

(No Model.)

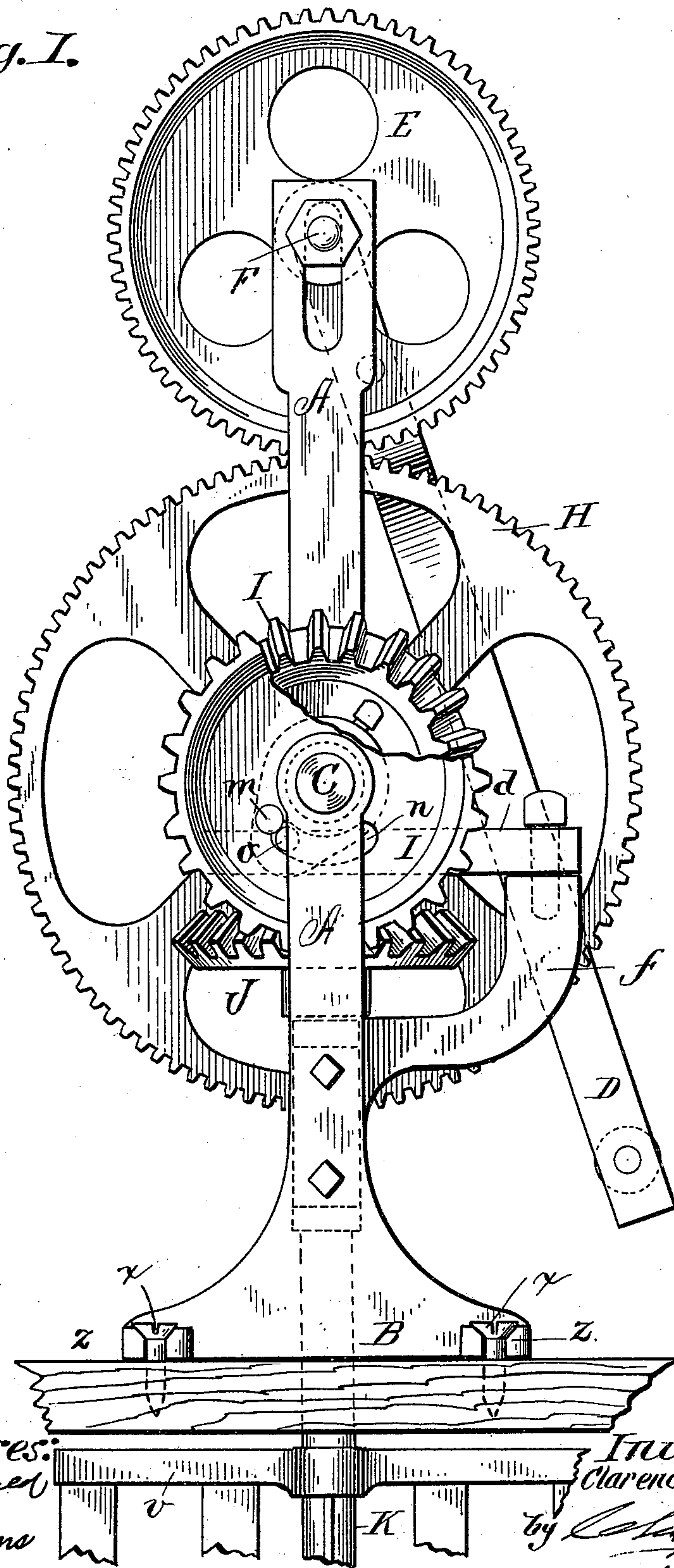
2 Sheets—Sheet 1.

C. E. PERKINS.
MECHANICAL MOVEMENT.

No. 549,076.

Patented Oct. 29, 1895.

Fig. 1.



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(No Model.)

2 Sheets—Sheet 2.

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Fig. 3.

