

(No Model.)

2 Sheets—Sheet 1.

D. L. RICHARDS.

APPARATUS FOR OPERATING FANS.

No. 246,909.

Patented Sept. 13, 1881.

Fig. 1.

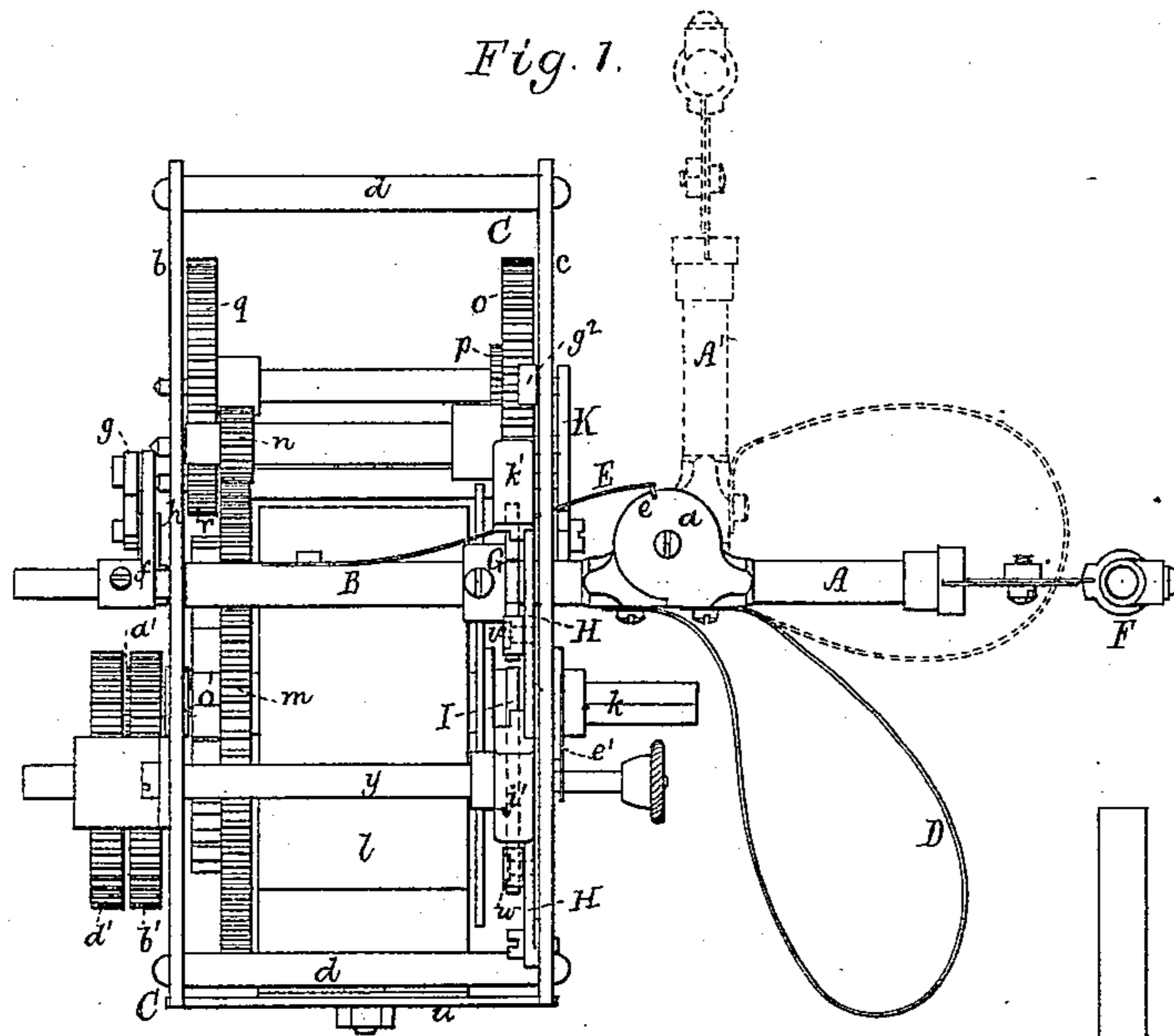
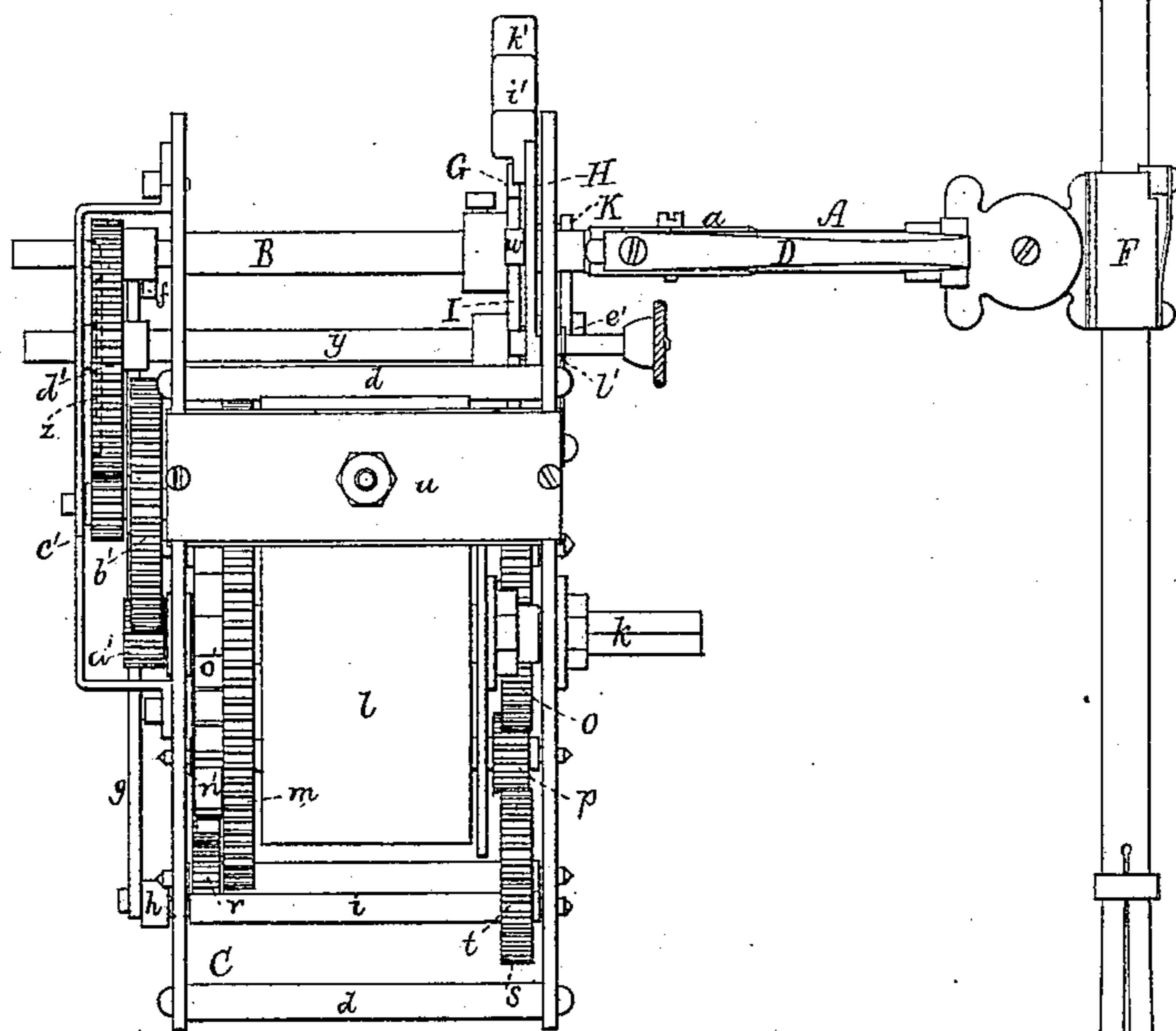


Fig. 4.



