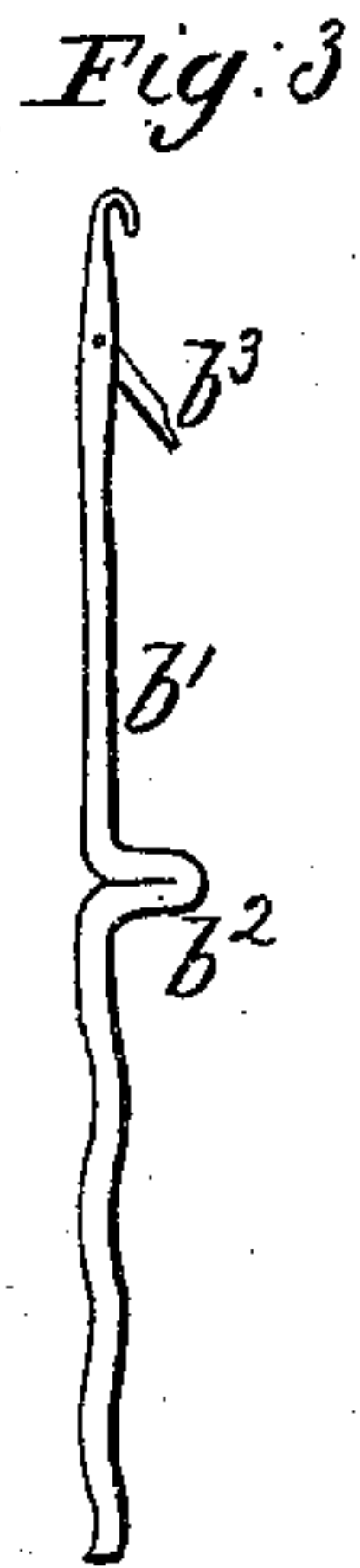
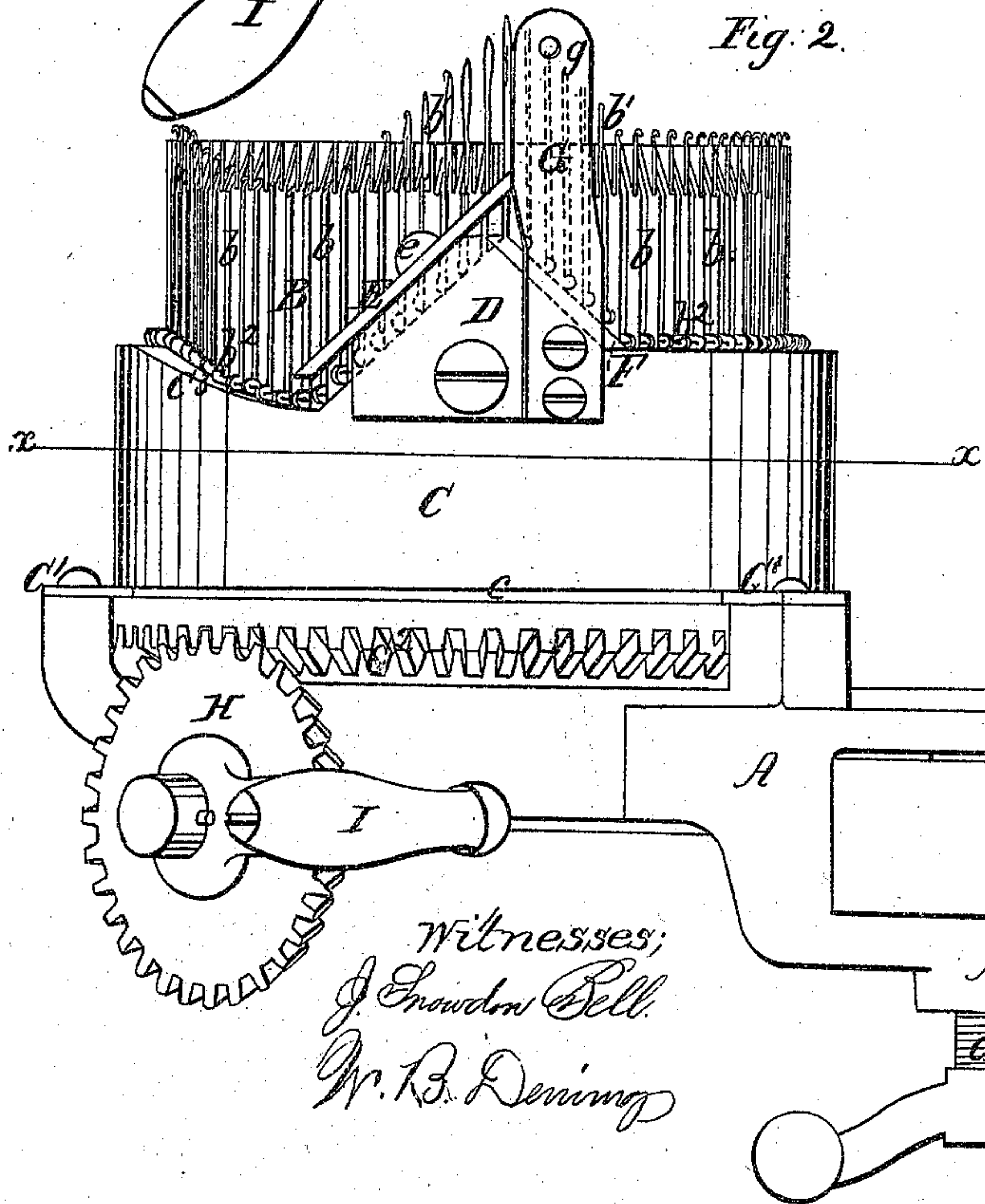
