No. 842,931. PATENTED FEB. 5, 1907.

H. C. ABERLE.

KNITTING MACHINE.

APPLICATION FILED MAR. 28, 1904.

5 SHEETS—SHEET 1.

Fig. 1.

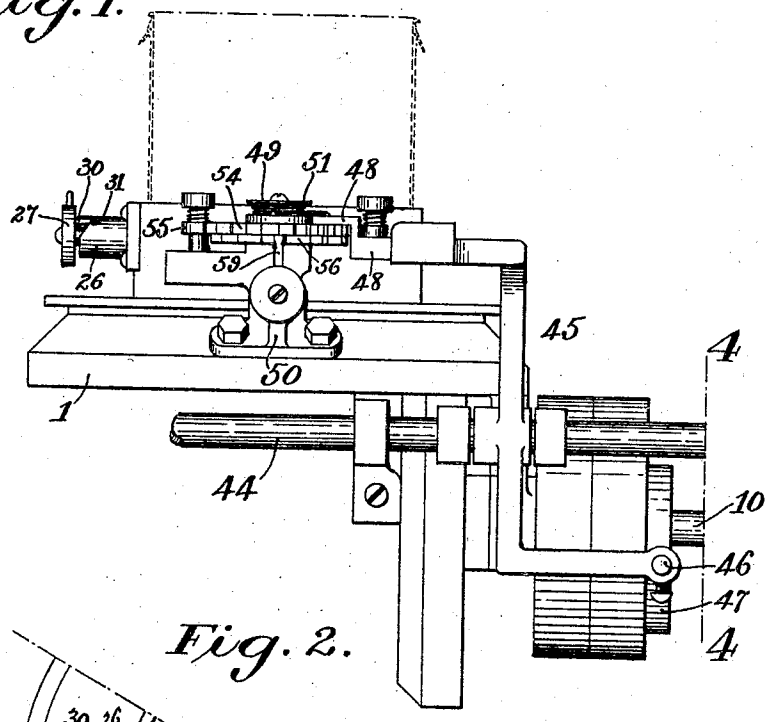
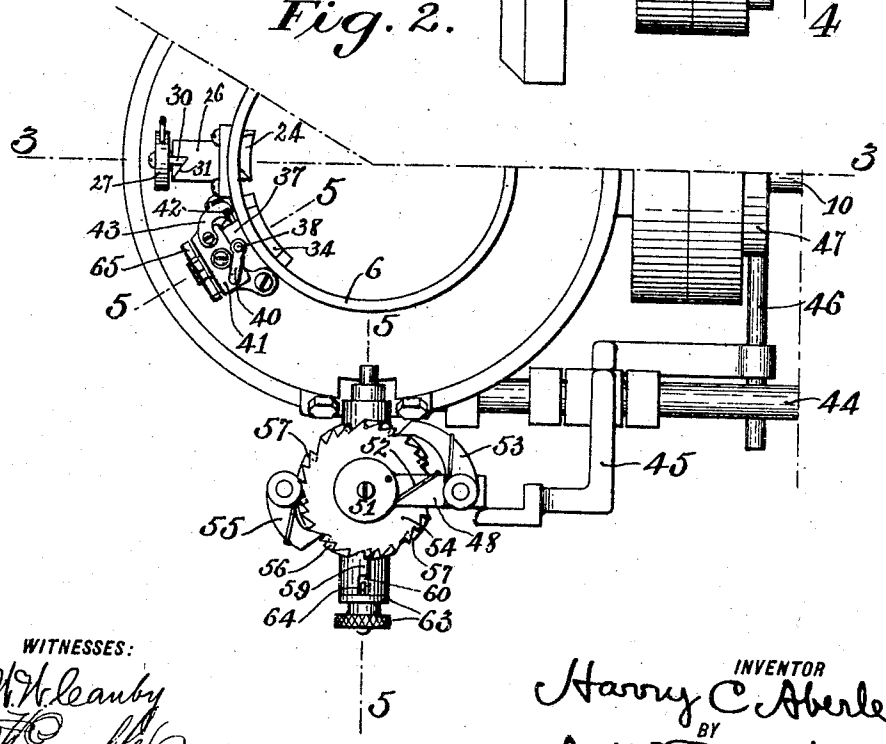


Fig. 2.



WITNESSES:

W. W. Leauby

H. Gamble

INVENTOR

Harry C. Aberle

BY

A. V. Troupe

ATTORNEY.

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5 SHEETS—SHEET 2.

Fig. 3.

