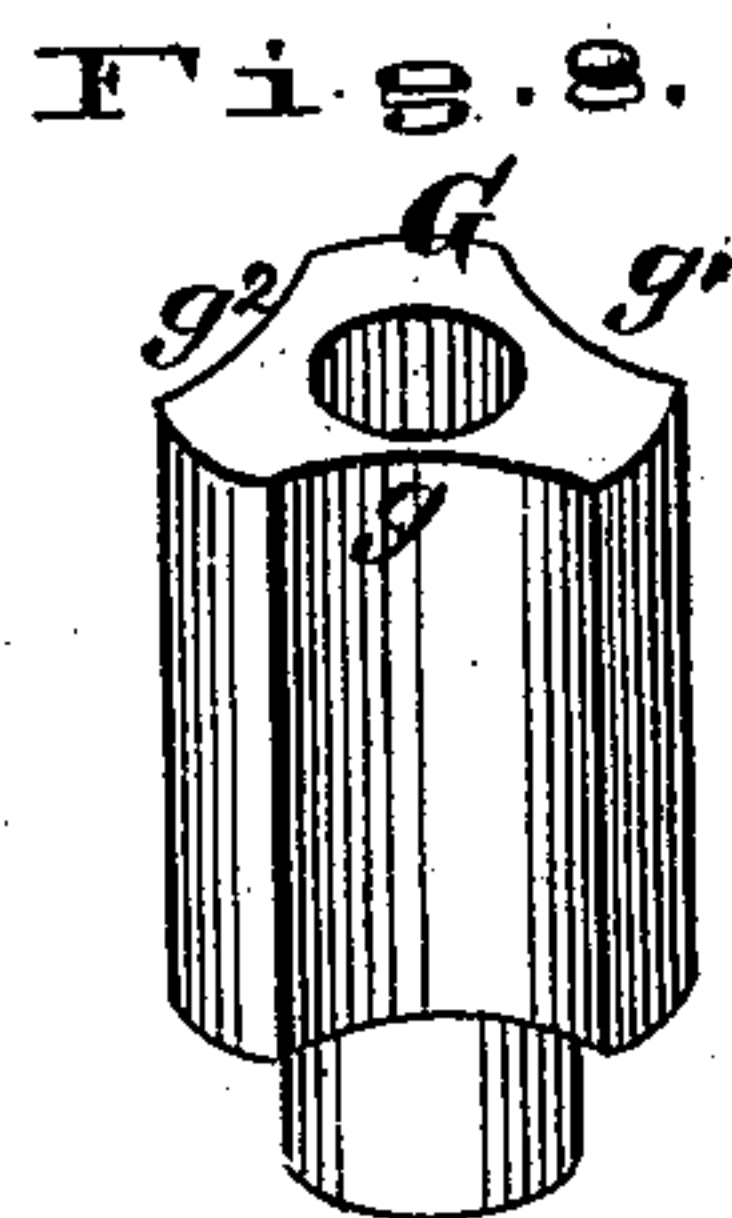
