

(No Model.)

W. B. SMITH.  
COTTON HOE.

No. 461,133.

Patented Oct. 13, 1891.

Fig. 1.

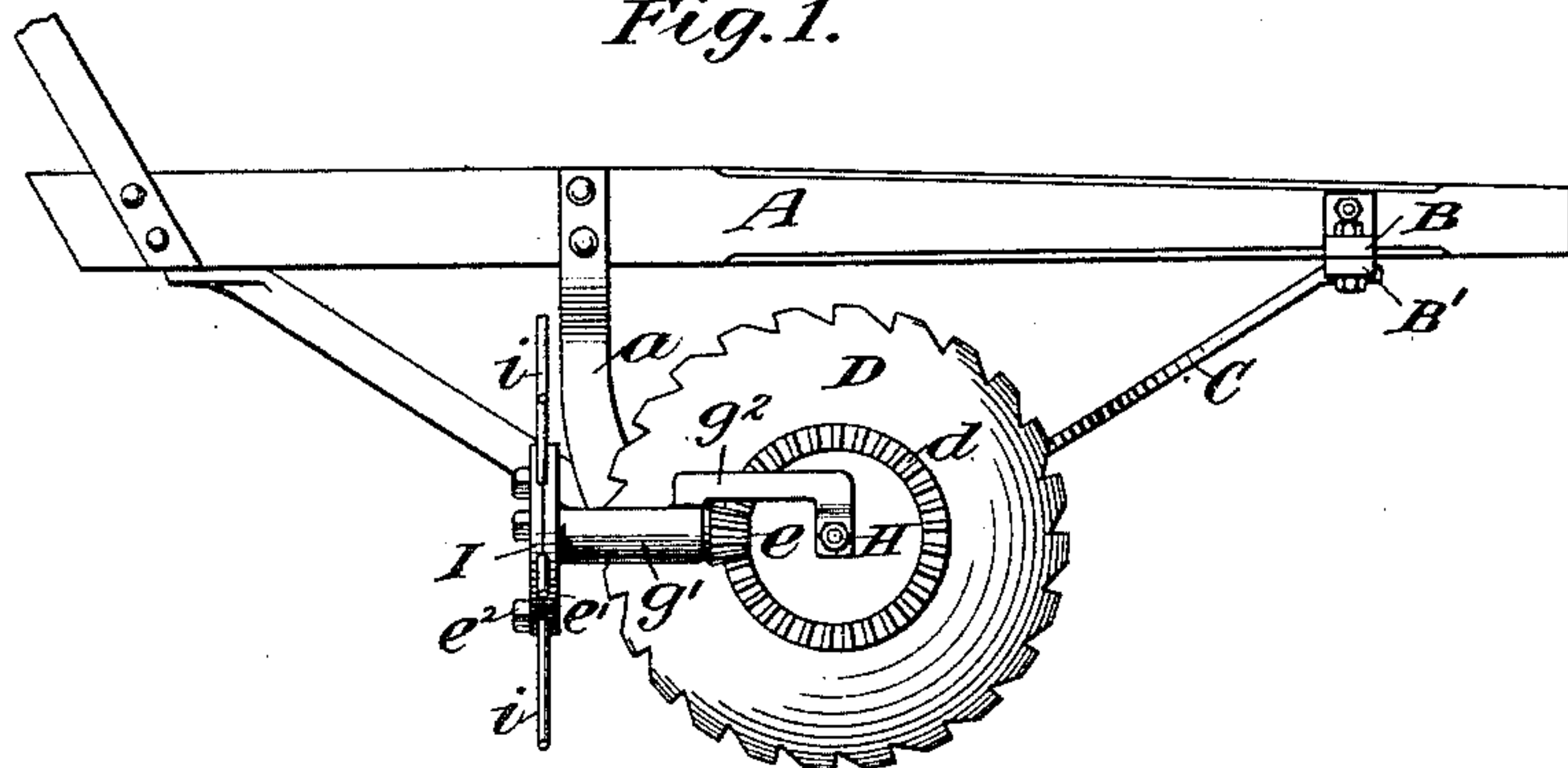


Fig. 2.

