

(No Model.)

O. K. MCINTIRE.  
PAWL AND RATCHET MECHANISM.

No. 417,269.

Patented Dec. 17, 1889.

Fig. 1.

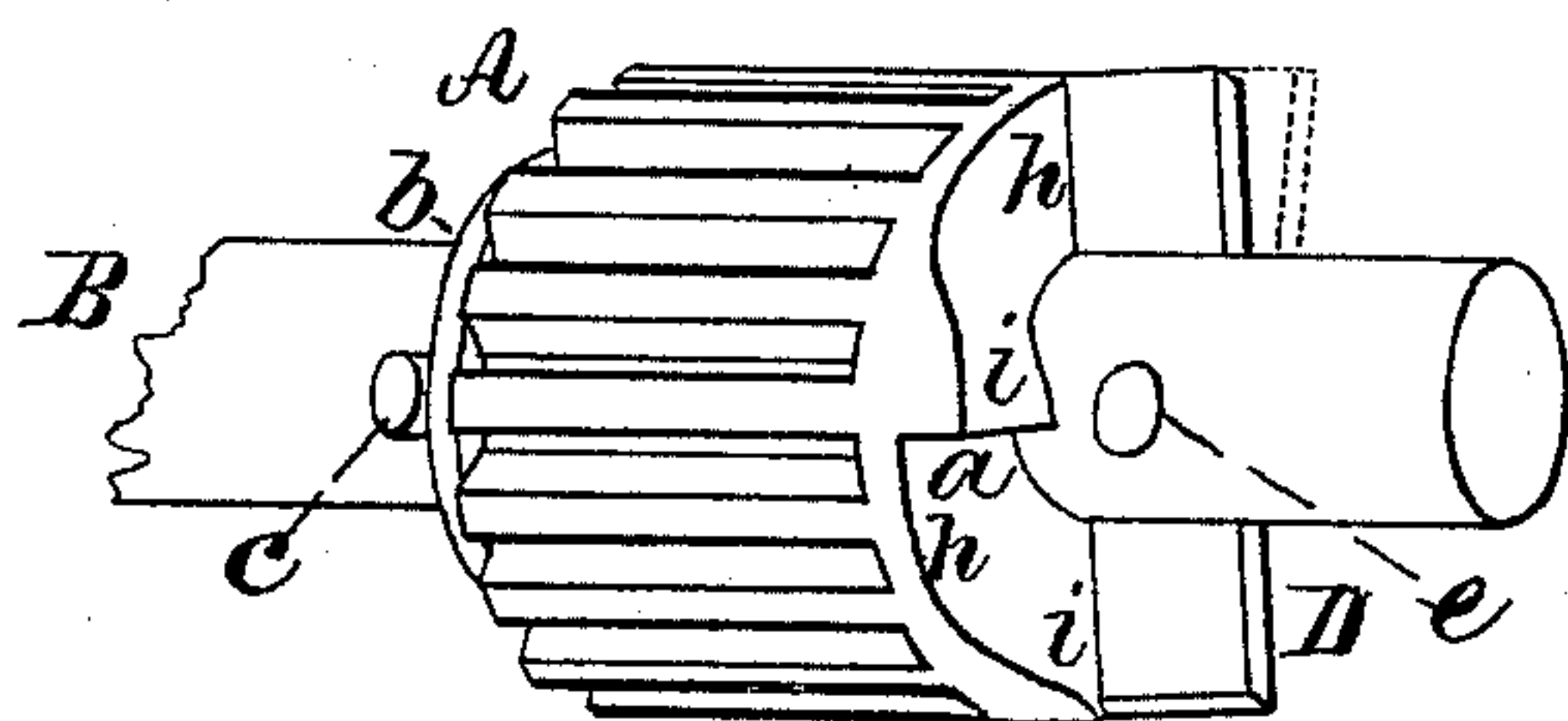


Fig. 2.

