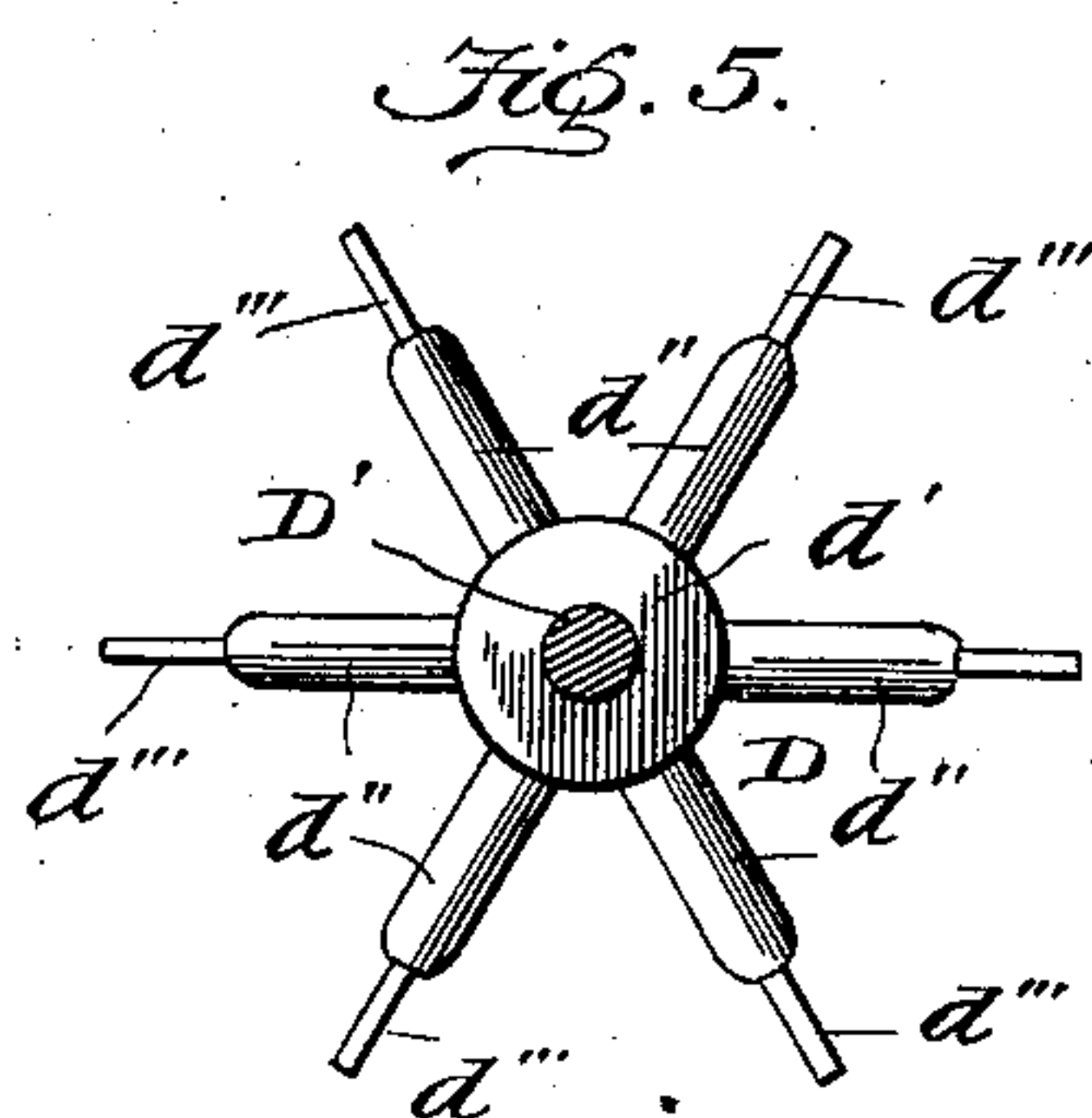
