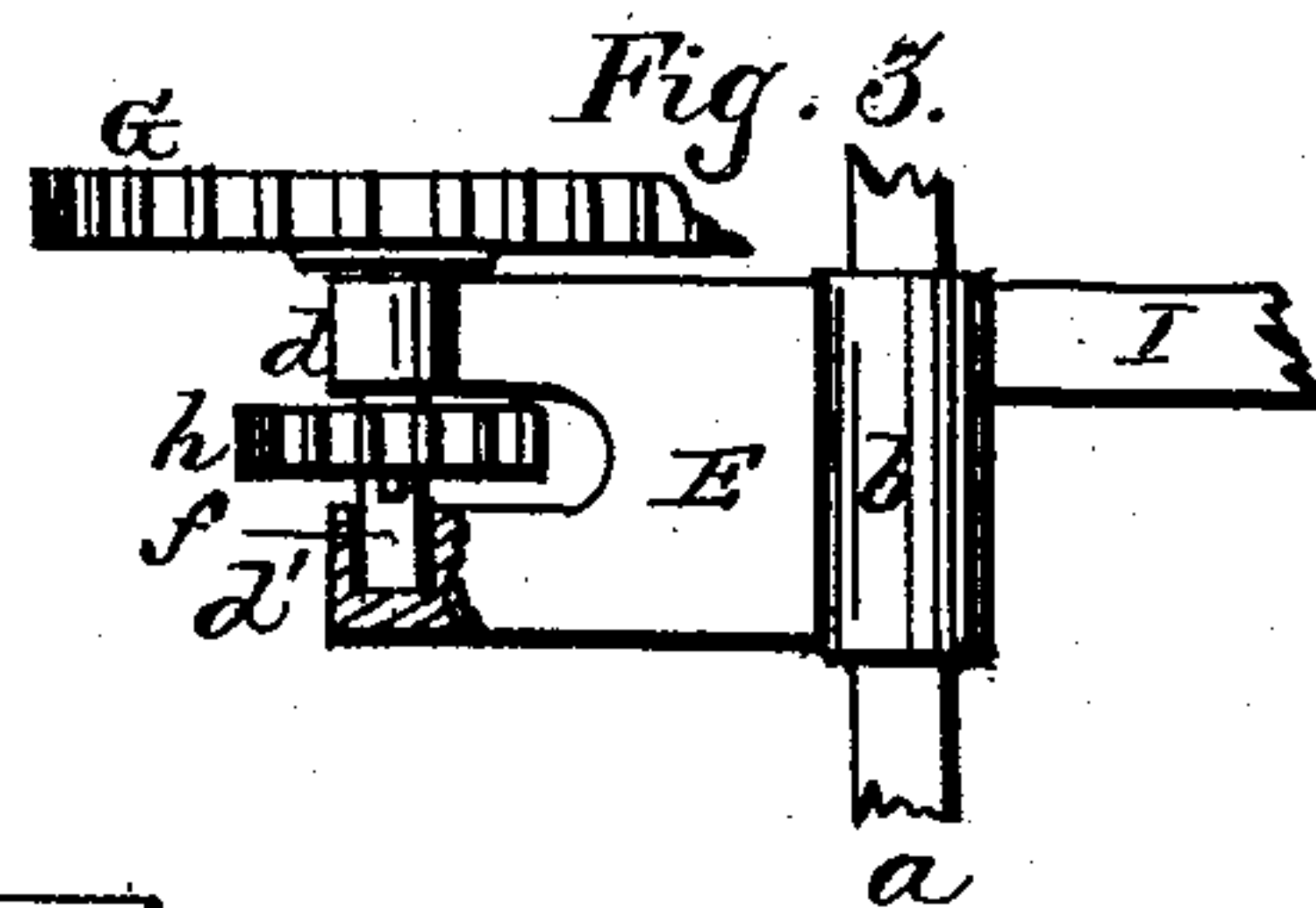