Witnesses.

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Fig. 2.

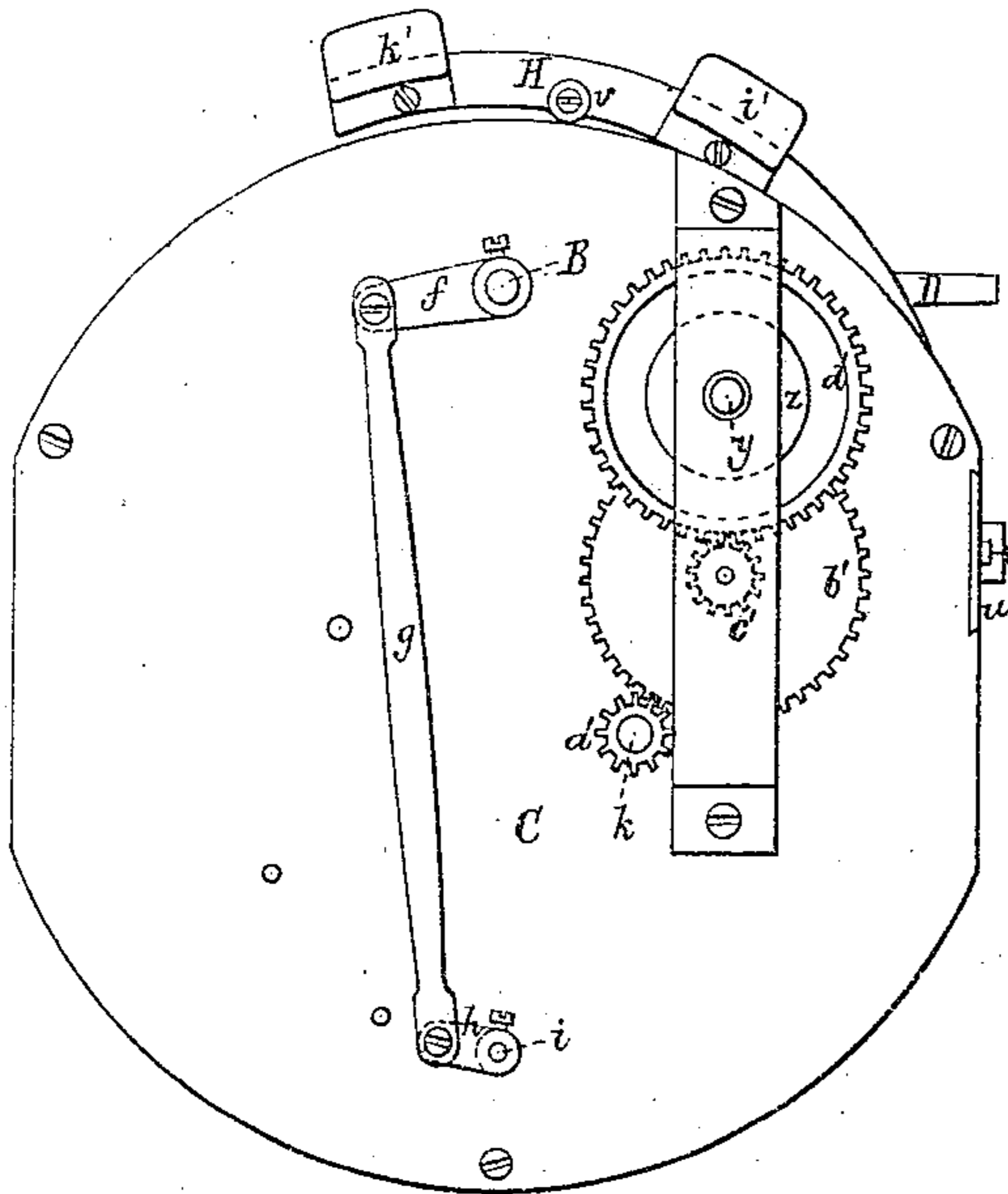


Fig. 3.

