

No. 691,943.

Patented Jan. 28, 1902.

J. H. HOLBROOK.  
TWINE REEL.

(Application filed Nov. 5, 1901.)

(No Model.)

2 Sheets—Sheet 1.

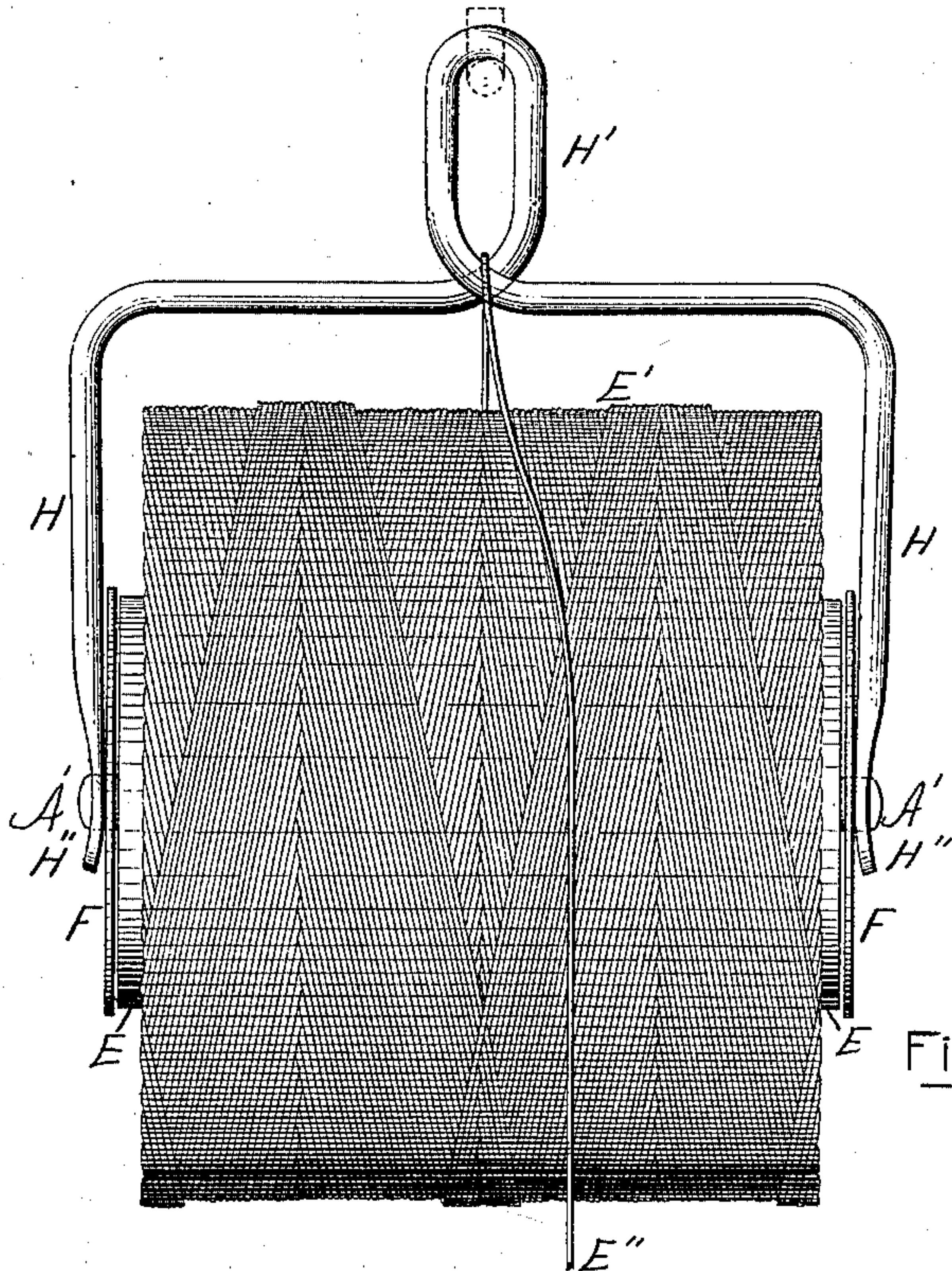


Fig. 1.

