

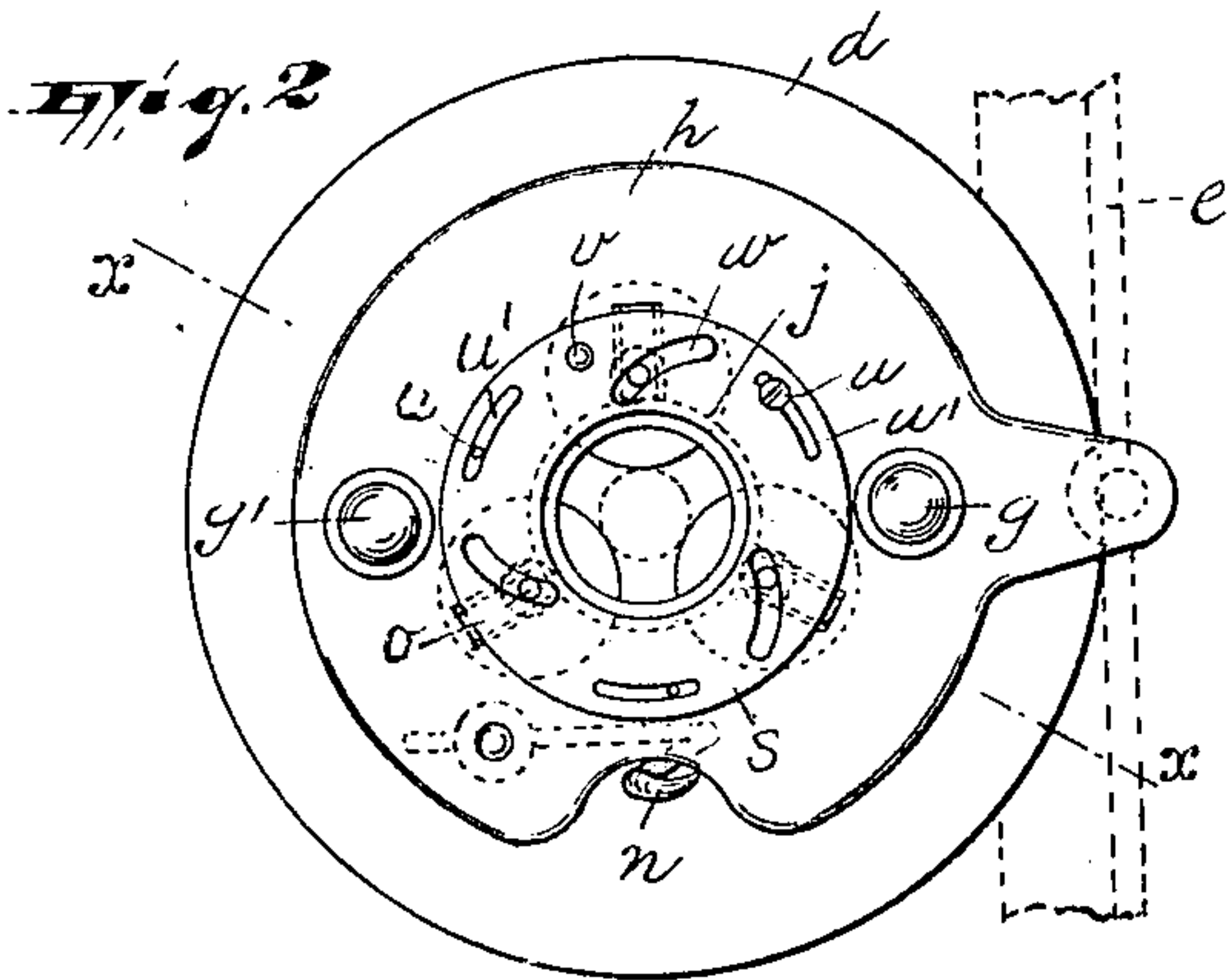
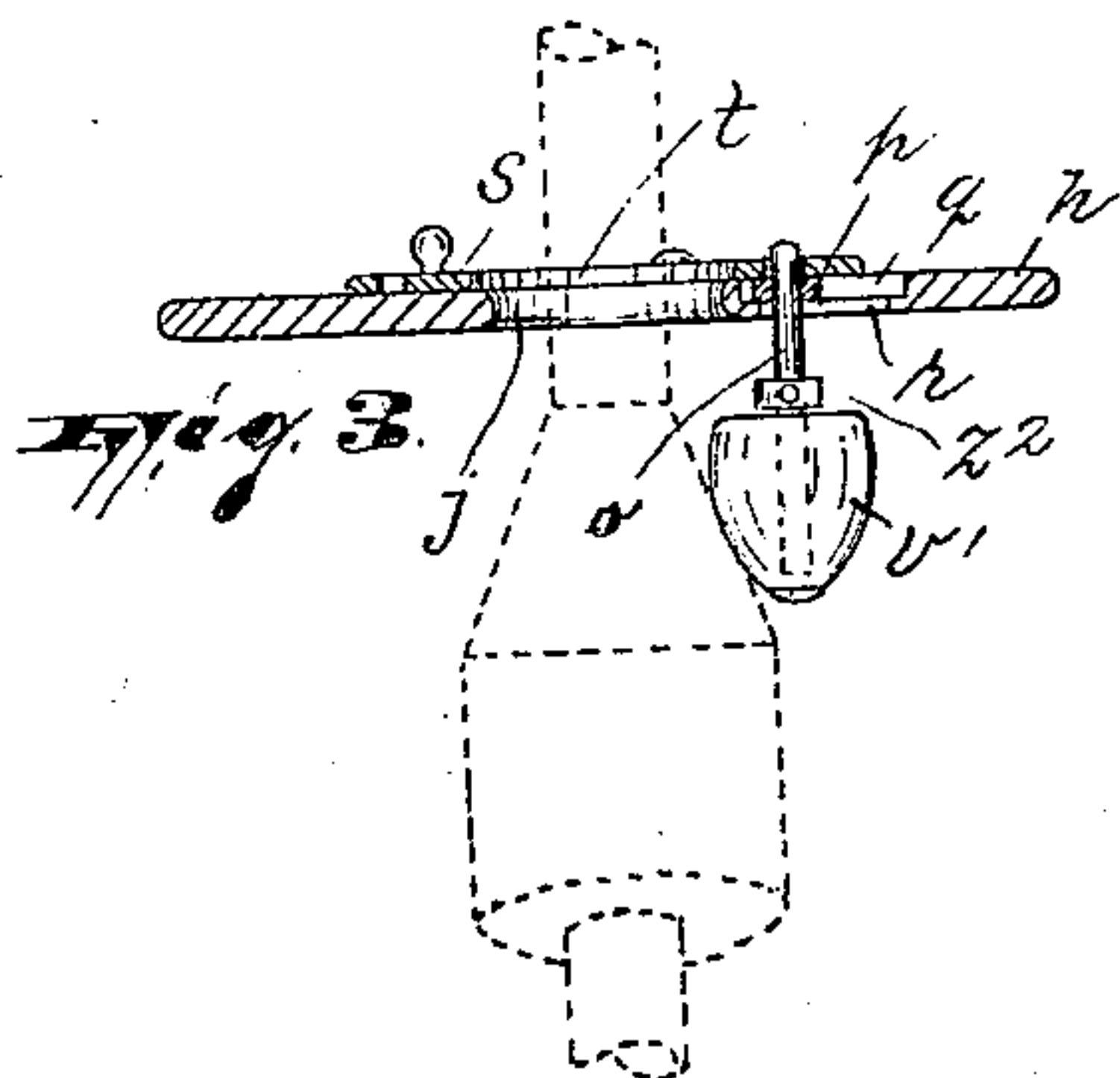
