

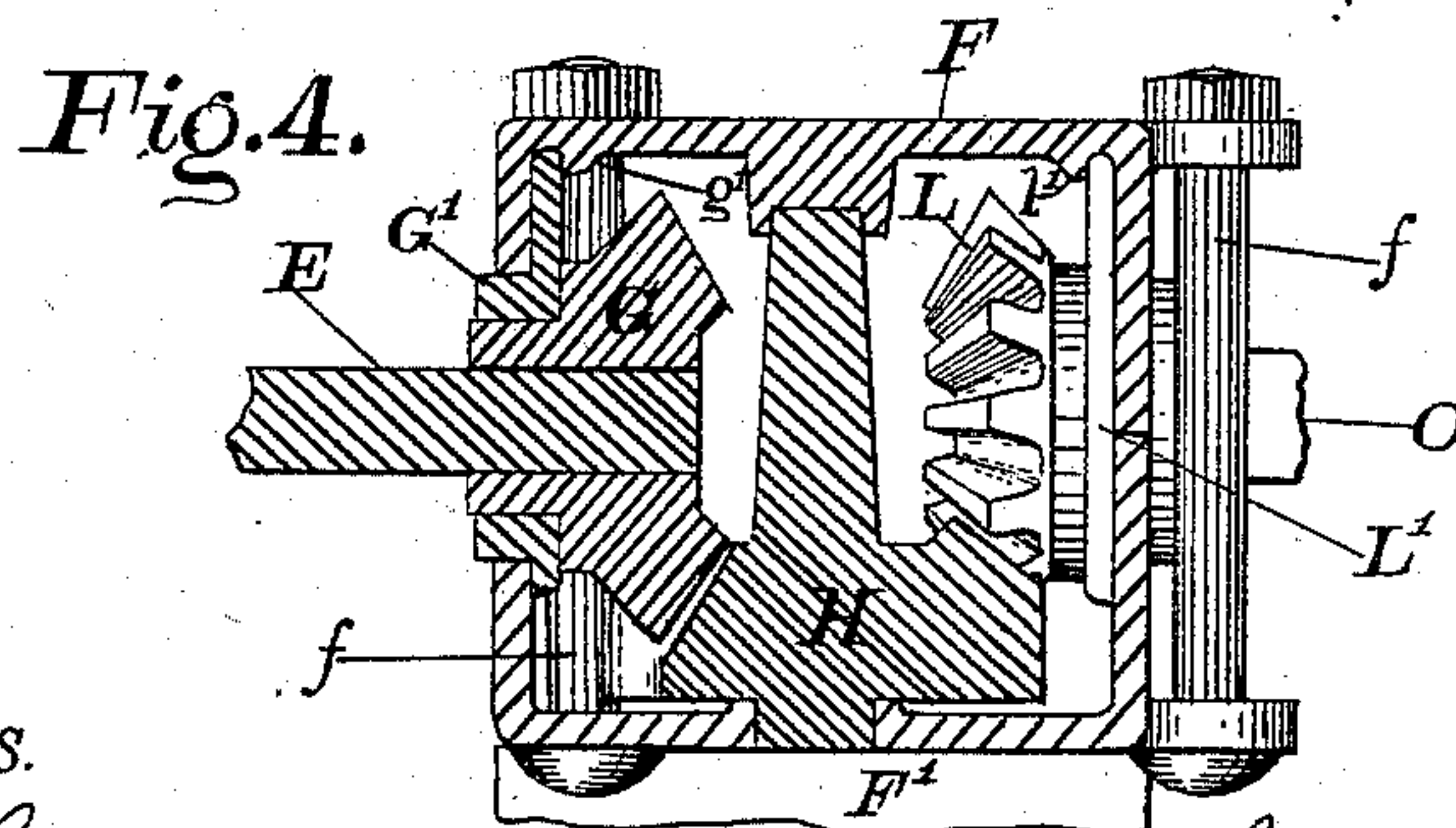