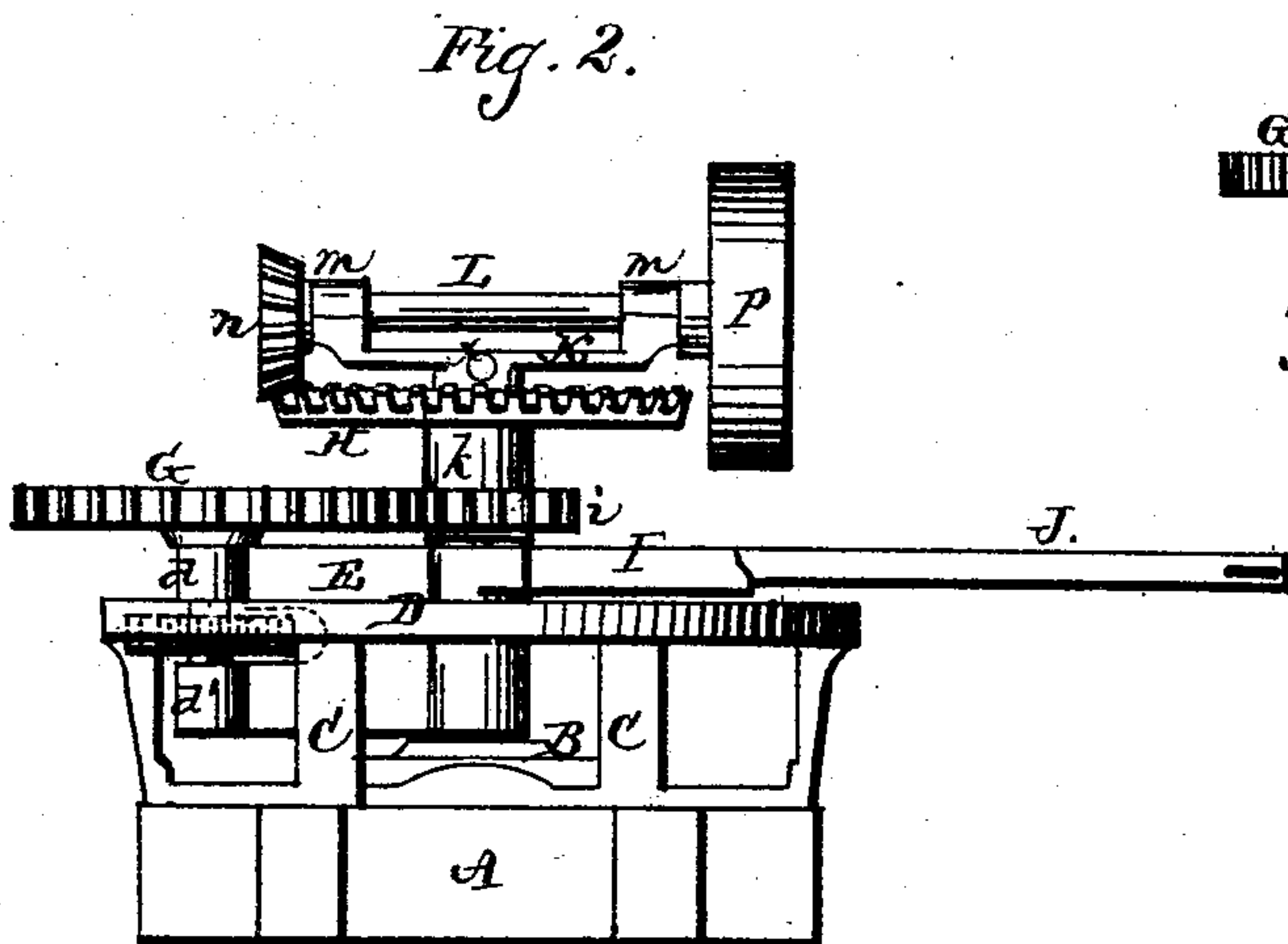