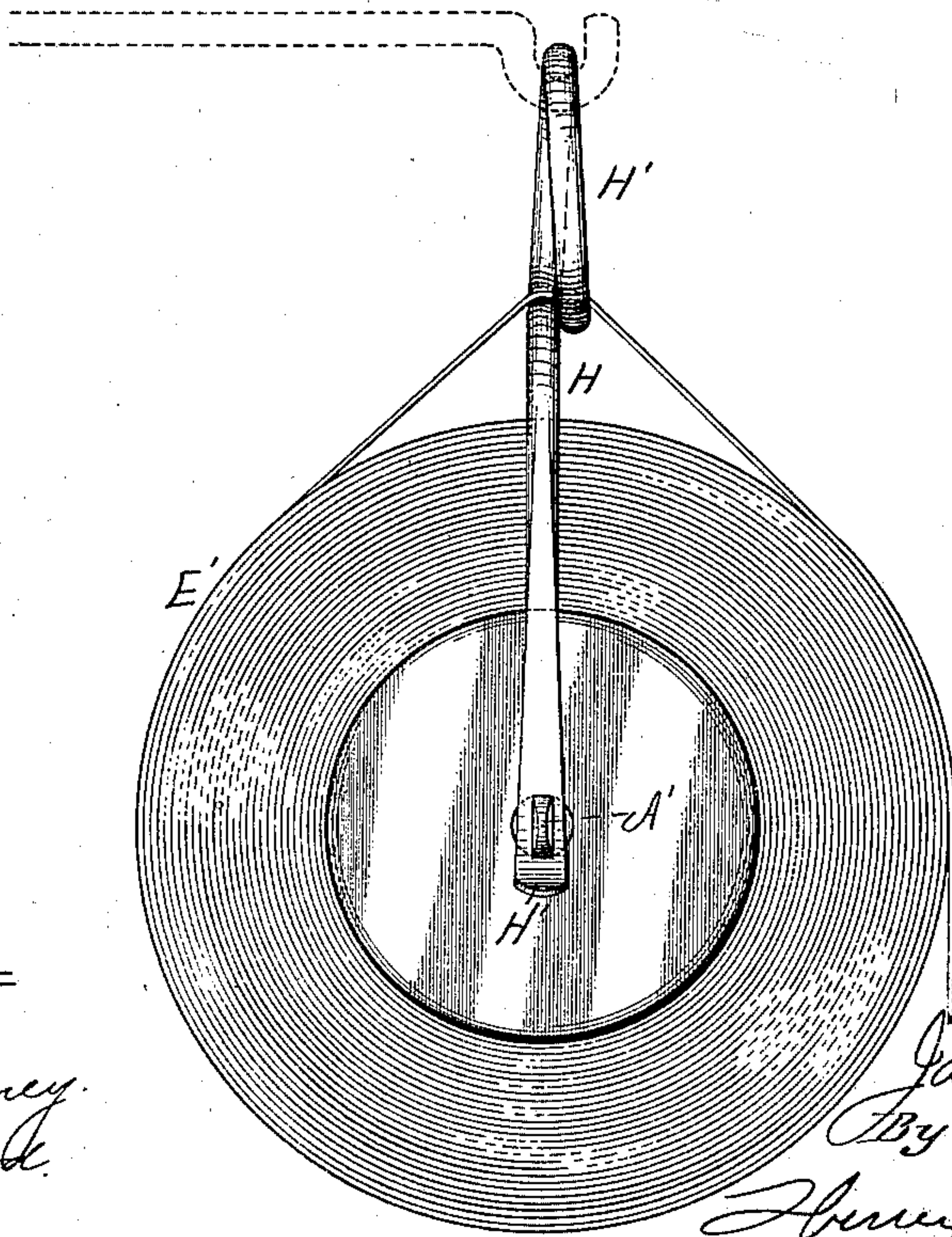


Fig. 2.

