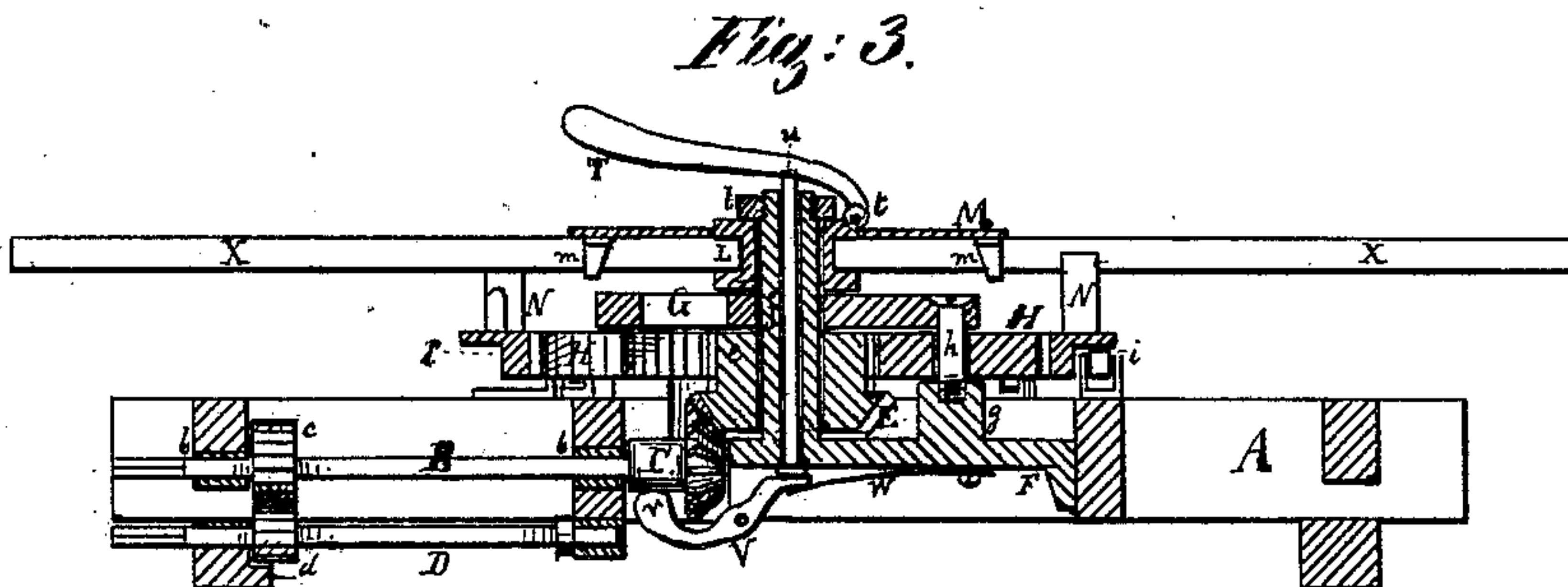