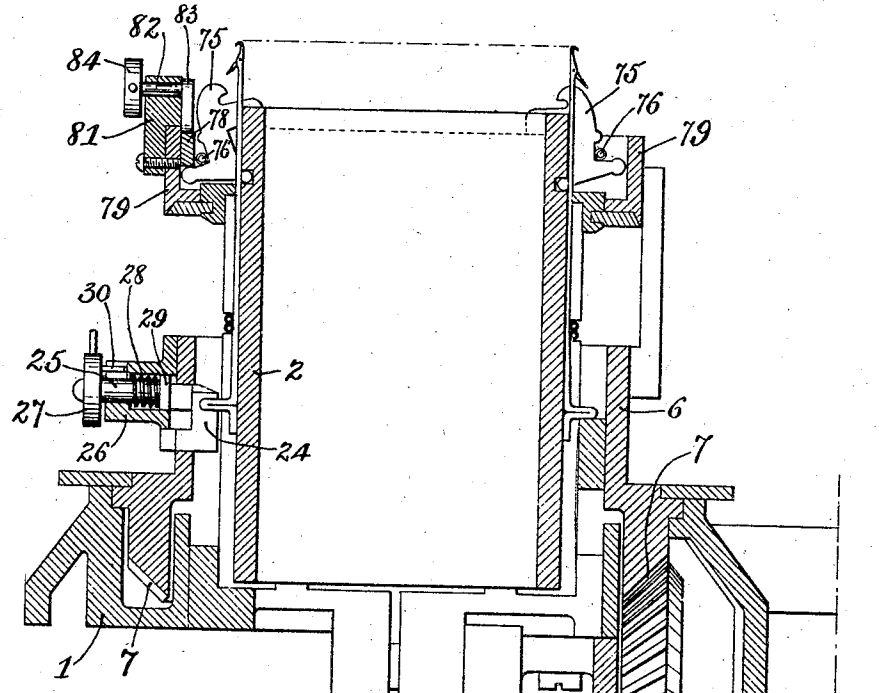
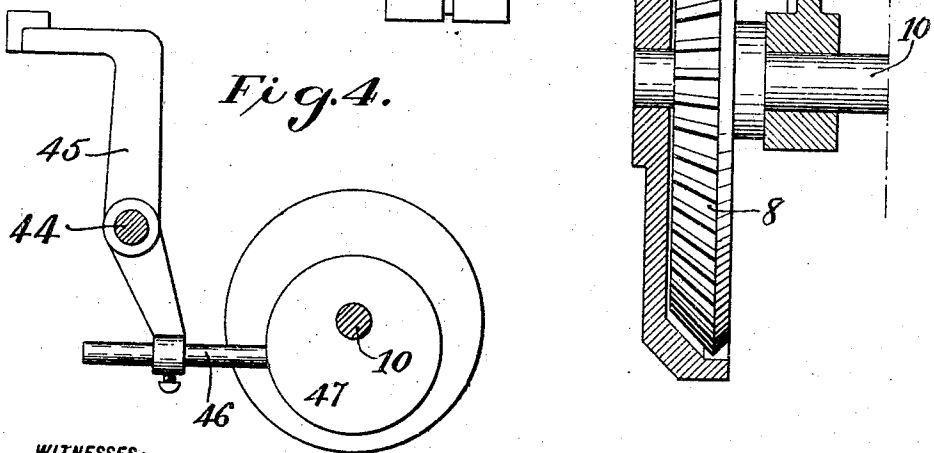


Fig. 4.



WITNESSES:

W. H. Leahy

H. C. Lambert

INVENTOR

Harry C. Aberle

BY

A. V. Groupe

ATTORNEY.

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H. C. ABERLE.

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5 SHEETS—SHEET 3.

Fig. 5.

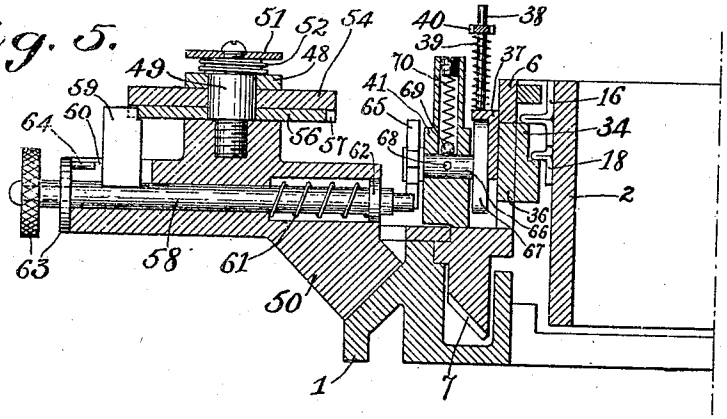


Fig. 6.

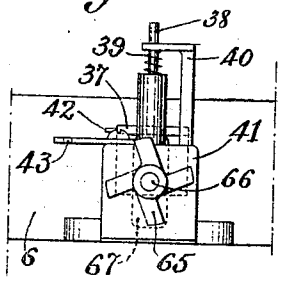
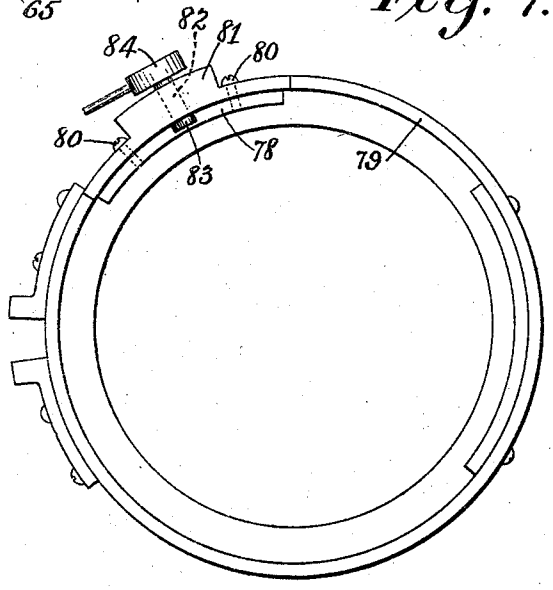


Fig. 7.



