

(No Model.)

F. T. FARMER.  
PAWL AND RATCHET MECHANISM.

No. 497,467.

Patented May 16, 1893.

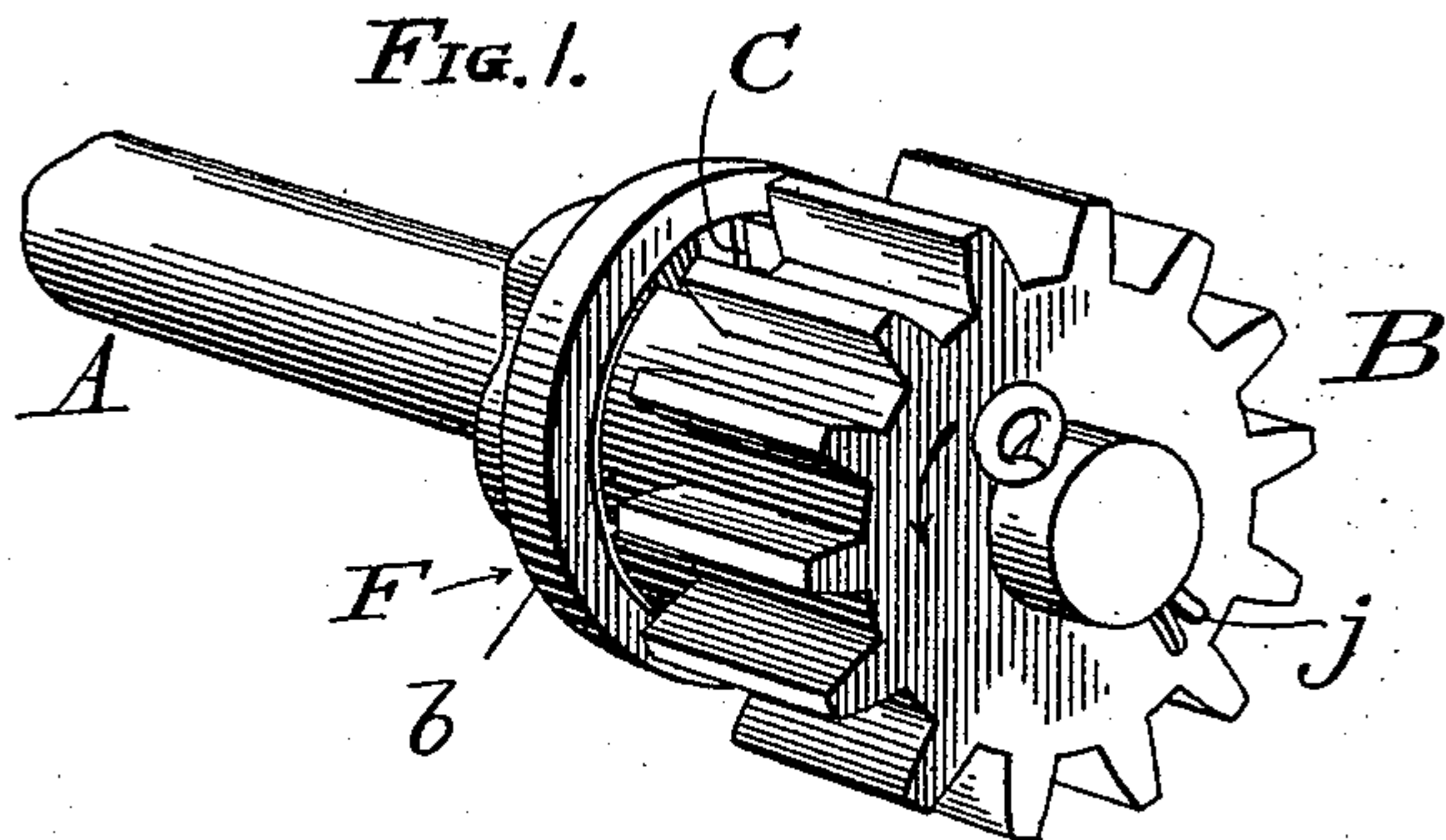


FIG. 2.

