

(No Model.)

2 Sheets—Sheet 1.

S. H. EVERETT & G. W. KIRKPATRICK.  
CHANGEABLE SPEED GEARING.

No. 438,231.

Patented Oct. 14, 1890.

Fig. 1.

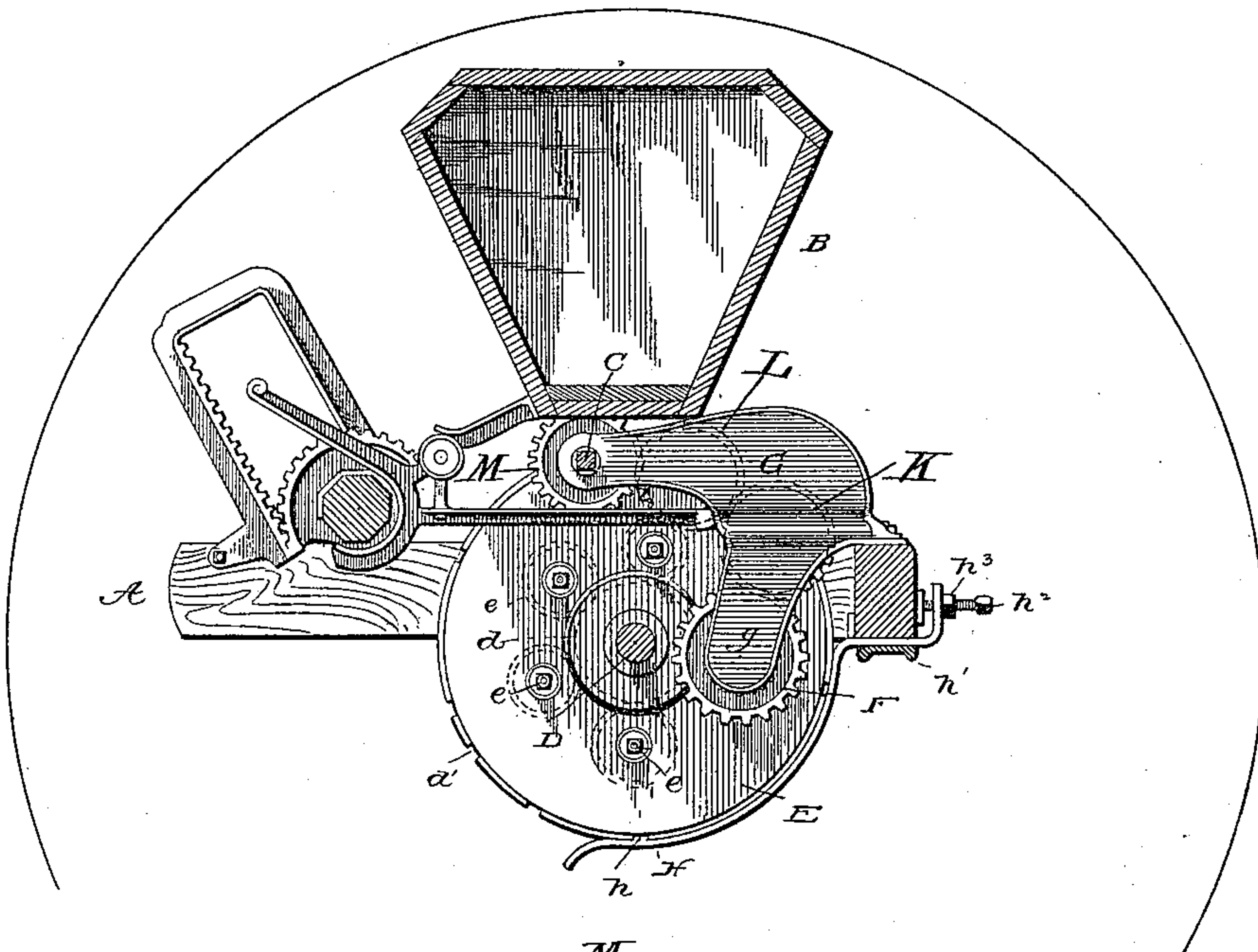
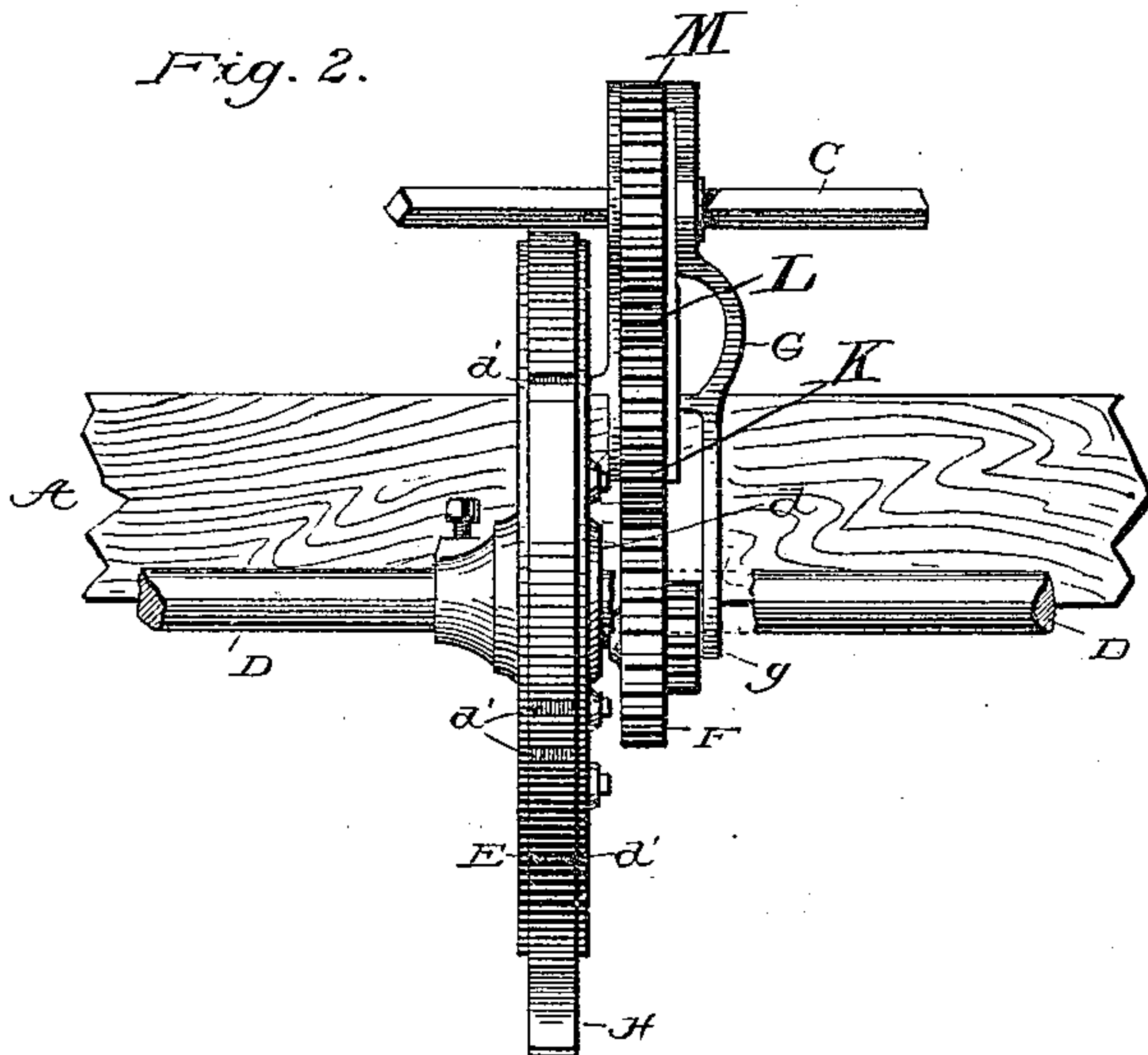