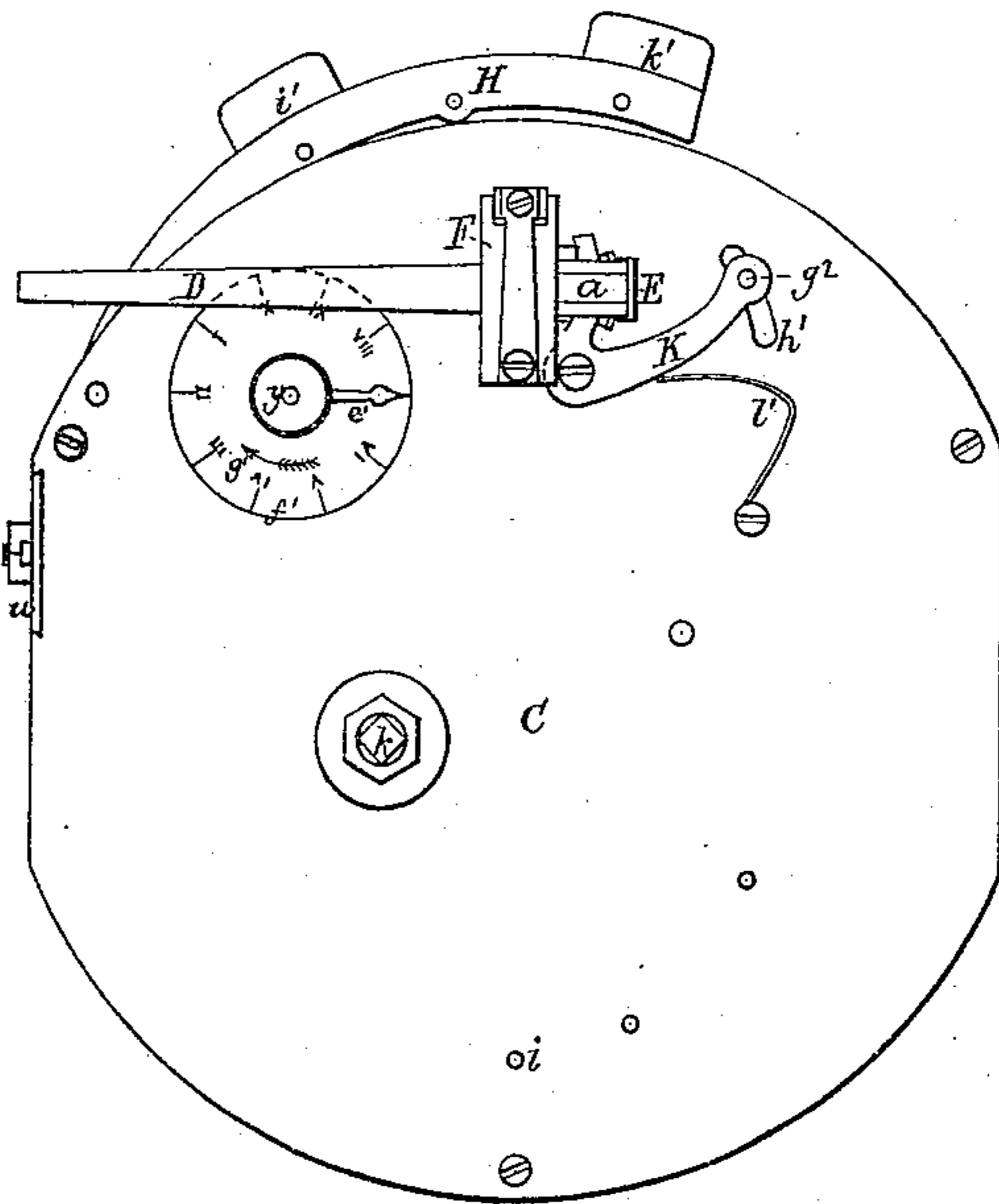


Fig. 5.