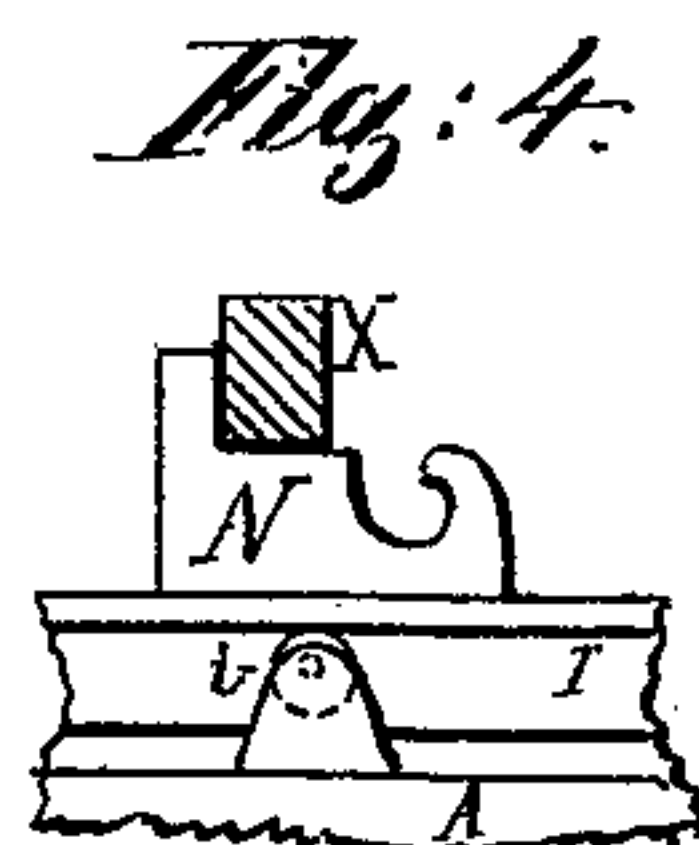
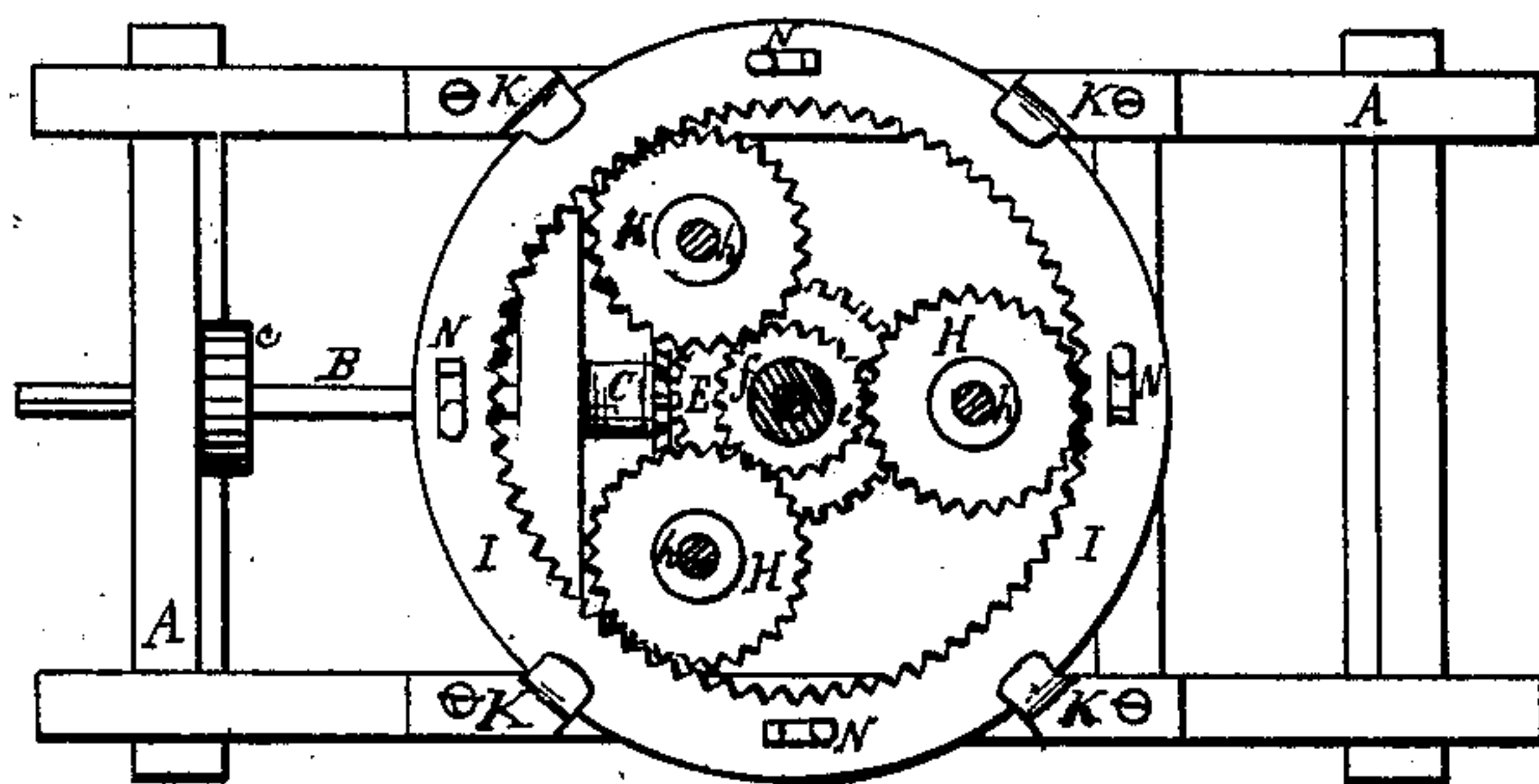
