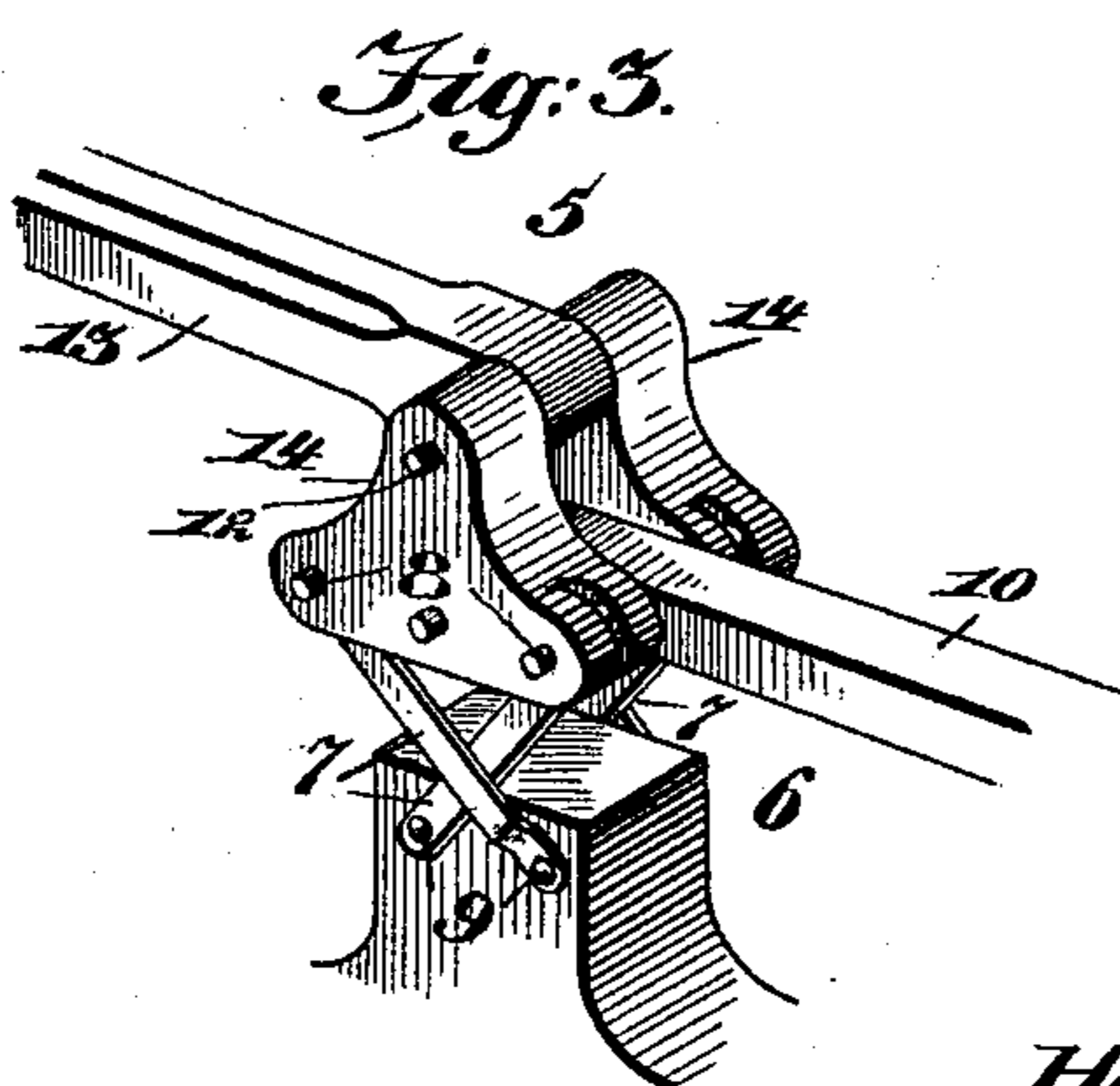
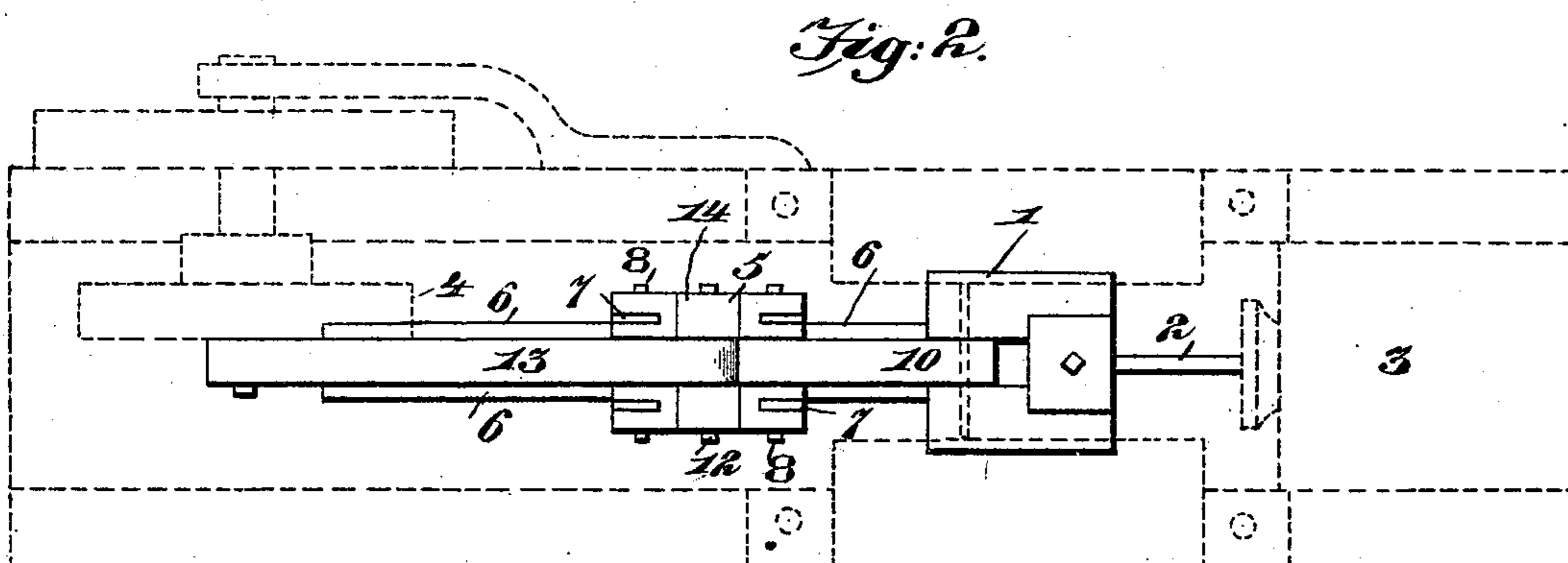
