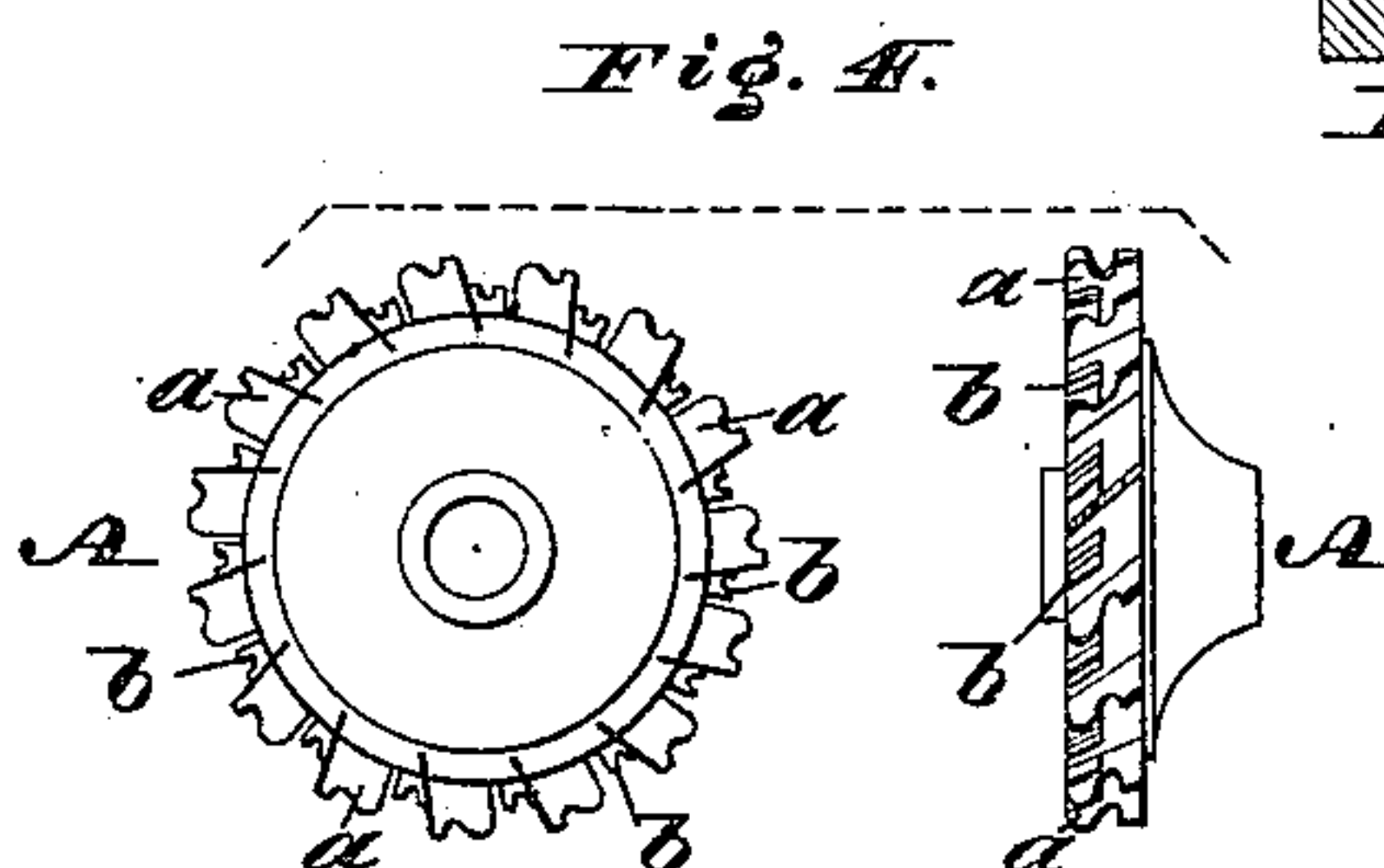
