

J. W. ROBERTS, A. P. BREWSTER & B. BRYSON.
STOP MECHANISM.

APPLICATION FILED MAY 29, 1912.

1,053,647.

Patented Feb. 18, 1913.

3 SHEETS—SHEET 1.

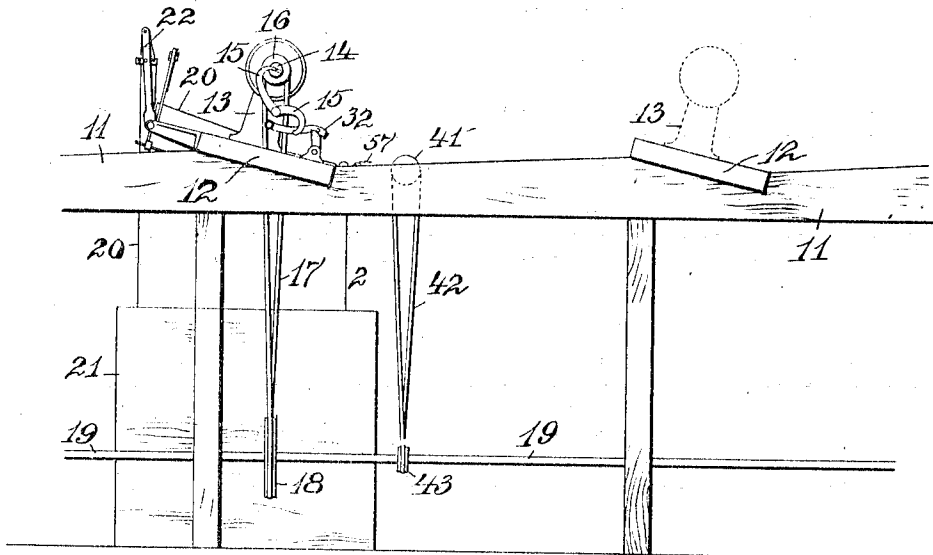


Fig. 1

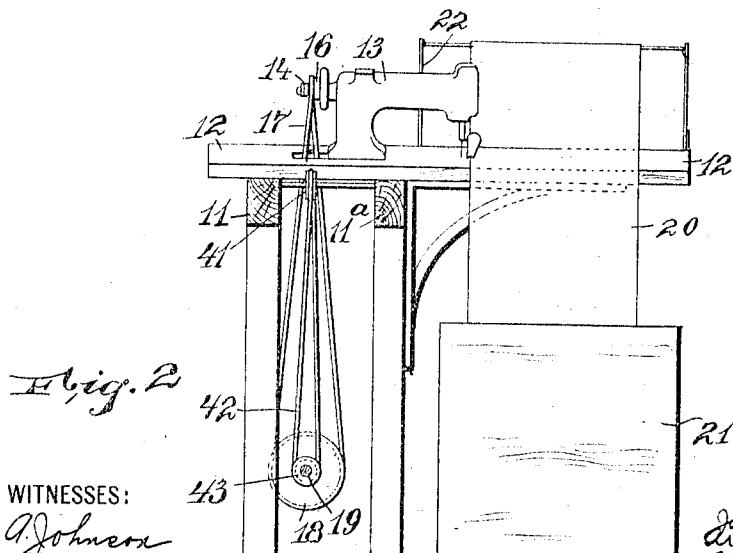


Fig. 2

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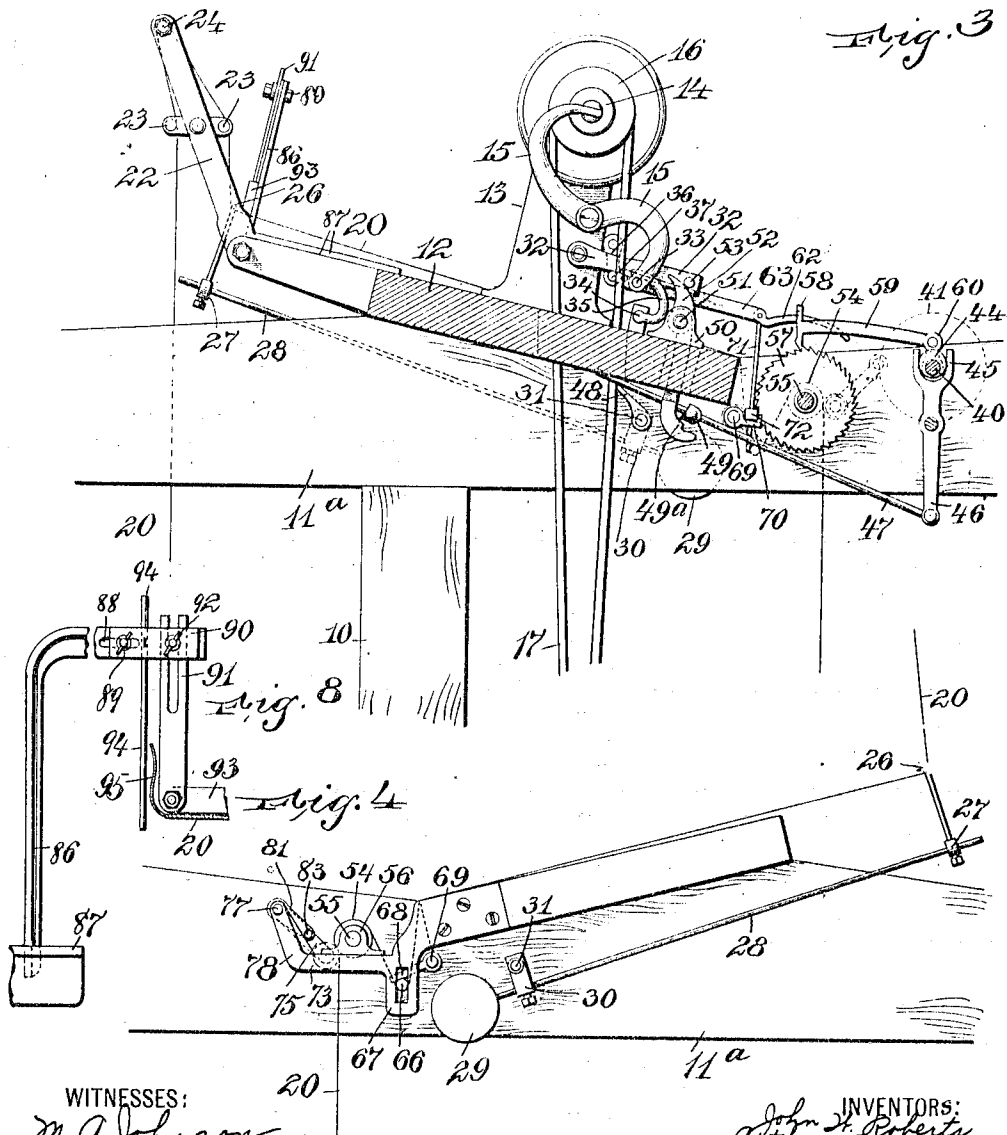
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3 SHEETS—SHEET 3.



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UNITED STATES PATENT OFFICE.

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STOP MECHANISM.

1,053,647.

Specification of Letters Patent.

Patented Feb. 18, 1913.

Application filed May 29, 1912. Serial No. 700,549.

To all whom it may concern:

Be it known that we, JOHN W. ROBERTS and ARTHUR P. BREWSTER, citizens of the United States, and BOYD BRYSON, a subject of the King of England, residing at Passaic, in the county of Passaic and State of New Jersey, have invented certain new and useful Improvements in Stop Mechanism; and we 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, reference being had to the accompanying drawings, and to figures of reference marked thereon, which form a part of this specification.

The machine is of the type which has means for connecting and disconnecting it with and from its source of power, a clutch being usually employed for such purpose, the clutch having an arm or the like for operating it.

The invention relates further to a goods conducting means for leading the goods to the machine, the conducting means being provided with an operative connection with the clutch operating means, the operative connection acting to operate the clutch mechanism to stop the machine when the end of the strip of goods approaches the machine.

Another feature of the invention is a take-up mechanism for holding the goods taut when coming from the machine, the take-up mechanism automatically stopping itself when the goods is being taken up too quickly and resuming the taking-up when the goods is loose enough to require taking-up.

The invention further consists in so connecting the take-up mechanism with the clutch mechanism that when the machine stops, the take-up mechanism is inoperative. The take-up mechanism is adjustable in the matter of its "bite" or grip on the goods so that any slipping can be overcome quickly and without stopping the machine.