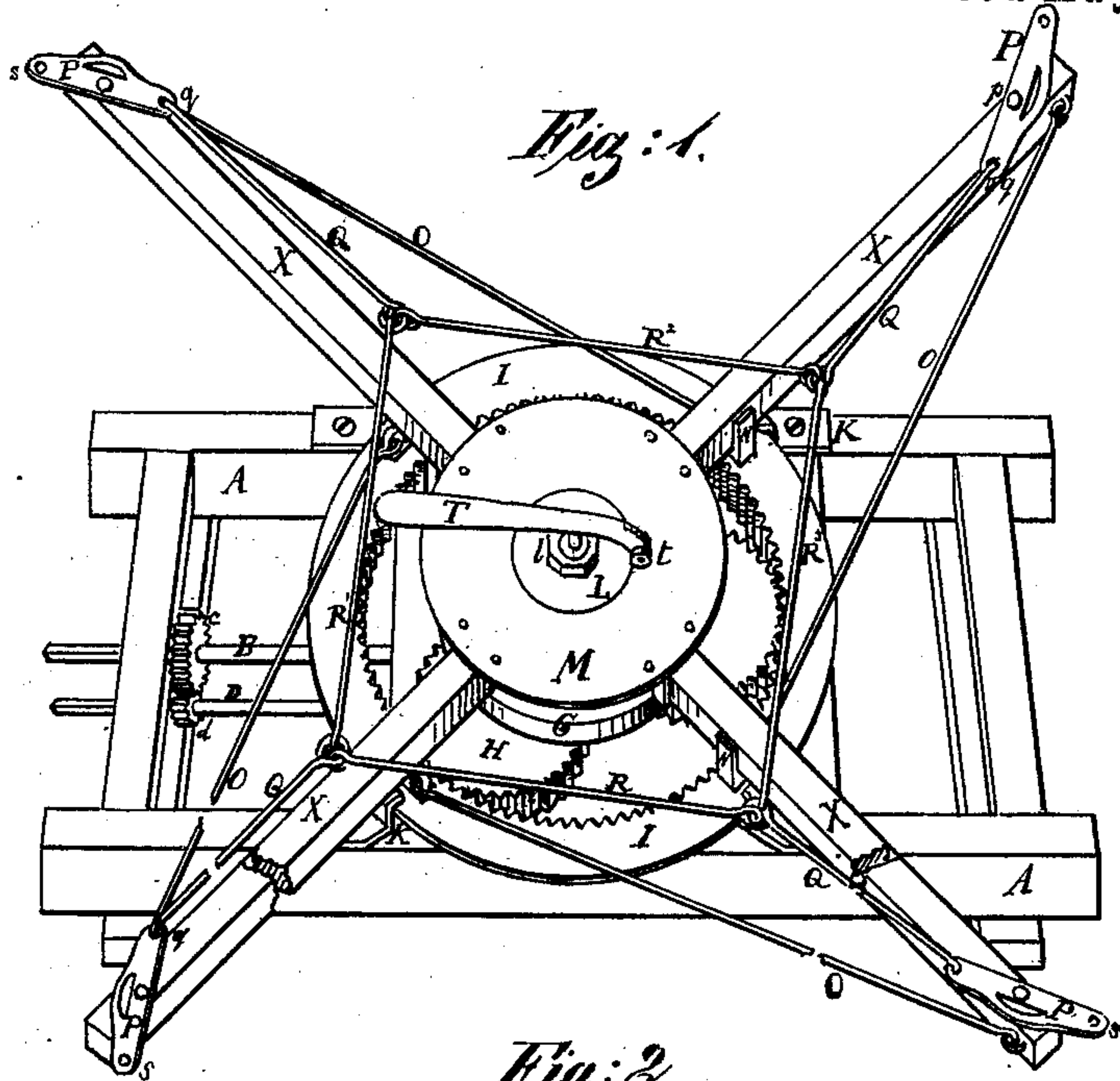


