B. T. STEBER.

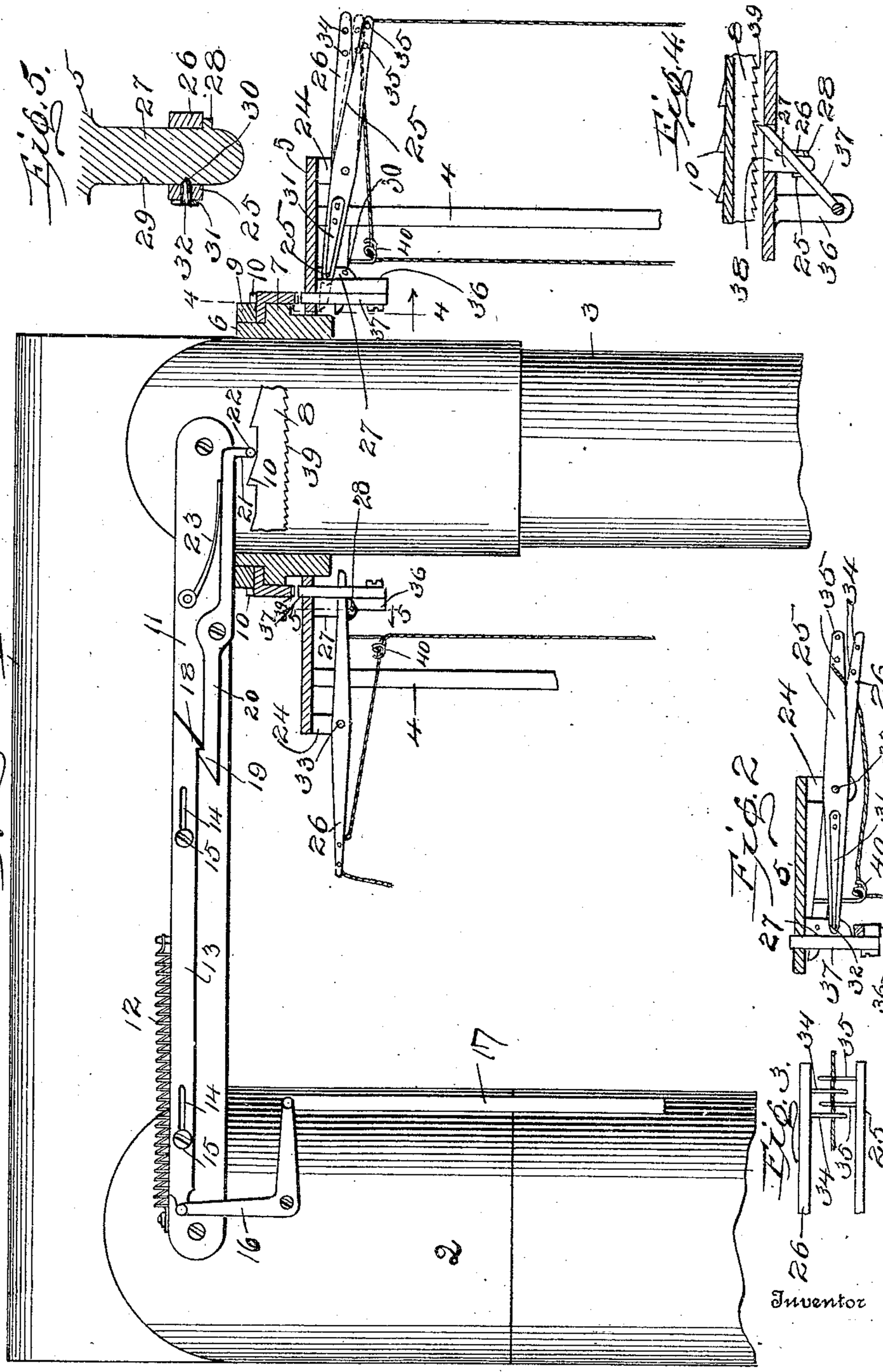
STOP MOTION FOR KNITTING MACHINES.

APPLICATION FILED AUG. 26, 1907.

944,921.

Patented Dec. 28, 1909.

2 SHEETS—SHEET 1.



Witnesses
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2 SHEETS—SHEET 2.

Fig. 6.