WITNESSES:

W. H. Leahy

H. H. Gamble

INVENTOR.

Harry C. Aberle

BY

A. V. Groupe

ATTORNEY.

No. 842,931. PATENTED FEB. 5, 1907.

H. C. ABERLE.

KNITTING MACHINE.

APPLICATION FILED MAR. 28, 1904

5 SHEETS—SHEET 4.

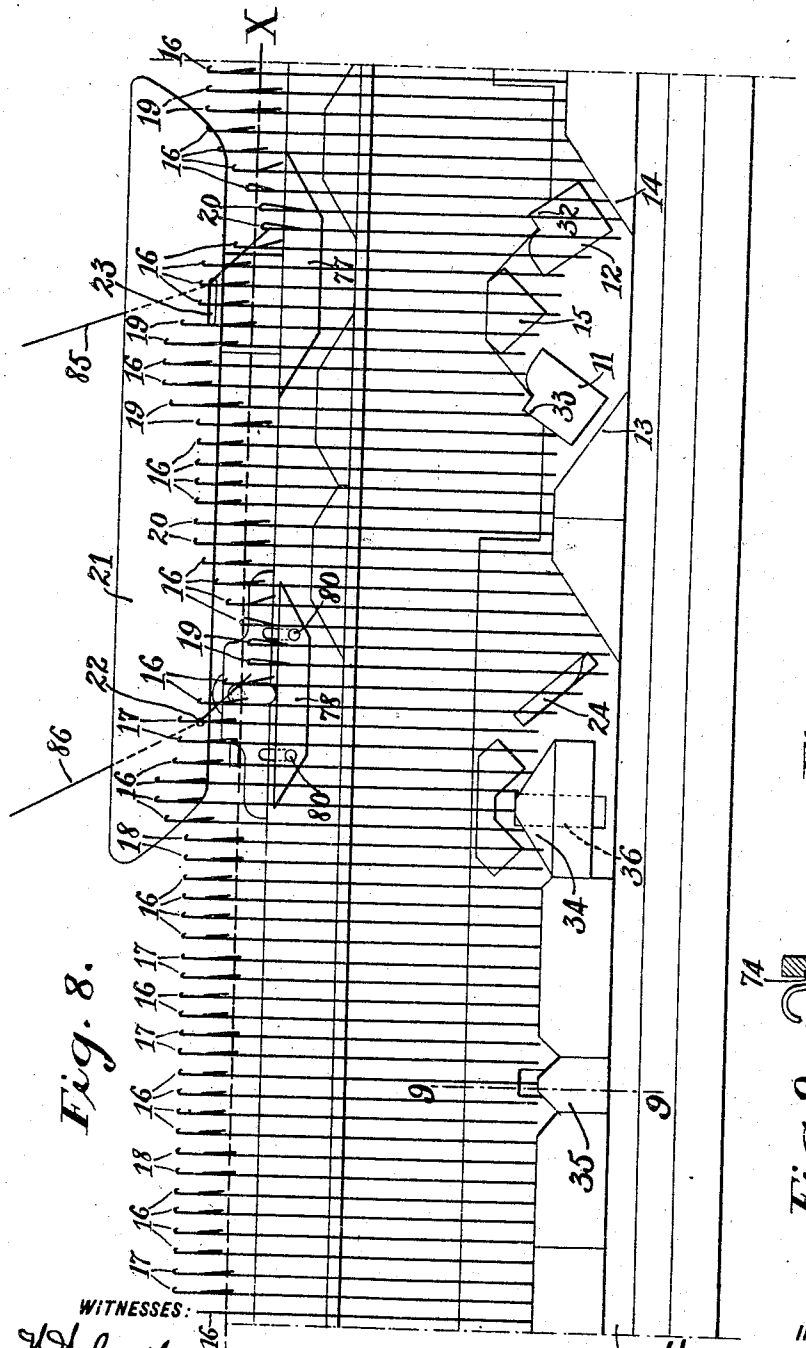


Fig. 8.

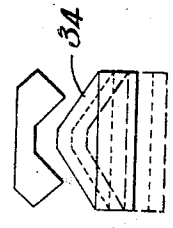


Fig. 10.

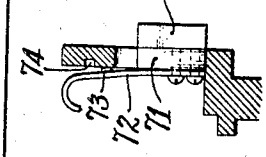


Fig. 9.

WITNESSES:

W. W. Leahy

H. H. Gamble.

INVENTOR

Harry C. Aberle

BY

A. V. Fraser

ATTORNEY.

No. 842,931. PATENTED FEB. 5, 1907.

H. C. ABERLE.

KNITTING MACHINE.

APPLICATION FILED MAR. 28, 1904.

5 SHEETS—SHEET 5.

Fig. 11.