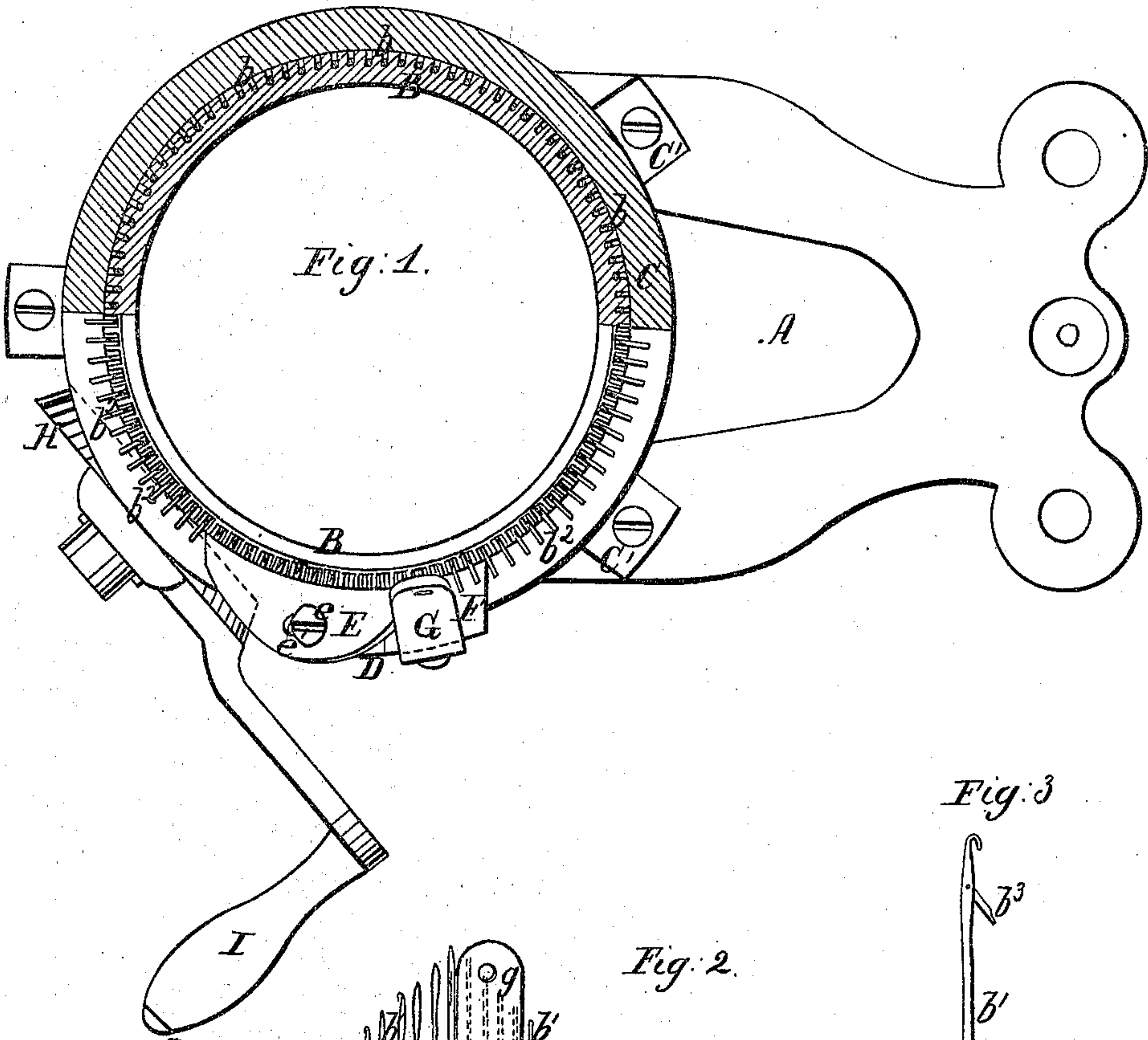