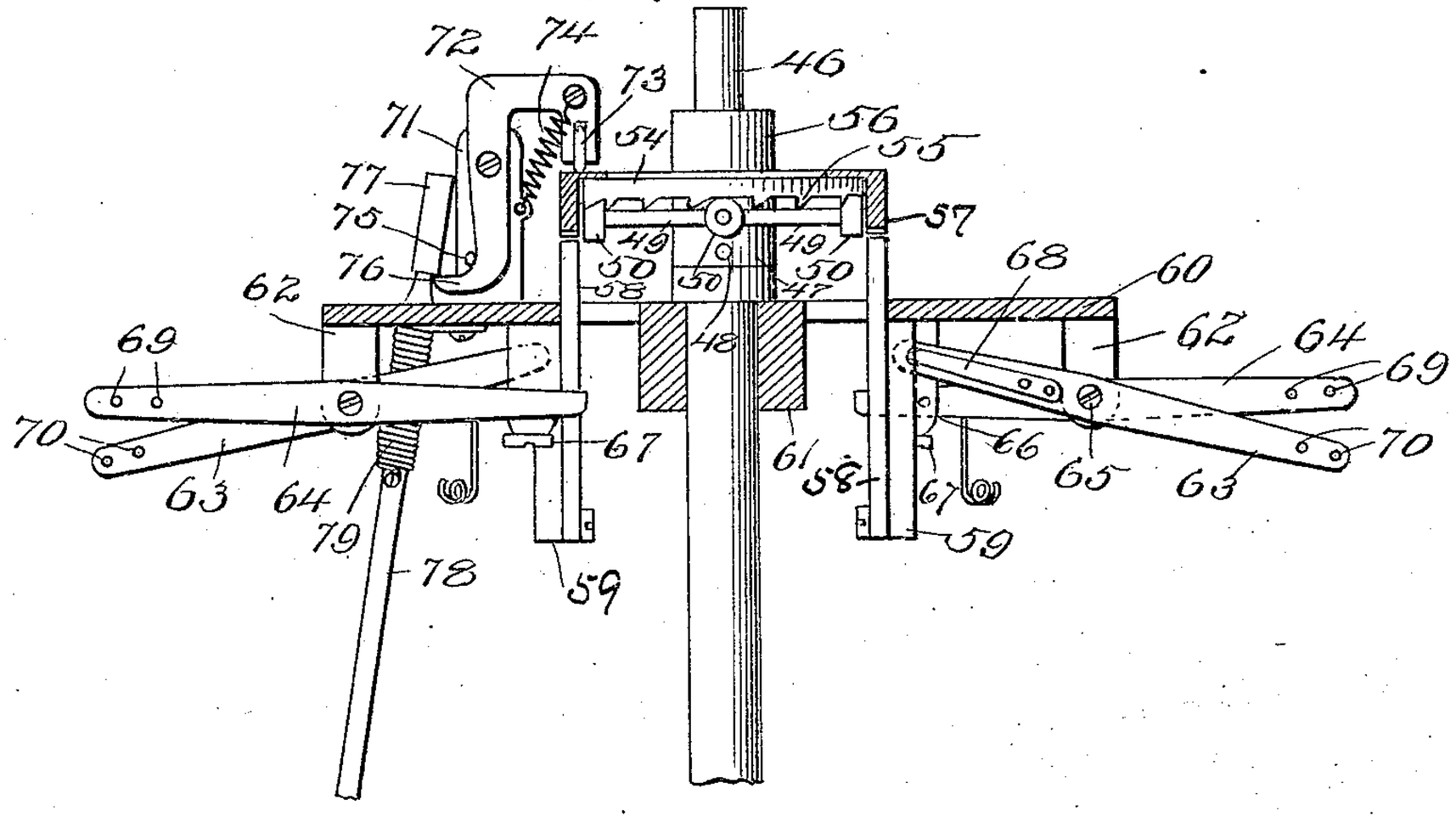


Fig. 8.

