

(No Model.)

3 Sheets—Sheet 1.

H. E. HARBAUGH.

TRANSFERRING ATTACHMENT FOR KNITTING MACHINES.

No. 552,528.

Patented Jan. 7, 1896.

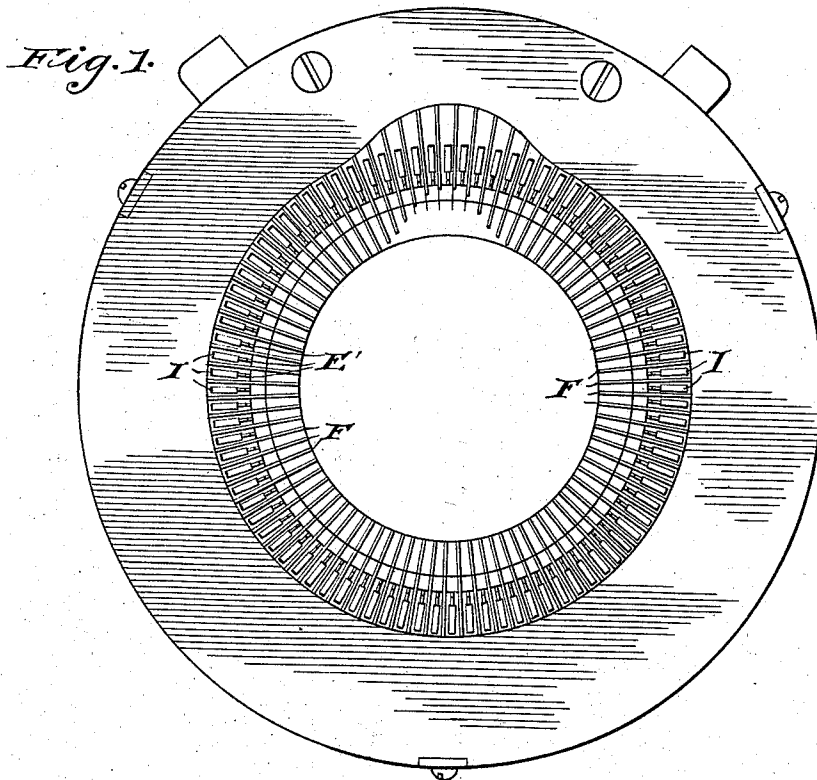
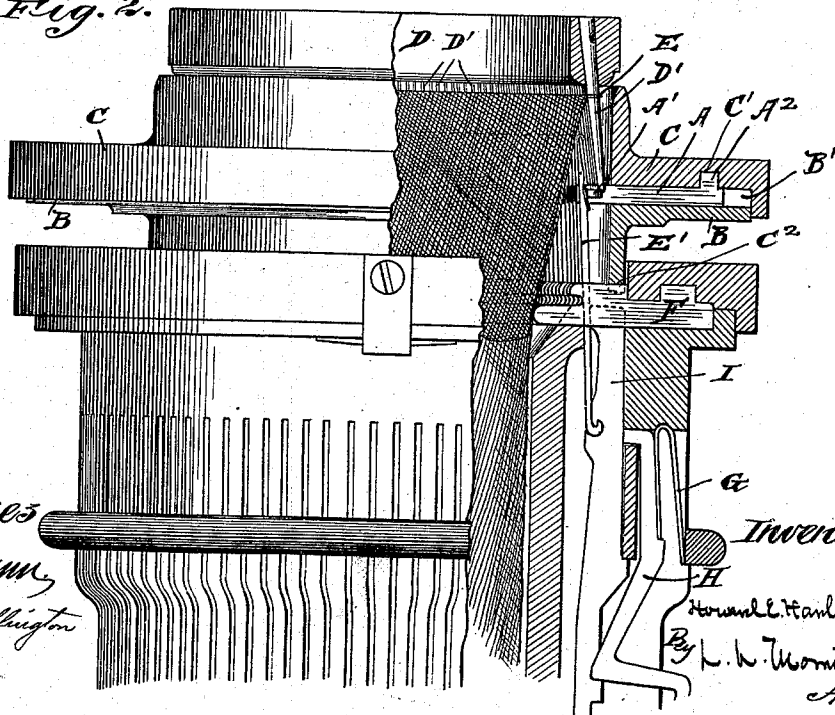


Fig. 2.



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Fig. 3.

