

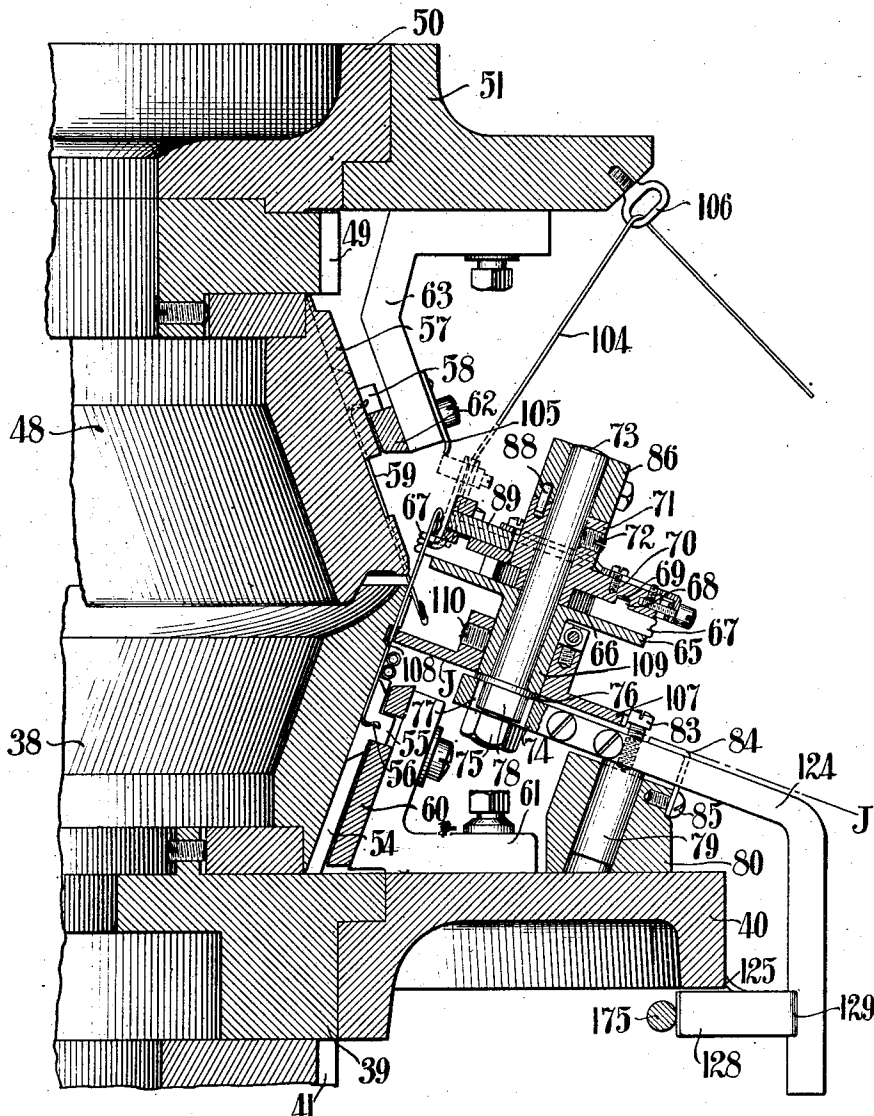
W. T. BARRATT.
STOP MOTION FOR KNITTING MACHINES.
APPLICATION FILED DEC. 30, 1907.

1,000,362.

Patented Aug. 15, 1911.

5 SHEETS—SHEET 2.

Fig. 3.



Witnesses:
Walter L. Pierce
Francis H. Bishop.

Inventor:
William J. Barratt,
by his attorney, Charles S. Gooding.

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5 SHEETS—SHEET 3.