D. Kidder  
Knitting Mach.

N<sup>o</sup> 83,390.

*Patented Oct. 27, 1868.*



Witnesses;  
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# UNITED STATES PATENT OFFICE.

DANIEL KIDDER, OF FRANKLIN, NEW HAMPSHIRE.

## IMPROVEMENT IN KNITTING-MACHINES.

Specification forming part of Letters Patent No. 83,390, dated October 27, 1868.

*To all whom it may concern:*

Be it known that I, DANIEL KIDDER, of Franklin, in the county of Merrimack and State of New Hampshire, have invented a certain new and useful Improvement in Knitting-Machines, of which the following is a full, clear, and exact description, reference being had to the accompanying drawings, which make part of this specification, and in which—

Figure 1 represents a view, partly in plan and partly in horizontal section, at the line  $x$  of Fig. 2, of a rotary knitting-machine having my improvement applied; Fig. 2, a side elevation of the same; and Fig. 3, a view in elevation, and on an enlarged scale, of one of the needles detached.

The object of my invention is to provide a convenient means of attaching the elevating and depressing cams which actuate the needles, and the yarn-feed which supplies the yarn thereto; to which end my improvement consists in the provision of a detachable stock, of suitable form, to which said parts are secured, by which means the construction of the machine is simplified and the cams rendered readily removable, when desired, for purposes of renewal or repair.

In the accompanying drawings, which show a convenient arrangement of parts for carrying out the objects of my invention, A represents the bed or frame of the machine, to which a hollow stationary needle-cylinder, B, is firmly secured.

The machine can be fastened upon a frame or table by means of the set-screw  $a$ , working in a boss,  $A'$ , which forms part of the bed, or it can be attached to a post or bearing by other suitable means.

A series of vertical grooves,  $b$ , is formed around the periphery of the needle-cylinder, in which the needles  $b^1$  are placed. The needles are bent at right angles, so as to present butts  $b^2$  to the action of the cams, and are provided with pivoted latches  $b^3$ .

A cam-cylinder, C, rotates around the needle-cylinder, being maintained in proper vertical position by guides  $C^1$ , which are secured to the bed A, and enter a horizontal groove,  $c$ , in the periphery of the cam-cylinder.

The cam-cylinder receives its motion from

a bevel-wheel, H, mounted in bearings on the lower part of the bed A, rotated by a crank, I, and gearing with teeth  $C^2$ , cut upon the lower portion of the cam-cylinder.

The butts  $b^2$  of the needles rest upon the top of the cam-cylinder, and when they are struck by the cams the needles are elevated and depressed in proper manner for forming the stitches.

An angular stock, D, having its upper edges inclined at a suitable angle for the reception of the cams which actuate the needles, is secured upon the upper portion of the periphery of the cam-cylinder C by a screw, or in other convenient manner, just in advance of a curved recess or depression,  $C^3$ , which is made in the top of the same.

F represents the elevating-cam, which is secured upon the upper leading surface of the stock D; and E, the depressing-cam, secured upon its upper rear surface. This cam is held in position by the screw  $e$ , passing through a slot,  $e'$ , by which means it can be raised or lowered upon the casting D, to more or less lengthen or shorten the stitch, as desired, for various kinds of work.

G represents the yarn-feeder, which is secured upon the outside of the stock D at its leading edge, being bent inward above the cams, and provided with a hole,  $g$ , near its top, through which yarn is supplied to the needles.

The cam-cylinder C being put in revolution by means of the crank I and bevel-wheel H, the inclined elevating-cam F strikes the butts  $b^2$  of the needles, and raises them in proper manner for forming the stitch, yarn being supplied to the needles through the hole  $g$  in the yarn-feeder G.

When the needles have been passed by the cam F, and consequently elevated to its top, their butts  $b^2$  are struck in succession by the lower surface of the cam E, and depressed into the recess  $C^3$  a sufficient distance to form the desired length of stitch, the rise in the surface elevating them from said recess, and thus relieving the strain on the yarn and fabric.

My improvement adapts the cams E and F and yarn-feed G to be more readily gotten at

for adjustment, &c., by the removal of the stock D with said parts attached thereto. It also greatly facilitates the building of the machine.

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

1. The detachable stock D, adapted and employed for the reception of the cams and yarn-feeder, substantially as set forth.

2. The yarn-feeder G, elevating-cam F, and slotted depressing-cam E, secured to the stock D, substantially as and for the purpose described.

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