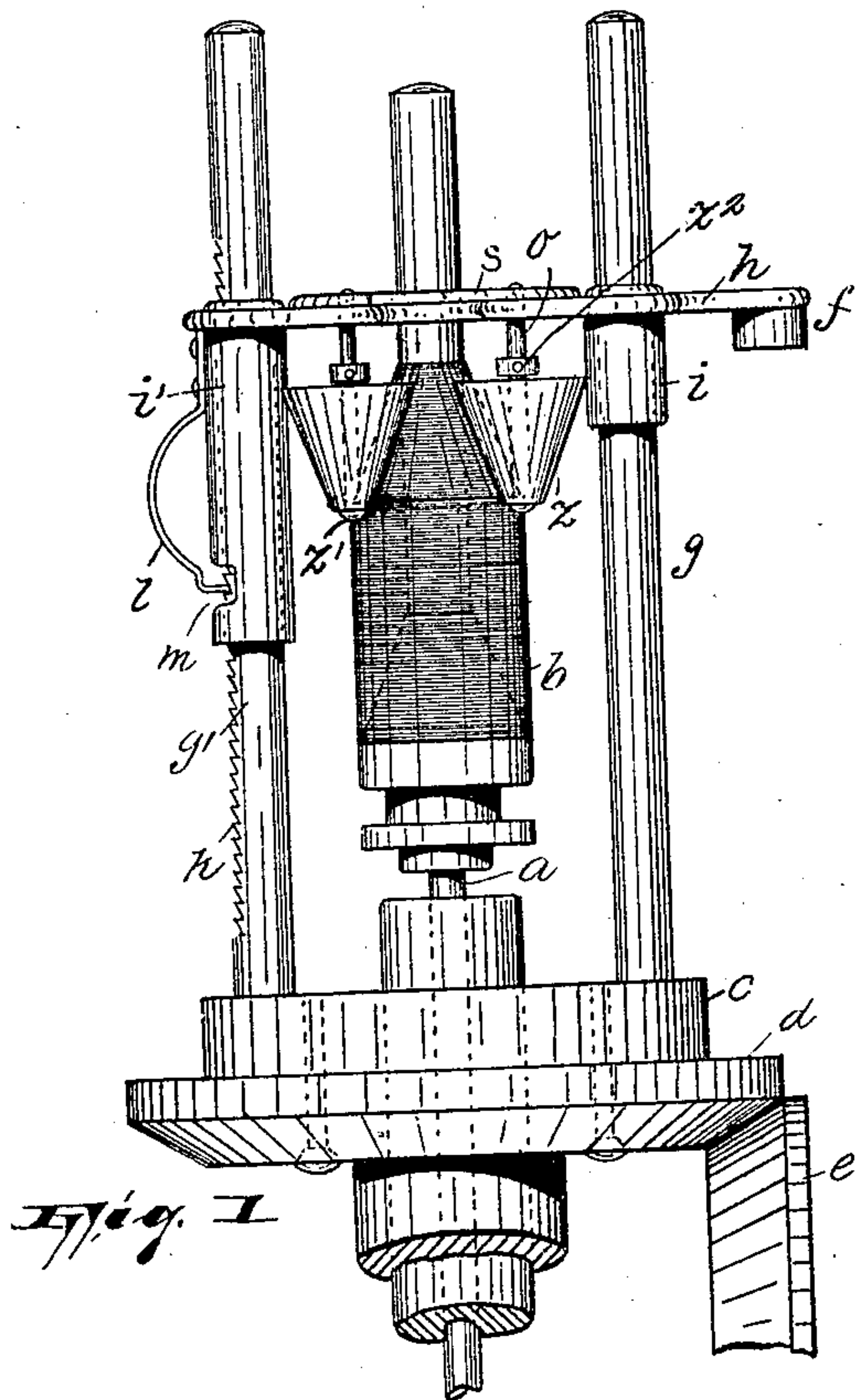
No. 632,003.

