

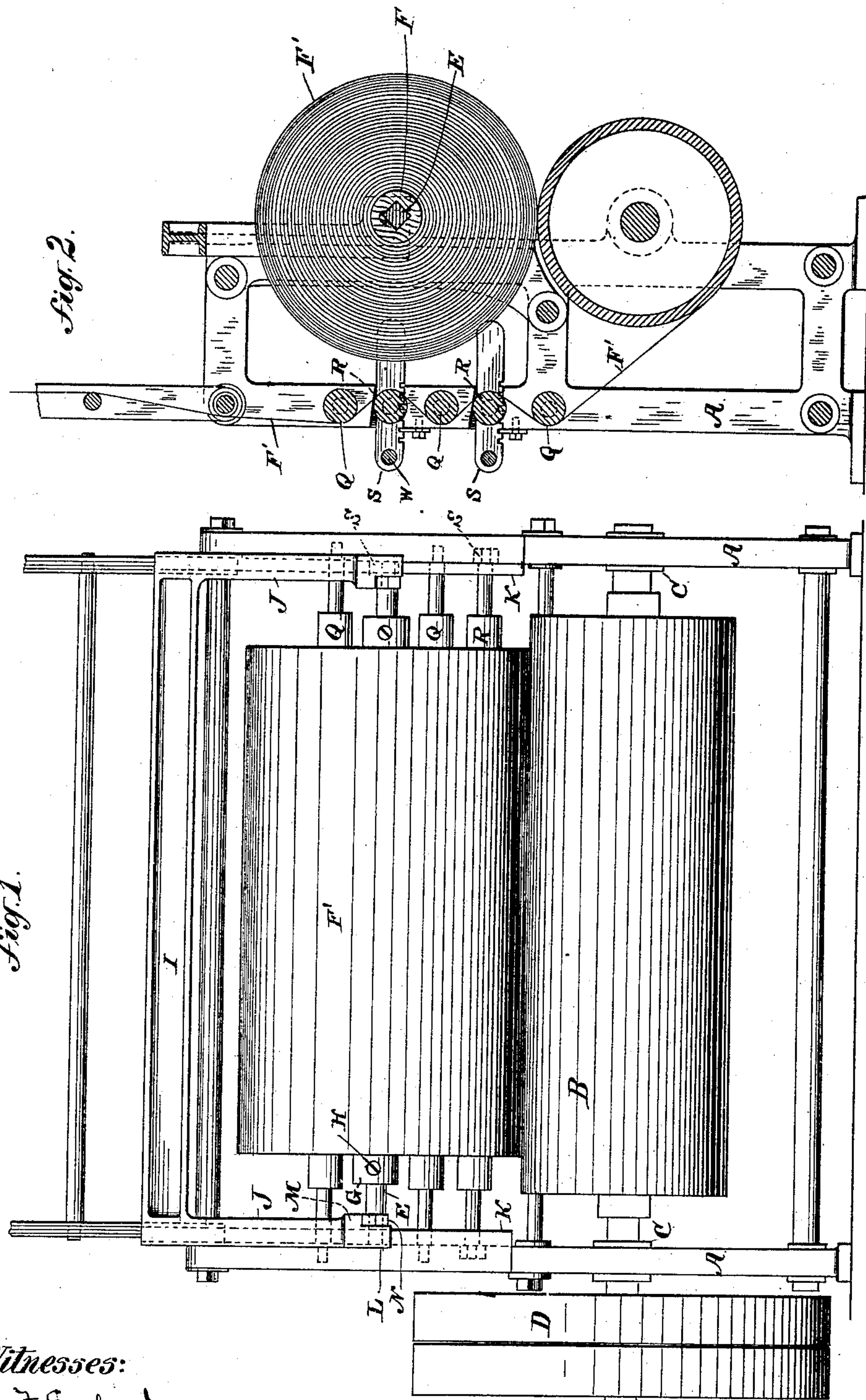
(No Model.)

2 Sheets—Sheet 1.

H. WINTERWERBER.
WINDING MACHINE.

No. 354,294.

Patented Dec. 14, 1886.



Witnesses:

R. F. Gaylord

Am. Mfg. Co.

Inventor
Heinrich Winterwerber
by H. C. Eickling Esq.

(No Model.)