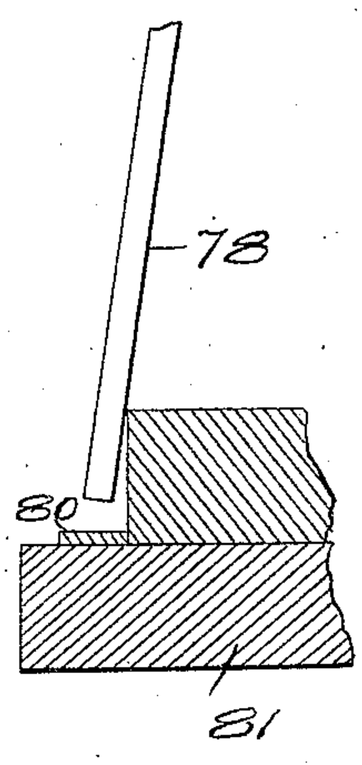
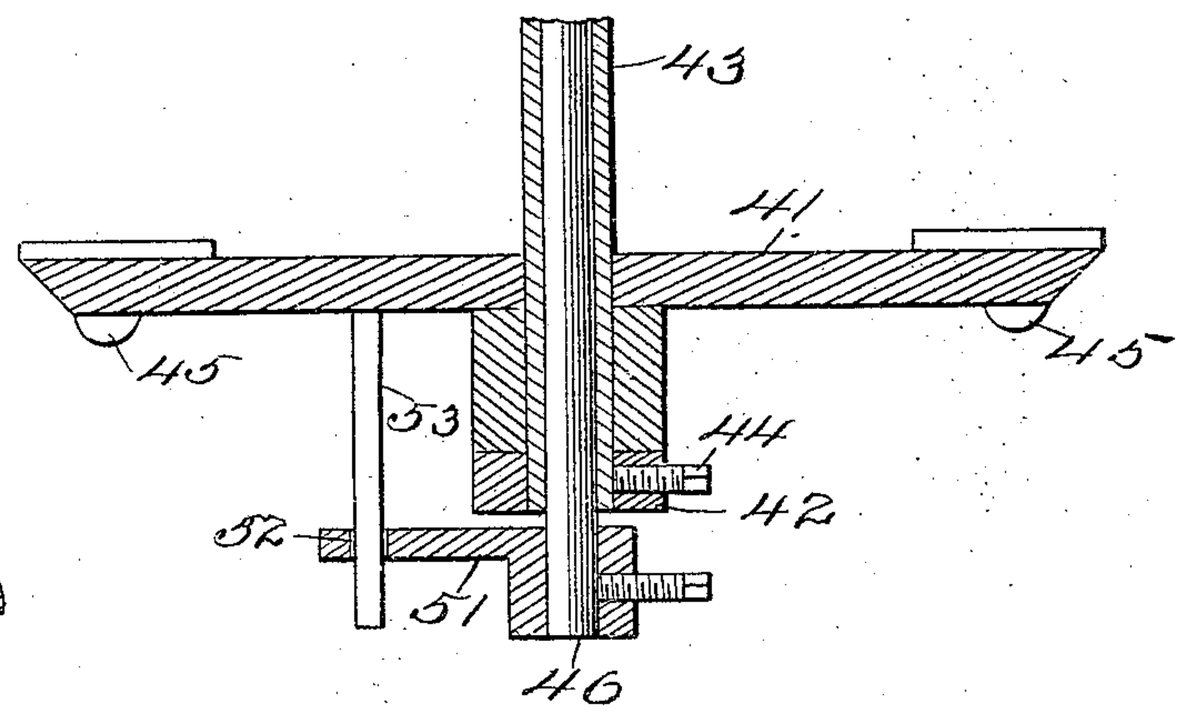


Fig. 7



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UNITED STATES PATENT OFFICE.

BERNARD T. STEBER, OF UTICA, NEW YORK, ASSIGNOR TO THE STEBER MACHINE COMPANY, OF UTICA, NEW YORK, A CORPORATION OF NEW YORK.

STOP-MOTION FOR KNITTING-MACHINES.

944,921. Specification of Letters Patent. **Patented Dec. 28, 1909.**

Application filed August 26, 1907. Serial No. 390,240.

To all whom it may concern:

Be it known that I, BERNARD T. STEBER, a citizen of the United States, residing at Utica, in the county of Oneida and State of New York, have invented certain new and useful Improvements in Stop-Motions for Knitting-Machines; and I do hereby declare the following to be a full, clear, and exact description of the invention, such as will enable others skilled in the art to which it appertains to make and use the same.

This invention relates to improvements in stop motion mechanism, and particularly such as are adapted for stopping the operation of a knitting machine either when the yarn becomes too taut or too slack.

One of the objects in view is the provision of stop motion mechanism which is susceptible of application to any of various types of knitting machines.

With this and further objects in view, the invention comprises the combination with a knitting machne, of a revolving element connected with the revolving part of said machine and actuated thereby, a revoluble, normally stationary element, means carried by the revolving element and controlled by the condition of the yarn for transmitting movement from the revolving element to the revoluble element, and means adapted to be actuated by the revoluble element when moved for stopping the operation of the knitting machine.

The invention also comprises certain other novel features of construction, combinations and arrangements of parts, as will be hereinafter fully described and claimed.

In the accompanying drawings:—Figure 1 is a fragmentary view partly in section and partly in elevation of a mechanism embodying the features of the present invention, the yarn at the right hand side being indicated as having become taut and thus pulled down one of the controlling levers, the other lever being indicated in full lines in a raised position for the purpose of clearness, and in dotted lines in the lowered position which it normally would assume. Fig. 2 is a detail, fragmentary section indicating one set of the controlling levers in elevation, the parts being in the position assumed upon the breaking of a yarn. Fig. 3 is a fragmentary, top plan view of the outer end of one of the sets of controlling levers. Fig. 4 is a detail, fragmentary section taken substantially on the plane indicated by line 4, 4 of Fig. 1, and looking in the direction of the arrow. Fig. 5 is an enlarged, detail sectional view taken substantially on the plane indicated by line 5, 5 of Fig. 1. Fig. 6 is a vertical, central section through portions of an ordinary ribbing machine, an adaptation of the present invention being illustrated as applied thereto, and parts of the machine being broken away for the saving of space. Fig. 7 is a vertical sectional view of a dial and its supporting rod as suspended in a ribbing machine of ordinary construction. Fig. 8 is an enlarged, detail, fragmentary section of a portion of the bed plate and cooperating parts.