Patented Aug. 29, 1899.

R. ATHERTON.
QUILLING MACHINE.

(Application filed Mar. 20, 1899.)

(No Model.)



WITNESSES:

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UNITED STATES PATENT OFFICE.

ROBERT ATHERTON, OF PATERSON, NEW JERSEY.

QUILLING-MACHINE.

SPECIFICATION forming part of Letters Patent No. 632,003, dated August 29, 1899.

Application filed March 20, 1899. Serial No. 709,757. (No model.)

To all whom it may concern:

Be it known that I, ROBERT ATHERTON, a citizen of the United States, residing in Paterson, in the county of Passaic and State of New Jersey, have invented certain new and useful Improvements in Quilling-Machines; 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, reference being had to the accompanying drawings, and to letters of reference marked thereon, which form a part of this specification.

This invention relates to weft-thread spooling or quilling machines; and it has reference particularly to the cop building or spooling devices involved as a part of the mechanism of such machines.

The invention is designed as an improvement upon the device shown and described and claimed in Letters Patent of the United States No. 596,794, issued to Jean Schweiter January 4, 1898.

In these machines to produce the cop, which is wound in successive and overlapping layers of conical form, a reciprocating motion is imparted either to the spindle or the thread-guide carrier simultaneously with the rotation of either of these elements in winding said cop, and by virtue of this relative reciprocation an intermittent engagement between the bobbin on the spindle, or rather the cop being formed thereon, and the thread-guide carrier is effected, so as to advance the one relatively to the other in producing the layers of the cop. It is assumed that the parts have a rapid relative rotation, and since if there is a direct engagement between the cop and the thread-guide carrier at each of the reciprocating movements the thread of the cop will not only suffer the consequences of the friction, but will not be uniformly wound, it has been proposed by the above-mentioned patentee to interpose an independently-movable element between the cop and the thread-guide carrier, which element when impinged by said cop will take the impact of the thread-guide carrier.

In view of the foregoing the objects of my invention are not only to simplify and cheapen the construction of the patented device here-

inbefore referred to and to provide means whereby perfect uniformity and compactness in the completed cop may be insured, but also to construct and arrange certain parts of the device so as to be adjustable, and thus render the latter susceptible of building or forming cops of varying diameters.

