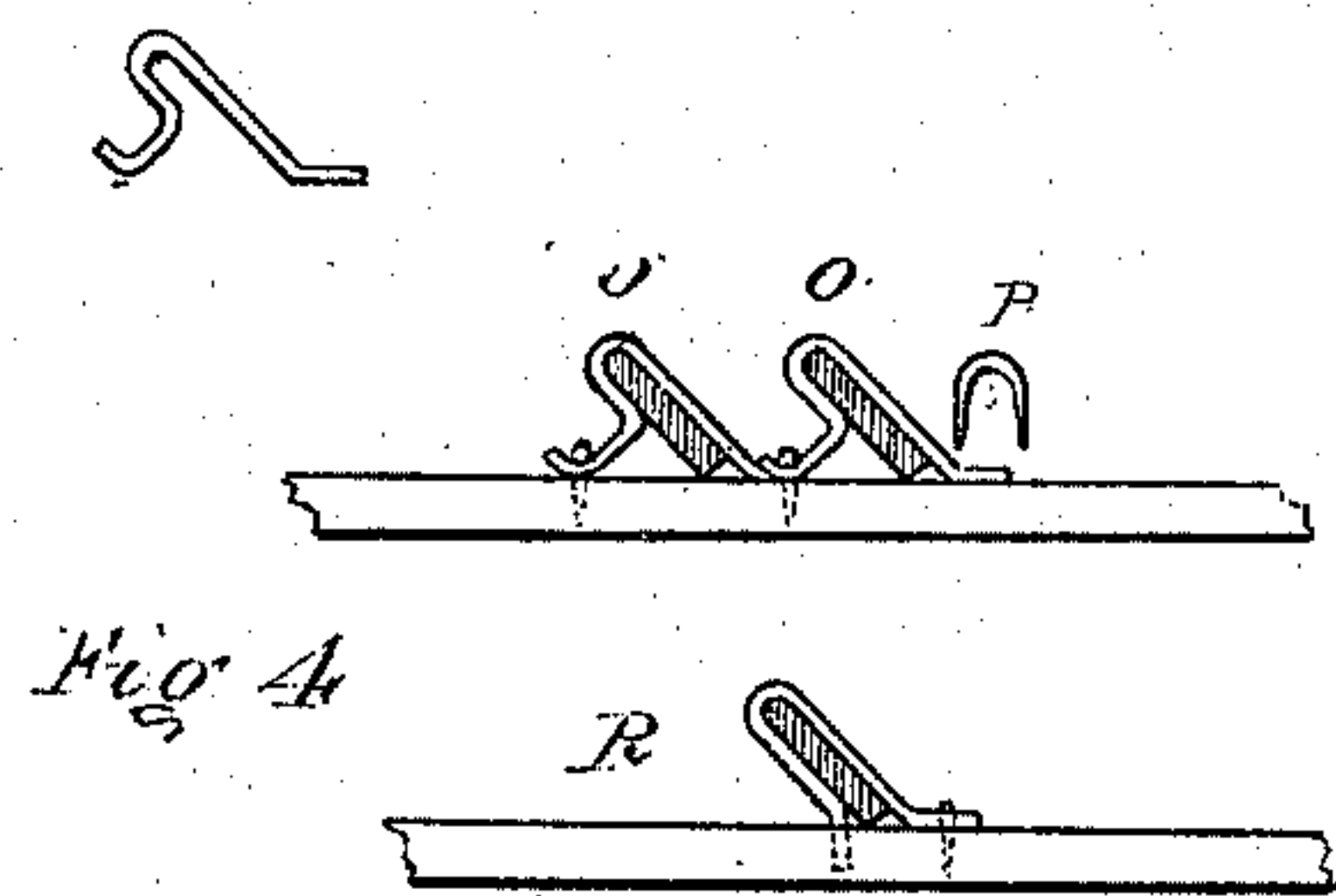
