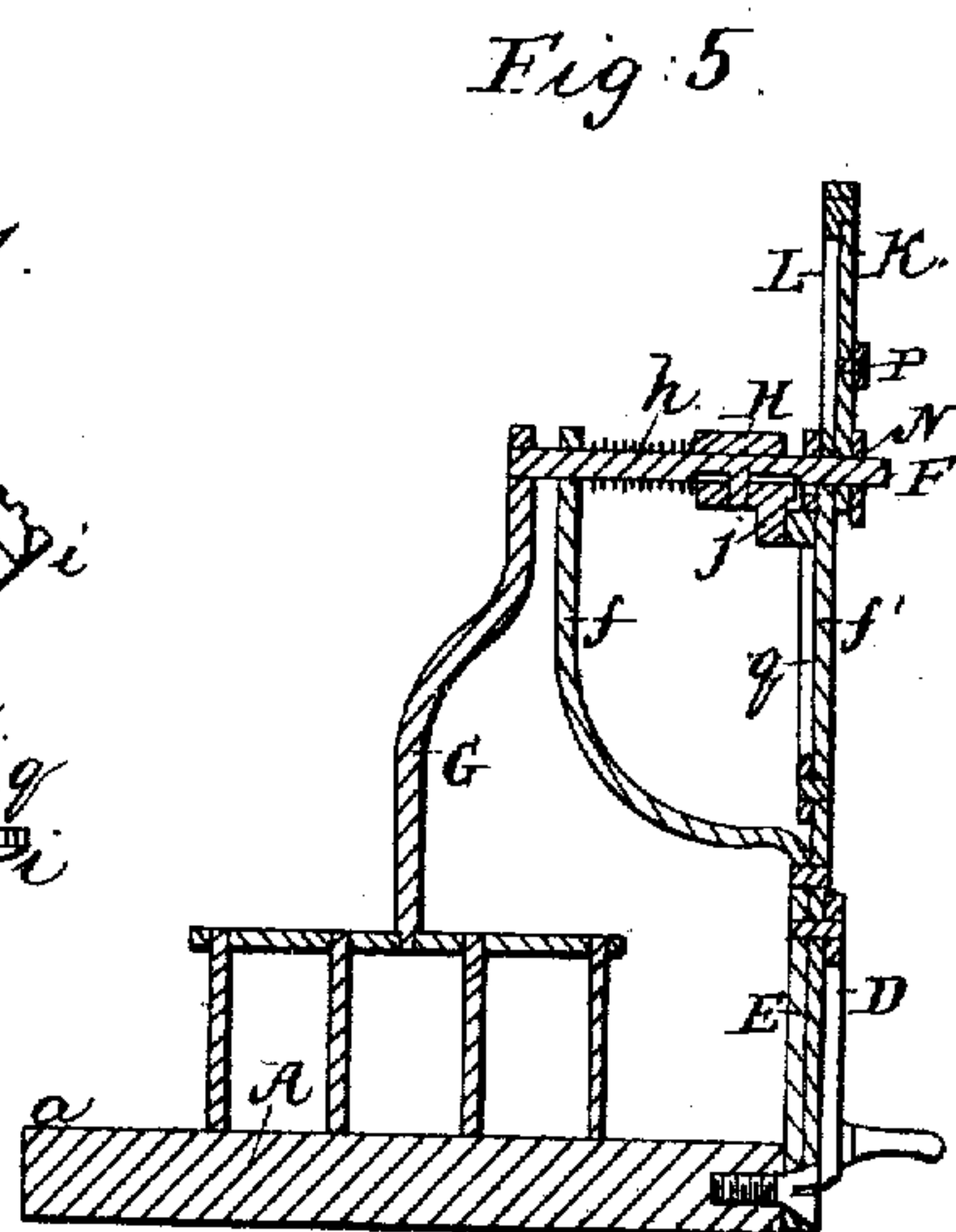
