

R. W. SCOTT.
CAM FOR RIB KNITTING MACHINES.
APPLICATION FILED OCT. 6, 1908.

983,777.

Patented Feb. 7, 1911.

Fig. 1.

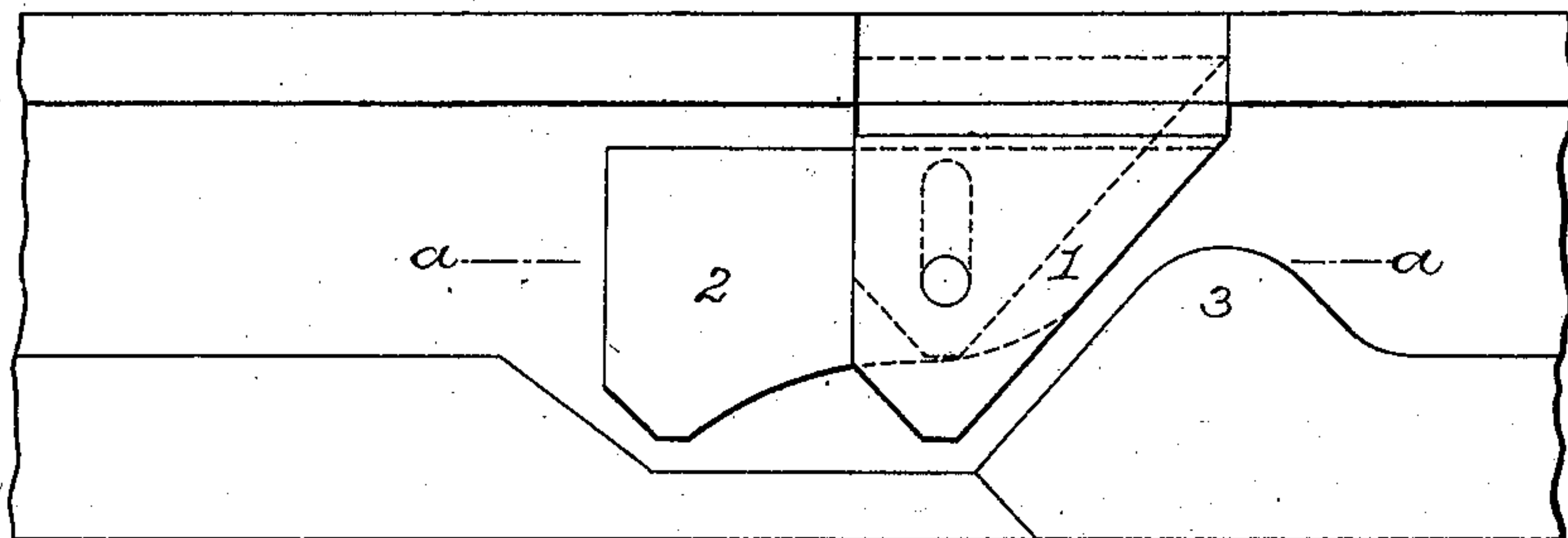


Fig. 2.