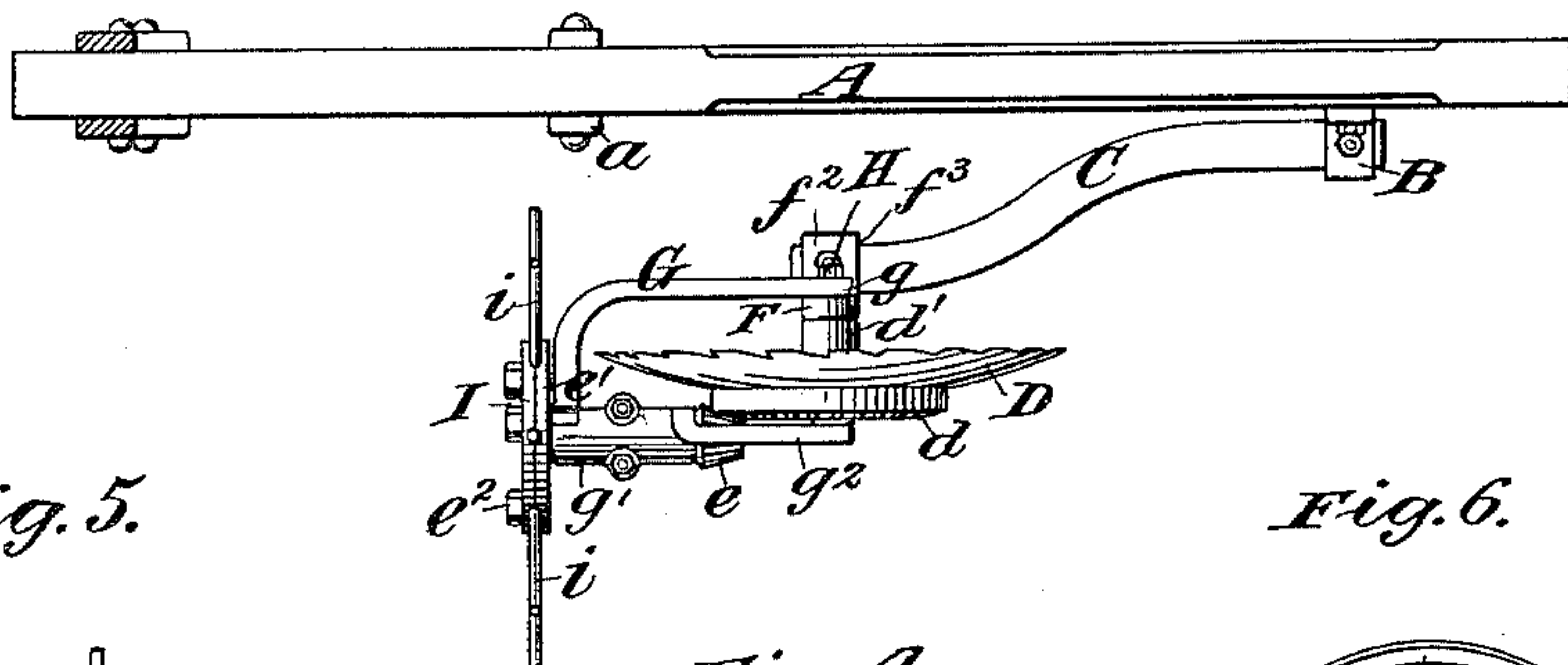


Fig. 5.