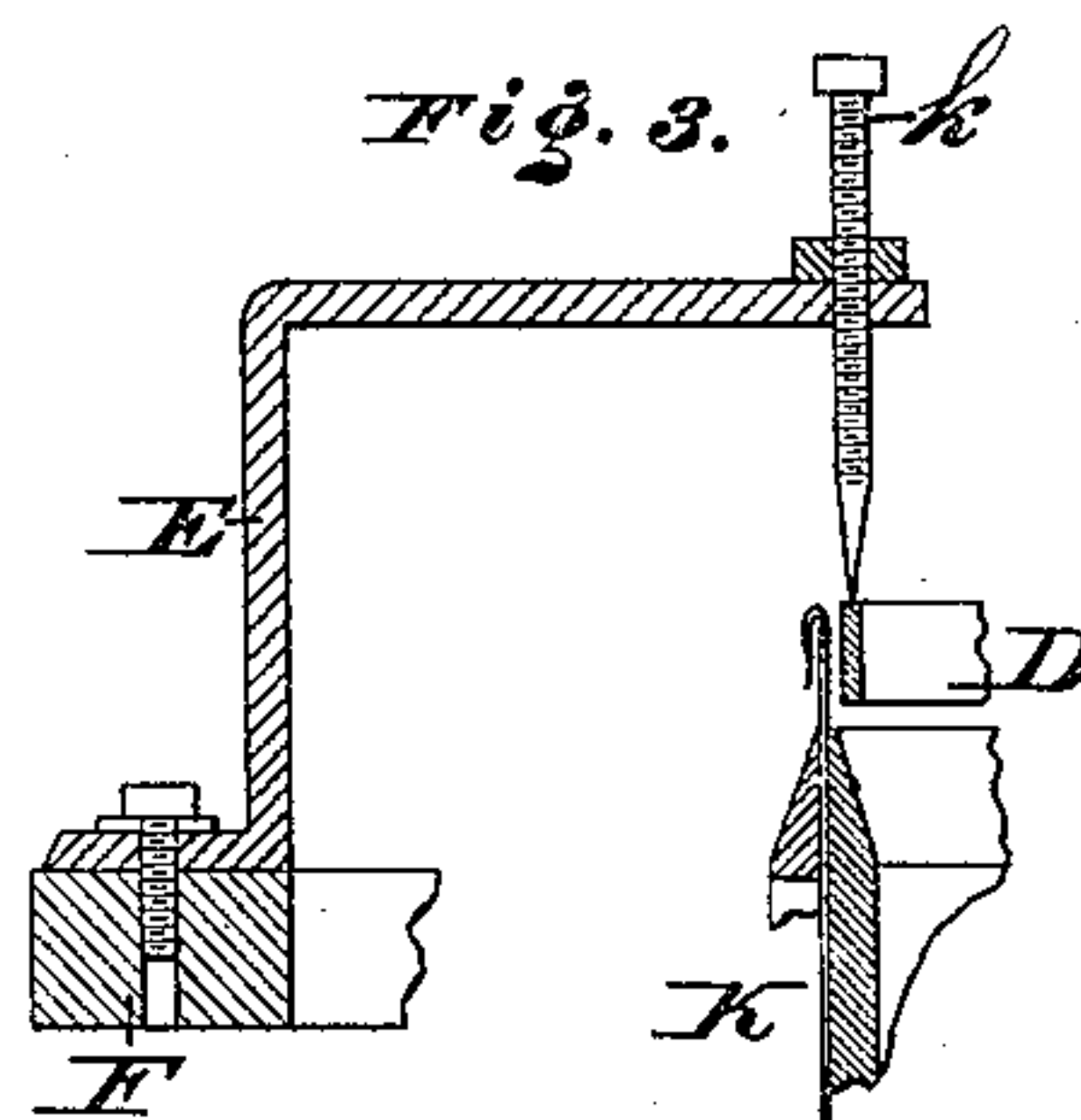
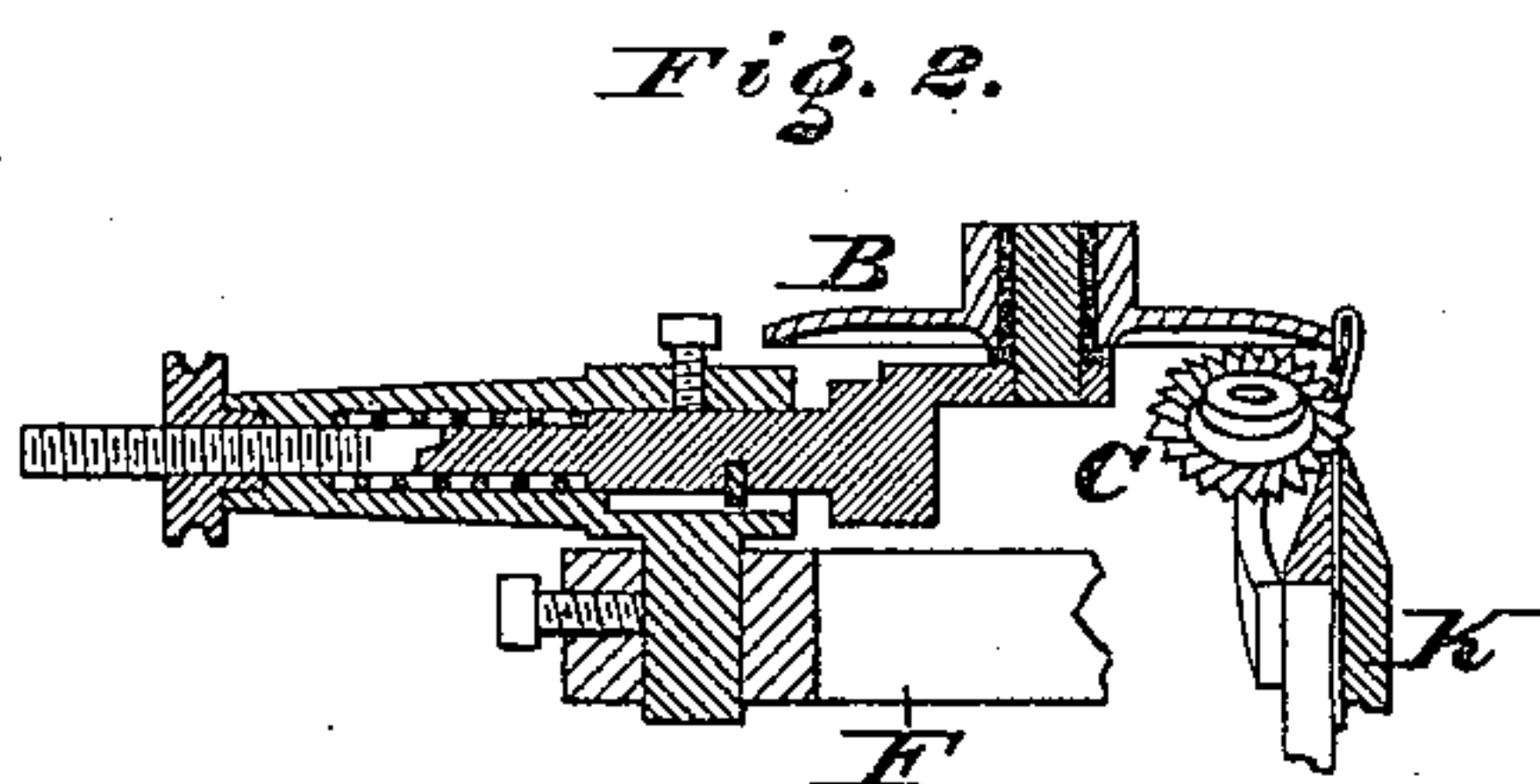
