

J. DALTON.  
KNITTING MACHINE.

No. 32,241.

Patented May 7, 1861.

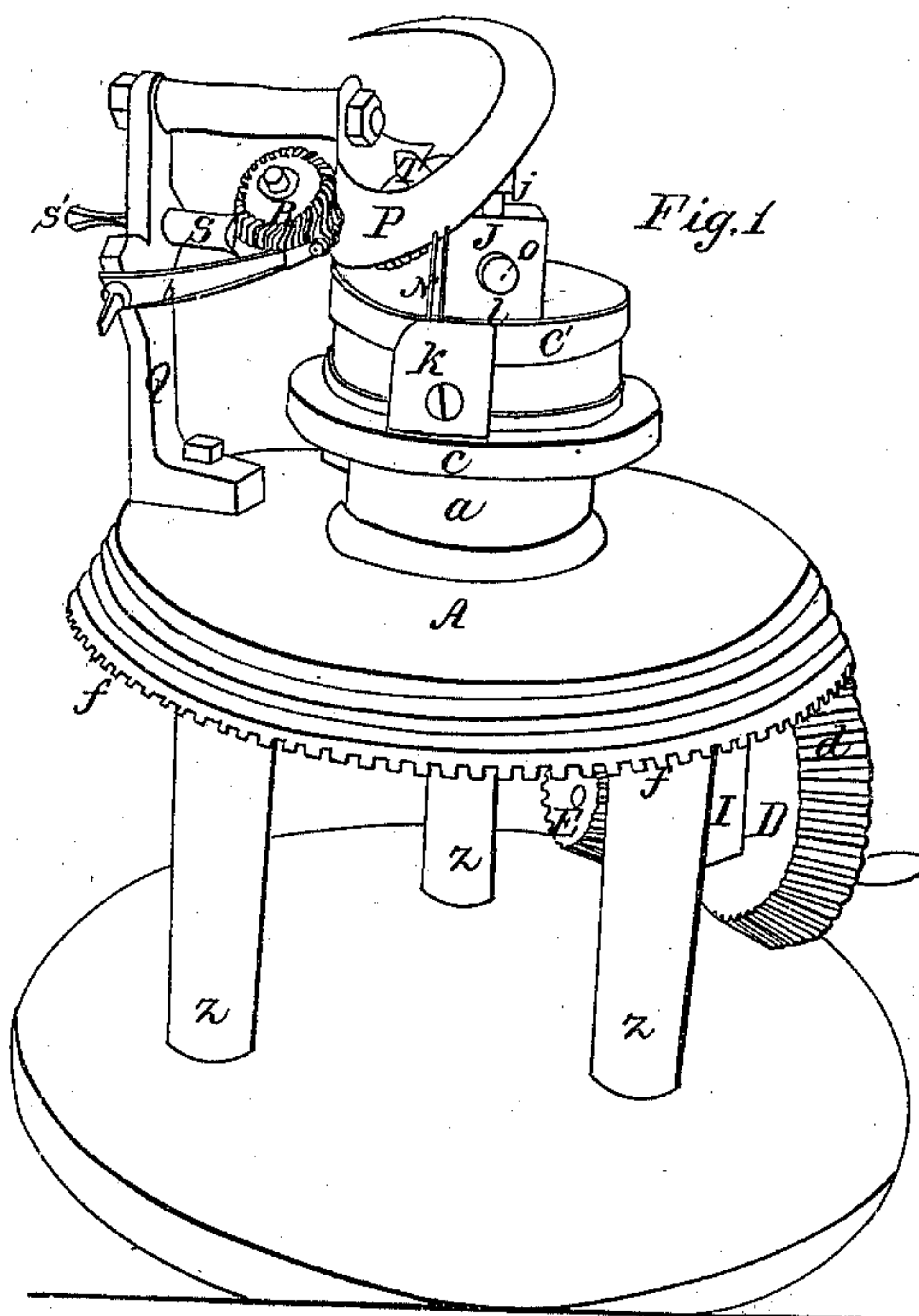
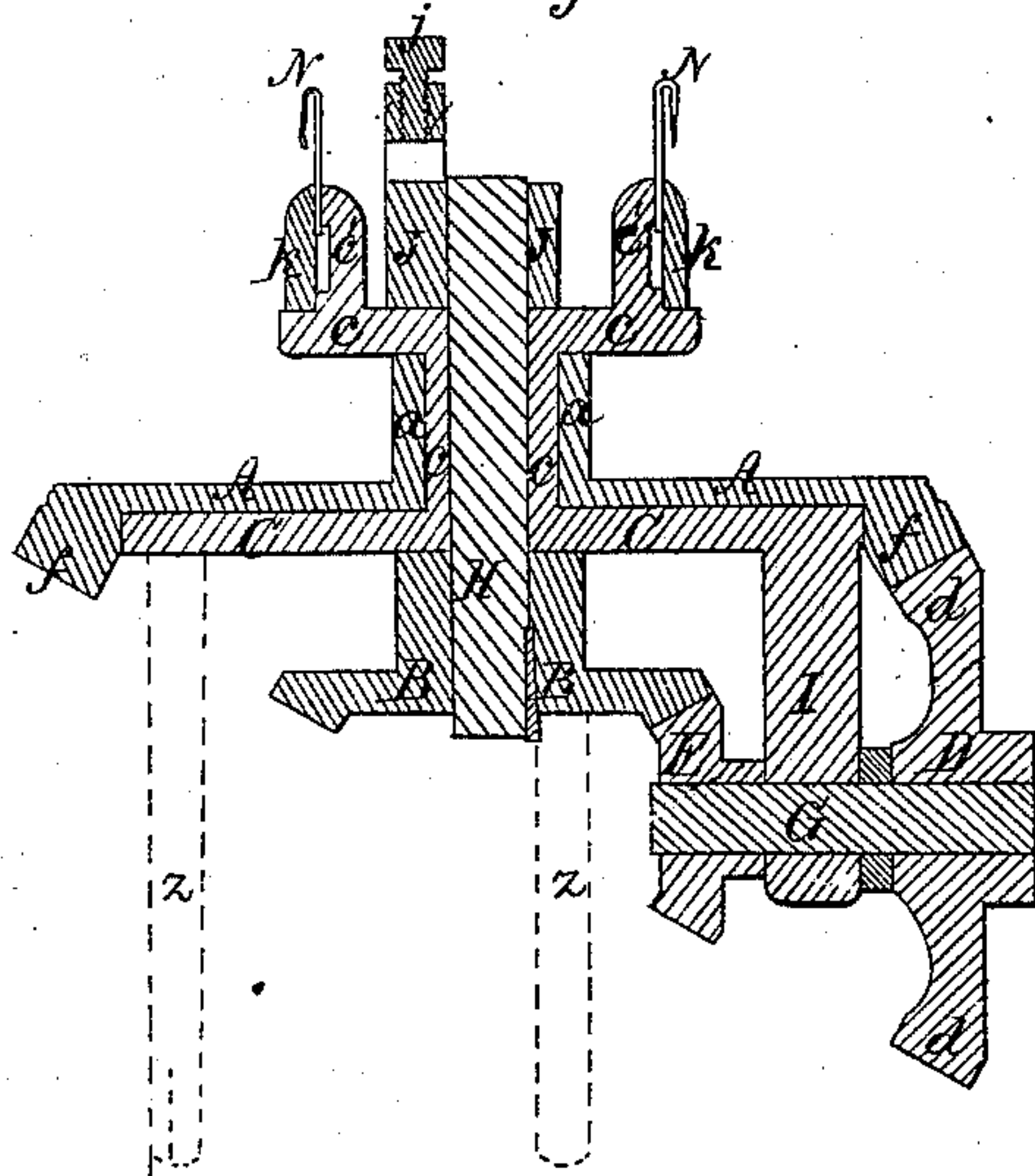