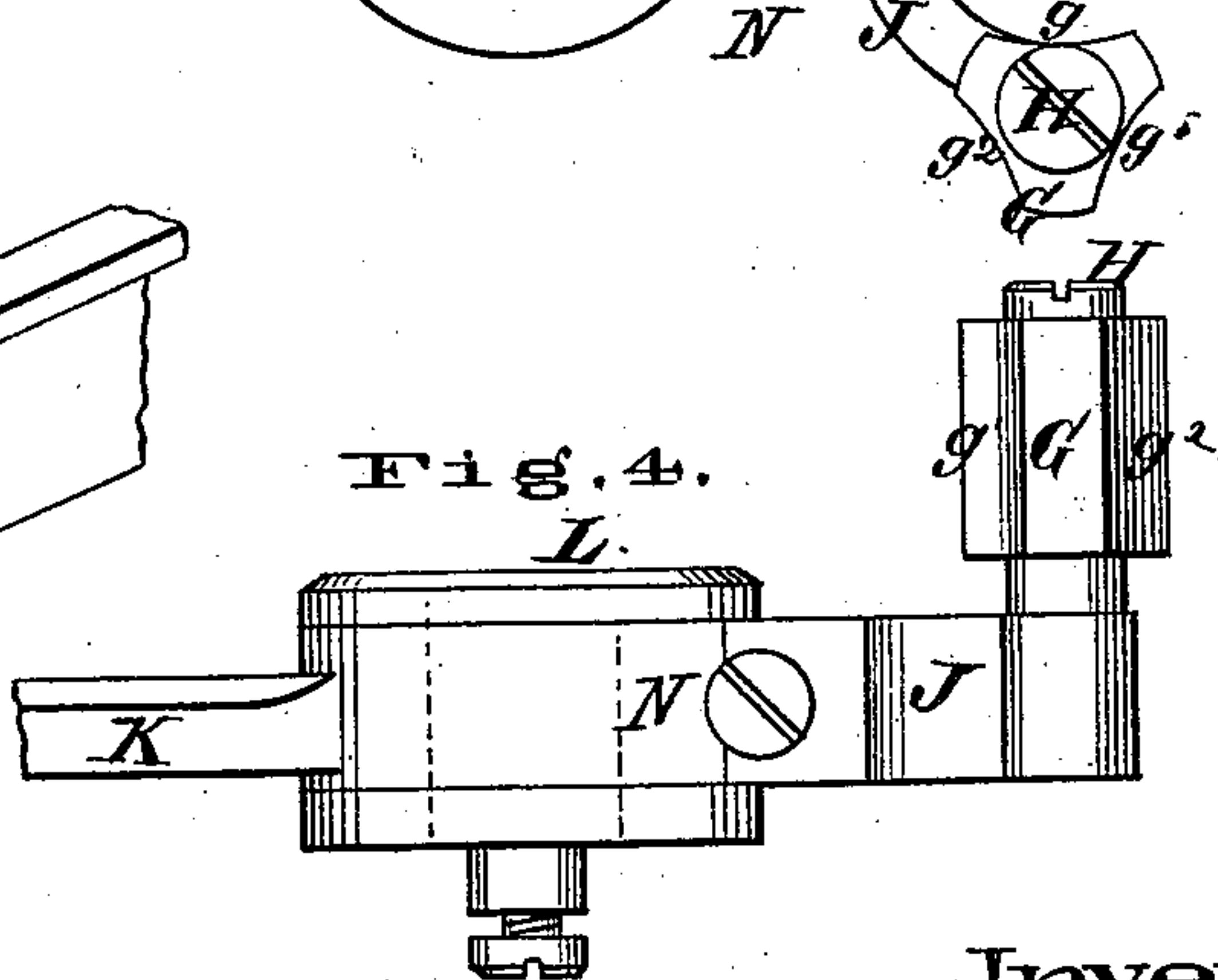
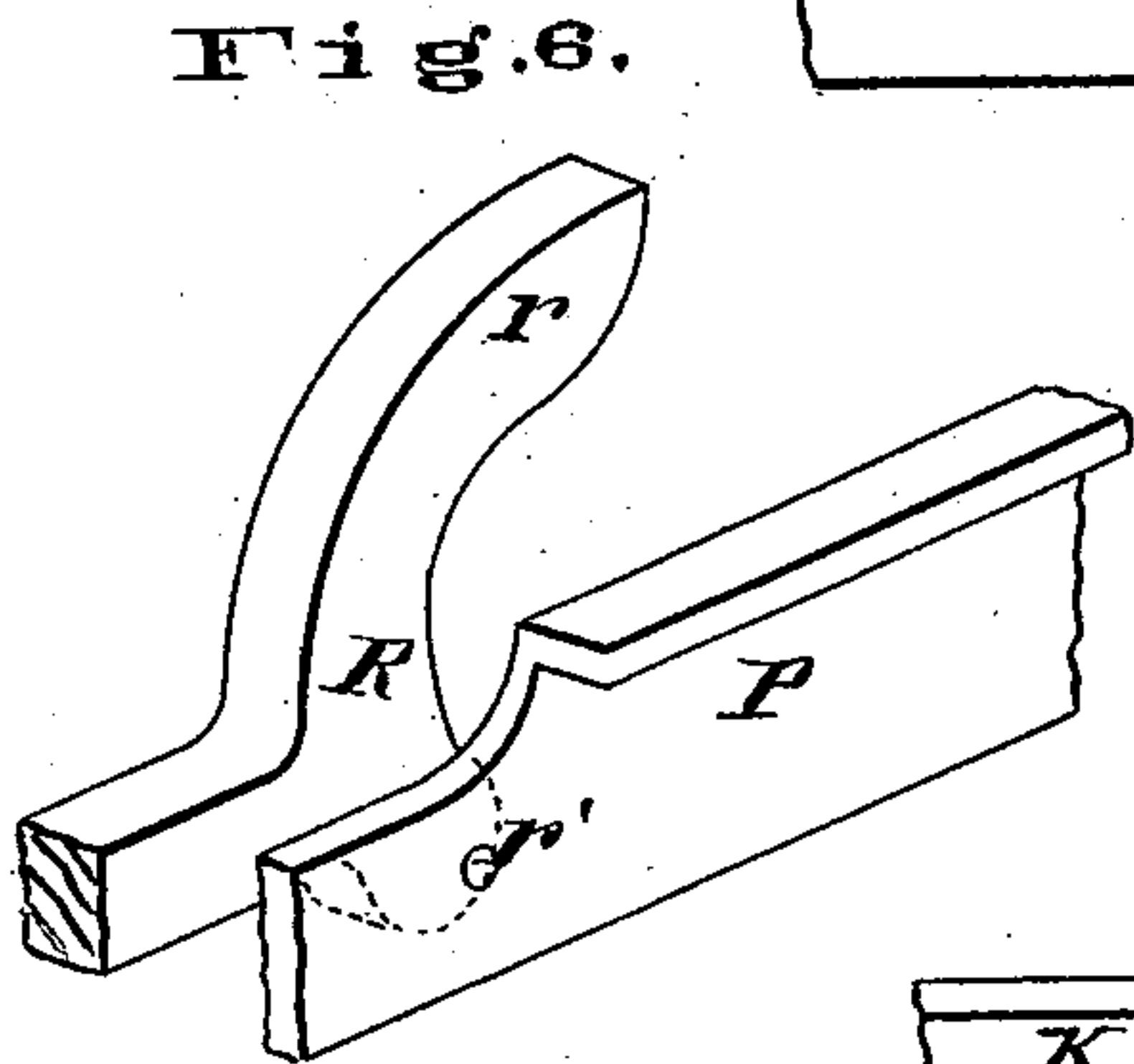