Referring particularly to Figs. 1 to 5 inclusive which may be said, for the purposes of this application, to represent my preferred embodiment, 1 indicates the top cross piece or yoke of a knitting machine such for instance as is illustrated in my Patent No. 810,578, dated January 23, 1906. The said yoke connects the supporting standard 2 of the said machine with the depending column 3, which depending column in the said patented machine serves as a support for some of the stationary elements of the machine. In the machine to which the invention is indicated as applied, the plate or table for the bobbins revolves as the yarn is fed to the needles and to the said revolving plate or table are fixed upright bars 4, 4 which extend upwardly to and are rigidly connected with a flat ring or plate 5 which rotatably surrounds a collar 6, which collar in turn is rigidly fixed to the depending end of the outer portion of the yoke 1. The collar 6 is formed with an annular rib 7 upon which rests a rotatably mounted, normally stationary ring 8. The ring 8 is of right angle formation in transverse section, as indicated clearly in Fig. 1, and is disposed with one of its webs arranged horizontally and the other vertically, the horizontal web resting upon the flange 7, and being held in place thereon by a retaining ring 9 which is rigidly connected to the upper end of the column 3 immediately above the horizontal flange of the ring 8. The ring 8 is thus freely slidably or rotatably mounted, and is at the same time firmly retained against vertical movement. Extending upwardly from the outer edge of the horizontal flange of the ring 8 are teeth 10, 10 inclined in the direction of

their travel when the ring is rotated, the ring being normally stationary, but being susceptible of being rotated by mechanism hereinafter described.

To the yoke 1 is suitably fixed a plate 11 to one end of which is attached a spring 12 arranged with its opposite end attached to a bar 13. The bar 13 is formed with longitudinal slots 14, 14 through which extend pins or bolts 15, 15 serving as supports and guides for the bar 13, the pins or bolts 15 extending into and being rigidly supported by the plate 11. One end of the bar 13 is pivotally connected to a bell crank lever 16 which lever has its free end pivotally connected to a link 17 which may engage any ordinary well known belt shifting mechanism for controlling the operation of the knitting machine of which the standard 2 is a part. I have not illustrated the belt shifting mechanism, as any of the common forms may be applied, or a clutch may be employed, or other ordinary power controlling and transmitting devices utilized and governed by thrusts of the link 17. The end of the bar 13 opposite to that engaging the bell crank lever 14 is formed with a catch head 18 engaged by a similar head 19 of a lever 20. The lever 20 is pivotally mounted intermediate its length, the pivot being preferably carried by the plate 11, and, at the opposite end from the said head, said lever is preferably bent downwardly, as at 21, and provided with a roller or other anti-friction means 22 resting upon the outer edge of the horizontal flange of the ring 8, and thus being in the path of movement of the teeth 10 when the ring is moved. The roller 22 is maintained in engagement with the ring 8 by a spring 23 carried by the plate 11 and engaging the lever 20 and depressing the outer end thereof.

The annular plate 5 is provided with a number of depending lugs 24 spaced apart about the ring and corresponding in number and position to the bobbins or other sources of yarn supply for the knitting machine, and each of the lugs 24 pivotally supports a pair of yarn controlled levers, each pair consisting of a lever 25 and a lever 26, and each of said levers being disposed radially with respect to and extending beneath the plate 5. Between each pair of levers 25, 26 is arranged a depending lug 27 carried by the plate 5, the lug 27 being provided with a lateral projection or pin 28 disposed beneath the inner end of the lever 26 for limiting the downward movement of such inner end. The opposite face of the lug 27 from that which carries the pin 28 is provided with depressions or recesses 29 and 30 at the extremes of movement of lever 25, and said lever 25 has secured to its outer face a longitudinally disposed spring 31 carrying a detent pin 32 projecting through an aperture in the lever in position for extending into the respective recesses 30 or 29 according to the position of the lever 25. The depressions or recesses 29 and 30 are V-shaped in transverse section or otherwise beveled off so that when the lever 25 is subjected to sufficient strain, the pin 32 will move outwardly against the pressure of spring 31, the spring 31 moving with the pin of course, until the pin rides upon the face of the lug 27. Obviously as soon as the lever 25 arrives at the terminus of its movement and the pin 32 is thus positioned over another of the said depressions or recesses, the pressure of the spring 31 will throw the pin into the recess and thus temporarily lock the lever in the given position. It must be borne in mind that the spring 31 is comparatively light and is designed to permit the lever 25 to move under less strain than would be required to break a yarn. The levers 25 and 26 are, of course, disposed on opposite sides of the lugs 24 and may be mounted upon the same pivot 33 which extends through the lower end of the lug. The outer end of the lever 26 is provided with laterally extending pins 34, 34 spaced apart and extending toward the lever 25, and the lever 25 is provided with similar pins 35, 35 extending toward the lever 26. The lever 26 is overbalanced at its outer end, that is to say, is heavier at its outer end than at its inner end, and if free its outer end will swing downwardly and elevate its inner end. The lever 25 is, of course, maintained in either of its positions by the detent 32. Spaced a little to one side of the lug 27 and depending from the plate 5 is a lug 36 to which is pivotally connected a pawl 37 lying in an inclined plane across and resting upon the inner end of the lever 26, the upper end of the pawl 37 extending through a slot 38 formed in the plate 5. The end of the pawl may be tapered for fitting in the teeth 39 formed on the lower edge of the vertical web of the ring 8.