Fig. 1

Fig. 6



Fig. 3



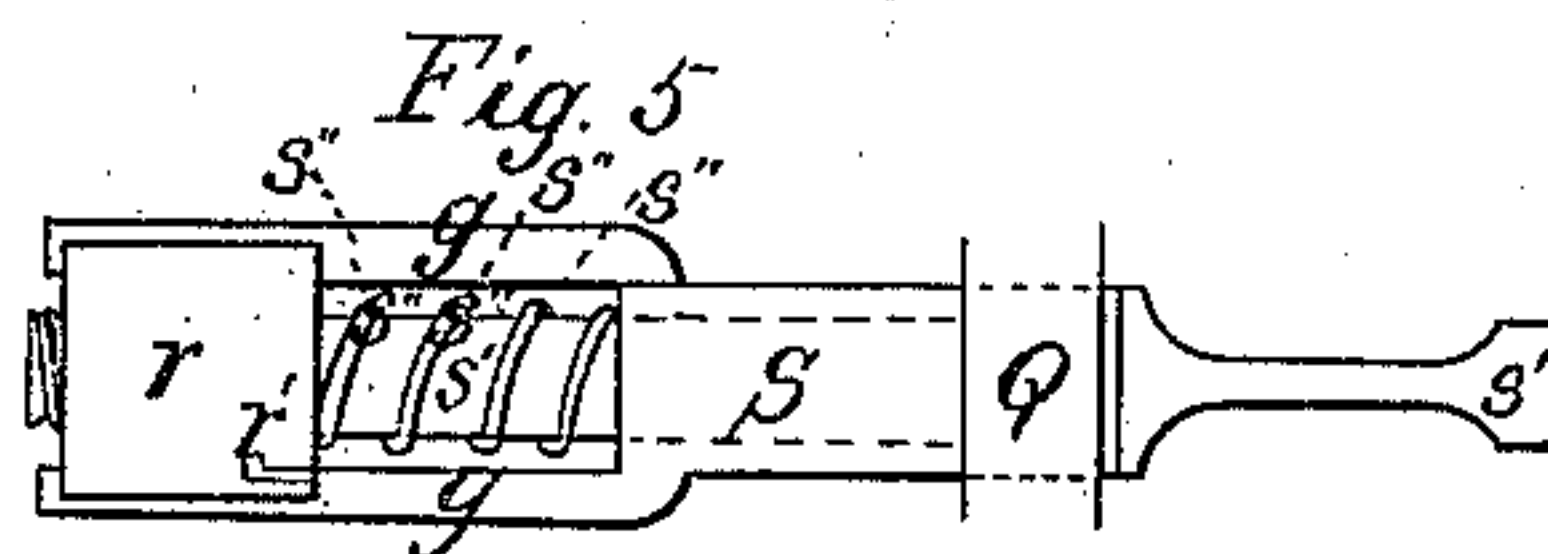
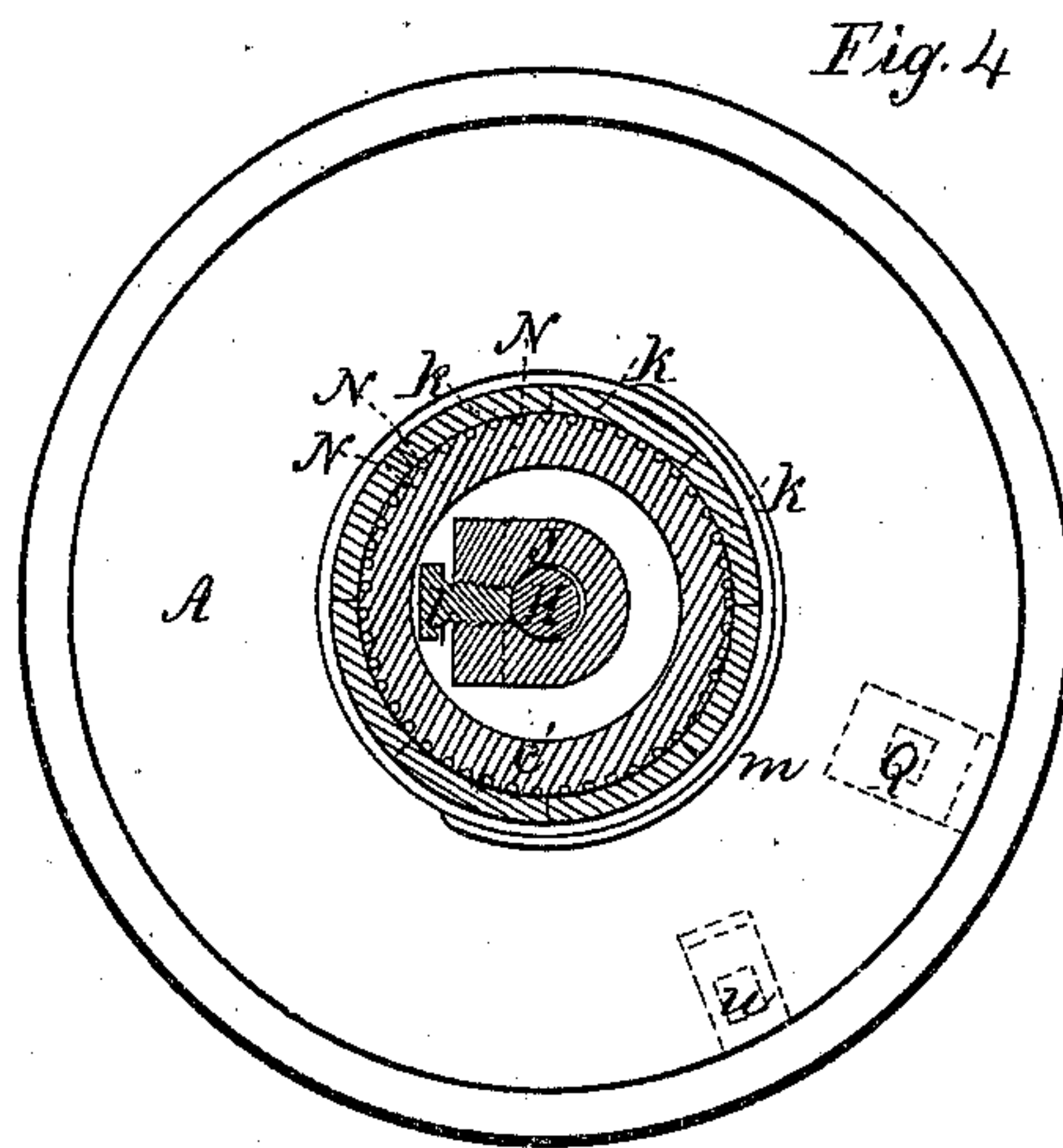
