

C. F. SEARCH.  
Sulky-Plow.

2 Sheets—Sheet 1.

No. 212,750.

Patented Feb. 25, 1879.

Fig. 1

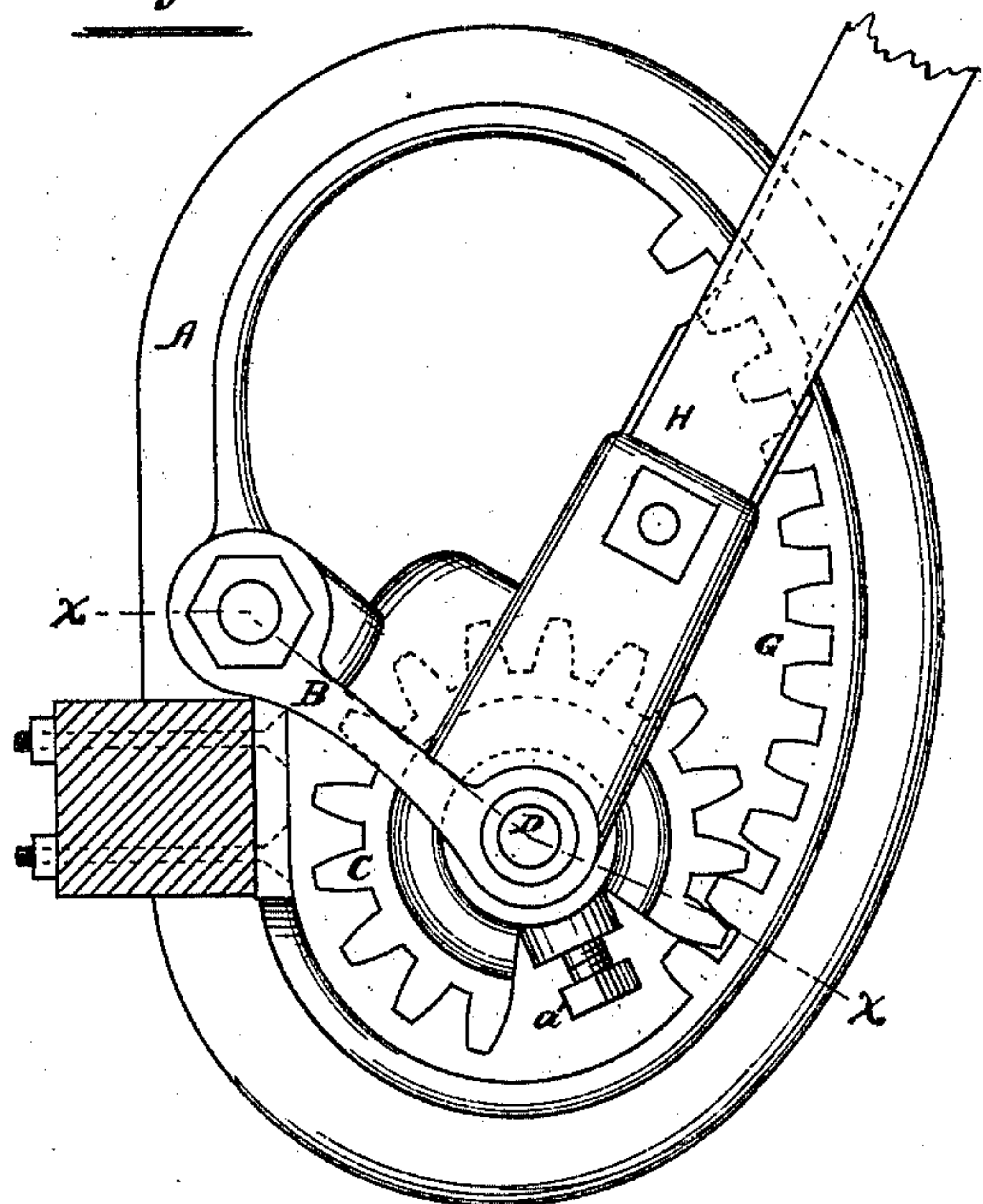


Fig. 2

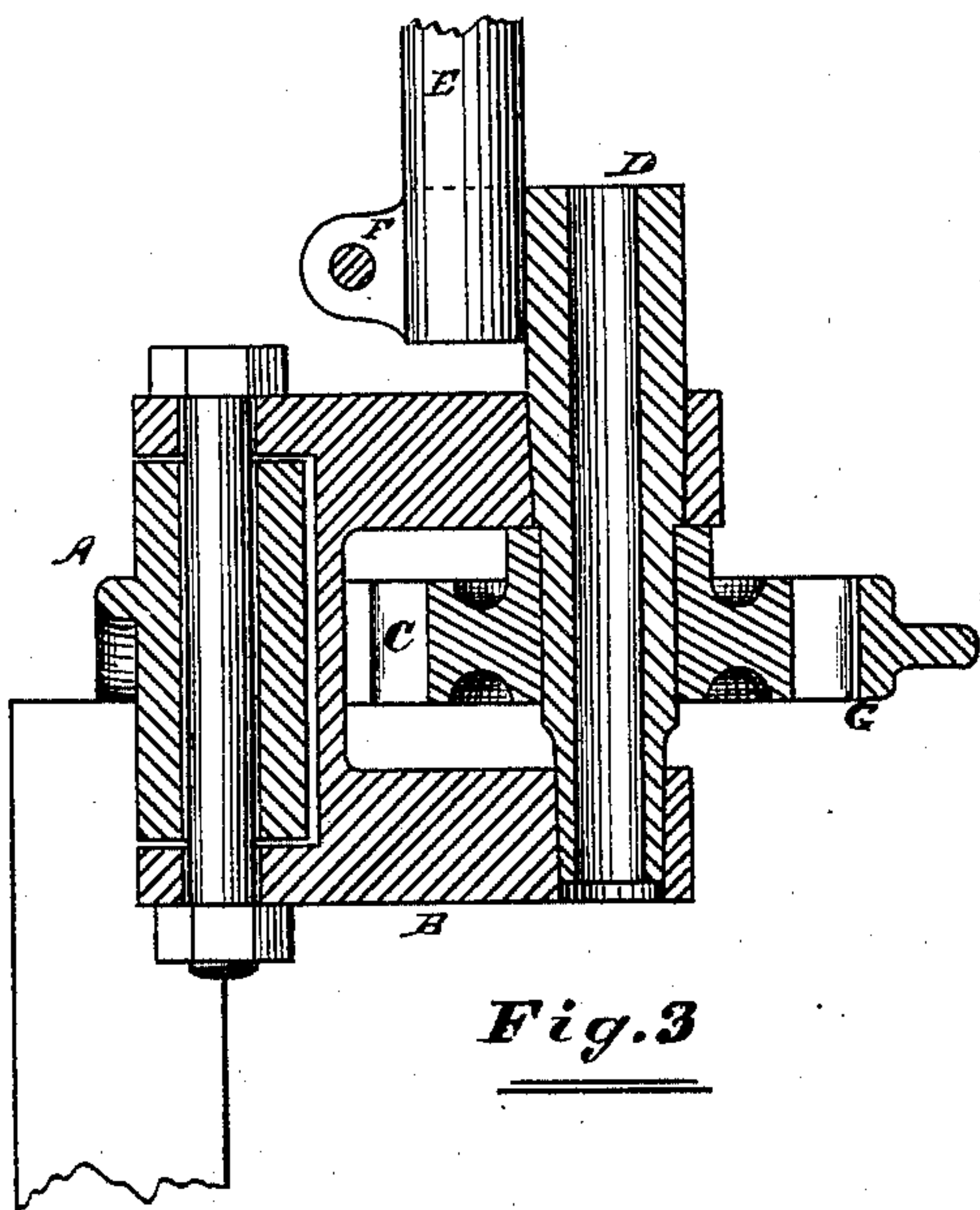
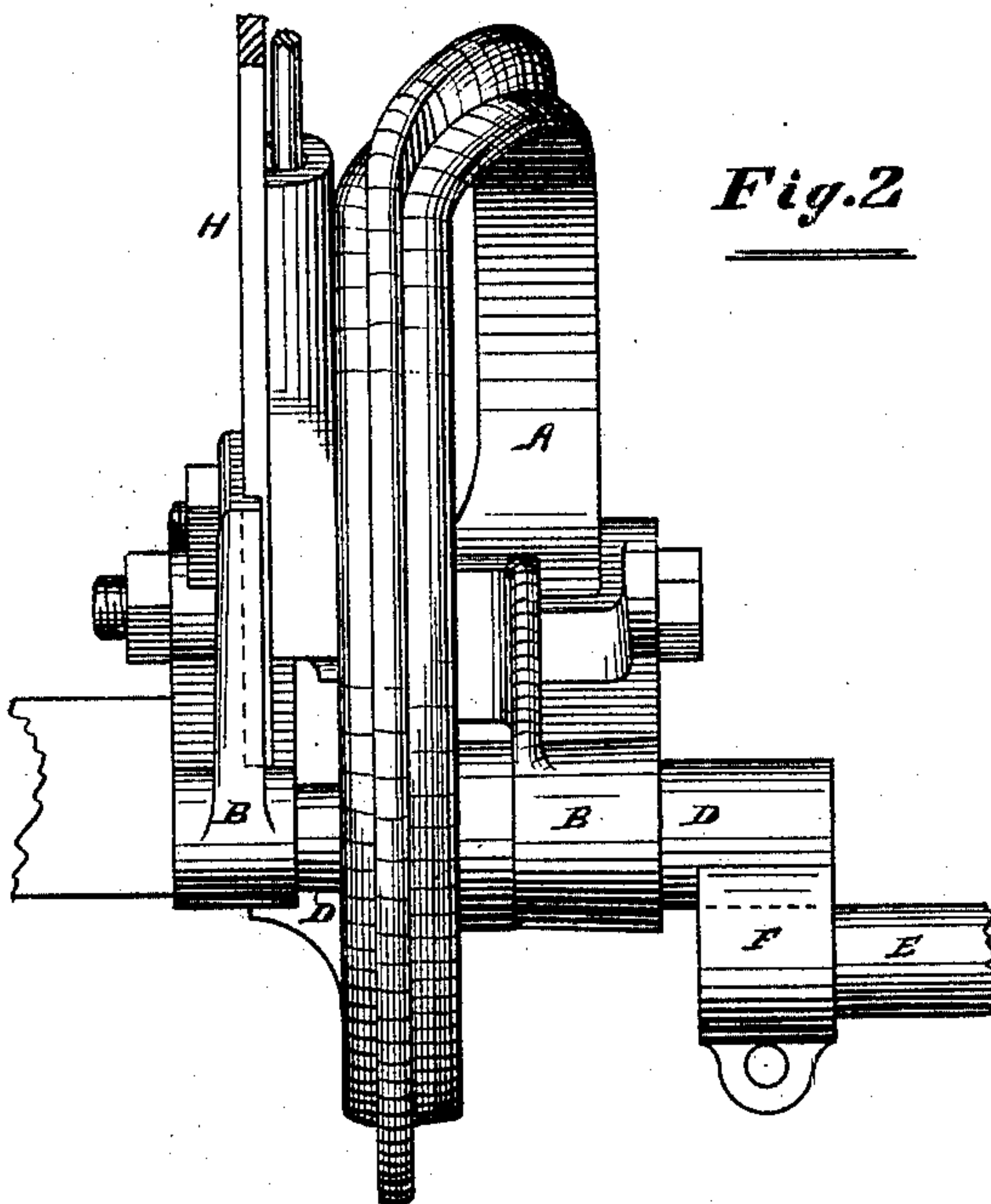