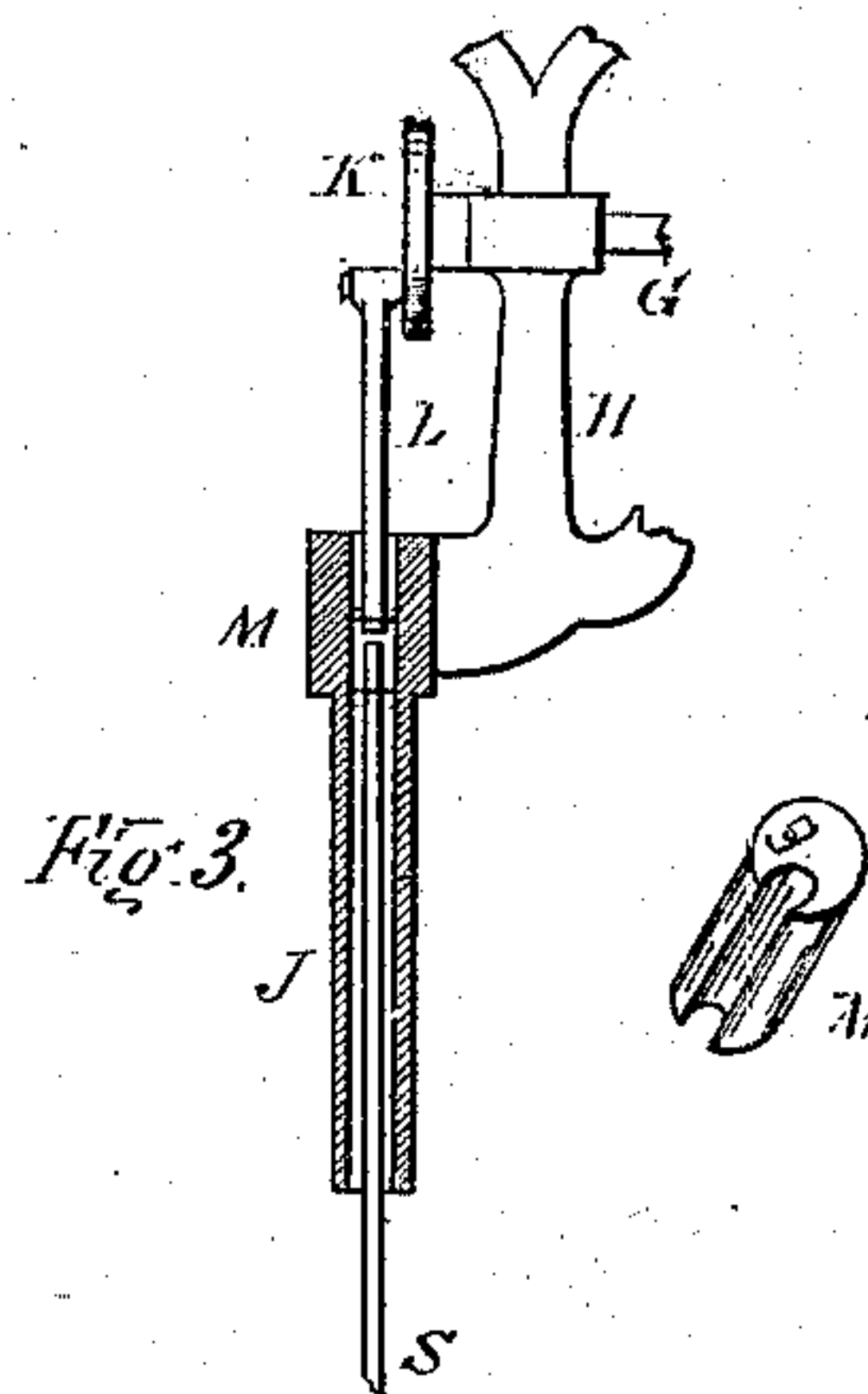
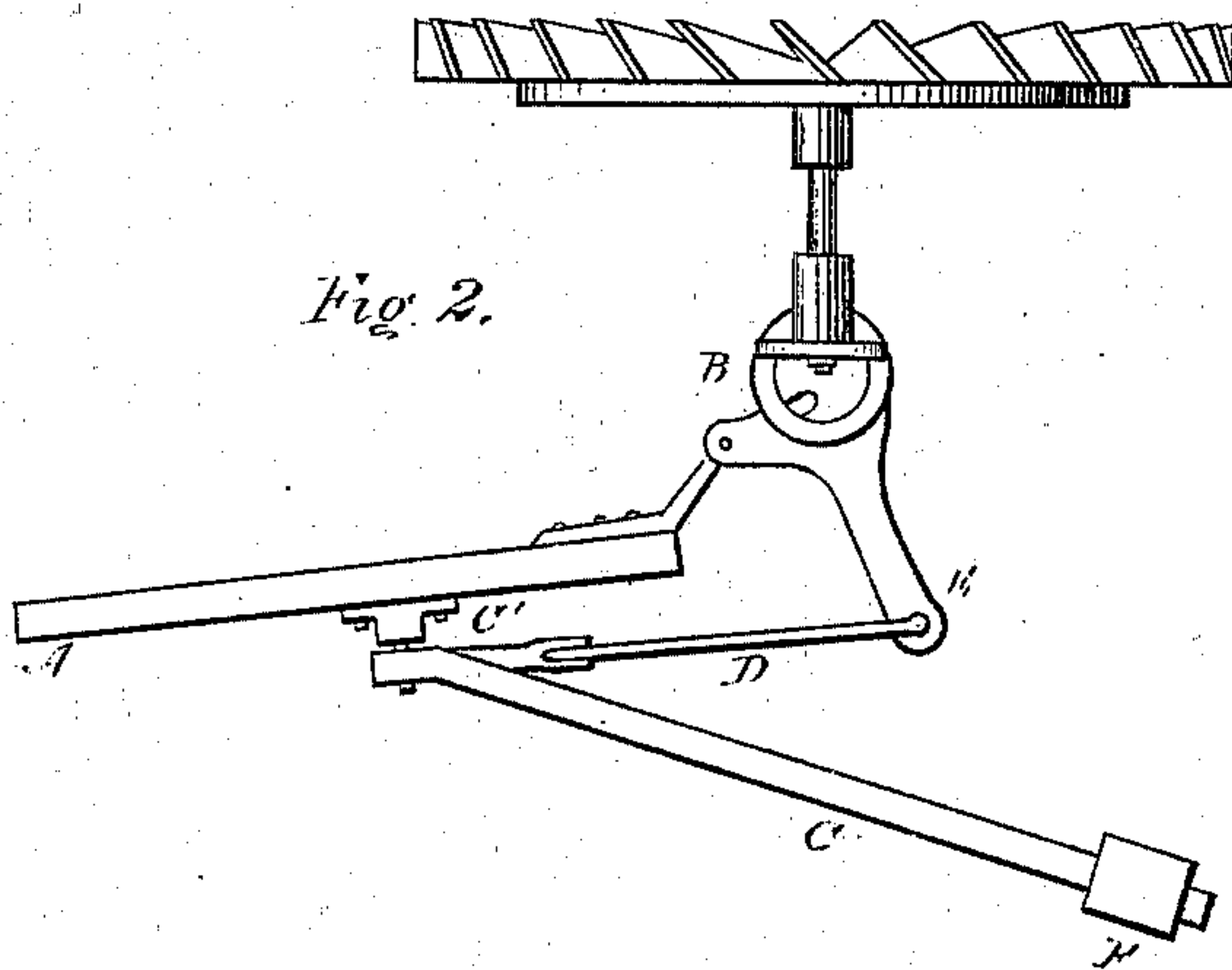