The invention therefore consists in the improved spooling or quilling device having certain of its parts adjustably arranged for the production of various sizes of cops and in the combination and arrangement of the various parts, substantially as will be hereinafter pointed out and finally embodied in the clauses of the claim.

Referring to the accompanying drawings, wherein corresponding letters of reference indicate like parts in the several views, Figure 1 represents my improved spooling device in side elevation. Fig. 2 is a top plan view of the same, and Fig. 3 is a sectional view taken on the line *xx* in Fig. 2 and illustrating a slight modification of my invention.

In said drawings, *a* indicates the spindle, which is suitably supported and to which is imparted the usual longitudinally-reciprocating movement, and *b* designates the spool or bobbin, which is mounted upon the upper end of said spindle.

c is a revoluble disk that is penetrated by the spindle *a* and to which a rotary movement is imparted from a friction-disk *d*, rigidly connected thereto and bearing upon a beveled friction-wheel *e*.

f designates the thread-guide carrier, and *g g'* are its vertical guides, which, being stepped at their lower ends in the disk *c*, penetrate the plate *h* of the thread-guide carrier and also guiding-sleeves *i i'* thereof. Said plate is also provided with an opening *j* for the bobbin *b*. One of the guides—say the guide *g'*—is provided with a series of notches *k*, with which engages a spring-pawl *l*, that is carried by the sleeve *i'*, the engagement end of said pawl projecting through an opening *m* in said sleeve. The pawl *l* is thus adapted to maintain the thread-guide carrier approximately in the position into which it is successively lifted in the reciprocations of the spindle.

The thread-guide proper consists of a small twisted or bent glass tube *n*, extending down-

wardly from and secured to the thread-guide carrier.

o denotes several spindles which are carried in blocks p , said blocks being adapted to slide in radial grooves q , formed in the top surface of the plate h and communicating with radial slots r , through which the spindles project and in which they are movable longitudinally thereof with the blocks. Each block is rectangular, and as it is approximately as wide as the groove it fits the same and is only susceptible of longitudinal movement therein.

s designates a disk which rests upon the plate h , covering, or nearly covering, the groove q , and being therefore adapted to maintain the blocks in position. Said disk is provided with a central opening t , coinciding with the opening in the plate, and it is concentrically movable, being guided by projections u , which penetrate concentric slots w in said disk and extend upwardly from the plate. One or more of the projections may have the form of a screw, whereby the disk may be adjustably secured in any desired position.

v is an operating-knob projecting upwardly from the disk. Said disk is provided with a series of eccentric slots w , receiving the upper ends of the spindles o , being adapted when the disk is manipulated to produce in the spindles movements which are radial relatively to the cop, each spindle of course following the direction of the groove in which its supporting-block is arranged. The lower end of each spindle carries a loose or revoluble conical roller z , having its larger end uppermost and kept on the spindle by an enlargement or head z' , formed on the lower end of the latter.

z^2 is a nut that is screwed on each spindle and is adapted to confine the roller against undue upward movement. It should be remarked that the angle of the side of each conical roller relatively to its axis should be approximately the same as the angle of the side of the conical or base portion of the bobbin relatively to its axis. If this is so and each roller is approximately as long as the conical portion of the cop to be formed, said cop will

be uniformly wound and have uniform compactness throughout its entire length.

In the modification of my invention shown in Fig. 3 the rollers v' , instead of being perfectly conical in shape and each having a side surface which appears straight in side elevation, have convex side surfaces, being otherwise substantially conical in form. This form of roller may be preferable in case it is desired to have as little contact between it and the cop as is possible.

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

1. In a thread-spooling machine, the combination of a thread-guide carrier, spindles carried thereby and adjustable radially therein with reference to the axis of the cop being wound, cop-engaging rollers carried by said spindles, and a revoluble element carried by said thread-guide carrier and having eccentric engagement with said spindles, substantially as described.

2. In a thread-spooling machine, the combination of a thread-guide carrier, spindles carried thereby and adjustable longitudinally and also radially with reference to the axis of the cop being wound, cop-engaging rollers carried by said spindles, and a revoluble disk carried by said thread-guide carrier and having eccentric engagement with said spindles, substantially as described.

3. In a thread-spooling machine, the combination of a thread-guide carrier, blocks adjustable radially therein with reference to the axis of the cop being wound, spindles secured in said blocks, cop-engaging substantially conical rollers carried by said spindles, and a disk revolubly mounted on said thread-guide carrier and having eccentric slots receiving said spindles, substantially as described.

In testimony that I claim the foregoing I have hereunto set my hand this 9th day of March, 1899.

ROBERT ATHERTON.

Witnesses:

ALFRED GARTNER,
JOHN W. STEWARD.