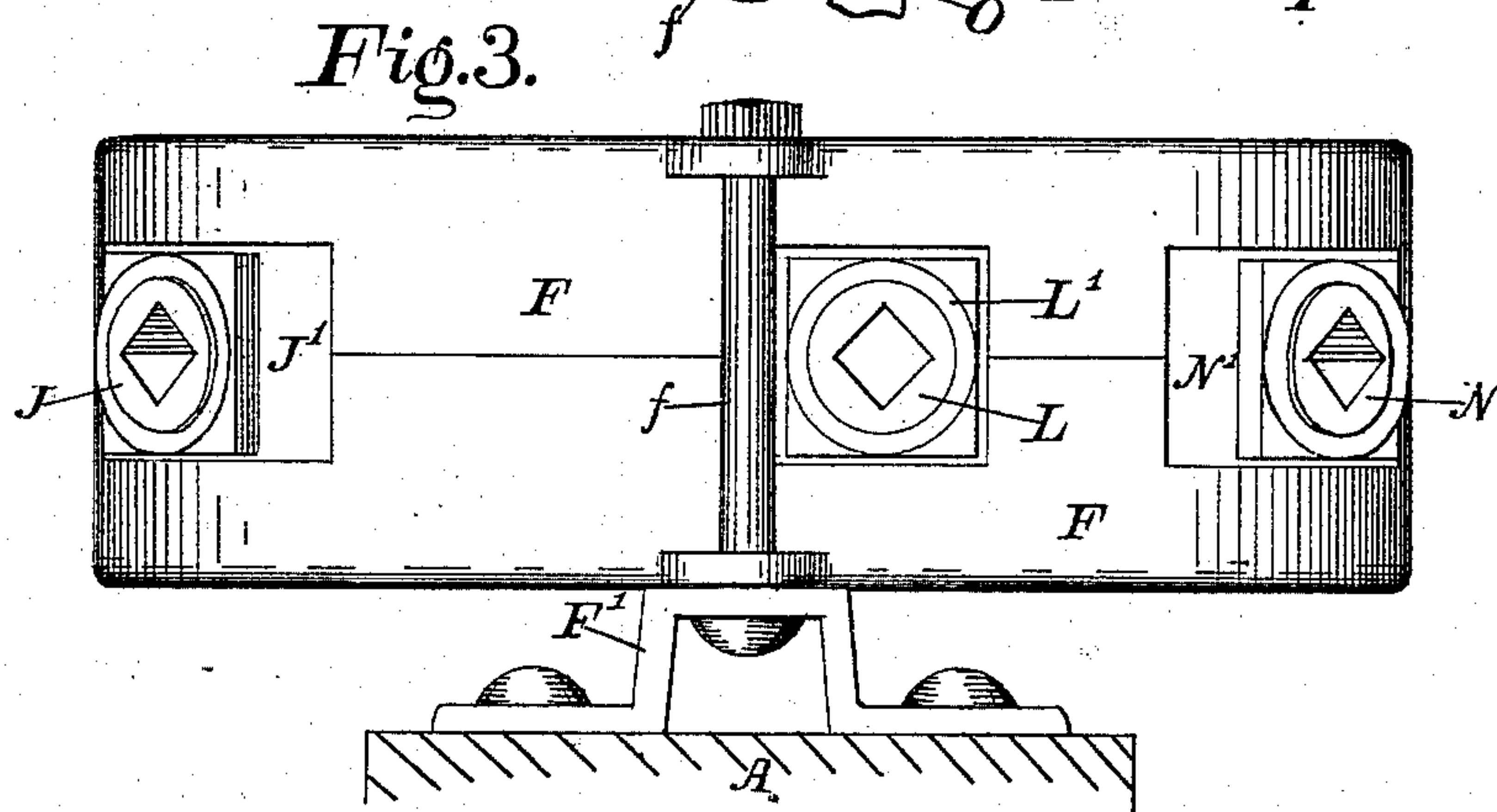
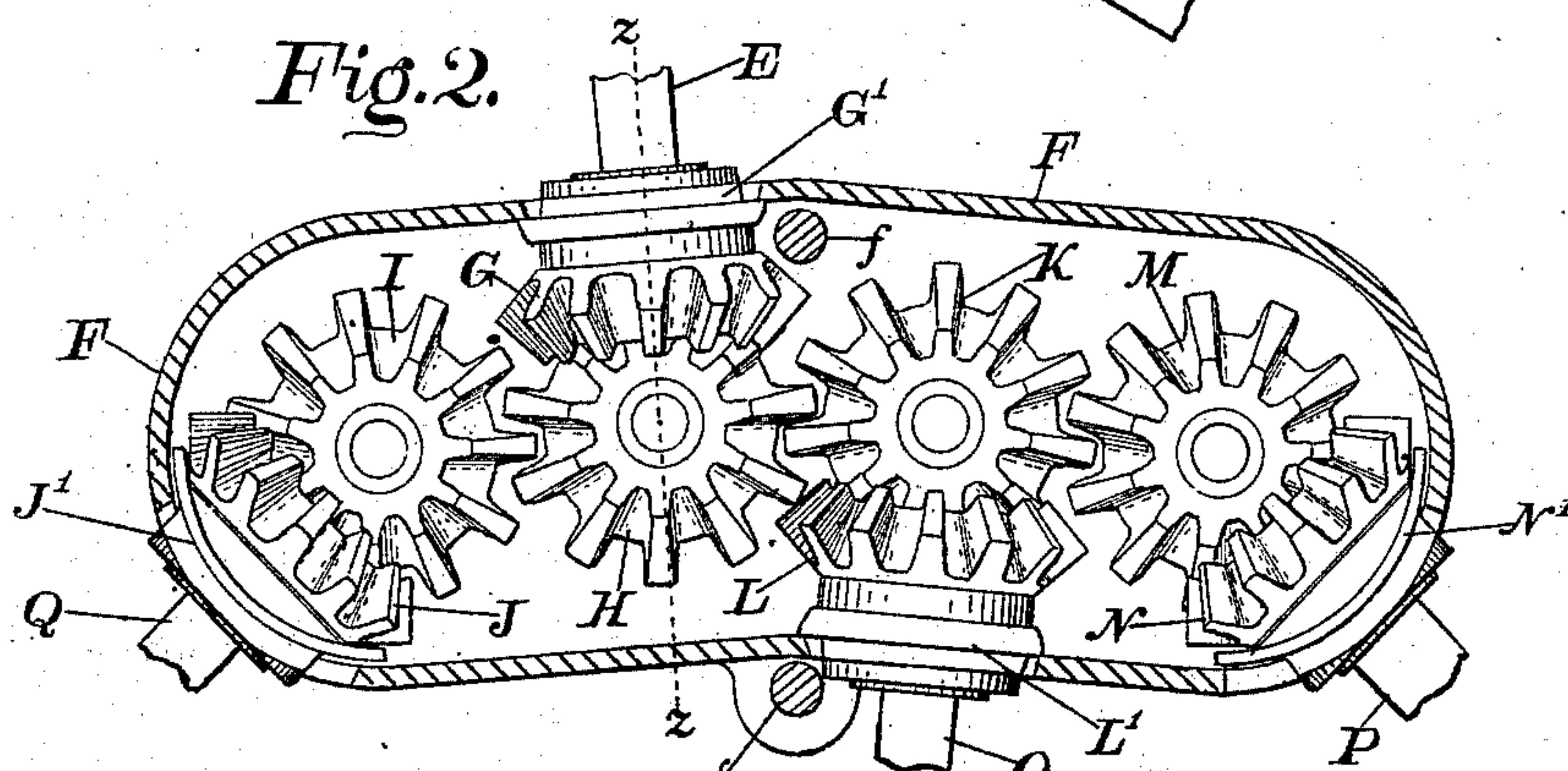
