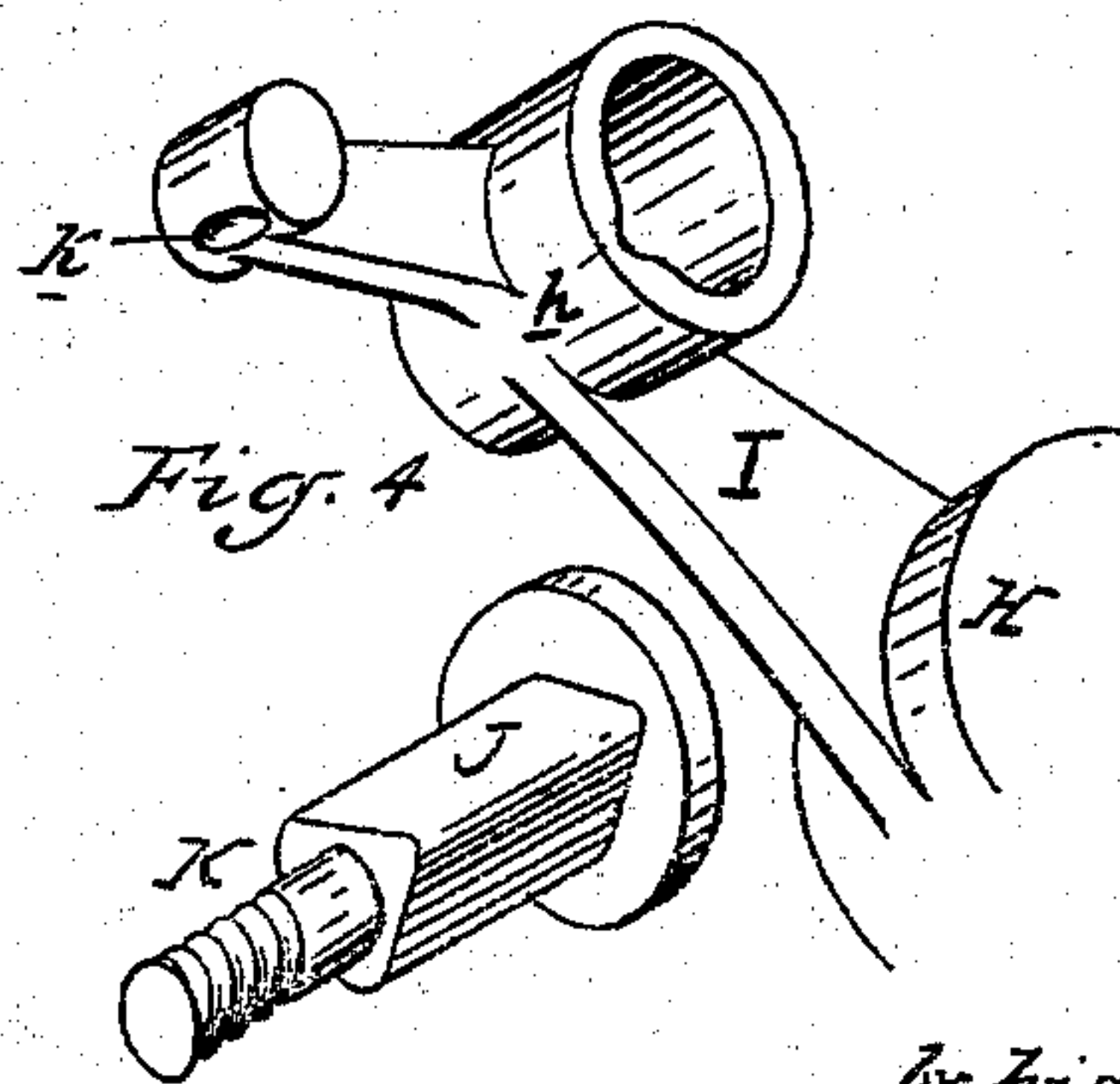