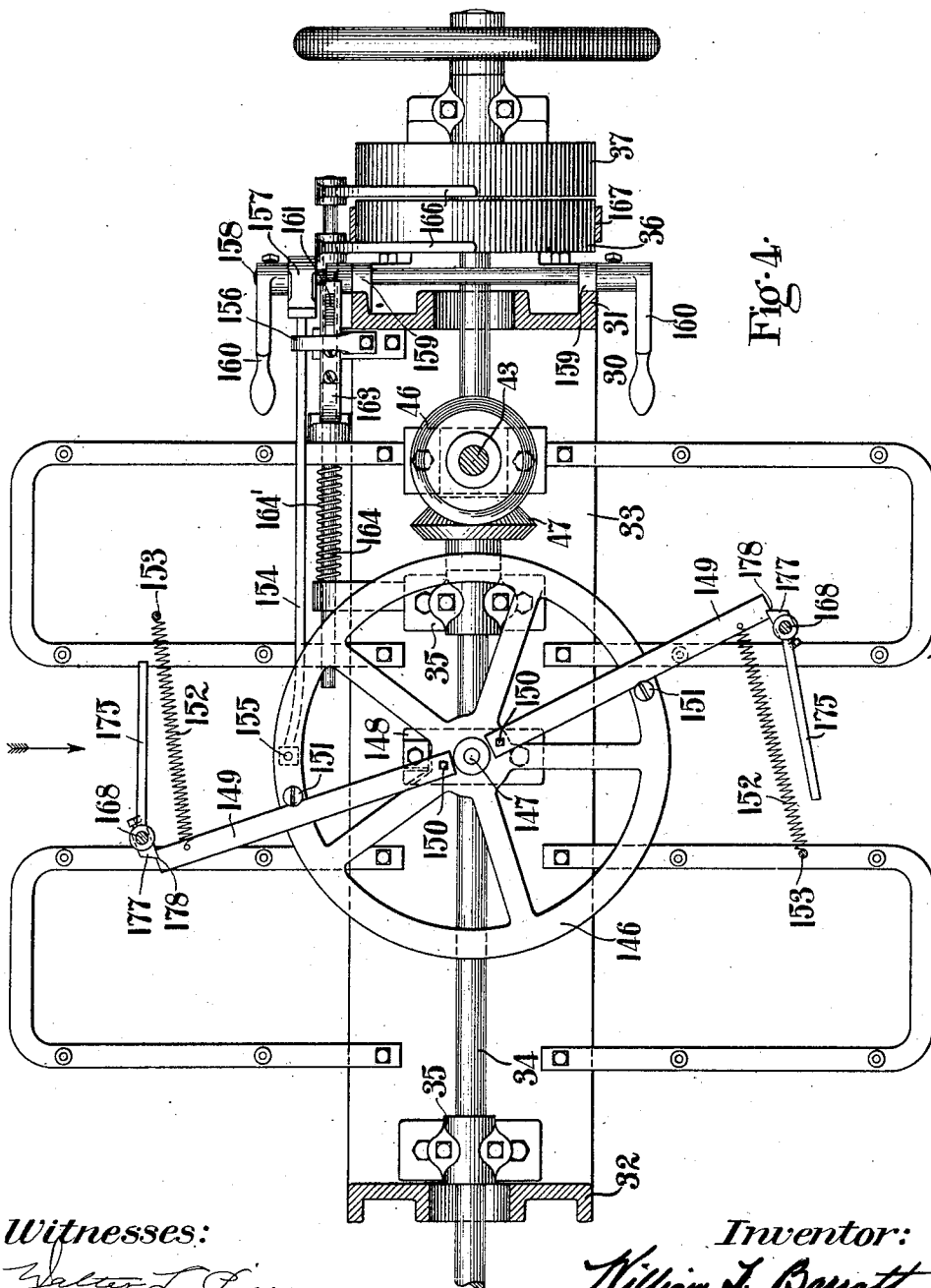


Fig. 4.

Witnesses:

Walter L. Pierce

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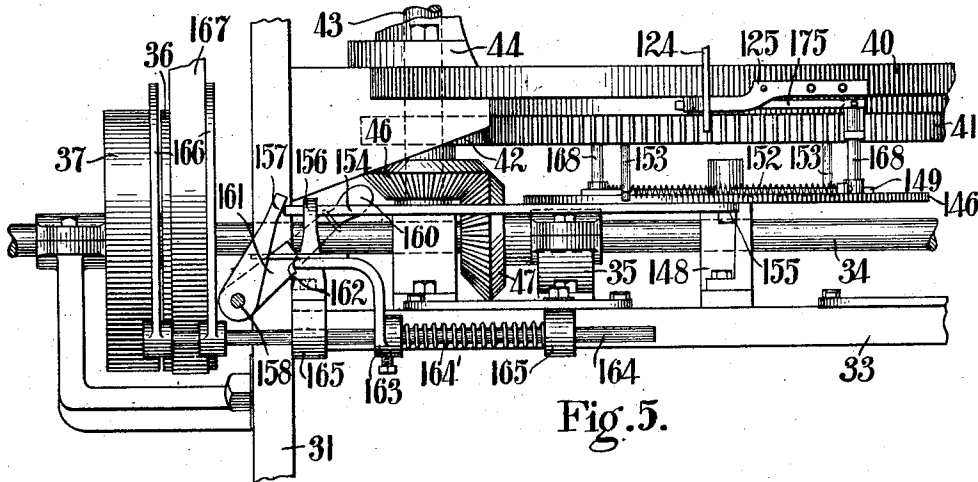


Fig. 5.

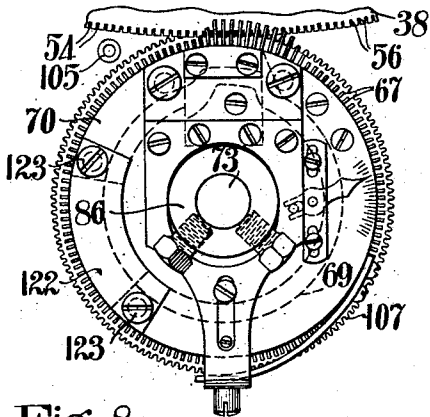


Fig. 8.

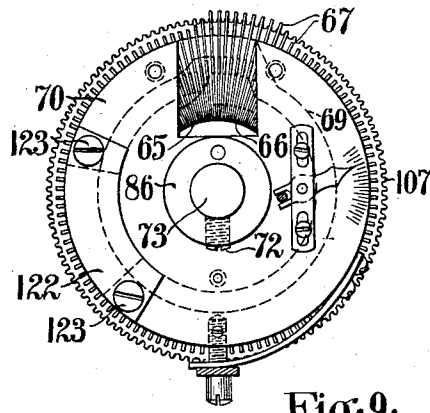


Fig. 9.

