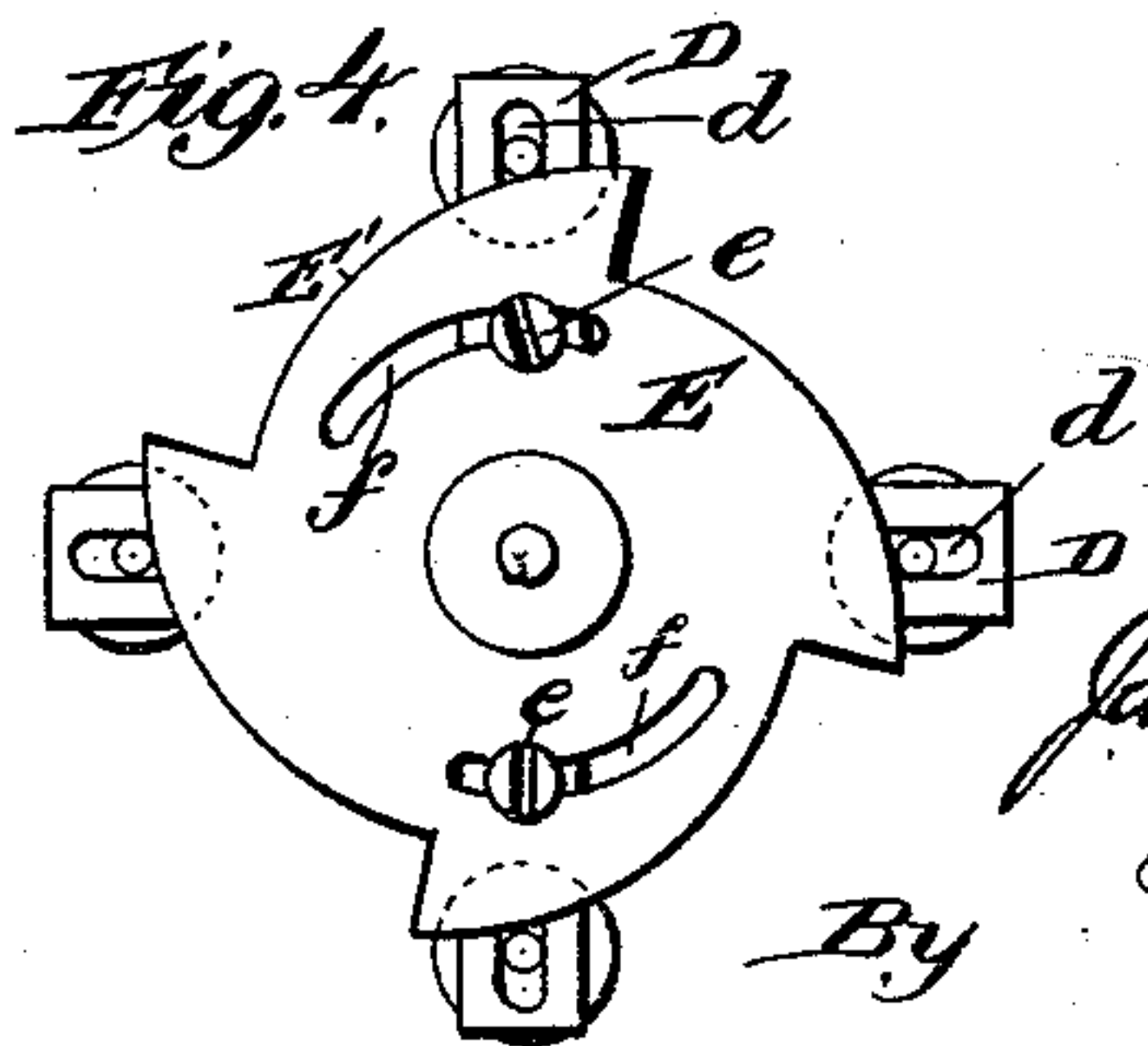