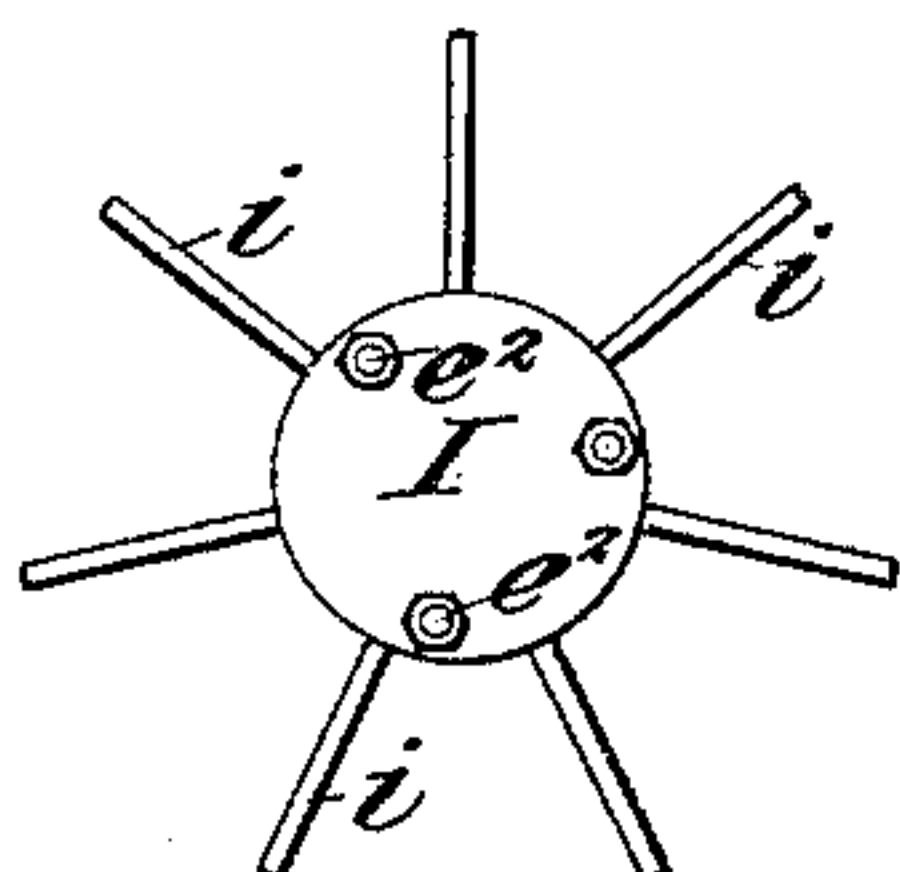


Fig. 6.

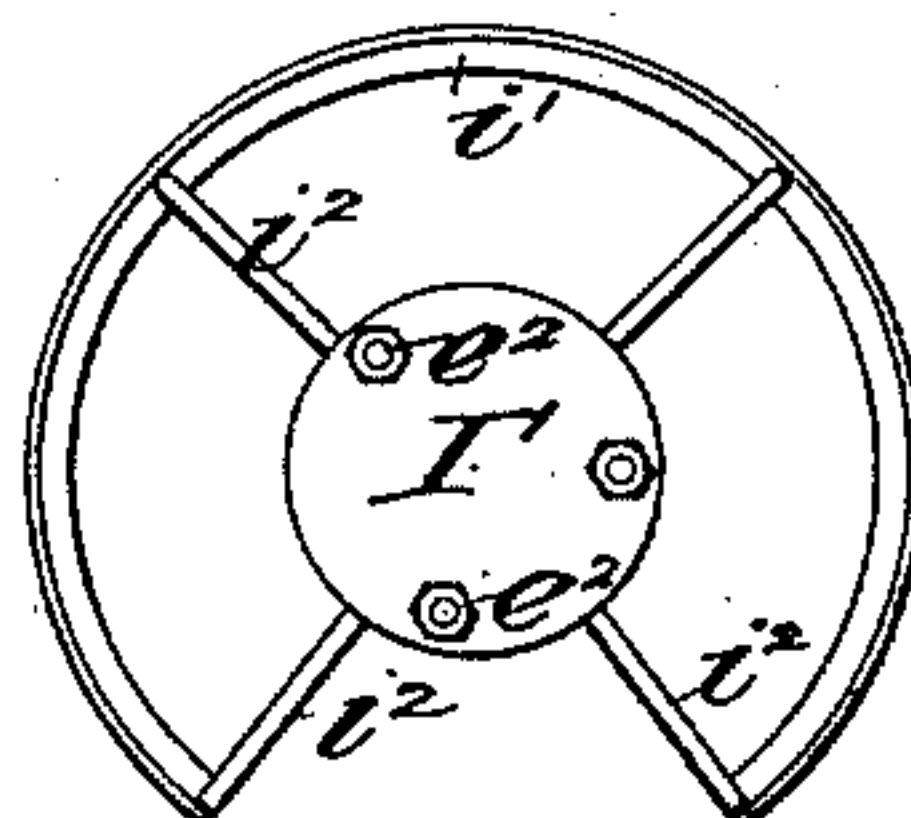


Fig. 4.