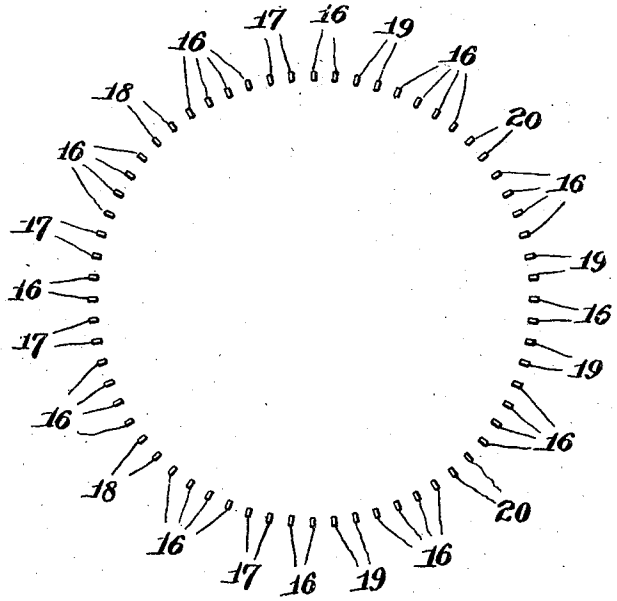
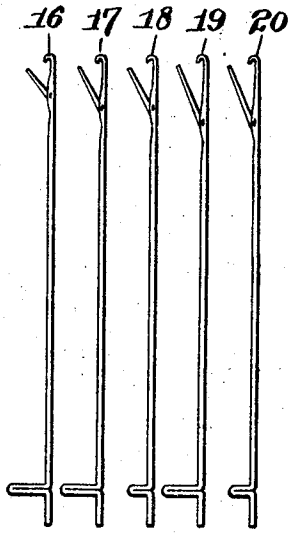


Fig. 12.



WITNESSES:

H. H. Leauby.

S. G. Doyle.

INVENTOR

Harry C. Aberle

BY

A. V. Trout

ATTORNEY

UNITED STATES PATENT OFFICE.

HARRY C. ABERLE, OF PHILADELPHIA, PENNSYLVANIA.

KNITTING-MACHINE.

No. 842,931. Specification of Letters Patent. Patented Feb. 5, 1907.

Application filed March 28, 1904. Serial No. 200,242.

To all whom it may concern:

Be it known that I, HARRY C. ABERLE, a citizen of the United States, residing at Oak Lane, Philadelphia, in the county of Philadelphia and State of Pennsylvania, have invented certain new and useful Improvements in Knitting-Machines, of which the following is a specification.

This invention relates to knitting-machines, and especially to that class of circular-knitting machines which are employed in the production of seamless stockings.

The object of the invention is to provide a simple and efficient construction and organization of mechanism whereby various designs of knitted fabric may be produced.

With this object in view the invention consists in the novel construction and combinations of parts, which will be hereinafter fully described and claimed.

In the drawings, Figure 1 is a side elevation of a portion of a knitting-machine embodying my invention. Fig. 2 is a partial plan thereof Fig. 3 is a vertical section as on the line 3 3 of Fig. 2. Fig. 4 is a sectional detail as on the line 4 4 of Fig. 1. Fig. 5 is a sectional view as on the lines 5 5 of Fig. 2. Fig. 6 is a detail in elevation of a portion of the cam-cylinder, showing a part of the mechanism for automatically raising and lowering one of the cams. Fig. 7 is a plan view of the ring carrying the sinker-cams. Fig. 8 is a development of the interior of the cam-cylinder and adjuncts, showing the relative positions of the different needles. Fig. 9 is a sectional detail as on the line 9 9 of Fig. 8. Fig. 10 is a detail showing the three positions of the automatically-operated cam. Fig. 11 is a plan view of the circular series of needles. Fig. 12 is a view of the different needles, showing the relative lengths of their butts and latches.

1 designates the bed-plate, 2 the needle-cylinder supported thereby, and 6 the cam-cylinder. The cam-cylinder is mounted to rotate in the bed-plate, as usual, and it is provided with teeth 7 in mesh with a bevel gear-wheel 8 on the main driving-shaft 10. The cam-cylinder carries the usual oppositely-disposed stitch-cams 11 and 12, the raising-cams 13 14 in rear of the stitch-cams 11 and 12, respectively, according to the direction of movement of the cam-cylinder, and the central cam 15 to direct the needles to the stitch-cams 11 and 12.

The construction and operation of the machine thus far is well known and needs no detailed description herein.

In the preferred form of embodiment of my invention I provide the needle-cylinder with five sets of needles 16, 17, 18, 19, and 20 and arrange said needles in the relation shown in Figs. 8 and 11. The latches of the needles 17 and 18 are longer than those of the needles 16, the latches of the needles 19 and 20 are longer than those of the needles 17 and 18, and the butts of the needles 18 and 20 are shorter than those of the needles 16, 17, and 19.