The invention consists furthermore in certain details of construction more fully pointed out in the specification and also embodied in the claims.

The invention is illustrated in the accompanying drawings, in which—

Figure 1 is a side view of the supporting structure showing two tablets and having

the machine and some of the attachments 55 outlined to show their relative positions. Fig. 2 is a cross-section through Fig. 1. Fig. 3 is an enlarged section through the support showing the machine and its attachments in elevation. Fig. 4 is a detail illustrating 60 part of the goods conducting means and the take-up rolls. Fig. 5 is a top view of a machine. Fig. 6 is a perspective view of a detail of the clutch and with the take-up feed. Fig. 7 is a detail of the pressure-adjusting 65 means of the take-up mechanism. Fig. 8 is a detail of part of the conducting means.

The supports consist of the uprights 10 which are arranged in double rows and on which are mounted the longitudinal strips 70 11 and 11^a. The tablets 12 project with their major portion beyond one of the strips, 11^a, as shown in Fig. 2, each tablet thus forming a transverse bed or stand for its machine, the tablets being inclined slightly so as to 75 project downwardly toward the front of the machine 13. This arrangement provides for an easy descent of the goods to the machine.

The mechanism of the machine will be 80 gone into in this specification only so far as to point out its cooperation with the special mechanism, since any form of machine that is adapted for the purpose can be used.

Each machine is provided with a clutch 85 14 or other means for connecting and disconnecting the machine from its source of power, the clutch 14 being operated by a swinging clutch-arm 15 pivoted to the machine and acting, when swung, to throw the 90 machine in or out of connection with the pulley 16 driven by a belt 17 from a pulley 18 on the drive-shaft 19. The drive-shaft can be conducted under a series of machines and thereby act to drive all of them. A 95 conducting means is mounted at the back of the tablet. It receives the goods 20 from a suitable roll or from a box as 21, and consists of side frames 22 between which are mounted bars 23 similar to scrimp bars, 100 and on the top is a spreader bar 24 which has ribs or helical projections 25 to spread and straighten out the goods. The strip of goods is then passed under a finger 26 which is fastened by a collar 27 to a lever 28 105 which is weighted as at 29 and passes through a clip 30 on a shaft 31, so that when the finger 26 is allowed to drop by the ab-

sence of goods causing a lack of tension, the weight and lever partly rotate the shaft 31 which passes through the inner strip 11^a.

The machine 13 is provided with a locking arm 32, the locking arm having a notch into which the rod 33 of the clutch-arm 15 fits, and is thereby locked in place. When-
 5 ever the lock-bar is lifted from its position shown in Fig. 3 the clutch-arm snaps up and
 10 the machine is disconnected and stops. To return the clutch-arm to its locked position we provide a setting rod 34 with a curved arm 35 so that when the curved arm is
 15 swung it carries with it the rod 33 till the rod 33 is engaged by the notch in the locking-arm 32 and the machine is again in operation by reason of its clutch 14 being connected. To move the locking-arm we may
 20 operate a trigger 36 with its knob 37 which is operated in turn by a thread tension 38 shown and described in Patent No. 1,042,602, dated October 29, 1912, and no detail description is here given of this means of stop-
 25 ping the machine.

Mounted in brackets 38^a and 39 is a secondary shaft 40 having a pulley 41 thereon, which pulley is driven by a belt 42 from the pulley 43 on the shaft 19. On the secondary shaft is an eccentric 44 which operates in a
 30 fork 45 of a rocking arm 46, the opposite end of the rocking arm being connected to a stem 47, this stem being arranged to slide on a leaf 48 which is secured on the shaft 31. The stem 47 is provided with a knob
 35 49 or other similar projection, and when the stem is lifted by the leaf 48, the stem constantly reciprocates but is idle. When the stem is lowered the knob engages the shoulder
 40 49^a of the trigger 50, the trigger being pivoted at 51 and having an end 52 which is curved and bears on the pin 53 on the locking arm 32 so as to raise the locking arm to
 45 release the clutch.