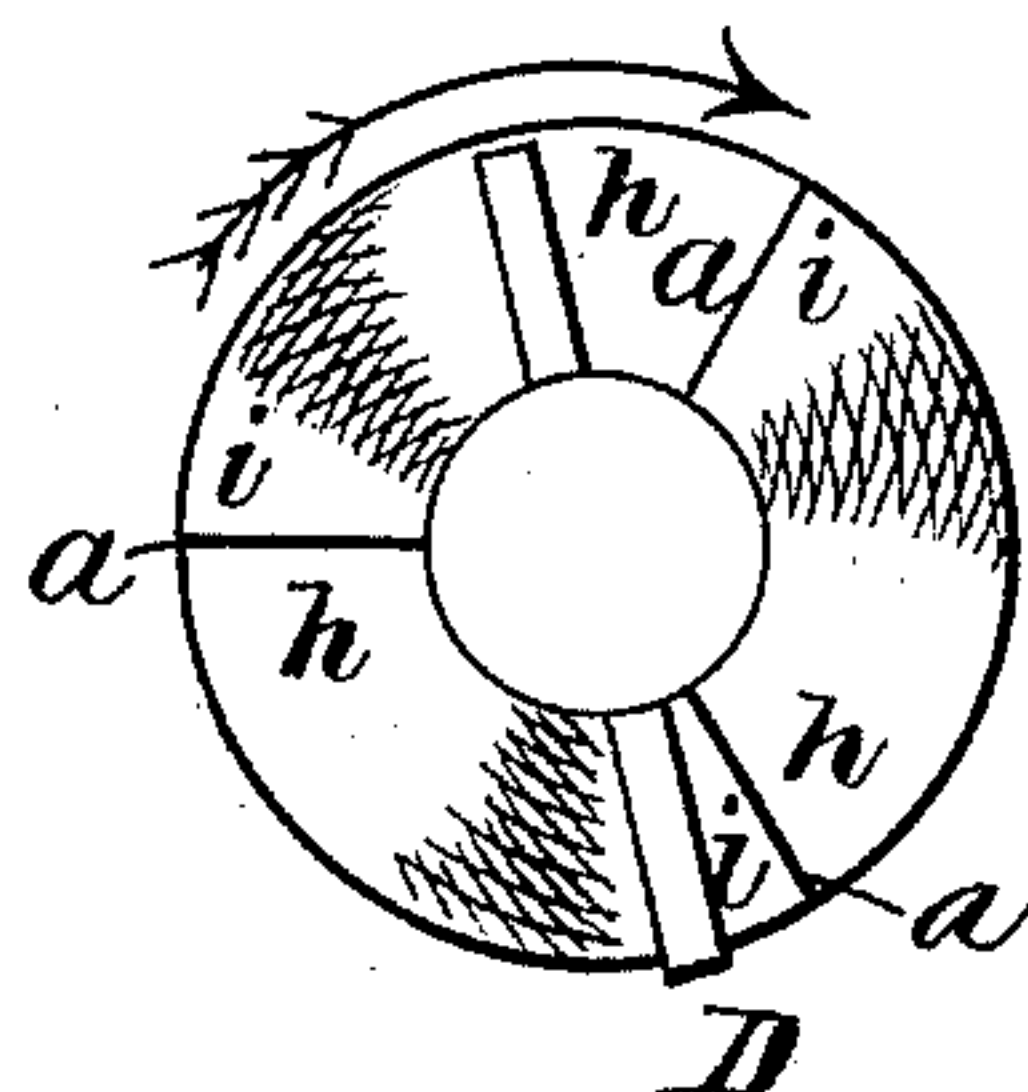