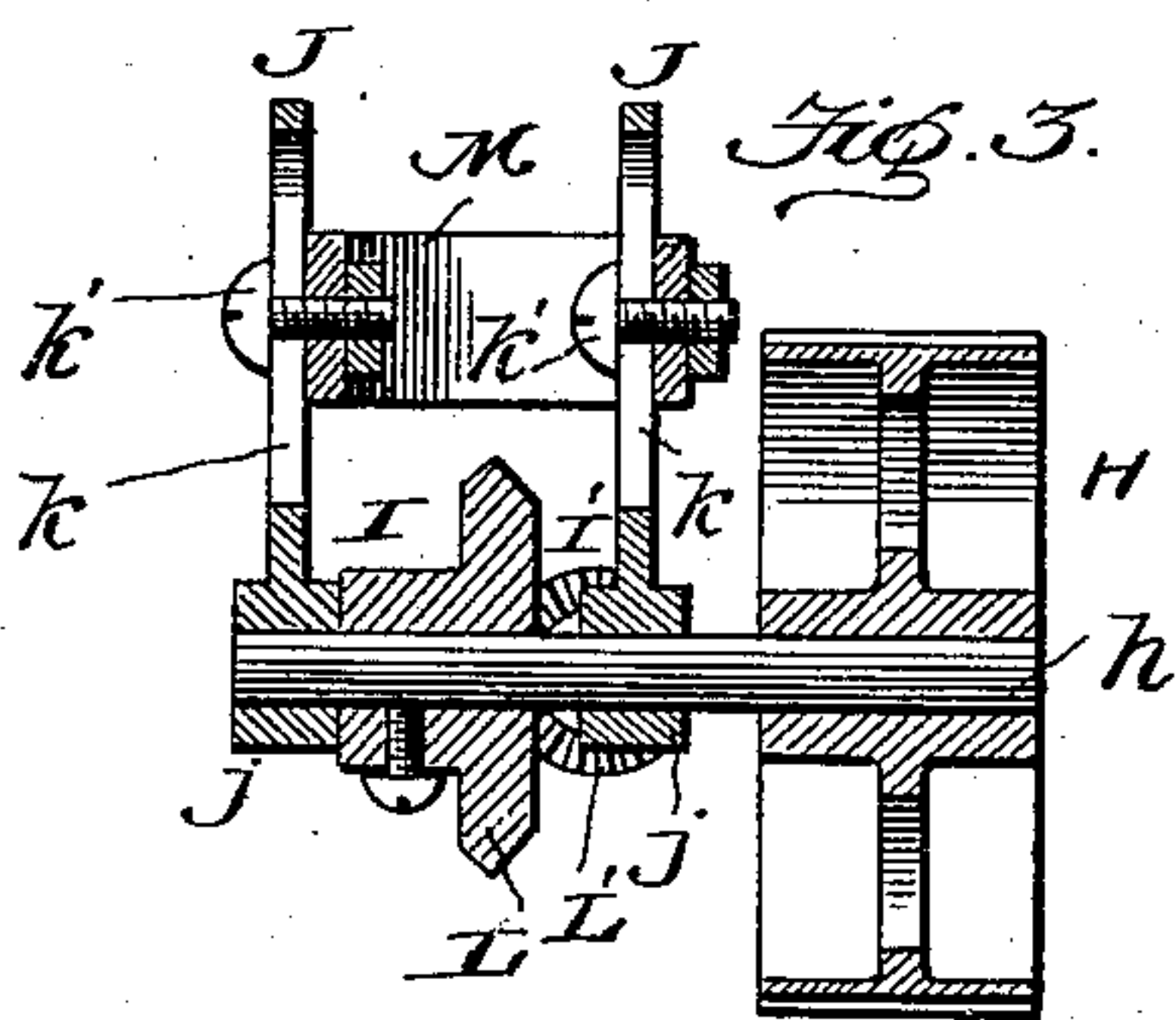
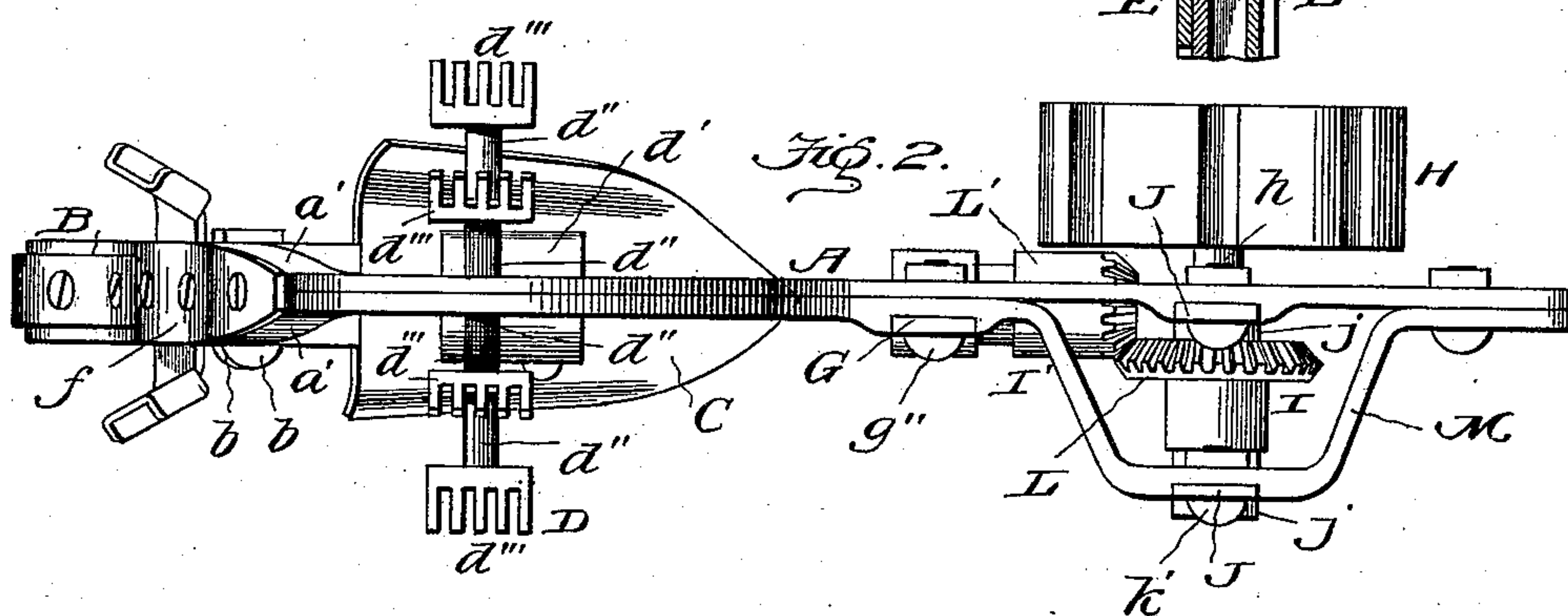
