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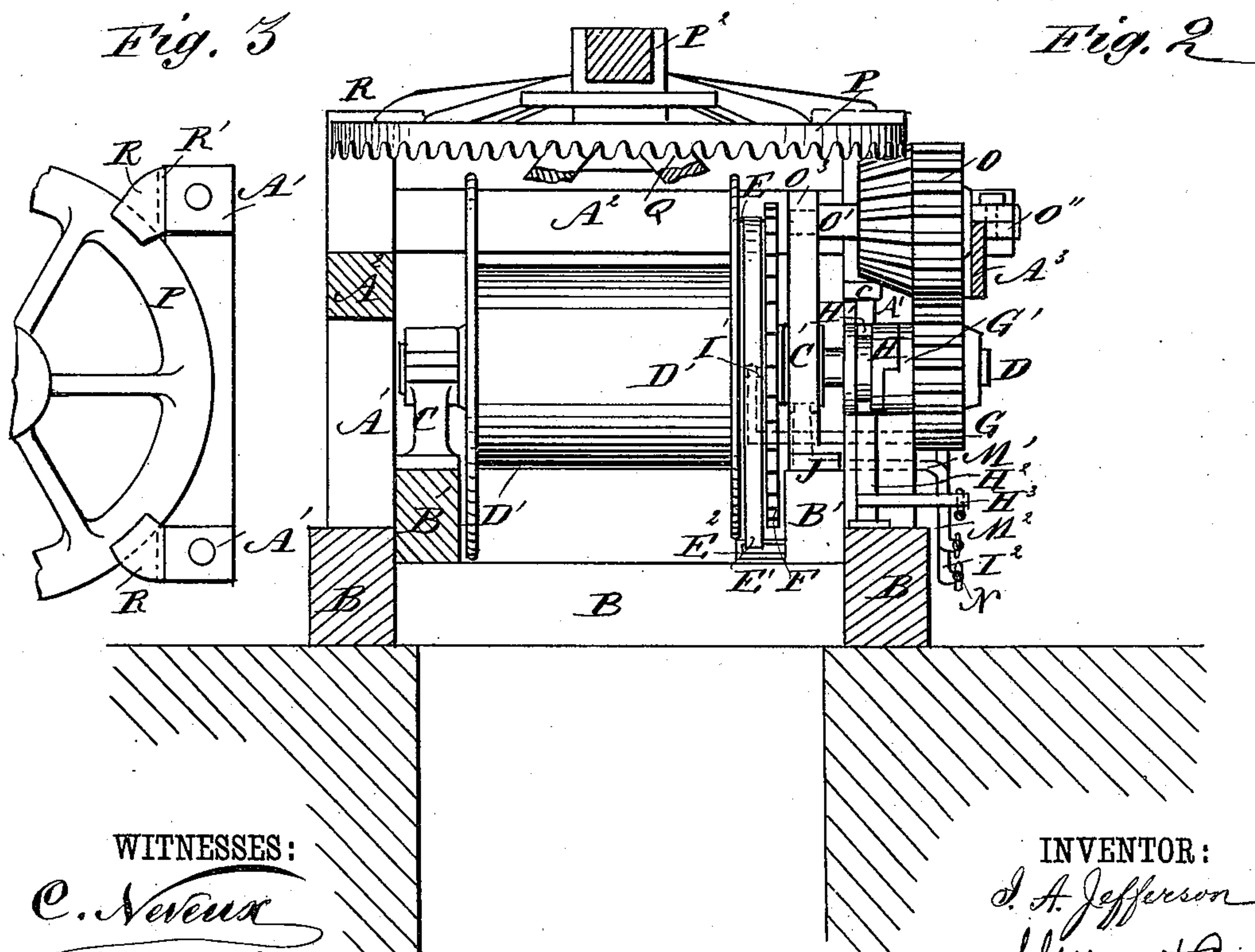