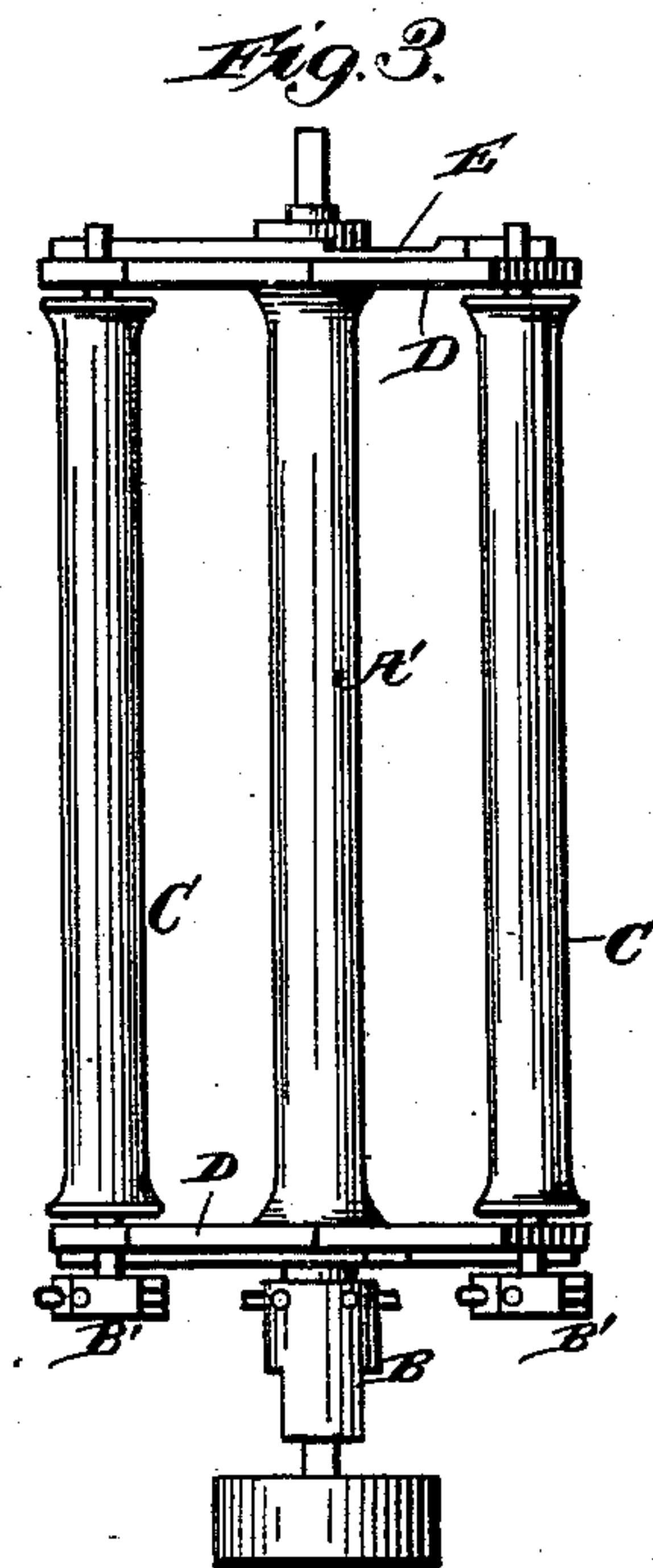
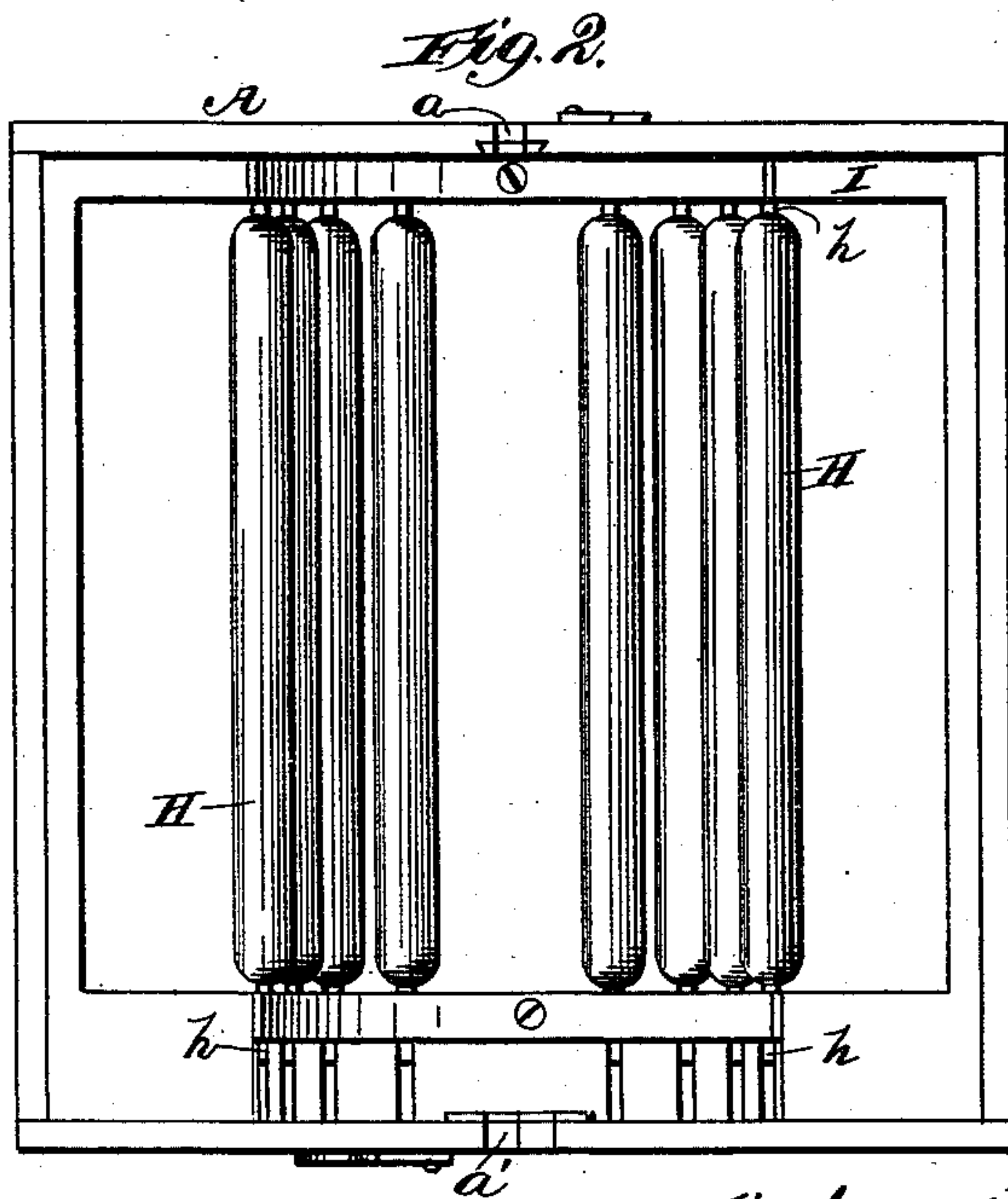