The cam-cylinder 6 carries the usual latch-guard 21, in which are formed two thread-guiding eyes 22 and 23. The eye 23 is arranged adjacent to the stitch-cams 11 and 12, and the eye 22 is arranged adjacent to a stitch-cam 24. This stitch-cam 24 is slidingly fitted to the cam-cylinder 6, so as to be radially movable therein, and it is provided with an outwardly-projecting pin 25, extending through a bracket 26 on the cam-cylinder. The outer end of the pin 25 carries a rotatable head 27, and encircling the pin 25 is a spring 28, which bearing against the outer end of the bracket 26 and a collar 29 on the pin 25 tends normally to maintain the cam 24 in its innermost position—that is, a position to act upon the butts of all the needles. The head 27 is provided with a projecting pin 30, bearing against a cam-surface 31 on the bracket 26, to the end that when the head 27 is turned in one direction to bring the pin 30 into engagement with the outer face of the bracket 26 the cam 24 will be moved out of the cam-cylinder away from the butts of the needles, and when the head 27 is turned in the reverse direction the spring 28 will be permitted to move the cam 24 back into the cam-cylinder.

Formed on the stitch-cams 11 and 12 are raising-cams 32 and 33, arranged in advance of said stitch-cams, respectively. These cams 32 and 33 are adapted to raise the needles, so that all their latches will escape their engaged loops of thread.

Arranged in advance of the stitch-cam 24 or in rear of the stitch-cam 12 are two vertically-movable raising-cams 34 and 35, the cam 34 being arranged to act only upon the long butts of the needles 16, 17, and 19 and the cam 35 being arranged to act upon all of the needles. The cam 34 is mounted on a vertically-movable head 36, which is slidingly fitted to the cam-cylinder 6 and is adapted

to be moved to bring the cam 34 to the three positions shown in Fig. 10, the full lines indicating the up position, the dash-lines indicating the down position, and the dotted lines indicating the intermediate position. By shifting the cam 34 to these different positions at predetermined intervals the needles 17 and 19 may be actuated to vary and control the design of the knitted fabric, as will be hereinafter fully explained.

Secured to the head 36 is a bracket 37, from which rises a pin 38, provided with an encircling spring 39, which bearing against the bracket 37 and an arm 40, extending from a bracket 41, mounted on the cam-cylinder, tends normally to depress the head 36. The bracket 37 is provided with a pin 42, and the bracket 41 is provided with a pivoted arm 43, adapted to be moved into and out of the path traversed by the pin 42 when the head 36 is raised and lowered. When the arm 43 occupies a position out of the path of the pin 42, the spring 39 will depress the head 36 and cam 34 to the down position, and when the arm 43 is moved into the path of the pin 42 the pin 42 will engage the arm 43 and stop the downward movement of the head 36 to bring the cam 34 to rest at the intermediate position.

Prior to commencing the knitting of the leg portion of a stocking the arm 43 is moved from the path of the pin 42 to permit the cam 34 to be moved to the up and down positions, and prior to commencing the knitting of the foot portion of the stocking the arm 43 is moved into the path of the pin 42 to limit the downward movement of the cam 34 to the intermediate position.

The cam 34 is moved to its up and down positions at substantially the same point in its path of rotation about the needle-cylinder, and the preferred means to this end is as follows: Mounted on a shaft 44 is an arm 45, the lower end of which is provided with a pin 46, adapted to engage a cam 47 on the main shaft 10. The upper end of the arm 45 is arranged adjacent to the free end of an arm 48, projecting loosely from a stud-shaft 49 on a bracket 50, which is secured to the bed-plate 1. Encircling the shaft 49 and having one of its ends engaged with a head 51 thereon is a spring 52, the other end of which is engaged with the arm 48 to maintain it in engagement with the arm 45 and also to maintain the pin 46 on the arm 45 in engagement with the cam 47, whereby when the shaft 10 is rotated the arms 45 and 48 will be rocked in unison. The arm 48 carries a pawl 53 in engagement with a ratchet-wheel 54, which is loosely mounted on the shaft 49, whereby when the arm 48 is rocked the ratchet-wheel 54 will be intermittently rotated. A suitable stop-pawl 55 is mounted on the bracket 50 to engage and prevent the backward movement of the wheel 54. Loosely mounted on the shaft 49 and secured to the wheel 54 to be moved thereby is a wheel 56, which is provided in its periphery with notches 57, which are arranged to control certain portions of the design in the fabric, as will hereinafter appear. Slidingly fitted to the bracket 50 is a horizontally-reciprocative pin 58, which is provided with an arm 59, projecting through a slot 60 in the bracket 50 to a position adjacent to the periphery of the wheel 56. The pin 58 is held normally inward—that is, toward the cam-cylinder—by the action of a spring 61, encircling the pin 58 and bearing against the bracket 50 and a collar 62 on the said pin. The outer end of the pin 58 is provided with a rotatable head 63, which taking against the bracket 50 limits the inward movement of said pin. Projecting from the head 63 and into the slot 60 is a pin 64, which when the pin 58 is moved outwardly and the head 63 turned is adapted to engage the bracket 50 to maintain the pin 58 in the outer position against the action of the spring 61. One side of each notch 57 is beveled, as shown, and when the pin 64 is in register with the slot 60 the arm 59 is adapted to bear against the periphery of the wheel 56 to the end that as the wheel 54 and therewith the wheel 56 are intermittently rotated the arm 59 will enter the notches 57 successively to permit the spring 61 to move the pin 58 to the inner position, and the beveled sides of the notches will move the arm 59 and pin 58 to the outer position at certain predetermined intervals, according to the number and arrangement of said notches. When the pin 58 is moved inwardly, its inner end occupies a position in the path traversed by a toothed wheel 65, and when the pin 58 is moved outwardly its inner end is out of the path of said wheel. This wheel 65 is carried by the cam-cylinder 6 and is mounted on the outer end of an intermittently-rotatable shaft 66, which is journaled in the bracket 41, hereinbefore referred to, whereby when the pin 58 occupies the inner position the wheel 65 will engage said pin and move the shaft 66 one step at each revolution of the cam-cylinder, and when the pin 58 occupies the outer position the wheel 65 will be unaffected thereby. The inner end of the shaft 66 carries an elongated block 67, arranged directly below the bracket 37, and the wheel 65 is provided with four teeth. Thus it will be seen that as the wheel 65 is turned step by step the block 67 will be brought to vertical and horizontal positions in alternate succession and that when the block is brought to the vertical position it will engage the bracket 37 and raise the cam 34 to the up position against the action of the spring 39, and when the block 67 is brought to the horizontal position it will escape the bracket 37 and permit the spring

