

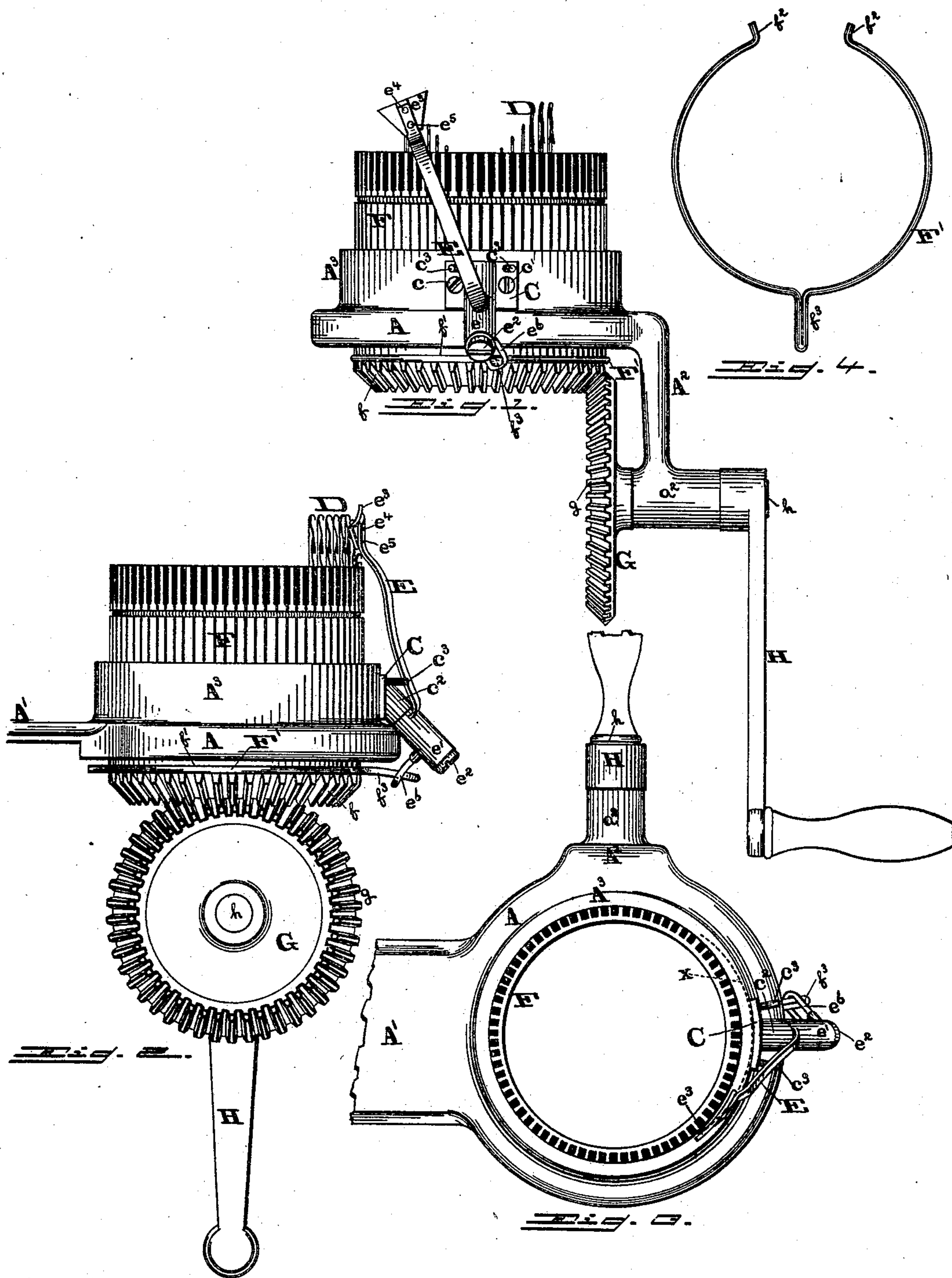
(No Model.)

J. W. DEWEES.

YARN CARRIER FOR CIRCULAR KNITTING MACHINES.

No. 501,876.

Patented July 18, 1893.



WITNESSES

John Killinger.
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INVENTOR

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UNITED STATES PATENT OFFICE.

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YARN-CARRIER FOR CIRCULAR-KNITTING MACHINES.

SPECIFICATION forming part of Letters Patent No. 501,876, dated July 18, 1893.

Application filed June 4, 1892. Serial No. 435,494. (No model.)