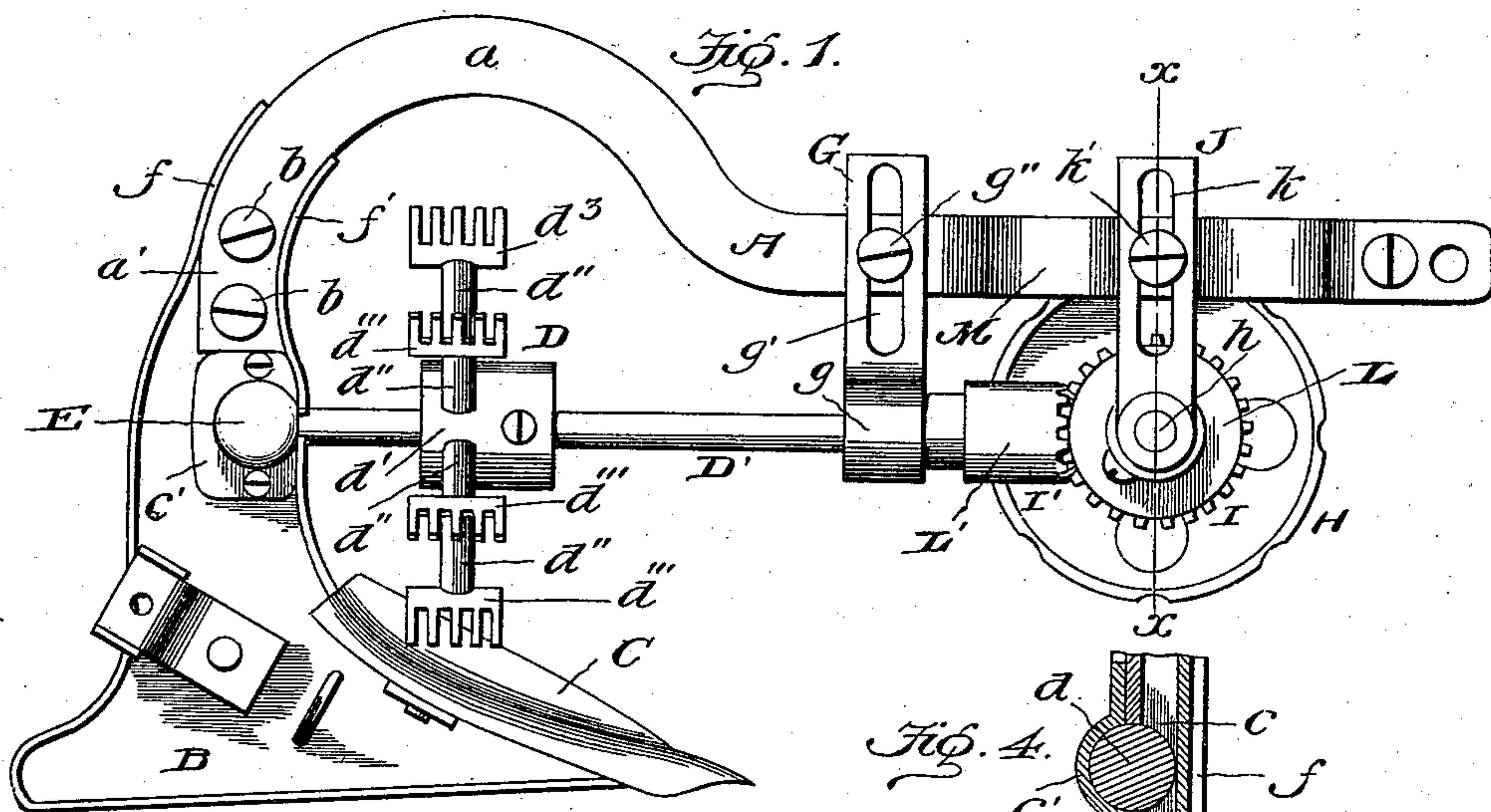