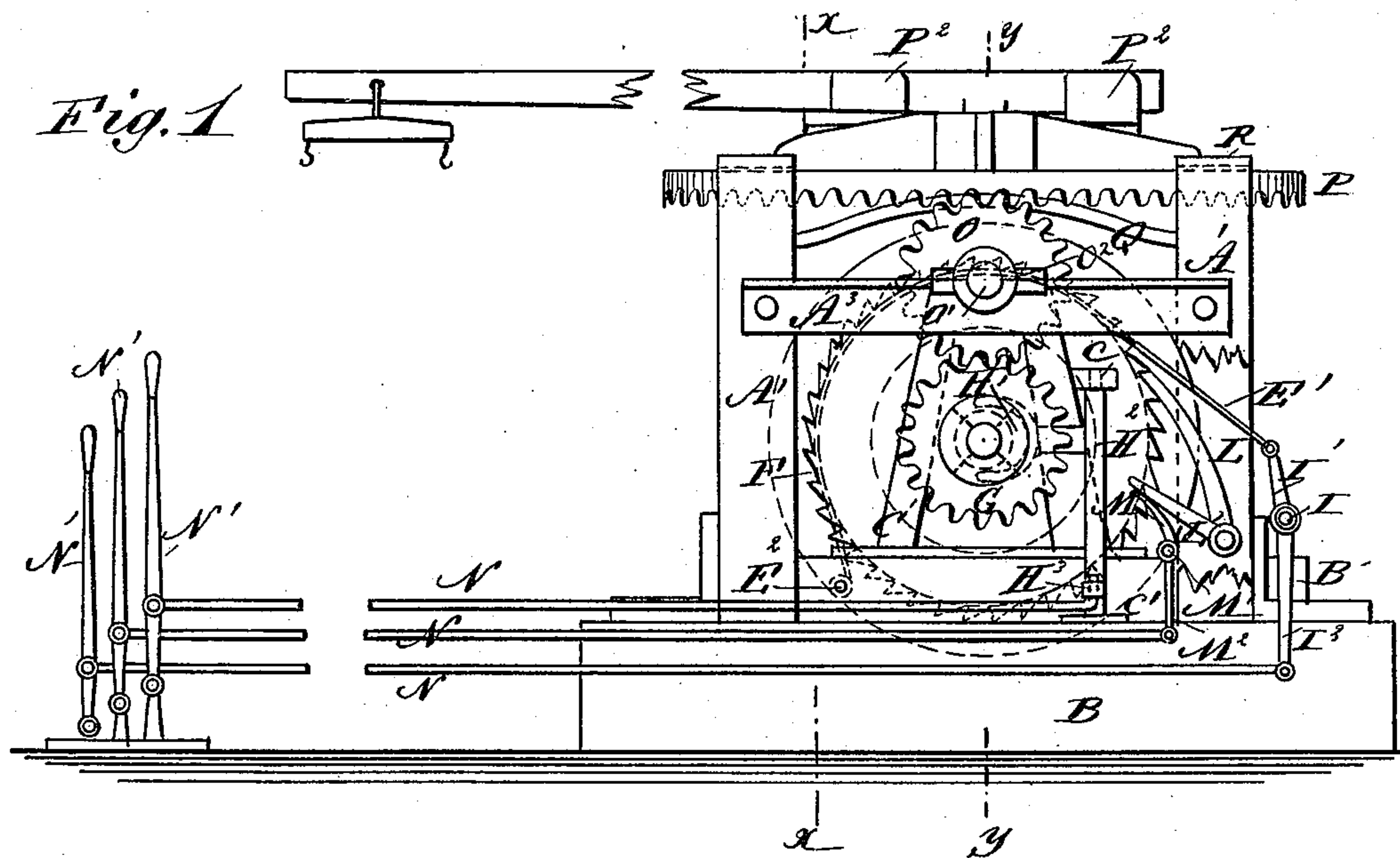
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I. A. JEFFERSON.