To all whom it may concern:

Be it known that I, JOHN W. DEWEES, 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 Yarn-Carriers for Circular-Knitting Machines, of which the following is a specification.

My invention has relation to circular knitting machines and has for its object the provision of a novel, simple and efficient yarn-carrier therefor.

My invention consists of a yarn-carrier unconfined to use in conjunction with a knitting-machine of a particular character, but applicable to knitting-machines generally, and adapted to travel, when reversing its position, in a curvilinear line or path of such a plane that it will, at each end of such path, be in close relation with the needles, while swinging upwardly and outwardly from the latter in the reversing operation, this result being due to the fact that the axis of the bearing of said carrier inclines downwardly from or is at an oblique angle relatively to the axes of said needles, said yarn-carrier normally occupying a position close to the needles, feeding the yarn directly thereto, without the intervention of a guide or other separate device, and, in the reversing operation aforesaid receiving its motion from a ring or collar frictionally secured on the needle-cylinder, said ring or collar rotating with the latter for a certain distance and effecting the movement of the yarn-carrier in the desired direction, and then slipping on and allowing said cylinder to rotate independently thereof.

Referring to the accompanying drawings, Figures 1 and 2 are front and side elevations of my improvements applied to a knitting-machine and in position for operation. Fig. 3 is a plan view of the same, and Fig. 4 is a plan view of the friction-ring or collar detached.

A represents the bed-plate or base of the machine provided with a lateral extension A', (through the medium of which latter said machine is secured to a table or other support,) and the hanger or shaft-support A², said extension, also, as usual, supporting the bobbin-spindles and a yarn-guide, neither of the latter, however, being shown in the drawings.

A³ is the cam-cylinder provided with the necessary means for effecting the various movements of the needles, in the knitting operation, and formed, preferably, as shown in the drawings, the same being integral with the bed-plate or base A, although any other suitable cam-cylinder may, if desired, be employed.

C is a plate secured to the cam-cylinder A³, by the screws c c', midway between the extremities of the falling and rising movements of the needles D and having formed or secured thereon a shouldered boss c² extending at an oblique angle with the axis of the needle-cylinder F and trending downward from its inner to its outer end.

On the outer end of boss c² is journaled the yarn-carrier E, through the medium of its hub e', the latter being secured on said boss by the screw e² passing into the end thereof and bearing against the end of said hub. The upper end of the yarn-carrier E, which, by reason of its angularly disposed bearing, travels in a path the projection of which is indicated by the dotted line x in Fig. 3 of the drawings, has secured thereto the triangular head e³, provided with the eyes e⁴ e⁵, said head serving to throw down any of the needle-latches which may spring outwardly after the passage of the loop in the yarn therefrom and fail to drop, and being curved correspondingly with the curvature of the line on which it oscillates.

F' represents a spring-wire hoop or collar, sprung into an annular groove f' in the lower part of the cylinder F, having its ends separated and bent outwardly, as at f², and having an offset f³ therein intermediate said ends, the sides of which offset being brought into close and parallel relation, form a lateral extension or arm integral with the main portion of the hoop or collar. This arm, as shown, projects through and engages with the loop e⁶ secured to the under side of the hub e' of the yarn-carrier; thus said arm and loop form the medium of connection for the hoop F' and the yarn-carrier E.

h is the driving shaft, journaled in the box a² of the hanger A², having on one end the crank H and on the other end the wheel G, the teeth of the latter intermeshing with the teeth f of the needle-cylinder.

When the crank H is operated, causing the rotation of the needle-cylinder F, the yarn-carrier E, by reason of its axis being inclined downwardly from the axis of the needle-cylinder and the engagement of the loop e^6 and the arm f^3 , will travel in the opposite direction from that of the needle-cylinder F, and describe a curved line, in a plane oblique to the axis of the cylinder last mentioned, until it strikes one of the pins c^3 ; the head of said carrier being close to the needles D at each end of its swing and drawing upwardly and outwardly away from and clearing the needles when traveling intermediate the limits of its movement, or between the pins c^3 , which latter retard the further movement of the hoop F' and allow the cylinder F to continue its movement independently of said hoop. This operation is repeated, upon the reverse movement of the crank and that of the needle-cylinder, for the desired purpose. Thus there is provided a yarn-carrier whose axis is at an angle relatively with the axis of the needle-cylinder, yet which travels in a path approximating the curvature of said cylinder, permitting said carrier to come into the closest possible relation with the needles to which it is feeding the yarn, without the intervention of a curved or other form of yarn-guide, which latter would be necessary were the yarn-carrier to have a path the projection of which, in a horizontal plane, would be in a straight instead of a curved line.