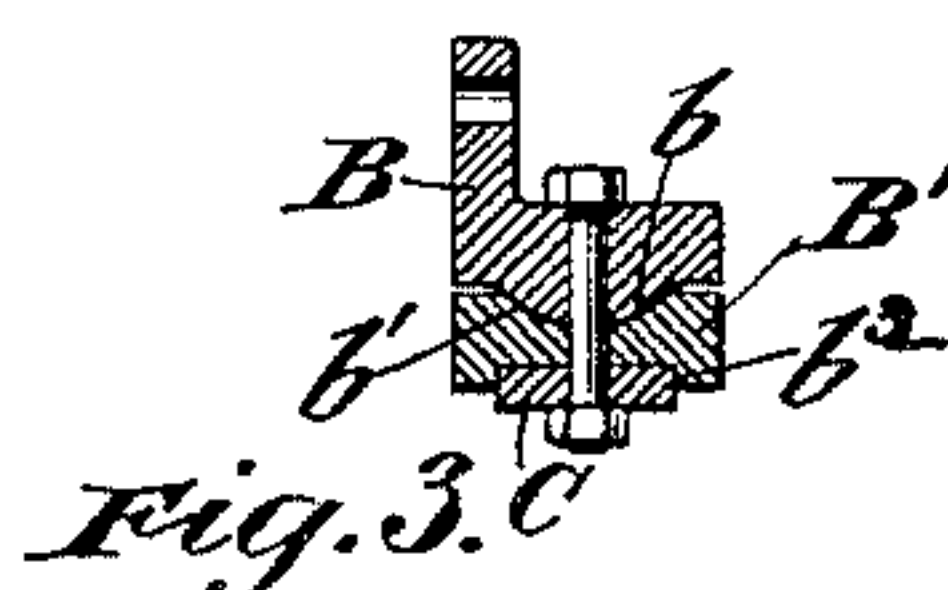
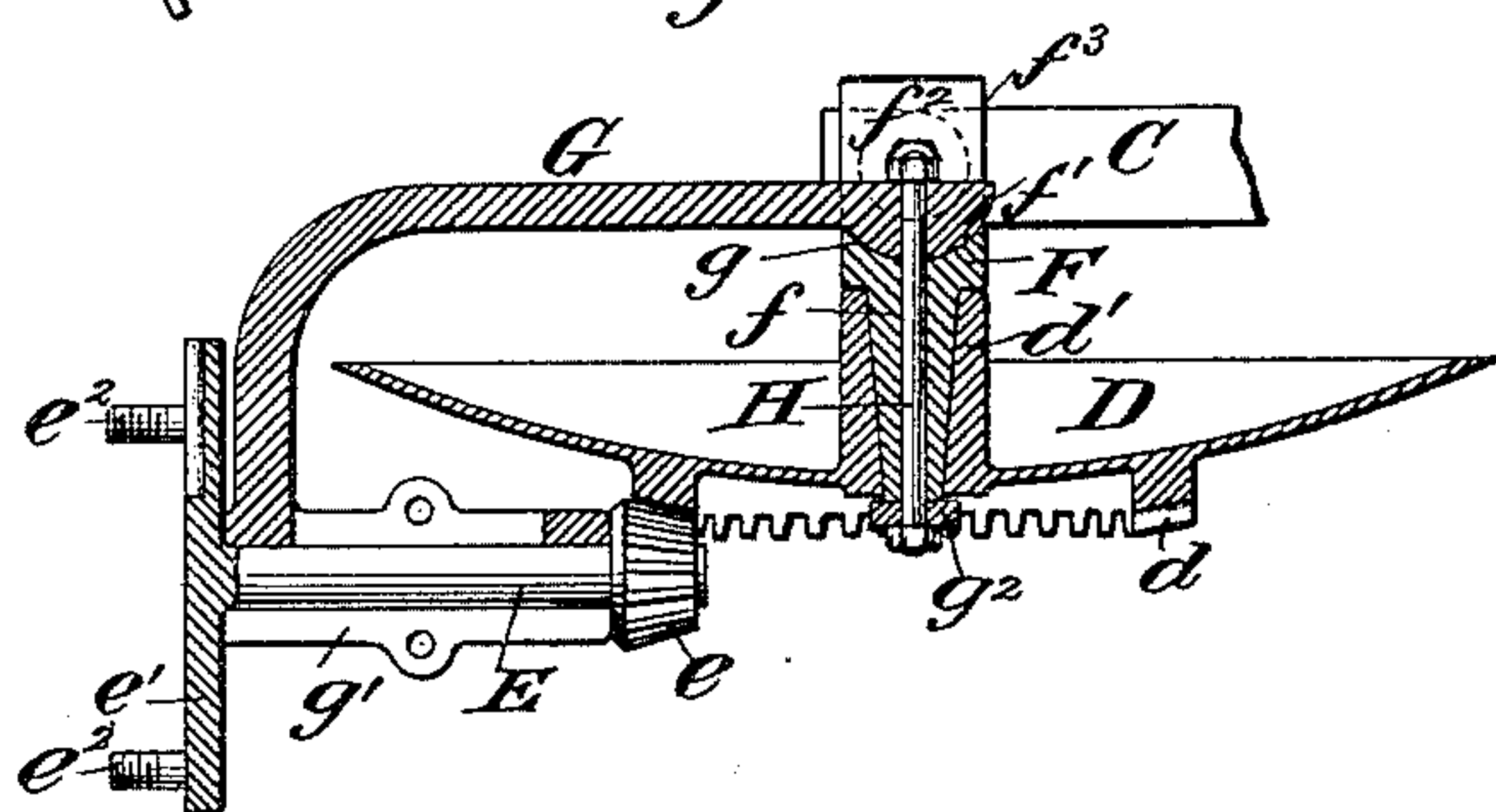