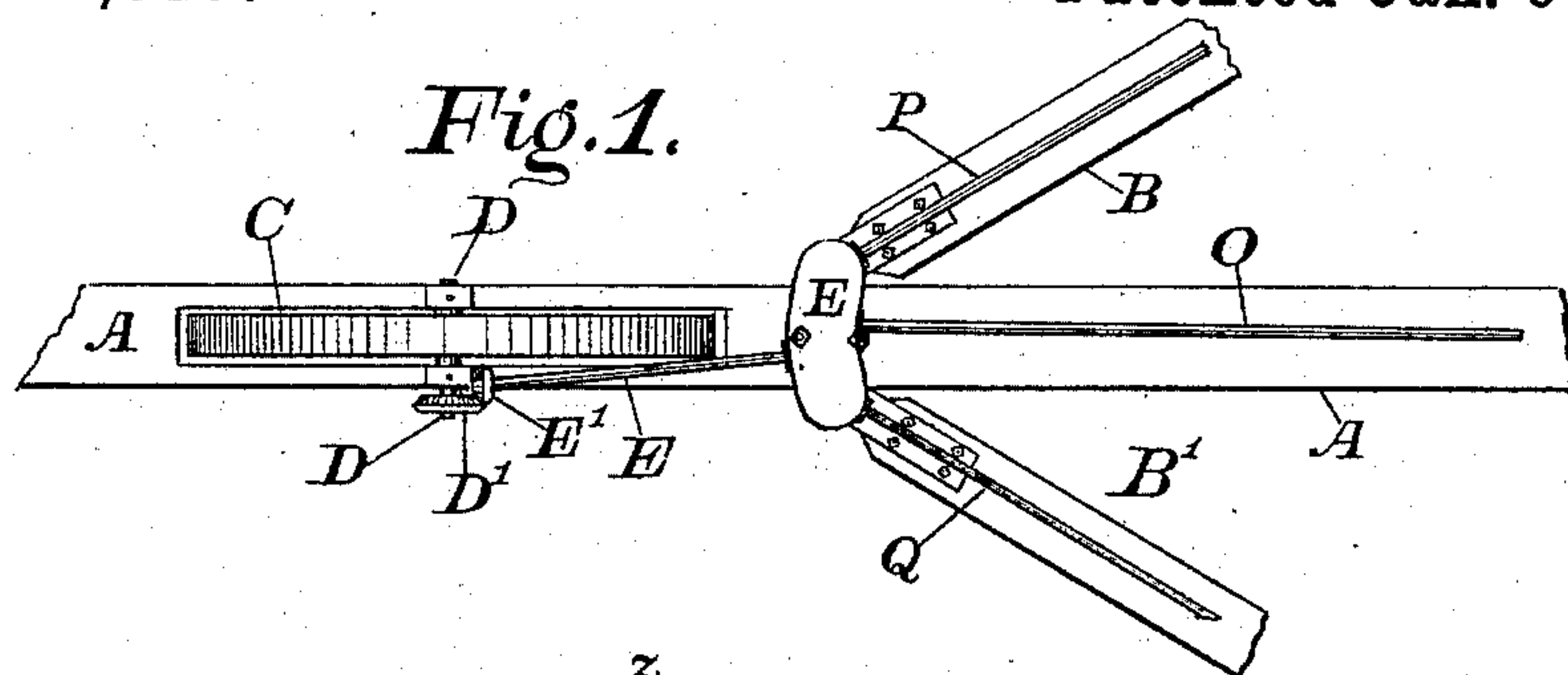
(Model.)