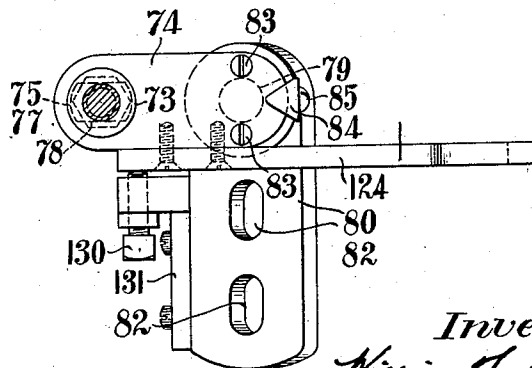


Fig. 10.

Witnesses:

Walter Dineen
Francis H. Bishop.

Inventor:

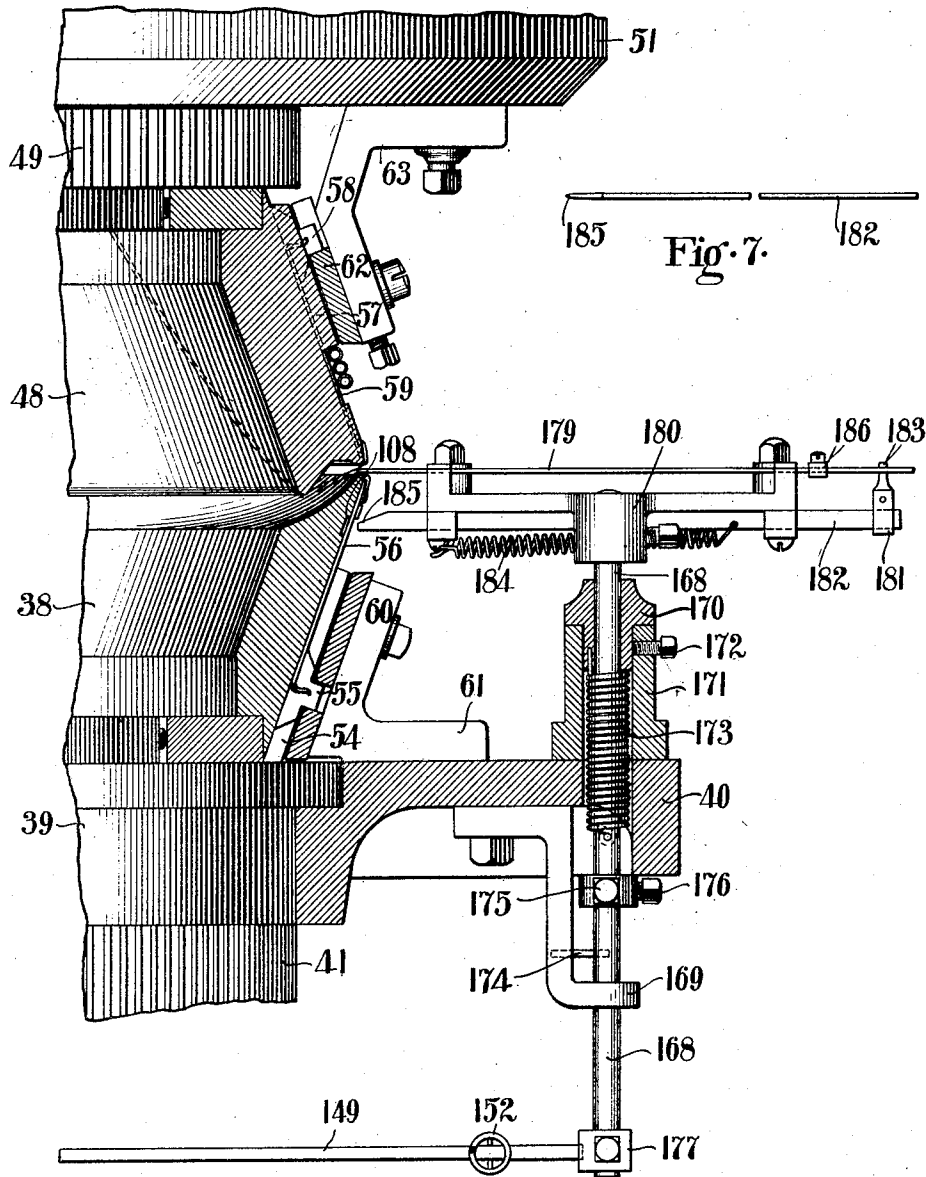
William T. Barratt
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5 SHEETS—SHEET 5.



Witnesses:
Walter L. Dine
Francis H. Bishop.

Fig. 6.

Inventor:
William T. Barratt
by his attorney
Charles J. Ford.

UNITED STATES PATENT OFFICE.

WILLIAM T. BARRATT, OF BENNINGTON, VERMONT, ASSIGNOR, BY MESNE ASSIGNMENTS, TO ANNIE COOPER, ALEXANDER J. COOPER, AND CHARLES S. KEHOE, OF BENNINGTON, VERMONT, EXECUTORS OF CHARLES COOPER, DECEASED.

STOP-MOTION FOR KNITTING-MACHINES.

1,000,362.

Specification of Letters Patent. Patented Aug. 15, 1911.

Application filed December 30, 1907. Serial No. 408,515.