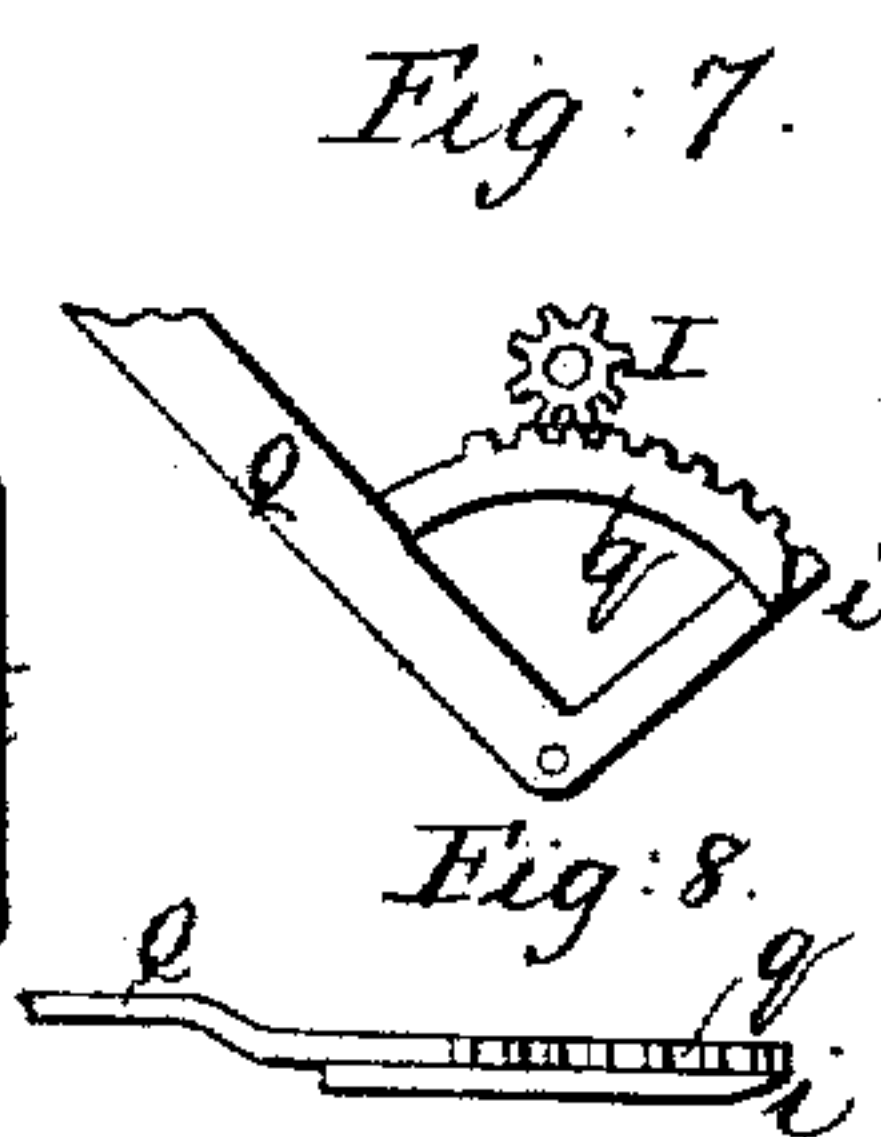