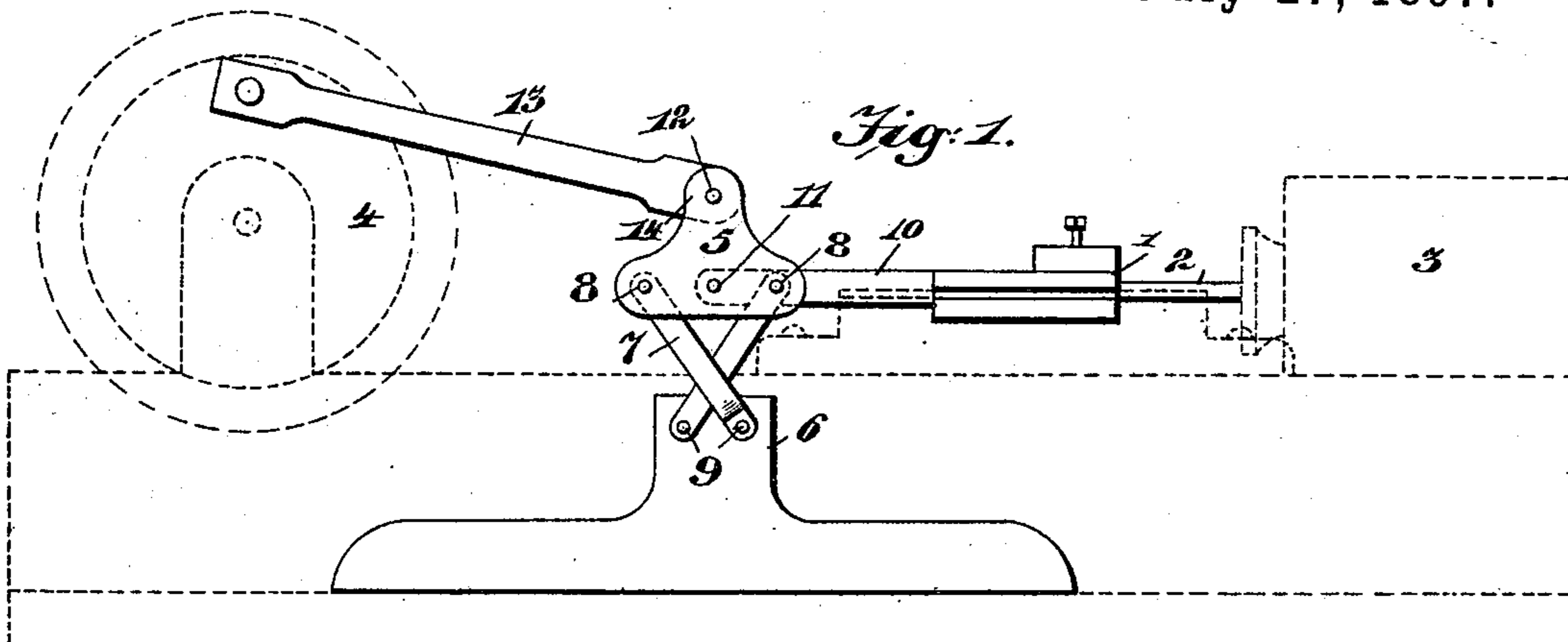