J. & H. KOLLING.  
HORSE-POWER.

No. 191,442.

Patented May 29, 1877.



Witnesses  
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# UNITED STATES PATENT OFFICE.

JOHN KOLLING AND HENRY KOLLING, OF ARLINGTON HEIGHTS, ILL.

## IMPROVEMENT IN HORSE-POWERS.

Specification forming part of Letters Patent No. **191,442**, dated May 29, 1877; application filed April 20, 1877.

*To all whom it may concern:*

Be it known that we, JOHN KOLLING and HENRY KOLLING, of Arlington Heights, in the county of Cook and State of Illinois, have made new and useful Improvements in Horse-Powers, of which the following is a true and accurate description, reference being had to the accompanying drawing, in which—

Figure 1 is a perspective view of the machine. Fig. 2 is a sectional plan of the same, showing the arrangement of the gearing. Fig. 3 is a longitudinal vertical section through the center; and Fig. 4 is a detached end view of one of the shoulder-brackets N.

A is a rectangular wooden frame, composed of two longitudinal beams, and a series of cross-beams. B is the main tumbler-coupling shaft, journaled in two bearings, *b b*, which are bolted to the cross-beams in the frame, and C is the bevel-pinion, secured upon one end of the shaft, while its opposite projecting end is squared for the tumbler-shaft coupling. D is another shaft, placed below and parallel with the shaft B, also having a projecting squared end, and receiving its motion from a spur-wheel, *e*, secured to shaft B, and meshing with the pinion *d*, secured upon shaft D, so that one shaft turns faster than the other, the object of which is, that as more or less speed is required for the machine to be driven, the tumbler-shaft may be coupled to either shaft B or D.

The bevel-wheel E, which meshes with pinion C, is cast in one piece with pinion *e*. This rotates upon a hollow central pin, *f*, being part of the spider-frame F, which latter has three radial arms with flanged ends, firmly secured to the beams in frame A, and each arm provided with a hub, *g*, on its top face, having a screw-threaded hole in its center. An auxiliary frame, G, the central bore of which passes over the pin *f*, is secured to the spider-frame F by three pins, *h*, the bottom ends of which are screwed into the hubs *g*. These pins *h* form the fulcrums for the three intermediate gear-wheels H, which are placed around the pinion *e* at equal distances apart, and which transmit the motion from the internally-gearled master-wheel I, surrounding and matching with these intermediate wheels. Said master-wheel I has an external flange

riding upon a series of carrier-wheels, *i*, which are pivoted in suitable boxes upon the top of the frame A. The iron brackets K are also secured upon the top of the frame A, the upper edges of which overlap the flange of the master-wheel, and act as guards to prevent lifting the same out of its position. The hub L is bored to fit upon the upper end of pin *f*, where it is secured by a nut, *l*. It has four sockets cored into its exterior face to receive and hold the ends of the sweeps X, and carries a disk, M, having stirrups *m* near its periphery for securing it to the sweeps. Four angular brackets, N, are secured upon the master-wheel rim at equal distance apart, as shoulders or yokes for the sweeps X. Each of these brackets N has a hook to the end of its foot-plate for coupling one end of the brace-rod O, the opposite end of which is secured to the end of the sweep next preceding. The tug-beams P are pivoted at *p* upon the ends of the sweeps. Their ends *q*, by means of the rod Q, are connected to the corners of a yielding frame-work composed of four rods, R, R<sup>1</sup>, R<sup>2</sup>, and R<sup>3</sup>, linked together at their ends, while to the ends S of the tug-beams the horses are to be hitched.

By this arrangement the draft-power of the horses on the several sweeps is equalized, since the strongest horse will draw its tug-beam out of the radial line, thereby shortening the purchase-leverage.

T is a hand-lever, hinged at *t* upon the hub L. This lever, in forcing it downward, impinges upon the end of a pin, *u*, passed through the hole in center-pin *f*, and rests upon one end of the lever V, which, on its center, is pivoted to the bottom of the spider-frame F, while to its opposite end, *v*, is shaped a brake-shoe, to apply friction upon the hub of bevel-pinion C. The lever V is counterpoised by a leaf-spring, W, also secured to the bottom of spider-frame F.

What we claim as our invention, and desire to secure by Letters Patent, is—

1. In a horse-power, the arrangement of two shafts, B and D, of different velocities, either one to couple with the tumbling-shaft, substantially as shown, and for the purpose specified.

2. The combination of shaft B, having pin

ion C, and spur-wheel *c*, with shaft D, having pinion *d*, both journaled within the frame A, and provided with projecting squared ends for attaching the tumbling-shaft coupling, substantially as described and shown.

3. In combination with the spider-frame F, brake-lever V pivoted thereto, and the bevel-pinion C, the hub L, hand-lever T, and pin *u*, all arranged as described and shown, and to operate as specified.

4. In a horse-power, the master-wheel I, in-

termediate wheels H, pinion *e*, shaft B, and bevel-wheels O and *c*, and shaft D, having pinion *d*, all constructed and arranged within a frame, A, in the manner described and shown.

JOHN KOLLING.  
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