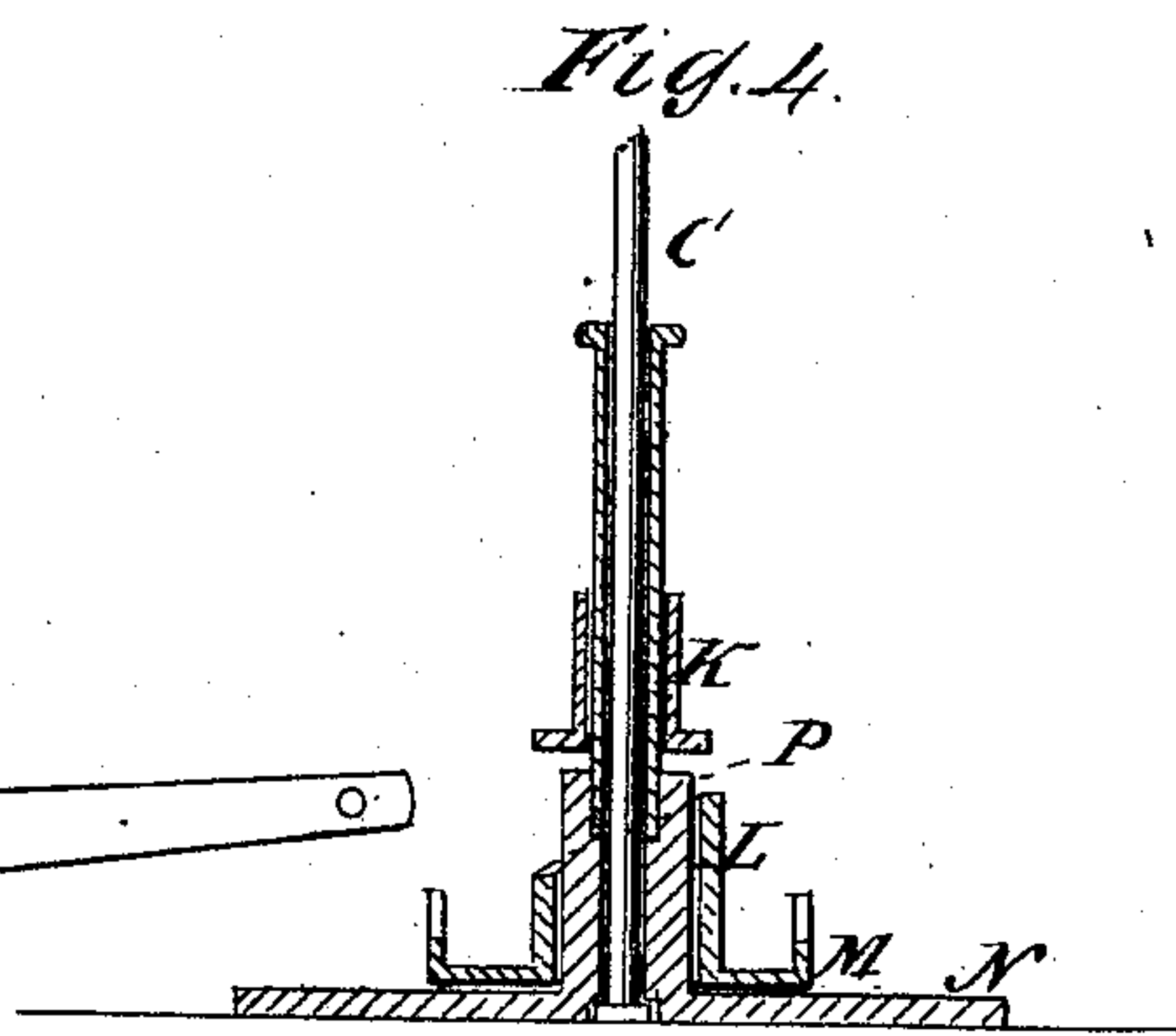