2 Sheets—Sheet 2.

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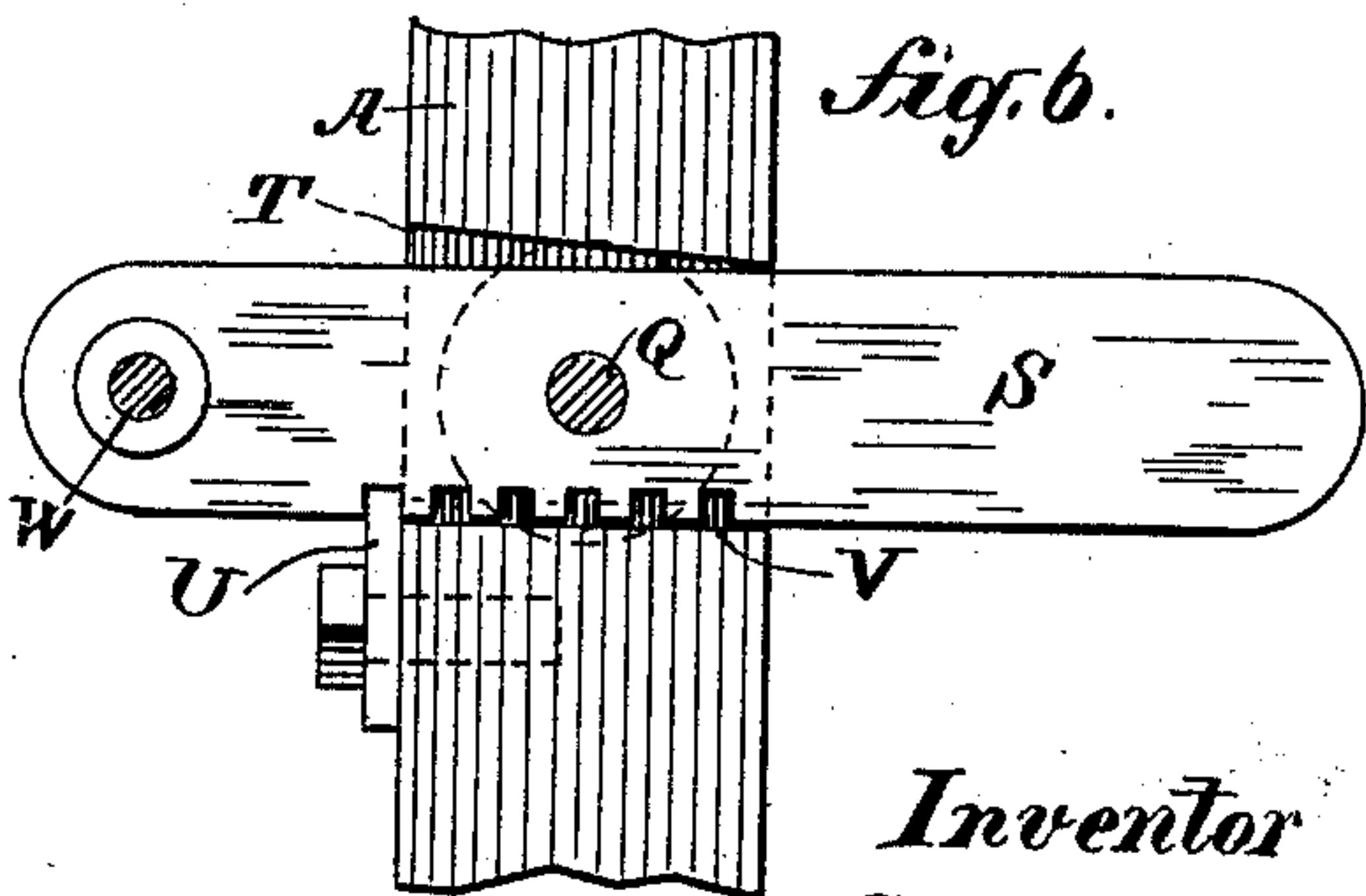
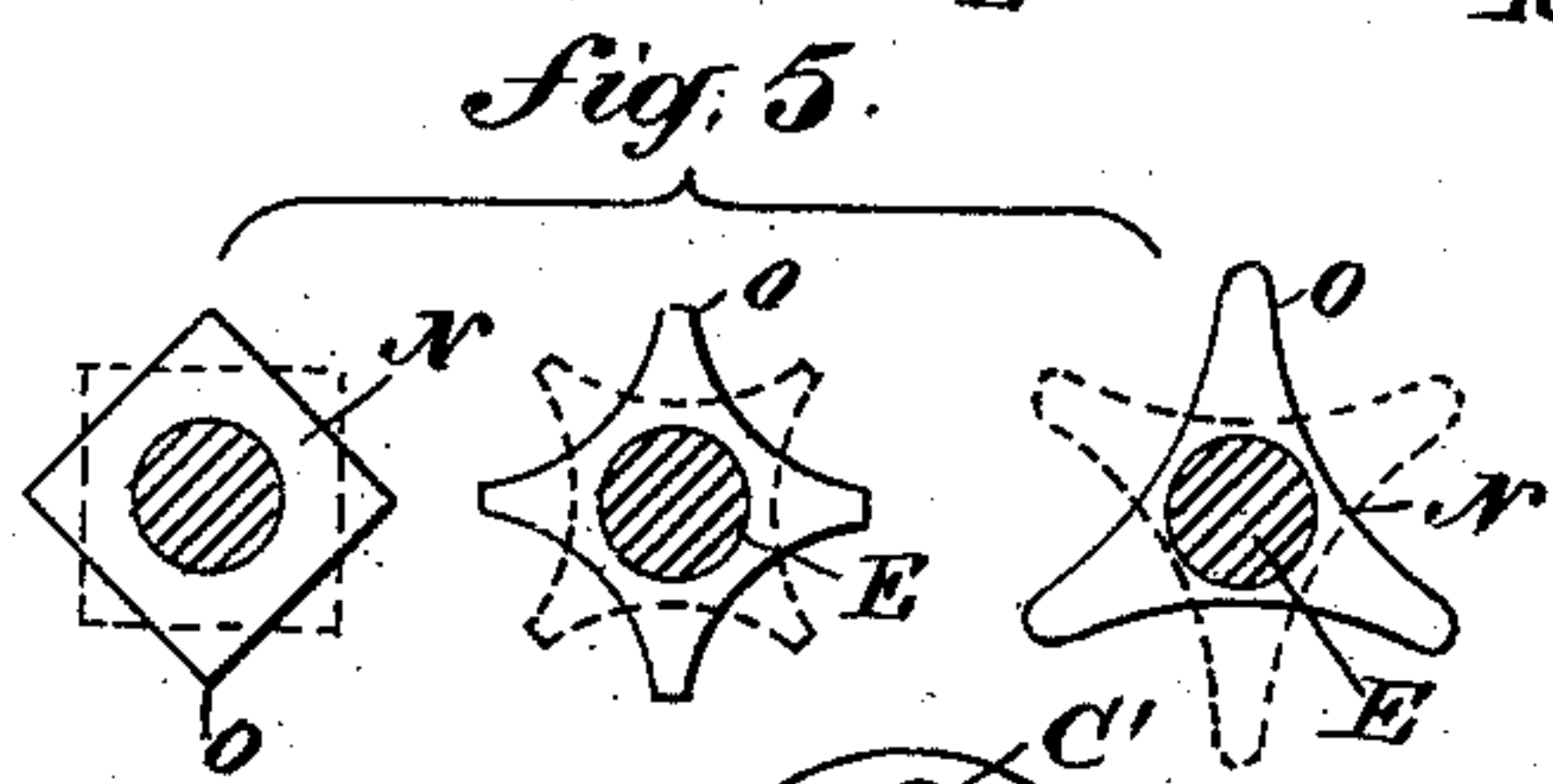