Fig. 3

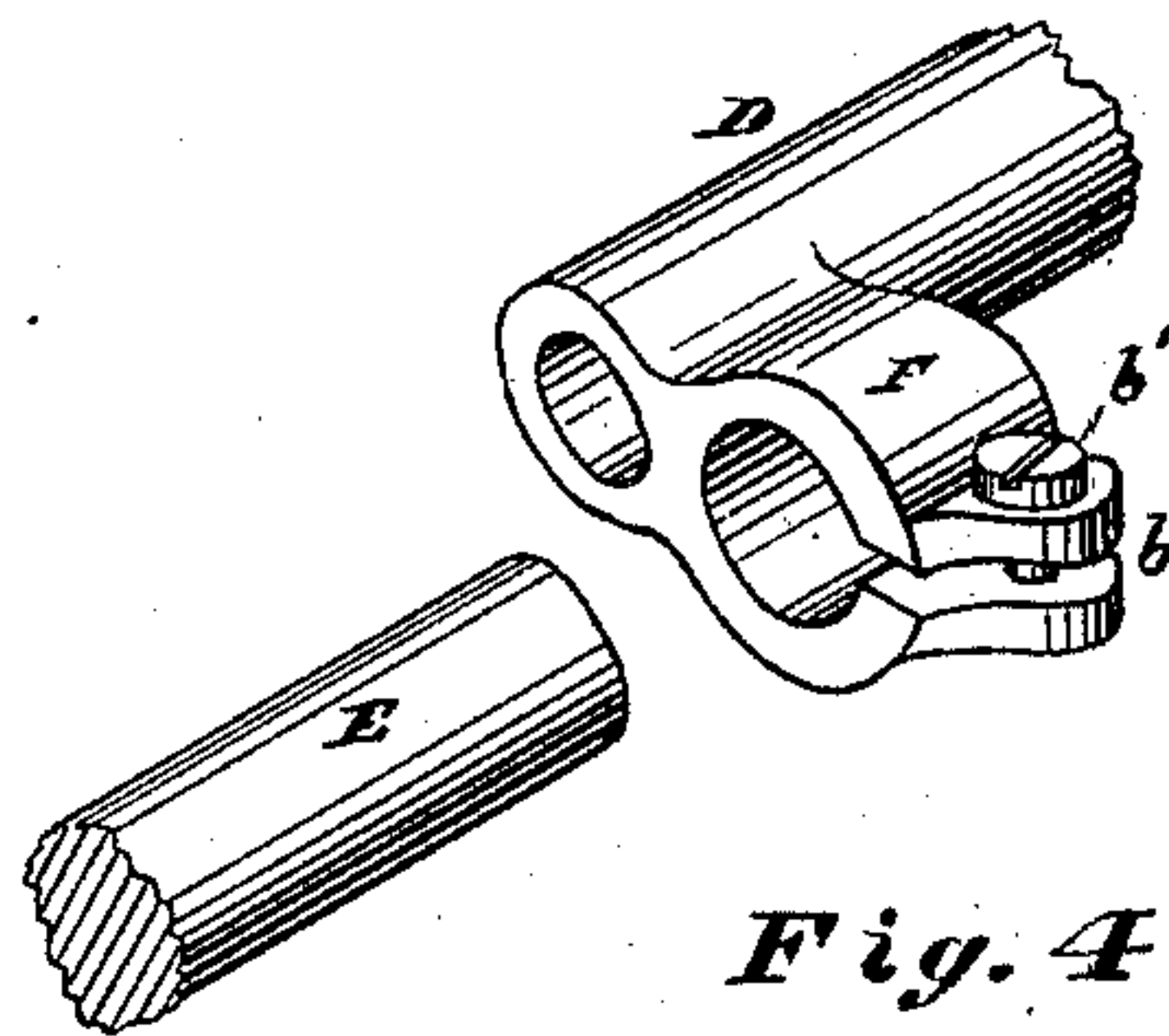


Fig. 4

Attest:

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*S. S. Schoff*

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By *Coymec & Co, his* — —  
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Fig. 5

