

A. C. MILLS.  
COLLAPSIBLE WINDING DRUM.

APPLICATION FILED SEPT. 22, 1902.

NO MODEL.

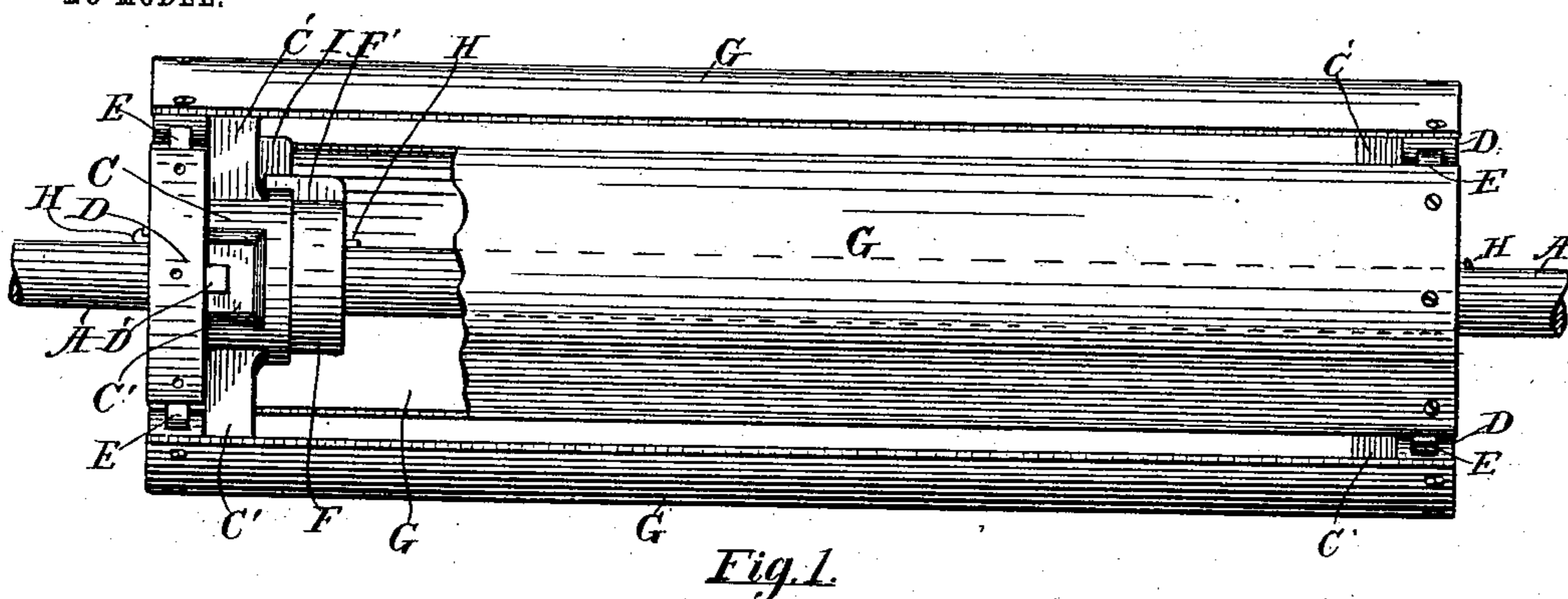


Fig. 1.