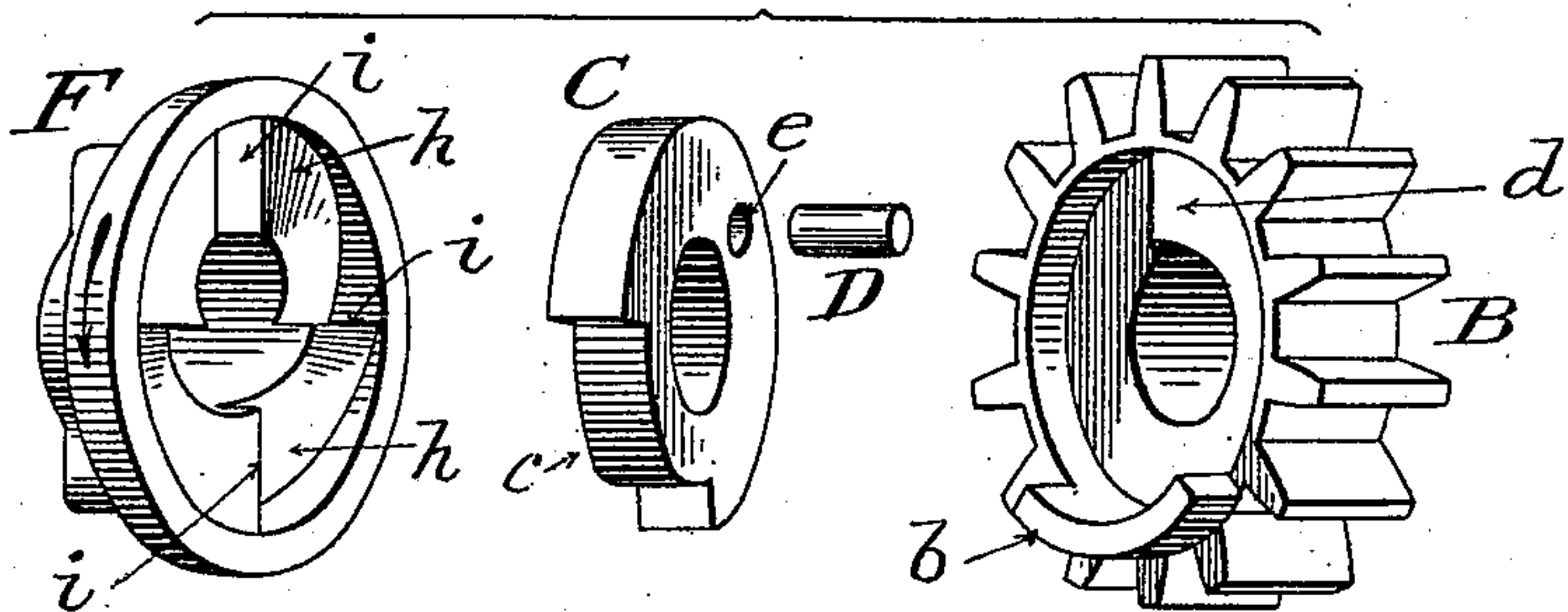


FIG. 3.  
ON x-x.