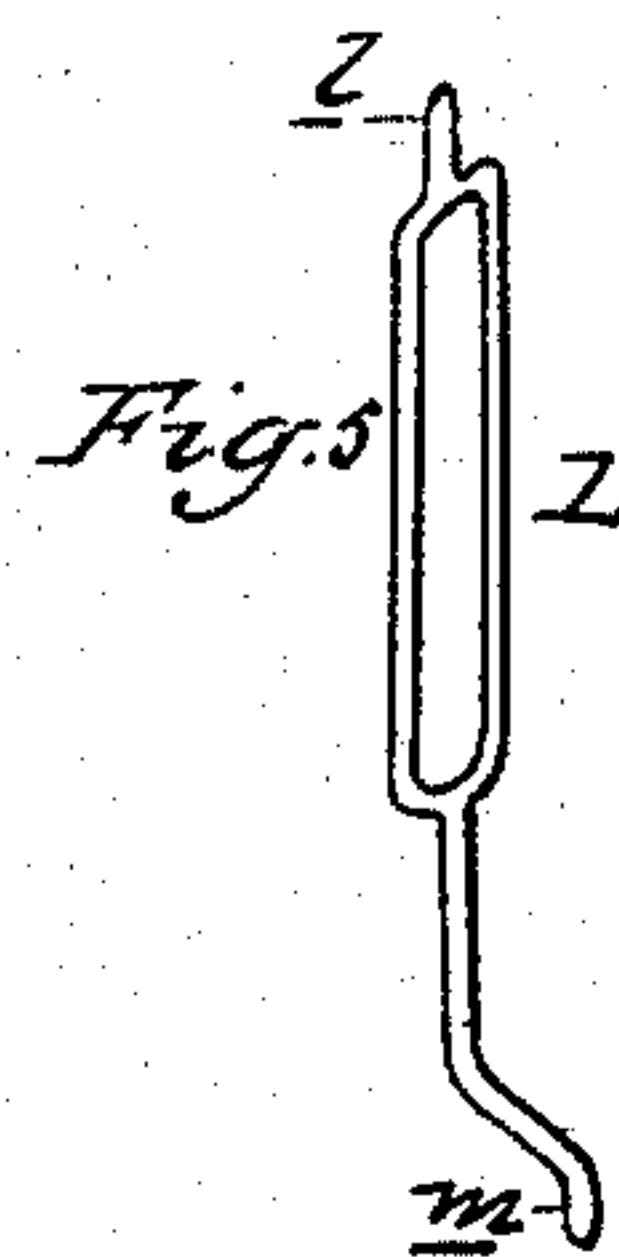
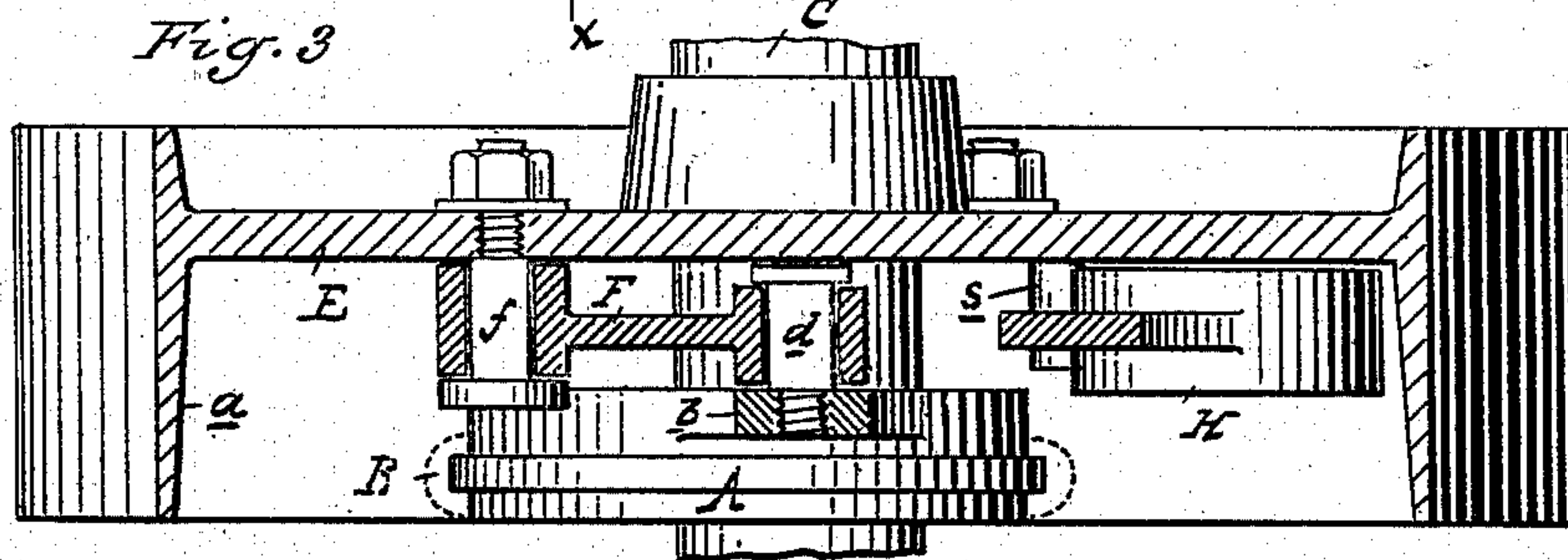