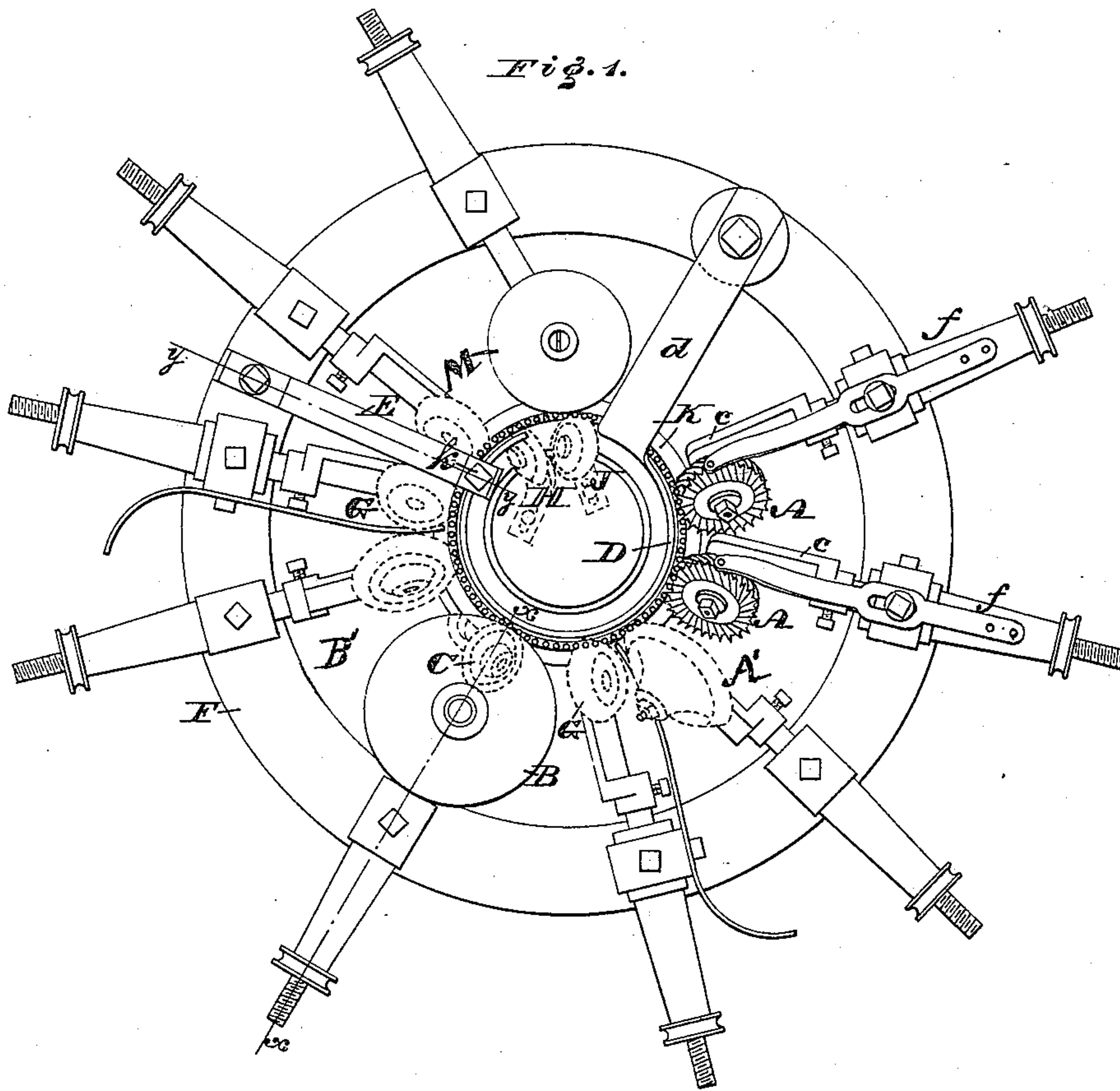


