

(No Model.)

2 Sheets—Sheet 1.

L. N. D. WILLIAMS.
KNITTING MACHINE.

No. 503,920.

Patented Aug. 22, 1893.

FIG. 1

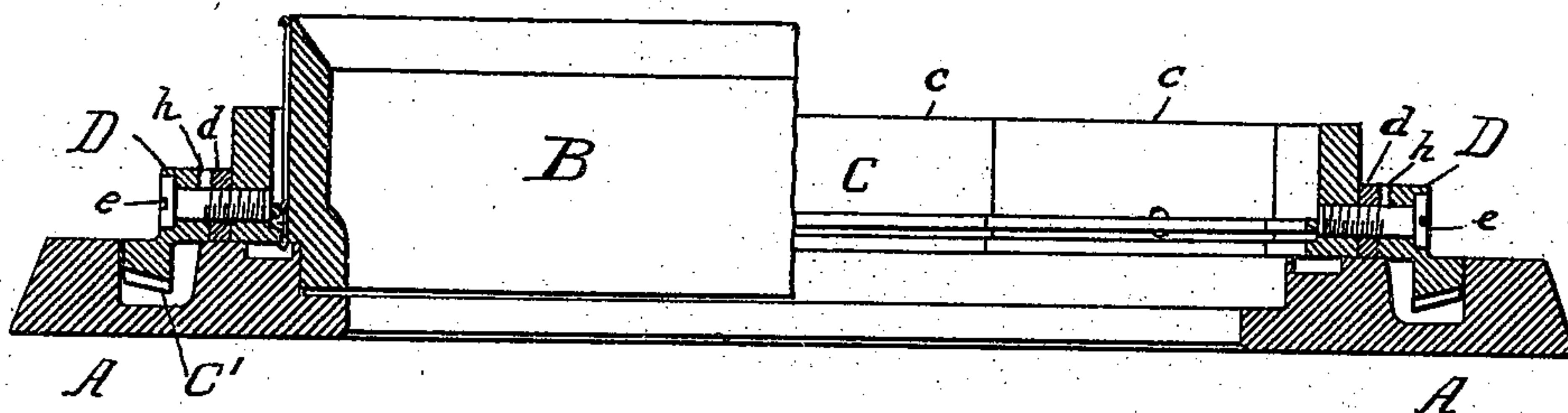
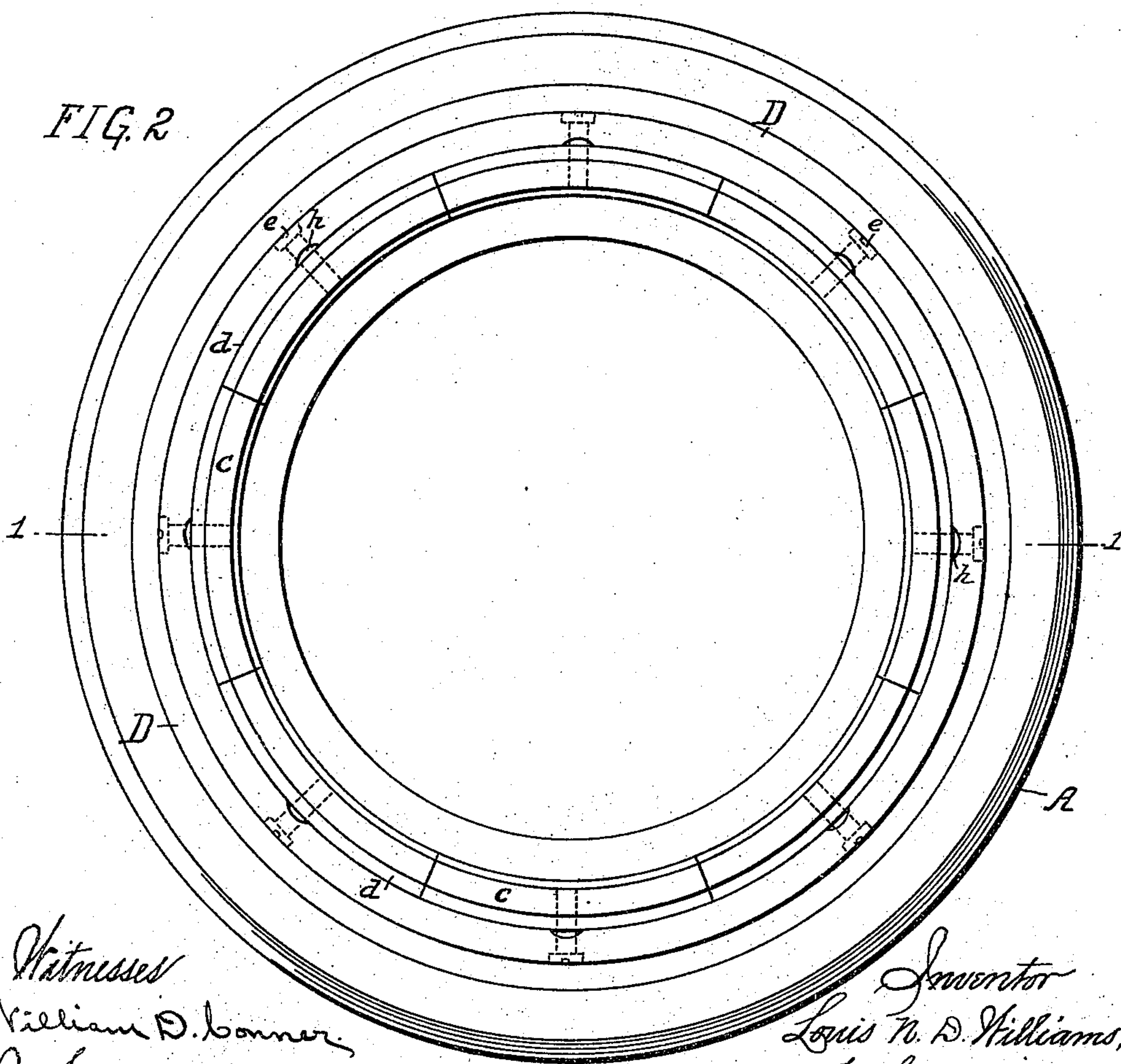