39 to return the cam 34 to either the intermediate or down position, according to the position of the arm 43. The shaft 66 is provided with depressions 68, corresponding with the teeth of the wheel 65, and arranged within an opening in the bracket 41 is a ball 69, which is depressed by the action of a spring 70. The ball 69 is adapted to register with the depressions 68 to maintain the shaft 66 in the positions to which it is moved by the wheel 65, the spring 70 yielding to permit the rotation of the shaft.

The cam 35, hereinbefore mentioned, is mounted on a vertically-movable head 71, which is slidingly fitted to the cam-cylinder 6. This head 71 is provided with a spring-arm 72, by means of which it and the cam 35 may be raised and lowered by hand. Projecting from the arm 72 is a pin 73, which is adapted to register with a depression 74 in the cam-cylinder 6 to maintain the cam 35 in the raised position. When the cam 35 is depressed, as shown, the needles are unaffected thereby, and when the cam 35 occupies the raised position all the needles are raised thereby to cause the latches of the needles 16, 17, and 18 to escape their engaged loops of thread. By changing the position of the cam 35 certain parts of the design of the knitted fabric may be controlled, as will be hereinafter explained.

The needle-cylinder 2 is provided with sinkers or web-holders 75 of well-known type, which are held normally inward by the action of a spring-band 76 and operate in the usual manner to engage the knitted fabric and prevent its upward movement with the needles during the knitting operation. These sinkers are moved out of action where the oppositely-disposed stitch-cams 11 and 12 and single stitch-cam 24 passes the needles by two sinker-cams 77 and 78, respectively, which are carried by the ring 79, which is rotatably mounted on the needle-cylinder 2 and connected with the cam-cylinder 6 to rotate therewith and operate the sinkers in the usual well-known manner. The cam 77 is fixed to the ring 79, and the cam 78 is provided with projecting screws 80, which extend through slots formed in the ring 79 and a bracket 81, secured to said ring. These slots form guideways to permit the cam 78 to be raised to the inoperative position or depressed to the operative position. Rotatably mounted in the bracket 81 is a rock-shaft 82, having on its inner end a cam-head 83, which when the shaft 82 is rocked in one direction is adapted to engage the top of the cam 78 and force said cam down to the operative position against the action of the spring-band 76 and when the shaft 82 is rocked in the reverse direction will escape the cam 78 and permit the butts of the sinkers 75, under the influence of the spring-band 76, to raise the cam 78 to the inoperative position. The outer end of the shaft 82 is provided with a suitable head 84, by means of which the shaft 82 may be rocked.

In Fig. 8 I have indicated by a line $x\ x$ the top of the web or plane where the stitches are formed.

The needles 16 are arranged around the entire cylinder. The needles 19 and 20 are arranged around that portion of the cylinder on which the front of the stocking is produced, and the needles 17 and 18 are arranged around that portion of the cylinder on which the back and sole of the stocking are produced.

Assuming that a white thread 85 is being delivered to the needles through the eye 23 and a black thread 86 through the eye 22, the operation of the machine is as follows: As the cam-cylinder rotates to produce the leg and foot portions of a stocking the stitch-cam 12 acts upon all the needles at all times to produce stitches in the usual manner, and the stitch-cam 24 acts upon all the needles and produces stitches by only those needles which previously to being acted upon thereby have been raised to clear their latches of their engaged loops of thread. It will be seen that the needles having their latches engaged with their loops of thread when they meet the cam 24 will merely draw down the black thread 86 without knitting, and after being raised by the cam 33 to clear their latches of the thread they will be acted upon by the cam 12 to engage the white thread 85 to produce stitches thereby and at the same time to cast off their superposed loops of black thread. Thus the needles having their latches engaged with their loops when they meet the cam 24 and clear when they meet the cam 12 will each knit a chain of white stitches down the face of the fabric to produce a longitudinal stripe in the stocking, and the other needles having their latches free upon meeting both cams 24 and 12 will knit alternate transverse rows of black and white stitches. By the employment of my invention any number of stripes may be produced continuously throughout the length of the stockings, and any number of stripes may be produced at certain predetermined intervals throughout the length of the stocking, and in addition to this both the continuous stripes and the stripes occurring at certain intervals may be eliminated from the sole of the stocking. The needles 19 are operated to produce the longitudinal stripes at certain intervals down the front of the leg portion and the top of the foot portion of the stocking, and the needles 17 are operated to produce the longitudinal stripes at certain intervals down the back of the leg portion of the stocking and to eliminate said stripes from the sole of the stocking. The needles 20 are operated to produce the continuous longitudinal stripes down the front of the leg portion and the top of the foot portion of the

stocking, and the needles 18 are operated to produce the continuous longitudinal stripes down the back of the leg portion of the stocking and to eliminate said stripes from the sole of the stocking.

