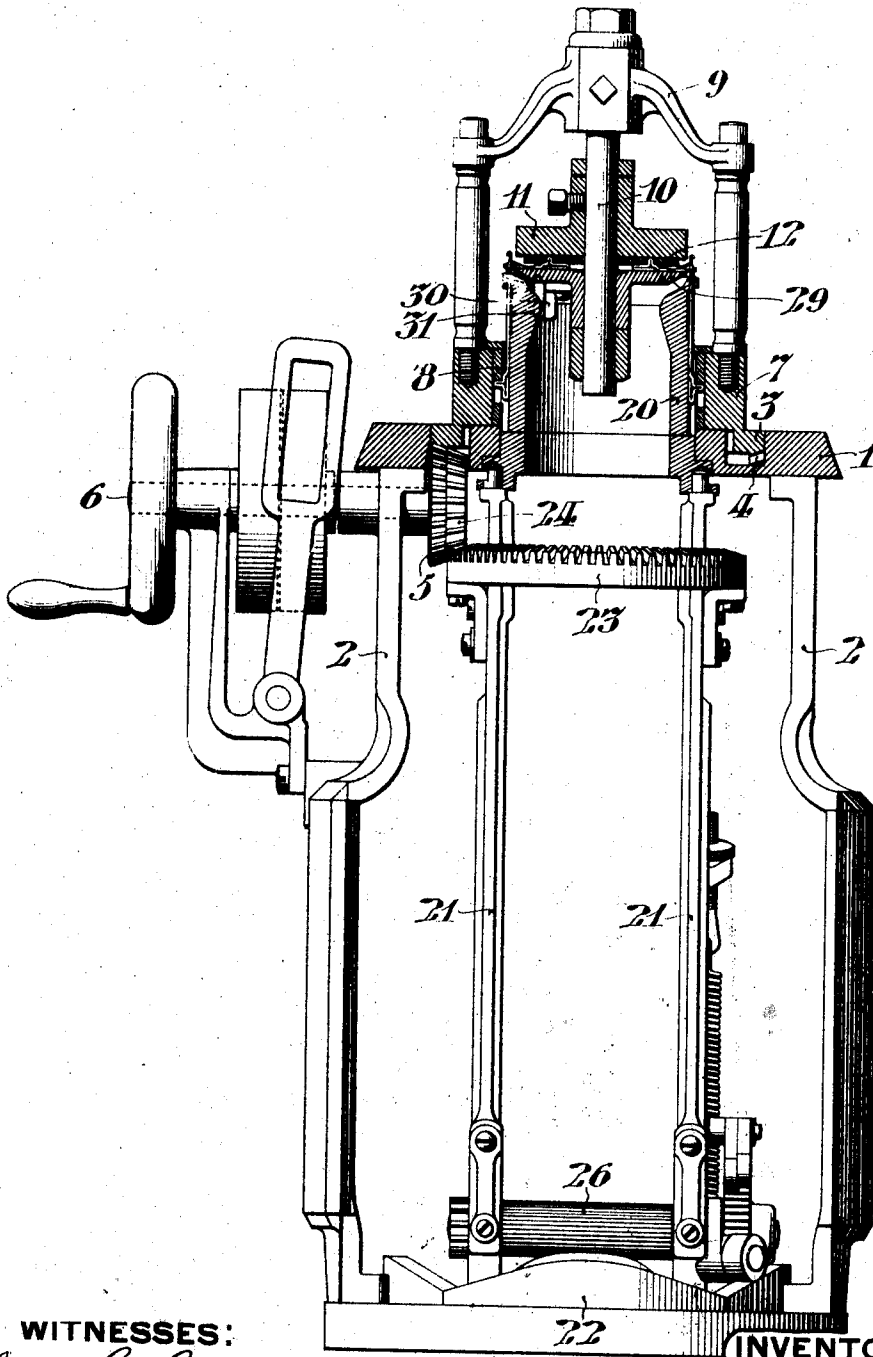


H. B. TAYLOR.  
 CIRCULAR KNITTING MACHINE.  
 APPLICATION FILED MAY 19, 1906.

901,924.

Patented Oct. 20, 1908.



WITNESSES:

*Clifton C. Hallowell*  
*John C. Berger.*

INVENTOR:

HERBERT B. TAYLOR,  
 by his Attorneys  
*Paige Paul & Tracy*

# UNITED STATES PATENT OFFICE.

HERBERT B. TAYLOR, OF PHILADELPHIA, PENNSYLVANIA, ASSIGNOR OF ONE-HALF TO  
JAMES TAYLOR, OF PHILADELPHIA, PENNSYLVANIA.

## CIRCULAR-KNITTING MACHINE

No. 901,924.

Specification of Letters Patent.

Patented Oct. 20, 1908.

Application filed May 19, 1906. Serial No. 317,660.

