly-wheel, upon which is a crank—say as seen in Fig. 3—A representing the fly-wheel, and B the crank-handle,
30 which is removably fixed to the wheel. Sometimes these mills are provided with two wheels, one upon each side, so that two persons may operate the mill, or that it may be
35 operated from either side.

The object of my invention is the construction of an attachment which may be readily applied to or removed from the fly-wheel,
40 whereby the foot may be utilized in driving the wheel.

To apply a pedal to the crank of the wheel, which might be readily done, would be useless, because of the impossibility of obtaining
45 so great a momentum on the wheel that it would carry the wheel from the down through the up stroke. It is therefore necessary that the foot after one depression shall instantly make engagement with the wheel for a second

stroke, and without waiting the rotation of the wheel. To accomplish this I make use of the
50 well-known spring-and-ratchet attachment. I first construct a bracket, C, with arms D D, (more or less in number,) the said arms corresponding to several spokes of the wheel. The arms are pierced at their ends, as at *a*, the
55 width of the arms being sufficient to embrace the respective arms of the wheel, and around the arms corresponding clips, E, are placed, the legs of the clips extending through the arms of the bracket and secured by nuts, as seen in
60 Figs. 2 and 3, and so that the bracket may be removed or applied to the wheel, as may be desired.

The bracket C is of cylindrical character, and upon its inside is a concentric series of
65 teeth, as seen in Fig. 4. Over the cylindrical part of the bracket a pulley, F, is set, as seen in Fig. 5, the hub G of the pulley supported on a concentric stud, H, extending from the bracket, and so that the pulley may revolve
70 freely, independent of the bracket C. The pulley closes the bracket, but so as to leave a ratchet-chamber, I, within the bracket. Within the pulley one or more pawls, J, are
75 hung, so as to swing freely in the plane of the pulley, as seen in Fig. 6; but when the two parts are set together, as seen in Fig. 5, the pawls lie in the ratchet-chamber, and so that they may engage the teeth of the ratchet
80 within the bracket.

To the periphery of the pulley one end of a flexible strap, K, is secured. The other end, running from the pulley, is provided with a
85 loop, L, or other device by which a pedal may be attached to the strap, and so that depressing the pedal will draw upon the strap, unwinding the strap from the pulley, which unwinding imparts a corresponding rotation to the pulley, and under such rotation of the pulley the pawls engage the bracket and impart
90 rotation to it and to the wheel with which it is connected. To quickly return the pulley after such a depression by the foot, a smaller pulley, M, is formed as a part of the pulley F, (see Fig. 5,) and to which is fixed one end
95 of a strap, N. The other end of the strap is pro-

vided with a loop, O, or other device by which a weight or spring may be attached. The strap N is wound upon the pulley M in the opposite direction to that of the strap D, so that as the strap D is drawn from the pulley F the strap N will be wound upon the pulley M, and then as the pressure of the foot is released the weight or spring applied to the strap N will react and turn the pulleys M and F in the opposite direction and rewind the strap K upon the pulley F, for a second operation; and so continuing, first, the foot will draw upon the strap K and revolve the pulley F and wind the strap N, then the strap N in its turn will turn the pulleys in the opposite direction and rewind the strap K, the ratchets engaging the bracket and wheel under the pressure of the foot, but running free in the opposite direction.

The reaction of the weight or spring is so quick that almost instantaneous re-engagement of the foot is made.

By constructing the bracket with arms adapted to removably embrace the arms of the fly-wheel I am enabled to produce this attachment as an article of manufacture, to be sold and applied to wheels in use, and which may be removed therefrom at pleasure. When the foot attachment is applied to the same wheel as the crank-handle B, the crank-handle should be removed while the foot attachment is in use, or if applied to one of the wheels of a mill the other wheel may be used as the hand-crank wheel and both foot and hand power used on the same mill.

It will be understood that I do not claim, broadly, a device for imparting rotary motion from a foot-pedal, and which device con-

sists of a pawl-and-ratchet attachment with two pulleys and a strap from one pulley winding in one direction and a strap from the other pulley winding in the opposite direction, and so that the pawls may engage and impart rotation in one direction while running in the opposite direction, as this, I am aware, is not new; but

What I do claim is—

As an article of manufacture, a bracket, C, provided with arms D, for removably and concentrically attaching the said bracket to the arms of a wheel, the said bracket provided with internal ratchet-teeth, with a pulley, F, arranged upon an axis concentric with said ratchet and so as to substantially inclose said bracket, one or more pawls within said pulley adapted to engage the ratchet-teeth of the bracket in one direction, but to run free therefrom in the opposite direction, and a second pulley, M, concentric with and fixed to said pulley F, the said two pulleys adapted for rotary motion independent of said bracket, a flexible strap, K, one end fixed to the said pulley F, the other end of said strap adapted for attachment to a foot-pedal, a similar flexible strap, N, one end of which is fixed to the other pulley, M, and wound upon the pulley in the opposite direction to that of the strap K, and the other end of the said strap N provided with means for attaching a reactive device, as a spring, all combined substantially as described.

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Witnesses:

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