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2 Sheets—Sheet 2.

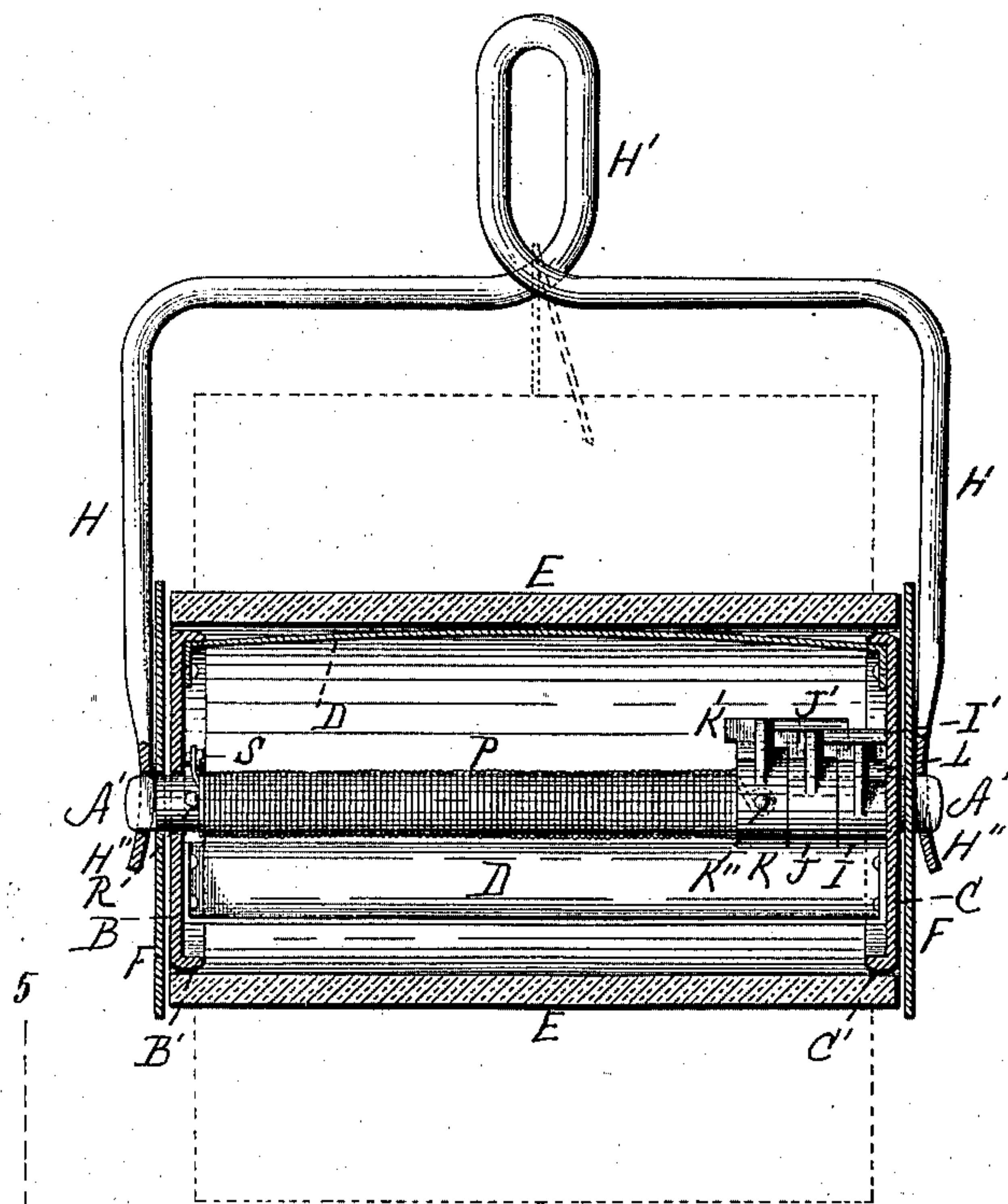


Fig. 3.