*To all whom it may concern:*

Be it known that I, HERBERT B. TAYLOR, of Philadelphia, in the county of Philadelphia and State of Pennsylvania, have invented certain new and useful Improvements in Circular-Knitting Machines, whereof the following is a specification, reference being had to the accompanying drawings.

My improvements have for their object, to obtain an increased production from a circular knitting machine by increasing the relative speed of rotation of the operative parts.

In ordinary circular knitting machines, as heretofore constructed, it has been supposed that the speed at which the machine may be operated is chiefly dependent upon overcoming the friction between the cam cylinder and the needle cylinder. It has accordingly been customary to rotate but one of these elements and it has been deemed immaterial, which one is rotated, so far as the question of speed is concerned.

In certain types of knitting machines the needle cylinder is maintained in fixed position, while the cam cylinder is rotated around it. In other types of machines, the cam cylinder is held stationary, while the needle cylinder is caused to rotate relatively thereto.

I have discovered that apart from the frictional resistance between the two cylinders, there are additional factors which limit the speed of these machines. Among these factors are the friction occasioned by the motion of the gears and their driving members, and the centrifugal effect upon the yarn as it passes from the bobbins to the guide, whereby increased tension upon the yarn is created. In view of these factors I find that a greatly increased practical speed of operation can be obtained by driving both of the rotatable members of the machine simultaneously in opposite directions. In this way, I have been able to greatly increase the output per day of the machine.

I have illustrated and will describe my invention as embodied in a rib-knitting machine or rib-frame of ordinary construction; but it is to be understood that my invention is not thus limited to this type of machine, but applies to any ordinary circular knitting machine producing a continuous tubular web.

In the drawing, 1. is the bed plate, of a

circular ribber, supported upon suitable standards 2. Within a suitable recess in said bed plate 1, is seated the annulus 3, which is provided along its lower outer edge with a rack 4, constituting it a gear ring meshing with a beveled pinion 5, arranged to rotate with the main driving shaft 6, of the machine. The cam cylinder 7, which is integral with said annulus 3, carries the knitting cams 8, on its interior surface, and also carries the yoke 9, provided with a centrally depending stem 10, upon which is secured the dial cam plate 11, having the dial cams 12, arranged to operate the dial needles.

The needle cylinder 20, is rotatably supported in proper relation to the bed plate 1, by the uprights 21, which stand upon the plate 22, supported for rotation upon the base of the machine. These uprights carry the rack or bevel gear 23, which meshes with the bevel pinion 24, arranged to rotate with the main driving shaft 6. Journaled in the uprights 21, and near their lower end, are the takeup rollers 26, driven in the usual way.

The dial 29, is free to rotate upon the stem 10, beneath the dial cam plate 11, but is held in fixed relation to the needle cylinder by the engagement of its lug 30, with a corresponding lug 31, in the needle cylinder 20.

With the parts thus arranged it will be observed that when the main shaft rotates, the needle cylinder 20, and dial 29, are positively driven in one direction, while the cam cylinder 7, and dial cam plate 11, are positively driven in the opposite direction. I thus secure a relatively rapid motion as between the needle cams and the needles—more rapid than has ever been practical in any of the standard types of machines, in which one of the knitting members above mentioned is stationary, while the other rotates; and in this way I am able to secure a largely increased product from the machine.

Having thus described my invention, I claim:—

1. In a circular knitting machine, the combination of a rotary cam cylinder, a rotary needle cylinder, and means for positively rotating both of said cylinders simultaneously, in opposite directions, substantially as set forth.

2. In a circular rib-knitting machine, the

combination with the needle beds, the cam beds, and suitable supporting parts therefor; of means to rotate the needle beds in one direction and means simultaneously to rotate the cam beds in the other direction, whereby the production of the machine is increased.

3. In a circular rib-knitting machine, the combination with the needle cylinder, the dial, the cam cylinder, the dial cam-plate, and means for supporting the parts; of means for rotating the needle cylinder and the dial in one direction and means for simultaneously rotating the cam cylinder and the dial cam-plate in the opposite direction.

4. In a circular rib-frame, the combination with suitable supporting parts, of the needle cylinder, an annular rack connected to the needle cylinder, the dial, connections between the dial and the needle cylinder, the cam cylinder, the dial cam-plate, connections between the cam cylinder and the dial cam-plate, an annular rack connected to the cam

cylinder, gearing meshing on its opposite sides with both of said racks, and means to rotate said gearing, whereby the needle cylinder and dial are rotated together in one direction and the cam cylinder and dial cam-plate are simultaneously rotated together in the opposite direction.

5. In a circular knitting machine, the combination of a rotary cam cylinder and a rotary needle cylinder; oppositely disposed gear rings connected to said cylinders; and gear wheels on a common shaft meshing with said gear rings whereby said cylinders may be driven at different rates of speed.

In testimony whereof, I have hereunto signed my name, at Philadelphia in the State of Pennsylvania, this 17th day of May 1906.

HERBERT B. TAYLOR.

Witnesses:

JAMES TAYLOR,  
JAMES H. BELL.