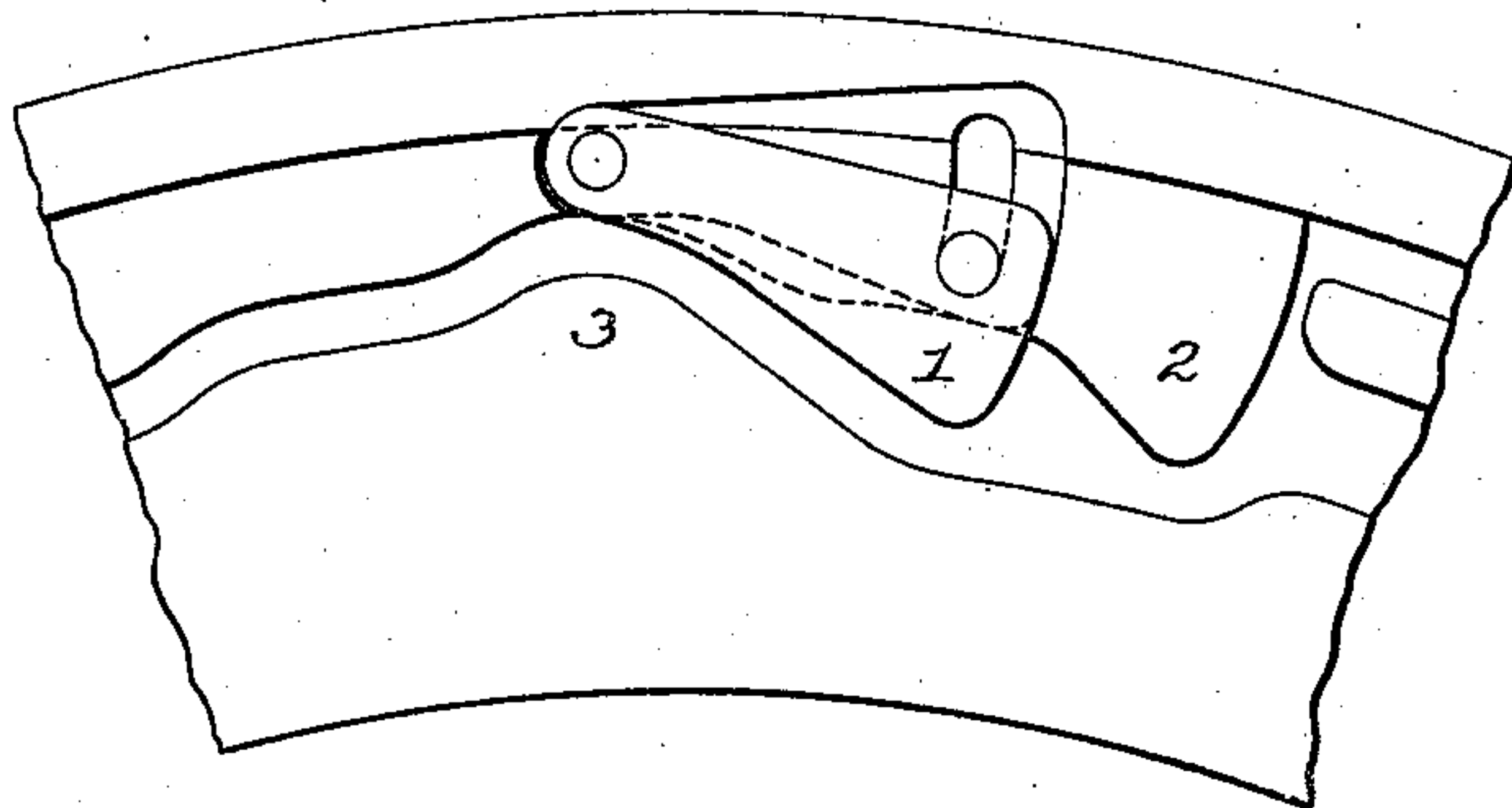
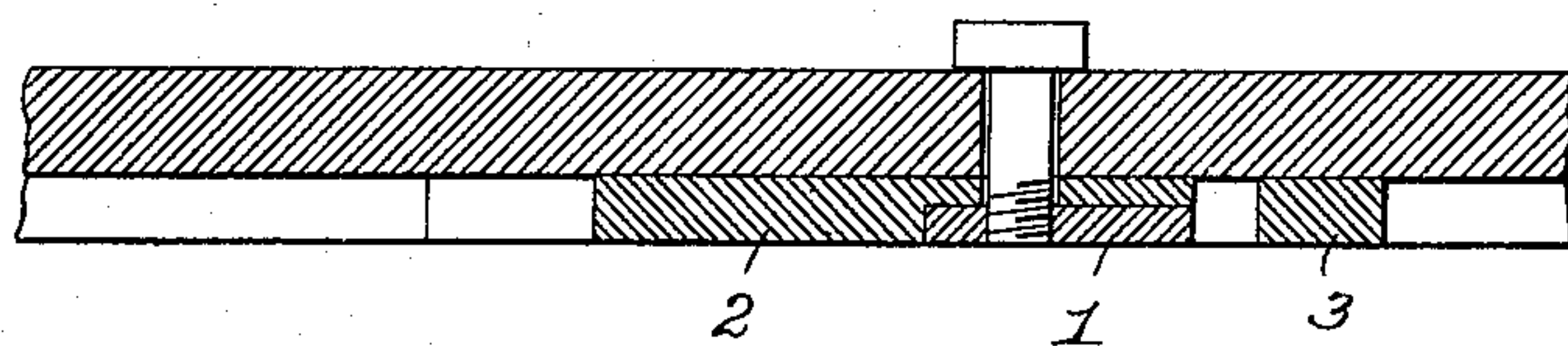


Fig. 3.



Witnesses:
Harry L. Smith
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UNITED STATES PATENT OFFICE.

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CAM FOR RIB-KNITTING MACHINES.

983,777.

Specification of Letters Patent.

Patented Feb. 7, 1911.

Application filed October 6, 1908. Serial No. 456,362.

To all whom it may concern:

Be it known that I, ROBERT W. SCOTT, a citizen of the United States, residing in Leeds Point, Atlantic county, New Jersey, have invented certain Improvements in Cams for Rib-Knitting Machines, of which the following is a specification.

The object of my invention is to so construct a cam for rib knitting machines as to readily vary the action of the cam upon the needles and cause the latter to effect either a primary or a secondary draft of the knitting yarn, as desired.

This object I attain in the manner hereinafter set forth, reference being had to the accompanying drawing, in which—

Figure 1 is a side elevation of a compound cam made in accordance with my invention and adapted for use in the cylinder cam ring of a rib knitting machine; Fig. 2 is an inverted plan view illustrating a compound cam in accordance with my invention, and adapted for use in the dial cam ring of such a machine, and Fig. 3 is a horizontal section on the line *a—a*, Fig. 1.