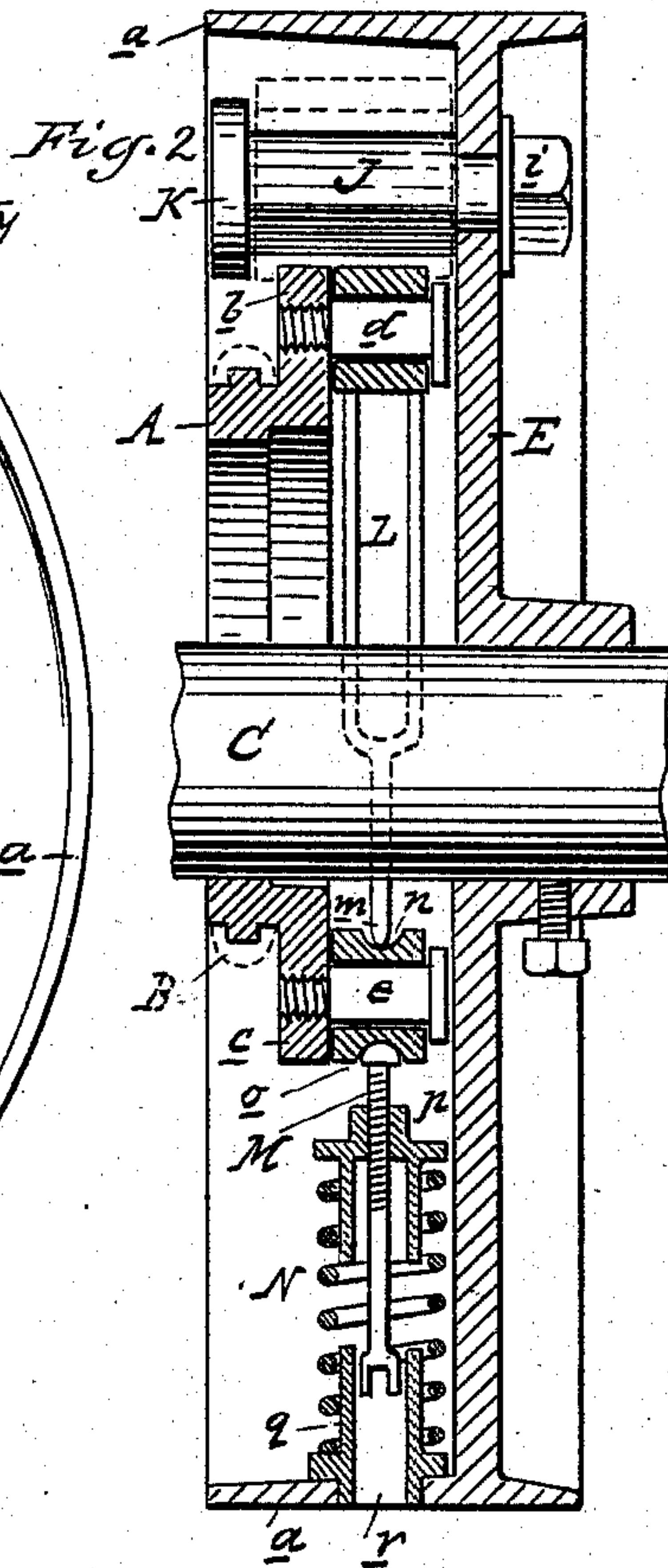