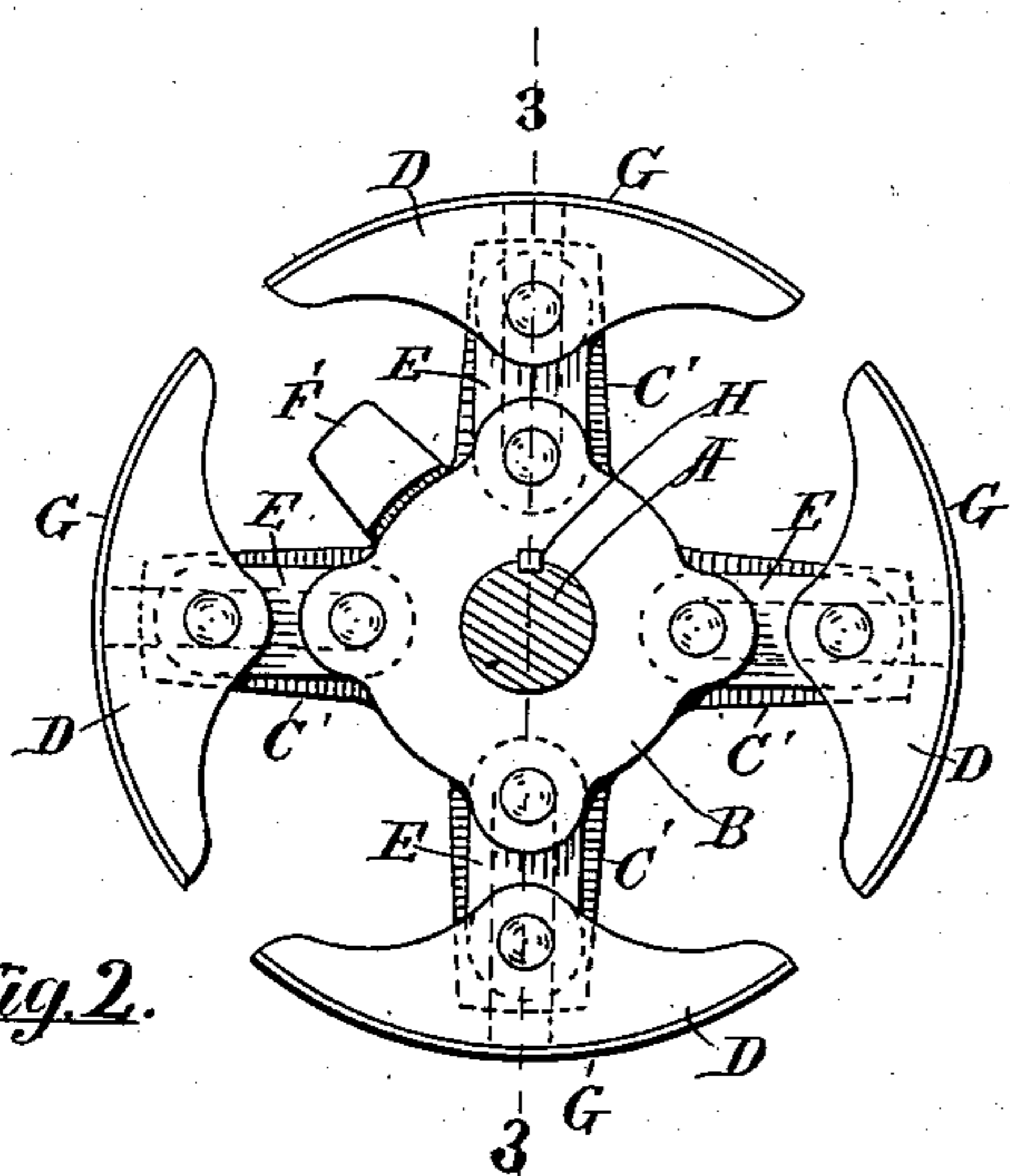


Fig. 2.