(No Model.)

L. HINDERMEIER,  
POTATO PLOW.

No. 567,475.

Patented Sept. 8, 1896.



Witnesses:

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# UNITED STATES PATENT OFFICE.

LOUIS HINDERMEIER, OF MECOSTA, MICHIGAN.

## POTATO-PLOW.

SPECIFICATION forming part of Letters Patent No. 567,475, dated September 8, 1896.

Application filed February 20, 1896. Serial No. 580,104. (No model.)

*To all whom it may concern:*

Be it known that I, LOUIS HINDERMEIER, a citizen of the United States, residing at Mecosta, in the county of Mecosta and State of Michigan, have invented certain new and useful Improvements in Potato-Plows; and I do hereby declare the following to be a full, clear, and exact description of the invention, such as will enable others skilled in the art to which it appertains to make and use the same.

My invention relates to improvements in potato-plows in which a positively-driven clearer and separator is hung over the plowshare to rotate in a plane substantially at right angles to the line of draft of the implement, and which operates to break up the slice or furrow as it is raised by the share, so as to separate the potatoes from the soil and to deliver or throw the potatoes to one side of the furrow on top of the ground.

The object of my invention is to provide a simple construction in which the rotary clearer and its driving devices may be readily adjusted to regulate the depth of penetration of the plowshare without interfering with the operation of the clearer.