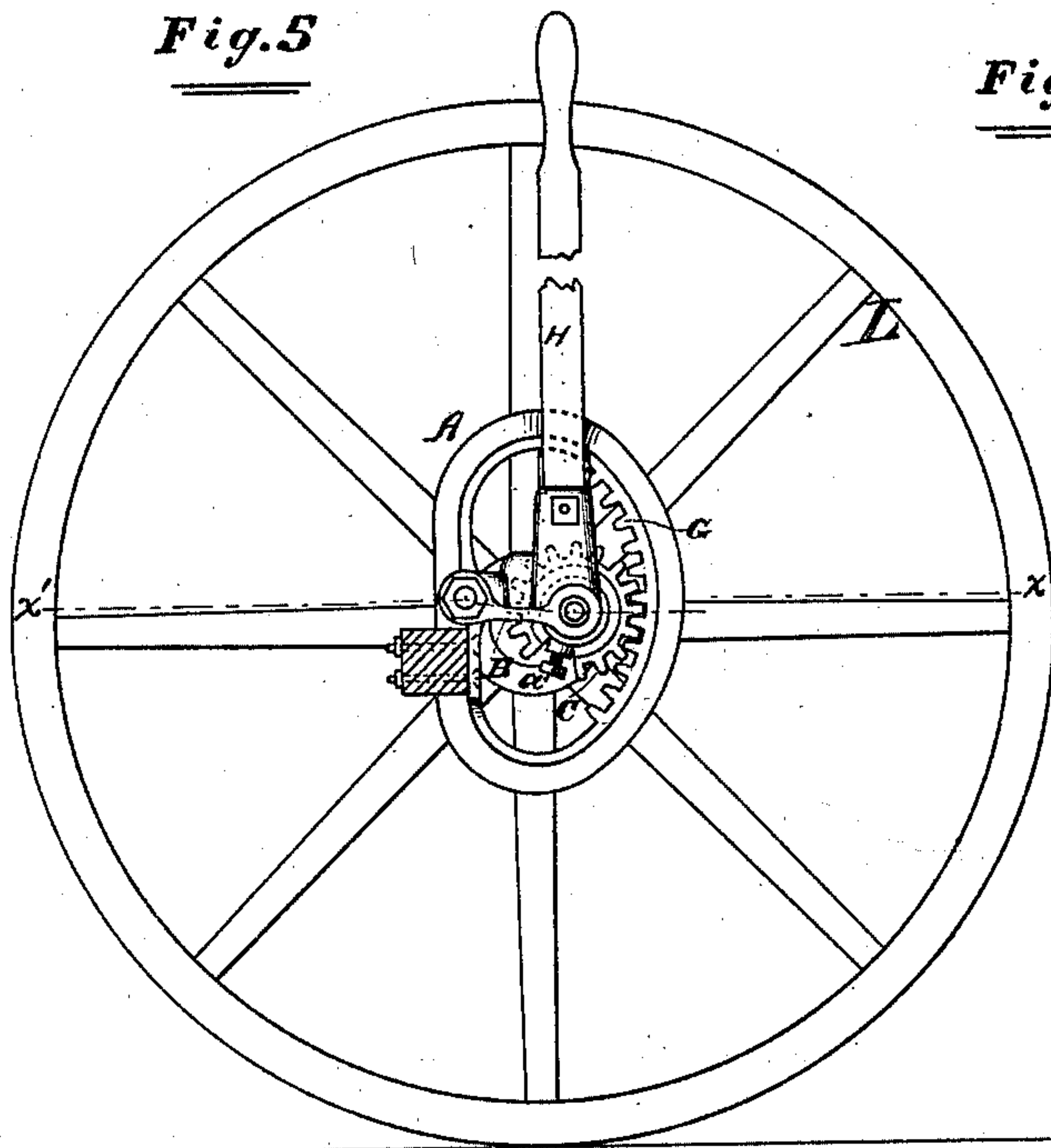


Fig. 6