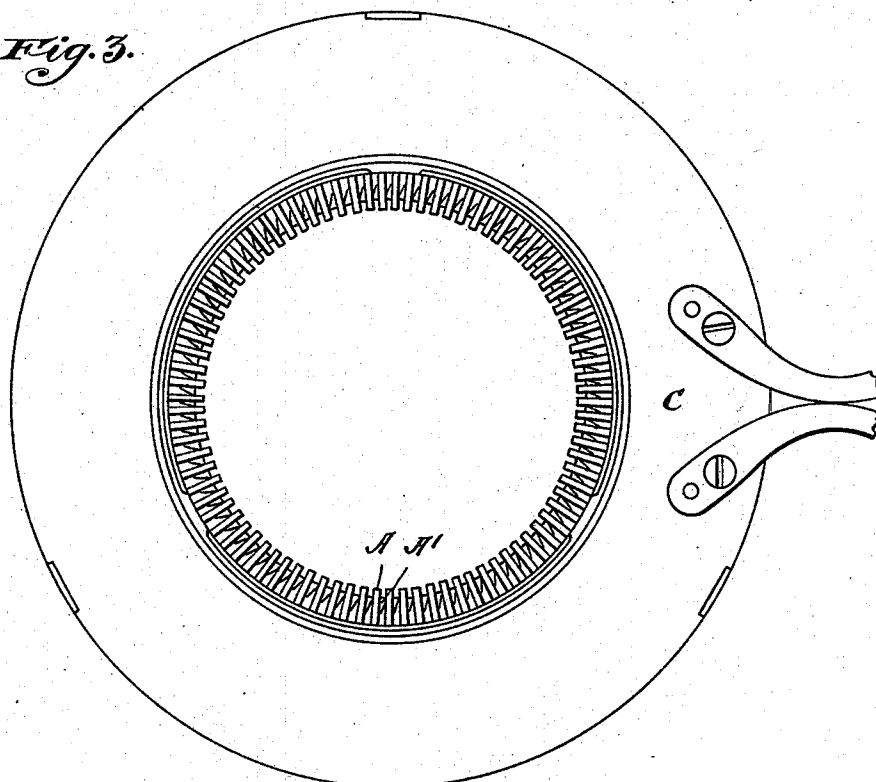
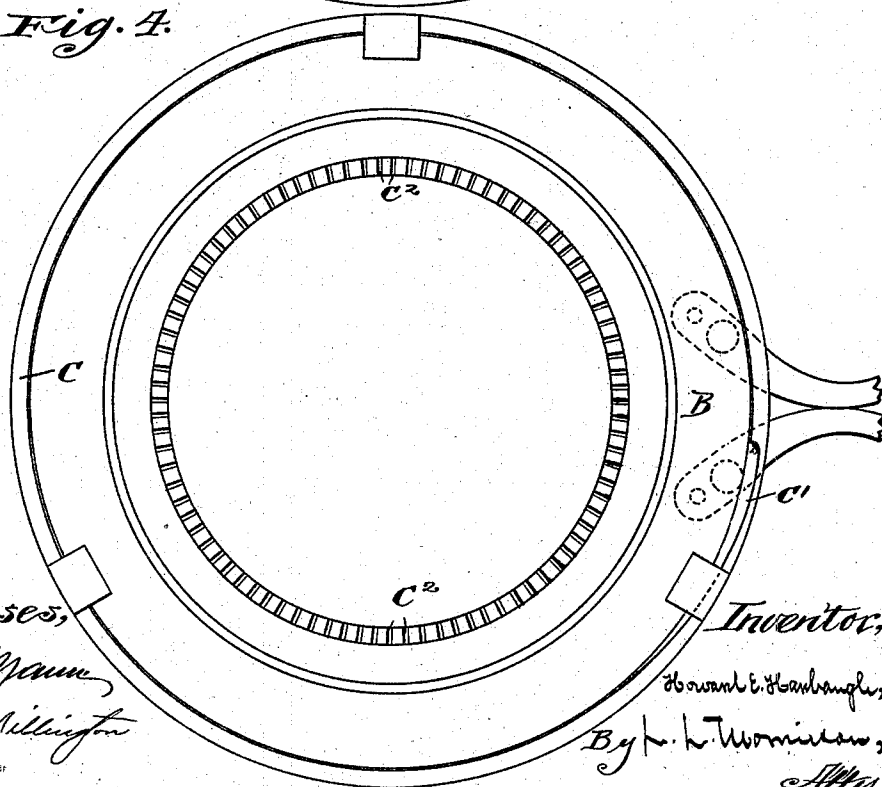


Fig. 4.