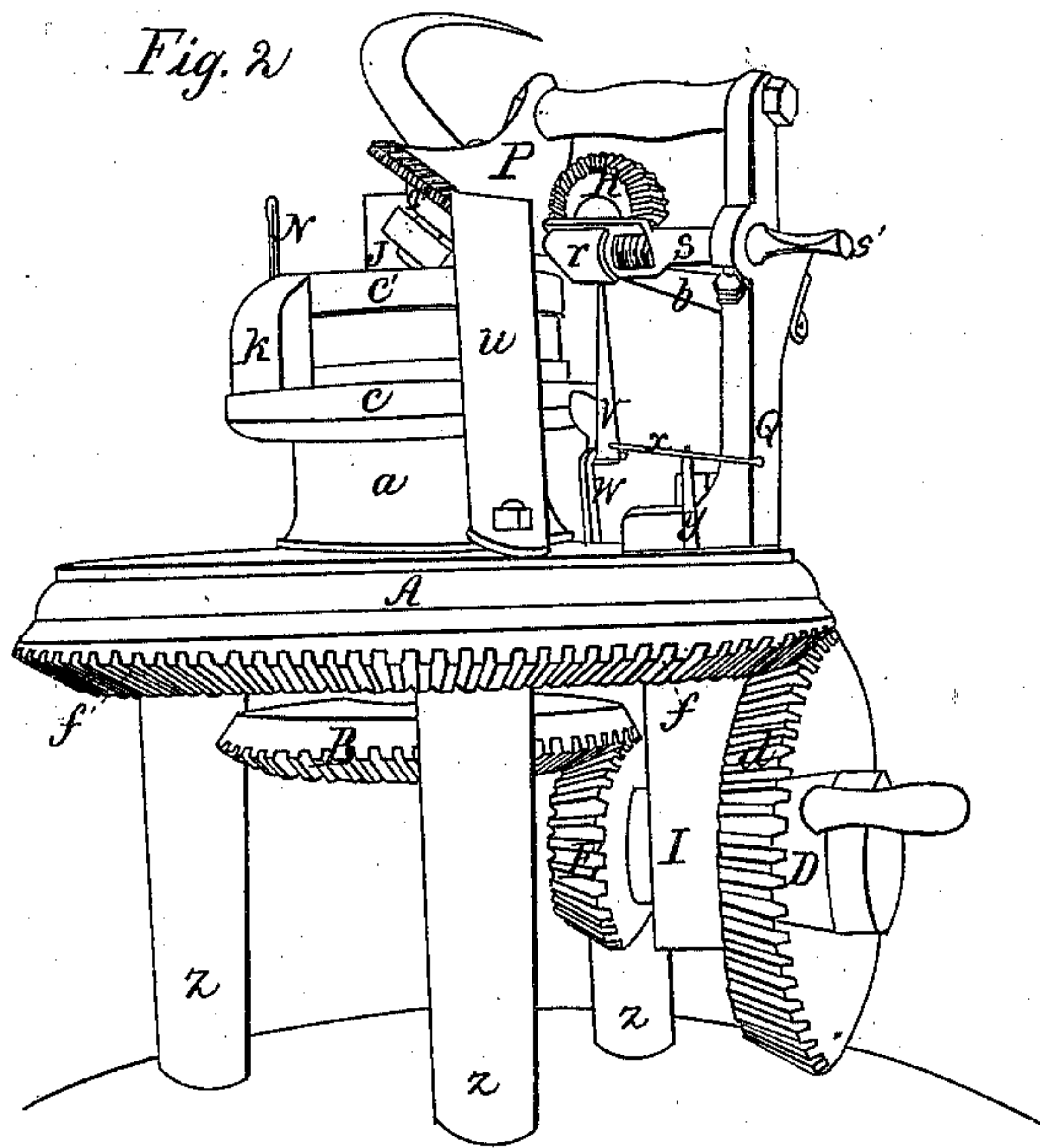
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# UNITED STATES PATENT OFFICE.