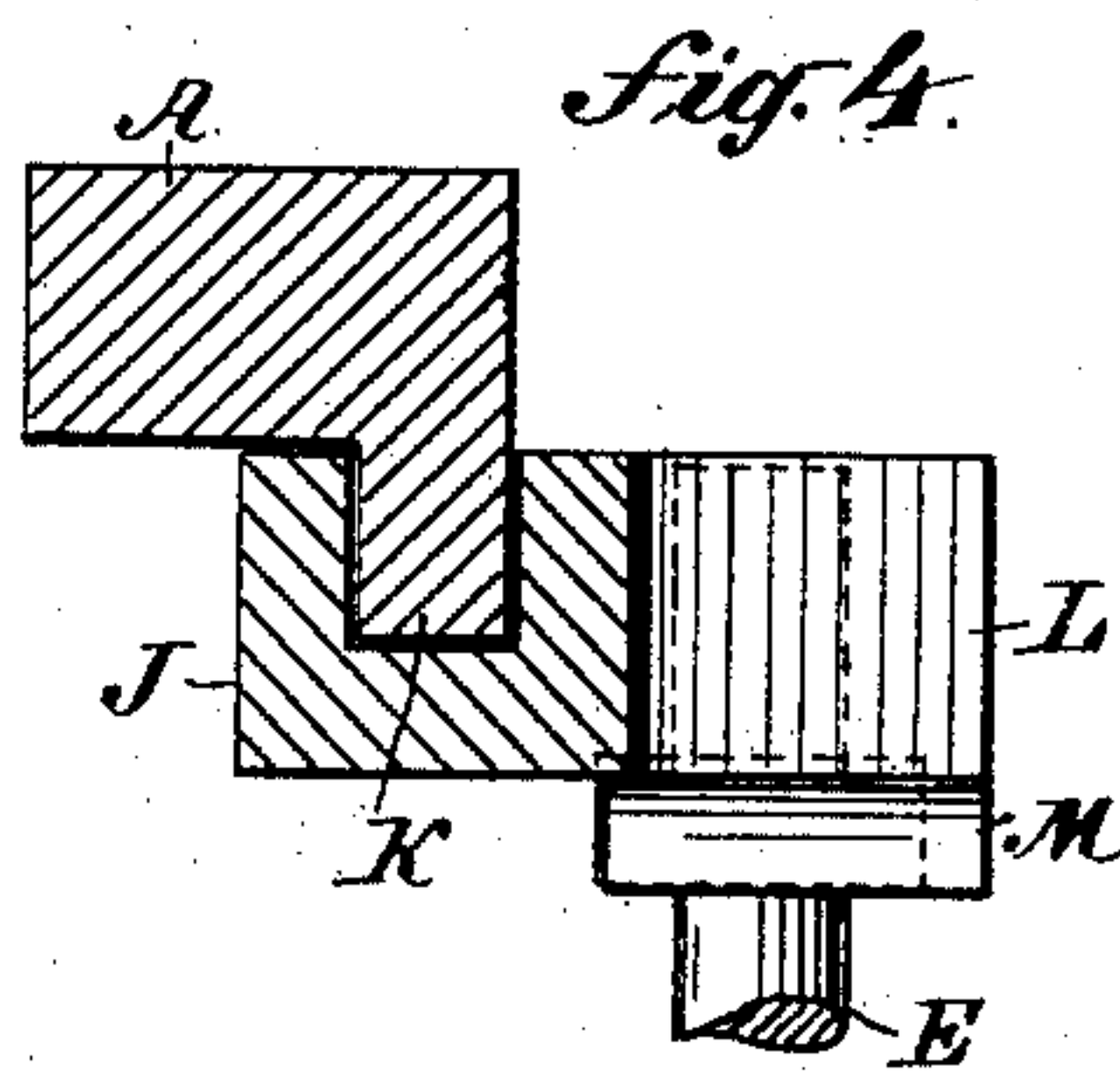
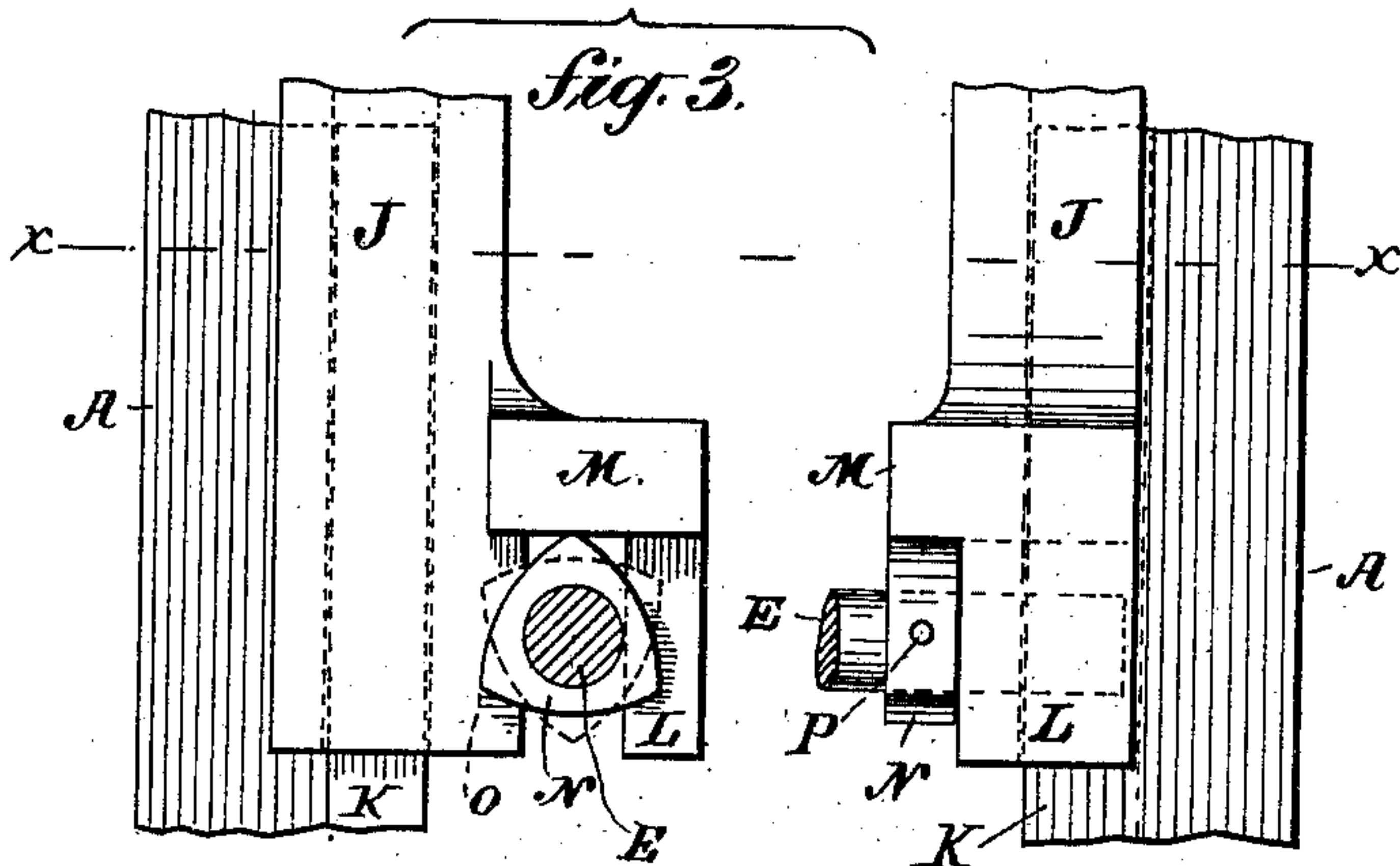