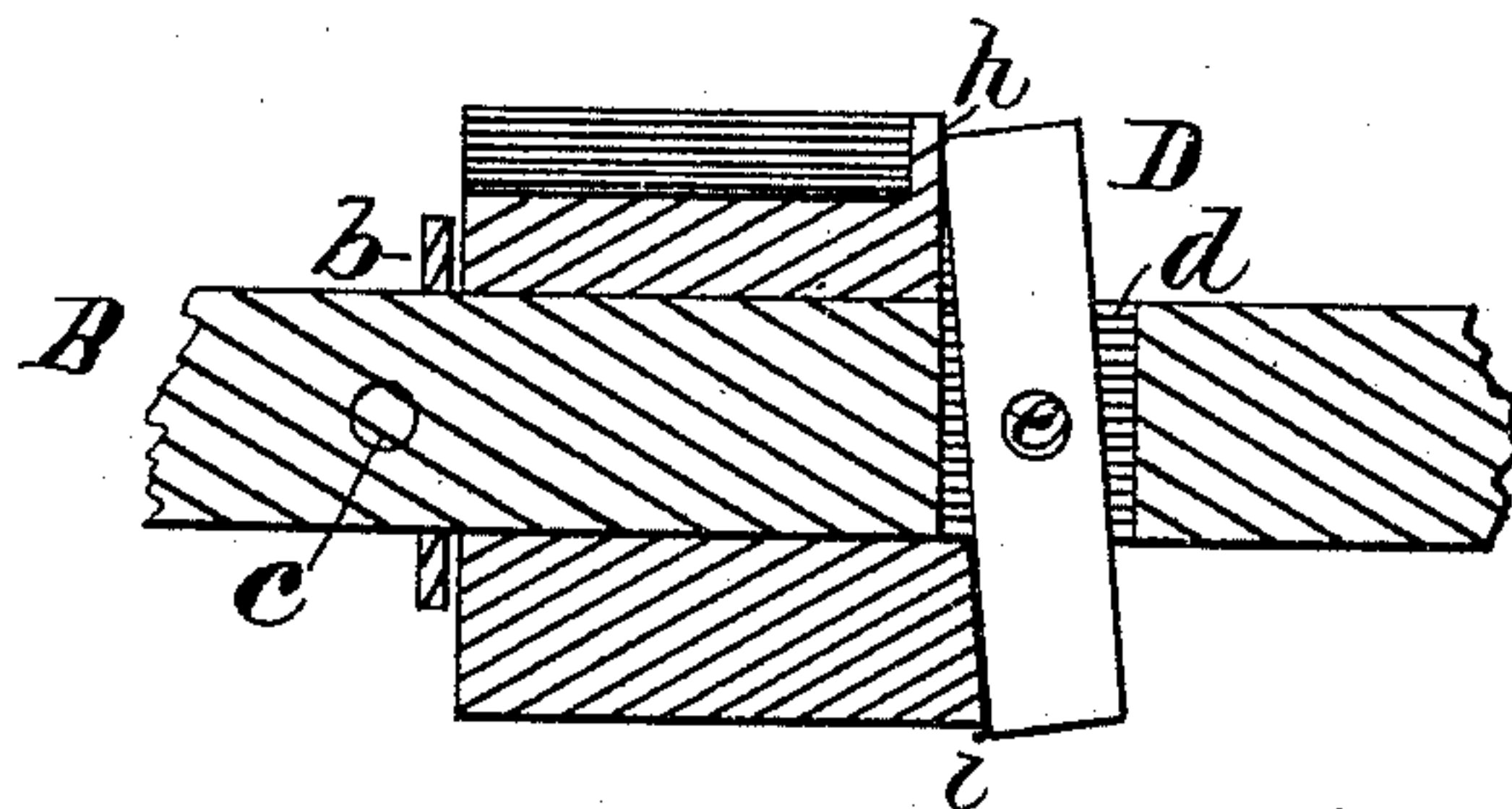