In operation, the operator first sets the trip lever 20 by moving the slide plate 13 into engagement therewith and the operation of knitting continues in the ordinary manner until one of the strands of yarn breaks or becomes taut from an entanglement at the bobbin or from other cause. It is, of course, obvious that while I have described in detail but one set of levers, all of the sets of levers are exactly alike and the same description applies, and from reference to the fact that one of the lugs 24 is provided for each of the bobbins, it becomes obvious that it is my intent to provide one set of levers for each of the yarns being fed to the knitting machine. For the purpose of convenience an eyelet 40 depends from each of the levers 26 in position for guiding the respective yarn on its way to the needles. Prior to the be-

ginning of the operation, the yarns of course will have been properly positioned relative to their respective sets of levers. Each yarn is interlaced between the pins 34 and 35 by being placed on top of the pins 35 and beneath the pins 34 so as to serve as a support for the free end of the lever 26, the yarn extending inwardly from said pins and being passed through the eyelet 40 and down to the needles. As the machine is operating, if the yarn becomes entangled at the bobbin or from other cause refuses to feed, the increased tautness of the yarn immediately acts upon the pins 35 and drawing them downwardly will force the inner end of the lever 25 to rise to the position indicated in Fig. 1 at the right hand side, the detent 32 leaving the recess 30 and entering the recess 29. As the outer end of the lever 25 descends the outer end of the lever 26 which is overbalanced will, of course, follow as indicated in dotted lines at the right of Fig. 1. As the outer end of the lever 26 descends the inner end of said lever will lift the pawl 27 until the upper end engages the teeth 39. Immediately upon the engagement of the pawl with the teeth 39 motion will be transmitted through said pawl from the plate 5 which revolves during the entire time of the operation of the knitting machine, and thus the ring 8 will be revolved or slid until one of the teeth 10 moves beneath the roller 22 and elevates the outer end of the trip lever 20 releasing the slide plate 13 and permitting the same to be drawn back by the spring 12 for the full length of the slots 14. The spring 12 exerts sufficient pull to elevate the link 17 and the upward thrust of said link is designed to throw the belt shifter for stopping the operation of the machine. Thus when any one of the yarns refuses to feed from any cause, the machine is stopped practically instantly and remains stationary until the operator has an opportunity to straighten out the tangle and reset the parts, and again start the machine.

Assuming the machine to be in full operation, and the yarn breaks, just as soon as the broken end arrives at or passes the pins 35, the pins 34 will be permitted to drop past the pins 35 and the lever 26 will immediately take the position indicated in Fig. 2, at the same time lifting the pawl 37 into engagement with the teeth 39 which stops the machine in the manner above specified.

It should be obvious from the foregoing that the present invention is well adapted for guarding against the continued operation of the machine after one of the yarns has become broken or refuses to feed, and the structure is further adapted for application to various types of knitting machine. To render more obvious this fact, I have illustrated in Figs. 6, 7 and 8 parts of an ordinary well known ribbing machine to which I have applied the present improved structure. As seen in Fig. 6, the dial 41 is supported by a collar 42 surrounding and connected with the hollow stem 43 by set screw 44. The stem 43 is connected with the spider of an ordinary ribbing machine and revolves therewith, the dial 41 loosely surrounding the hollow stem 43 and being retained against movement by the depending lugs 45, 45 engaging lugs on the inner side of the needle cylinder or other suitable means not illustrated. Within the stem 43 is arranged a shaft 46 near the upper end of which and surrounding the said shaft is a collar 47 secured rigidly to the shaft as by pin 48 or otherwise as found desirable. Projecting radially from the collar 47 are arms 49, 49 carrying rollers 50 at their outer ends. To insure the shaft 46 against rotation the lower end of said shaft carries fixed thereto a plate 51 formed with an opening 52 at one side through which projects a pin 53 depending from the dial 41.

Resting on the roller 50 is a ring 54 formed on its under edge with teeth 55 adapted to engage the roller 50 when the ring 54 is revolved. The ring 54 is secured by an ordinary spider of any preferred type to a hub 56 rotatably surrounding the rod 46. Fixed to the ring 54 is a ring 57 corresponding in construction and arrangement to the ring 8 of the embodiment disclosed in Fig. 1. The ring 57 is constructed of a right angle bar in transverse section one of the webs of the angle resting upon and being suitably secured to the ring 54 and the other angle depending vertically below said ring and inclosing parts of the rollers 50. The lower edge of the vertical flange 57 is serrated or formed with teeth similar to the teeth 39 of ring 8. Immediately beneath the lower edge of the vertical flange of the ring 57 are the pawls 58, 58 corresponding in construction and arrangement to pawls 37, each of said pawls being pivotally supported by the lug 59 depending from a flat annular plate or ring 60 surrounding the stem 43 and connected therewith by any suitable spider having a hub 61 snugly surrounding and fixed to said stem. The plate 60 is provided with a depending lug 62 for each lug 59, and each lug 62 carries a pair of controlling levers corresponding in construction and operation to the controlling levers 25 and 26. Each of the said pairs of controlling levers consists of a lever 63 and a lever 64, said levers being disposed on the opposite sides of the lug 62 and being pivotally connected therewith by a common pivot pin 65, and being disposed radially with respect to the stem 43 and plate 60. A pair of levers 63, 64 is provided for each of the yarn feeds. The lever 64 is heavier at its outer end than at its inner end and its inner end extends past and beneath the corresponding pawl 58 in position for