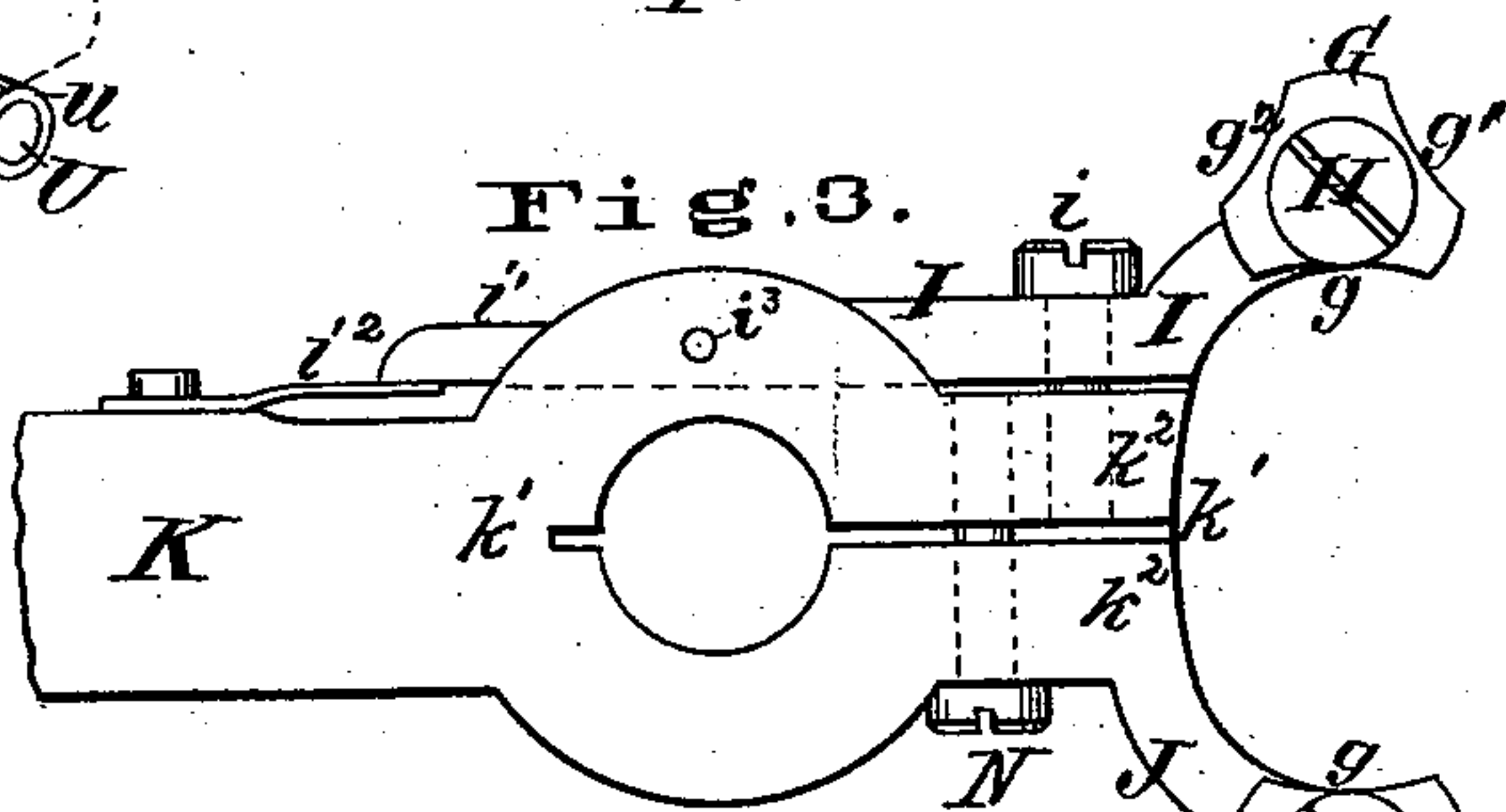