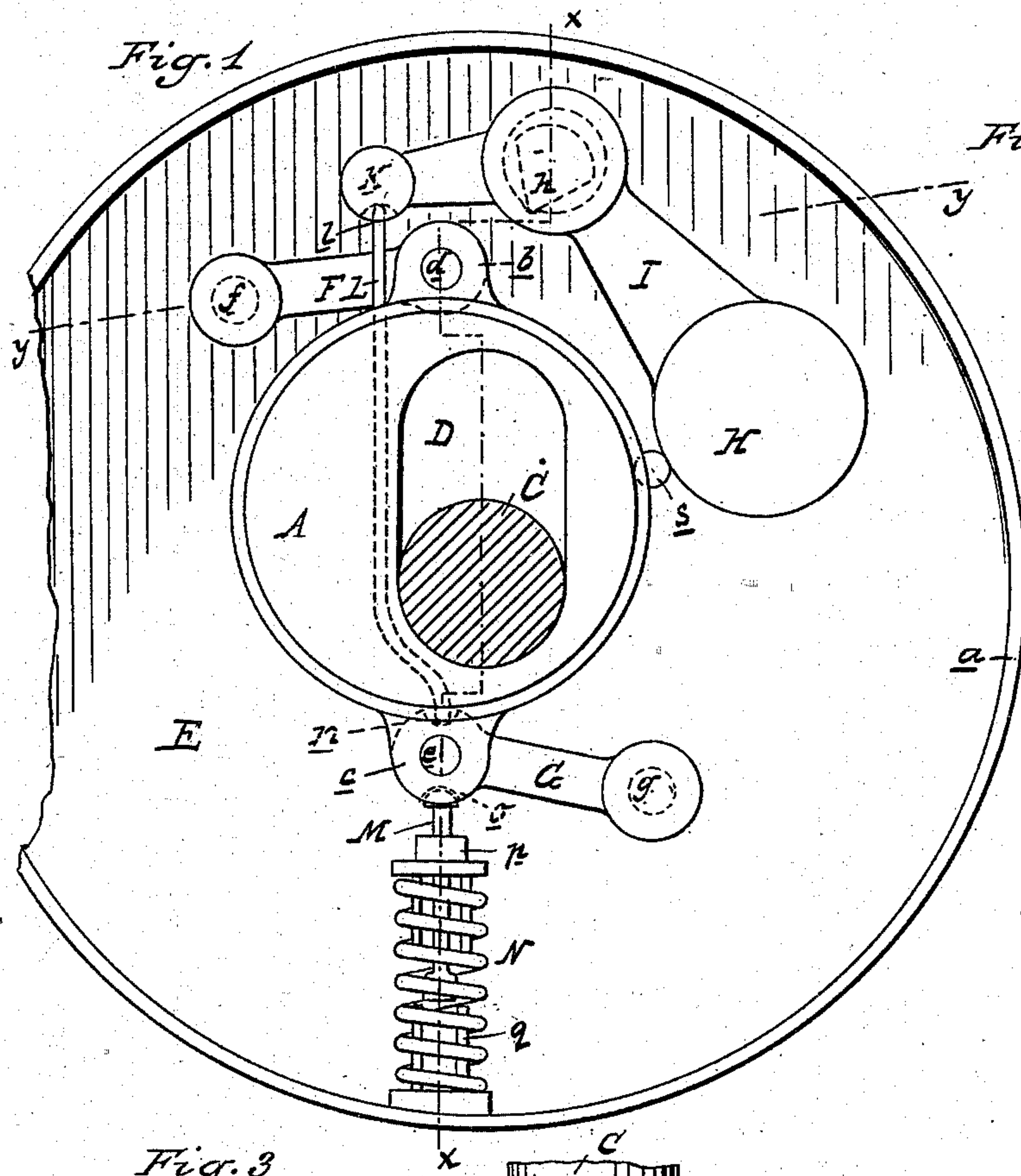