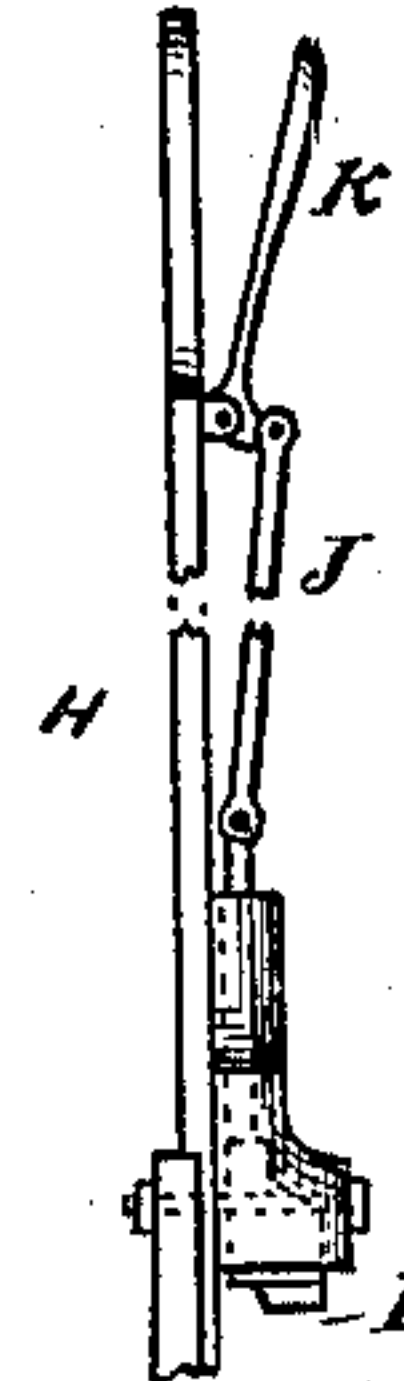
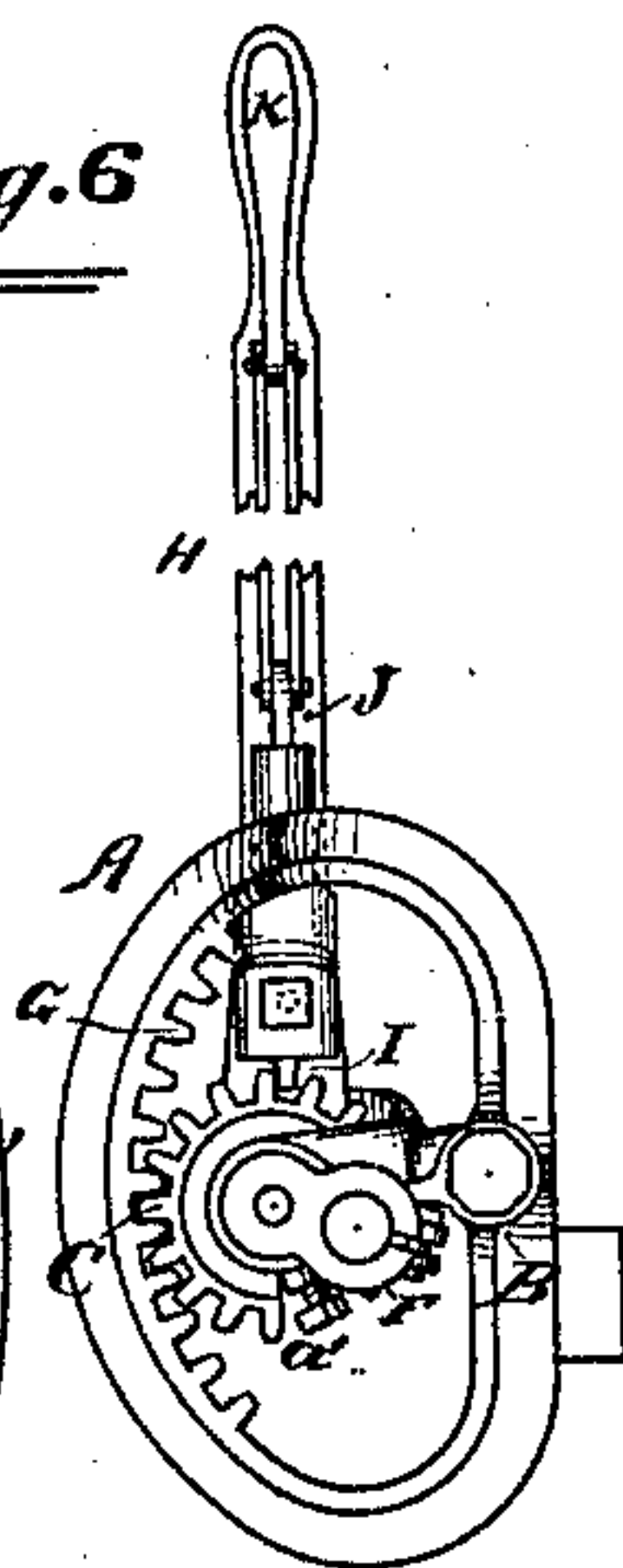