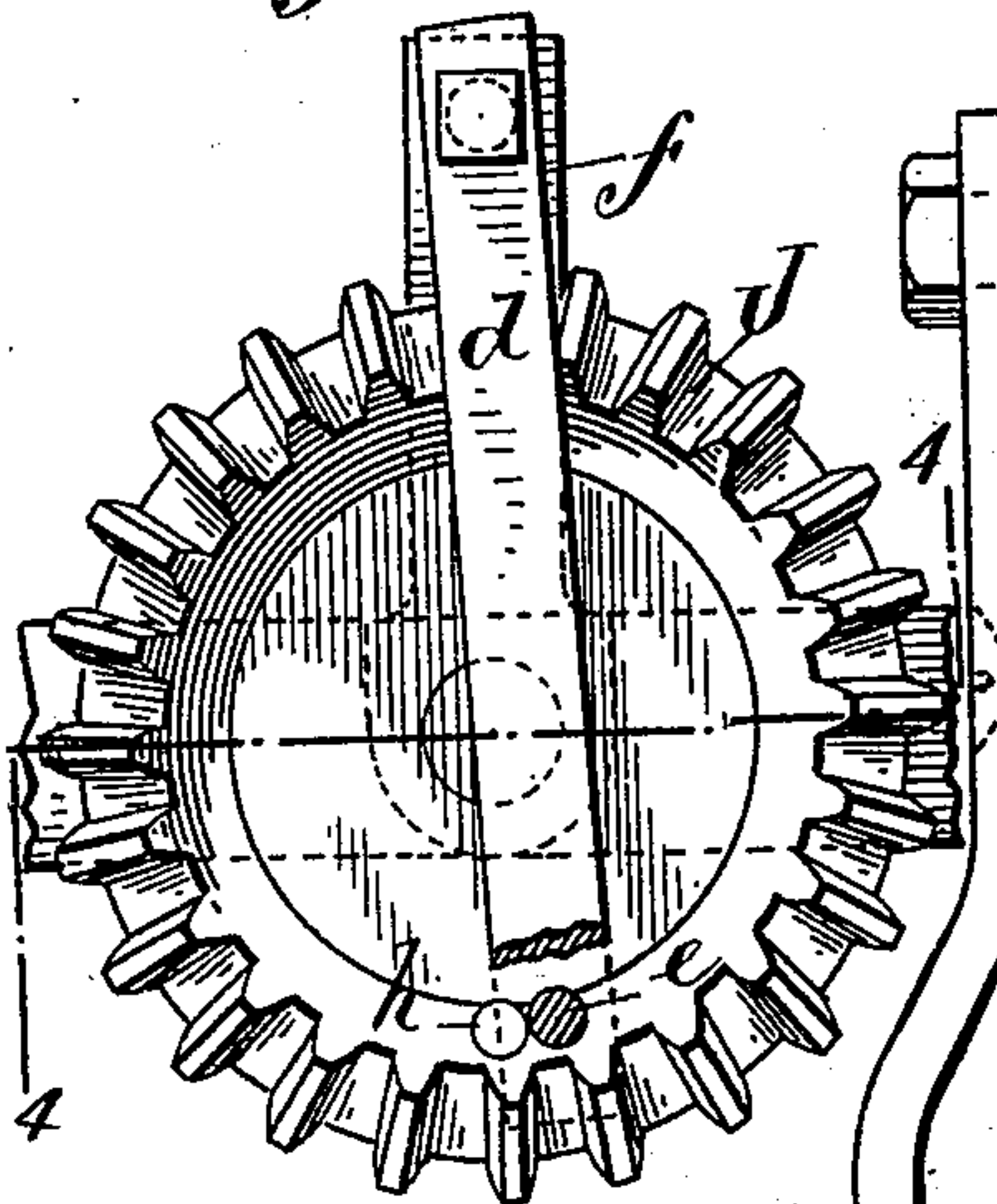


Fig. 5.

