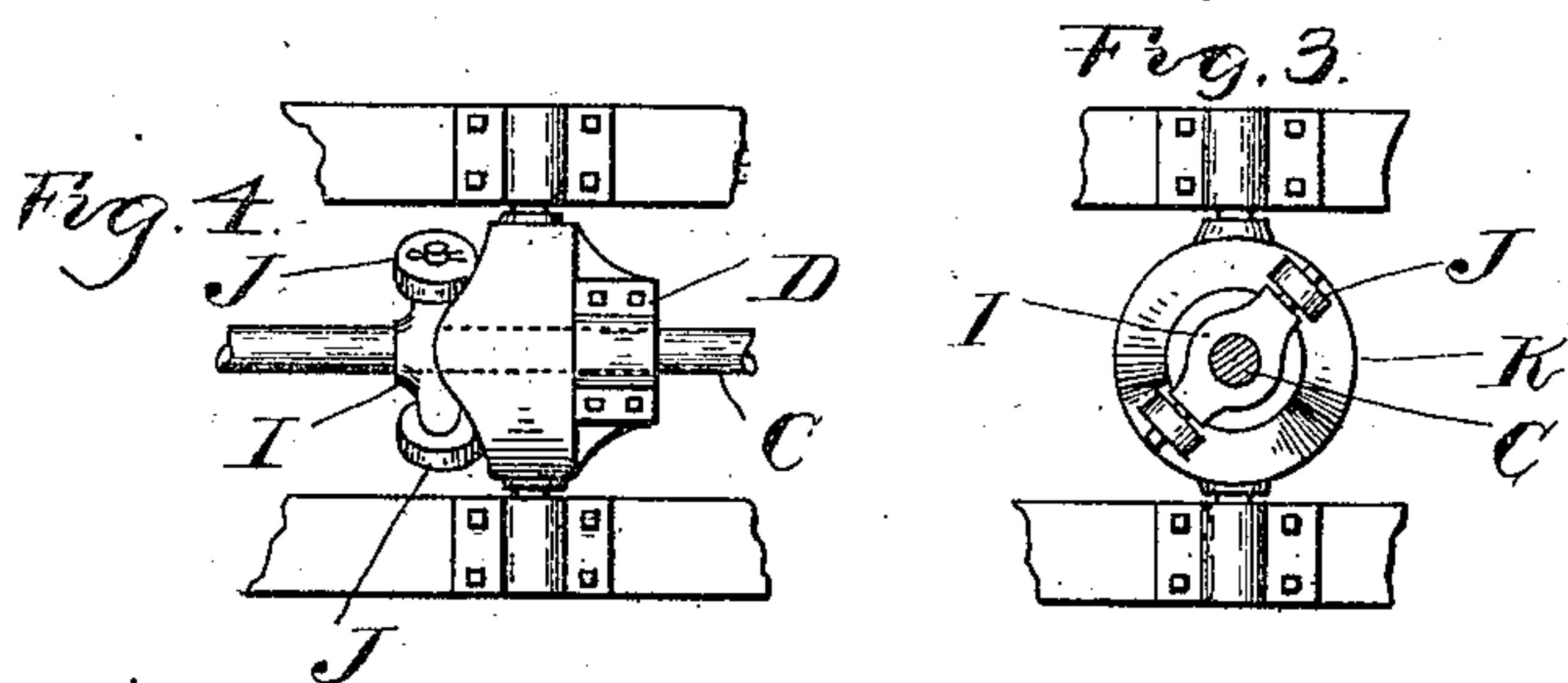
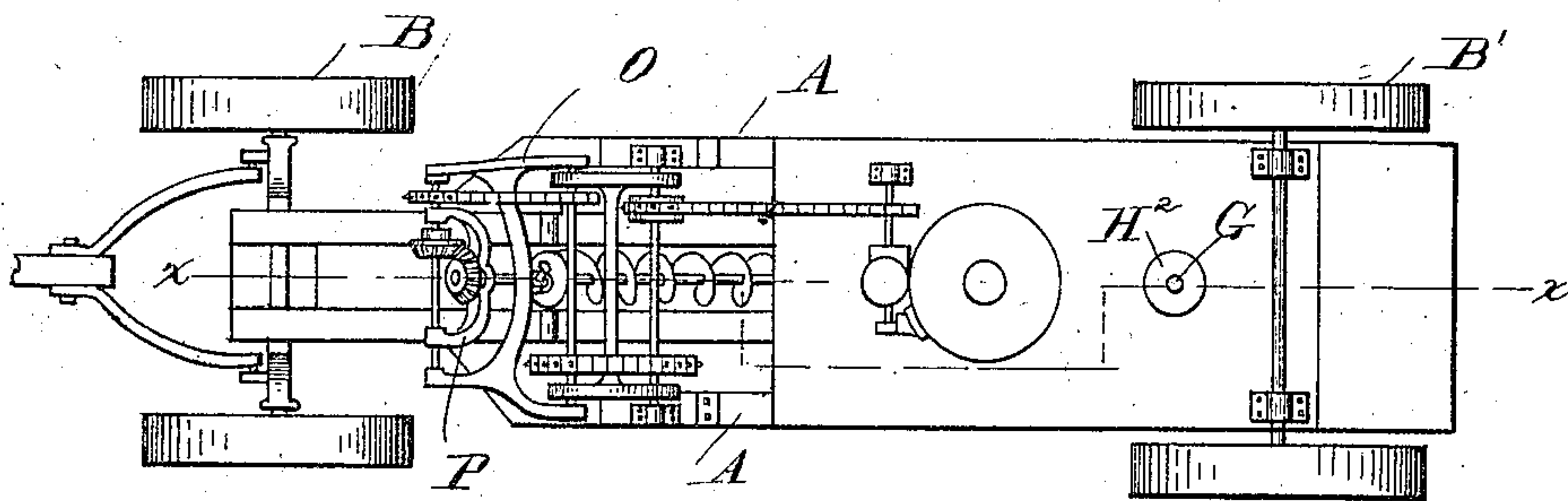