Fig. 3.C



Witnesses:-  
O. H. Haywood  
O. Sundgren

Inventor:-  
William B. Smith  
by attorneys  
Horn & Seward

# UNITED STATES PATENT OFFICE.

WILLIAM B. SMITH, OF ATLANTA, GEORGIA.

## COTTON-HOE.

SPECIFICATION forming part of Letters Patent No. 461,133, dated October 13, 1891.

Application filed March 20, 1891. Serial No. 385,740. (No model.)

*To all whom it may concern:*

Be it known that I, WILLIAM B. SMITH, of Atlanta, in the county of Fulton and State of Georgia, have invented a new and useful Improvement in Cotton-Hoes, of which the following is a specification.

My invention relates to an improvement in cotton-hoes in which a disk-fender acting as a traction-wheel actuates a thinner or cutter transversely to the row or path in which the plow travels, the traction-disk and thinner or cutter forming an attachment for plows of ordinary structure.

A practical embodiment of my invention is presented in the accompanying drawings, in which—

Figure 1 is a view of the plow in side elevation with the attachment secured thereto as in use. Fig. 2 is a top plan view of the same. Fig. 3 is a horizontal section through line  $xx$  of Fig. 1. Fig. 4 is an enlarged sectional view of the joint at the plow-beam. Fig. 5 is a view in detail of one form of thinning or cutting disk, and Fig. 6 is a view in detail of another form of thinning or cutting disk.

A represents a plow-beam, to which a plow  $a$ , of any ordinary or desired form, may be attached.

To one side of the beam A one member B of the attachment connection is secured and is provided on its lower face with a rounded projection  $b$ , adapted to seat in the concave face  $b'$  of the other member B' of the connection. The lower face of the member B' is provided with a recess  $b^2$  for the reception of the upper end of the hanger C, to which the operating parts of the attachment are secured. The faces of the projection  $b$  and seat  $b'$  are roughened to prevent slipping, and a bolt extending through the hanger C and the members B and B' serves to lock the parts in the desired adjustment. It is obvious that the concave seat might be made in the member B and the rounded projection on the member B'.