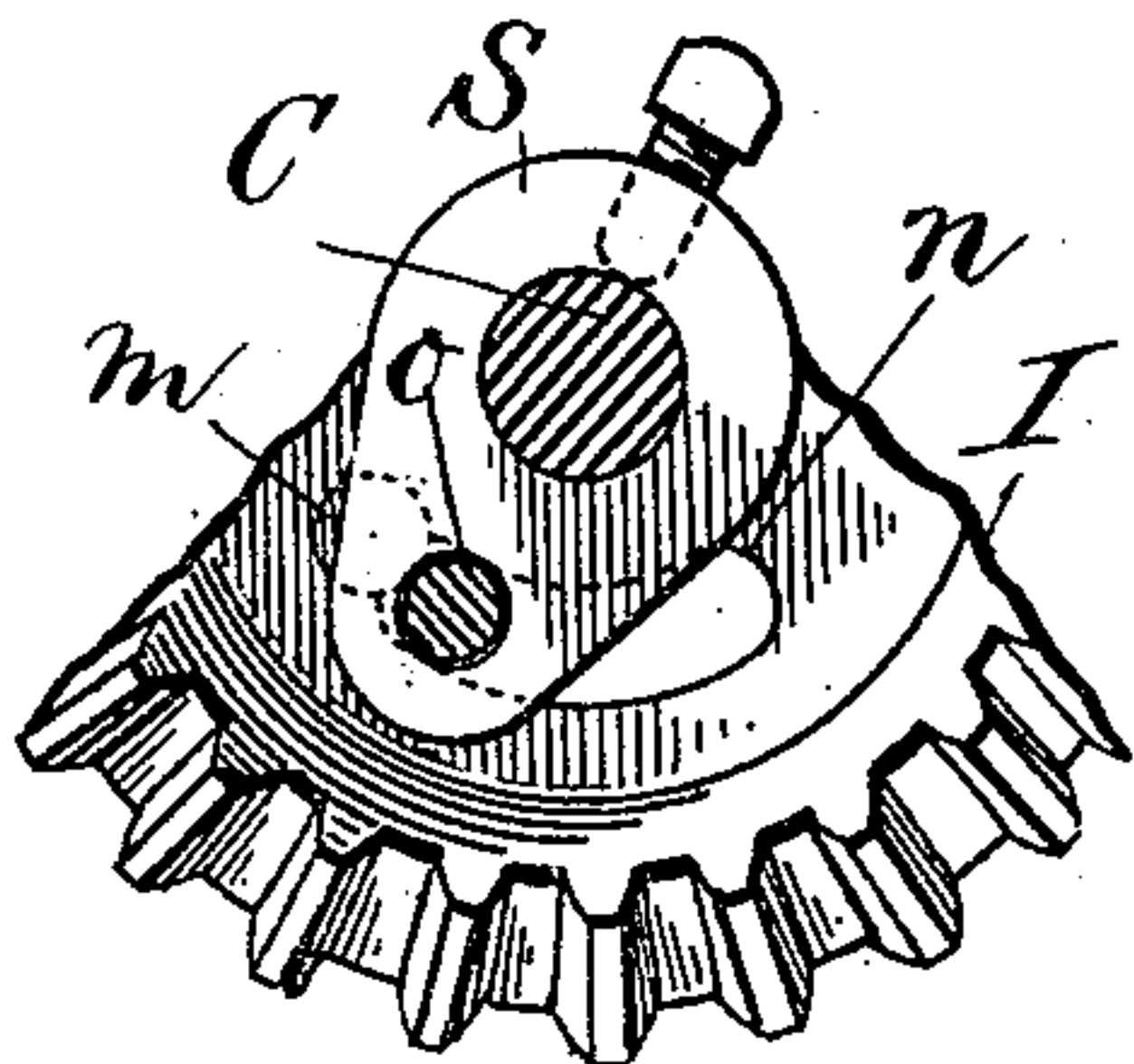
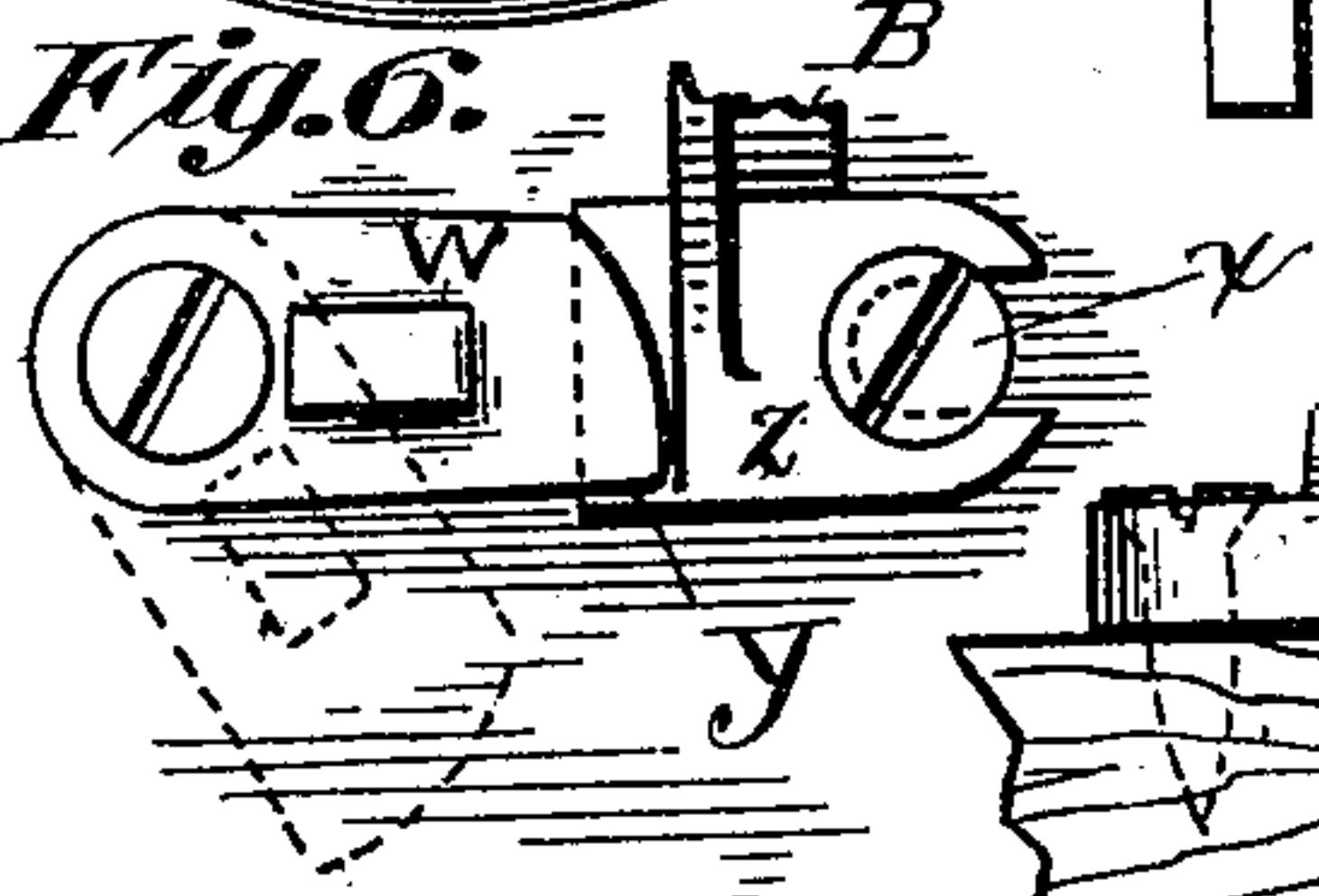