When the goods passes from the machine it passes over a take-up roll 54 which is
 45 mounted on a shaft 55 which rotates in the strip 11^a and the bearing 56. The shaft 55 is provided with a ratchet-wheel 57. The
 50 ratchet-wheel is given a step-by-step movement by the pawl 58 on an arm 59 which is secured to the crank 60 on the shaft 40. The
 55 pawl 58 is provided with a slotted leaf 61 through which is passed the curved end 62 of a lift-arm 63 which is pivoted at its back
 60 end 63^a to a block 61 on the clutch-arm rod 33. The lift-arm 63 is mounted to swing upward freely and has a nose 65 resting on the block 61 so that the arm can act independently of the block, but of necessity is
 65 raised with it. When the clutch-arm rises, the pawl is lifted and the taking-up roll is halted.

A governor rod 66 rests on the goods between the tablet and the take-up roll, slid-
 65 ing in slotted bearings 67 and having fingers

being fastened to the bar 69, which bar extends through the strip 11^a and has a lug 70 fastened to it, the lug receiving a stem 71 and supporting a collar 72 of the stem 71
 70 and acting to lift the stem 71 when the tension on the goods raises the governor rod 66, since the rod 66 operates the fingers 68 which in turn twist the bar 69. The stem
 75 71 is fastened to the lift-arm 63 and when it is lifted, the take-up roll stops until the governor rod 66 is low enough to show the need of taking-up, in which position it permits the resumption of the operation of the
 80 ratchet 57 by the pawl 58.

The taking up, by the take-up roll 54, is insured by installing friction rolls 73 which
 85 bear against the goods and by pressing them against the take-up roll, insure their being fed by this roll. The friction rolls 73 are mounted in bearings 74 arranged on the ends
 90 of links 75, the links being on collars 76 which are loosely arranged so as to swing on the rod 77, the rod being mounted in bearings 78 and 78^a at the ends. In order to
 95 adjust the pressure of the friction rolls we secure the coiled springs 84 so that one end of each spring, as 79, engages a link 75 to
 100 force one of the friction rolls 73 against the take-up roll. The other end of the spring 84 is fastened to the rod 77, preferably by means of a collar 80. Fastened to the rod
 105 77 and arranged to rotate it is a handle 81 having a spring-actuated finger-piece 82 therein, the end of the finger-piece forming
 110 a stud 83, the stud 83 being arranged to engage the edge of the bearing 78 or any other suitable fixed projection, but when the finger-piece is withdrawn, the handle 81 can be
 115 rotated in the desired direction to give either more or less tension to the springs 84, and thus regulate the pressure of the feed-rolls 73 against the take-up roll. This provides
 120 for a quick adjustment that can be varied while the goods is being fed through the machine and also regulates the pressure for
 125 different kinds of goods.

The operation of the machine is as follows: The goods is passed from a suitable
 130 box or receptacle or from the roll over the conducting means or mechanism and is fed under the finger 26 so as to raise the weight 29, and is then fed to the sewing-machine, and the hemstitching or other stitching is
 135 started on the goods, the machine itself of course taking up the usual function of sewing-machines and feeding the material through the sewing-machine, and the goods is then fed from the edge of the table underneath the governor rod 66 over the take-
 140 up roll 54 and between it and the friction roll 73, and then down to a suitable depositing point. While the machine is running with an even tension, and goods is being
 145 supplied to the machine, there is no opera-

tion of the clutch which has been previously set in its operative position by the operator pressing on the handle 85 of the setting rod 34. If the end of the strip of material to be sewed reaches the conducting mechanism, the goods permits the finger 26 to drop, which releases the weight 29 which in turn acts to swing the shaft 31 which in turn drops the leaf 48. This permits the stem 47 to fall and this constantly reciprocating stem hits the shoulder 49^a of the trigger 50, which trigger is pushed over to trip the locking arm 32 and the clutch is released and the machine stops. When the locking arm 32 rises it carries with it the lift-arm 63 by reason of the block 64 engaging the nose 65, and the pawl 58 is lifted from the ratchet and the take-up arm is also inoperative when the machine stops. It will thus be seen that by any mechanism that will operate to stop the machine by reason of the tension of the goods or the thread being taken away, the clutch arm, when it rises, carries with it the lift-arm 63 and the take-up mechanism halts. If the take-up mechanism, while the machine is running, works too fast, the governor rod is raised, the governor rod in turn lifting the fingers, which fingers, by an above described operation, raise the stem 71 which raises the lift-arm to pull the pawl 58 from the ratchet 57 to halt the take-up roll 54, but this raising of the lift-arm in this case does not operate the clutch of the machine, as the pivotal connection between the lift-arm 63 and the block 64 permits this, thus making a construction in which the lift-arm can be raised independently of the block 64, but the block 64 can not be raised without taking the lift-arm with it.