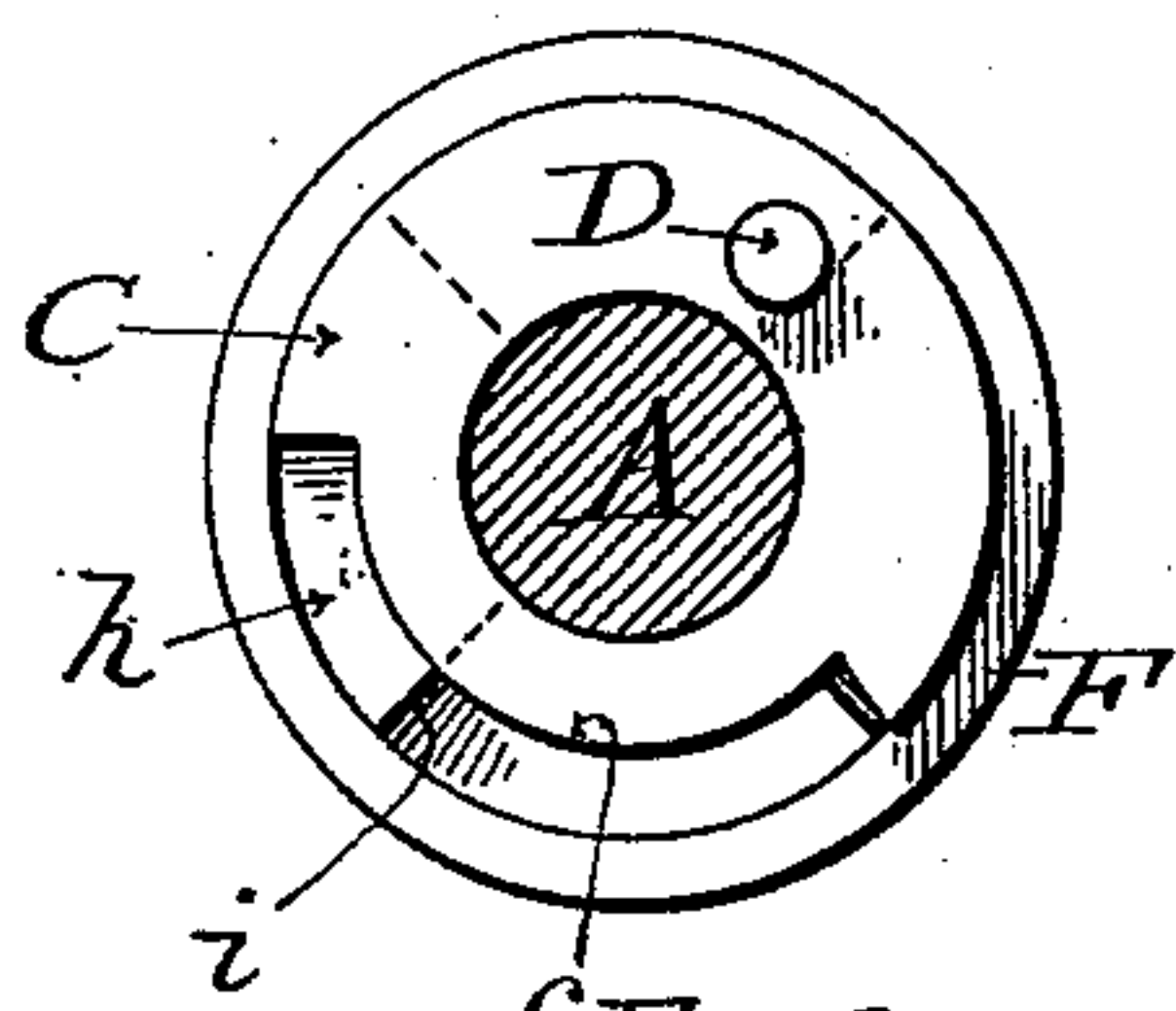