elevating the pawl into engagement with the teeth of the ring 57 whenever the outer end of the lever 64 descends. A lug 66 depends from the plate 60 contiguous to the lug 59 and is disposed between the levers 63 and 64 of the respective pairs, and may be provided with the stop for the lever 64 the same as seen at 28 in Figs. 1 to 5 inclusive, but as a substitute for said stop I may employ simply a bolt or screw 67 threaded into the end of the lug 66 and having a portion of its head extending into the path of movement of the inner end of the lever 64. The lever 63 is provided with the detent device 68 corresponding in construction and arrangement with the detent device of the lever 25 and designed to similarly engage apertures in the lug 66. At the outer end of the lever 64 the same is provided with pins 69, 69 corresponding in construction and operation to the pins 34, 34, and the outer end of the lever 63 is provided with similar pins 70, 70 corresponding in construction and operation to the pins 35, 35.

A standard 71 rises from the plate 60 and pivoted thereto is a lever 72 formed at its upper end with a horizontal portion and a depending portion carrying a roller 73 which rests on the horizontal flange of the ring 57. A spring 74 engages the upper portion of the lever 72 and is connected also to the standard 71 so as to maintain the upper end of the lever against upward and outward movement, and consequently maintains the lower end of said lever against inward movement. A pin 75 projects laterally from the standard 71 into the path of the lower end of the lever 72 and limits the outward movement thereof. The lower end of the lever 72 is formed into a hook 76 the outer end of which is designed, while the lever is in a normal position, to engage a head 77 formed on a thrust rod 78, whereby said thrust rod is normally maintained in a raised position, a spring 79 being provided and engaging the thrust rod, and the under surface of the plate 60 for pressing the rod downwardly when released. As seen in Fig. 8, the lower end of the thrust rod 78 is disposed immediately above a toothed ring 80 of well known construction and commonly employed and usually positioned loosely in the bed plate 81 of the ordinary ribbing machine, so as to be capable of being rotated and is connected with any preferred form of belt shifting mechanism for throwing the same when the ring is revolved or shifted.

The operation of the several pairs of yarn governed levers is the same as above described, and whenever one of the pawls 58 is thrown up into engagement with the ring 57, said ring is thereby caused to revolve with the plate 60 and the passing of the teeth 55 over the rollers 50 will immediately cause the ring 57 to be elevated, which elevates the roller 73 and thus forces the upper portion of the lever 72 outwardly, and the lower end of said lever inwardly, releasing the thrust rod 78. The rod is immediately thrown by the spring 79 down into engagement with the ring 80, and as the rod 78 is moving with the revolving plate 60, the ring 80 will be shifted and the machine stopped.

What I claim is:—

1. In a mechanism of the class described, the combination with power governing devices for a knitting machine, of a rotating element connected with the moving parts of the knitting machine and rotating therewith, a normally stationary rotary element, yarn governed means for transmitting movement from the rotating element to the rotary element, and means controlled by the rotary element for actuating the power governing devices for cutting off the supply of power to the knitting machine when the rotary element is moved said last mentioned means including a spring controlled slidably mounted bar, and a hooked lever engaging said bar and said normally stationary rotary element.

2. In a mechanism of the class described, the combination with devices for governing the power supply to a knitting machine, of a rotating element connected with the moving parts of said machine and rotating therewith, a normally stationary rotary element, means for transmitting movement from the rotating element to the rotary element either when the yarn is broken or becomes taut, and means governed by the movement of the normally stationary rotary element for cutting off the power supplied to the knitting machine when the said normally stationary element is moved said last mentioned means including a spring controlled slidably mounted bar, a lever having a hook on each end, said lever engaging the bar and said normally stationary rotary element.

3. In a mechanism of the class described, the combination with a rotating plate, means connecting the same with the rotating parts of a knitting machine, a lever pivotally carried by said plate, a yarn support adapted to sustain the yarn in position for normally supporting said lever in a given position, the lever being adapted when not thus supported to move from such position, and means actuated by said lever when thus moved for stopping the operation of the knitting machine with which the said plate is connected said last mentioned means including a rotary toothed ring, a hooked lever engaged thereby and a spring operated slidably mounted bar engaged by the lever.