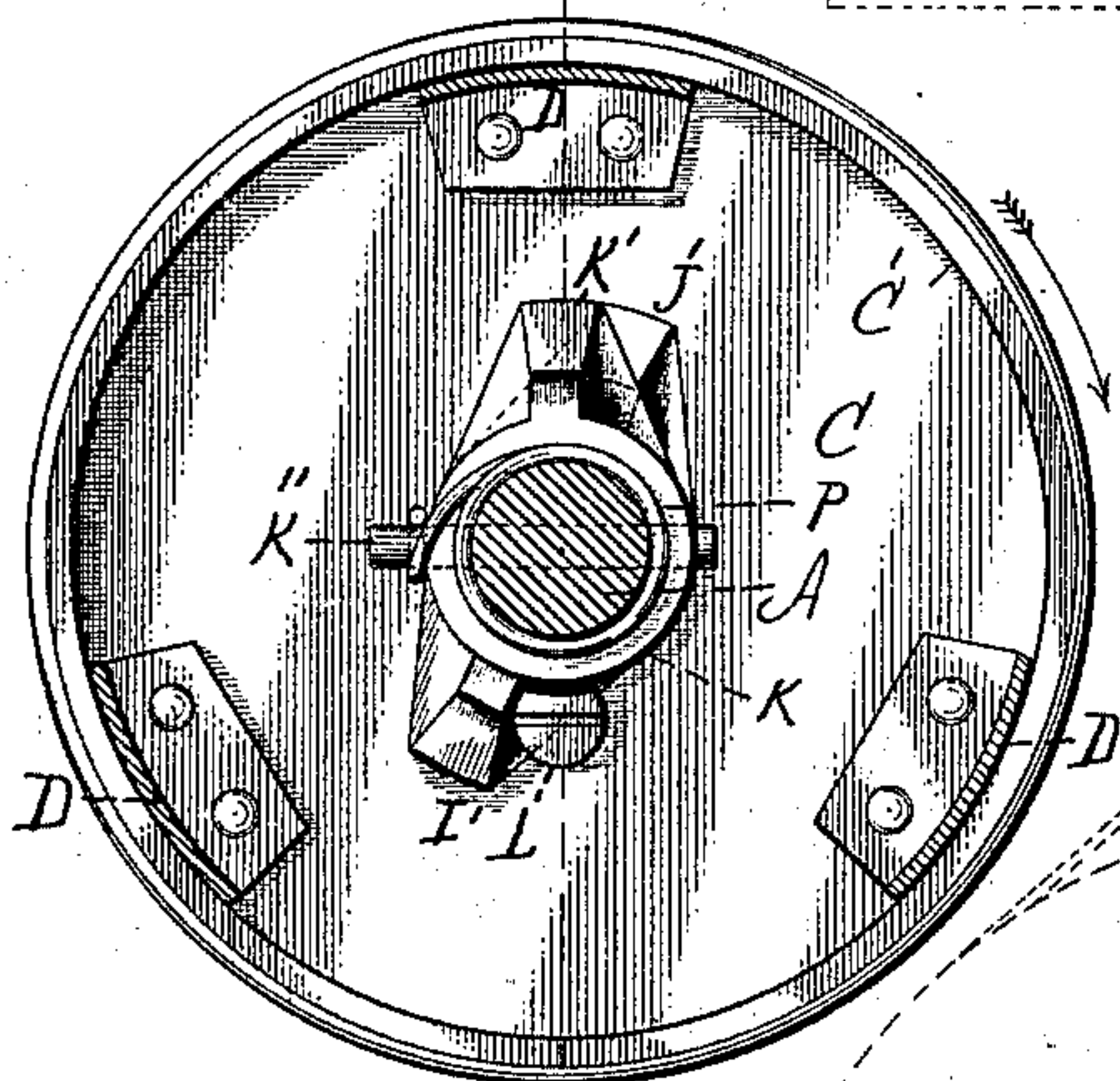


Fig. 4.