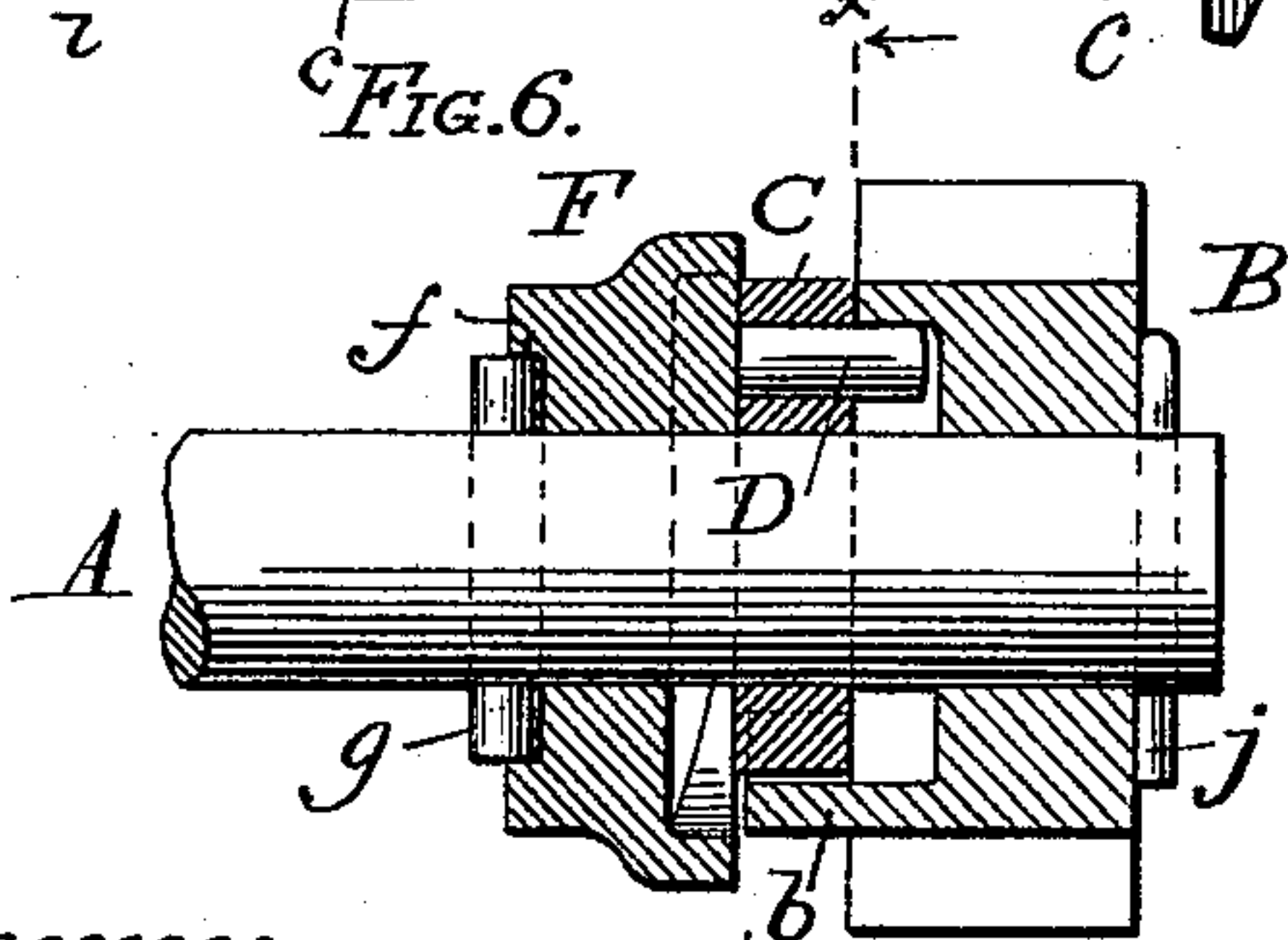
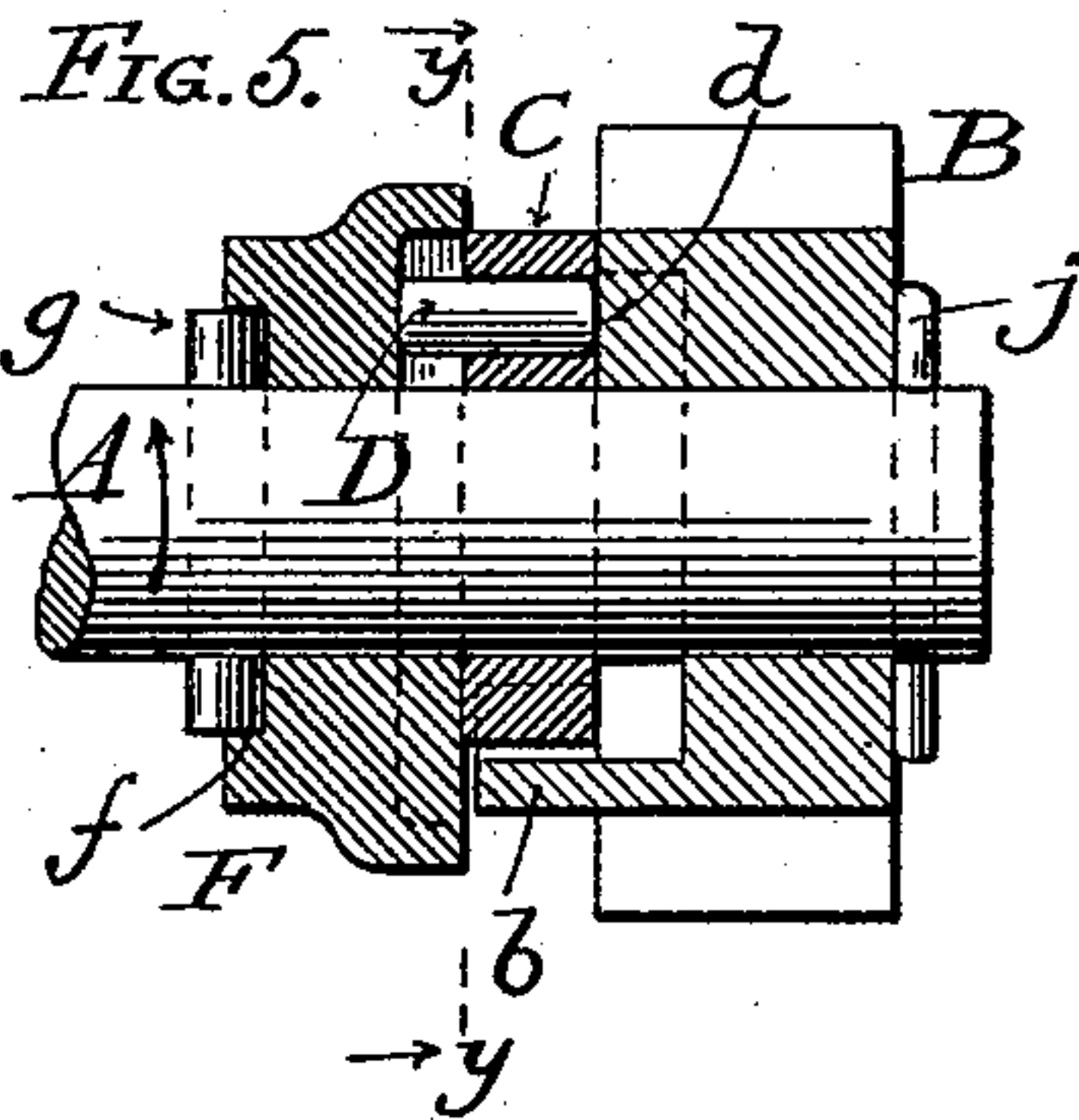