4. In a mechanism of the class described, the combination with power governing means for a knitting machine, of a lever adapted to be sustained by the yarn being fed to said knitting machine, said lever be-

ing pivotally mounted and overbalanced so as to move upon its pivot when not sustained by the yarn, and means actuated by said lever when the lever swings upon its pivot for stopping the operation of the knitting machine said last mentioned means including a rotary toothed ring, a hooked lever engaged thereby and a spring operated slidably mounted bar engaged by the lever.

5. In a mechanism of the class described, the combination with power governing devices for a knitting machine, of a pivotally mounted lever overbalanced on one side of its pivot, the said lever being adapted to be engaged by a yarn fed to the knitting machine for retaining the lever in an approximately horizontal position, whereby said lever is adapted when not in engagement with said yarn to swing toward a vertical position, and means actuated by the lever when swung upon its pivot for releasing the power governing devices for stopping the operation of the knitting machine said means including a rotary ring having teeth upon its upper and lower edges and an internal supporting flange, mechanism for connecting said lever and ring, a pivoted lever and a sliding bar transmitting motion from the ring to the power governing devices.

6. In a mechanism of the class described, the combination with power governing devices for a knitting machine, of a pivotally mounted lever overbalanced on one side of its pivot, a yarn support contiguous to the overbalanced end of said lever adapted to receive a yarn being fed to the knitting machine and to retain the same in position for supporting said overbalanced end of said lever against descent, said lever being adapted to swing upon its pivot when not thus supported, and devices actuated by said lever for releasing the power governing means for stopping the operation of the knitting machine said means including a rotary ring having teeth upon its upper and lower edges and an internal supporting flange mechanism for connecting said lever and ring, a pivoted lever and a sliding bar transmitting motion from the ring to the power governing devices.

7. In a mechanism of the class described, the combination with power governing means for a knitting machine, a movably mounted plate connected with the moving parts of the knitting machine and moving therewith, a pawl pivotally carried by said plate, a lever pivotally sustained by the plate and disposed for engaging said pawl for moving the pawl when the lever is swung upon its pivot, said lever being disposed for being sustained by a yarn fed to the knitting machine against being swung upon its pivot, whereby said lever is adapted to swing upon its pivot when the yarn is removed from the position sustaining the lever, and means adapted to be engaged by said pawl when the pawl is engaged by said lever and moved thereby for releasing the governing means for stopping the operation of the knitting machine said pawl-engaged means including a rotary ring provided with an internal supporting flange, and with a series of teeth on its lower edge engaged by the pawl, and teeth on its upper edge operating a hooked lever, a sliding bar and a bell crank lever connected with the power governing means.

8. In a mechanism of the class described, the combination with power governing means for a knitting machine, of a pivotally mounted lever for receiving and guiding a yarn fed to the knitting machine, tension means resisting movement of the said lever to an extent less than that represented by the tensile strength of the yarn whereby said lever is adapted to move upon its pivot when the said yarn becomes taut to a sufficient extent for overcoming the resistance of said tension means, and means governed by said lever for releasing the power governing means for stopping the operation of the knitting machine said lever governed means including a rotary ring having teeth upon its upper and lower edges and an internal supporting flange, a lever having an offset portion on one end and engaged by the teeth of one series, said lever provided with a hook on the opposite end, a slidably mounted spring operated plate engaging the hooked end of the lever and devices connecting the latter with the power governing means.

9. In a mechanism of the class described, the combination with power governing means for a knitting machine, of a movably mounted plate connected with the moving parts of the knitting machine for moving therewith, a lug extending from said plate, a pair of levers pivoted to said lug, one upon each side thereof, means for resisting movement of one of said levers upon its pivot, the said lever having the movement resisting means being provided with a pair of yarn supporting pins, a yarn supported pin carried by the other of said levers and projecting in position for resting upon the yarn extending between the pins of the first mentioned lever for normally supporting the second mentioned lever in position, the second mentioned lever being overbalanced at one side of its pivot and being free to swing upon its pivot when not sustained by said yarn, and means actuated by the second mentioned lever for releasing the power governing means for stopping the operation of the knitting machine when the second mentioned lever swings upon its pivot.

10. In a mechanism of the class described, the combination with power governing means for a knitting machine, of a rotatably mounted plate connected with the moving

parts of the said machine, and adapted to be moved therewith, a pair of levers pivotally sustained by said plate and extending radially with respect thereto, a pawl pivotally carried by said plate and extending across one of said levers and adapted to be engaged thereby and moved upon its pivot when the said lever moves upon its pivot, the other of said levers being provided with means for resisting movement upon its pivot and being adapted for sustaining a yarn fed to the knitting machine, the said resistance being gaged to a less degree than the tensile strength of the yarn, the pawl engaging the lever being adapted to be supported by said yarn against pivotal movement and thus designed to swing upon its pivot when not supported by the yarn, and means adapted to be engaged by said pawl when moved by the lever engaging the same for releasing the power controlling means for stopping the operation of said knitting machine.