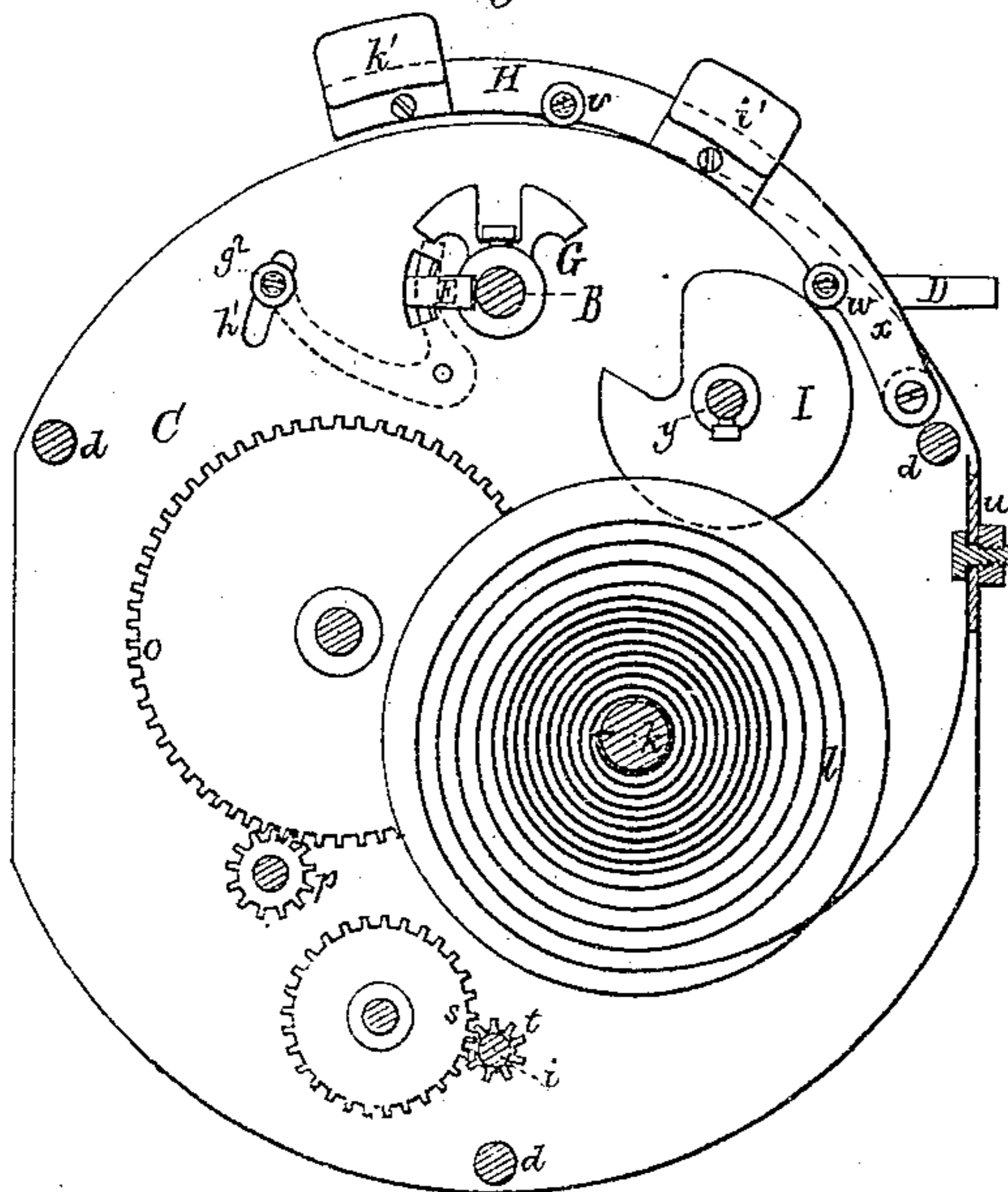