HORSE POWER.

No. 355,936.

Patented Jan. 11, 1887.



WITNESSES:

C. Neveu
C. Bedgwick

INVENTOR:

I. A. Jefferson

BY

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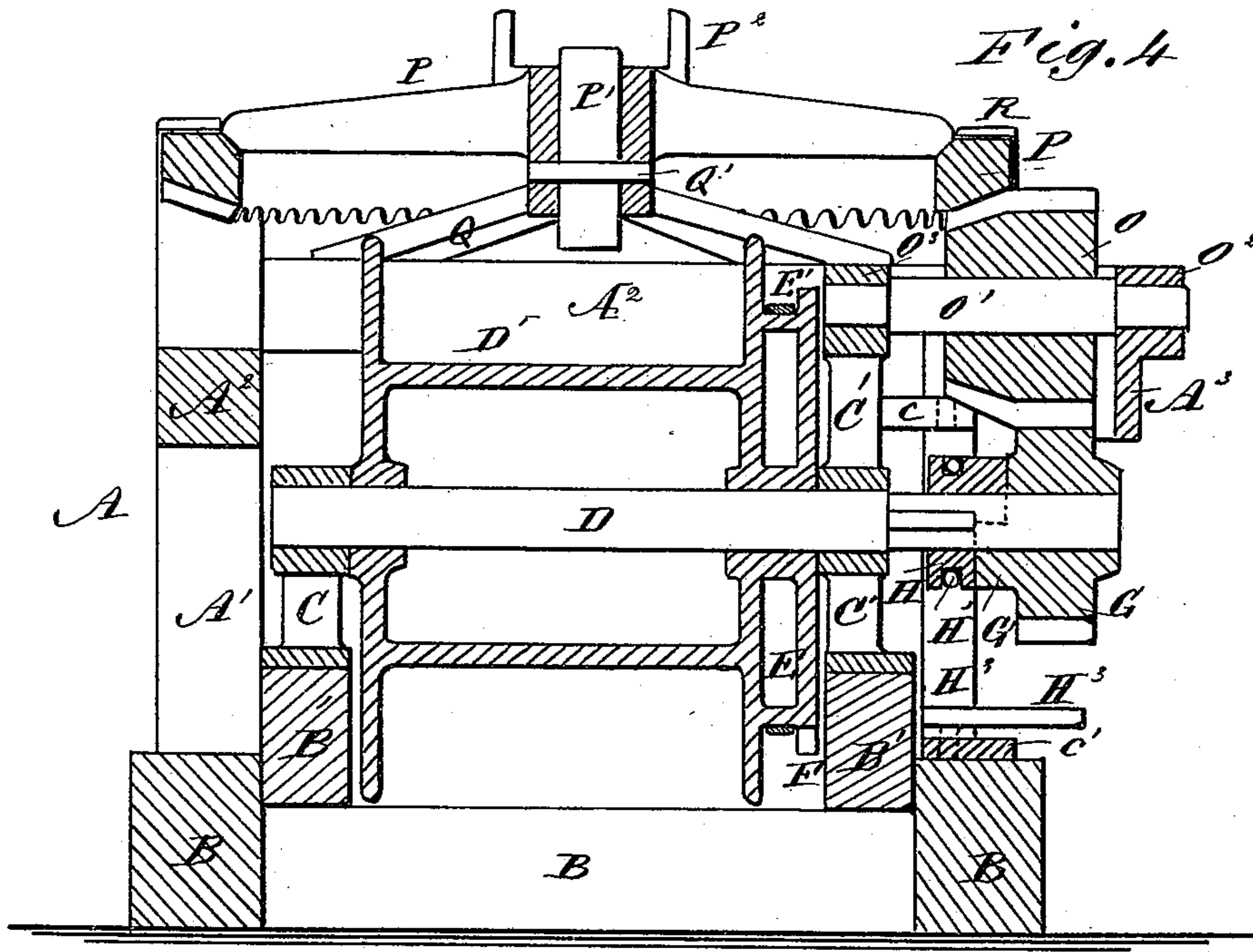