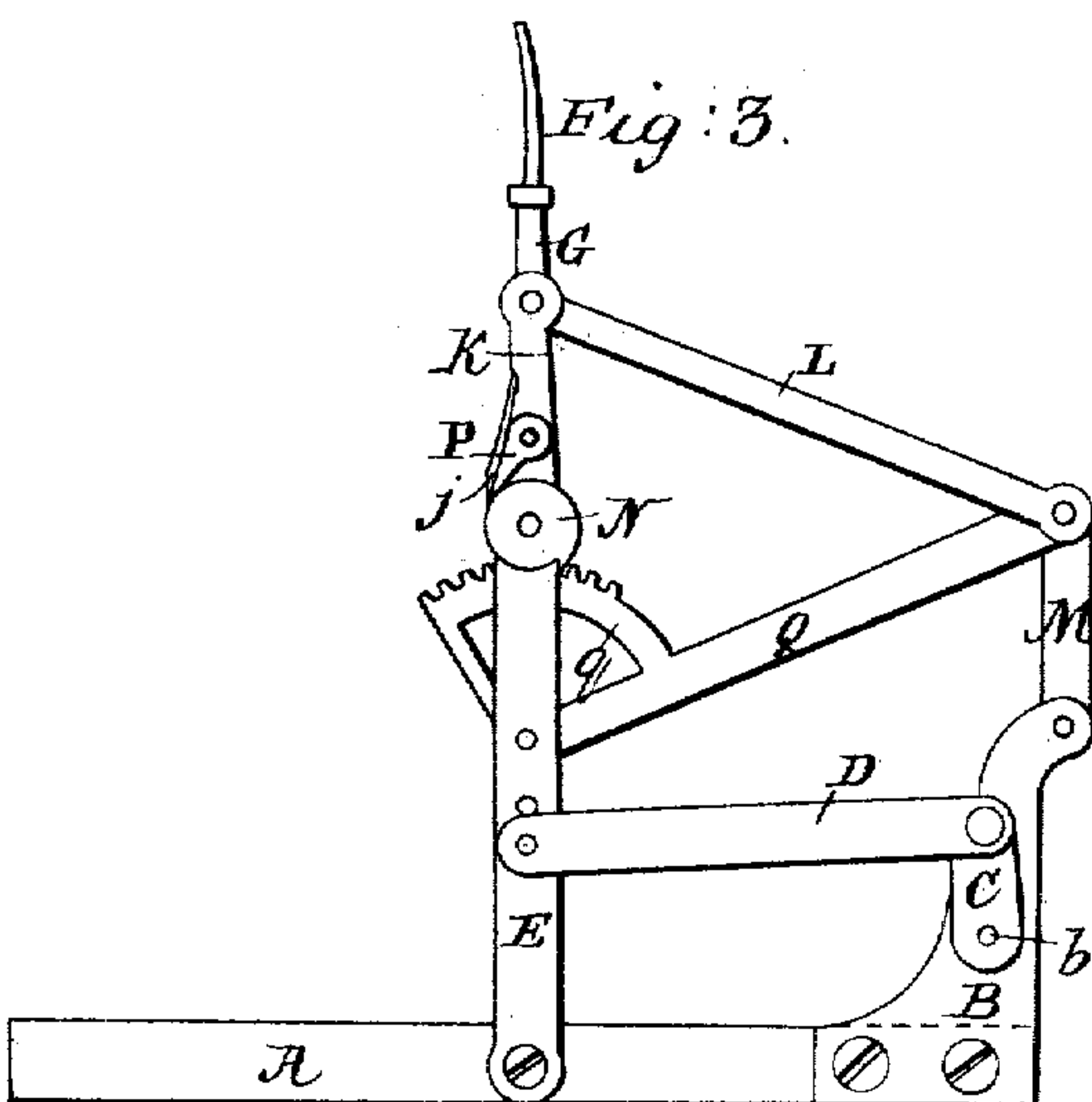
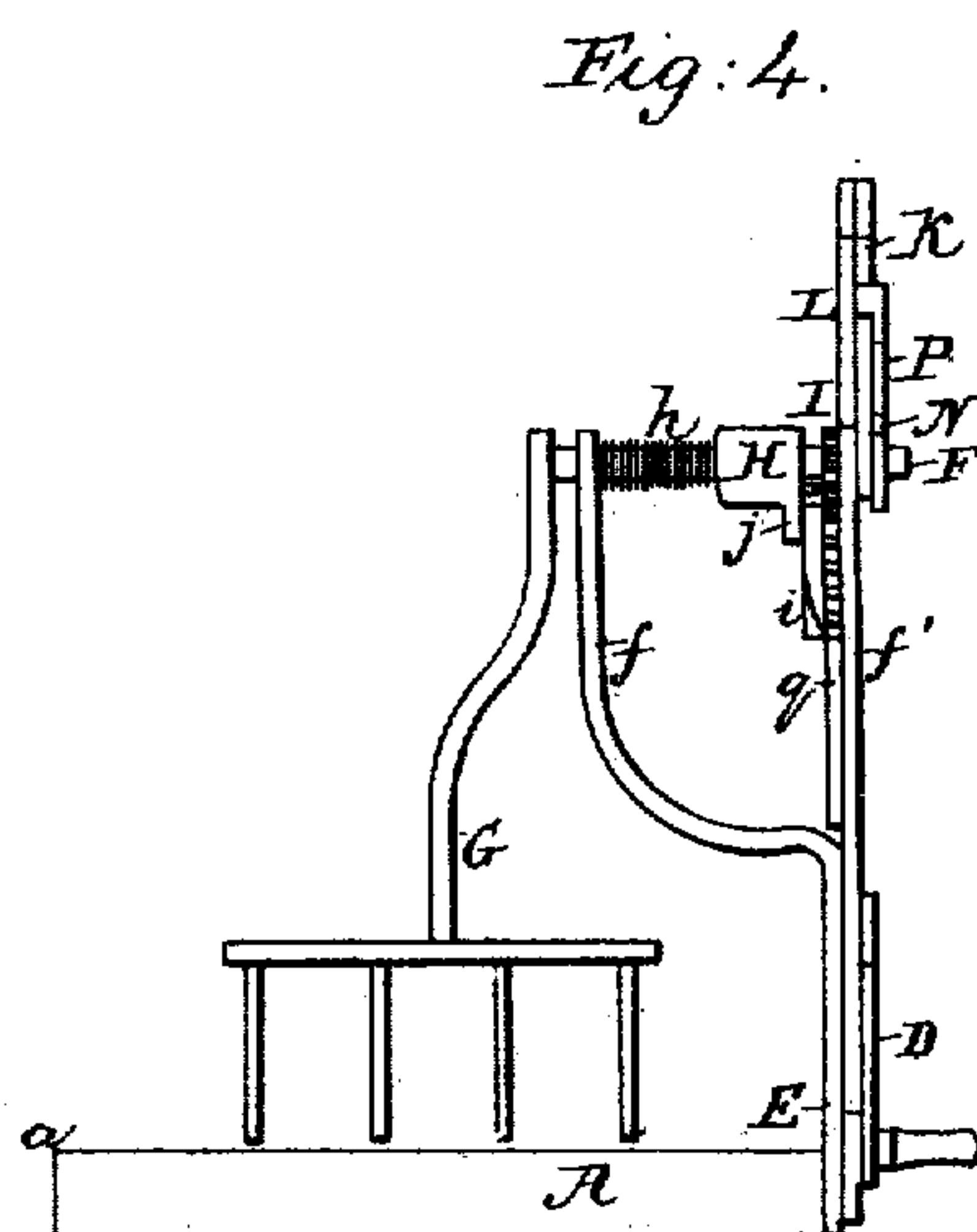