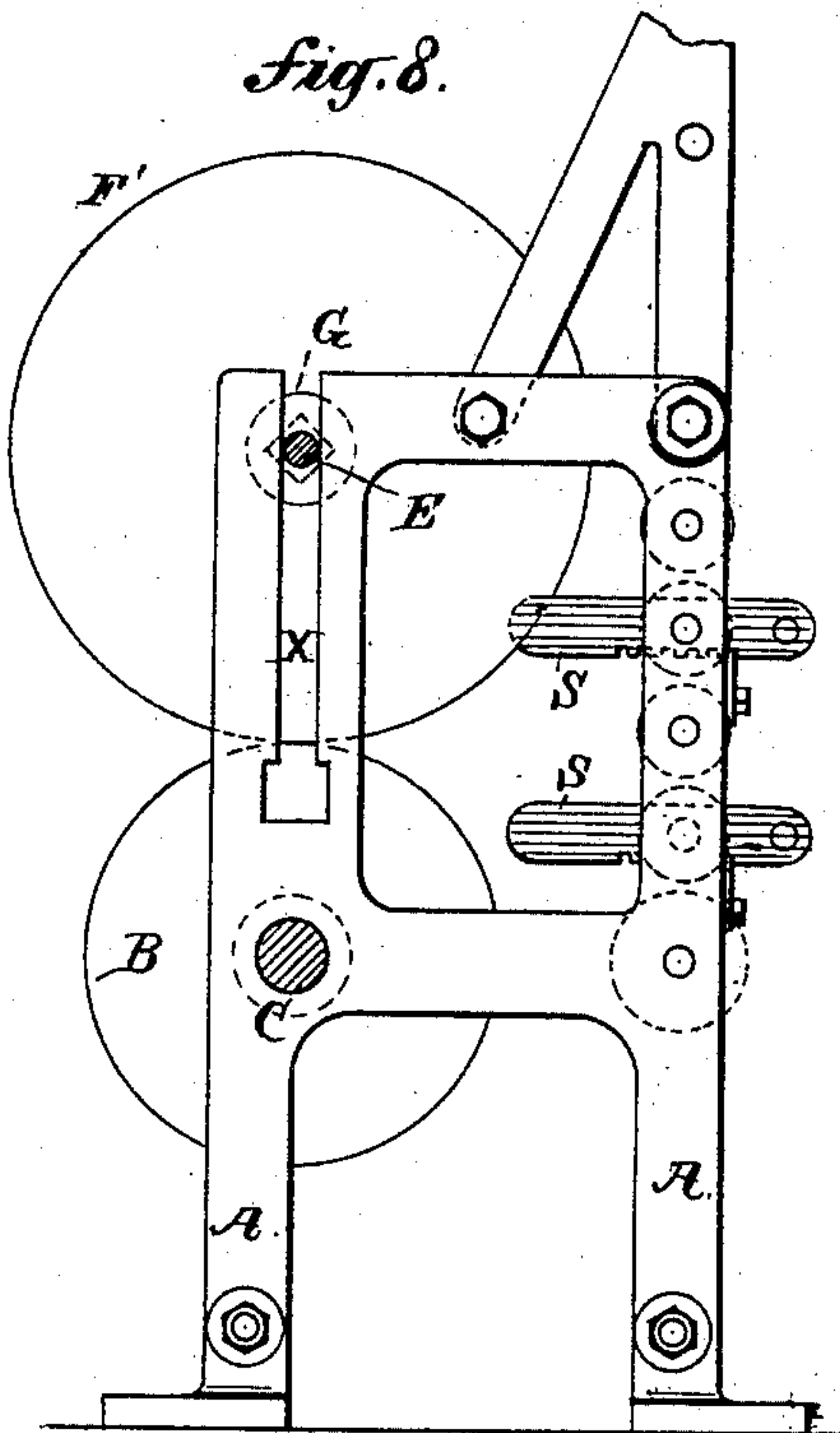