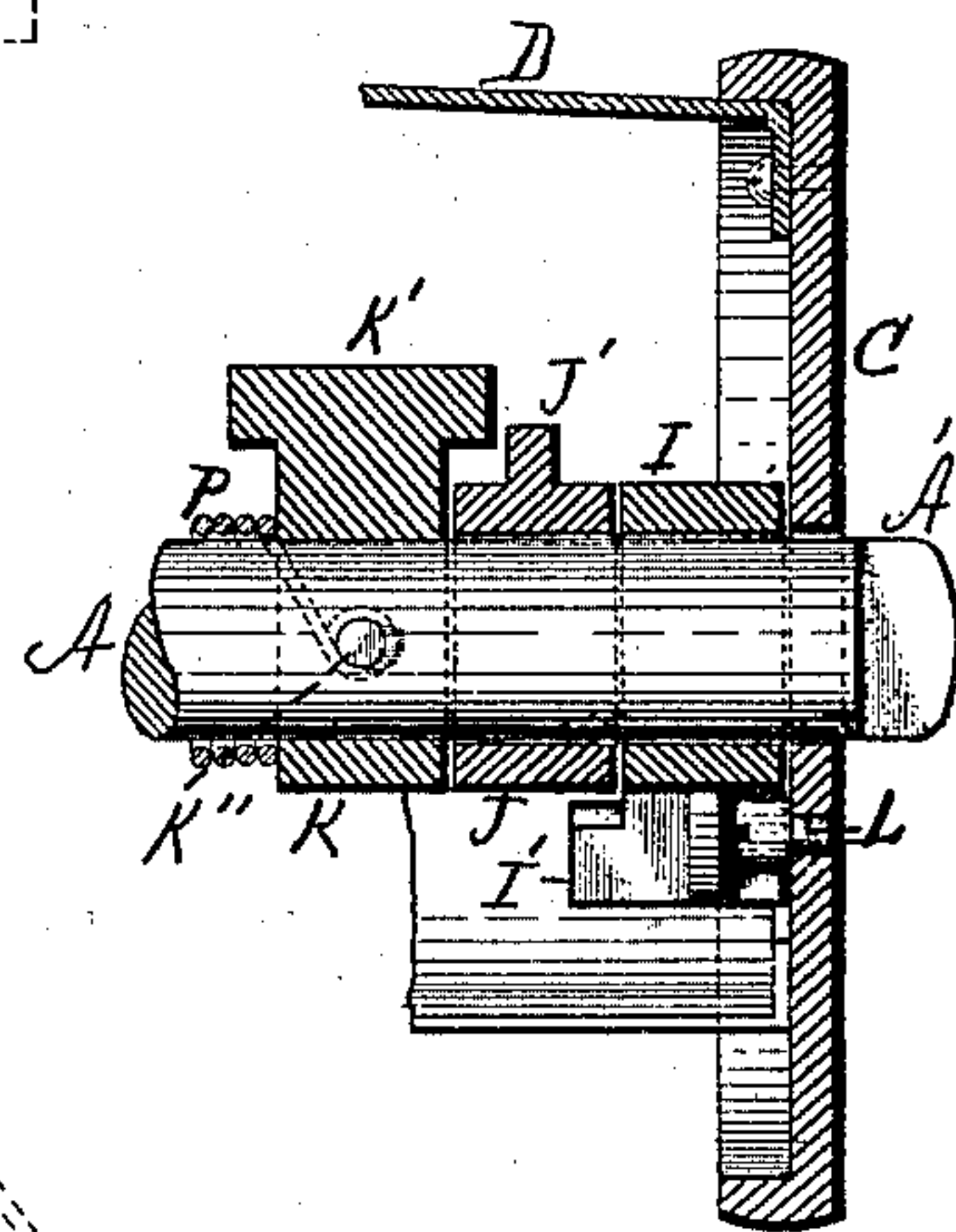


Fig. 5.