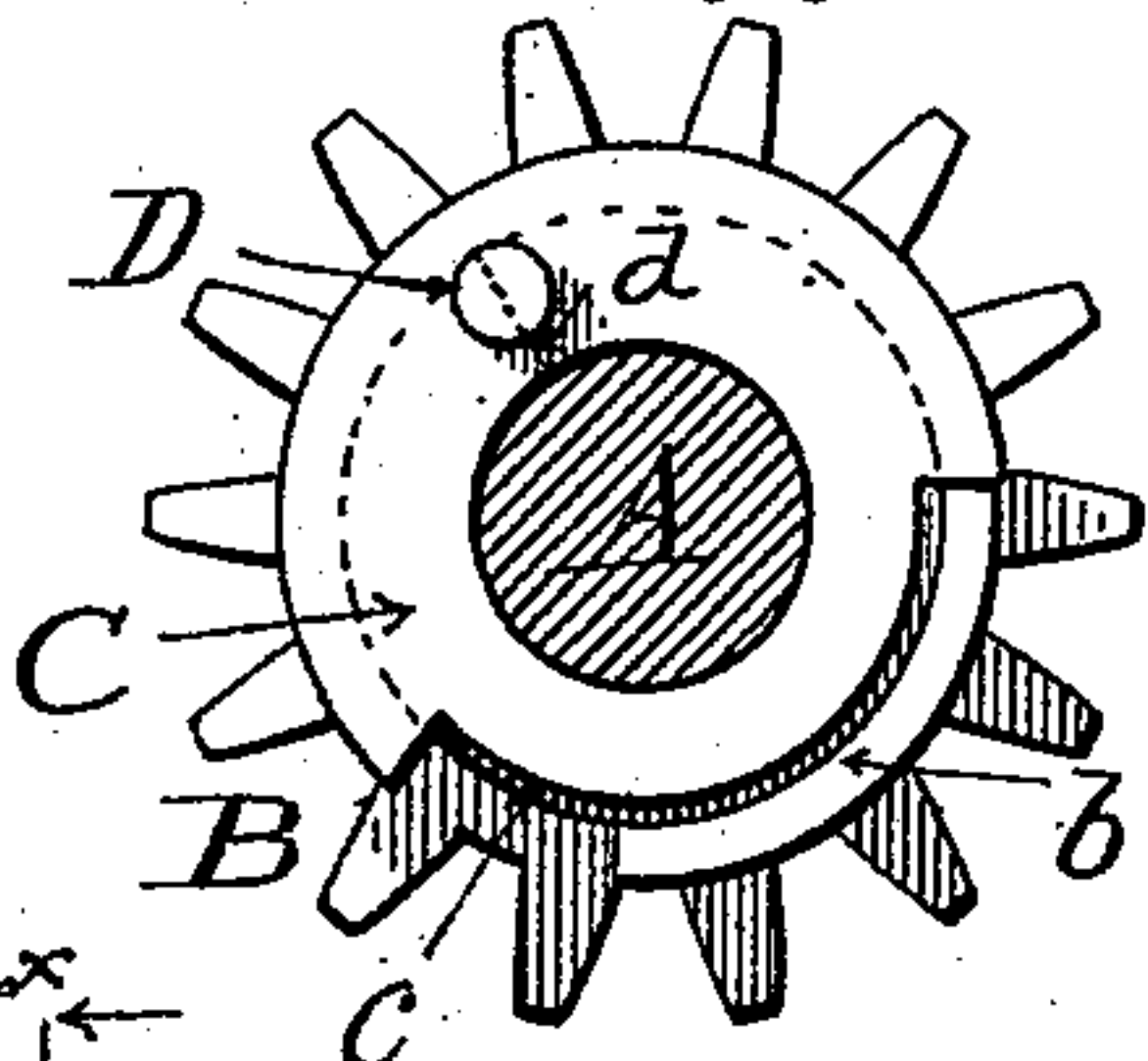