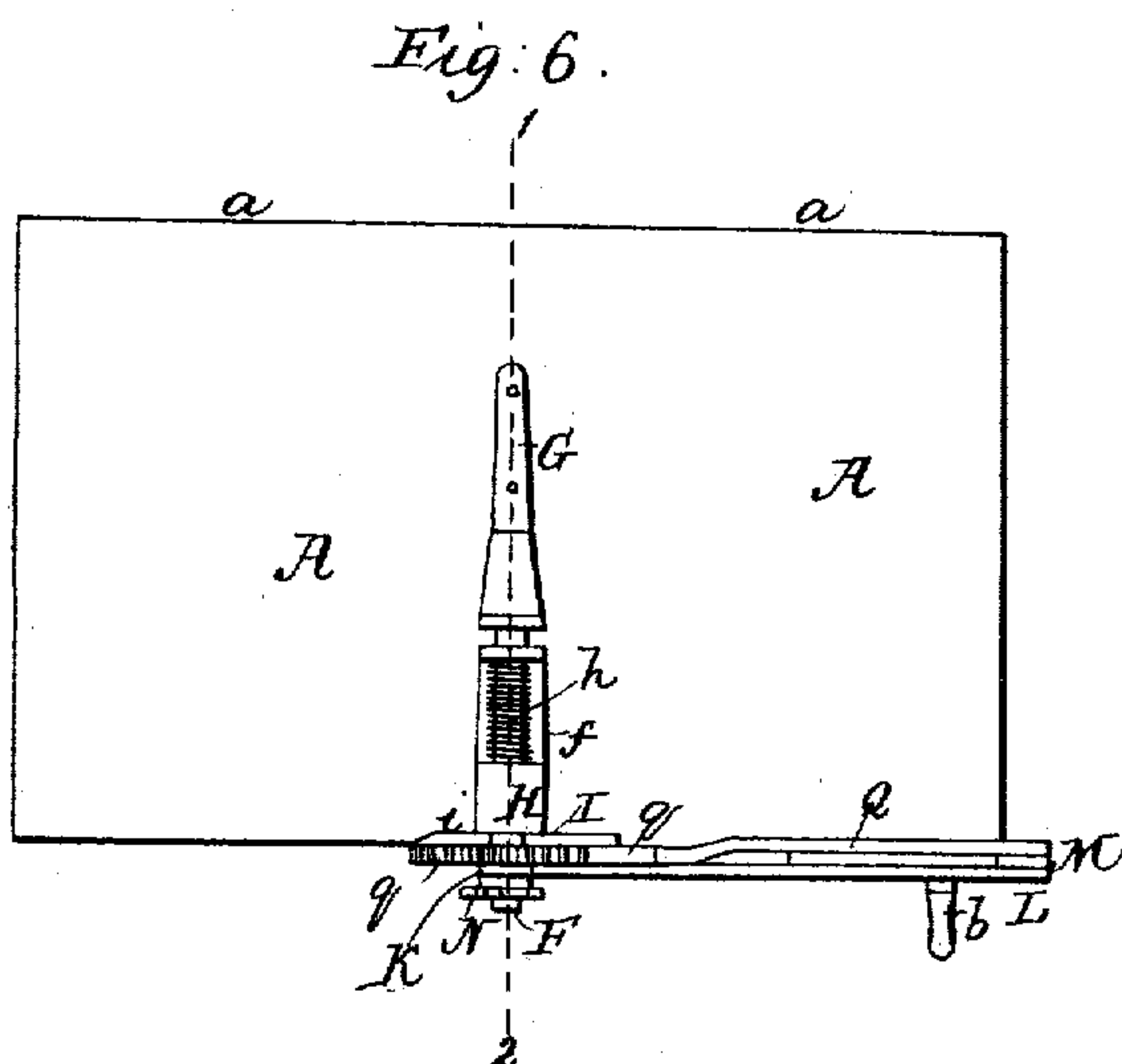