Fig. 2.



Witnesses:

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A. R. Kennedy.

Inventor:

S. H. Everett  
G. W. Kirkpatrick  
By Phil. T. Dodge, Atty

(No Model.)

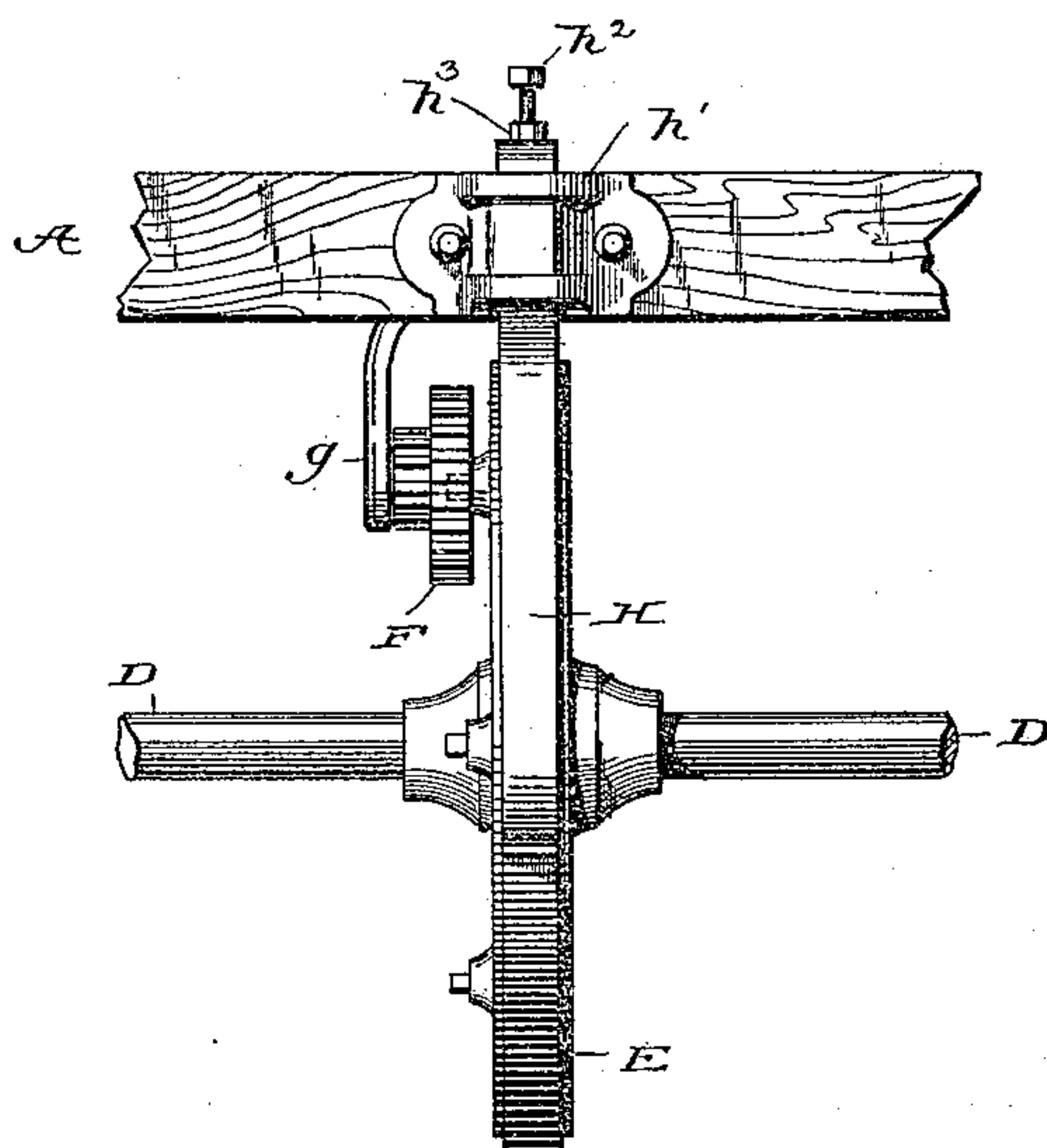
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Fig. 3.



Witnesses:

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# UNITED STATES PATENT OFFICE.

SAMUEL H. EVERETT AND GEORGE W. KIRKPATRICK, OF MACEDON, NEW YORK, ASSIGNORS TO HELEN M. KIRKPATRICK, OF SAME PLACE.

## CHANGEABLE-SPEED GEARING.

SPECIFICATION forming part of Letters Patent No. 438,231, dated October 14, 1890.

Application filed June 3, 1890. Serial No. 354,091. (No model.)

*To all whom it may concern:*

Be it known that we, SAMUEL H. EVERETT and GEORGE W. KIRKPATRICK, of Macedon, in the county of Wayne and State of New York, have invented certain Improvements in Changeable-Speed Gearing, of which the following is a specification.

This invention relates to certain devices intended for use in connection with gearing of the character represented in Letters Patent to Albert Armitage, No. 345,018, dated July 6, 1889, and to George W. Kirkpatrick and Andrew J. Martin, No. 357,834, dated February 15, 1887. In this class of gearing a series of pinions of different diameters, known as "secondary pinions," constantly engaging a central driving-pinion, are mounted in a supporting case or shell revoluble around the axis of the driving-pinion, in order that one or another of the secondary pinions may be brought into position for connection with the parts to be driven, the supporting case or shell being locked in position.