The conducting means is provided with a gage which is fastened to a bracket 86 secured by means of the plate 87 to the back edge of the tablet 12, and by means of a slot 88 and a set-screw 89, we secure a sliding plate 90. To the sliding plate 90 is fastened a slotted regulating bar 91 which is held in its adjusted positions by a thumb-screw 92, and on the bottom of the slotted regulating bar 91 is a transverse bar 93 which extends across the machine and under which the goods 20 is fed. Adjacent to the bar 91 is a gage 94. The goods 20 is fed under the transverse bar 93 and its end 95 is turned up between the gage 94 and the regulating bar 91 so as to feed the goods to the hemmer in partly folded condition. More of a fold can be given by swinging the slotted bar and the gage to an oblique position, using the set-screw 89 as a pivotal point and also as a means for fastening it in its inclined positions.

Having thus described our invention, what we claim is:—

65 1. A sewing-machine having means for

connecting and disconnecting it from its source of power, a conducting means for directing goods to the machine, a constantly operating tripping means for the connecting means, and an operative connection for holding the tripping means inoperative, said connection being held in position by the goods under tension.

2. A sewing-machine having means for connecting and disconnecting it from its source of power, a conducting means for directing goods to the machine, a constantly operating tripping means for the connecting means, a gravity actuated operative connection for holding the tripping means inoperative, and a finger supporting said connection and resting on the goods.

3. A sewing-machine having means for connecting and disconnecting it from its source of power, a tripping means for the connecting means, a conducting means for directing goods to the machine, a reciprocating stem, means on the stem for engaging the tripping means, a leaf for holding the stem from engagement with the tripping means, and an operative connection from the leaf to the goods under tension for holding the leaf in operative position.

4. A sewing-machine having means for connecting and disconnecting it from its source of power, a tripping means for the connecting means, a conducting means for directing goods to the machine, a reciprocating stem, means on the stem for engaging the tripping means, a leaf for holding the stem from engagement with the tripping means, an operative connection from the leaf to the goods under tension for holding the leaf in operative position, and a take-up mechanism for the goods after passing the machine.

5. A sewing-machine having means for connecting and disconnecting it from its source of power, a tripping means for the connecting means, a conducting means for directing goods to the machine, a reciprocating stem, a leaf supporting the stem and on which the stem slides, a knob on the stem adapted to engage the tripping means when the stem is not so supported, and an operative connection holding the leaf in supporting position and resting on the goods under tension and adapted to drop the leaf when said tension is relaxed.

6. A sewing-machine having means for connecting and disconnecting it from its source of power, a tripping means for the connecting means, a conducting means for directing goods to the machine, a reciprocating stem, a leaf supporting the stem and on which the stem slides, a knob on the stem adapted to engage the tripping means when the stem is not so supported, a shaft on which the leaf is mounted, a lever on the shaft, and a finger on the lever, the finger

resting on the goods when the goods is under tension.

7. A sewing-machine having means for connecting and disconnecting it from its source of power, a trigger for releasing the connecting means, a conducting means for directing goods under tension to the machine, a constantly reciprocating stem, and means supported by the goods under tension for holding the stem from engagement with the trigger.

8. A sewing-machine having means for connecting and disconnecting it from its source of power, a trigger for tripping the connecting means, a reciprocating stem, means on the stem for operating the trigger, a shaft, a leaf on the shaft and supporting the stem in inoperative position, a weighted lever connected to the shaft, and a finger extending from the lever and resting on the goods.

9. A sewing-machine having means for connecting and disconnecting it from its source of power, a trigger for tripping the connecting means, a reciprocating stem, means on the stem for operating the trigger, a shaft, a leaf on the shaft and supporting the stem in inoperative position, a weighted lever connected to the shaft, a finger extending from the lever and resting on the goods, a rotating secondary shaft, and a rocking arm operated from said secondary shaft, the rocking arm being connected to the stem.