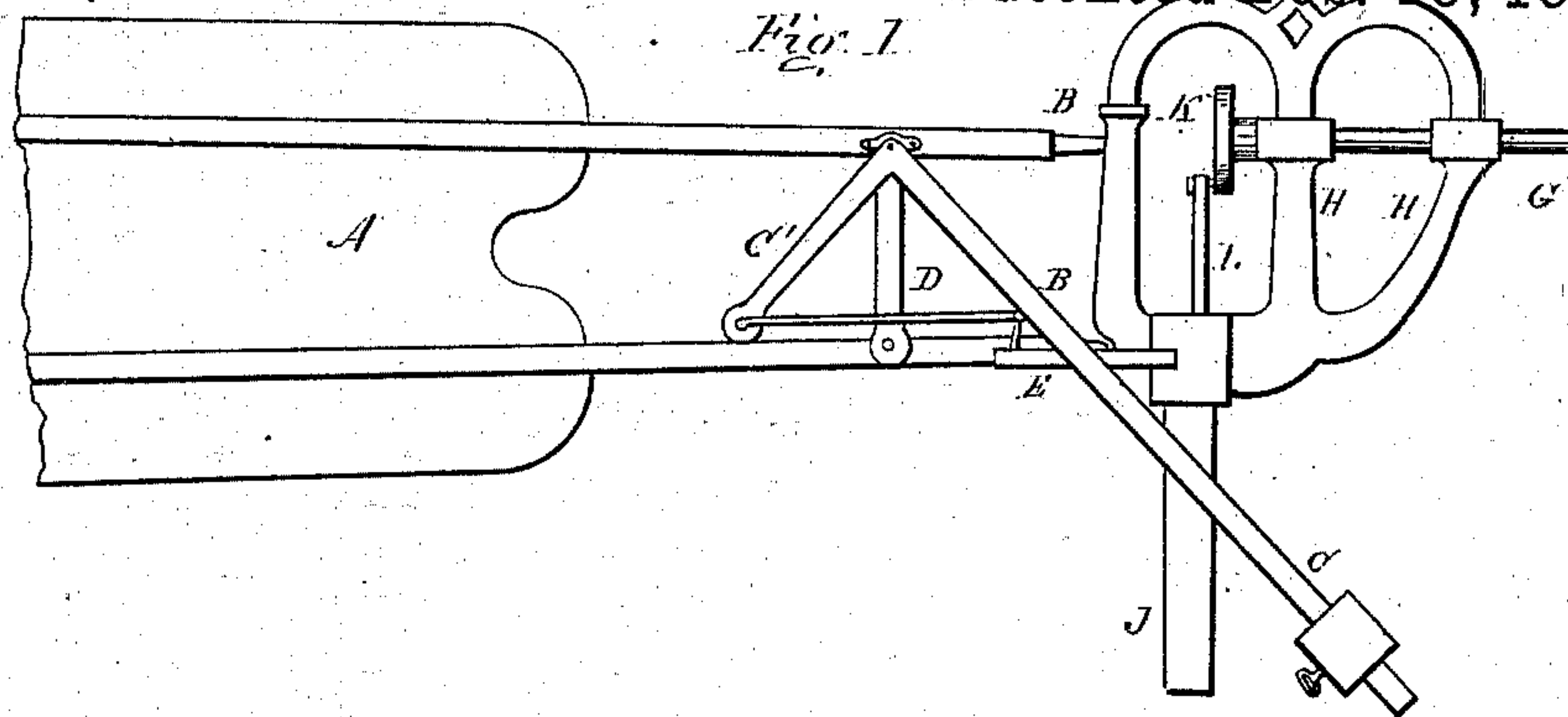