J. KING.

GEARING FOR GRAIN DRILLS.

No. 270,317.

Patented Jan. 9. 1883.



WITNESSES.

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GEARING FOR GRAIN-DRILLS.

SPECIFICATION forming part of Letters Patent No. 270,317, dated January 9, 1883.

Application filed April 25, 1882. (Model.)

To all whom it may concern:

Be it known that I, JACOB KING, of the city of Indianapolis, county of Marion, and State of Indiana, have invented certain new and useful Improvements in Gearing for Grain-Drills, of which the following is a specification.

My said invention consists in a novel construction and arrangement of gear-wheels, whereby the side bars of the frame of grain-drills may be moved toward and from the center without affecting the operation of said gear-wheels, the object being to construct and arrange the gearing in such a manner that it will operate equally well at any angle at which said side bars may be set. I am aware that this has been accomplished before, having myself secured Letters Patent on two different devices for the purpose. I do not therefore desire to be understood as claiming all means for the purpose, but only such as are herein-after described and claimed as new.

I desire especially to disclaim any construction wherein the axes of all the gear-wheels are on a common plane, it being essential to my present invention that the axes of a part of said wheels should be on or near a horizontal plane and that the axes of the others should be at substantially right angles therewith, or on or near a vertical plane.

Referring to the accompanying drawings, which are made a part hereof, and on which similar letters of reference indicate similar parts, Figure 1 is a top or plan view of so much of a grain-drill frame and mechanism as is necessary to illustrate my said invention; Fig. 2, a top or plan view of the gears, the top half of the inclosing case being removed; Fig. 3, an elevation of the said case, and Fig. 4 a transverse vertical section on the dotted line *z z*.