10. A sewing-machine having means for connecting and disconnecting it from its source of power, a trigger for tripping the connecting means, a reciprocating stem, means on the stem for operating the trigger, a shaft, a leaf on the shaft and supporting the stem in inoperative position, a weighted lever connected to the shaft, a finger extending from the lever and resting on the goods, a rotating secondary shaft, an eccentric on the secondary shaft, and a rocking arm with a fork embracing the eccentric, the arm being connected to the stem.

11. A sewing-machine having a take-up roll for goods coming from the machine, means for rotating the take-up roll, a governor rod resting on the goods, and means connecting the governor rod and the operating means for stopping the rotating means when the governor rod is raised.

12. A sewing-machine having a take-up roll for goods coming from the machine, a ratchet for intermittently rotating the roll, a pawl reciprocating on the ratchet, a governor rod resting on the goods, and a connection between the governor rod and the pawl for raising the pawl when the rod is raised.

13. A sewing-machine having a take-up roll for goods coming from the machine, a ratchet on the roll, a pawl constantly recip-

rocating for giving a step-by-step movement to the ratchet, a governor rod on the cloth, a bar having fingers resting on the governor rod, a lug on the bar, and a stem resting on the lug and connected with the pawl to raise it.

14. A sewing-machine having means for connecting and disconnecting it from its source of power, a tripping means for the connecting means, a take-up roll for goods coming from the machine, means for rotating the take-up roll, a governor rod resting on the goods, means connected with the governor rod and with the rotating means for disconnecting the rotating means when the governor rod is raised, and an operative connection between the connecting means of the sewing-machine and the rotating means of the take-up roll for stopping the take-up roll when the tripping means is operated.

15. A sewing-machine having means for connecting and disconnecting it from its source of power, a locking arm for the disconnecting means, a tripping means for the locking arm, a take-up roll, a ratchet operating the take-up roll, a constantly operating pawl engaging the ratchet to give it a step-by-step movement whereby the goods in the machine is given a tension, a lift-arm secured to the disconnecting means and having a limited downward movement on said disconnecting means, the lift-arm being connected to the pawl, and means for operating the tripping means.

16. A sewing-machine having means for connecting and disconnecting it from its source of power, a locking arm for the disconnecting means, a tripping means for the locking arm, a take-up roll, a ratchet operating the take-up roll, a constantly operating pawl engaging the ratchet to give it a step-by-step movement whereby the goods in the machine is given a tension, a lift-arm secured to the disconnecting means and having a limited downward movement on said disconnecting means, the lift-arm being connected to the pawl, and automatic means operated by the tension of the cloth for operating the tripping means.

17. A sewing-machine having means for connecting and disconnecting it from its source of power, a locking arm on the disconnecting means, a tripping means engaging the locking arm, a lift-arm projecting from the disconnecting means and having a limited downward movement and being free to swing upward, a take-up roll, a ratchet for operating the take-up roll, a constantly operating pawl for the ratchet, the pawl being engaged by the lift-arm, a governor rod, a stem operated from the governor rod and connected to the lift-arm, and means for operating the tripping means.

18. A sewing machine having means for connecting and disconnecting it from its

source of power, a locking arm on the disconnecting means, a tripping means engaging the locking arm, a lift-arm projecting from the disconnecting means and having a limited downward movement and being free to swing upward, a take-up roll, a ratchet for operating the take-up roll, a constantly operating pawl for the ratchet, the pawl being engaged by the lift-arm, a governor rod, a stem operated from the governor rod and connected to the lift-arm, a constantly moving means for operating the tripping means, and means for holding said last-mentioned means inoperative, said holding means being controlled by the tension of the goods.

19. A sewing-machine having a take-up roll, means for operating the take-up roll, a rod, a link swinging on the rod, bearings in which the rod is mounted so that it can rotate, a spring attached to the link to swing it toward the take-up roll, a friction roll on the end of the link, the spring being secured

to the rod, and means on the rod for securing it in different rotative positions so as to vary the tension of the spring.

20. A sewing machine having a take-up roll, means for operating the take-up roll, a rod, a link swinging on the rod, bearings in which the rod is mounted so that it can rotate, a coiled spring on the rod, the spring bearing on the rod and on the link, a friction roll on the link, a handle on the rod for turning it to vary the tension of the spring, and means on the bearing for engaging the handle to hold it in various positions.

In testimony, that we claim the foregoing, we have hereunto set our hands this 23rd day of May 1912.

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BOYD BRYSON.

Witnesses:

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M. A. JOHNSON.