During the knitting of the leg portion of the stocking the parts occupy the position shown in the drawings and the cam 34 is moved to the up and down positions at certain predetermined intervals, according to the number and arrangement of the notches in the wheel 56, as previously explained. The cam 14 raises the needles sufficiently to cause the latches of the needles 16 to clear their engaged loops of thread. Therefore so long as the latches of the other needles are permitted to remain in their loops when they meet the cam 24 they will not knit the black thread 86, but will knit a chain of white stitches down the face of the fabric to produce a white stripe. It will be seen that when the cam 34 is in the down position the needles 17 and 19 will be unaffected thereby and will knit the longitudinal white stripe, and when the cam 34 is in the up position the needles 17 and 19 will be raised thereby to clear their latches of their loops and cease to knit the white stripes and knit the black thread into the fabric similarly to the needles 16. Thus the white stripe is produced at certain intervals, according to the manipulation of the cam 34. During the knitting of the leg portion of the stocking the cam 35 remains down and the needles 18 and 20, being unaffected thereby and having their latches engaged with their loops upon meeting the cam 24, knit continuous longitudinal white stripes.

After the completion of the leg portion of the stocking the head 27 is turned to withdraw the cam 24 from the cam-cylinder, the sinker-cam 78 is moved out of action, the pin 58 is withdrawn from the path of the wheel 65 and the head 63 turned to engage the pin 64 with the bracket 50, the needles in the back half of the cylinder 2 are moved out of action, and the cam-cylinder is reciprocated to produce the heel, during which operation the white thread is employed and the needles are moved into and out of action in the usual well-known manner, the thread 85 being knitted into the fabric and the thread 86, due to its position away from the cams 11 and 12, moving idly back and forth with the reciprocation of the cam-cylinder. During the knitting of the heel the stitch-cams 11 and 12 operate the needles and the cams 32 and 33 raise the needles, so that all their latches will escape their engaged loops of thread. After the heel has been completed the needles in the back half of the cylinder are moved back into action, the head 63 is turned to bring the pin 64 into register with the slot 60 and permit the pin 58 to return to the path of the wheel 65, the head 27 is turned to project the stitch-cam 24 back into the cam-cylinder, the cam 35 is raised by hand to the up position, wherein it is high enough to clear all the latches of all the needles engaging it except the needles 19 and 20, the arm 43 is moved to a position beneath the pin 42 to limit the downward movement of the cam 34 to the intermediate position, the sinker-cam 78 is moved back into action, and the cam-cylinder is rotated to knit the foot portion of the stocking.

During the knitting of the foot portion of the stocking the needles 20 and 19 are not raised by the cam 35 to clear their latches of their engaged loops of thread, and consequently they knit the longitudinal stripes continuously and at certain intervals, respectively, down the top of the foot portion of the stocking, just as they did during the knitting of the leg portion of the stocking, owing to the manipulation of the cam 34; but the needles 18 in the back half of the cylinder are raised by the cam 35 to clear their latches of their engaged loops and thereby cause them to knit the black thread into the fabric similarly to the needles 16, and the needles 17, also in the back half, are always raised by the cam 34 irrespective of its up or intermediate position to clear their latches of their engaged loops of thread, and thereby cause them to knit the black thread into the fabric similarly to the needles 16. Thus it will be seen that the design being produced in the stocking is continued down the top of the foot portion thereof and eliminated from the bottom or sole thereof, all the needles in the back half of the cylinder 2 being caused to engage and knit both threads 85 and 86 into the fabric during the knitting of the foot. After the completion of the foot the toe is produced similarly to the heel, whereupon the parts are set back to the position shown in the drawings for a succeeding operation.

By changing the number and positions of the needles 17, 18, 19, and 20 and by changing the number and positions of the notches in the wheel 56 a great variety of designs may be produced down the front and back of a stocking and eliminated from the sole thereof.

I have herein shown and described my invention in a desirable and practicable form; yet I desire it to be understood that I do not limit myself to this particular construction, as many changes may be made without departing from the invention.

I claim—

1. In a knitting-machine, the combination with the needles, their support and two thread-feeds, of means for actuating the needles to effect their operation upon the threads, means for automatically causing certain of the needles at certain intervals to produce stitches by but one thread and at other intervals to produce stitches by both threads, and means for automatically caus-

ing certain other of the needles to produce stitches by but one thread continuously.

2. In a knitting-machine, the combination with the needles having long butts, the needles having short butts, their support and two thread-feeds, of means for automatically causing certain of the long-butt needles at certain intervals to produce stitches by but one thread and at other intervals to produce stitches by both threads, and means for automatically causing certain of the short-butt needles to produce stitches by but one of the threads continuously.