To all whom it may concern:

Be it known that I, WILLIAM T. BARRATT, a citizen of the United States, residing at Bennington, in the county of Bennington and State of Vermont, have invented new and useful Improvements in Stop-Motions for Knitting-Machines, of which the following is a specification.

This invention relates to improvements in stop motions for knitting machines, wherein a wheel for feeding yarn to the needles acts as a detector, so that in case of imperfections in the yarn or in the needles or in the sinkers which would tend to cause a "bunching" or "loading" up, or in case the feed wheel in its bearings or the movable sinkers themselves (where such sinkers are employed) are not properly oiled or fail to move freely and possibly lead to the breaking of said sinkers and needles, the feed wheel will be immediately thrown out, so that the sinkers or blades will be disengaged from the needles and held out of engagement therewith. Said feed or sinker wheel, when being thrown out of engagement with the needles, as aforesaid, actuates a stop mechanism of any suitable construction, causing the machine to come to a stop, thus avoiding damage to the fabric and any possibility of breakage of either needles or sinkers or other parts of the machine which might result, through various causes, some of which have been heretofore enumerated, including the failure of the sinker wheel to rotate freely. The invention, then, primarily consists in a knitting machine having, in combination, a rotary sinker wheel and a stop mechanism, the rotary sinker wheel being mounted upon a movable support and acting as a detector, either for bunched yarn, bent needles, bent sinkers or any imperfection which interferes with the free rotation of said sinker wheel. Said sinker wheel, when its free rotation is interfered with, causes its support to be moved so that the blades of said sinker wheel are moved out of engagement with the needles of said knitting machine and the stop mechanism actuated to stop the machine.

The invention further consists in providing in combination with said sinker wheel and stop mechanism means to move the sinker wheel and its support away from the

The invention further consists in mounting the rotatable sinker wheel upon a rotatable support and in fastening to said sinker wheel a gear which meshes with the needles, said needles preferably supported on opposite sides of the teeth of said gear, the sinker wheel being resiliently held in operative engagement with the needles until such time as for any reason the sinker wheel is prevented from rotating freely, whereupon the gear meshing with the needles and not rotating about its axial center is moved with said support by the rotation of the needle carrier, and the sinker wheel is moved out of engagement with the needles, and the stop motion mechanism operated to stop the machine.

The invention further consists in the combination and arrangement of parts set forth in the following specification and particularly pointed out in the claims thereof.

In the drawings and following specification I have illustrated and described my invention as embodied in a circular type of knitting machine employing two rotary conical needle cylinders, the feed wheel being of that type in which sliding sinkers are used, but I do not wish to be understood as restricting my invention to any particular type of knitting machine or to any particular type of yarn feed wheel, as the same may be adapted to different styles of knitting machines and feed wheels of different types may be employed, so long as the yarn feed wheel acts as a detector which operates to detect imperfections in the operation of the knitting instrumentalities and operates to actuate a stop mechanism to stop the machine.

Referring to the drawings: Figure 1 is a plan view of a sinker wheel and a portion of the lower needle cylinder of a circular knitting machine, together with a portion of the stop motion mechanism, the sinker wheel being shown in the position occupied thereby when the sinkers are in engagement with the primary needles. Fig. 2 is a plan view similar to Fig. 1 showing the parts in their relative positions when the sinkers are out of engagement with the primary needles and the sinker wheel is thrown outwardly from the primary cylinder or needle carrier. Fig. 3 is a vertical central section, partly in elevation, taken on line A—A of Fig. 1.

trating that portion of the stop mechanism which lies beneath the needle cylinders. Fig. 5 is a rear elevation of a portion of the stop mechanism as viewed in the direction of the arrow, Fig. 4. Fig. 6 is a sectional elevation taken on line E—E, Fig. 1, illustrating a portion of the stop mechanism in connection with the primary and secondary needle cylinders and their needles, said cylinders being broken away to save space. Fig. 7 is a plan view of one of the tripper slides. Fig. 8 is a plan view in detail of the sinker wheel cam plate and slur cock, showing the same with a portion of the sinkers engaging or being advanced between the needles of the primary cylinder, said needles being shown in connection with a portion of said primary cylinder, which is broken away to save space in the drawings. Fig. 9 is a plan view of the sinker wheel and cam plate with the slur cock removed. Fig. 10 is a detail plan, partly in section, of the sinker wheel rocker frame and stand taken on line J—J, Fig. 3.

Like numerals refer to like parts throughout the several views of the drawings.

In the drawings the pressers for the primary needles and their essential instrumentalities are omitted.

Referring now to the drawings 30 is the frame, consisting of side standards 31 and 32 suitably connected together by a cross-head 33. The main driving shaft 34 is journaled to rotate in bearings 35, 35 fast to said cross-head 33 and is rotated by means of a fast pulley 37, a loose pulley 36 also being provided and adapted to rotate upon the main shaft 34 adjacent to the pulley 37. The lower cylinder 38 is fast to a running ring 39 rotatably supported upon the bed-plate 40. A gear 41 is fastened to the running ring 39 and is driven by a pinion 42 fast to a vertical shaft 43 journaled to rotate in a bearing 44 and rotated by means of a bevel gear 46 fast to the lower end thereof and meshing into a bevel gear 47 fast to the main driving shaft 34. The upper cylinder 48 is fastened to a gear 49 which, in turn, is fastened to a running ring 50, said running ring being constructed to rotate in the upper bed-plate 51. The upper bed-plate 51 is suitably supported upon and fastened to the side standards 31 and 32. The upper cylinder is rotated by means of the gear 49 which meshes into a pinion (not shown in the drawings) fast to the vertical shaft 43.