JOSEPH DALTON, OF BROOKLYN, NEW YORK.

## KNITTING-MACHINE.

Specification of Letters Patent No. 32,241, dated May 7, 1861.

*To all whom it may concern:*

Be it known that I, JOSEPH DALTON, of the city of Brooklyn, Kings county, and State of New York, have invented a new and useful Improvement in Knitting-Machines; and I do hereby declare that the following is a full, clear, and exact description of the construction and operation of the same, reference being had to the accompanying drawings, forming a part of this specification.

The nature of my invention consists in making the cylinder, containing the needles, upright and stationary, and fixing the needles in said cylinder at equal distances from, and parallel to each other, and revolving the feeding and casting off apparatus around and within said cylinder; also in attaching a cam to a portion of said cylinder in such a manner that by the intervention of a bent lever the machine is made to put less yarn into the loops during a portion of the revolution, than during the other portion, thus forming the "instep" of the stocking or narrowing any portion of the garment as desired; also in the peculiar shape of the cloth slide, whereby it is made to equalize the strain, and carry the old stitches of the fabric down below the barbs of the needles.

Figures 1 and 2 are perspective views of the machine taken at different positions to show the various details (but two needles are shown in the drawings as a greater number would obscure the view of the other portions of the machine). Fig. 3 is a vertical section of the machine. Fig. 4 is a horizontal section of the cylinder containing the needles, and of the carrier of the clearing apparatus. Fig. 5 is a full size drawing of the carrier of the feed wheel. Fig. 6 is a full size drawing of one of the needles.

Like letters refer to the same parts, in all of the drawings.

Z, Z, Z, are the legs of the machine, securely fastened to the plate or bed (C, Fig. 3); to the central and upper portion of (C) is secured the needle cylinder, (c, and c'), which also forms the mandrel on which the table (A) turns and carries the feeding apparatus which is attached to the pillar (Q); the central and upper portion of (A) is formed into a hub to give increased bearing to the revolving table (A). Through the center of (C) is a shaft (H), to the upper end of which, by means of a set screw (l Fig. 1), is secured the casting off apparatus, and to the lower end a cog wheel (B), by means

of which the shaft is made to revolve. There is secured to the bed (C) a support (I) through which runs the shaft (G), to the outer end of this shaft is secured the cog wheel (D), with cogs (d) fitting into the cog gear, f, of the table (A); to the other end of this shaft is secured the cog wheel (E) with its gear fitting into the gear of the wheel (B); these cog wheels are so arranged that by revolving the shaft (G), the shaft (H) and the table (A) will both make the same number of revolutions, thereby keeping the feed and clearing apparatus in the same relative position during the entire revolution of the machine.

The feeding apparatus consists of the yarn guide (b Fig. 1); and the feeding wheel (R), which is made in the usual manner for feed wheels of circular knitting machines; its carrier however differs from the usual carrier, and is made as follows, to wit, S, Fig. 5, is a cylinder having ways g, g, attached to one end, the other end is securely fastened to the pillar (Q), there is a slide (r), with grooves cut in opposite sides in which the ways g g fit, thus allowing the piece (r) to slide on the ways; the stud of the feed wheel (R) is securely fastened to this slide; there is a hole through the slide with a female thread cut therein; through the center of the cylinder, S, is a screw, S', on one end of which is a thread cut to fit the thread in the slide (r); a spiral spring, S'', S'', passes around a portion of, S'. bearing against the cylinder, S, and against, r; by turning the screw, S', the feed wheel is made to approach toward or recede from the needles thereby increasing or diminishing the length of the loop.