The present invention relates to improved means for locking this rotary case, and for effecting an accurate adjustment of the same in order to compensate for wear or for inaccuracy in the assemblage of the parts, so that the external pinions remain properly in engagement.

Our invention is intended more especially, although not exclusively, for application to grain-drills, and we have thereby illustrated the same in such connection.

Figure 1 is a vertical section through the frame and grain-box and attendant parts of a grain-drill having our improvements applied thereto. Fig. 2 is an elevation of the gearing and attendant parts viewed from the rear. Fig. 3 is a bottom plan view showing the manner in which the changeable outside pinion is held in place.

Referring to the drawings, A represents the frame of the machine; B, the grain-box or hopper; C, a horizontal shaft underlying the hopper and driving the seed-distributing mechanism; and D the horizontal main axle which will be operated by ground-wheels at its ends.

E is the circular case or shell loosely

mounted on the axle and containing the series of pinions *e* of different diameters, which constantly engage the driving-pinion *d* of the axle. The secondary pinions *e* have their journals or hubs projected through one side of the case and made of angular form to receive an external pinion F. This pinion may be applied to the hub of either one of the secondary pinions, which turn at different speeds, and by revolving the case or shell E bodily around the axle the pinion F thus applied may be brought into suitable position to connect with the intermediate gears through which the shaft C is driven. In their construction, arrangement, and mode of operation these parts are essentially the same as those in machines now in existence.

In applying our improvement we bolt to the main frame, or to any other suitable support, a plate G, having a depending arm *g*, which lies outside of the pinion F, when the latter is in operative position, for the purpose of holding the said pinion in place upon the hub of the inner pinion *e*. The pinion F is applied at a point outside of the arm *g*, and then turned into position behind the arm—that is, to its operative position—by the revolution of the case or shell. The plate G also sustains the fixed pinion K, with which pinion F engages, and a pinion L, through which pinion K imparts motion to pinion M on shaft C.

H represents a spring arm or latch having one end adjustably fixed to the frame, and the opposite end provided with a tooth *h* to engage notches *d'* in the periphery of the case in order to prevent the latter from rotating. The upper end of this arm is passed through a guide-plate *h'*, bolted to the frame, and is provided in its upturned outer end with a set-screw *h*<sup>2</sup> provided with a jam-nut *h*<sup>3</sup>. This screw bearing against the frame serves to draw the arm bodily forward so that its tooth will hold the case or shell in the exact position required to insure the proper engagement of the pinion F with the pinion driven thereby.

By thus adjusting the arm or latch endwise and changing the position of the case we are enabled not only to compensate for



wear in the teeth of the pinions, but also to bring the pinions in proper operative relations without exercising special care in fitting or adjusting the parts at the time they  
5 are assembled.

It will of course be understood that the toothed end of the arm or latch may be readily drawn out of engagement with the case in order that the latter may be turned to bring  
10 one or another of its pinions into operative position, or to throw the pinion F out of action.

The essence of the invention resides in the combination, with the gear-supporting case or shell, of a latch connected to the frame or  
15 other support by devices which permit it to change its operative position, and the details may be modified at will.

Having thus described our invention, what we claim is—

20 1. The rotatable gear-sustaining case, the latch to hold the same, and means, substantially as described, for adjusting and fixing the latch to vary its operative position.

2. In combination with the rotatable gear-  
25 sustaining case, as described, the spring-latch,

its sustaining-plate, and the latch-adjusting screw.

3. The rotatable gear-sustaining case and the external pinion F, receiving support therefrom, in combination with the fixed pin- 30  
ion K, engaging pinion F, and a locking device for the case adjustable in position, substantially as described, to vary the depth of the engagement between pinions F K.

4. The frame, the rotatable case, and the 35  
secondary pinions therein, in combination with the external pinion F, removable from one secondary pinion to another, the fixed arm g to retain the pinion in place, and a locking device to prevent rotation of the shell, 40  
whereby the pinion K is retained in operative position.

In testimony whereof we hereunto set our hands, this 16th day of May, 1890, in the presence of two attesting witnesses.

SAMUEL H. EVERETT.

GEORGE W. KIRKPATRICK.

Witnesses:

W. P. THISTLETHWAITE,

C. J. THISTLETHWAITE.