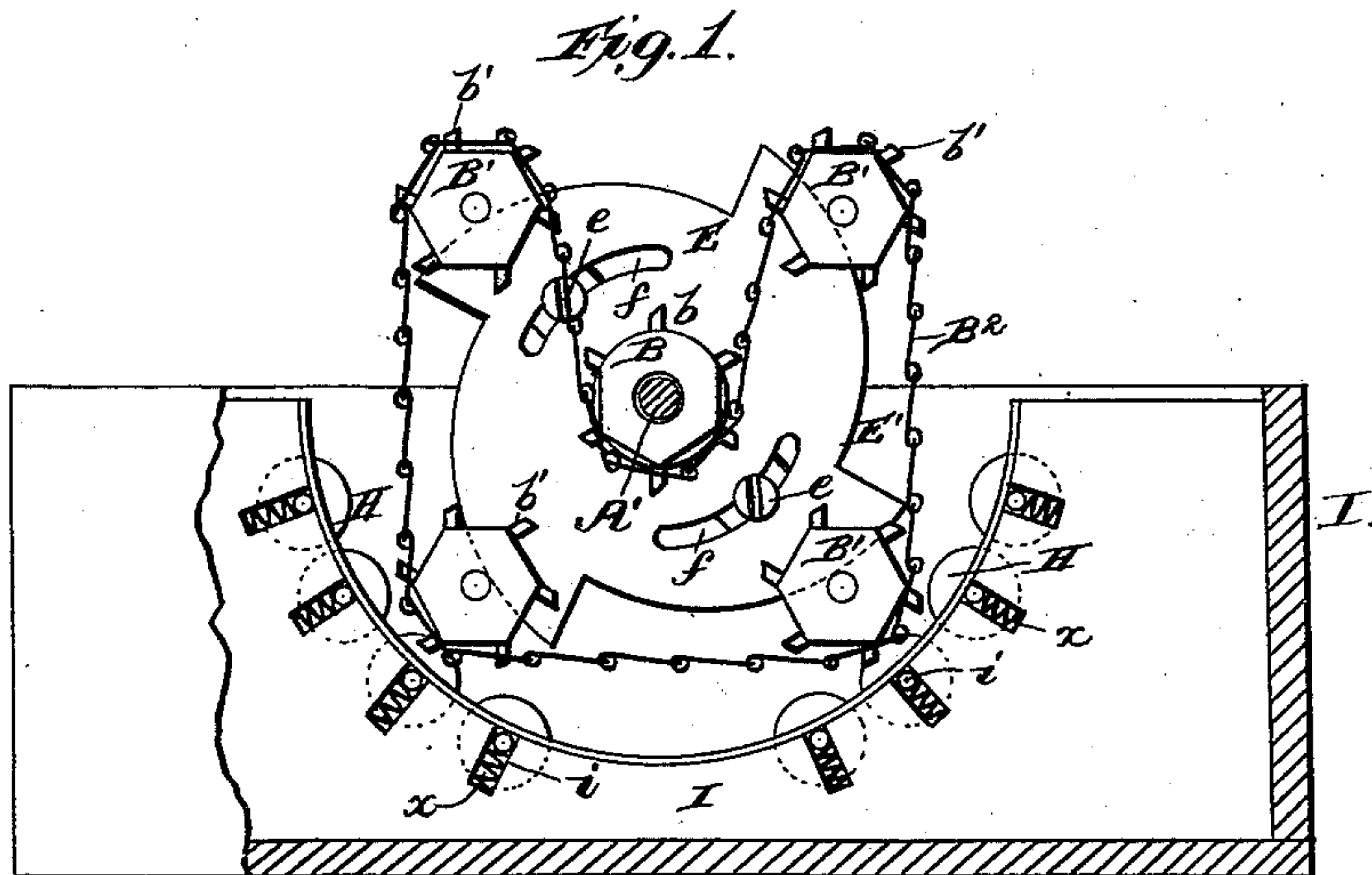