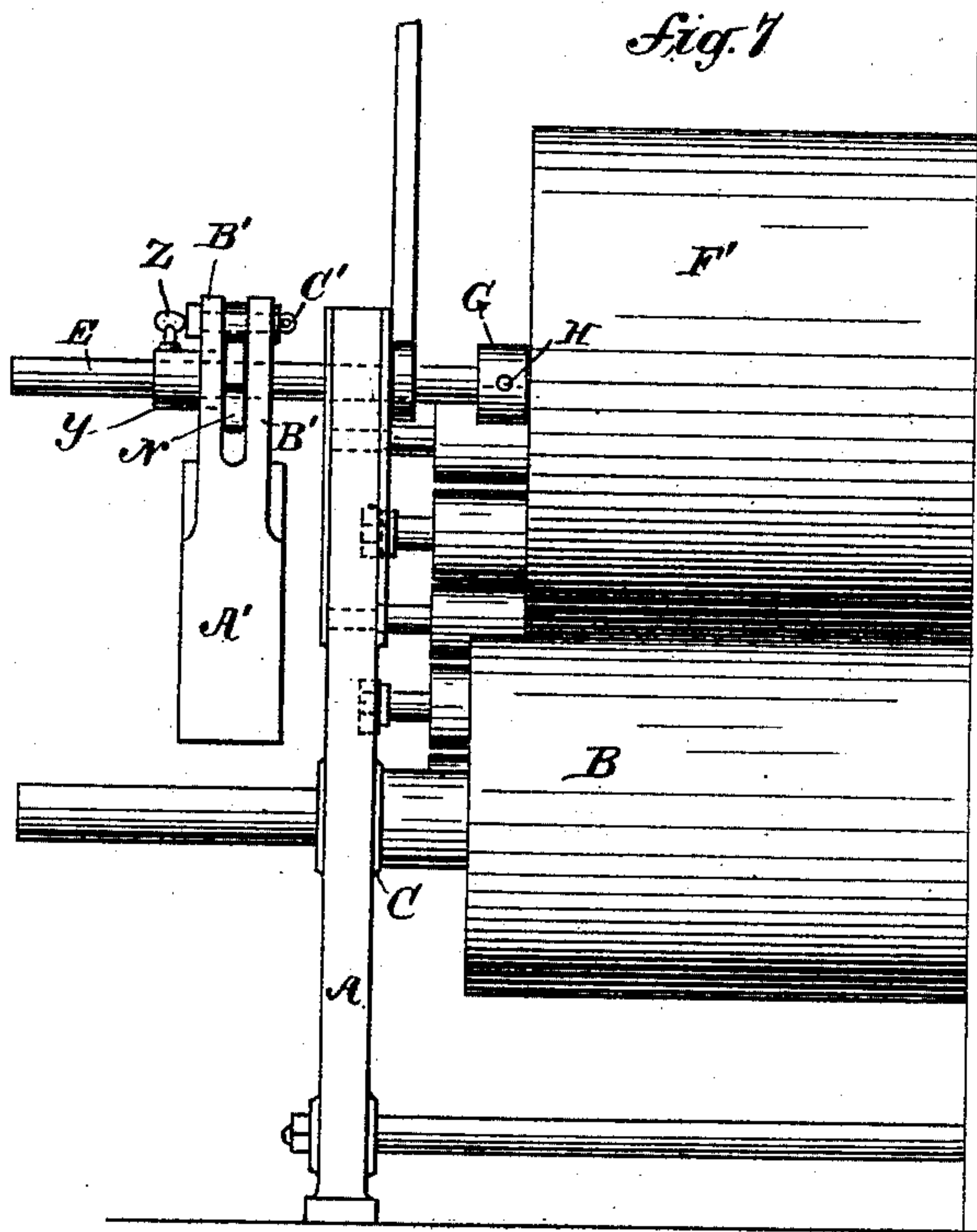
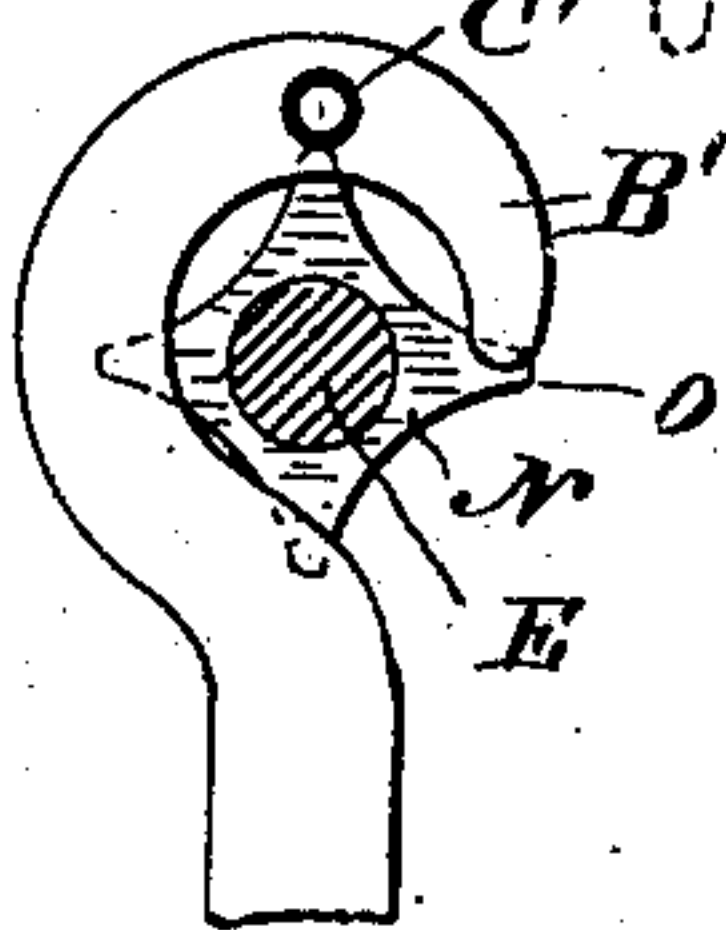