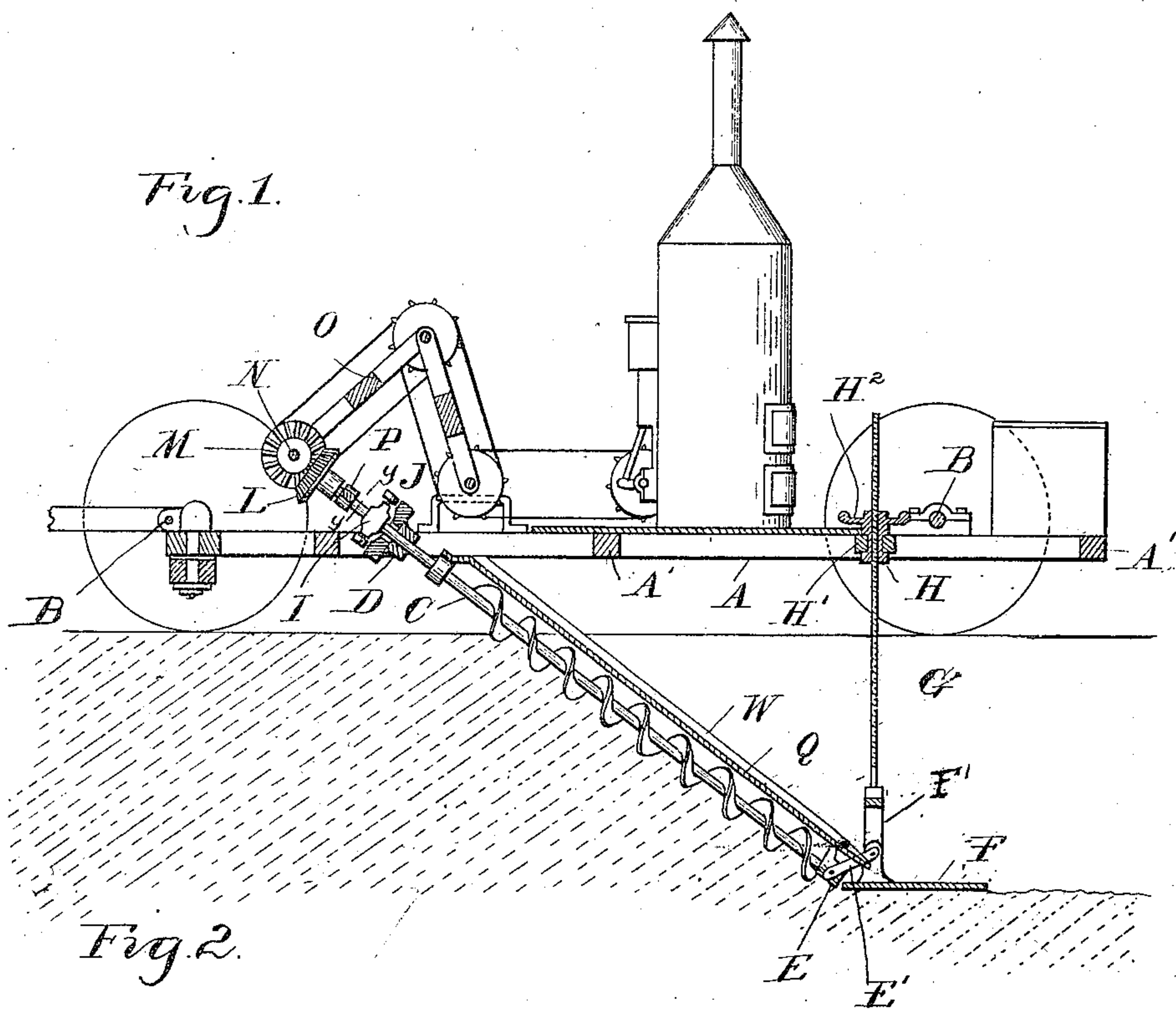