The lower cylinder 38 is provided with grooves 54 in which are needle jacks 55 with spring needles 56 connected or fastened thereto. The upper cylinder 48 is provided with grooves 57 and in said grooves are located jacks 58 to which are attached needles 59. The yarn is fed first to the needles of the lower cylinder, and, therefore, said needles and the cylinder upon which

they are adapted to slide will be hereinafter referred to as the "primary" needles and cylinder, while the upper cylinder and the needles supported thereon will be referred to as the "secondary" cylinder and needles, for the reason that the loops of yarn are fed to the needles of the upper cylinder by the needles of the lower cylinder.

A reciprocatory motion is imparted to the primary needles by needle cams 60 fast to brackets 61 which, in turn, are fastened to the bed-plate 40. A reciprocatory motion is imparted to the secondary needles by needle cams 62 fast to brackets 63, which brackets are fastened to the upper bed-plate 51. The rotation of the cylinders and the operation of the primary and secondary spring needles therein are well known to those skilled in the art and result from the rotation of the cylinders relatively to the stationary cams.

The sinker wheel 65 has a series of grooves 66 in the upper face thereof, said grooves radiating from a common center and in these grooves are located sinkers 67, each of said sinkers being provided with a lug 68 which projects into a groove 69 formed in the under face of the cam plate 70. The cam plate 70 has a hub 71 projecting upwardly therefrom which has a flush set-screw 72 in screw-threaded engagement therewith adapted to bear against the shaft or stud 73, which is rigidly clamped at its lower end to a rocker-frame 74 by means of a nut 75. The stud 73 is provided with a flange 76 which bears against the upper face of the rocker-frame 74, and that portion of the stud between the flange 76 and the nut 75 projects through a slot 77 in the rocker-frame 74 and is flattened off at 78 to prevent the rotation of said stud relatively to said rocker frame.

The rocker-frame 74 has a cylindrical stem 79 rigidly fastened thereto which projects into a bearing or hole formed in a base 80, said base being adjustably fastened to the lower bed-plate 40 by screws 81 which project through slots 82 provided in said base (Fig. 10). The rocker-frame 74, together with the stem 79 and the sinker wheel and cam supported upon said rocker-frame, may be adjusted longitudinally of the needles of the lower cylinder by means of adjusting screws 83, 83 which have screw-threaded engagement with said rocker-frame and bear at their lower ends against the base 80, so that by screwing toward the right upon said screws 83 the rocker frame and parts supported thereon may be moved upwardly parallel to the primary needles 56. A plate 84 is fastened to the base 80 and is bent at its upper end to project over the top of the rocker-frame 74 and thus prevent the same from moving upwardly after the same has been adjusted by

means of the adjusting screws 83. Said plate 84 is fastened by a screw 85 to the base 80, the screw 85 projecting through a slot provided in the plate 84 and having screw-threaded engagement with said base.

It will be understood that the cam plate 70 is fastened to the stud 73 by a set-screw 72, and said cam is further securely fastened to said stud, in order to prevent rotation thereon, by a collar 86 which is fastened to the stud 73 by set-screws 87, 87 (Fig. 8) and is locked to the cam plate 70 by a pin 88 which is fast to the collar 86 and projects downwardly therefrom into the hub 71 of said cam 70. The sinkers are moved inwardly and outwardly between the primary needles 56 by a slur cock 89.

The yarn 104 is guided to the sinkers 67 by yarn guides 105 and 106, the yarn guide 105 being fastened to the cam brackets 63, while the yarn guide 106 is fastened to the upper bed-plate 51. A gear 107 meshes into the primary needles 56 and projects into an annular groove 108 provided in the periphery of the primary cylinder 38. Said gear is fastened to a hub 109 projecting downwardly from the sinker wheel 65 by means of a set-screw 110.

In order to render the device capable of having the sinkers readily removed from the sinker wheel, a segment 122 of the cam plate 70 is made removable from the main portion of said cam and is secured thereto by screws 123, so that, if desired, said segment may be taken out by removing the screws 123 and the sinkers removed from the sinker wheel to be repaired or replaced.

The rocker-frame 74 is rotatable upon the base 80 and carries with it the sinker wheel, sinker cam and other parts supported thereon, thus removing the sinkers from operative engagement with the primary needles whenever the sinker wheel, for any reason, is prevented from rotating freely upon the stud 73, some of the different reasons which might occur to prevent said sinker wheel from rotating having been hereinbefore set forth. In order to hold the sinker wheel with its sinkers normally in operative relation to the primary needles an arm 124 is fastened to the rocker-frame 74. The free end of said arm 124 projects downwardly (see Figs. 1 and 3) and engages the free end of a flat spring 125, which is fastened by screws 126, 126 to the lower bed-plate 40. The position of the free end of said spring 125 is regulated by a set-screw 127 having screw-threaded engagement with said spring 125 and bearing at its inner end against the lower bed-plate 40. The free end of the spring 125 is bent at an angle to the main body thereof at 128 and is also curved at 129 intermediate said angle portion and said body portion, so that said curved portion, at the base thereof, adjacent to said body por-