Fig. 9



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UNITED STATES PATENT OFFICE.

HEINRICH WINTERWERBER, OF OFFENBACH-ON-THE-MAIN, GERMANY.

WINDING-MACHINE.

SPECIFICATION forming part of Letters Patent No. 354,294, dated December 14, 1886.

Application filed February 11, 1886. Serial No. 191,556. (No model.)

To all whom it may concern:

Be it known that I, HEINRICH WINTERWERBER, of Offenbach-on-the-Main, Germany, have invented certain new and useful Improvements in Winding-Machines, of which the following is a full, clear, and exact description, which will enable those skilled in the art to which it appertains to make and use the same.

15 The invention relates to machines for winding into rolls or reels paper, cloth, and other textile fabric and similar materials, such rolls being usually the marketable form of such material.

15 The object of the invention is to provide improved mechanism for winding or reeling such material into regular and even rolls, it being difficult to wind the material tightly and without wrinkles or folds, which, if produced, injure the material and render it unsalable.

20 The invention consists, therefore, in a winding mechanism having a driving-roll held in fixed bearings and supporting a roll upon which the material is wound, such winding-roll being free to move vertically and being provided (usually on its axis) with bearings that are irregular in form, or not circular, upon which rest weights, the arrangement being such that as the winding-roll revolves the 25 weight at one end of the roll is being lifted by a projecting part of its bearing revolving against it, and at the other end the weight is dropping by a projecting part of its irregular bearing revolving from under it, thus alternately lifting each end of the winding-rolls from the driving-roll, (while the other end is held in revolving contact therewith,) and causing the material being wound to be smoothly and regularly laid upon the winding-roll.

40 Referring to the drawings, Figure 1 is a front view of a machine embodying my improvements. Fig. 2 is a vertical section of the same. Fig. 3 shows detail face and edge elevation views of one of the bearings of the weight-frame and of one end of the axis of the winding-roll, and of that part of the frame of the machine upon which the weight-frame moves. Fig. 4 is a cross-section of one of the standards and the weight-frame on plane $x x$ of Fig. 3. 45 Fig. 5 shows various modified forms of bear-

ings for the weights on the ends of the winding-roll. Fig. 6 is a detail elevation view of the inside face of one of the rear standards, showing the means for supporting the adjustable tension-rolls. Fig. 7 is a front elevation 55 view, and Fig. 8 is an end elevation view, of one end of a similar machine constructed with a modified form of weights for the winding-roll; and Fig. 9 is a detail view of one of the weights used with this construction and of its 60 bearing.

Referring to these views in detail, A represents the standards of the machine.

B is the driving-roll, supported in fixed bearings C on the standards of the machine and 65 driven by pulley D.