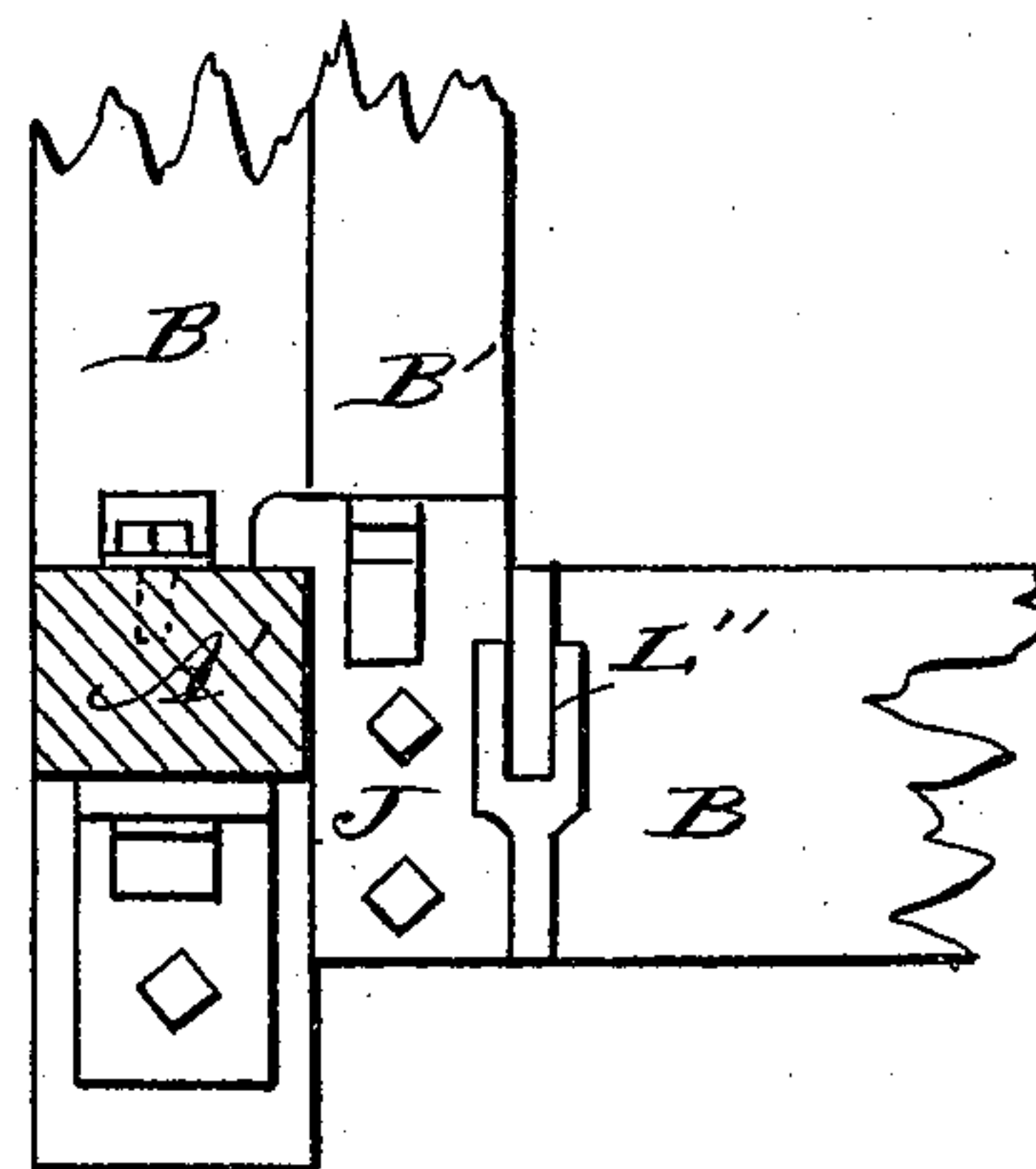
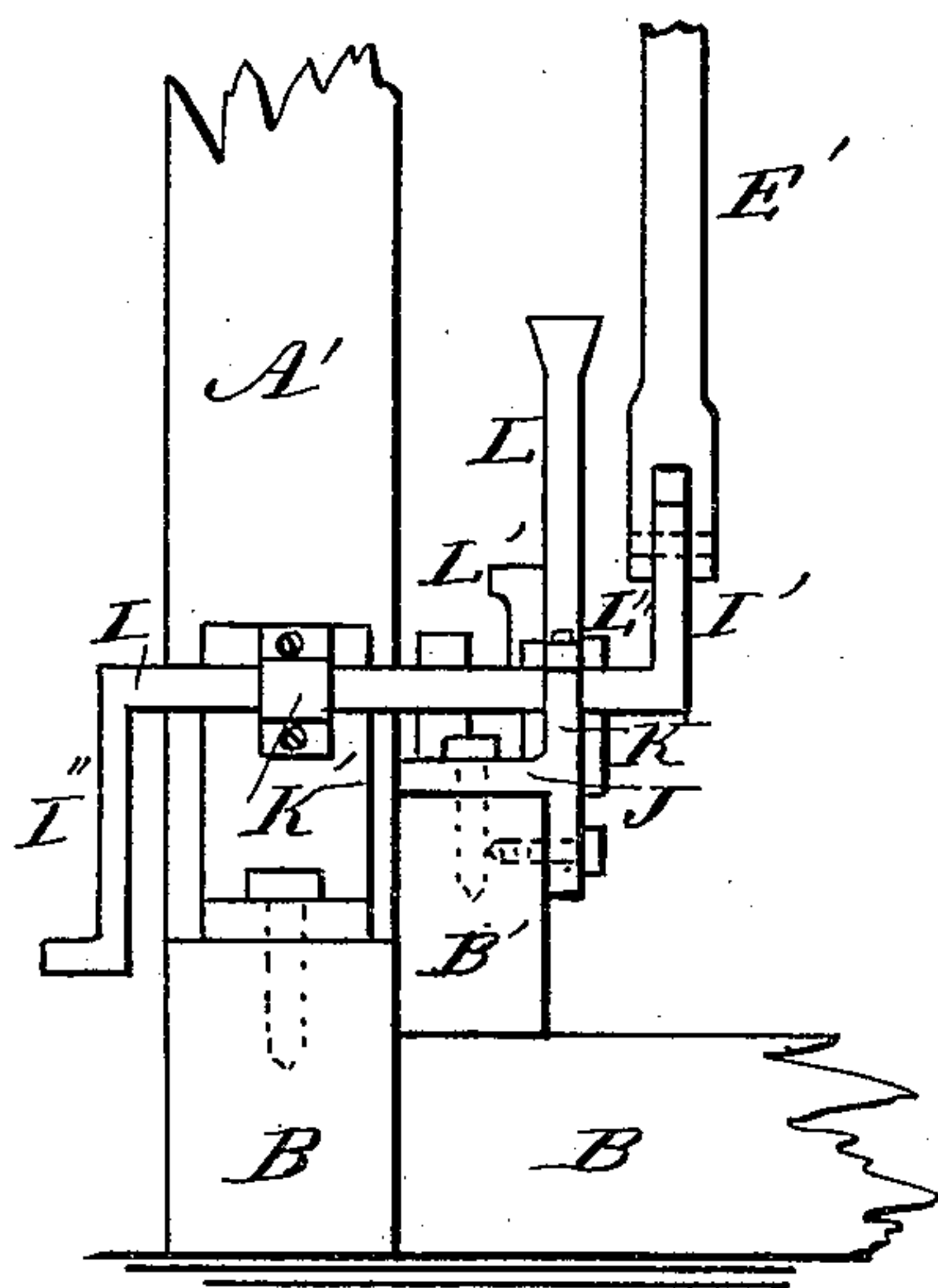