tion bears against one side of the arm 124 when the parts are in the position illustrated in Figs. 1 and 3, and thus holds the rocker-frame in engagement with a screw 130 (Fig. 10) having screw-threaded engagement with a bracket 131 fast to and forming, in effect, a portion of the base 80. The flat spring 125 thus holds the sinker wheel in position with the sinkers in operative engagement with the primary needles. If, however, for any reason, said sinker wheel is prevented from rotating about its axis, such as the bending of needles or sinkers, or the "bunching up" of the yarn and accidents of a like character which are liable to occur in any knitting machine, the sinker wheel being fastened to the gear 107, said sinker wheel, gear and the rocker frame 74 become as one part and, the teeth of the gear meshing into the needles of the primary cylinder, are moved by said needles and the movement of their primary cylinder as though a portion of the rocker frame 74, so that the rocker-frame 74, together with the sinker wheel and cam thereon, rotates about its axis, viz, the axis of the cylindrical stem 79, thus rocking the arm 124 from the position illustrated in Fig. 1 to that illustrated in Fig. 2, wherein it will be seen that the sinker wheel and the sinkers are moved out of engagement with the primary needles and the arm 124 is moved so that the inner corner thereof bears against the outer face of the angle portion 128 of the spring 125. Thus the spring 125 bears against the opposite side of the arm to that against which it bore when the sinker wheel was in the position illustrated in Fig. 1. The flat spring 125, therefore, acts to hold the sinker wheel in position with the sinkers in operative relation, to move in and out between the primary needles and feed the yarn thereon, when the parts are in the position illustrated in Fig. 1, and when the parts are in the position illustrated in Fig. 2 said spring holds said sinker wheel with the sinkers out of engagement with, or working operative relation to, the primary needles. Said spring also performs the further function of assisting the movement of the sinker wheel from the position illustrated in Fig. 1 to that illustrated in Fig. 2, when the arm 124 passes over the curved portion 129 thereof, so that there may be no danger of the sinker wheel stopping in such a position that the sinkers will drag against the primary needles, as said needles move with the primary cylinder.

It will be understood that the spring 125 acts to hold the rocker frame with the sinker wheel and its sinkers in operative relation to the needles and also when the rocker frame is thrown out, together with the sinker wheel and its sinkers, as hereinbefore described, said spring acts to hold said rocker frame and sinker wheel and sinkers

away from the needles and that said rocker frame, sinker wheel and sinkers would in the absence of the spring be moved out of operative relation to the needles without any obstruction occurring to prevent the sinker wheel from rotating, by the rotation of the needle carrier, with its needles meshing into the gear 107, without any aid from the spring.

It is evident that it is very essential that in case of the sinkers or needles becoming jammed or the yarn "bunching up," as hereinbefore described, the machine should stop automatically, and to attain this end a stop motion mechanism is provided, which is automatically operated by the movement of the sinker wheel away from the primary needles and cylinder. I will now proceed to describe this stop motion mechanism.

Referring to Figs. 1, 4, 5 and 6, it will be seen that a wheel 146 is journaled to rotate upon a stud 147 fast to a bracket 148 which is, in turn, fastened to the cross-head or tie 33. An arm 149 is pivoted at 150 to the wheel 146 and is held against a stop screw 151 fast to the wheel 146 by a spiral spring 152, one end of which is fastened to said arm 149, the other to a pin 153 fast to a stationary portion of the machine. A plurality of these arms 149 and mechanism connected thereto may be used in connection with the wheel 146, but as they all operate in substantially the same manner the following description of the mechanism connected with one of said arms will be sufficient. A rod 154 is pivotally connected at one end 155 to the wheel 146, and at the other end thereof said rod is arranged to slide in a bracket 156 fast to the cross-head 33. The free end of the rod 154 bears against an arm 157 which is fast to a rock-shaft 158 arranged to rock in ears 159, 159 upon the side standard 31. Handles 160 are fastened to said rock-shaft, by means of which the same may be operated to ship the belt and stop the machine by hand. A tripper arm 161 is also fastened to said rock-shaft and is provided with a notch 162 in its free end adapted to engage the free end of an arm 163 which is fastened to a rod 164 arranged to slide in bearings formed in the brackets 156 and 165, said bracket 165 being fast to the cross-head or tie 33. A spiral spring 164' encircles the rod 164 and is interposed between the arm 163 and the bracket 165, said spring tending to move the rod 164 toward the left (Fig. 5). Shipping arms 166, 166 are fast to the rod 164 and are adapted to engage therebetween a belt 167. It will be evident that when the shaft 158 is rocked to disengage the tripper arm 161 from the arm 163, the rod 164 will be moved to shift the belt from the fast to the loose pulley, thus stopping the machine. Said rod is

also adapted to be disengaged to stop the machine by a tripper mechanism which is operated automatically by the sinker wheel when the same is thrown out of operative relation with the needles, and is also adapted to be operated by a device which has direct engagement with the web of cloth being knit upon the machine, which tripping devices I will now proceed to describe.