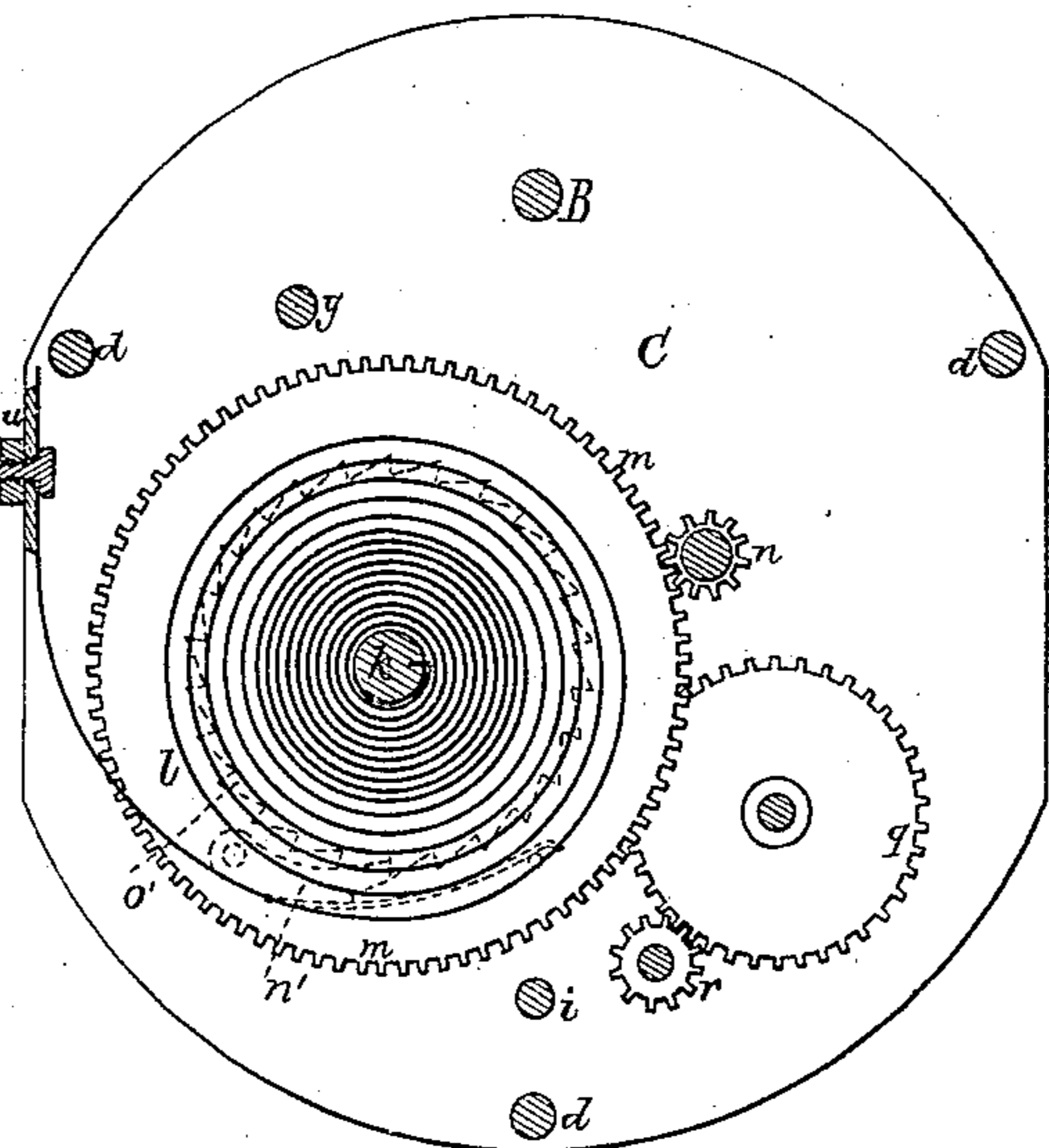