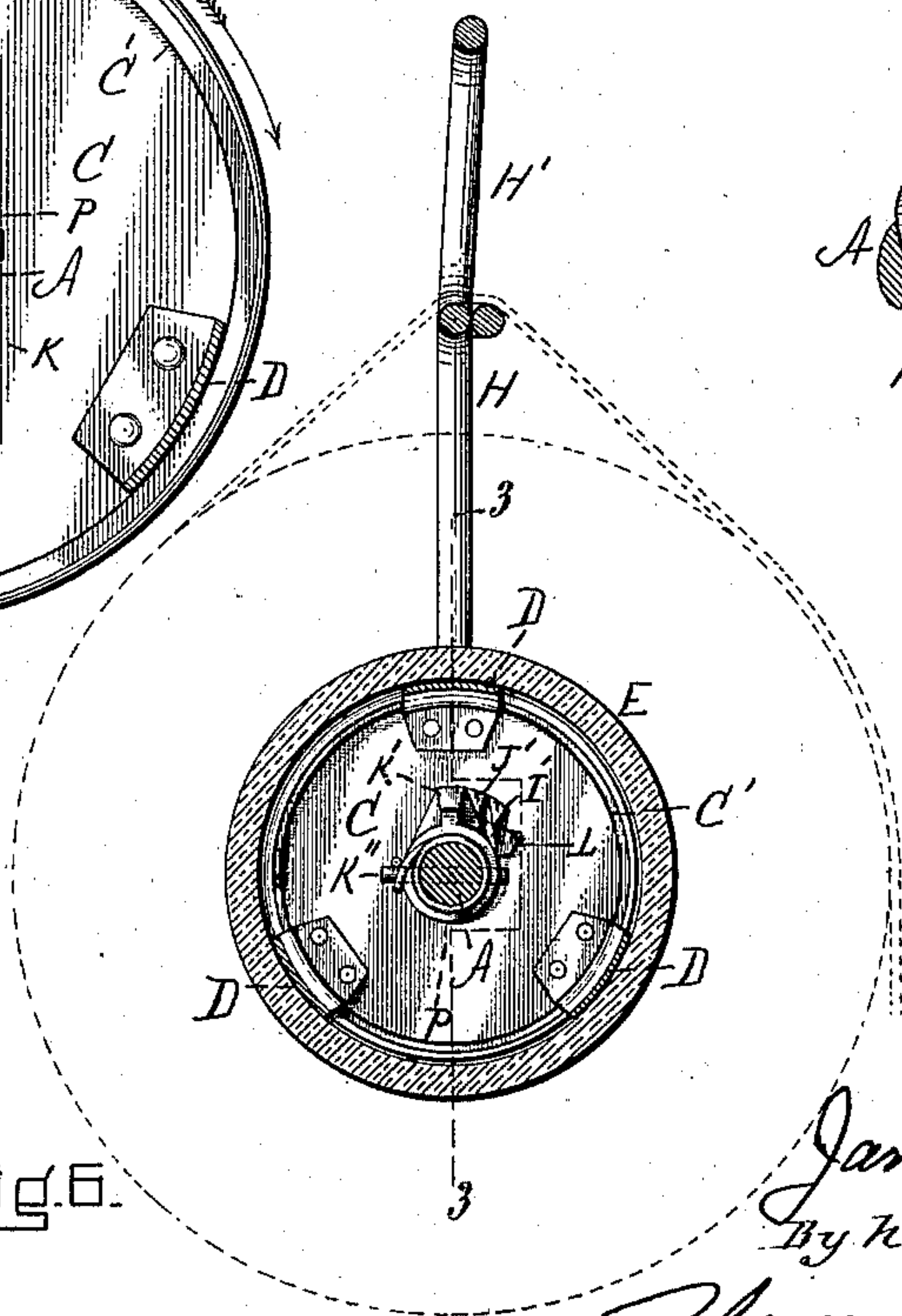


Fig. 6.

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# UNITED STATES PATENT OFFICE.

JAMES H. HOLBROOK, OF BOSTON, MASSACHUSETTS.