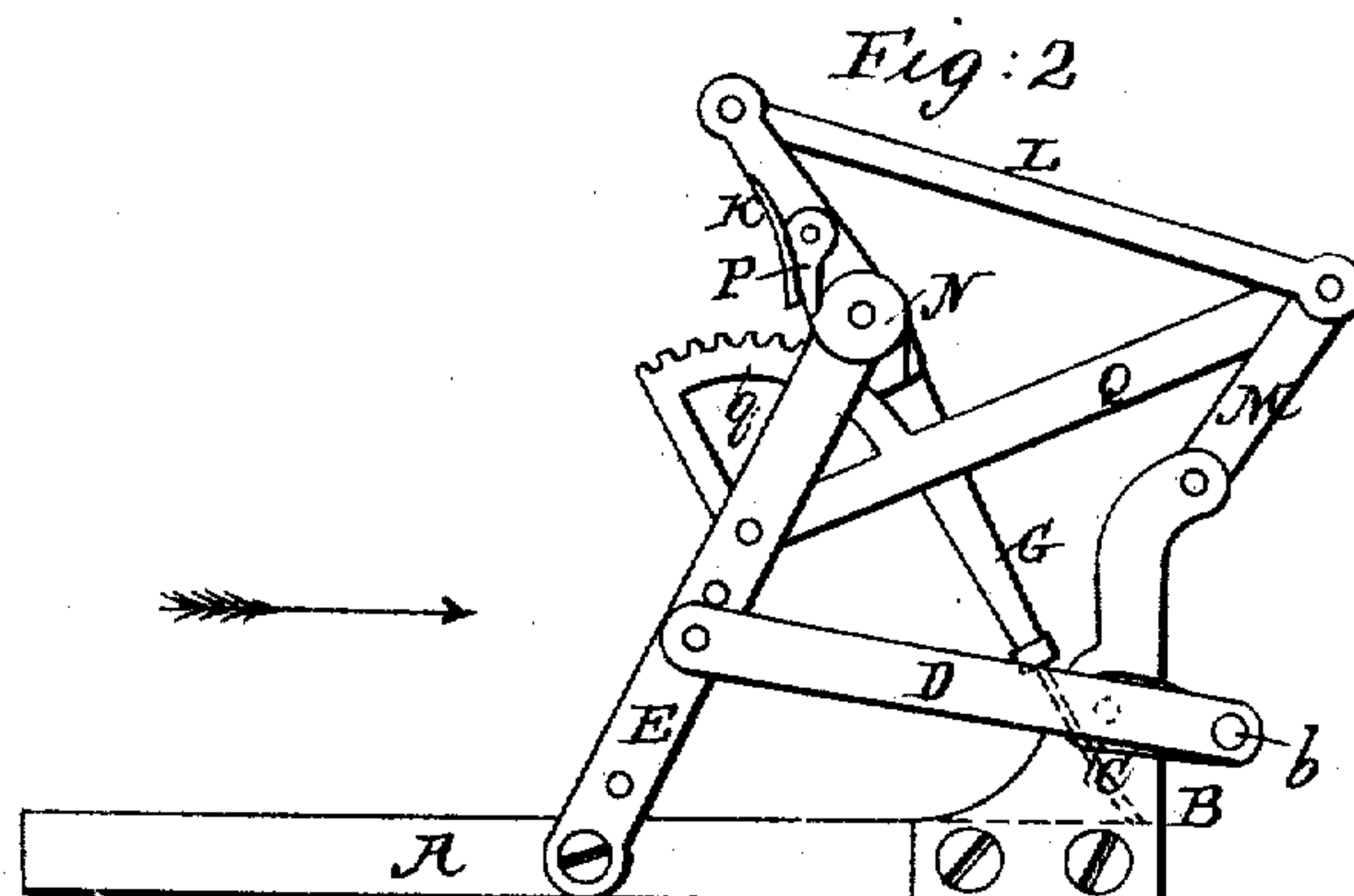