Fig. 6.



Witnesses.

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UNITED STATES PATENT OFFICE.

DAVID L. RICHARDS, OF BOSTON, MASSACHUSETTS.

APPARATUS FOR OPERATING FANS.

SPECIFICATION forming part of Letters Patent No. 246,909, dated September 13, 1881.

Application filed July 18, 1881. (No model.)

To all whom it may concern:

Be it known that I, DAVID L. RICHARDS, at present residing in Boston, of the county of Suffolk and State of Massachusetts, have invented a new and useful Machine or Apparatus for Operating a Fan; and I do hereby declare the same to be described in the following specification and represented in the accompanying drawings, of which—

Figure 1 is a top view; Figs. 2 and 3, opposite side elevations; Fig. 4, an end view of the said machine; Figs. 5 and 6 are longitudinal and central sections of it, showing the mechanism on opposite sides of the plane of section.

The nature of my invention is defined by the claims hereinafter presented.

The machine embodying my improvement is intended to be arranged over a bed or couch or other article, and to give motion to a fan for the purpose of cooling a person when asleep or reclining on the bed or couch, or to prevent flies or insects from annoying or disturbing him. The arm carrying the fan or its supporter can be moved by the mechanism in a manner either to carry the fan immediately over the individual or from him, so as to be out of his way in either rising from or entering the bed or couch.

In the drawings, A represents the said arm, which by a rule-joint, *a*, is connected with a rock-shaft, B, duly supported in a frame, C, composed of two disks or plates, *b c*, and sundry connecting-bars, *d*, extending from one to the other of them, (the said plates.) A spring, D, fastened at its ends to the rock-shaft B and the arm A, serves to force the arm from its position in line with the rock-shaft into one at or about at a right angle thereto on a spring-latch, E, arranged as shown, being moved out of a notch, *e*, in and extending across the rule-joint, such spring-latch being fastened to the rock-shaft. At the outer end or part of the arm A is a tubular carrier, F, suitably made for receiving and supporting the handle of a fan, or a supporter of proper form or construction for sustaining the fan, the said carrier F being jointed to the arm to admit of the fan being more or less inclined from the vertical, as occasion may require.

There is combined with the rock-shaft a mechanism for imparting to it a reciprocating rotary motion, in order for the fan to be put in vibration. Such mechanism may be thus described. A crank, *f*, fixed to the shaft, has jointed to it a connecting-rod, *g*, leading to another crank, *h*, fixed on the shaft *i*.

A winding-arbor, *k*, carrying a coiled spring, *l*, and provided with a train of gears, *m n o p q r s t*, suitably supported, is applied to the frame C, the last gear of the train being fixed on the shaft *i*. This arbor and its gearing are like those of a common clock, the spring being at or near its inner end fixed to the arbor and at or near its outer end to a cross-bar, *u*, of the frame C.

The arbor, like that of a clock, should have appliances to admit of the spring being wound up by a key applied to it—that is to say, a gear, *m*, turns loosely on the winding-arbor and carries a pawl, *n'*, to work in a ratchet-wheel, *o'*, fixed on the said arbor. On the train being put in operation by the recoil of the spring a rotary motion will be imparted to the shaft *i*, whereby, by means of the two cranks, *h* and *f*, the rock-shaft B will receive a reciprocating rotary motion.