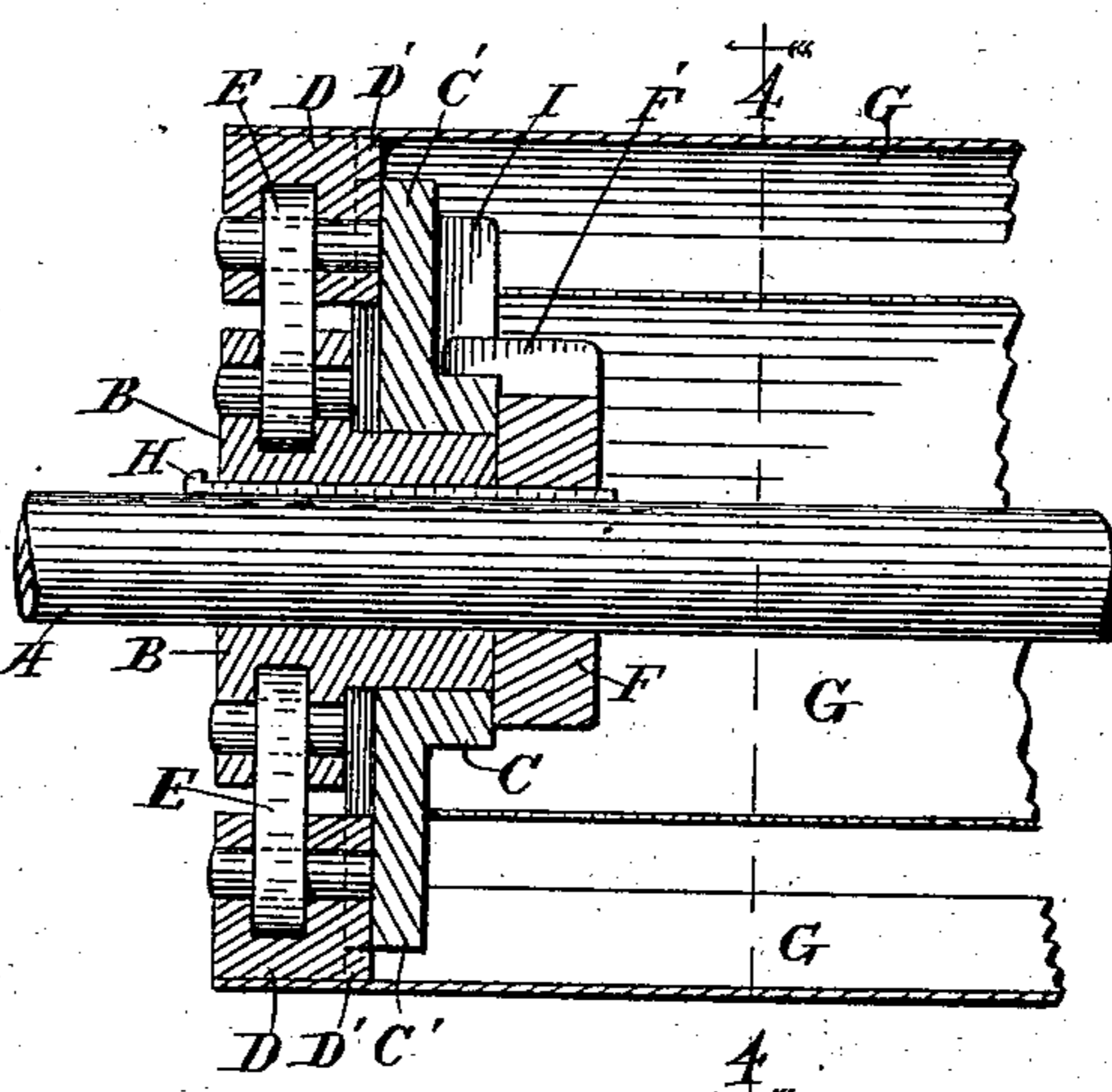


Fig. 3.