What I claim as my invention is as follows:

1. In a knitting-machine, the yarn-carrier having the axis of its pivotal part at an angle less than a right angle relatively to the axis of the needle-cylinder, the outer end or head of said carrier being thereby adapted to travel in a path, the horizontal projection of which is in a curved line, substantially as and for the purpose specified.

2. In a knitting-machine, the combination of a rotary cylinder, the yarn-carrier, and a ring or collar frictionally sustained on and adapted to rotate, to a limited extent, with said cylinder and communicate motion to the yarn-carrier, substantially as and for the purpose specified.

3. In a knitting-machine, the combination of a rotary cylinder; a yarn-carrier having the axis of its pivotal part at an angle less than a right angle relatively to the axis of the needle-cylinder; a ring or collar frictionally sustained on and adapted to rotate, to a limited extent, with the cylinder and communicate motion to the yarn-carrier, substantially as and for the purpose specified.

4. In a knitting-machine, the combination of the needle-cylinder; the yarn carrier, and a ring or collar frictionally sustained on and adapted to rotate, to a limited extent, with said cylinder and communicate motion to said yarn-carrier, substantially as and for the purpose specified.

5. In a knitting-machine, the combination of the needle-cylinder, the yarn-carrier hav-

ing the axis of its pivotal part at an angle less than a right angle relatively to the axis of the needle-cylinder; and a ring or collar frictionally sustained on and adapted to rotate, to a limited extent, with said cylinder and communicate motion to the yarn-carrier, substantially as and for the purpose specified.

6. In a knitting-machine, the combination of the needle-cylinder provided with an annular groove, the yarn carrier, and a ring or collar frictionally sustained in said groove, and adapted to rotate, to a limited extent, with said cylinder and actuate the yarn-carrier, substantially as and for the purpose specified.

7. In a knitting-machine, the combination of the needle-cylinder provided with an annular groove; a ring or collar sustained frictionally in said groove; the yarn-carrier connected with said ring or collar and having the axis of its pivotal part at an angle less than a right angle relatively to the axis of said cylinder; and a limiting pin or stop on each side of said yarn-carrier, substantially as and for the purpose specified.

8. In a knitting-machine, the combination of the cam-cylinder provided with a boss whose angle of inclination is less than a right angle relatively to the axis of the needle-cylinder; the yarn-carrier journaled on said boss; and means for imparting motion to said carrier, substantially as and for the purpose specified.

9. In a knitting-machine, the combination of the cam-cylinder provided with a boss whose angle of inclination is less than a right angle relatively to the axis of the needle-cylinder; the yarn-carrier journaled on said boss; and a ring or collar connected to said carrier and frictionally sustained on the needle-cylinder and adapted to rotate, to a limited extent, therewith, substantially as and for the purpose specified.

10. In a knitting-machine, the combination of the cam-cylinder provided with a boss whose angle of inclination is less than a right angle relatively to the axis of the needle-cylinder; the yarn-carrier journaled on said boss; a ring or collar connected to said carrier and frictionally sustained in an annular groove in the needle-cylinder; and a limiting pin or stop on each side of said yarn-carrier, substantially as and for the purpose specified.

11. In a knitting-machine, the combination of the cam-cylinder provided with a boss whose angle of inclination is less than a right angle relatively to the axis of the needle-cylinder; the yarn-carrier journaled on said boss and provided with a loop depending from its hub; a ring or collar frictionally sustained on the needle cylinder and provided with a lateral extension or arm in engagement with said loop, said ring or collar being adapted to rotate, to a limited extent, with said needle-cylinder, substantially as and for the purpose specified.

12. In a knitting-machine, the combination

of the cam-cylinder; a plate secured to the latter and provided with a boss whose angle of inclination is less than a right angle relatively to the axis of the needle-cylinder; the
5 yarn-carrier journaled on said boss and provided with a loop depending from its hub; a ring or collar frictionally sustained in an annular groove in said needle-cylinder and provided with a lateral extension or arm in en-

gagement with said loop; and a limiting pin or stop on each side of said yarn-carrier, substantially as and for the purpose specified.

In testimony whereof I have hereunto set my hand this 31st day of May, A. D. 1892.

JOHN W. DEWEES.

Witnesses:

WM. H. POWELL,
W. E. GANOD.