T, Figs. 1 and 2 is the clearing wheel, which clears the stitches from the needles as the new loops are formed, and consists of the usual parts of a clearing wheel, as now used on circular knitting machines, but its carrier differs in this respect, that the holder of its stud is made adjustable by means of the set screw (j) Fig. 3.

P is a cloth pressing-slide, and consists of a piece of thin metal of the peculiar shape shown in Figs. 1, and 2, the upper and narrow portion of which incloses the fabric and draws it toward the center of the machine, thereby equalizing the strain on said fabric, while the wider and lower portion presses the work down on the inside of the needles, carrying the old stitch below the barbs of



the needles, (directly in advance of the feed wheel, while the yarn is being fed to the needles and the new loops formed); P, is permanently fastened to the pillar, Q.

5 V, Fig. 2, is a bent lever working on the fulcrum W, the short end of the lever resting against the cylinder (c) to which is attached a cam, (m, Fig. 4) the other end of the lever is fitted into a slot in the slide (r);  
 10 when it is shipped in, and the machine put in motion the short end of the lever will be brought in contact with the cam (m) which will force the feed wheel away from the needles, thereby diminishing the length of  
 15 the loop during the portion of the revolution that the lever may be in contact with the cam; at any time when it may be desirable to discontinue the use of the lever, it may be unshipped from the slot (r') by  
 20 touching the handle of the lever x, (as said lever, x, turns on the fulcrum, y.)

U, is a presser, that presses the barbs of the needles against their shafts, inclosing the new loops as they are formed by the feed  
 25 wheel, while the clearing wheel clears the old stitches from the needles. The number of needles for a machine is determined by the number of stitches required in the work, they are arranged around the cylinder, c, as  
 30 shown in Fig. 4, with their barbs outward and are held in their places by disks K, K screwed to the cylinder.

When operating the machine it is to be used as follows, to wit, a piece of knitted  
 35 fabric, having the requisite number of stitches, is to be attached to the machine by hooking the barbs of the needles into the stitches and the other end of the fabric passed up through the cloth slide, P, (so that said slide shall inclose the fabric,) and  
 40 fastened to a clasp which is attached to a roller, in such a manner as to keep the cloth strained tightly on the needles, under the slide (P), and over the clearing wheel, T;  
 45 the yarn leading from the fabric is to be passed between the needles and the feed wheel, R, and through the eye of the yarn guide, b, and made fast to the yarn which is  
 50 put on to a bobbin, and attached in any con-

venient manner to the table (A); then, by turning the shaft, G, the table and all thereto attached will revolve around the cylinder (c) and the shaft (H) and its attachments will revolve within the same, the floats of  
 55 the feed wheel fitting between the needles, thereby revolving said wheel on its stud, supplying the yarn to the needles and forming it into loops; the floats of the clearing  
 60 wheel fitting between the needles, will cause said wheel to revolve on its stud, thereby raising the old stitches over the new loops (the presser U, at the same time holding the barbs of the needles, against their shafts)  
 65 clearing the old stitches from the needles ready for the formation of new loops on the succeeding revolution.

When operating the instep cam, the lever at a given point is thrown entirely on the  
 70 government of the flange, c, of the cylinder (c'), and by its having a direct bearing all around, both on cam and flange, an extra supply of yarn can be thrown into one half  
 75 the fabric, enough to shape the curve which forms the heel of the stocking.

Having now described the manner of constructing and operating my machine, sufficiently to enable anyone familiar with the construction and operation of circular knitting  
 80 machines, to construct and operate the same, I will state what I claim as my invention.

I claim—

1. The stationary upright cylinder with the needles fixed thereto at equal distances from, and parallel to each other, combined  
 85 with the feeding and clearing apparatus revolving around and within said cylinder.

2. The bent lever, V, in combination with the cam, m, and feeding apparatus.

3. The peculiar shape of the cloth-  
 90 presser, or slide, P, combining the double duty of equalizing the strain and carrying the cloth below the barbs of the needles, all substantially as described and for the purpose set forth.

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Witnesses:

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