In knitting upon an ordinary rib knitting machine the co-acting needles of the cylinder and dial do not reach the knocking-over point, or point of full retraction, at the same time, the needles of one set, termed the "primary" needles, reaching the knocking-over point before the needles of the other set, termed the "secondary" needles. Usually the cylinder needles are the primary needles and the dial needles are the secondary needles, the difference in the operation of the two sets of needles being due to the fact that the draft cams of the cylinder cam ring are comparatively short and present a relatively abrupt angle, while the draft cams of the dial cam ring are longer, are curved and present a lesser angle. The purpose of this construction is to delay the draft of the secondary needles until the primary needles have completed their draft, the yarn which is being drawn from the yarn guide by the primary needles being looped over the shanks of the intervening secondary needles and these loops being drawn through the stitches upon said secondary needles after the formation of the stitches upon the adjoining primary needles has been completed. In a machine having fourteen needles to the inch, therefore, the primary needles will first draw at the rate of fourteen to the inch

and the secondary needles will then draw at a corresponding rate, whereas, if stitches were drawn by both sets of needles simultaneously, the draft would be at the rate of twenty-eight to the inch, the yarn would be trapped by the closing latches, and its forward or feeding movement would be restricted to such an extent as to cause it to break under the strain.

In an application for patent filed by me on the twenty-third day of September, 1908, Serial No. 454,386, I have described a method of knitting ribbed fabrics which consists in first drawing primary stitches upon the cylinder needles and secondary stitches upon the dial needles and then reversing this order and drawing the primary stitches upon the dial needles and the secondary stitches upon the cylinder needles. For use in a machine intended for carrying out this process of knitting, as well as for other uses to which it is adapted, I have devised a composite cam which may act either as a primary cam or as a secondary cam.

As shown in the drawing, the cam consists of two members 1 and 2, the primary member 1 having an acting face which is relatively short and abrupt while the secondary member has an acting face which is considerably longer and presents a curved face of lesser angle than the face of the primary member. Either of these members is adapted to co-act with the cam 3 which projects the needles to the clearing point, the primary member 1, when in operative position, being projected and extending beyond the acting face of the secondary member 2, but said primary member being susceptible of retraction as shown by dotted lines in Figs. 1 and 2 so that it may be drawn back behind the acting face of the secondary member when a secondary action of the cam is desired.

Each member of the cam is of a thickness equal to one-half the extent of projection of the butts of the needles, the primary member of the cam acting upon said butts when it is projected and the secondary member of the cam acting upon the butts when the primary member is retracted.

The compound cam can be used either in a single feed or multi-feed machine, and its use permits of a ready change from my improved process of knitting to the knitting of ordinary ribbed fabric, the primary

member of the cam or cams of one of the cam carriers, in the latter case, being permitted to remain in the projected position and the primary member of the corresponding cam or cams of the other cam carrier being permitted to remain in its retracted position during the formation of as many successive courses of stitches as are to be contained in the ordinary knitted web.

Any of the many different cam-shifting devices commonly employed in rib knitting machines may be used for effecting the projection and retraction of the primary member of the cam at proper times. As an instance of mechanism available for effecting the desired movements of the primary cam of the cylinder cam ring I may refer to the patent of Louis N. D. Williams, No. 681,161, dated August 20, 1901, the slide 36 shown in the said patent constituting an effective carrier for said primary cam, the operating mechanism for said slide being, of course, of such character as to impart movement to the desired extent to the slide, and as a means of effecting the desired movement of the primary cam of the dial cam ring I may connect to the pivot pin of said primary cam operating mechanism of the character shown in connection with the pivot pin 22 illustrated in the patent of Louis N. D. Williams, No. 688,275, dated December 3, 1901.

In my application for patent, Serial No. 453,610, filed September 18, 1908, I have illustrated a machine in which composite cams such as that forming the subject of this application may be used.

I claim:—

1. In a rib knitting machine, a composite draft cam comprising a primary quick draft member and a secondary slow draft member so located in respect to the direction of movement of the machine that the draft point of the primary member will be in advance of the draft point of the secondary member, said primary member being adjustable, and, when projected, imparting the draft to the needles before they reach the draft point of the secondary member, but, when retracted, permitting said secondary member to impart the draft to the needles at a later point.

2. In a rib knitting machine, a composite draft cam comprising a primary quick draft member and a secondary slow draft member so located in respect to the direction of movement of the machine that the primary member will act in advance of the secondary member, said primary member overlying the secondary member and being contained within a recess therein and movable across said secondary member, whereby, when projected, it will impart the draft to the needles before they reach the draft point of the secondary member, but, when retracted, will permit said secondary member to impart the draft to the needles at a later point.

In testimony whereof, I have signed my name to this specification, in the presence of two subscribing witnesses.

ROBERT W. SCOTT.

Witnesses:

HAMILTON D. TURNER,
KATE A. BEADLE.