The next part of the mechanism to be described is that for determining the period in which the machine is to be kept in operation or when it is to cease to act, whether such be an hour or two, more or less.

There is fixed on the rock-shaft a notched sector, G, and there is pivoted to one of the plates of the frame C a weighted arm, H, carrying two friction-rollers, *v w*, arranged as shown. That one of such rollers which is the nearer of the two to the part *x* of the arm rests on the periphery of a notched disk or cam, I, formed as represented, and fixed on a cross-shaft, *y*. A train of gears, *a' b' c' d'*, is applied to the shaft *y* and the winding-arbor, the gear *a'* being fixed on such arbor, while the gear *d'* revolves on the shaft *y*. A friction-disk, *z*, fixed on the shaft *y* bears against the side of the gear *d'*.

There is fastened on the shaft *y* a hand, *e'*, and there is made in and to the frame C a dial, *f'*, (marked as shown,) somewhat like that of a

clock, the divisions indicating certain periods of time for the apparatus to be kept in action. On turning the shaft so as to carry the hand in the direction denoted by the arrows g' around to the division marked I the apparatus will be set for being maintained in action a given period of time—as an hour, for instance. On moving the hand to the next division, II, the machine will run double the time. In so moving the hand, the arm H will be forced upward by the cam I so as to carry the friction-roller v out of the notch of the sector G, in order to allow the rock-shaft to be put in motion. While the rock-shaft continues its reciprocations the notched cam will be slowly revolved until the notch of the cam may reach the roller w , which taking place the arm will drop and carry the roller v into the notch of the sector and the rock-shaft will cease to move.

The next part of the apparatus to be explained is that for unlatching the arm A in order to admit the spring D to act and force the arm into a position at a right angle, or about so, to the rock-shaft B, as indicated at A' by dotted lines in Fig. 1.

There is pivoted to the frame C a bent lever, K, whose shorter arm extends up in rear of the spring-latch E. From the longer arm of the said lever a stud, g^2 , extends through a slot, h' , in the case and into the path of movement of one of the weights $i' k'$ of the weighted arm H. During the fall of the weighted arm the weight k' will be carried against the stud and will move the lever, so as to cause it to force the latch out of the notch of the rule-joint, which taking place the spring D will be free to act and force the arm A into the position indicated at A'. A spring, l' , fixed to the frame C and bearing against the longer arm of the lever K, serves to move the lever in a manner to admit of the latch taking into the notch of the rule-joint, when the arm A may be next turned around into line with the rock-shaft.

The spring also keeps the lever out of the way of the latch while the latter may be in movement with the rock-shaft.

If desirable, the apparatus described may be inclosed in a suitable case, and the dial, instead of being formed on or applied to the frame C, may be made or fixed on the said case.

What I claim as my invention in the hereinbefore-described machine or apparatus is as follows, viz:

1. The combination, with the mechanism for imparting to the rock-shaft B its reciprocating rotary motion, of mechanism for determining the period of such motion, and consisting of the train of gears $a' b' c' d'$, the friction-disk z , shaft y , notched cam I, hand e' , dial f' , weighted arm H, provided with the friction-rollers $v w$, and the notched-sector G, such sector being fixed on the rock-shaft, and the gear a' of the train being fixed on the winding-arbor, and all being arranged and to operate substantially as set forth.

2. In combination with the rock-shaft and mechanism for reciprocating it, as set forth, and the mechanism for determining the period of vibrations of the rock-shaft, the mechanism for holding the arm in line with the rock-shaft, and also for moving the arm into, or about at, a right angle therewith, such consisting of the spring-latch E, its tripping-lever K, and the spring D, the rule-joint of the rock-shaft and arm being notched to receive the latch, and all being adapted and to operate substantially as set forth.

3. The combination of the arm A, and the tubular fan-carrier F, jointed to the said arm, as explained, such arm A being provided with mechanism, substantially as described, for imparting to it reciprocating-rotary motions.

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Witnesses:

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