A vertical shaft 168 is arranged to rock in a bracket 169 and in a sleeve 170 (Fig. 6). Said sleeve is rotatably mounted on a stand 171 fast to the lower bed-plate 40. Said sleeve is fastened to said stand by a set-screw 172. A torsional spiral spring 173 is fastened at one end to the sleeve 170 and at the other end to the rock-shaft 168. Said torsional spring is adapted to hold the rock-shaft in the position illustrated in Figs. 1 and 6, with the stop-pin 174, which is fast to said shaft 168, bearing against the bracket 169. An arm 175 is fastened to the shaft 168 by means of a set-screw 176, and the free end of said arm (see Figs. 1 and 2) bears against the free end of the angle portion 128 of the flat spring 125. To the lower end of the shaft 168 is fastened a dog 177 which is adapted to engage a notch 178 formed in the free end of the arm 149 when the parts are in the position illustrated in Fig. 4.

It is evident that when the sinker wheel 65 upon its rocker frame is swung away from the primary cylinder, the spring 125 will rock the arm 175 toward the cylinder between the two positions illustrated in dotted lines (Fig. 2), as the arm 124 is passing over the curved portion 129 of the spring 125, thus rocking the shaft 168 to disengage the dog 177 from the arm 149, whereupon the spring 152 will rotate the wheel 146, and by means of the rod 154 the arm 157 (Fig. 5) will be moved to rock the shaft 158, thus disengaging the arm 162 from the arm 163 and allowing the shipping rod 164 to be moved by the spring 164' in the proper direction to ship the belt from the fast to the loose pulley and thus stop the machine. Thus, it will be seen that the machine is automatically stopped by the movement of the sinker wheel and its supporting rocker frame outwardly from the primary cylinder.

The stop mechanism hereinbefore described is adapted to be actuated to stop the machine by another tripper device, consisting of a slide 179 (Figs. 1 and 6) which is adapted to bear against the fabric between the primary and secondary cylinders and their respective needles. Said slide is arranged to slide upon a double armed support 180 fast to the upper end of the shaft 168 and is connected by an arm 181 to another slide 182 also arranged to slide upon said support 180. The arm 181 is

rigidly fastened by a clamp-screw to the slide 182 and terminates at its upper end in a pin 183 which projects through a hole provided in the slide 179. A number of
 5 holes may be provided in the slide 179, whereby adjustment of said slide relatively to the slide 182 may be obtained, or the arm 181 can be clamped at different points along the slide 182 to secure relative adjustment
 10 of said slides 179 and 182 relatively to each other. The slide 182 is connected by a spiral spring 184 to the support 180 and on the end thereof which is adjacent to the needles is a tooth 185. A stop 186 is ad-
 15 justably fastened to the slide 179 to limit the distance to which said slides 179 and 182 can be moved toward the cylinders by the spring 184. A tripper finger 187 is fast to the support 180 in horizontal alinement
 20 with the slide 179 and with the space between the primary and secondary cylinders.

If there should be a hole in the fabric the slide 179 will be moved by the spring 184 forward into said hole until the tooth 185 upon
 25 the slide 182 engages the primary needles, whereupon the slides, together with their support 180 and the shaft 168 to which it is fastened, will be rocked, removing the dog 177 from engagement with the arm 149 and thus
 30 freeing the stop mechanism, so that the same may shift the belt from the fast to the loose pulley, as hereinbefore described. The tripper finger 187 operates in the same manner to rock the shaft 168 and trip the stop
 35 mechanism, when a bunch in the fabric or yarn encounters the same during the rotation of the cylinders and causes the support 180 to be rocked, as hereinbefore described.

It will be understood that there is a tripping mechanism for each set of stitch forming devices and also an arm 149, a spring 152 and a screw 151 fast to the wheel 146, so that the machine will stop at any one of the feeds should there appear an imperfection
 45 in the fabric, or if there should be any imperfection in the needles, sinkers or other parts which would interfere with the free rotation of the sinker wheel.

I have described and illustrated my improved sinker wheel and the means for throwing the same out of operative relation to the needles of the primary cylinder in combination with a primary needle cylinder in which the needles are adapted to slide in
 55 grooves provided in said primary cylinder and the needle cylinder is adapted to be rotated while the sinker wheel is supported upon a rocker frame, which, in turn, is supported upon a stationary bed-plate. It is
 60 evident that without departing from the spirit of my invention said sinker wheel might be used in combination with a needle cylinder and a set of needles fast to said needle cylinder, the loops of yarn being fed
 65 upon the needles to perform the casting off

operation by means of bur wheels in a manner well known to those skilled in this art.

Having thus described my invention, what I claim and desire by Letters Patent to secure is:

1. A knitting machine having, in combination, a needle carrier, a set of needles therefor, a sinker wheel with sinker blades adapted to be engaged by said needles, a yieldingly mounted support upon which
 70 said sinker wheel is rotatably mounted, said support being movable in the general direction of movement of the portion of said carrier adjacent thereto, a stop mechanism, and instrumentalities operated by the movement
 75 of said sinker wheel and its support in the direction aforesaid adapted to actuate said stop mechanism.

2. A knitting machine having, in combination, a needle carrier, a set of needles therefor, a sinker wheel with sinker blades, a yieldingly mounted support upon which
 85 said sinker wheel is rotatably mounted, means adapted, under conditions of abnormal stress, to move said sinker wheel and its support away from said carrier and said
 90 sinker blades permanently out of coöperative relation with said needles, a stop mechanism, and instrumentalities operated by the movement of said sinker wheel and its support
 95 away from said needle carrier adapted to actuate said stop mechanism.