(No Model.)

D. H. HILL.  
CIRCULAR KNITTING MACHINE.

No. 355,932.

Patented Jan. 11, 1887.



WITNESSES:

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# UNITED STATES PATENT OFFICE.

DAVID H. HILL, OF PHILADELPHIA, PENNSYLVANIA.

## CIRCULAR-KNITTING MACHINE.

SPECIFICATION forming part of Letters Patent No. 355,932, dated January 11, 1887.

Application filed September 24, 1884. Serial No. 143,859. (No model.)

*To all whom it may concern:*

Be it known that I, DAVID H. HILL, a subject of the Queen of Great Britain, residing in the city and county of Philadelphia, State of Pennsylvania, have invented a new and useful Improvement in Knitting-Machines, which improvement is fully set forth in the following specification and accompanying drawings, in which—

Figure 1 is a plan view of a knitting-machine embodying my invention. Fig. 2 is a section taken through line *x x*, Fig. 1. Fig. 3 is a section in line *y y*, Fig. 1, showing the cloth-guide and its stay in connection with a circular frame to which the stay is attached, and a section of the needle-cylinder. Figs. 4 are detail views, at right angles to each other, of my improved loop-wheel, enlarged, showing the shape and slant of the fingers.

Similar letters of reference indicate corresponding parts in the several figures.