Fig. 7

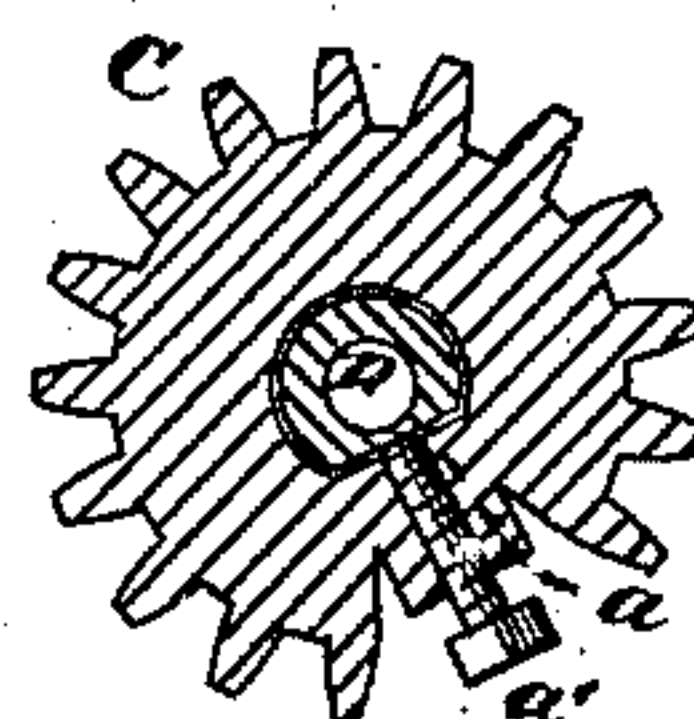


Fig. 9

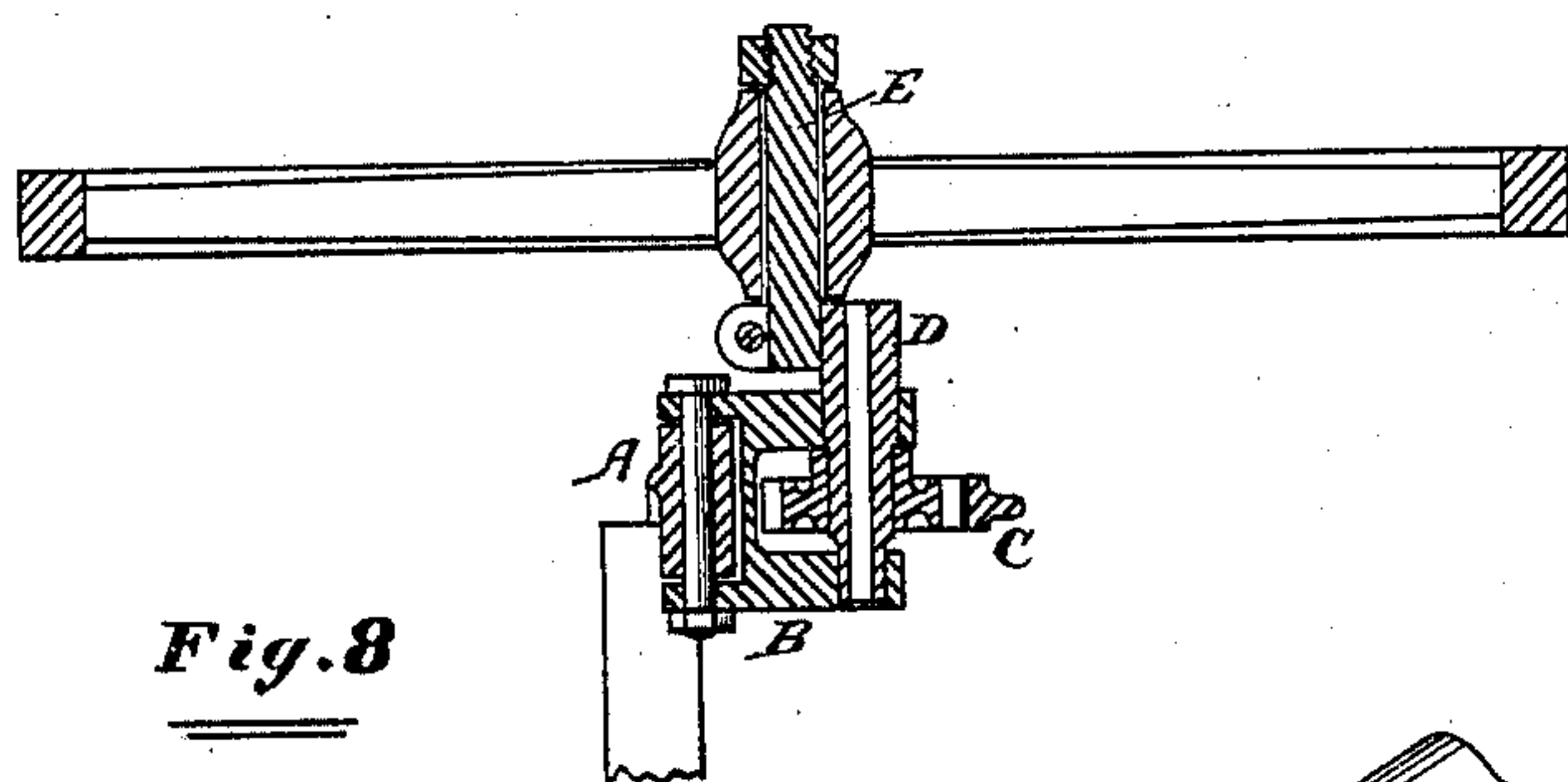


Fig. 8

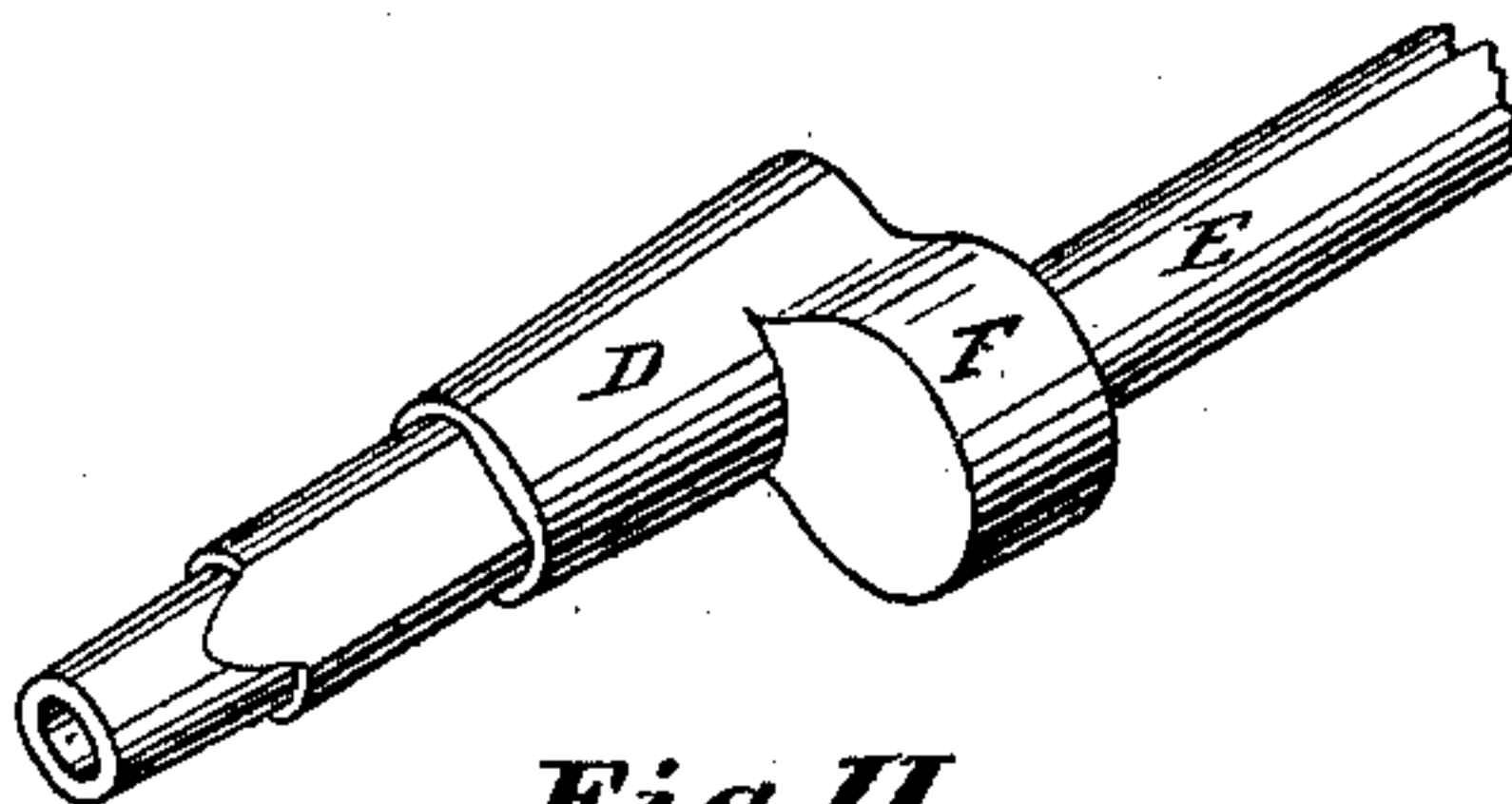


Fig. 11

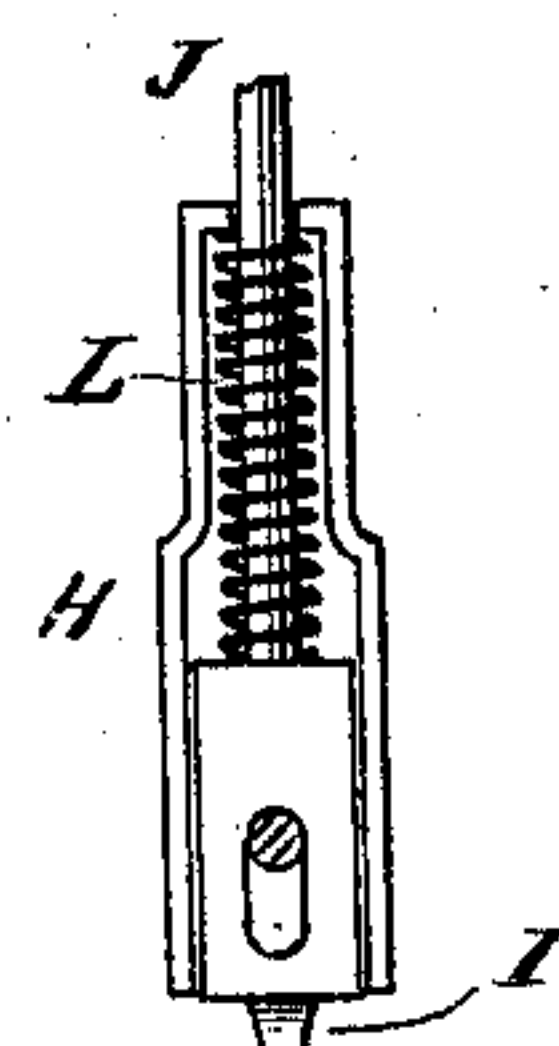


Fig. 10

Attest:

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INVENTOR:

*Casper F. Search*

By *Boyer & Co., his*

*Attorneys.*



# UNITED STATES PATENT OFFICE.

CASPER F. SEARCH, OF CHICAGO, ILLINOIS, ASSIGNOR OF ONE-HALF INTEREST TO JOHN C. COONLEY, OF SAME PLACE.

## IMPROVEMENT IN SULKY-PLOWS.

Specification forming part of Letters Patent No. **212,750**, dated February 25, 1879; application filed September 25, 1878.

*To all whom it may concern:*

Be it known that I, CASPER F. SEARCH, of Chicago, in the county of Cook and State of Illinois, have invented a certain new, useful, and improved adjusting device for raising and lowering the land-wheel of sulky-plows, and for other purposes, of which invention the following, in connection with the accompanying drawings, is a specification:

In the drawings, Figure 1, Sheet 1, is a side elevation of an adjusting device embodying my invention; Fig. 2, Sheet 1, a front elevation of the same; Fig. 3, Sheet 1, a section in the plane of the line  $x x$ ; Fig. 4, Sheet 1, a perspective of the axle-clamp; Fig. 5, Sheet 2, a side elevation, showing the relation of the adjusting device to the wheel; Fig. 6, Sheet 2, a like view of the opposite side of the device detached; Fig. 7, Sheet 2, a front view of the adjusting-lever; Fig. 8, Sheet 2, a section in the plane of the line  $x' x'$ ; Fig. 9, Sheet 2, a vertical central section of the pinion or cogged wheel; Fig. 10, Sheet 2, an interior view of the catch-box; and Fig. 11, Sheet 2, a perspective of a modification in the means employed to couple the wheel-axle to the shaft or axle of the cogged wheel.

Like letters of reference indicate like parts.

The land-wheel of sulky-plows when mounted on a crank-axle operating in connection with a lever for rotating the axle would in operation cause the wheel to be moved up and down in the arc of a circle, thus adjusting it with relation to the furrow-wheel. This mode of adjustment, however, is likely to leave the land-wheel farther rearward than the furrow-wheel, and the implement, for this reason, tends to move toward the land-side.