## TWINE-REEL.

SPECIFICATION forming part of Letters Patent No. 691,943, dated January 28, 1902.

Application filed November 5, 1901. Serial No. 81,247. (No model.)

*To all whom it may concern:*

Be it known that I, JAMES H. HOLBROOK, a citizen of the United States, residing in Boston, in the county of Suffolk and State of Massachusetts, have invented a new and useful Improvement in Twine-Reels, of which the following is a specification.

This invention relates to twine-reels adapted particularly for use in stores, shops, and other business establishments, and particularly to that class of twine-reels in which when a piece of twine is needed for tying up a package, for example, it is pulled and unwound from the bobbin, which rotates on and with the reel, and as soon as it is cut or broken off from the bobbin the reel rotates the bobbin in the reverse direction and winds the slack around it.

The nature of the invention or improvement is fully described below and illustrated in the accompanying drawings, in which—

Figure 1 is a front elevation of my improved twine-reel with a bobbin of twine upon it. Fig. 2 is an end elevation of the same. Fig. 3 is a longitudinal section taken on line 3, Fig. 6, with the twine removed from the core of the bobbin and its position indicated in dotted lines. Fig. 4 is a cross vertical section, enlarged, of the reel with the bobbin, guard plates or washers, and suspending-frame removed. Fig. 5 is a detail, in section, taken on line 5, Fig. 4. Fig. 6 is a cross vertical section of the reel with the twine removed from the core of the bobbin and its position indicated in dotted lines.

Similar letters of reference indicate corresponding parts.

A represents a horizontal spindle or axle provided at its opposite ends with the flattened projections A'. This spindle or axle has its bearings in the end plates or disks B C formed, preferably, with integral inwardly-turned flanges B' C', as shown in Figs. 3, 4, and 5. These disks are loose on the spindle near the opposite ends thereof and are connected by longitudinal spring-bars D, preferably three or more in number, each of which bends outward centrally, as shown in Fig. 3, for the purpose of springing against, and thereby frictionally engaging, the core E of a bobbin of twine E', as illustrated in Figs. 3 and 6. After the bobbin has been slid into posi-

tion by means of the hollow core E upon the spring-frame D of the reel, circular plates or washers F, having central slots corresponding in shape to the projecting ends A', are slipped upon said ends, and the plates, being greater in diameter than the core E, prevent the bobbin from endwise or longitudinal movement on the reel. After the plates F have been adjusted in position a spring bail or frame, made, preferably, of spring-wire, is applied. This bail consists of the central loop H' and the spring-frame H, the lower ends H'' of said spring-frame being flattened and slotted to receive the flattened projecting ends A', over which they are slipped and sprung into position. By means of the central loop H' the reel, with the bobbin on it, may be hung from a suitable hook, which is secured to the wall or ceiling of a room, preferably higher than a man's head, in order that it may be out of the way. The end E'' of the twine is drawn through this loop and hangs down conveniently for being grasped.

On the spindle or axle A at one end are a plurality of dogs, preferably three, substantially similar in shape and each consisting of a sleeve or ring and an integral T-shaped projection. The dog which is next the plate C consists of the sleeve or hub I and T-shaped projection I', extending longitudinally with the axle. The dog next the one just described consists of the sleeve or hub J and T-shaped projection J', while the third dog from the end consists of the sleeve or hub K and T-shaped projection K'. These dogs are all alike, and their T-shaped projections are longitudinal with the axle or spindle A. The dog K K', however, is made rigid with the spindle by a suitable pin K'', while the dogs J J' and I I' are loose on the spindle. A screw or pin L extends inward from the end plate C into the path of rotation of the T-shaped projection I' of the dog I I', and the projections I', J', and K' overlap each other, as illustrated in Figs. 3 and 6. A spiral spring P is wound around the spindle between the sleeve or hub K and a suitable pin R near the end plate B, and one end of this spring is secured to the pin K'', while the other end is secured to a suitable screw or pin S, extending inward from the end plate B. In practical operation when the end E'' of