(Model.)

J. C. RICHARDSON.  
YARN SCOURING MACHINE.

No. 262,832.

Patented Aug. 15, 1882.



Witnesses,  
*Robert Everett,*  
*A. Clay Smith*

Inventor,  
*James C. Richardson*  
By *T. S. Smith* atty



# UNITED STATES PATENT OFFICE.

JAMES C. RICHARDSON, OF BOSCOBEL, WISCONSIN.

## YARN-SCOURING MACHINE.

SPECIFICATION forming part of Letters Patent No. 262,832, dated August 15, 1882.

Application filed November 1, 1881. (Model.)

*To all whom it may concern:*

Be it known that I, JAMES C. RICHARDSON, a citizen of the United States, residing at Boscobel, in the county of Grant and State of Wisconsin, have invented certain new and useful Improvements in Yarn-Scouring Machines; 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 and figures of reference marked thereon, which form a part of this specification.

My invention relates to a machine adapted especially for scouring or washing yarn, yet serviceable with efficiency for other purposes; and the novelty consists in the construction and arrangement of parts, as will be more fully hereinafter set forth, and specifically set forth in the claims.

The object of the invention is to provide a revolving reel or compound expanding roller which will allow the rolls thereon to be displaced until the several hanks, skeins, or the like of yarn are placed upon the reel or compound expanding roller, and to give to such rolls such an independent revolution in their own bearings, operated by the novel mechanical movement shown, as will change the point of bearing upon each of the rolls in the box with each revolution of the reel, as will be set forth.

The invention is fully illustrated in the accompanying drawings, which form a part of this specification, and in which Figure 1 is an end elevation, partly in section, of the internal box, &c., removed from the vat; Fig. 2, a top plan view with the reel removed; Fig. 3, a plan view of the reel; and Fig. 4, an end view of the reel, showing the cams.