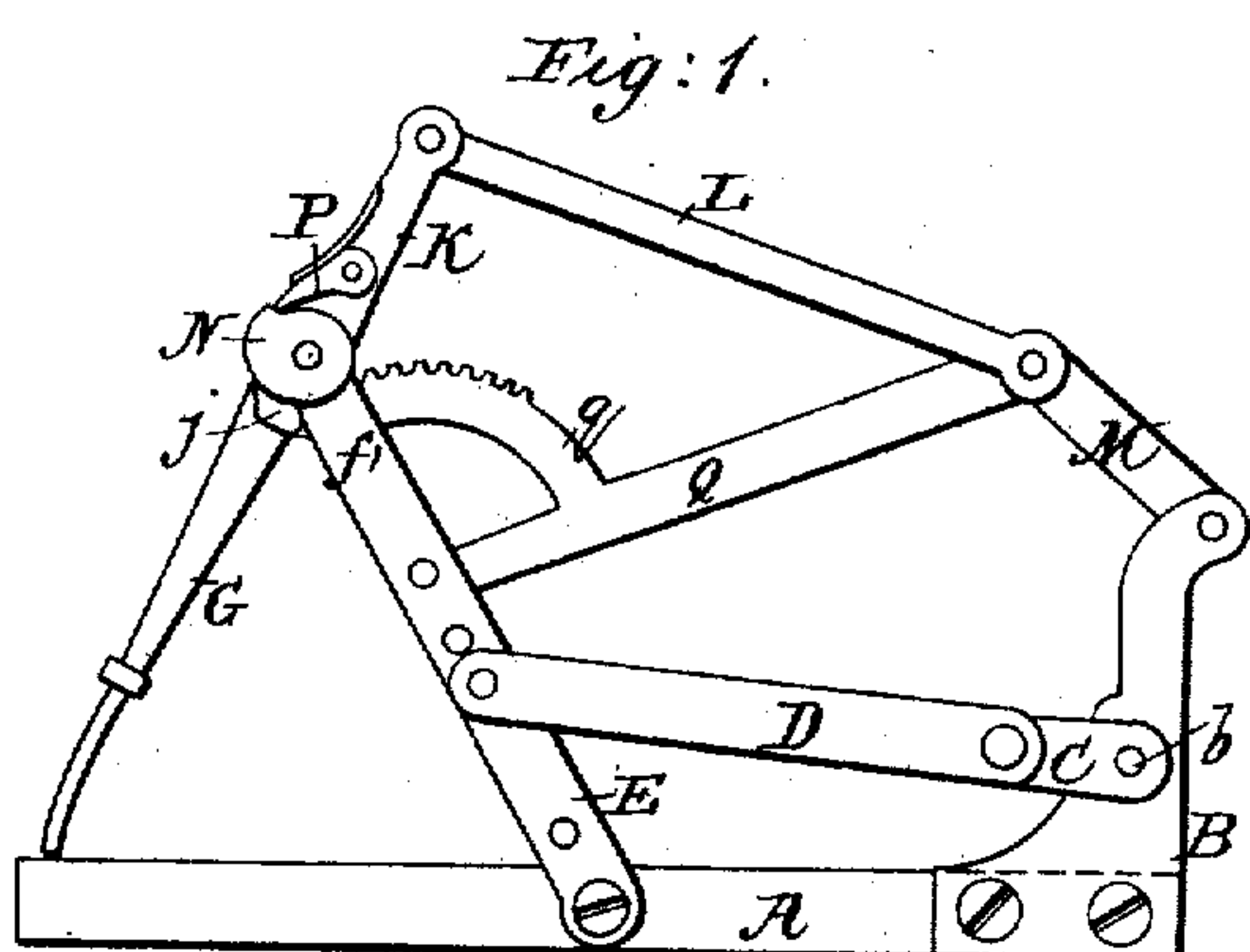