Fig. 5

Fig. 6



WITNESSES:

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UNITED STATES PATENT OFFICE.

IRA A. JEFFERSON, OF SALT LAKE CITY, UTAH TERRITORY.

HORSE-POWER.

SPECIFICATION forming part of Letters Patent No. 355,936, dated January 11, 1887.

Application filed March 11, 1886. Serial No. 194,849. (No model.)

To all whom it may concern:

Be it known that I, IRA A. JEFFERSON, of Salt Lake City, in the county of Salt Lake and Territory of Utah, have invented a new and
5 Improved Horse-Power, of which the following is a full, clear, and exact description.

The object of my invention is to provide an improved horse-power, especially adapted for use at mines, which is compact and portable,
10 and in which the controlling mechanism can be operated from without the path of the sweep.

The invention consists in the construction and combination of the various parts of the
15 horse-power, as will be hereinafter set forth, and specifically pointed out in the claims.

Reference is to be had to the accompanying drawings, forming part of this specification, in which similar letters of reference indicate
20 corresponding parts in all the figures.

Figure 1 is a side elevation of my improved horse-power, part being broken out to disclose the construction of parts. Fig. 2 is a sectional elevation of the same on the line *x x*,
25 Fig. 1. Fig. 3 is a detail view showing the guides for the master-wheel. Fig. 4 is an enlarged sectional elevation on the line *y y*, Fig. 1. Figs. 5 and 6 are detail views showing the arrangement of the controlling mechanism.

30 A represents the frame of the machine, composed of corner-posts *A'* and connecting side beams, *A² A³*, detachably united by mortise or other joints if of wood, or bolted together if of iron.

35 The base B, upon which the frame A is erected, is constructed of four side beams, united at their ends, and the two upper parallel beams, *B'*, bolted or otherwise secured thereon.

40 Upon the beams *B'* are erected the standards *C C'*, of which *C'* is the higher, and in bearings in said standards revolves the drum-shaft D, carrying the drum *D'*, having wide peripheral guide-flanges, so that the rope can be
45 coiled in layers thereon, and hence wound more rapidly as the coils increase.

The construction of the base enables the drum to be placed directly over the mouth of a mining-shaft, as shown in Fig. 2.

50 On the drum-shaft D is mounted the brake-wheel E and ratchet-wheel F, revolving with

the drum *D'*, and formed integrally therewith or attached thereto, and on the projecting end of the shaft D is mounted loosely the gear-wheel G, having the clutch-head *G'*, arranged
55 to be locked on the shaft D by the clutch-collar H, which is mounted to revolve with and move longitudinally on said shaft D by means of an ordinary feather and groove.

The clutch-collar H is peripherally grooved
60 to be engaged by the forked arm *H'* of the vertical clutch-bar *H²*, mounted to turn at its upper end in a bearing, *c*, attached to the standard *C'*, and at its lower end in a bearing-plate, *c'*, on the base-frame B.

65 The vertical clutch-bar *H²* is provided at its lower end with the laterally-projecting arm *H³*, so that by swinging said arm *H³* horizontally the clutch-collar H can be engaged with and disengaged from the clutch-head *G'* of the
70 gear-wheel G, and hence said gear-wheel locked on the drum-shaft or the reverse.

Over the before-mentioned brake-wheel E is passed the brake-band *E'*, one end of which is secured by a staple, *E²*, or other suitable
75 means to the base of the machine, and the other end is connected to the outer end of the arm *I'* of the shaft I, mounted to rock in bearings *K K'*, arranged upon the upper base-beam, *B'*, or a plate, J, bolted thereon and attached
80 to the corner-post *A'*, respectively, as shown in detail in Fig. 5. The rock-shaft I is also provided with the outer and opposite crank-arm, *I''*.

With the ratchet-wheel F on the drum-shaft
85 engages the angle-lever pawl or dog L, pivoted at its angle to and between ears or lugs *L''* on the base-plate J, carrying the brake-shaft, and the lower arm, *L'*, of said angled dog is acted upon by the cam-rod M, formed integrally
90 with or attached to the inner end of the rock-shaft *M'*, mounted to turn in bearings upon the base-plate J and post *A'*. The shaft *M'* is also provided with the outer crank-arm, *M²*, so that by swinging said arm *M²* the lower arm,
95 *L'*, of the angled dog is raised and the pawl L disengaged from the ratchet-wheel F.