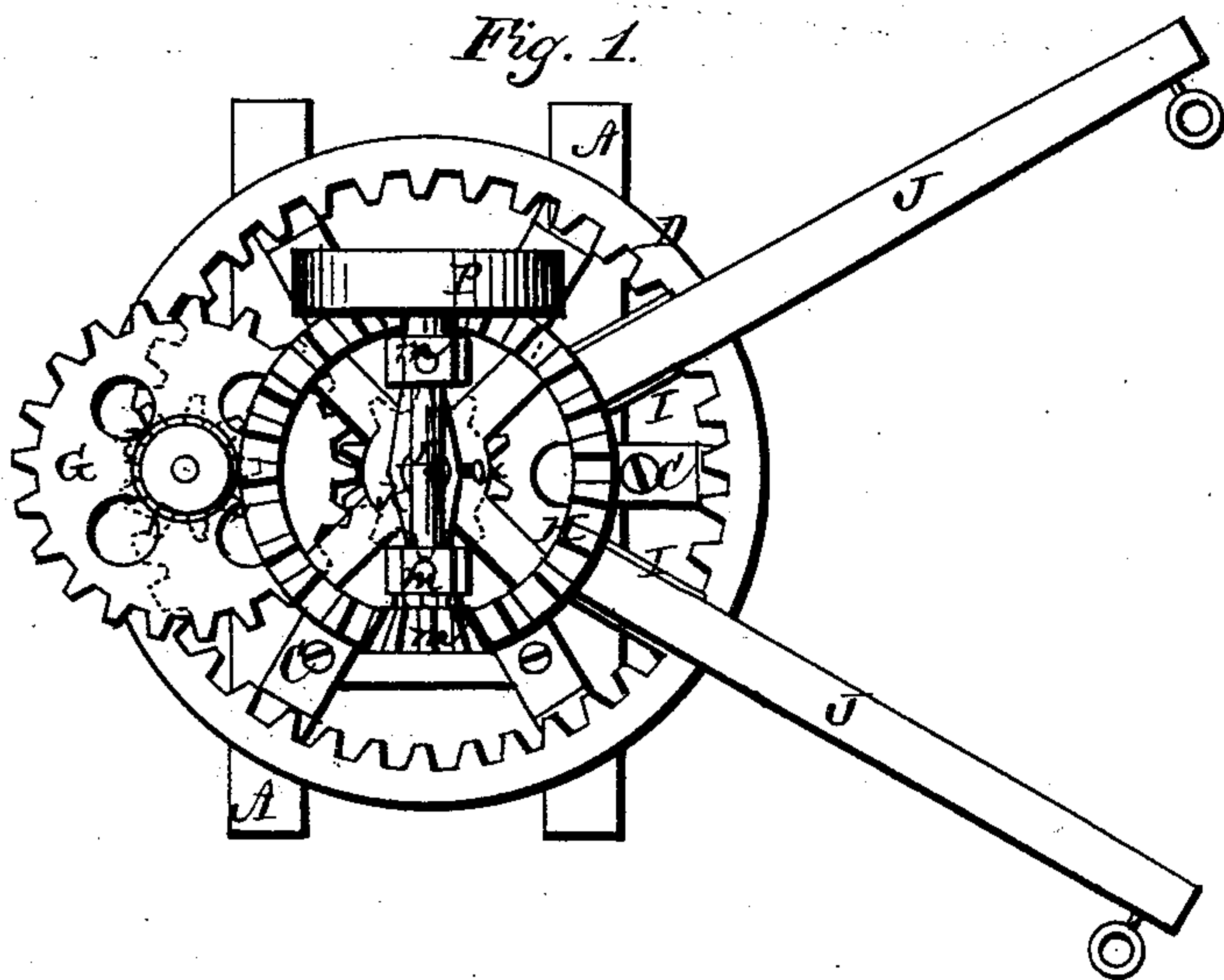