3. In a knitting-machine, the combination with the needles having long butts and latches of a certain length, the needles having long butts and shorter latches, the needles having short butts and latches of a certain length, the needles having short butts and shorter latches, their support and two thread-feeds, of means for causing certain of the longer-butt needles having long latches to produce stitches by but one thread at certain intervals and at other intervals to produce stitches by both threads, and means for causing certain of the short-butt needles having the longer latches to produce stitches by but one of the threads continuously.

4. In a knitting-machine, the combination with the needles having long butts and latches of a certain length, the needles having long butts and shorter latches, the needles having short butts and latches of a certain length, the needles having short butts and shorter latches, their support and two thread-feeds, the cam-carrier, actuating means therefor, and a stitch-cam for each thread-feed to effect the operation of the needles upon the threads, means for raising the needles after they have been acted upon by each stitch-cam so that certain of the long-butt needles having the shorter latches will escape their engaged loops of thread, a cam carried by the cam-carrier in advance of one of the stitch-cams whereby all the needles are raised to disengage their latches from their engaged loops of thread, a movable cam carried by the cam-carrier in advance of the other stitch-cam whereby certain of the long-butt needles having long latches are raised to disengage their latches from their engaged loops of thread, and means for moving said movable cam into and out of action.

5. In a knitting-machine, the combination with the needles having long butts and latches of a certain length, the needles having long butts and shorter latches, the needles having short butts and latches of a certain length, the needles having short butts and shorter latches, their support and two thread-feeds, the cam-carrier, actuating means therefor and a stitch-cam for each thread-feed to effect the operation of the needles upon the threads, means for raising the needles after they have been acted upon by each stitch-cam so that certain of the long-butt needles having the shorter latches will escape their engaged loops of thread, a cam carried by the cam-carrier in advance of one of the stitch-cams whereby all the needles are raised to disengage their latches from their engaged loops of thread, a movable cam carried by the cam-carrier in advance of the other stitch-cam whereby certain of the long-butt needles having the longer latches are raised to disengage their latches from their engaged loops of thread, means for moving said movable cam into and out of action, and a second movable cam carried by the cam-carrier in advance of the last-named stitch-cam and adapted when in one position to raise the needles so that all the needles will escape their engaged loops of thread and when in another position to permit the latches of the short-butt needles to remain in their engaged loops of thread.

6. In a knitting-machine, the combination with the needles having long butts and latches of a certain length, the needles having long butts and shorter latches, the needles having short butts and latches of a certain length, the needles having short butts and shorter latches, their support, two thread-feeds, the cam-carrier, actuating means therefor and a stitch-cam for each thread-feed to effect the operation of the needles upon the threads, means for raising the needles after they have been acted upon by each stitch-cam so that certain of the long-butt needles having the shorter latches will escape their engaged loops of thread, a cam carried by the cam-carrier in advance of one of the stitch-cams whereby all the needles are raised to disengage their latches from their engaged loops of thread, a movable cam carried by the cam-carrier in advance of the other stitch-cam whereby certain of the long-butt needles having the longer latches are raised to disengage their latches from their engaged loops of thread, means for moving said movable cam into and out of action, and a second movable cam carried by the cam-carrier in advance of the last-named stitch-cam and adapted when in one position to raise the needles so that all the needles will escape their engaged loops of thread and when in another position to permit the latches of the short-butt needles to remain in their engaged loops of thread.

7. In a knitting-machine, the combination with the needles having short latches, the needles having long latches, their support and two thread-feeds, of a stitch-cam for each thread-feed to effect the operation of the needles upon the threads, means for raising the needles to clear certain of their short latches of their engaged loops of thread after they have been acted upon by each stitch-cam, a cam carried by the cam-carrier in advance of one of the stitch-cams whereby all

the needles are raised to clear their latches of their engaged loops of thread, a movable cam carried by the cam-carrier in advance of the other stitch-cam whereby certain of the needles having long latches are raised to clear their latches of their engaged loops of thread, and means for moving said movable cam into and out of action at substantially the same point in its path of rotation.

8. In a knitting-machine, the combination with the needles having short latches, the needles having long latches, the needles having latches of an intermediate length, their support and two thread-feeds, of a stitch-cam for each thread-feed to effect the operation of the needles upon the threads, means for raising the needles to clear their short latches of their engaged loops of thread after they have been acted upon by each stitch-cam, a cam carried by the cam-carrier in advance of one of the stitch-cams whereby the needles are raised to clear all their latches of their engaged loops of thread, a movable cam carried by the cam-carrier in advance of the other stitch-cam and adapted when in one position to raise the needles to clear the latches of the intermediate length of their engaged loops of thread and when in another position to raise the needles to clear all their latches of their engaged loops of thread, and means for moving said movable cam to an inoperative position and to the two positions above named.

9. In a knitting-machine, the combination with the needles, their support, the sinkers, their support, two thread-feeds, a stitch-cam for each thread-feed to effect the operation of the needles upon the threads and a sinker-cam for each stitch-cam to effect the operation of the sinkers upon the knitted fabric, of means adapted to be operated to move one of the stitch-cams into and out of operative position and means adapted to be operated to move one of the sinker-cams into and out of operative position.

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

HARRY C. ABERLE.

Witnesses:
GEO. B. PEARCE,
A. V. GROUPE.