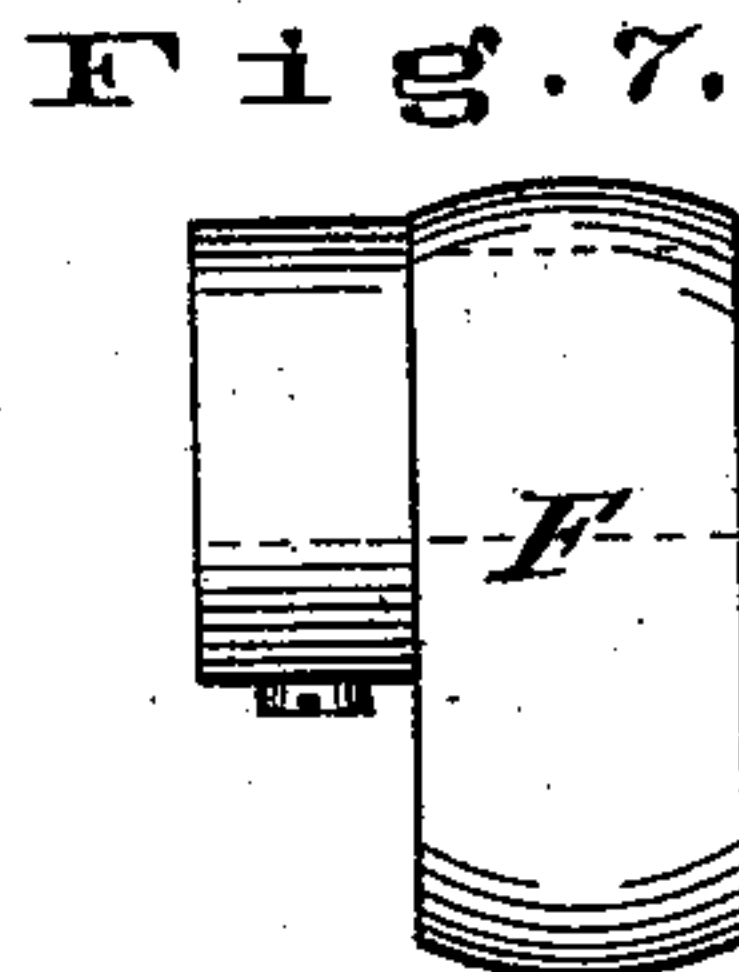