(No Model.)

S. E. JARVIS.
ENGINE VALVE GOVERNOR.

No. 273,999.

Patented Mar. 13, 1883.



Attest:
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UNITED STATES PATENT OFFICE.

SAMUEL E. JARVIS, OF LANSING, MICHIGAN.

ENGINE-VALVE GOVERNOR.

SPECIFICATION forming part of Letters Patent No. 273,999, dated March 13, 1883.

Application filed November 8, 1882. (No model.)

To all whom it may concern:

Be it known that I, SAMUEL E. JARVIS, of Lansing, in the county of Ingham and State of Michigan, have invented new and useful
5 Improvements in Engine-Valve Governors; and I hereby declare that the following is a full, clear, and exact description thereof, reference being had to the accompanying drawings, which form a part of this specification.

10 The nature of this invention relates to certain new and useful improvements in the construction of engine-valve governors.

The object of my invention is, first, to shift the valve-eccentric in its plane upon the shaft
15 in a straight line across its face; second, to reduce the friction of the parts of the governor to its minimum, so as to make the governor very sensitive; third, to provide easy means of adjustment.

20 The invention consists in the peculiar construction, arrangement, and various combinations of the parts to effect the desired result, all as more fully hereinafter described.

Figure 1 is a rear elevation of my improved
25 governor. Fig. 2 is a vertical central section on line X X. Fig. 3 is a cross-section on line Y Y. Fig. 4 is a detached perspective of the flying weight and its pivot. Fig. 5 is a detached perspective of the anti-friction connect-
30 ing-rod.

In the accompanying drawings, A represents the valve-eccentric, B the eccentric-strap, and C the revolving shaft of the engine.

35 D is a straight slot in the body of the eccentric, through which the shaft passes, and by means of which the eccentric is made shiftable, so as to vary its throw by the means and in the manner hereinafter described.

40 E is a disk keyed or otherwise secured upon the shaft.

a is the rim of the disk, which is made of proper size to inclose and protect the parts of the governor, as usual.

45 Cast or otherwise secured upon the eccentric are the two lugs b c, diametrically opposite each other. Pivotally secured to these lugs by bolts d e are the two links F and G, whose opposite ends are also pivotally secured by means of other bolts, f g, to the disk E, the two
50 bolts f g forming, through the medium of the link F G and bolts d e, the means of holding

the eccentric in a shiftable position in relation to the disk and shaft.

H is a flying weight attached to one end of the bell-crank lever I, whose pivotal point is
55 at h.

J is a knife-edge support, of hardened steel, formed on the bolt K, which latter is securely attached by a nut, i, to the disk E. The free end of the bell-crank lever I is provided upon
60 its inner end with a concave bearing, k, of proper size to admit the rounding end l of the yoke-rod L. The opposite end, m, of this yoked rod is stepped in a concave bearing, n, on the link G, so as to bring the pressure
65 of that rod directly upon the pivotal bolt e of said link. Opposite the concave bearing n upon the link G is another concave bearing, o, in which the rounding end of the set-screw M rests. This set-screw passes through a nut, p, which is attached to the end of the coil-spring N, the opposite end of which is secured
70 to the rim of the disk E, a hollow stud, q, projecting far enough up into the coil-spring to prevent its buckling. r is a small hole in the rim, to give access to the set-screw M for purposes of adjustment. 75

In practice, with the engine at work an increase in speed will throw the weight H away from the center of motion and turn the bell-
80 crank I upon the knife-edge pivot J and communicate its motion through the medium of the yoke-rod L to the link G, by which motion the eccentric is shifted upon the shaft, causing also a compression of the spring N, which
85 compression will in turn effect a shifting of the eccentric in a reverse manner as soon as the speed of the engine decreases.

By altering the compression of the spring N by means of the set-screw M any desired
90 adjustment as to the amount of the throw of the eccentric can be obtained without altering the position or amount of the weight H within a certain limit.

It will be seen that the yoked rod L cannot
5 leave its concave bearings, owing to the action of the spring N, which keeps the parts in engagement, the weight being prevented in its fall by a proper stop, s. The action of the spring N will likewise make the knife-edge
100 bearing J act as a pivotal support for the bell-crank lever I.

What I claim as my invention is—

1. In combination with the disk E, having perforated rim *a*, the eccentric A, having slot D, the weighted lever I, and the spring N, 5 combined with the sleeve *q*, having its bearing on the inner surface of the rim *a*, the screw M, nut *p*, and connecting devices, as set forth.

2. The lever G, pivoted to the disk E, and having recessed bearings *n* and *o*, combined 10 with the bar L, screw M, spring N, slotted eccentric A, weight-lever I, and connections, as set forth.

3. The eccentric A, having slot D, the arms F and G, pivoted above and below to disk E 15 and said eccentric, combined with the shaft C, weight-lever I, spring N, and connections, as set forth.

4. The bar L, having a recess in which the

lever F freely operates, and extremities *l* and *m*, combined with the levers F and G, having 20 recessed bearings, as shown, the spring N, lever I, disk E, and said eccentric, as set forth.

5. In a valve-gear having a shifting eccentric, the combination of the disk E, having perforated rim *a*, the spring N, bearing at one 25 end on the sleeve *q* and at the other end upon the nut *p*, the screw M, levers G and F, as shown, bar L, lever I, weight H, and slotted eccentric A, whereby the spring bears against the inner surface of the rim *a*, and the throw 30 of the valve-rod adjusted through said rim *a* and spring N, as set forth.

SAMUEL E. JARVIS.

Witnesses:

H. S. SPRAGUE,
A. BARTHEL.