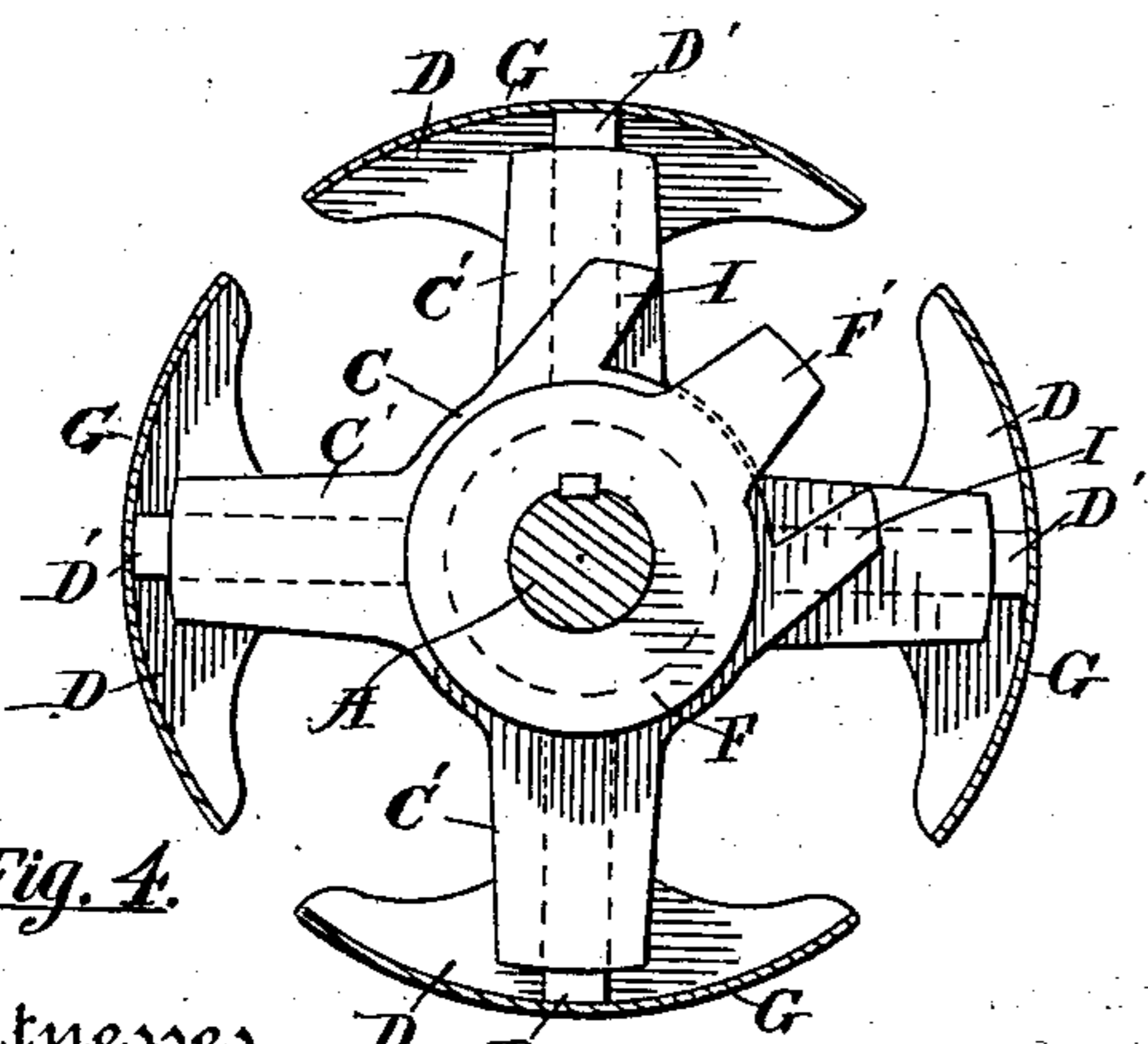


Fig. 4.

Witnesses

Georgiana Chace  
Palmer A. Jones.

Inventor

Anson C. Mills

By

Luther V. Moulton  
Attorney

# UNITED STATES PATENT OFFICE.

ANSON C. MILLS, OF JACKSON, MICHIGAN.

## COLLAPSIBLE WINDING-DRUM.

SPECIFICATION forming part of Letters Patent No. 720,169, dated February 10, 1903.

Application filed September 22, 1902. Serial No. 124,302. (No model.)

*To all whom it may concern:*

Be it known that I, ANSON C. MILLS, a citizen of the United States, residing at Jackson, in the county of Jackson and State of Michigan, have invented certain new and useful Improvements in Collapsible Winding-Drums; and I do hereby 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.

My invention relates to improvements in collapsible winding-drums; and its object is to provide a device upon which a roll of any suitable material may be wound and the drum removed from the interior thereof by automatically collapsing the drum and withdrawing it longitudinally from the roll.