S. COMFORT, Jr.

Harvester Rake.

No. 18,437.

Patented Oct. 20, 1857.



UNITED STATES PATENT OFFICE.

SAMUEL COMFORT, JR., OF MORRISVILLE, PENNSYLVANIA.

IMPROVEMENT IN RAKES FOR HARVESTERS.

Specification forming part of Letters Patent No. **18,437**, dated October 20, 1857.

To all whom it may concern:

Be it known that I, SAMUEL COMFORT, Jr., of Morrisville, Bucks county, Pennsylvania, have invented a new and Improved Harvester-Rake; and I do hereby declare the following to be a full, clear, and exact description of the same, reference being had to the accompanying drawings, and to the letters of reference marked thereon.

My invention consists in the employment, in connection, with harvesters, of a rake which is operated in a peculiar manner by means of rods, levers, and other appliances, fully described hereinafter, so that the severed grain or grass is effectually cleared from the platform and deposited on the ground.

In order to enable others skilled in the art to make and use my invention, I will now proceed to describe its construction and operation.

On reference to the drawings, which form a part of this specification, Figures 1, 2, and 3 are elevations illustrating in different positions my improved raking apparatus as attached to the back of the platform of a harvester; Fig. 4, an end view looking in the direction of the arrow, Fig. 2; Fig. 5, a sectional elevation on the line 1 2, Fig. 6; Fig. 6, a ground plan; Fig. 7, a face view of the pinion for gearing into the segmental lever; Fig. 8, a plan view of the segmental lever.

Similar letters refer to similar parts throughout the several views.

A is the platform of a harvester, on the front edge, *a*, of which are situated the cutters, the direction of the platform as the machine is being drawn over the ground being pointed out by the arrow, Fig. 6.

On the back edge and at one corner of the platform I secure a bracket, B, in which turns a spindle, *b*. To the latter is secured a crank, C, the end of which is connected by means of the rod D to the vibrating lever E, the lower end of which turns on a pin or spindle secured to the back of the platform. The upper end of the lever E is forked or divided, so as to form two arms, *f* and *f'*, in which turns the spindle F, to which, and outside the arm *f'* of the lever E, is secured the stem of the rake.