The combined traction disk and fender D is made dish-shaped, and is intended to present its convex side toward the row when in operation. Its edge is notched to afford it a better hold upon the earth in proximity to the row, and it is provided upon its outer face with

an annular series of teeth  $d$ , adapted to engage and rotate a pinion  $e$ , secured in a shaft E, as will hereinafter be more particularly referred to.

The hub  $d'$  of the traction-disk is provided with a taper bore adapted to fit a taper spindle F. The spindle F has a bore  $f$  extending longitudinally therethrough, and has a concave seat  $f'$  on its inner end. The spindle is secured to the hanger by means of an L-shaped extension  $f^2$ , formed integral with or fixed to the spindle at one end, and at its opposite end provided with an attachment precisely similar to that shown by the parts B B', the part corresponding to B' being provided with a recess  $f^3$ , in which the lower end of the hanger is secured.

A horizontal frame G, having a general U-shaped form, extends from the inner end of the spindle around the edge of the traction-disk and back to the outer end of the spindle. The said frame G is provided at the inner end of the spindle with a rounded projection  $g$ , adapted to engage the concave seat  $f'$  in the end of the spindle and is provided along its outer branch with a bearing  $g'$  for the reception of the operating-shaft E carrying the pinion  $e$ . The portion  $g^2$  of the frame G which extends from the bearing  $g'$  to the outer end of the spindle preferably extends up and over the pinion  $e$ , as shown in Fig. 1. The ends of the frame G are secured to the spindle and the traction-disk is secured on the spindle by means of a bolt H, which extends through the spindle and through both ends of the frame.

The direction of the shaft E is such that the cultivator-disk which it carries upon its rear end occupies a position substantially transverse to the row or the path in which the plow travels. The cultivator-disk may be either a series of arms  $i$  radiating from a hub I, as shown in Fig. 5, or it may consist of a curved blade  $i'$  extending partially around the periphery of the disk and secured to the hub I' by arms  $i^2$ , as shown in Fig. 6. In either case the disk is removably secured to a hub  $e'$  fixed on the end of the shaft E, the adjacent faces of the hubs I I', and the hub  $e'$  on the shaft being roughened or serrated to prevent slipping. The face of the hub  $e'$  may be provided with screw-threaded studs



$e^2$ , adapted to enter perforations  $i^3$  in the hubs I I' for holding the cultivator-disks in the desired adjustment.

The traction-disk D may be set at any desired angle to the row by the adjustment of the spindle F relatively to the hanger C by means of the connection at  $f^2$  on their supports, and the whole attachment may be adjusted toward and away from the plow-foot by means of the connection at the beam.

The rotary movement of the traction-disk as the plow advances rotates the cultivator-disk either a thinner or a cutter, and the arms  $i$  or blade  $i'$  will cut across the row at intervals, depending upon the number of arms  $i$  or the interval between the ends of the cutting-blade  $i'$ . The latter having a cutting-edge on the front of its rim will alternately cut with a shearing cut, and then skip as the plow advances.

What I claim is—

1. In a cotton-hoe, a traction-disk and means

for attaching it to a plow or the like, a frame secured to and carried by the spindle of the traction-disk, and a cultivator-disk mounted in the frame and geared to the traction-disk, the cultivator-disk having a rotary movement in a plane transverse to the path of the traction-disk and having its cultivating-blade arranged to act at intervals, substantially as set forth.

2. In a cotton-hoe, the adjustable hanger, the adjustable frame and spindle secured to the hanger, the combined fender and traction disk mounted on the spindle and having an annular gear on its face, a shaft journaled in the frame and having a pinion adapted to gear with the annular gear, and a cultivator-disk removably secured to the shaft, substantially as set forth.

WILLIAM B. SMITH.

Witnesses:

J. D. MCCARTY,  
E. M. KELLEY.