the twine is pulled the bobbin and reel begin to rotate from their normal position, which is indicated in Figs. 3 and 6, the rotation of the reel being caused by the frictional contact of the bobbin with the outwardly-springing bars D. During the first rotation, the spindle being held stationary by the slotted frame H, the screw L, revolving with the plate C, makes a complete revolution, with the exception of the thickness of the T-shaped projection I', before it engages such projection. At substantially the end of the first rotation the screw L engages the opposite side of said projection, as shown in Figs. 4 and 5, and carries the dog I I' around for substantially one revolution until its T-shaped projection I' engages the overlapping adjacent end of the T-shaped projection J'. As the reel continues to revolve by reason of the pulling of the twine the projection I' carries the projection J' for another revolution until it engages with the overlapping adjacent projection K'. At this point the reel has made practically three revolutions. Should the pull on the twine continue, there would be no more revolutions of the reel, which is thus locked on the spindle and the spindle locked in the slotted ends of the spring-frame; but the bobbin would continue to revolve, slipping on the smooth spring-bars D. As soon as the end E'' of the twine is released by cutting or otherwise the tension of the spring P, which has been tightened by three revolutions of the reel, forces the reel to rotate three revolutions in the reverse direction and return to the position indicated in Figs. 3 and 6, thus rewinding the slack for three revolutions. Of course if there is only enough twine withdrawn from the bobbin to rotate the bobbin for two revolutions the bobbin will only rewind the slack for two revolutions. The number of possible rotations in rewinding the slack is limited to the number of dogs on the spindle. If there were but two dogs, there would be but two rotations for taking up the slack, while if there were four dogs there would be four rotations, as each dog intermediate between the dog which is fixed on the spindle and that which is next the plate and in engagement with the adjacent dogs on both sides would communicate another rotation to the fixed dog, and hence to the spindle.

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

1. In a twine-reel, a frame comprising end plates and connecting-bars for supporting a bobbin of twine; a spindle having bearings in said end plates; a plurality of dogs each

comprising a sleeve or hub and a T-shaped projection, the hub of the dog next the end plate being loose on the spindle, the hub of the innermost dog being fast on the spindle, and the hub of any intermediate dog being loose on the spindle; an engaging projection extending inward from said end plate into the path of rotation of the T-shaped projection on the dog next the end plate; a spring on the spindle having its opposite ends secured to said spindle and one of the end plates respectively; and a supporting-frame rigidly secured to the opposite ends of the spindle, substantially as described.

2. In a twine-reel, a frame comprising end plates and spring connecting-bars for supporting a bobbin of twine, each said spring connecting-bar being curved outward centrally to hold the bobbin frictionally; a spindle having bearings in said end plates; a plurality of dogs each comprising a sleeve or hub and a T-shaped projection, the hub of the dog next the end plate being loose on the spindle, the hub of the innermost dog being fast on the spindle, and the hub of any intermediate dog being loose on the spindle; an engaging projection extending inward from said end plate into the path of rotation of the T-shaped projection on the dog next the end plate; a spring on the spindle having its opposite ends secured to said spindle and one of the end plates respectively; and a supporting-frame rigidly secured to the opposite ends of the spindle, substantially as set forth.

3. In a twine-reel, the frame comprising the end plates B, C and the spring connecting-bars D; the spindle A having its bearings in said end plates; the dog consisting of the hub I and T-shaped projection I' loose on the spindle next the end plate C; the pin L extending inward from the end plate C into the path of rotation of the dog; the dog consisting of the hub K and projection K' fast on the spindle; a similar dog loose on the spindle between said dogs; the spring P surrounding the spindle and having its opposite ends secured to the spindle and the end plate D respectively; and the supporting-frame consisting of the central loop H', main portion H, and spring ends H'' rigidly secured to the opposite ends of the spindle, substantially as described.

In testimony whereof I have signed my name to this specification in the presence of two subscribing witnesses.

JAMES H. HOLBROOK.

Witnesses:

HENRY W. WILLIAMS,  
A. N. BONNEY.