FIG. 4.  
ON y-y.



Witnesses:

James F. Duhamel  
Horace A. Dodge.

FRANK T. FARMER  
Inventor

By Dodge & Sons  
Attys.



# UNITED STATES PATENT OFFICE.

FRANK T. FARMER, OF RICHMOND, INDIANA.

## PAWL-AND-RATCHET MECHANISM.

SPECIFICATION forming part of Letters Patent No. 497,467, dated May 16, 1893.

Application filed February 25, 1893. Serial No. 463,689. (No model.)

*To all whom it may concern:*

Be it known that I, FRANK T. FARMER, a citizen of the United States, residing at Richmond, in the county of Wayne and State of Indiana, have invented certain new and useful Improvements in Pawl-and-Ratchet Mechanism, of which the following is a specification.

My invention relates to clutches, and has reference more particularly to those designed for use upon lawn mowers, though applicable to other forms and styles of machines.

In the drawings,—Figure 1 is a perspective view of my improved clutch; Fig. 2, a similar view showing the various parts separated; Figs. 3 and 4, sectional views on the lines  $x-x$  and  $y-y$  Figs. 5 and 6, looking respectively, from and toward the pinion; Fig. 5, a longitudinal sectional view, the parts being shown in engagement; and Fig. 6, a similar view, showing the parts out of engagement.

A represents a shaft, B a pinion and C a washer, the pinion and washer being mounted on the shaft and normally free to turn thereon in one direction. Pinion B is provided with a flange or arm  $b$  adapted to project into a corresponding recess  $c$  in the periphery of washer C, the arm being of less width than the width of the recess. The inner face of the pinion is also formed with an annular recess in which there is a shoulder or projection  $d$  opposite the arm  $b$ , the purpose of which will be hereinafter explained.