3. In a circular knitting machine, a needle cylinder, a set of needles therefor, a rotary sinker wheel, a plurality of sinkers supported upon said sinker wheel, movable
 100 relatively thereto and adapted to be moved in and out between said needles, mechanism to rotate said cylinder, means to move said sinker wheel away from said cylinder.
 105 whereby said sinkers are moved out of engagement with said needles, and means to hold said sinker wheel in position with its sinkers out of engagement with said needles; in combination with a stop mechanism
 110 and instrumentalities operated by the movement of said sinker wheel away from said carrier to actuate said stop mechanism.

4. In a knitting machine, a pair of needle cylinders, a series of needles for each of
 115 said cylinders, respectively, a stop mechanism, a rotatably mounted tripper mechanism, connected to said stop mechanism and comprising in its construction a slide, one
 120 portion of which is adapted to bear against the fabric knitted on said machine between said cylinders, another portion of said slide adapted to mesh with the needles of one cylinder, but normally out of engagement
 125 therewith, said portions being connected together and means to move said last named portion of said slide in between said needles.

5. In a knitting machine, a pair of needle cylinders, a series of needles mounted on
 130 each of said cylinders, respectively, a stop

mechanism, a rotatably mounted tripper mechanism connected to said stop mechanism and comprising in its construction a slide adapted to mesh with the needles of one cylinder, but normally out of engagement therewith, and means adapted to be operated on the occurrence of an imperfection in the fabric to move said slide in between said needles.

6. In a knitting machine, a pair of needle cylinders, a series of needles mounted on each of said cylinders, respectively, a stop mechanism, a slide adapted to mesh with the needles of one cylinder, but normally out of engagement therewith, means adapted to be operated on the occurrence of an imperfection in the fabric, to move said slide in between said needles, and instrumentalities operatively connecting said slide to said stop mechanism.

7. In a knitting machine, a pair of needle cylinders, a series of needles mounted on each of said cylinders, respectively, a stop mechanism, a slide, one portion of which is adapted to bear against the fabric knit on said machine between said cylinders, another portion of said slide adapted to mesh with the needles of one cylinder but normally out of engagement therewith, said portions being connected together, means adapted to be operated on the occurrence of an imperfection in the fabric to move said last named portion of said slide in between said needles, and instrumentalities operatively connecting said slide to said stop mechanism.

8. In a knitting machine, a needle cylinder, a series of needles mounted thereon, a stop mechanism, a slide adapted to mesh with said needles, but normally out of engagement therewith, means adapted to be operated on the occurrence of an imperfection in the fabric to move said slide in between said needles, and instrumentalities operatively connecting said slide to said stop mechanism.

9. In a knitting machine, a needle cylinder provided with an annular groove in its periphery, a series of needles mounted on said cylinder, a stop mechanism, a slide adapted to mesh with said needles, but normally out of engagement therewith, means adapted to be operated on the occurrence of an imperfection in the fabric to move said slide in between said needles, with its end projecting into said annular groove, and instrumentalities operatively connecting said slide to said stop mechanism.

10. In a knitting machine, a needle carrier, a set of needles therefor, a sinker

wheel adapted to feed yarn to said needles, a rocker frame upon which said sinker wheel is eccentrically and rotatably mounted, means to resiliently hold said sinker wheel in position with its sinkers in operative relation to said needles, a gear fast to said sinker wheel and adapted to engage said needles, whereby said sinker wheel may be moved, under conditions of abnormal stress, away from said needle carrier until said sinkers are out of the path of said needles, a stop motion mechanism, and instrumentalities operated by the movement of said sinker wheel out of the path of movement of said needles to actuate said stop motion mechanism.

11. In a knitting machine, a needle carrier, a set of needles therefor, a rotary sinker wheel adapted to feed yarn to said needles, mechanism adapted to move said needle carrier relatively to said sinker wheel, a rocker frame upon which said sinker wheel is rotatably mounted, means to normally hold said sinker wheel with its sinkers in operative relation to said needles and a gear fast to said sinker wheel and adapted to engage said needles, whereby said sinker wheel and rocker frame may be moved away from said cylinder; in combination with a stop mechanism and instrumentalities operated by the movement of said sinker wheel away from said needle carrier to actuate said stop mechanism.

12. In a knitting machine, a needle carrier, a set of needles therefor, a rotary sinker wheel, a plurality of sinkers supported upon said sinker wheel, movable relatively thereto and adapted to be moved in and out between said needles, mechanism adapted to move said needle carrier relatively to said sinker wheel, a rocker frame upon which said sinker wheel is rotatably mounted, means to normally hold said sinker wheel with its sinkers in operative relation to said needles and a gear fast to said sinker wheel and adapted to engage said needles, whereby said sinker wheel and rocker frame may be moved away from said needle carrier; in combination with a stop mechanism and instrumentalities operated by the movement of said sinker wheel away from said carrier to actuate said stop mechanism.

In testimony whereof I have hereunto set my hand in presence of two subscribing witnesses.

WILLIAM T. BARRATT.

Witnesses:

CHARLES S. KEHOE,
EARL A. SMITH.