(No Model.)

A. O. KOONTZ.
WINDMILL.

No. 272,064.

Patented Feb. 13, 1883.



Witnesses.

Prof. Harry J. Kellogg
Frank R. Parker

Inventor:

Augustus O. Koontz

UNITED STATES PATENT OFFICE.

AUGUSTUS O. KOONTZ, OF SOUTH BEND, INDIANA.

WINDMILL.

SPECIFICATION forming part of Letters Patent No. 272,064, dated February 13, 1883.

Application filed April 25, 1881. (No model.)

To all whom it may concern:

Be it known that I, AUGUSTUS O. KOONTZ, a citizen of the United States, residing at South Bend, in the county of St. Joseph, State of Indiana, have invented certain new and useful Improvements in Windmills, of which the following is a specification.

My invention relates to that class of windmills in which the sails of the wheel are rigidly fastened to the rims or hoops of the same by being placed in slots cut in said rims for that purpose.

The object of my improvements are, first, to combine with a pitman or connecting-rod a reciprocating head inside the tubular vertical axis for the purpose of transmitting the power of the wind-wheel; second, to provide metal fastenings or clips for the purpose of holding the sails of the wheel firmly and at a proper angle to the rims of the same.

In order to aid others skilled in the art to which my invention belongs to make and use the same, I will describe its construction and operations with reference to the several drawings, forming a part of this specification, in which—

Figure 1 is a side view, showing the frame and rudder with weighted lever. Fig. 2 is a top plan view, showing the position of parts when the mill is at rest. Fig. 3 is a vertical sectional view of the tubular axis, showing the construction of the reciprocating mechanism. Fig. 4 is a section showing the manner of attaching the sails to the rim of the wheel.

In the drawings, Fig. 3, M is the reciprocating head, having a longitudinal recess or slot in one side for the purpose of admitting the passage of a chain or cord through the pipe J, with which to operate the vane when desired. This head is also provided with a recess at either end for the reception of one end of the pitman L and rod S, these being held therein by pins passing through the head horizontally and through the end of either rod. The connection of the pitman is made flexible to admit of the oscillating motion of the same pro-

duced by the crank when rotating. The pipe J serves as a guide to the head, causing its motion to be vertical.

G is the shaft of the wind-wheel, to which is secured the crank-disk K, which, when rotated, produces the reciprocating motion of the head M through the pitman L.

O O, Fig. 4, are clips made from wire or strips of metal, embracing the sails and holding them firmly in position by means of staples driven over the ends of the clips into the rims or hoops. At the under side of the rails the strips of metal are bent to a right angle, or nearly so, to the face of the sails, terminating with a curve which contacts with the opposite end of the adjoining clip. By this arrangement both clips may be fastened to the rim by one staple. The portion of the clip bent to an angle to the sail forms a brace, which holds the sail rigidly at the desired angle to the plane of the wheel. These clips may be made in a continuous form, any number being made in one piece of wire or strip of metal, and secured to the rim of the wheel without detaching them from each other; but I prefer to make them separate. R shows another form adapted to the smaller end of the sails, and is preferably made in this form, as it facilitates the attachment at the inner end of sails on account of the small space between the sails at the attaching point. A hole is made in the rim, which receives one end of the clip, having the other end secured by a staple.

Having described my invention as fully as I can, what I claim as new, and desire to secure by Letters Patent, is—

1. In a windmill, the combination of the reciprocating head M, pipe J, and pitman L, substantially as and for the purposes set forth.
2. The metal fastenings or clips for securing the sails to the rim of a wind-wheel, as and for the purposes specified.

AUGUSTUS O. KOONTZ.

Witnesses:

JAMES DAVIS,
HARRIS BARNES.