R. BALL.
Horse-Powers.

No. 155,061.

Patented Sept. 15, 1874.



WITNESSES

C. H. Schott.
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UNITED STATES PATENT OFFICE.

RICHARD BALL, OF PETERSBURG, VIRGINIA, ASSIGNOR TO W. H. TAPPEY
AND ALEXANDER STEEL, OF SAME PLACE.

IMPROVEMENT IN HORSE-POWERS.

Specification forming part of Letters Patent No. **155,061**, dated September 15, 1874; application filed
August 6, 1874.

To all whom it may concern:

Be it known that I, RICHARD BALL, of Petersburg, in the county of Dinwiddie and in the State of Virginia, have invented certain new and useful Improvements in Horse-Powers; and do hereby declare that the following is a full, clear, and exact description thereof, reference being had to the accompanying drawings and to the letters of reference marked thereon making a part of this specification.

The nature of my invention consists in the construction and arrangement of a horse-power, as will be hereinafter more fully set forth.

In order to enable others skilled in the art to which my invention appertains to make and use the same, I will now proceed to describe its construction and operation, referring to the annexed drawing, in which—

Figure 1 is a plan view of my horse-power. Fig. 2 is a side elevation of the same, and Fig. 3 is a view of a detached part thereof.

A represents the bed-frame of my horse-power, upon which is placed a circular plate, B, provided with radial arms C C. These arms are firmly secured to the frame A, and their outer ends are turned upward at right angles and support a rim, D, which is cogged along its inner circumference. The plate B and arms C form, in fact, the hub and spokes of the wheel, of which D is the rim. In the center of the plate or hub B is secured a vertical shaft, *a*, and on this shaft is placed an elongated hub, *b*, formed at one end of a plate, E. The outer end of this plate is forked, as shown in Fig. 3, forming two prongs, *d d'*. The lower prong *d'* forms a box or step for a shaft, *f*, to rest in, said shaft passing through the end of the upper prong *d*. On the shaft *f*, between the prongs *d d'*, is secured a pinion, *h*, which gears with the interior cogged wheel D. On the upper end of said shaft *f* is secured a cog-wheel, G, which gears with a pinion, *i*, formed on the lower end of the elongated hub *k* of the cog-wheel H. This wheel and hub are placed on the vertical shaft *a*, the hub resting on the upper end of the hub *b*. From the upper end of this hub *b* extend horizontal flanged arms I I, in which the levers J J

are secured. On the upper end of the shaft *a* is secured a cross-bar, K, by means of a set-screw, *x*, and on each end of said cross-bar is formed or attached a box or bearing, *m*, for a shaft, L, to revolve in. This shaft is at one end provided with a pinion, *n*, which meshes with the cog-wheel H, and on the other end of the shaft, beyond the circumference of the wheel, is secured a band-wheel, P.

By loosening the set-screw *x* the bar K can be turned in any direction desired, so as to set the band-wheel in proper position to operate whatever machinery is intended to be run by the horse-power.

The shaft *f*, which carries the gear-wheels *h* and G, being supported in the box or socket formed by the lower fork, *d'*, creates the minimum amount of friction, as the hub of the wheel G does not rest upon the upper fork, *d*, but is slightly elevated therefrom.

I do not broadly claim an inner-toothed master-wheel, into which gears a pinion mounted on a shaft, which shaft is provided with a wheel on its top gearing into a wheel on the central shaft, for imparting motion, through a large and small beveled wheel, to a band-wheel, as I am aware that such is not new.

Having thus fully described my invention, what I claim as new, and desire to secure by Letters Patent, is—

1. The combination, with the shaft *a*, and the wheel H surrounding the same, of the bar K, supporting the shaft L, with pinion *n* and band-wheel P, and held thereto by the set-screw *x*, for adjustment at any angle on the shaft, as set forth.

2. The combination of the stationary wheel B C D, shaft *a*, plate E, with hub *b*, shaft *f*, gear-wheels *h* G, pinion *i*, gear-wheels H *n*, shaft L, and band-wheel P, all substantially as set forth.

In testimony that I claim the foregoing I have hereunto set my hand this 14th day of July, 1874.

RICHARD BALL.

Witnesses:

WILLIAM ALEXANDER,
WM. C. LUMSDEN.