To enable others skilled in the art to which the invention relates to make and use the invention, I will describe its construction and operation, and to this end I refer to the said drawings by letter, similar letters of reference indicating like parts in each figure.

A represents the tub or receptacle, having a bearing, *a*, upon one side of the box A for one end of the shaft A', and an angular recess, *a'*, upon the opposite side, adapted to receive a correspondingly-formed box, B, in which is journaled the other end of the shaft A'.

B represents the box, which fits in the recess *a'*, and in which the shaft A' is journaled; B', the roller-heads, having projecting pins *b'*; and *b*, the pins projecting from the box B.

The box B being stationary and the pins *b* operating in the links of an endless chain, B<sup>2</sup>, which chain also operates over the pins *b'* in the roller-heads B', not only is the reel rotated by the direct action of the shaft A', but the action of the chain, in connection with the roller-heads B' *b'*, serves also to give to each roll C a steady and independent revolution as the shaft A' is rotated.

The rolls C are journaled in cross-arms D, slotted at *d*, to which are attached, by proper set-screws, *e*, head-plates E, having segmental slots *f*, in which the set-screws *e* operate. The set-screws *e* being loosened, the roll-shafts C are allowed to be adjusted upon cam-faces E' at will, to apply the skein or hank, or to adjust the tension of the same after it has been applied. Each roller C operates in conjunction with rollers H, having shafts *h* journaled in radial slots *i* in a removable internal box, I, and each roll is held centrally by the constant force of a spring, *x*. The rolls H are arranged semi-circularly or segmentally, and the sections may be arranged so as to form a closed box with a complete circular system of rollers.

It will be observed that each roller C makes contact with each of the series of rolls H; that the hanks or skeins of yarn or the like are stretched upon said rolls C; and that the rolls C revolve arbitrarily with the revolution of the expanding roll and independently in their own journals; that the yarn or the like will be so rotated; and that a different portion of the yarn will be forced in contact with the spring-rolls H until a complete scouring is effected.

Limited modifications in details of construction may be made without departing from the principle or sacrificing the advantages of my invention, the essential features of which consist in the spring-rollers H, the rollers C, head-plates E, having slots *f* and cam-faces E', and means for imparting a rotating movement to each roll C independently.

What I claim is—

1. In a yarn-scouring machine, a compound expanding roller composed of a slotted frame, independent rolls journaled therein, and cam-faced heads, means for imparting to such in-



dependent rolls a continuous and independent rotary motion, and spring bearing-surfaces, the whole adapted to serve as and for the purposes set forth.

5 2. In a yarn-scouring machine, a reservoir, A, and a contained removable box or frame, I, having spring-rolls arranged semicircularly, segmentally, or circularly, combined with a revolving compound expanding roller, the independent rolls C of which make contact with  
10 said spring-rolls, and said rolls C having an independent rotary motion, as and for the purpose set forth.

3. In a yarn-scouring machine, means, substantially as described, for contracting the  
15 compound expanding roller to allow of the placement of the skeins or hanks, and means, substantially as described, for imparting to each independent roll C an independent rotary  
20 motion, combined with flexible or spring bearings, arranged as shown, as set forth.

4. The independent rolls C, journaled in the frame-arms D *d*, combined with the endless

chain B, B', B<sup>2</sup>, &c., and arranged to make contact with a series of rolls provided with spring-  
25 bearings, substantially as set forth.

5. The removable box or frame I, having sockets *i* and springs *x*, the rolls H, arranged in the form of a segment, combined with the reservoir A, and the compound expanding roller,  
30 having the independent rolls C, as and for the purposes specified.

6. The head-plate E, slotted at *f*, and set-screws *e*, combined with the cam-faces E', the rolls C, rolls H *x*, and motive power, substantially  
35 as and for the purposes set forth.

7. In a yarn-scouring machine, the cams E E', combined with the rolls C and frame D *d*, and adapted to adjust the tension of the yarn upon the rolls C at will, as specified.  
40

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

JAMES C. RICHARDSON.

Witnesses:

H. CLAY SMITH,  
J. A. HARROLD.