Fig. 3.



Attest.

W. M. Converse  
Ora Converse

Inventor.

Oliver K. McIntire,  
B. C. Converse atty.

# UNITED STATES PATENT OFFICE.

OLIVER K. MCINTIRE, OF OGDEN, KANSAS, ASSIGNOR OF ONE-HALF TO  
EMMA A. REED, OF SPRINGFIELD, OHIO.

## PAWL-AND-RATCHET MECHANISM.

SPECIFICATION forming part of Letters Patent No. 417,269, dated December 17, 1889.

Application filed July 29, 1889. Serial No. 319,002. (No model.)

*To all whom it may concern:*

Be it known that I, OLIVER K. MCINTIRE, a citizen of the United States, residing at Ogden, in the county of Riley and State of Kansas, have invented certain new and useful Improvements in Pawl-and-Ratchet Mechanism; and I do 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, reference being had to the accompanying drawings, and to the letters of reference marked thereon, which form a part of this specification.

My invention relates to improvements in pawl-and-ratchet mechanism.

My invention relates to that class of pawl-and-ratchet mechanism in which a pinion or sleeve with a ratchet end is loosely mounted upon a shaft, through which latter a key extends across the face of the ratchet, it being held by a pin within an oblong slot, so as to allow it to vibrate back and forth on said pin as the teeth of the ratchet pass over it when the pinion or sleeve is rotated in one direction, and when the motion of the pinion or sleeve is reversed said key acts as a stop to arrest its backward motion by one of its ends contacting with one of the teeth of the ratchet.

The object of the invention is to construct a pawl-and-ratchet mechanism which, by reason of its simplicity of construction and capability of being operated by the slightest exercise of mechanical power, will readily recommend itself to those persons using such devices.

Figure 1 is a perspective view of a clutch embodying my improvement. Fig. 2 is an end view of the same as seen from the right. Fig. 3 is a longitudinal sectional view of the same.

The several figures embrace a pinion in connection with the pawl-and-ratchet mechanism as representing a movement most common in its adaptation to lawn-mowers, revolving rakes, &c.

In the drawings, A is a pinion, which is formed at one end with three deep ratchet-teeth *a a a*. Each one of these teeth has its sliding face *i* (or elevated portion) extending back some distance from the point, the object

of which will be explained hereinafter. The pinion A is loosely held on the shaft B between the vibratory key D and a pin *c* at the opposite end, which latter passes through the shaft B, and a washer *b* is interposed between it and the pinion at this end. The key D is flat, and is pivoted, midway of its length, in an oblong hole *d*, extending through the shaft B, by a pin *e*, in close conjunction with the ratchet end of the pinion A, while its ends extend radially across the ratchet. The pinion A is free to rotate in one direction only, as shown in the figures and as indicated by the arrow in Fig. 2. As the pinion revolves in the movement, the ends of the key D alternately rise and fall from the plane of the ratchet-face over the teeth *a a a*, passing at one end of the key over the depressed portion *h* of the ratchet, while the opposite end rides over the elevated part *i* behind the point of the tooth, the elevated portion being exactly opposite the depressed portion of the ratchet-face, as seen in the figures, so that the key hugs the latter closely, and upon reversing the motion of the pinion that end of the key in front of the tooth instantly stops the reverse rotation. By reference to Fig. 3 it will be noticed that only a slight space is required between the washer *b* and the key D to allow of a slight endwise movement of the piece A in rotating to permit the teeth to pass under key D in the forward rotation. This space is hardly appreciable.

More or less teeth could be used in the ratchet; but due regard must be had in the construction to have each elevated portion *i* in rear of the point of a tooth exactly opposite to each depressed portion *h* in front of a tooth to make the stop positive in the reversing movement.

I am aware that a pawl-and-ratchet mechanism consisting of a shaft on which is mounted a pinion, one of the faces of which is provided with teeth, forming a ratchet, which teeth are designed to be engaged by a pin located within an opening or slot formed within said shaft, is not broadly new. Such construction I therefore do not claim as my invention.

I claim as my invention—

In a pawl-and-ratchet mechanism, a trans-



versely-slotted shaft and a flat key extending  
through the slot in said shaft, in combination  
with a pinion one of the faces of which is con-  
structed with ratchet-teeth which are formed  
5 with elevated portions *i* in rear of their points  
and depressed portions *h* in front of the lat-  
ter, the said teeth being engaged by both  
ends of said key in a forward movement and  
adapted to form a stop with one end when  
10 said movement is reversed, and the said pinion  
being movable longitudinally on the shaft to  
permit its teeth to pass said key in the forward

rotation, a pin passing transversely through  
the shaft at the end of the pinion opposite  
said key for limiting the endwise movement 15  
of said pinion, and a washer between said pin  
and pinion, all substantially as shown and de-  
scribed.

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

OLIVER K. MCINTIRE.

Witnesses:

M. C. WHITE,

L. BLUMENSTEIN.