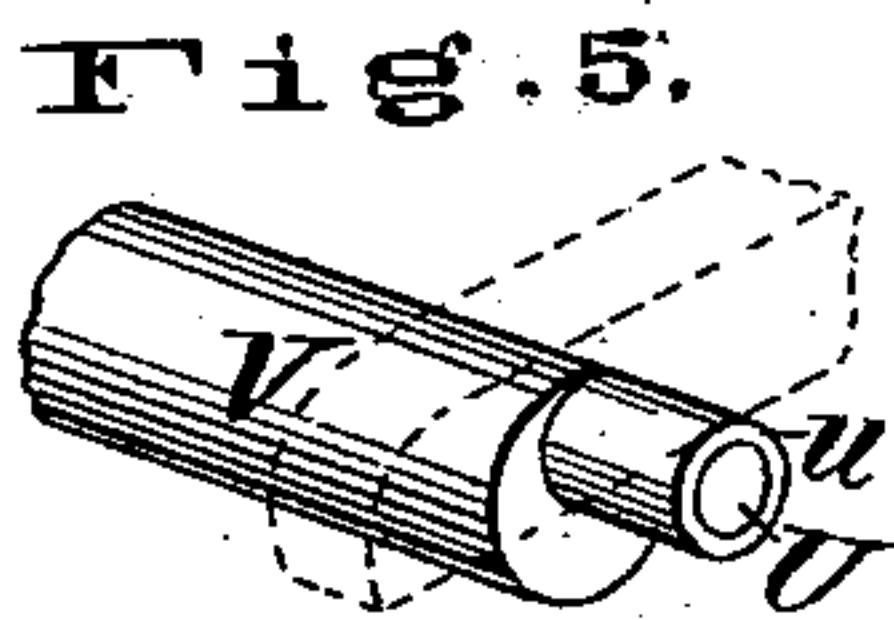
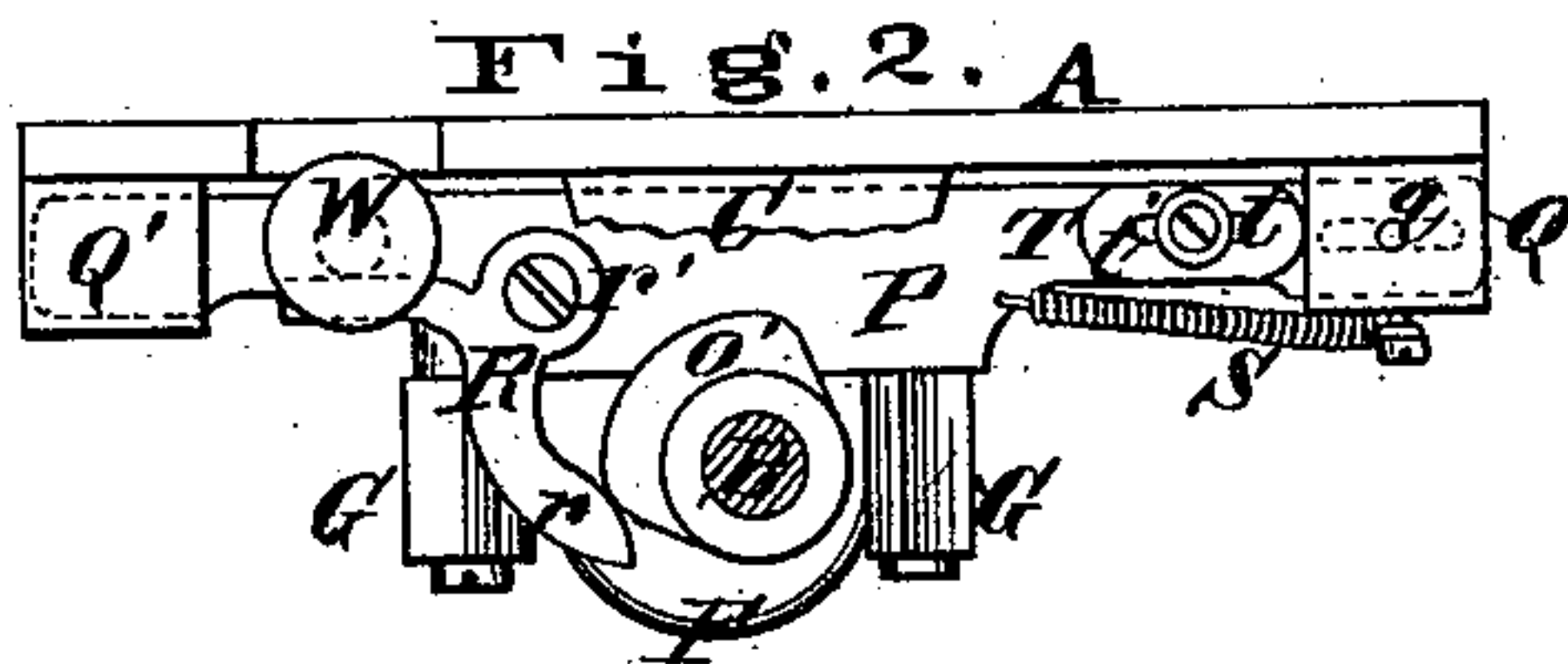