With these ends in view, my invention consists in the novel combination of devices and in the construction and arrangement of parts, which will be hereinafter fully described and claimed.

To enable others to understand my invention, I have illustrated the preferred embodiment thereof in the accompanying drawings, forming a part of this specification, and in which—

Figure 1 is an elevation looking at one side of the implement. Fig. 2 is a top plan view thereof. Fig. 3 is a vertical cross-sectional view on the plane indicated by the dotted line  $xx$  of Fig. 1. Fig. 4 is a detail sectional view of the ball-and-socket bearing for one end of the clearer-shaft. Fig. 5 is a detail view of the clearer.

Like letters of reference denote corresponding parts in all the figures of the drawings.

A designates the plow-beam, which is integral with or rigidly united to the foot or stock B. On the foot B is secured the plowshare C, which, in the embodiment shown in the drawings, consists of a double share set

in an inclined position and substantially at right angles to the line of draft of the implement. The beam A is arched or curved over the plowshare C, as at  $a$ , to properly accommodate the rotary clearer D, and from this arch  $a$  the beam extends in a straight line forward for a suitable distance, the front end of the beam being formed in any approved way to receive the draft appliances by which a horse, or a team of horses, may be hitched to the plow. In the drawings I have shown the stock B and beam A made separately, and the rear end of the beam is forked to provide the arms  $a'$ , which overlap the upper end of the stock B, the parts being united solidly by the through-bolts  $b$ . This foot or stock is provided at a suitable distance above the upper edge of the plowshare with a recess  $c$ , over one side of which is secured a cap-plate or boxing  $c'$ , the whole forming a spherical bearing E for the accommodation of the ball-shaped or spherical head  $d$  on the rear end of the clearer-shaft D'. This construction forms a ball-and-socket joint or bearing between the plow-frame and the clearer-shaft, which permits the shaft to rotate freely in the bearing, and also enables the shaft to be inclined or raised and lowered at will without disturbing the connection between the rear end of the shaft D' and the plow-frame and without interfering with the free rotation of the shaft. Over the front and rear edges of the stock B and the rear end of the beam A are applied the face-plates  $f f'$ , which overlap the joint between the stock and beam and which are fastened in place by suitable attaching means. I would have it understood, however, that the detailed construction of the beam and stock herein shown and described is not essential to my invention, and such construction may be modified and changed by a skilled mechanic without departing from the spirit of my invention.

The clearer-shaft D' runs longitudinally of the implement below the beam A, and at a suitable distance above the right-angled set double share C. The rear end of this shaft D' is joined to the plow-frame by the ball-and-socket bearing E, hereinbefore described, and the front part of this shaft is journaled in a bearing  $g$  at the lower end of the hanger G, which is attached to the plow-beam near its



front part in a manner to adjust the hanger vertically on the plow-beam. Such construction of the vertically-adjustable hanger G (shown in Fig. 2) contemplates the provision of a longitudinal slot  $g'$  in the hanger, through which slot passes a headed bolt  $g''$ , that also passes through the beam and serves to clamp the hanger to the beam; but the detailed construction of the hanger may be modified as desired.

The rotary clearer D is in the form of a spider, and preferably consists of a hub  $d$ , a series of radial arms  $d'$ , and a series of toothed heads  $d''$  at the outer extremities of the radial arms, all of which parts are preferably integral with each other, so that the clearer or spider constitutes a single casting, although the parts may be made separately to be assembled and joined together. The heads  $d''$  are enlarged and formed with the plurality of teeth or tines, and the heads are arranged to be parallel to the axis of the hub  $d$ , so as to cause the toothed heads to sweep through the soil or furrow raised by the share C. The spider-like clearer has its hub fitted on and clamped to the shaft  $D'$  so as to lie above the share and to sweep below the arch  $a$  of the beam, and said clearer is arranged to rotate in a plane at right angles to the line of draft of the implement.

As a means for rotating the shaft and the clearer thereon I have devised the ground-wheel H, the gearing  $I I'$ , and hangers to support the shaft for the gearing and wheel in a manner to adjust the ground-wheel and the gearing correspondingly to the adjustment of the shaft  $D'$ , whereby the ground-wheel may be adjusted to regulate the penetration of the share and the depth of the furrow.