The outer end of the arm *H³* of the clutch-bar *H²* and the crank-arms *I'* and *M²* are connected by rods N (shown in Fig. 1) with ma-
100 nipulating-levers *N'*, pivoted to a suitable support outside of the path of the sweep. Thus

by operating the proper lever, N', the brake-band E' can be applied upon its wheel or released therefrom, the ratchet-wheel F disengaged from its pawl, or the gear-wheel G 5 thrown in or out of action with the drum-shaft to stop or start the motion of the drum, as may be desired. The teeth of the loose gear-wheel G continually engage the spur-teeth of the double gear-wheel O, mounted on 10 the shaft O', rotating in bearings O³ O² on the top of the standard C' and in the center of the upper connecting-beam, A³, of the frame A, respectively, said beam or bar A³ being curved or bent outwardly to accommodate the double 15 gear-wheel O, as shown. The bevel-teeth of the double gear-wheel O mesh into the teeth of the bevel master-wheel P, mounted to revolve upon a short vertical shaft, P', received in a central bearing in the cross-frame Q, bolted or 20 otherwise secured on either side to opposite connecting-beams, A², of the frame A. The shaft P' is supported upon the cross-frame Q by the collar Q', which also serves as a bearing for the master-wheel.

25 The master-wheel is provided with ears P², between which the sweep is received, and is held in engagement with the double gear-wheel O by means of guides R, bearing upon the upper flat surface of the master-wheel at its 30 periphery, and having vertical arms or extensions R' bolted to the upper ends of the posts A' at either side of the point of engagement with the gear-wheel O. With this construction when the sweep is carried around and the 35 clutch operated the drum is rapidly revolved, owing to the proportions of the connecting-gearing, and the hoisting speedily accomplished.

40 The drum can be set in motion or instantly checked from without the sweep-circle, the motion can be retarded, or the ratchet-wheel released and the drum allowed to rotate freely in the reverse direction, to permit of unwinding the hoisting-rope for a new load, as de- 45 sired, by the operator.

Owing to the central location of the master-wheel over the drum the machine is rendered extremely compact, and the parts being detachably united the whole can be readily taken 50 apart and packed for transportation.

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

1. In a horse-power, the combination, with

the frame of the machine constructed detach- 55 ably, substantially as shown and described, of the drum D', mounted to revolve centrally therein, the loose gear-wheel G, adapted to be locked on the drum-shaft, the double gear- 60 wheel O, engaging with said gear-wheel G, and the master gear-wheel P, mounted to revolve on the frame Q above the drum and engaging with the double gear-wheel O, sub- 65 stantially as specified, whereby compactness and portability are obtained, as set forth.

2. In a horse-power, the combination, with the drum-shaft D and the loose gear-wheel G thereon, driven by gearing from the master- 70 wheel, of the clutch-collar H on the drum-shaft, arranged to engage said gear-wheel G, the vertically-mounted clutch-bar H², having arm H³, the connecting-rod N, and the oper- 75 ating-lever N', pivoted outside of the path of the sweep, substantially as and for the purpose set forth.

3. In a horse-power, the combination, with the brake-wheel E on the drum-shaft, of the brake-band E', having one end attached to a 80 fixed support, the rock-shaft I, having the arm I' connected with the free end of said brake-band and provided with the crank-arm I², the operating-lever N', and the rod N, con- 85 necting said lever with the crank-arm I², substantially as shown and described.

4. In a horse-power, the combination, with 85 the ratchet-wheel F on the drum-shaft, of the angle-lever pawl L, the rock-shaft M', having cam-arm M acting on the arm L' of the angle- 90 pawl, and the operating-lever N', connected by a rod, N, with the arm M² of the shaft M, substantially as and for the purpose set forth.

5. The combination, with the frame A of the horse-power, mounted upon the base B B', and the standards C C', erected upon the base, 95 of the drum-shaft D, revolving in bearings on said standards, the flanged drum D', provided with brake-wheel E and safety ratchet-wheel F, the loose gear-wheel G on the drum-shaft, the double gear-wheel O, the beveled master- 100 wheel P, held in engagement with the same by guides R, and means for operating the clutch-brake band and safety-pawl from without the path of the sweep, substantially as herein shown and described.

IRA A. JEFFERSON.

Witnesses:

CHARLES AUER,
E. J. SWANEE.