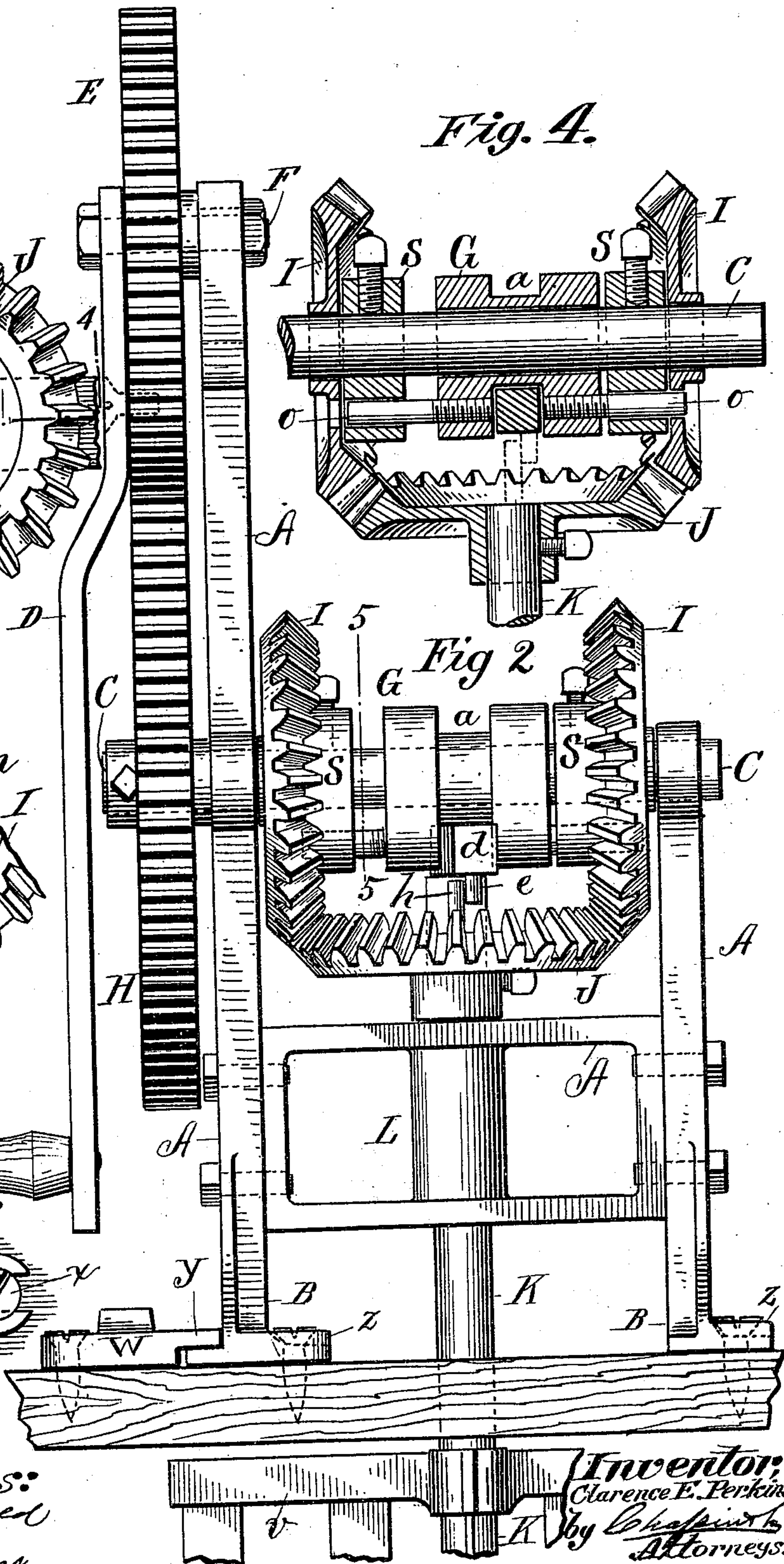
Fig. 6.