My invention relates to circular-knitting machines; and it consists, first, in an improved form of filling-wheel; second, in an improved push-back and steadier, and, third, in other details hereinafter fully set forth.

Referring to the drawings, *A A* represent filling-wheels having fingers *a* on the periphery thereof set obliquely to the axis of the wheel, each of the said fingers consisting of a single piece of material set in the main part of the wheel and extending across the periphery, having the edges flush with the sides of the said wheel. These fingers are notched in their upper edges. Partially occupying the interstices between them, and alternating therewith, are small grooved projections or half-plugs *b* of the wheel. The said plugs are located about midway between the said fingers, and have their sides contiguous thereto and parallel to the sides of said fingers, and extend only half the distance across the periphery of the said wheel *A*. The wheels *A A* revolve on studs, each secured at one end to an adjustably-projecting arm, *c*, of the support *f*, and so inclined that when revolved or rotated, which rotation is effected by the rotation of the needle-cylinder, the fingers may pass between the needles.

In operation the thread guided in the notches in the fingers is passed between the needles, and the half-plug bearing against the

center needle of the three which are between any two of the fingers presses it back, the thread being in the front thereof, while the remaining needles, falling into the spaces between the plugs and fingers, have the thread laid by the wheel over their tops and against their backs.

By constructing the filling-wheel *A* as herein described the operation of the device is greatly facilitated, the needles working in the passages or grooves in the periphery of the wheel with less liability to catch therein than with similar wheels as usually constructed, and consequently are not so easily broken.

*B* represents a presser-wheel countersunk on its under side. Placed immediately under this presser-wheel, and at one side of the center thereof, is a small left-handed-cut landing-wheel, *C*, the teeth of which pass between the needles, raising the two backing-threads placed on the needles by the filling-wheels *A A*, while at the same time the presser-wheel *B* presses back the beards of the needles, so that the threads can be drawn over the top thereof. The lower wheel is also to a certain extent protected by working in the countersunk portion of the upper one.

*A'* represents a clearing-wheel for pressing down the backing-threads.

*G G* represent loop-wheels, the functions and operations, as well known, being the same as belong to wheels of a similar kind in knitting-machines.

Following the presser-wheel *B* is an outside knocking-over wheel *B'* of a left-hand cut, and *H* and *J* represent, respectively, ordinary landing-wheels. The wheels *B'*, *H*, and *J* are similar in structure and function to wheels of similar character in knitting-machines, and are not claimed specifically by applicant.

*D* represents a push-back curved in form and extending from the brace *d*, near the first filling-wheel, to the outside presser-wheel, *M*, or inside landing-wheel, *H*.

Fastened to the rim *F* of the machine is a steadier or brace, *E*, in the upper horizontal part of which is a screw *k*, the point of which enters a hole in the upper edge of the push-back *D*, whereby said push-back is steadied and the cloth prevented from raising the end thereof, thereby causing an interference in the working of the machine.



K represents a needle-cylinder of the usual form and construction. The parts of this device similar to those in other machines of like character perform the usual operation of the same, and are not claimed as new in the art; but

What I do claim, and desire to secure by Letters Patent, is—

1. In a knitting-machine, a filling-wheel provided with notched fingers, each formed of a single piece of material extending across the periphery of the wheel and set obliquely to the axis thereof, and having midway between said fingers and alternating therewith small grooved plugs extending half-way or about half-way across the periphery of the wheel, each of said plugs having a space on each side thereof between it and the said fingers, and having its sides parallel to the adjacent sides of the fingers, all of said parts arranged and combined substantially as and for the purpose set forth.

2. The combination, with the needle-cylinder and needles, of the countersunk presser-wheel and a landing-wheel, the latter being placed immediately beneath and on one side of the center of said presser-wheel, whereby at the same time the back threads are raised and the beards of the needles depressed, so that the backing-threads may pass over the tops of the needles, substantially as and for the purpose set forth.

3. The curved push-back D, in combination with the steadier or brace E and screw *k*, substantially as and for the purpose set forth.

4. The push-back D, curved in form, in combination with the rim F, and brace E, secured to the rim F and having the screw *k*, substantially as described.

DAVID H. HILL.

Witnesses:

JOHN A. WIEDERSHEIM,  
A. P. GRANT.