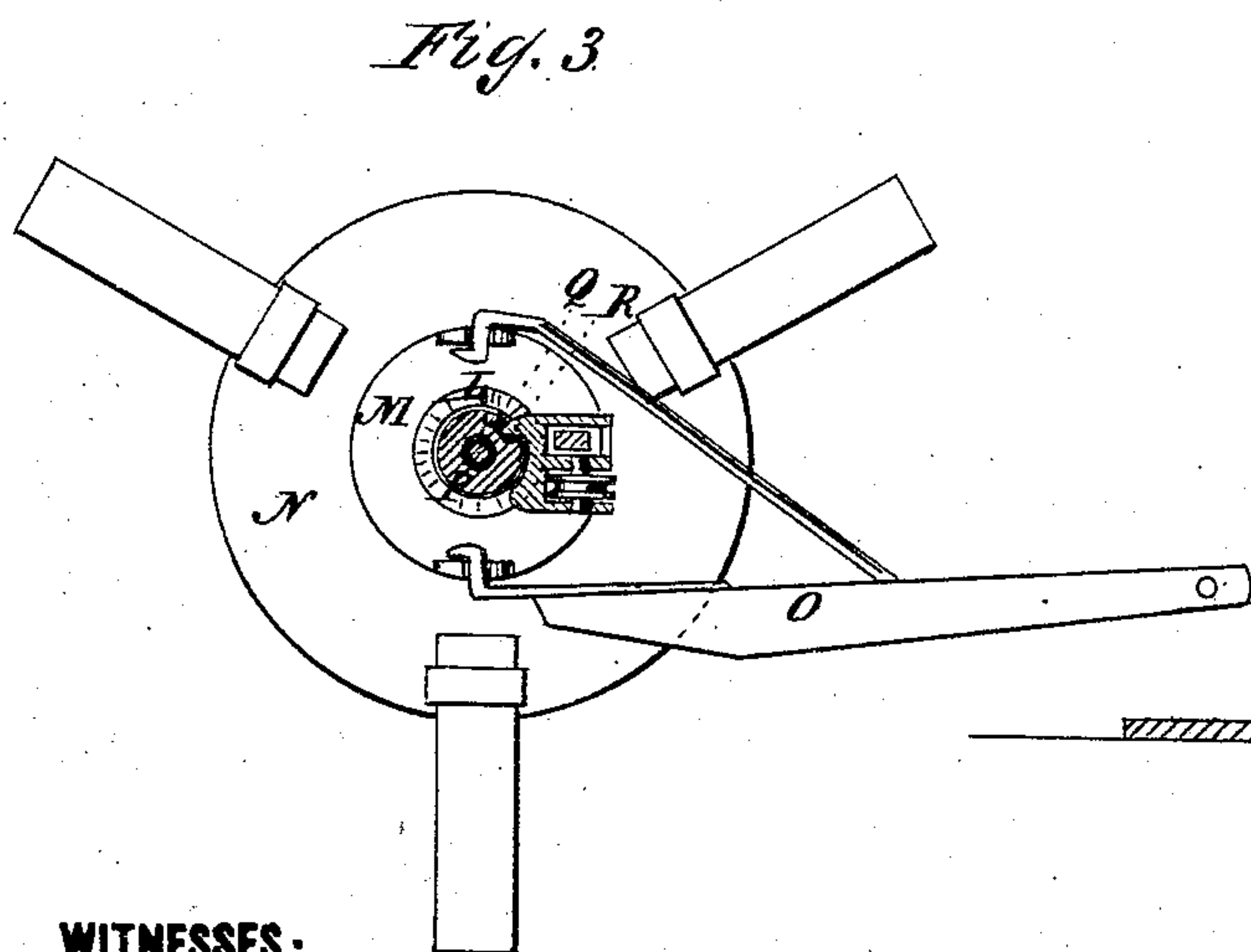