The ground-wheel H is arranged at one side of the plow-beam, and it is of such diameter as to lie between the line of the beam and the share C. This wheel H is fixed to a transverse shaft  $h$ , which is at right angles to the beam A and is journaled in bearings  $j j$  on the lower ends of the vertically-adjustable hangers J J. These hangers are slotted at their upper ends, as at  $k$ , for the passage of the clamping-bolts  $k'$ , and said hangers are spaced apart a suitable distance to accommodate a bevel-gear L between them, said bevel-gear being fastened to the ground-wheel shaft  $h$ , so that the ground-wheel and the gear rotate together. One of the hangers is adjustably clamped by its bolt  $k'$  to the beam A, but the other hanger is adjustably clamped to a bracket M, which is bent at its middle so as to stand off to one side of the beam, and which is bolted at its ends to the beam, as shown by Fig. 2.

The front end of the shaft  $D'$  is extended or carried through the front hanger-bearing, and to said end is secured a bevel gear-wheel  $L'$ , which meshes with the bevel-gear L, whereby the two shafts  $D' h$  are geared directly together and the shaft  $D'$  is adapted to be driven by the ground-wheel H.

Although I have shown the device for supporting the ground-wheel and its shaft as consisting of two independent hangers J J, which are attached, respectively, to the plow-beam and to an offstanding bracket thereon, yet it is obvious that a single hanger may be constructed to sustain the ground-wheel shaft.

The operation may be described as follows: When the implement is drawn across a potato field, the ground-wheel H rides on the ground in advance of the share C so as to rotate and to drive the shaft  $D'$  positively, and the share C penetrates the ground and raises the furrow or soil into the path of the clearer D. This clearer D is positively rotated in a plane at right angles to the line of draft of the implement, and as the toothed heads  $d''$  are forced through the soil the clearer breaks up the furrow and throws the potatoes to one side of the line of movement of the implement. The potatoes are partially cleaned from the soil and are delivered to one side of the implement, so that they can be easily gathered. The ground-wheel H may be raised or lowered for the purpose of regulating the penetration of the share by the proper adjustment of the hangers J J, and the hanger G for the front end of the shaft is adjusted corresponding to the adjustment of the ground-wheel, in order that the gears  $L L'$  may properly mesh together. This adjustment for the front end of the clearer-shaft does not disturb the bearing for the rear end of said shaft, because the ball-and-socket bearing permits the shaft  $D'$  to be raised or lowered as desired.

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

1. In a potato-plow, the combination with a foot or stock, and a beam, of a double share carried by the stock or foot, a longitudinal shaft having its rear end journaled in a compensating bearing on the foot or stock, a bearing for the front of the longitudinal shaft, a ground-wheel geared to the front part of said shaft, and a rotary clearer-reel arranged directly over the double share and attached to the longitudinal shaft to rotate therewith, substantially as and for the purposes described.

2. In a potato-plow, the combination with a beam, and a foot or stock, of a share carried by said foot or stock, a longitudinal shaft, a ball-and-socket coupling for rotatably supporting the rear end of said shaft on the foot or stock, a vertically-adjustable ground-wheel geared to the longitudinal shaft, and a rotary clearer-reel situated directly over the share and attached to the shaft to rotate therewith, substantially as and for the purposes described.

3. In a potato-plow, the combination with an arched beam and a foot or stock, of a double share C, a hanger G adjustably attached to said beam, a longitudinal shaft hav-



ing its rear end journaled, by the ball-and-  
socket bearing E, on the foot or stock and its  
front end supported by the hanger G, the  
offstanding bracket M, the hangers J, J', the  
5 ground-wheel geared to the shaft and having  
its axle journaled in said hangers J, J' and  
the rotary clearer D fastened to the shaft in  
position to rotate therewith immediately over

the share C, substantially as and for the pur-  
poses described.

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

LOUIS HINDERMEIER.

Witnesses:

A. R. STREETER,  
PORTER EIGHMY.