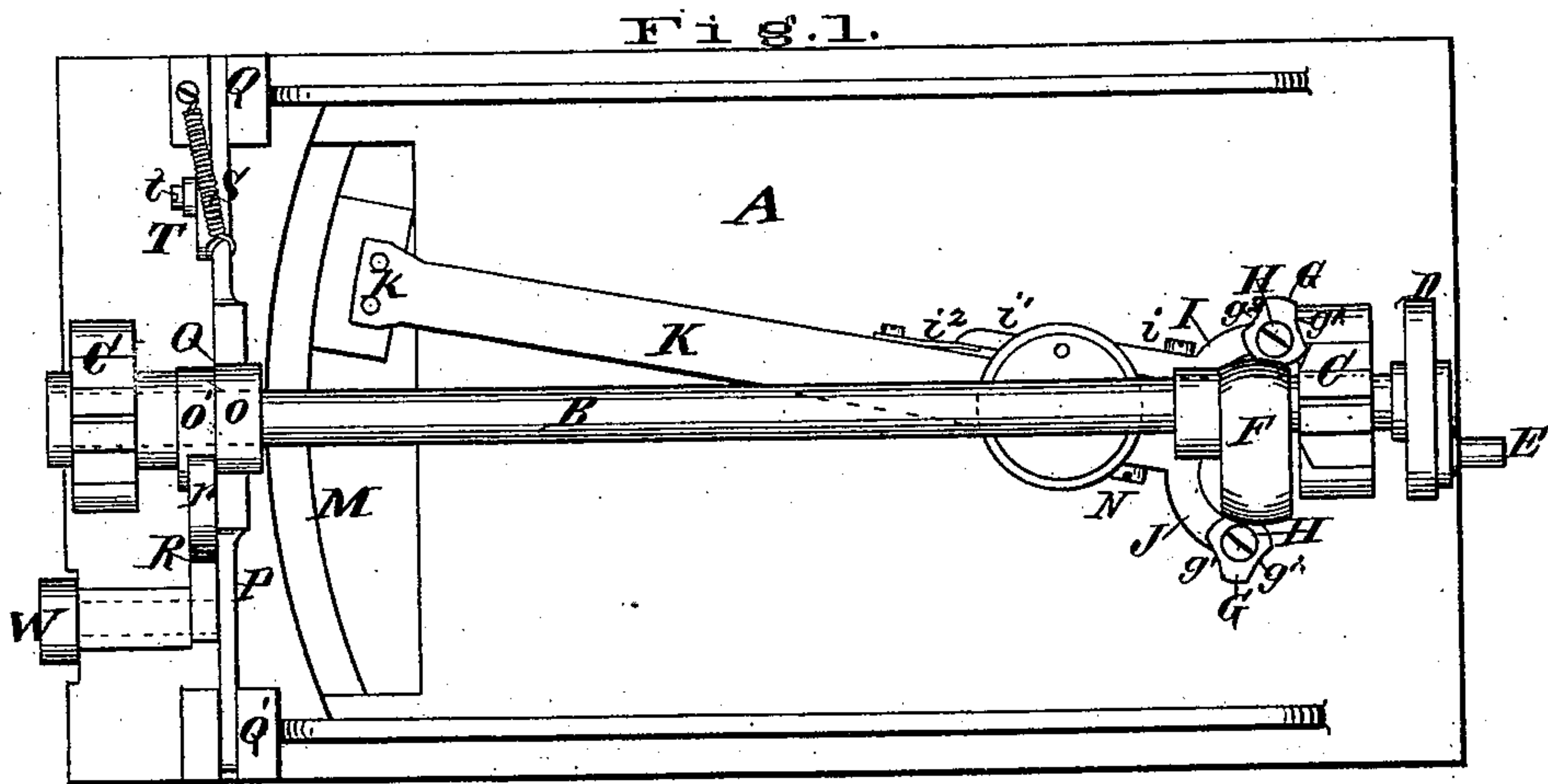