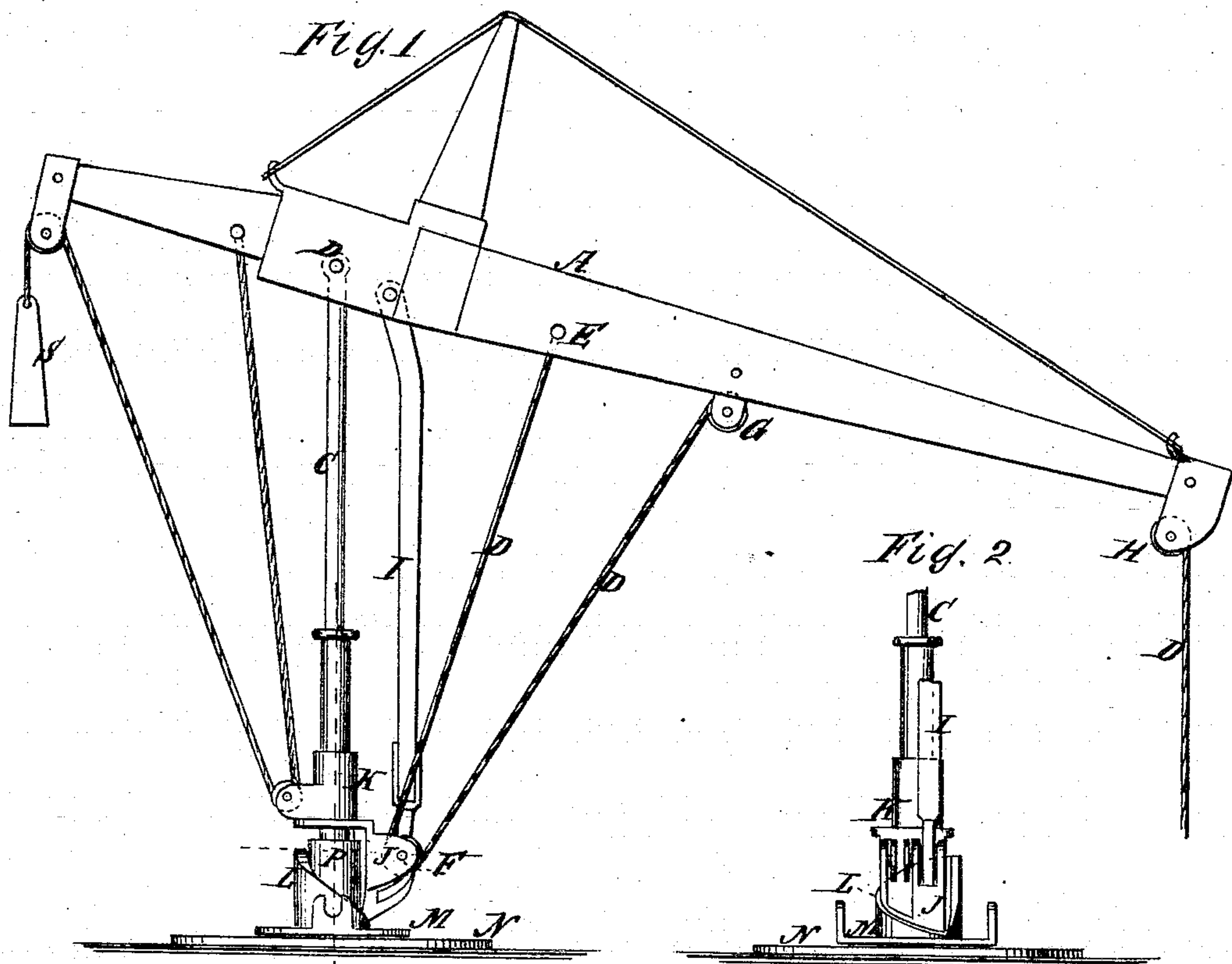