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Fig. 4.



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UNITED STATES PATENT OFFICE.

CLARENCE E. PERKINS, OF WESTFIELD, MASSACHUSETTS, ASSIGNOR OF
ONE-HALF TO GEORGE H. SHARP, OF SAME PLACE.

MECHANICAL MOVEMENT.

SPECIFICATION forming part of Letters Patent No. 549,076, dated October 29, 1895.

Application filed August 9, 1895. Serial No. 558,704. (No model.)

To all whom it may concern:

Be it known that I, CLARENCE E. PERKINS, a citizen of the United States of America, residing at Westfield, in the county of Hampden and State of Massachusetts, have invented new and useful Improvements in Mechanical Movements, of which the following is a specification.

This invention relates to improvements in mechanical movements, and particularly to devices of this class adapted to be used in washing-machines, churns, and similar apparatus, for reciprocally rotating the agitator element of such machines.

The object of this invention is to provide improved mechanism for the above-mentioned uses which is effective therefor and which can be constructed at a low cost.

In the drawings forming part of this specification, Figure 1 is an end elevation, and Fig. 2 is a side elevation, illustrating the mechanism embodying a mechanical movement constructed in accordance with my invention, both of said figures illustrating the base on which the machine stands and a portion of an agitator attached to the reciprocally-rotating shaft of said machine. Figs. 3, 4, and 5 illustrate detail parts of the machine and are hereinafter fully described. Fig. 6 illustrates in plan view one of the feet of the frame of the machine and means for locking the same to the bed.

In the drawings forming part of this specification, A illustrates the frame of the machine. B is the base thereof. *z z* indicate slotted feet on said base. C is the driving-shaft of the machine, which may be actuated by any suitable means, the means here illustrated for revolving the same being a crank D, secured to a pinion E, the latter rotating on a stud F, secured to an upright part of the frame, as shown in Figs. 1 and 2. The said stud F is adjustable vertically in the said frame part to provide for changing the driving-gear E for a larger or smaller one, whereby different velocities are given to the driving-shaft C of the machine. The said gear or pinion E engages with a gear H, which is secured on one end of said driving-shaft.

Two bevel-gears I I are placed loosely on the driving-shaft C, and said two gears en-

gage with a bevel-gear J, which is fixed on the upper extremity of a shaft K, which is supported in a bearing L in a part of the frame A in a position vertical to the axis of said driving-shaft.

Fig. 5 is a plan view of a portion of one of said gears I, illustrating a circular slot *n*, which is formed in each of said gears I. At one end of each of said slots is fixed a hardened metallic bearing-piece *m*, of cylindrical form, which presents a convex bearing-surface at one end of each slot *n*, against which a clutch-pin *o*, (see Figs. 1 and 5,) hereinafter described, has an engagement when the gear I is given a rotary motion.