(No Model.)

H. KOCH.
MECHANICAL MOVEMENT.

No. 586,973.

Patented July 27, 1897.



Inventor

Hans Koch

Witnesses

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By *his* Attorneys,

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UNITED STATES PATENT OFFICE.

HANS KOCH, OF BIBLE GROVE, ILLINOIS.

MECHANICAL MOVEMENT.

SPECIFICATION forming part of Letters Patent No. 586,973, dated July 27, 1897.

Application filed March 27, 1897. Serial No. 629,560. (No model.)

To all whom it may concern:

Be it known that I, HANS KOCH, a citizen of the United States, residing at Bible Grove, in the county of Clay and State of Illinois, have invented a new and useful Mechanical Movement, of which the following is a specification.

My invention relates to a mechanical movement particularly adapted for use in connection with engines for communicating motion from a piston-rod or reciprocating cross-head to the crank of the driven shaft; and the object in view is to provide means for securing a throw of the crank which is in excess of that of the reciprocatory part.

Further objects and advantages of this invention will appear in the following description, and the novel features thereof will be particularly pointed out in the appended claims.

In the drawings, Figure 1 is a diagrammatic side view of the mechanical movement embodying my invention applied in the operative position to a steam-engine. Fig. 2 is a plan view of the same. Fig. 3 is a detail view in perspective of the mechanical movement detached.

Similar numerals of reference indicate corresponding parts in all the figures of the drawings.

1 designates a reciprocatory part, such as a cross-head, adapted to be actuated by any suitable means, as the rod 2 of a piston operating in a cylinder 3, and 4 represents a rotary driven part, such as a crank on the driven shaft of an engine.