C. LIDREN.
Hay-Derricks.

No. 157,207.

Patented Nov. 24, 1874.



WITNESSES:

E. Wolff.
A. F. Terry

INVENTOR:

C. Lidren
BY *Munnell*
ATTORNEYS.

UNITED STATES PATENT OFFICE.

CHRISTOPHER LIDREN, OF LA FAYETTE, INDIANA, ASSIGNOR TO HIMSELF
AND R. JACKSON, OF SAME PLACE.

IMPROVEMENT IN HAY-DERRICKS.

Specification forming part of Letters Patent No. **157,207**, dated November 24, 1874; application filed
October 24, 1874.

To all whom it may concern:

Be it known that I, CHRISTOPHER LIDREN, of La Fayette, in the county of Tippecanoe and State of Indiana, have invented a new and Improved Hay-Derrick, of which the following is a specification:

In this invention the beam of the derrick is pivoted to the standard, so as to swing up and down, and the rope is so contrived that the fork is raised and lowered by this action of the beam, and at the same time caused to travel through a greater range than the beam does.

For operating the beam a cam is fitted around the base of the standard, to be revolved by a horse, and a lifting-post is combined with this cam and the beam, so as to transmit the motion of the cam to the beam, and the cam is also contrived so that it carries the beam, by means of the foot of the lifting-post, around over the stack, and lodges it upon another stationary cam inside of the revolving one, down which it returns by gravitation to the place of starting, when the revolving cam escapes from the foot, leaving the horse ready to raise the beam and fork again by continuing in his course, and without backing up, by which much time is saved, and the labor of the horse is lessened.

Figure 1 is a side elevation of my improved hay-derrick. Fig. 2 is a side elevation of the same and a portion of the standard and the lifting-post. Fig. 3 is a horizontal section of Fig. 1 on the line *x x*, and Fig. 4 is a sectional elevation of Fig. 3.

Similar letters of reference indicate corresponding parts.

A is the beam, which is pivoted to the top of the standard C at D, so as to rise and fall for actuating the hoisting-rope D; also, for raising and lowering it to some extent. The rope is attached to it at E, and extends down under the pulley at F, and up over pulleys G H. The pulley F being fixed so as not to rise with the beam, the rope will be drawn lengthwise, and the forks will thus be raised a certain farther distance than is due to the swing of the beam on the point D. I is the lifting-post for working the beam. It is pivoted to the latter between the end of the long arm of the beam and the fulcrum, near the latter, and at the lower end is jointed to a foot, J, which

projects a little from the side of the standard, and hangs from the table K over the revolving cam L, the tube being capable of turning, and also rising and falling on the standard. The cam L is formed on the top of a short tube which rises up from the disk M, which rests on the platform N, and has the sweep O for attaching the horse connected to it. Inside of the revolving cam L is a stationary cam, P, having a groove, Q, in which a stud, R, (see Fig. 3,) of the foot J projects, to regulate the swing of the beam from the place of taking the load to the place of delivering it, and vice versa.

The cam L raises the foot, and swings it around to carry the beam over the place for dropping the load a little before it escapes from under the foot, to allow the beam to go back. The horse is then stopped to hold the beam until the load is dropped out of the forks, after which he is started again, and directly moves the cam, so that it escapes from under the foot, which, by falling on the stationary cam, is at once carried back, and carries the beam over the place of loading, and the rope, with the fork, descends to be loaded again, the horse stopping again, if necessary, to give time for loading.

The stationary cam is a part of the platform N, and it serves for the pivot of the revolving cam. S is a counterpoise for the beam.

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

1. The combination of a beam of a derrick pivoted to the standard to swing up and down on it, and a hoisting-rope attached to the beam between the pivot and the end of the long arm, and passing therefrom to said end under a pulley, F, fixed on a support independent of the beam, substantially as specified.

2. The combination of the beam A, standard C, lifting-post I, foot J, and the revolving cam L, substantially as specified.

3. The combination of the stationary cam P with the foot J, revolving cam L, foot J, lifting-post I, and beam A.

CHRISTOPHER LIDREN.

Witnesses:

JNO. BARNET,
JOHN WEINHARDT.