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Fig. 6.

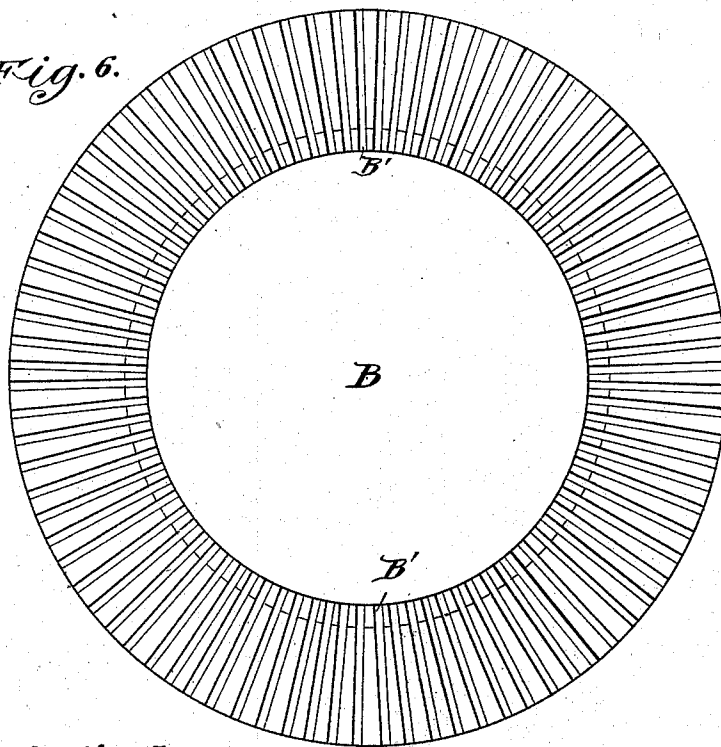
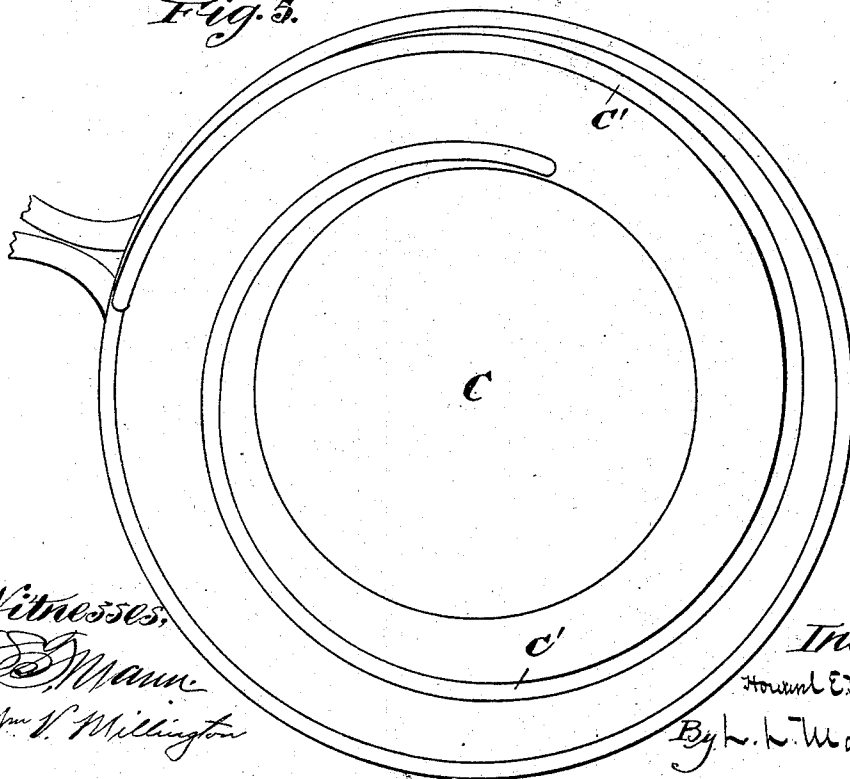


Fig. 5.



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UNITED STATES PATENT OFFICE.

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TRANSFERRING ATTACHMENT FOR KNITTING-MACHINES.

SPECIFICATION forming part of Letters Patent No. 552,528, dated January 7, 1896.

Application filed March 2, 1895. Serial No. 540,373. (No model.)