The device embodying my invention consists of a rocker 5, mounted upon a pedestal or other fixed member 6 by means of intersecting supporting-arms 7, said arms being pivoted at their extremities, respectively, to the rocker at remote points 8 and to the pedestal at adjacent points 9. Furthermore, the rocker is connected by means of a link 10 with the reciprocatory member 1, the pivotal point of connection 11 between said link and the rocker being between the pivotal points 8 of the upper extremities of the supporting-arms and approximately upon a line connecting said pivotal points.

At a point beyond or outside of the plane of the pivotal points 8 and 11 is the pivotal point of connection 12 of a pitman 13, by which motion is communicated from the rocker to the crank, said pivotal point 12, in the construction illustrated, being arranged on an extension 14 of the rocker in a direction perpendicular to the plane of the pivotal points 8 11. Inasmuch as the pivotal point 12 is more remote from the pivotal points 9 than is the pivotal point 11, it is obvious that a given throw of the reciprocatory part 1, which is communicated directly to the rocker by means of the link 10, will cause the more remote point 12 to traverse a path of greater extent than the point 11, the ratio of such paths being proportionate to the relative intervals between the points 11 and 12 and the points 9. This enables me to employ a crank with a greater throw than in the ordinary practice, as it may be made proportionate to the length of the path of the pivotal point 12, and hence with a given movement of the reciprocatory part I can obtain a greater throw of the crank, and hence apply power with greater efficiency to the driven member or rotary part, such as the driven shaft of an engine.

In practice I prefer to duplicate the rocker and supporting-arms, as shown, the contiguous extremities of the link 10 and pitman 13 being arranged between the rockers.

By reason of the arrangement of the supporting-arms in intersecting planes and having fixed pivotal points for their lower ends and spaced close together, while their upper ends are arranged at a greater interval, with the point of connection 11 therebetween, the end of the link 10 which is contiguous to the rocker operates approximately in a straight line, very slight swinging or oscillatory movement being imparted thereto. Hence the reciprocatory movement of the part 1 is communicated directly to the rocker, and from it, through the pitman, to the rotary part, thus avoiding unnecessary loss of power by friction in communicating motion from the reciprocatory part to the rotary member of the mechanism.

Various changes in the form, proportion, and the minor details of construction may be

resorted to without departing from the spirit or sacrificing any of the advantages of this invention.

Having described my invention, what I claim is—

1. A mechanical movement for communicating motion from a reciprocatory member to a rotary member, the same comprising a rocker, supporting-arms arranged in intersecting planes, and pivotally connected at their extremities to the rocker and to a fixed object, a link connecting the reciprocatory member to the rocker and having a pivotal connection with the latter at a point between the pivotal points of said supporting-arms, and a pitman connecting the rotary member to the rocker and pivoted to the latter at a point outside of or beyond the pivotal points of said supporting-arms and link, whereby the pitman receives a throw in excess of that of the reciprocatory part, and hence is adapted to communicate motion to a rotary part having a path of which the diameter is greater than the path of the reciprocatory part, substantially as specified.

2. A mechanical movement for communi-

cating motion from a reciprocatory to a rotary part, the diameter of the path of the rotary part being in excess of the path of the reciprocatory part, said movement having a rocker, a link connecting the reciprocatory part to the rocker, and pivotally mounted upon the latter, supporting-arms arranged in intersecting planes and pivoted at one end to the rocker at points upon opposite sides of the pivotal point of said link, and pivotally mounted at the other end, upon a fixed object, whereby the pivotal point of the link traverses an approximately straight path, and a pitman for connecting the rocker with the rotary part and pivotally connected to the rocker at a point in a plane perpendicular to a line connecting the pivotal points of the link and the contiguous ends of the supporting-arms, substantially as specified.

In testimony that I claim the foregoing as my own I have hereto affixed my signature in the presence of two witnesses.

IIANS KOCIL.

Witnesses:

BEN HAGLE,
MARY FINCH.