E is the axis of the winding-roll F, on which is wound the material F'. This axis is angular in cross-section, except at its ends, projecting beyond the ends of the roll F, and fits 70 within a correspondingly-shaped central hole in the roll, so that the two revolve together, but not so tightly but that the axis can be readily withdrawn from the roll when the desired quantity of the material has been wound 75 upon it.

G represents removable collars, which serve to hold the winding-roll from moving on its axis, and are secured to the axis by set-screws H. 80

I J indicate what I term the "weight-frame" of the winding-roll, it consisting of the horizontal cross-bar I and the arms J at each end thereof. This frame moves up and down on the guides K, which are on the front stand- 85 ards of the machine, and enter grooves in the arms J, as seen in Fig. 4. At the lower end of each of the arms J is a fork, L, and an inwardly-projecting shoulder, M, these forked ends being arranged to pass over the ends of 90 the axis of the winding-roll and hold this roll in place upon the driving-roll.

N indicates the bearings of the axis E, upon which the weight-frame directly rests. These bearings consist of metal disks provided, 95 usually, with teeth-like or radial projections O, shaped like any of the forms illustrated, or of any other form that will produce an irregular bearing for the ends of the weight-frame, or a bearing-surface which is in any way ec- 100

centric to the cylindrical winding-roll. These bearings are secured to the axis E by set-screws or pins P, and they are so arranged relatively to each other (the form of the bearings being the same for each end of the axis) that when a projecting or convex part of one bearing is uppermost and supporting that end of the weight-frame the corresponding uppermost part of the other bearing, on which the other end of the frame will be resting, will be a less projecting or hollow or concave one, this arrangement being shown in dotted lines in Fig. 3, so that the ends of the frame are alternately first lifted, and then lowered or dropped, and the weight of either end of the frame is suddenly thrown upon that end of the winding-roll axis when the other end of the frame is being lifted. This causes the ends of the axis of the winding-roll to be alternately slightly lifted and lowered, thus causing the material being wound to be released first on one side and then on the other, and all wrinkles or folds pulled or pressed out by the action of the winding-roll against the driving-roll, it being understood that the material being wound is under some tension by its own suspended weight or by the operation of a suitable tension mechanism.

Q indicates the fixed rolls of such a tension mechanism, they being supported in fixed bearings in the standards of the machine; and R are the adjustable rolls of such mechanism, which are arranged on slides S, moving in slots T in the standards, and are held in adjusted position by dogs U taking into notches V in such slides. These slides at the opposite ends of the machine are connected by rods W, so that lifting such rods and pushing them inwardly or pulling them out will bring the movable rolls and the fixed rolls into closer or more open relation. The material to be wound comes from the machine manufacturing or otherwise operating upon it, and runs between these rolls, as shown, and then upon the driving-roll, the tension-rolls giving it such strain as is requisite to lay it as closely as may be desired upon the winding-roll, as also to pull out wrinkles and folds.

In Figs. 7 and 8 each of the standards of the machine is shaped to form a vertical guide, X,

for the axis E of the winding-roll, such guide permitting the winding-roll to move up and down while holding it in position upon the driving-roll. The axis E projects beyond the standards, as shown, and has fastened to it the bearings N, formed, as described, (but here shown as provided with sleeves Y and set-screws Z, for securing them to the axis E,) upon which hang the weights A', these weights being provided with divided hangers B', connected by a pin, C'. These hangers, when in place, have one of their halves on each side of the bearing N, with the pin C' resting upon the periphery of the bearing, so that the weight, while free to rise and drop, is held in place upon its bearing. The action of this modified form of machine is the same as in the case where the weights at the ends of the winding-roll are attached to each other, as seen in the weight-frame before described.

The means of suspending or supporting the weights upon the winding-roll may be still further modified; but the forms here shown will suffice to illustrate the invention.

What is claimed as new is—

1. The combination of the driving-roll, the winding-roll, the winding-roll axis, the vertical guides for such axis, the irregular bearings upon the axis, and the weights resting upon such bearings, as and for the purpose set forth.

2. The combination of the driving-roll B, the winding-roll F and its axis E, the irregular bearings N, and weights J, resting on such bearings, as and for the purpose set forth.

3. The combination of the driving-roll B, the winding-roll F and its axis E, the weights J, resting on the irregular bearings N of said axis, and the tension-rolls Q R, as and for the purpose set forth.

4. The combination of the driving-roll B, the winding-roll F and its axis E, the weights J, resting on the irregular bearings N of said axis, the fixed tension-rolls Q, the tension-rolls R, the slides S, carrying said rolls R, and the dogs U, as and for the purpose set forth.

HEINRICH WINTERWERBER.

Witnesses:

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JEAN GRUND.