W. J. STEWART.
Sewing-Machine.

No. 227,187.

Patented May 4, 1880.



Attest.

Walter Allen
Geo. P. Smallwood Jr.

Inventor.

William J. Stewart.
By *Knight Bros*
attys

UNITED STATES PATENT OFFICE.

WILLIAM J. STEWART, OF ST. LOUIS, MISSOURI.

SEWING-MACHINE.

SPECIFICATION forming part of Letters Patent No. 227,187, dated May 4, 1880.

Application filed June 30, 1879.

To all whom it may concern:

Be it known that I, WILLIAM J. STEWART, of the city of St. Louis, in the State of Missouri, have invented a certain new and useful Improvement in Sewing-Machines, of which the following is a full, clear, and exact description, reference being had to the accompanying drawings, forming part of this specification.

This improvement relates to the shuttle and feed driving devices and to the feed device; and it consists in the peculiar arrangement and combination of a convex-faced eccentric, shuttle-driving lever, yoke, and friction-blocks having bearing-recesses to fit the periphery of the eccentric, and in the construction and arrangement of devices for actuating the various parts, as will be hereinafter fully described.

In the drawings, Figure 1 is a bottom view of a machine embodying my improvements. Fig. 2 is an end view, showing the feed-bar in side view and its driving-shaft in section. Fig. 3 is an enlarged bottom view of the rear end of the shuttle-driving lever. Fig. 4 is a side view of part shown in Fig. 3. Fig. 5 is a detail under-perspective view, showing the eccentric-pin for adjustment of the stitch, the end of the lever bearing upon the eccentric being shown in dotted lines. Fig. 6 is a detail under-perspective view, showing part of the lever by which the feed-bar has its forward movement. Fig. 7 is an enlarged view of the eccentric. Fig. 8 is an enlarged perspective view of one of the friction-blocks against which the eccentric bears.