In said drawings, the portions marked A represent the central or main bar of a grain-drill frame; B B', the side bars thereto; C, the carrier-wheel; D, the axle of said wheel; E, a shaft connected to said axle by the gears D' E' and running to the device embodying my invention; F, the casing of said device; G H I J K L M N, the gear-wheels thereof; and O, P, and Q, the several shafts running along the bars A, B, and B' of the frame-work to the drilling mechanism. (Not shown.)

Of the above-described parts all except the

gearing in the case F and the devices immediately connected therewith are old and well known, and therefore require no special description.

The case F consists of two halves, which are preferably secured together by bolts *f f*, and the whole device is preferably mounted upon a clip, F', which latter is secured to the bar A. In the sides of said case are openings, in which rest the bearings for the wheels G, J, L, and N, two of which, for the wheels J and N, are long enough to permit said wheels a considerable lateral movement. The top and bottom of this case are provided with sockets to receive the ends of the shafts of the wheels I, H, K, and M, said shafts being preferably cast integral with said wheels, as shown.

The wheel G is an ordinary miter-gear wheel, and is mounted on the inner end of the shaft E. A bearing, G', is provided, wherein this wheel turns. Said bearing rests in an opening in the side of the case F, and is provided with a lip, which passes behind the lug *g'* in the top of said casing, whereby it is held securely in position.

The wheel L and its accompanying parts correspond closely to the parts just described. The shaft O is driven by this wheel.

The wheels J and N and accompanying parts are also like the wheel G and its parts, except that by reason of a longer slot in the casing F said wheels are permitted to swing partially around the wheels I and M, and thus allow the shafts Q and P and the bars B and B' (which latter are pivoted about in line with the axes of said wheels I and M) to be moved toward or from each other and thus adjusted to suit the width of rows desired.

The wheels I, H, K, and M are each double wheels—that is, each is provided with both spur and bevel teeth or cogs, whereby it is enabled to serve both as a spur-gear and as a bevel-gear. The spur cogs or teeth serve to connect said wheels in a horizontal train, and the bevel set to connect them to the gears J, G, L, and N. Said wheels may rest in any suitable bearings, common sockets being shown.

The operation of my invention is as follows: The wheel C, through the gears D' E' and shaft E, drives the wheel G, and this sets the train in motion, as will be easily understood from an

examination of the drawings. As will also be readily understood, the radial position of the wheels J and N relative to the wheels I and M can be shifted at pleasure without in the slightest degree affecting the working of the device, and this permits the full accomplishment of my object.

Should it be desired to increase the size of the machine, additional gears could be added, and as many shafts similar to the shafts P and Q thus driven as should seem desirable without changing the nature of my invention.

A distinguishing feature of this invention is that one half of the wheels are set vertically and the other half horizontally. This permits the horizontally-set wheels (those which have a vertical axis) to both drive other similar wheels and also wheels the axes of which are at right angles therewith.

The terms "vertically" and "horizontally" as used in this specification are not intended to be strictly construed, as it is obvious that a considerable departure from exact vertical and horizontal lines can be made without affecting the nature of this invention, although the axes of the several wheels should ordinarily be in substantially that relation when in use.

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

1. The combination, in a grain-drill mechanism, with the several shafts thereof, of a

gearing consisting in part of several gear-wheels which are formed with both spur and bevel teeth, the spur-teeth of which connect said wheels together in train and the bevel-teeth of which connect with other wheels having similar bevel-teeth and in part of said other wheels, the axes of which are set at substantially right angles with the axes of the first, substantially as described, and for the purposes specified.

2. The combination, in a gearing for grain-drills, of horizontally-set gears meshing into each other and also meshing into vertically-set gears, whereby each not only serves to drive its fellow in its own train, but also a wheel the axis whereof is at an angle with its own, substantially as shown and specified.

3. In a gearing for grain-drills, the combination, with the gears that drive the shafts P and Q, of bearings P' and Q', adapted, as specified, to slide in openings in the surrounding casing, whereby the angle of said shafts can be changed relative to the whole device without changing it relative to the wheel which drives it, substantially as set forth.

In witness whereof I have hereunto set my hand and seal, at Indianapolis, Indiana, this 21st day of April, A. D. 1882.

JACOB KING. [L. S.]

In presence of—

C. BRADFORD,
CHAS. N. LEONARD.