FIG. 2



Witnesses
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Inventor
Louis N. D. Williams,
by his Attorney
J. C. Parker

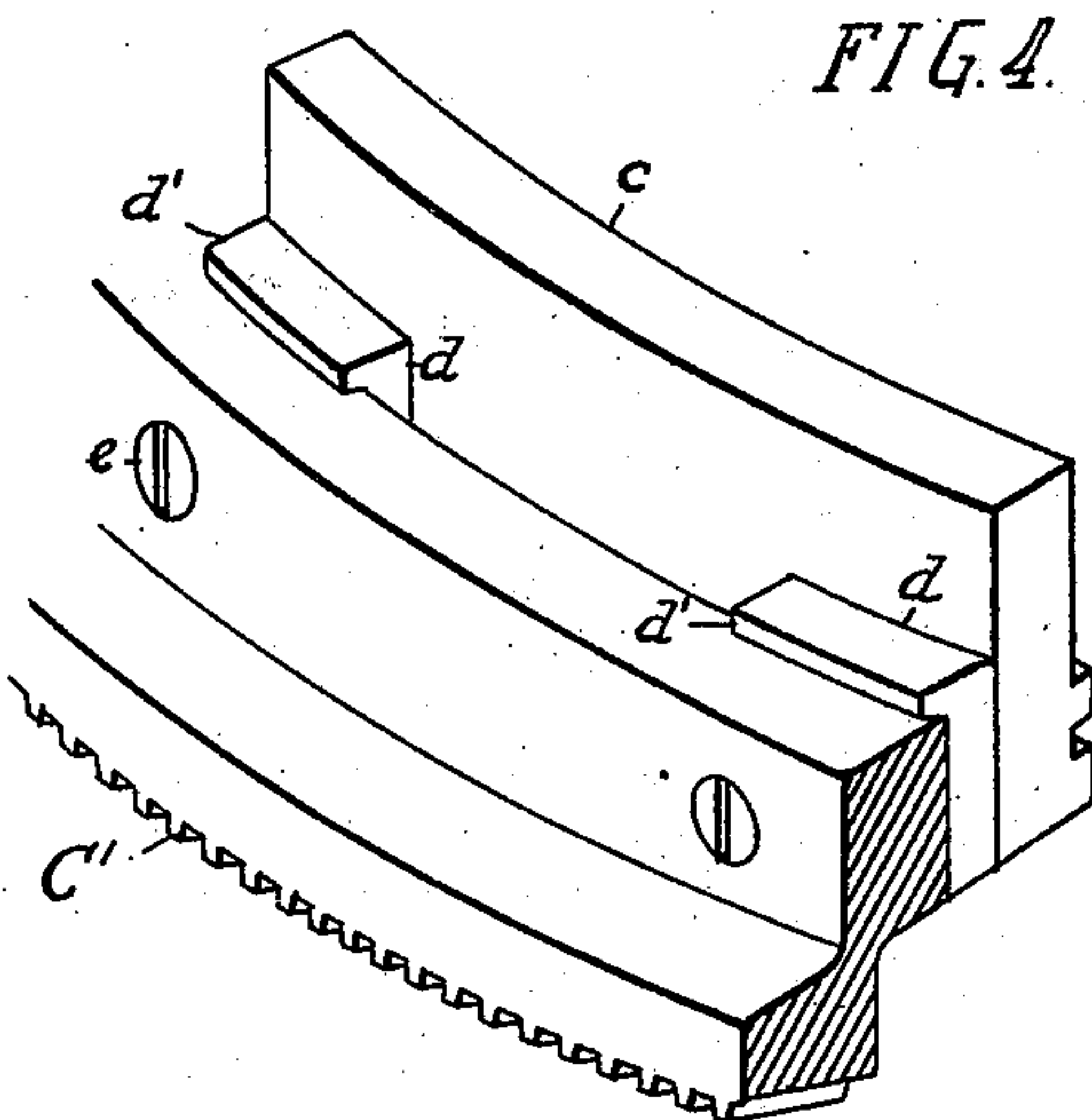
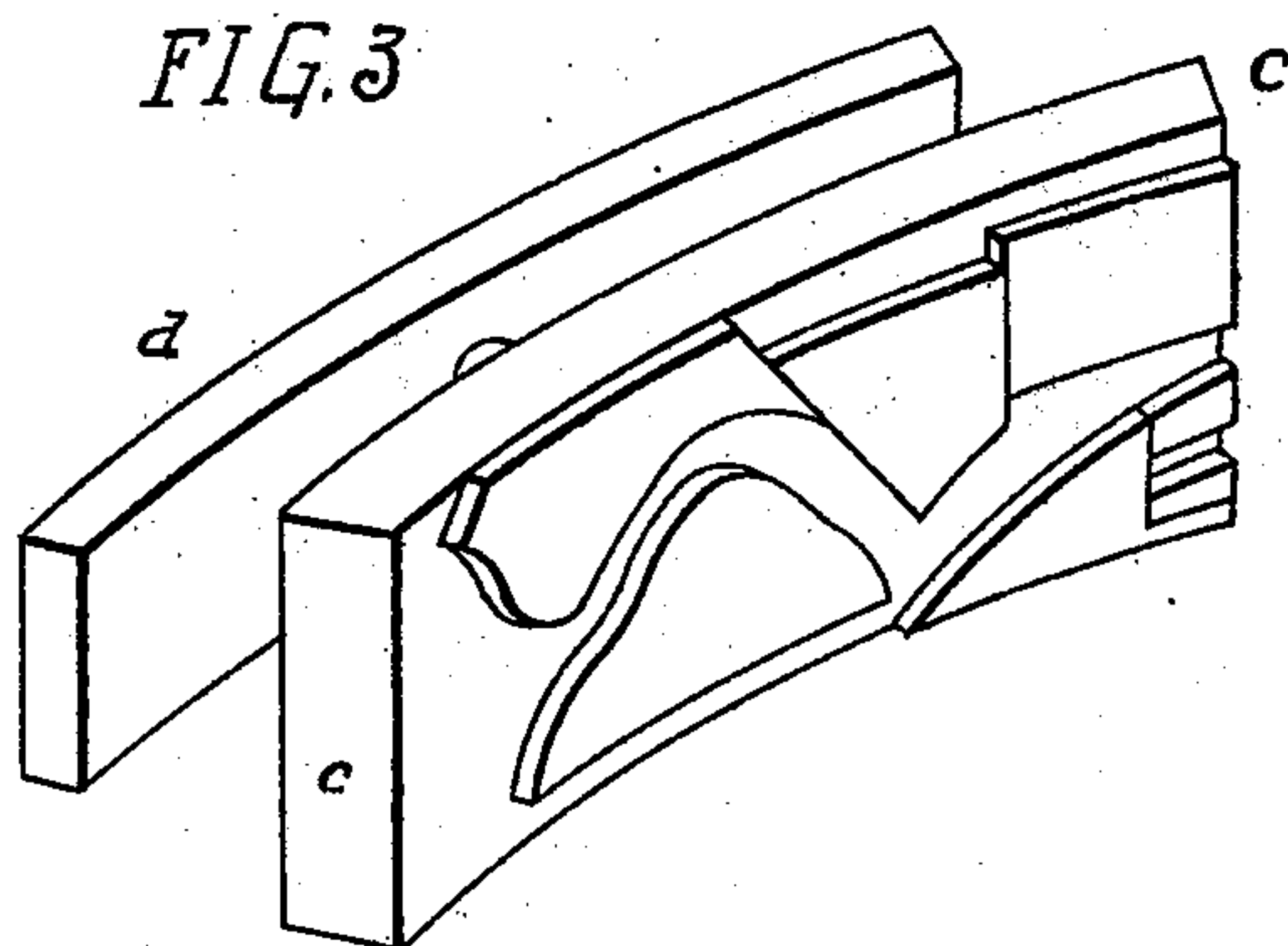
(No Model.)