The object of my invention is to provide means whereby the crank-axle of the land-wheel will be carried in a vertical line during its adjustment, and hence be always opposite the furrow-wheel. I also aim to accomplish this result by means such as to adapt the adjusting device for use in connection with other implements wherein a vertical movement, or a movement in a straight line, may be preferable to an oscillating movement of the part adjusted.

To accomplish these objects I construct the

adjusting device substantially as hereinafter described.

A represents a skeleton standard or block rigidly fastened to the frame of the implement. B is a hanging bearing hinged to the part A. C is a spur-wheel mounted on an axle journaled in the part B, and D is the axle. I deem it preferable to make this axle tapering, so that nicety of construction may be avoided in order to fit it properly to its bearing, and so that compensation for wear may be made. I attach the wheel C to its axle in such a manner that the latter will be rotated by the wheel, and I accomplish this result, preferably, by making a flat surface on that part of the axle which receives the wheel, as shown at  $a$ , and fit the wheel thereto, as shown. The wheel may be prevented from lateral movement on its axle by means of a set-screw,  $a'$ . The wheel is thus rendered removable, and may easily be arranged in its place when the journal-bearings are closed, excepting at the ends, as shown. Such bearings, however, are not absolutely essential.

E is the land-wheel axle, and F is a crank-arm connecting it to the axle D. I deem it best to split the end of the arm F, as shown at  $b$ , so that it may be tightened upon the axle E by means of a screw,  $b'$ . The axle D and arm F may be made either in one piece or separately, or the axle E and arm F may consist of one piece, or the whole crank-axle may be in one piece, as may be deemed desirable. Lightness may be secured by making either or both axles hollow.

G is a rack lying in the arc of a circle having for its center the point on which the bearing B turns. This rack is arranged to receive the spurs of the wheel C during the vibration of the part B, and H is a lever extending from the said part or bearing. I is a catch or bolt arranged in a box carried by the lever H, and J is a connecting-rod connecting the catch I to the small bent lever K, pivoted to the upper end or handle of the lever H. The catch I is arranged to drop between the spurs of the wheel C, and L is a spring to aid its movement in that direction.

By grasping the handle of the lever H so as to also inclose the lever K in the hand the



catch or bolt I will be drawn from the spurs of the wheel C. The lever H may then be vibrated back and forth, and by this means the bearing B and the parts carried thereby will be moved either up or down, according to the direction in which the lever is moved. As the wheel C is constantly engaged by the rack G during the vibrating movement of the bearing B, the wheel and its axle are rotated, and this rotation vibrates the arm F, which carries with it the axle E. As the wheel C rolls from one end of the rack to the other it also moves out into the arc of the rack, and the arm F should be so hung that it will then swing in the opposite direction. If the distance between the centers of the axles D and E be equal to the greatest distance between the arc of the rack and the cord which subtends it, the axle E will be swung out in one direction as fast as the axle D moves in the other, and as the movement of all the parts is also either up or down, the axle E will move up and down in a vertical line. If, therefore, it is understood that L represents the land-wheel of a sulky-plow, and that it is mounted on the axle E, it will be perceived that this wheel may be adjusted vertically by the means described without being carried or left either forward or rearward of the furrow-wheel.

The rack G may be on an independent standard or part instead of being on a part continuous with the bearing of the hanger B, although I deem the form of construction shown to be preferable.

A cam will as well serve the purpose of the arm F.

It will also be perceived that the wheel L will be firmly locked in any position in which it may be set in order to adjust it properly to the depth of the furrow, it being understood that the catch I is to be released as soon as the adjustment is made. This catch or bolt prevents the rotation of the wheel C, and when it cannot be rotated it cannot, owing to its engagement with the rack, be moved either up or down. Neither can the wheel C be rotated without being moved either up or down, and consequently any arrangement of the catch which will prevent this up or down movement will also prevent the rotary movement.

As the wheel C is journaled in a vibrating hanger, any means which will prevent the vibration of the hanger temporarily will lock

the wheel L in any position in which it may be adjusted. As in the example shown the adjusting-lever is rigidly attached to the hanger, the locking of the lever will lock all the parts, and this result may be accomplished by allowing the catch to drop between spurs on the upper edge of the part A.

I do not here claim the lever H and its catch; neither do I intend to be restricted to them when operating in connection with the remaining parts of the device for the purposes set forth, for any well-known and suitable lever and catch may be employed instead thereof for the same purposes, though constructed and arranged somewhat differently.

It will be perceived from the foregoing description that an adjusting device constructed substantially like that herein shown may be used with advantage for various purposes in implements other than those hereinbefore referred to, and wherein it may be desirable to effect a movement or adjustment similar to that described. For example, the cutter-bar of a reaping-machine may be raised and lowered by means substantially the same, and as soon as an obstruction has been passed the bar may be brought down without passing over as much grain as when moved down in the arc of a circle. I do not, therefore, here intend to restrict myself to the combination of this device with any particular implement, as it may be applied with advantage to many.

The axles D and E, with the connecting-arm F, may be regarded as a crank-axle.

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

1. The combination, in an adjusting device, of a crank-axle journaled in swinging bearings, a spur-wheel mounted on the said axle, and a rack engaging the said wheel, substantially as specified.

2. The combination of the swinging bearing B, the axle D, carrying a crank-arm, the wheel C, mounted on the said axle, and the rack G, all operating together substantially as specified, in connection with an adjusting-lever and a bolt or catch.

CASPER F. SEARCH.

In presence of—

F. F. WARNER,  
JAMES H. COYNE.