D indicates a pin mounted and free to move, under certain conditions, back and forth longitudinally or lengthwise in a hole or opening  $e$  formed in the washer C, said opening being made opposite the recess  $c$  but to one side of the center thereof, as will be seen upon reference to Figs. 3 and 4.

Upon reference to Fig. 4 it will be seen that when the arm  $b$  is thrown to the left side of recess  $c$ , the shoulder or projection  $d$  will pass under and from beneath the pin D and allow said pin to enter the annular recess of pinion B. When however, the arm is thrown to the opposite side of recess  $c$ , the shoulder, coming under the end of the pin, will cause it to project through the washer, in which position it will be held (see Fig. 5) until the pinion is turned back.

Mounted upon the shaft A is a disk F, said

disk being formed with a recess  $f$  in its rear face adapted to receive a pin  $g$  which passes through the shaft, and which is designed to prevent rotation of the disk upon the shaft. The opposite face of said disk is made with a series of inclines  $h$  and abutments  $i$ . When all the parts are in their proper positions upon the shaft, they are held by a split pin  $j$  or similar device.

The operation of the device is as follows: The parts being assembled, the pinion and washer are free to move in the direction indicated by the arrow in Fig. 1. This result is insured by reason of the arm  $b$  striking against one of the end walls of the recess  $c$ , thus locking those parts together; and while the parts are in such position (Fig. 6) the pin D is free to move back out of the way of the abutments  $i$ , into the annular recess in the pinion B and to one side of the shoulder  $d$ . Should the pin for any reason be thrown out against the faces  $h$ , it will simply ride over said faces in the direction indicated by the arrows, Figs. 2 and 3, and be moved back into the recess in pinion B. The motion being reversed, the arm  $b$  moves to the opposite end wall of the recess  $c$ , causing the shoulder  $d$  to ride under the pin D and project it toward disk F (see Fig. 5) where it is held in such extended position. As before, the pinion and collar rotate as one, the relation of their parts not changing, so it will be seen that the shoulder  $d$  remains under the pin so long as the pinion is rotated in the reverse direction of that indicated by the arrow in Fig. 1. The pin D when in this position must of necessity engage one of the abutments  $i$  of the fixed disk F, thereby locking the three parts together and causing the disk and shaft to turn in the direction indicated by the arrow in Fig. 5.

Obviously the number of arms upon the pinion, the corresponding recesses in the washer, the pins in the washer, the shoulders in the recess of the pinion, and the abutments in the disk may be varied without departing from the spirit of my invention, so long as the relative arrangement of the parts is observed.

The construction of my clutch is simple and compact, and affords good protection against dust and dirt.



Having thus described my invention, what I claim is—

1. In combination with shaft A, a disk rigidly secured thereto and provided with abutments; a pinion loosely mounted on the shaft; an intermediate collar also mounted on the shaft and carrying a loose slidable pin; and means for causing the pin to engage the abutments on the disk when the pinion is rotated in one direction.
2. In combination with shaft A, disk F rigidly secured thereto, and provided with abutments *i*; washer *c* loosely mounted on the shaft and carrying a loose slidable pin; pinion B also loosely mounted on the shaft and provided with a shoulder adapted to cause the pin to engage the abutments when the pinion is rotated in one direction.
3. In combination with shaft A; disk F rigidly secured thereto and provided with abutments *i*; collar C loosely mounted upon the

shaft and formed with a recess *c*, and an opening *e*; a pin D mounted in opening *e*; a pinion also mounted on the shaft and provided with an arm adapted to enter the recess in the washer, and a shoulder adapted to cause the pin to engage the abutments formed on the disk, when the parts are rotated in one direction.

4. In combination with a shaft, a pinion mounted loosely thereon, and provided with a cam face, a collar also mounted loosely upon the shaft and adapted to be engaged by the pinion, a disk secured to the shaft, and a loose pin carried by the collar and adapted to slide lengthwise to engage the disk.

In witness whereof I hereunto set my hand in the presence of two witnesses.

FRANK T. FARMER.

Witnesses:

ROBT. E. FARMER,  
JAMES E. CRAWFORD.