2 Sheets—Sheet 2.

L. N. D. WILLIAMS.
KNITTING MACHINE.

No. 503,920.

Patented Aug. 22, 1893.



Witnesses
Geo. R. Newberry
J. Henderson.

Inventor:
Louis N. D. Williams,
by his Attorney,
Jno. C. Parker

UNITED STATES PATENT OFFICE.

LOUIS N. D. WILLIAMS, OF PHILADELPHIA, PENNSYLVANIA, ASSIGNOR OF
ONE-HALF TO ROBERT W. SCOTT, OF SAME PLACE.

KNITTING-MACHINE.

SPECIFICATION forming part of Letters Patent No. 503,920, dated August 22, 1893.

Application filed April 28, 1893. Serial No. 472,178. (No model.)

To all whom it may concern:

Be it known that I, LOUIS N. D. WILLIAMS, a citizen of the United States, residing at Philadelphia, in the county of Philadelphia and State of Pennsylvania, have invented certain new and useful Improvements in Knitting-Machines; and I do 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 the letters of reference marked thereon, which form a part of this specification.

My invention relates to certain improvements in knitting machines in which the knitting cams are secured to or formed on removable segments, its main object being to provide means for securing such segments in position in such manner that they will be firmly held in position or may be readily removed to gain access to the needles on any portion of the needle cylinder when it becomes necessary to make examinations or repairs.

In the accompanying drawings:—Figure 1, is a sectional elevation on the line 1—1 Fig. 2, of sufficient of a circular knitting machine to illustrate my invention. Fig. 2, is a plan view of the same. Fig. 3, is a detached perspective view of one of the cam segments and its filling block separated from each other; and Fig. 4, is a view illustrating a modification.

Referring to the drawings, A represents the fixed base of an ordinary form of circular knitting machine, to which is secured the vertical needle cylinder B. The base is provided, as usual, with a circular guide way for a cam ring C having cams for actuating the needles of the cylinder, and provided with a bevel gear C' with which engages a driving pinion for rotating the same.

In the accompanying drawings all unnecessary portions of the machine irrelevant to the invention have been omitted for the sake of clearness, and for further details of construction reference is had to Letters Patent of the United States, numbered 421,147, granted to Robert W. Scott and Louis N. D. Williams on the 11th day of February, 1890.

The cam ring is divided into any desired

number of segments *c*, eight in the present instance, which form when in position a continuous circular ring. Each section may be removed from its position without disturbing any of the others, and each is independently secured to a base ring D preferably formed integral with the bevel gear C'. The preferred construction is that illustrated in Figs. 1, 2, and 3, in which the base ring D completely encircles the entire series of segments, and between each segment and such base ring is a filling block or segment *d* of a width slightly greater than the length of the needle bits, and passing through the base ring and each filling block and segment is a securing screw *e*.

To remove any single segment the proper screw *e* is first removed and then the filling block or segment *d*; the base ring for this purpose being preferably recessed as at *h* so that a lifting hook may be engaged in the opening formed in the filling block for the passage of the screw *e* and the filling block removed; a clear space is thus left between the base ring and the segment to be removed, and the latter may then be drawn back until the cam path is clear of the needle bits and then raised vertically until it is clear of the machine. In this construction the means for holding the segments up to the needle cylinder and the means for locking them in position are separate and distinct so that after the removal of the screws the segments are still held in position, and if the screws be loosened accidentally there will be no danger of the segments being displaced as the ends of the segments and the ends of the filling blocks are in alignment, and if necessary a single screw may be used to hold all of the segments in position.

In Fig. 4, is illustrated a slight modification of this construction, the central portion of the filling block being removed so as to leave a clear space between two smaller blocks situated one at each end of the segment. It will also be noted in this figure that the upper edges of the filling blocks are flanged at *d'* and extend slightly over the edge of the base ring so that a suitable tool may be inserted under the flanges to facilitate their removal.

In this construction two securing screws *e* are employed, one of which passes through each of the filling blocks to the segment.

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

1. A cam ring having a removable segment and provided with a support to which the removable segment is secured, and a filling block situated between the segment and its support, said filling block being greater in width than the length of the bits of the knitting needles, substantially as specified.

2. The combination in a knitting machine of a cam ring, formed of a continuous series of independently removable segments, and of a ring encircling the same, devices for secur-

ing the segments to said ring, and filling blocks provided between such ring and the cam segments, substantially as specified. 20

3. The combination in a knitting machine, of a cam ring having one or more removable segments, and provided with a base ring encircling such segments, a filling block provided between each removable segment and the base ring, and devices for securing each segment and its filling block to the base ring, substantially as specified. 25

In testimony whereof I affix my signature in presence of two witnesses.

LOUIS N. D. WILLIAMS.

Witnesses:

HARRY BARNARD,
WM. BUCKLEY.