A is the bed-plate. B is the cam-shaft, turning in bearings C extending from the under side of the bed-plate. The cam-shaft may be rotated by any suitable means. I have shown a crank-disk, D, with a wrist-pin, E, for engagement of a pitman extending from an eccentric or crank upon the main shaft. I make no claim in this application to any means of driving the cam-shaft. Upon the cam-shaft is a convex-faced eccentric, F, whose periphery bears against the friction-blocks G upon pins H, extending downward from the yoke-arms I J, said arms forming the rear end of the shuttle-driving lever K. This lever oscillates on a fulcrum, L, and its front end, k, is con-

nected in any suitable manner with the shuttle or shuttle-carrier. M represents the shuttle-race.

In the blocks G are recesses $g g' g^2$, formed to fit the periphery of the eccentric. The transverse curvature of the face of the eccentric is such that in the movement of the pins with the oscillation of the lever K the blocks will always be in close contact with the periphery of the eccentric.

The recesses $g g' g^2$ are not all of equal distance from the axis of the pin H; but the construction is such that when the eccentric is somewhat worn down a fresh recess, g' , not penetrating so deeply into the block, is brought into contact with the eccentric, to compensate for wear in the eccentric. Then, on the face of the eccentric becoming still more worn, the recess g^2 , which is still shallower than g' , is brought into working position.

The lever K has a longitudinal slot, k' , extending from the yoke past the fulcrum-bearing. N is a temper-screw for the drawing of the jaws k^2 inward upon the fulcrum, so as to compensate for wear.

The arm I of the yoke I J is connected to the lever K by a pin, i^3 , between its ends. If there is any inequality in the eccentric from wear, the arm I may have slight play upon the pin i^3 as a fulcrum, under the positive pressure of the eccentric and the yielding pressure of the spring i^2 , the screw i acting as a stop to regulate such movement. One end of this arm I carries a friction-block, G, bearing against the eccentric F, as set forth, and the other end, i' , rests against a spring, i^2 , tending to keep the block G in contact with the eccentric.

Near the front end of the cam-shaft B is a double cam, O, which gives the positive motions to the feed-bar P. The part o of the cam O is in direct contact with the feed-bar, and lifts the same just before its forward movement, to bring the feed-surface in contact with the cloth. The downward movement of the feed-bar takes place before its backward movement, and is caused by gravity. The part o' of the cam O actuates the feed-bar in its forward movement, and its return movement is

caused by a spring, S. The spring S may be arranged to assist in the downward movement of the feed-bar P.

The feed-bar works in bearings Q Q', having 5 free movement in the bearing Q', but being confined to endwise movement in the bearing Q by a pin, q, passing through a slot in the bar, whose position is shown in dotted lines.

T is a stop-block, which limits the backward 10 movement of the feed-bar by impingement against the bearing Q. This block is adjustable upon the screw t, by which it is held upon the bar, the screw passing through a slot, b', for this purpose.

15 The part o' of the cam O acts on the arm r of a bell-crank lever, R. The lever R is fulcrumed on the side of the feed-bar P by a pin, r', and its horizontal arm bears against the bottom of a friction-roller, u, upon a stud, U, 20 placed eccentrically upon the end of a pin, V, so that the stud U can be raised or lowered by the turning of the pin V. The pin is turned by means of a head, W.

25 It will be seen that the forward movement of the feed-bar will be regulated by the position of the bearing-stud U, and consequently the length of stitch is changed by turning the pin V.

I claim as my invention—

1. The combination of convex-faced eccentric F, shuttle-driving lever K, yoke I J, and 30 recessed friction-blocks G upon the arms of the yoke.

2. The combination of convex-faced eccentric F, shuttle-driving lever K, yoke I J, and 35 the friction-blocks G, having bearing-recesses g g', varying in position relatively to the pivot-pin of the roller-block, as and for the purpose set forth.

3. The combination of the shuttle-driving 40 lever K, yoke-arm I, pivoted to said lever, and spring i², as and for the purpose set forth.

4. The combination of shaft B, having double cam O, feed-bar P, bell-crank lever R, ful- 45 crumed to the feed-bar by pin r', eccentric bearing-stud U, friction-roller u, and adjusting-pin V, substantially as and for the purpose set forth.

Witness my hand at St. Louis, Missouri, this 9th day of June, 1879.

WM. J. STEWART.

Witnesses:

SAML. KNIGHT,
GEO. H. KNIGHT.