(No Model.)

G. W. DECKER.
DITCHING MACHINE.

No. 494,368.

Patented Mar. 28, 1893.



Witnesses
A. L. Kobbie.
N. L. Lindop.

Inventor
Gottfried W. Decker
By *Wm. Sprague* Atty's.

UNITED STATES PATENT OFFICE.

GOTTFRIED W. DECKER, OF DANFORTH, ILLINOIS.

DITCHING-MACHINE.

SPECIFICATION forming part of Letters Patent No. 494,368, dated March 28, 1893.

Application filed September 8, 1892. Serial No. 445,297. (No model.)

To all whom it may concern:

Be it known that I, GOTTFRIED W. DECKER, a citizen of the United States, residing at Danforth, in the county of Iroquois and State of Illinois, have invented certain new and useful Improvements in Ditching-Machines, of which the following is a specification, reference being had therein to the accompanying drawings.

My invention relates to new and useful improvements in ditching machines, and the invention consists primarily in the use of an inclined auger supported from a truck, and provided with suitable driving mechanism for imparting to it a rotary movement, whereby a channel the width of the auger is cut in the forward movement of the machine.

The invention also consists in the means employed to impart to said auger a longitudinally reciprocating, as well as a rotary movement, further in the manner of supporting said auger admitting of its vertical adjustment, and still further in the peculiar construction, arrangement and combination of parts, as more fully hereinafter described.

In the drawings Figure 1 is a vertical, longitudinal section through my machine on line $x-x$ Fig. 2. Fig. 2 is a plan view. Fig. 3 is a detail section on line $y-y$ Fig. 1, and Fig. 4 is an elevation of the parts shown in Fig. 3 at right angles thereto.

The frame of the machine is composed of longitudinal sills A, and cross-sills A', mounted on the truck wheels B B'.

C is an auger or worm journaled at its upper end in a box D (pivotaly secured between the sills A,) and extending downward therefrom, inclined toward the rear is journaled at its lower end in the movable bearing box E.

F is a shoe vertically adjustably secured to the frame in any suitable manner, such as by the bail F', screw-threaded rod G, and adjusting nut H, the latter being journaled in a bearing H' upon the frame and provided with a hand-wheel H².

E' is a link pivotaly secured at one end to the shoe F, and at the other end to the box E.

I is a cross head secured to the shaft of the auger C near its upper end and carrying the anti-friction rollers J.

K is a circular plate having a cam track

upon which the rollers J are adapted to bear, said plate being secured either directly to the frame or preferably to the upper side of the pivotal box D.

L is a beveled gear on the upper end of the auger shaft and M is an intermeshing beveled gear on the shaft N, journaled at the outer end of the jointed frame O.

P is a yoke frame holding the gear M and N in mesh.

Q is a shield or casing on the upper side of the auger forming on its upper edge a tile chute W.

In practice the machine is especially adapted for use in laying tile pipe, and may be driven either by horse or steam power. The worm C is first lowered to the required depth by adjusting the handle H² and motion is then communicated thereto either from one of the truck wheels, or as shown in the drawings from a small steam engine or other motor having suitable sprocket and chain connection with the shaft N on the jointed frame O. The auger C is revolved in a direction to force it into the earth, but the rollers J on the cross head I in passing over the cam track K alternately raise and lower the auger shaft (which movement is permitted by the link E') thereby causing a scraping action, loosening the earth which is then carried up by the worm and thrown to one side. This reciprocating movement of the auger shaft does not in any way interfere with the operation of the connecting gearing as the jointed frame O will admit of either a vertical or horizontal movement of the shaft N, while the yoke frame P holds said shaft in fixed relation to the auger shaft. The shoe F resting on the bottom of the ditch forms a support for the box E, preventing the auger from being forced backward, but not interfering with its reciprocating movement on account of the vibratory connecting link E'.

The depth of the ditch is regulated by adjusting the hand wheel H², and thereby raising or lowering the shoe as desired, the pivotal bearing D allowing the auger shaft to assume any angle.

What I claim as my invention is—

1. In a ditching machine, the combination with the truck of an inclined auger supported

therefrom, means for rotating said auger and means for imparting a longitudinal reciprocating movement to said auger, substantially as described.

5 2. In a ditching machine, the combination with the truck and supporting frame, of an inclined auger pivotally journaled at its upper end and supported in a vertically adjustable bearing at its lower end and means for
10 imparting a rotary and reciprocating movement to said auger, substantially as described.

3. In a ditching machine, the combination with the truck and supporting frame, of an inclined auger journaled in a pivotal bearing
15 at its upper end and a vertically adjustable bearing at its lower end, means for rotating said auger, and means for imparting a longi-

tudinally reciprocating movement thereto, substantially as described.

4. In a ditching machine the combination 20 with the truck and supporting frame, of an inclined vertically reciprocating auger journaled in a pivotal bearing at its upper end and in a movable bearing at its lower end, a shoe vertically adjustably supported from the 25 frame and a flexible connection between said shoe and movable bearing, substantially as described.

In testimony whereof I affix my signature in presence of two witnesses.

GOTTFRIED W. DECKER.

Witnesses:

CHAS. E. BOVI,

B. A. JOHNSON.