11. In a mechanism of the class described, the combination with a supporting column for portions of a knitting machine and power governing means for controlling the supply of power of the knitting machine, of a collar surrounding and fixed with respect to said column, said column being formed with an annular shoulder, a ring surrounding said collar and having a horizontal flange resting upon said shoulder, and a vertical flange extending outside the shoulder, the lower edge of said vertical flange being serrated, a ring fixed to said collar above the first mentioned ring for retaining the first mentioned ring against bodily displacement but permitting free rotation of the first mentioned ring, teeth extending upwardly from the first mentioned ring outside the second mentioned ring, and a trip lever for controlling the power governing means, having one of its ends resting upon said first mentioned ring in the path of movement of the teeth thereof, a rotatably mounted plate surrounding said collar beneath the first mentioned ring, means connecting said plate with the moving parts of said knitting machine for causing the plate to rotate therewith, a pawl pivotally carried by said plate beneath the vertical flange of said first mentioned ring and adapted at times to be swung up into engagement with the lower edge of said vertical flange, and yarn governing means for moving said lever into engagement with said flange.

12. In a mechanism of the class described, the combination with a standard, a yoke sustained thereby and a descending column carried by said yoke and adapted to support parts of a knitting machine, of a link sustained by said column and adapted at times to actuate the power supply means for the knitting machine for cutting off the supply of power to the knitting machine for stopping the operation thereof, a slide plate connected with and adapted to actuate said link when released, said slide plate having a catch shoulder, a spring for moving said slide plate when released, a pivoted trip lever having a catch head adapted to engage the shoulder of the slide plate for normally retaining the same against movement under the pressure of said spring, a ring rotatably surrounding said descending column and normally stationary, the said ring having teeth into the path of movement of which one end of said trip lever extends, and yarn controlled means for imparting movement from the moving parts of the knitting machine to said ring for actuating the trip lever for releasing the said slide plate.

13. In a mechanism of the class described, the combination with power governing means for a knitting machine, of a pair of pivotally mounted levers sustained by the moving parts of the knitting machine, a plurality of pins carried by one of said levers and spaced apart, a plurality of pins carried by the other of said levers and spaced apart and positioned in alternation with respect to the pins of the first mentioned lever, said levers being adapted to have a yarn passed above the pins of one lever and beneath the pins of the other lever on its way to the needles whereby one of said levers is sustained by the yarn against pivotal movement, and means for at times sustaining the other of said levers against pivotal movement, and means adapted to be actuated by the lever sustained by the yarn when not so sustained for releasing said power governing means for stopping the operation of the knitting machine.

14. In a mechanism of the class described, the combination with power governing means for a knitting machine, of a pair of pivotally mounted levers sustained by the moving parts of the knitting machine, a spring pressed detent for one of said levers for resisting pivotal movement thereof, the resistance of said detent being less than what may be overcome by the tensile strength of the yarn, a yarn support carried by the detent controlled lever, the other of said levers being arranged to engage a yarn arranged on said support for being supported thereby, the last mentioned lever being adapted to swing upon its pivot when not sustained by said yarn, and means including a rotary toothed ring, a hooked lever and a slidably mounted spring actuated bar, a bell crank lever and connecting rod releasing said power governing means and stopping the operation of the knitting machine.

15. In a mechanism of the class described, the combination with power governing means for a knitting machine, of a pair of pivotally mounted levers sustained by the

moving parts of the knitting machine, a lug extending past one of said levers, a spring fixed to the lever past which the said lug extends, a detent pin carried by said spring and extending to and engaging the said lug under pressure of the spring for resisting pivotal movement of the lever carrying the spring, a yarn support sustained by the spring carrying lever, the other of said levers being adapted to be sustained by a yarn mounted on said support, and being adapted to swing upon its pivot when not thus sustained, and means adapted to be actuated by the last mentioned lever when swung upon its pivot for releasing the said power governing means for stopping the operation of the knitting machine.

16. In a mechanism of the class described, the combination with power governing means for a knitting machine, of pivotally mounted levers sustained by the moving parts of the knitting machine, a lug extending past one of said levers, a spring fixed to the lever past which the lug extends on the opposite side of the lever from the lug, a pin fixed to said spring and extending through the lever into engagement with said lug, the lug being formed with apertures for receiving the end of the pin, a yarn support carried by the spring carrying lever, the other of said levers being adapted to be sustained against pivotal movement by a yarn on said support, and means adapted to be actuated by the last mentioned lever when swung upon its pivot for releasing the power governing means for stopping the operation of the knitting machine.

17. In mechanism of the class described, the combination with power governing devices for a knitting machine, of a rotating element connected with the moving parts of the knitting machine and rotating therewith, a normally stationary rotary element, yarn governing means for transmitting movement from the rotating element to the rotary element, and means controlled by the rotary element for actuating the power governing device for cutting off the supply of power to the knitting machine when the rotary element is moved, and including an automatically retracted slidably moved bar, and a lever having a hook at each end and engaging the bar and the normally stationary rotary element.

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

BERNARD T. STEBER.

Witnesses:

JAMES T. COLEMAN,

AGNES M. GEARY.