Two clutch-arms S S are secured rigidly on the driving-shaft C by a set-screw, as shown, or by other suitable means, near the inner faces of said gears I I. Said clutch-arms are perforated to receive the clutch-pins *o o* and to permit of a free longitudinal movement of said pins therein, whereby the free ends thereof enter and recede from the said slots *n n* in said gears I I. On said driving-shaft C, between said clutch-arms S S, a clutch G is hung, having a slot *a* therein, and said clutch G has fixed in its opposite sides said two clutch-pins *o o*, which extend into the perforations in said arms S S. Said clutch G has a sufficient sliding motion on the shaft C, when actuated as below described, to carry the said pins *o* alternately, first into engagement with one of said gears I, and then moving from the latter to carry the other clutch-pin into engagement with the opposite gear.

The above-mentioned clutch G is actuated on shaft C by the vibratory motion of the lever *d*, Figs. 1, 2, and 3, which is pivotally attached by one end to the fixed arm *f* on the frame of the machine, said lever extending under shaft C and through the lower part of said slot *a* in the clutch G. Near the free end of said lever *d* is fixed a pending pin *e*, which is alternately engaged by a pin *h*, (see Figs. 2 and 3,) rigidly fixed in the upper side of said gear J.

The operation of my improvements in imparting reciprocating rotary motion to shaft K and to the agitator element *v* attached thereto is as follows: It should be understood that the clutch G on the driving-shaft C when

the machine is brought to rest is in engagement, by means of one of the clutch-pins *o*, which passes through one of the fixed arms *S*, with the circular slot *n* of one or the other of the gears *I*, substantially as shown in Fig. 2. Upon rotating said driving-shaft the gear *I*, so engaged with the clutch *G*, is caused to rotate, thereby imparting a rotary movement to the gear *J*, in which the pin *h* is fixed, and thus the latter is moved against the pin *e* in the lever *d*, causing the latter to swing and carry with it in its swinging movement the clutch *G* on shaft *C*, thereby unclutching the first-named gear *I* from the shaft *C* and causing the opposite gear *I* to be clutched by the entrance of one of the pins *o* into the slot *n* of this last-named gear, thereby causing the latter to rotate the gear *J* (the two gears *I I* rotating in opposite directions) and the shaft *K* and agitator *v*, during the movement of the gear *J*, one revolution, at the end of which revolution the pin *h* again re-engages said pin *e* in the lever *d* and shifts the clutch *G* again on the driving-shaft, thus causing the one of the gears *I* to be disengaged and the other to be engaged by said clutch and the rotary movement of the gear *J* to be reversed. In other words, the continuous rotary motion of the driving-shaft *C* causes the gear *J* to be rotated alternately in one direction and then in the opposite one by the alternate engagement of the clutch-pins *o o* with the circular slots in said gears *I*, the clutch mechanism for reversing the movement alternately of the gears *I* being actuated by the reciprocatory movements of the gear *J*, actuated by the alternate rotary movements of the gears *I I*. The said hardened bearing-piece *m*, fixed at one end of the slot *n* in each of the gears *I I*, and presenting a convex surface to the like surface of the clutch-pin *o*, which bears thereagainst quite forcibly when the clutch *G* is shifted, obviates frictional action between said bearing-surfaces, thus facilitating ease of action and obviating wear of parts.

Having thus described my invention, what

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

1. In a mechanical movement, the herein described means for reciprocally rotating the agitator element of washing machines, churns, and similar apparatus, comprising a suitably supported driving-shaft, bevel gears face to face, loose on said shaft, said gears having curved slots therein between their hubs and peripheries, a suitably supported pinion engaging with both of said gears, two arms secured to the driving shaft between said gears thereon, a clutch sliding on said shaft between said two fixed arms having pins projecting from its opposite sides through said fixed arms for engagement alternately in said circular slots, and a vibratory clutch-lever supported by one end on said frame over the face of said pinion, and engaging with a clutch-pin thereon, combined and operating substantially as set forth.

2. In a mechanical movement, the herein described means for reciprocally rotating the agitator element of washing machines, churns, and similar apparatus, comprising a suitably supported driving-shaft, bevel gears face to face, loose on said shaft, said gears having curved slots therein between their hubs and peripheries, one end of each of said slots having a convex-bearing surface on which a clutch-pin engages, a suitably supported pinion engaging with both of said gears, two arms secured to the driving-shaft between said gears thereon, a clutch sliding on said shaft between said two fixed arms having pins projecting from its opposite sides through said fixed arms for engagement alternately in said circular slots, and a vibratory clutch-lever supported by one end on said frame over the face of said pinion, and engaging with a clutch-pin thereon, combined and operating substantially as set forth.

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