Between the two arms *f* and *f'*, and on the same spindle, are the clutch H and pinion I, the former being arranged to slide on the spindle, but not being capable of turning round inde-

pendent of the same. The pinion is allowed to turn freely independent of the spindle, and has in its face an orifice, as seen in Fig. 7, adapted to receive a projection on the face of the clutch H.

Between the clutch and the inside of the arm *f*, and coiled round the spindle, is a spiral spring, *h*, which tends to maintain the clutch in gear with the pinion when not otherwise thrown, and retained out of gear by means hereinafter set forth. On the same spindle, F, is hung one end of the arm K, the other end of which is connected by means of the rod L to the upper end of the arm M, the lower end of the latter being jointed to the bracket B. A ratchet-wheel, N, is also secured to the spindle F, and this wheel has a single notch adapted as the machinery operates to receive the end of the spring-pawl P which is jointed to the arm K.

The vibrating lever E is jointed to the upper end of the arm M, as well as to the end of the rod L, by means of the rod Q, on which is a segment, *q*, having cogs, into which gear those of the pinion I. On the inner face of this segment is secured a plate, *i*, one end of which is beveled off, as seen in Fig. 8, the beveled portion of this plate serving to throw the clutch H out of gear with the pinion I and the straight portion to maintain it out of gear for the required length of time during the movement of the apparatus.

Operation: A rotary motion is imparted from any moving part of the harvester, as the latter is being drawn over the ground, to the crank *c*, which, through the rod D, imparts a vibrating movement to the lever E, a similar motion being consequently communicated by means of the rod Q, to the arm M, and from the latter by means of the rod L to the arm *k*. As seen in Fig. 1, the rake G has arrived at a position ready to remove the grain which has fallen onto the platform A. Previous to arriving at this position, however, the projection *j* on the clutch H has struck the inclined portion of the plate *i* on the segment Q, so as to throw the said clutch out of gear with the pinion I, thereby allowing the latter to turn freely independent of the spindle F as the vibrating lever E is brought by the continued movement of the crank to the position shown in Fig. 2. During this movement of the vibrating lever the clutch is maintained out of gear with the

pinion by the projection *j* bearing against the straight portion of the plate *i*. When the apparatus has arrived to the position shown in Fig. 1 the point of the spring-pawl *p* had caught in the notch of the ratchet-wheel *N*. Consequently, as the lever *E* is moving toward the position shown in Fig. 2, the spindle *F*, and with it the rake, must be turned partially round, causing the teeth of the rake to traverse above the platform in a line parallel or nearly parallel with the surface of the same, thus effectually raking off the fallen grain and depositing it on the ground. The projection *j* on the clutch *H* is now free from contact with the plate *i*, when the spiral spring *h* throws the clutch *H* in gear with the pinion *I*. Consequently during the backward movement of the vibrating lever *E* to its original position the pinion, on passing over the segment *q* of the arm *Q*, must turn, and with it the rake, which, when the lever *E* is in a perpendicular position, has been turned upward, as seen in Fig. 3, the point of the spring-pawl *p* being free from the notch on the ratchet-wheel *N* during this movement and until the rake arrives again in the position shown in Fig. 1, when the pawl again catches in the notch, the clutch is thrown out of gear, and the whole apparatus is in its original position preparatory to a repetition of

the above-described movement. It will be thus seen that a revolving motion is imparted to the rake in such a manner that the grain is effectually cleared from the platform and deposited on the ground during a portion of its revolution, and that during the remaining portion of its revolution the rake is in such an elevated position as to allow the grain, as it is severed by the cutters, to fall on the platform.

I do not desire to confine myself to any precise mode of imparting a vibratory movement to the lever *E*; but

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

Operating the rake by means of the vibrating lever *E*, ratchet-wheel *N*, spindle *F*, arm *K*, spring-pawl *P*, and rods *L*, *Q*, and *M*, in combination with the segment *q* and plate *i*, when the whole are arranged and combined for joint operation substantially in the manner set forth and for the purpose specified.

In testimony whereof I have signed my name to this specification before two subscribing witnesses.

SAMUEL COMFORT, JR.

Witnesses:

HENRY HOWSON,

WILLIAM E. WALTON.