To all whom it may concern:

Be it known that I, HOWARD E. HARBAUGH, a citizen of the United States, residing at Kenosha, in the county of Kenosha and State of Wisconsin, have invented certain new and useful Improvements in Transferring Attachments for Knitting-Machines, of which the following is a specification.

The object of my invention is to provide
10 mechanism for transferring knit fabrics after they have been detached from the machines that produced them to the needles of other machines; and it consists essentially of a circular series of needle-pressers radially arranged,
15 controlled by means of a cam and a quilled ring, the quills whereof receive a course of stitches, composing the fabric to be transferred prior to the operation of transferring them to the needles of the receiving-machine.

20 The combined devices constituting the knitting-machine (shown herein) are also shown and claimed in a pending application filed by me in the United States Patent Office September 15, 1894, having Serial No. 523,167.

25 Referring to the accompanying drawings, which form a part of this specification, Figure 1 is a top plan view of a knitting-machine, to the needles of which, let it be supposed, a transfer, such as above contemplated, will be made.
30 Fig. 2 is a side elevation of the same having my attachment operatively connected therewith, both being in vertical partial section to show the interior construction thereof. Figs. 3 and 4 are top and bottom plan views, respectively, of needle-uniforming mechanism.
35 Fig. 5 is a view of the reverse side of the circular piece shown in Fig. 3. Fig. 6 is a view of the reverse side of the inner circular piece shown in Fig. 4.

40 Like letters of reference indicate corresponding parts throughout the several views.

A are needle-presser slides provided with pressure-lugs A' and actuating-lugs A². Each of the actuating-lugs A² on the presser-slides A succeeding that shown in Fig. 2 is located
45 gradually a little nearer the center of the machine than its predecessor, to adapt the series of lugs to coincide with the spiral camway in the cam-ring, to be described hereinafter,
50 with which they engage.

B is a needle-presser-slide bed having radial

grooves B' therein, each adapted to admit any needle-presser slide A.

C is a cam-ring having a spiral camway C' therein coinciding with and adapted to en- 55
gage the series of actuating-lugs A² on the needle-presser slides A. The function of the camway C' in the cam-ring C is to force the needle-presser slides A inward against the
60 needles E' to uniform them, and to withdraw the needle-presser slides A from the needles E' when desired.

D is a ring provided with metal quills D, corresponding in number with the needles of the machine to which transfer is to be made,
65 cut away longitudinally, so as to form in each of them a recess D² of suitable dimensions to admit one of the needles of the machine.

Supposing the number of needles E' of the machine, Fig. 2, the number of quills D' in the quill-ring D, and the number of stitches E in one course of the fabric to be transferred to be the same, say ninety in each case, each quill D' of the quill-ring D is inserted through one of the ninety stitches E. Next place the
75 attachment upon the machine, Fig. 2, so that one of the sinker-slides F will enter each of the slots C², Fig. 4, thereof. The cam-ring C is then turned, causing the needle-presser slides A to be slid to the positions shown in
80 Figs. 2 and 3. The last-mentioned operation causes the lugs A' on the presser-slides A to engage with and uniform the needles E by pressing them inward, when the quill-ring D is placed in the position shown in Fig. 2.
85 Turn the cam-ring C in a reverse direction and the presser-slides A will be thereby withdrawn into the slide-bed B. The springs G, Fig. 2, acting through the pressers H and needle-jacks I, will cause the needles E' to
90 travel outward and enter the quills D' of the quill-ring D. The stitches E are then slid down onto the needles E' of the machine by the operator, when the office of the attachment, which, if desired, may now be removed
95 until another transfer is required, will have been fulfilled.

I claim—

1. In knit fabric transferring attachments for knitting machines, in combination, radi- 100
ally arranged needle presser slides for uniforming the needles of knitting machines pre-

paratory to transferring thereto the stitches of knit fabrics, a needle presser slide bed, a cam for actuating the needle presser slides to uniform the needles, and a quill ring, each of
5 the quills whereof is adapted and arranged to receive a needle traveling outward after being released from the control of the actuating cam, substantially as and for the purpose specified.

10 2. In knit fabric transferring attachments for knitting machines, in combination, radially arranged slides for pressing the needles of a knitting machine inward preparatory to

placing the quill ring in operative position on the attachment, a needle presser slide bed, a
15 cam for pressing the needles inward, and a quill ring, each of the quills whereof is adapted and arranged to receive a needle traveling outward after being released from the action of the cam, substantially as and for the pur- 20
pose specified.

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Witnesses:

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