My device is especially intended and adapted for use in winding the rolls of wire fence after the same has been manufactured; and it consists in the combination and arrangement of a number of radially-movable staves and means for supporting and automatically moving the same from the axis of the drum as the shaft is turned forward and toward the axis of the drum as the shaft is oppositely turned, as hereinafter more fully described, and particularly pointed out in the claims, reference being had to the accompanying drawings, in which—

Figure 1 is a side elevation of a device embodying my invention with one of the staves partially removed to show the construction; Fig. 2, an end elevation of the same; Fig. 3, a longitudinal section of an end of the same on the line 3 3 of Fig. 2; and Fig. 4, a transverse section on the line 4 4 of Fig. 3, showing the inner side of the end mechanism.

Like letters refer to like parts in all of the figures.

The device consists, essentially, of a series of separate staves forming the surface of the drum and mounted on segmental supports attached to the arms of a spider and radially movable thereon, said segments being moved and held by connecting-rods extending inward toward the axis and attached to a hub on the shaft and automatically operated by turning the shaft.

In the drawings, A represents any suitable

shaft on which the device is mounted and the shaft driven in any convenient way.

B is a hub fixed on the shaft.

C represents a spider having a limited rotary movement about the axis of the shaft, preferably journaled on the hub and also provided with a number of radial arms C', four being shown in the drawings. Obviously a greater or less number can be used. Segments D are connected to the arms of the spider and radially movable thereon, preferably by means of a suitable tongue and groove, as at D'. To these segments are attached suitable concavo-convex staves G to form the periphery of the drum and having sufficient space between them to permit them to approach the axis of the drum without contacting each other. The spider is limited in its rotation about the axis of the shaft by means of an arm F', extending from a collar F, fixed on the shaft and adapted to alternately engage the stops I I on the spider. This arm and stops are so adjusted that when the arm contacts one of the stops the connecting-rods E will be substantially radial, and thus the segments G moved outward and the drum in expanded position, and when the spider is turned relative to the hub and the arm F' contacts the other stop I the rods E will be inclined to radial lines and the staves will be drawn inward toward the axis and the circumference of the drum considerably reduced. A suitable key H is used to fix the hub and collar on the shaft, and the shaft is rotated or driven in proper direction to turn the arm F' in proper position to expand the drum where it engages one of the stops I and then drives the drum.

From the foregoing description the operation of my device will be readily understood without further explanation. It is obviously adapted for winding a great variety of material and forming the same into rolls, which can be easily and readily removed from the drum as occasion requires. It is especially adapted for use in winding wire fence and other like fabrics.

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

1. The combination of a shaft, a spider and a hub on the shaft, one of which is fixed on

the shaft and the other rotative on the shaft, stops to automatically limit said rotation, radially-movable segments on the spider, and rods connecting the hub and segments.

- 5 2. The combination of a shaft, a hub fixed on the shaft, a spider having a limited free movement about the axis of the shaft, segments radially movable on the spider, staves attached to the segments and spaced apart, 10 rods pivotally connected to the segments at one end and to the hub at the other end, and means for limiting the rotation of the spider about the axis of the shaft.

- 15 3. The combination of a shaft, a hub fixed on the shaft, a spider having a limited free rotary movement about the axis of the shaft, segments radially movable on the spider, staves attached to the segments and spaced apart, rods pivotally connected to the seg-

ments and spider at their respective ends, an 20 arm fixed on the shaft, and stops on the spider engaged by the arm.

4. The combination of a shaft, a hub fixed on the shaft, a spider having a free limited rotary movement, segments radially movable 25 on the spider, staves attached to the segments rods pivotally connected to the segments and the hub at their respective ends, a collar fixed on the shaft, a rigid arm on the collar, and stops on the spider at each side of the arm 30 and engaged by the arm.

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

ANSON C. MILLS.

Witnesses:

A. D. LATHROP,  
M. M. COOK.