

J. A. GROEBLI.
 PROTECTIVE DEVICE FOR EMBROIDERING MACHINES.
 APPLICATION FILED AUG. 17, 1909.

1,045,971.

Patented Dec. 3, 1912.
 3 SHEETS—SHEET 1.

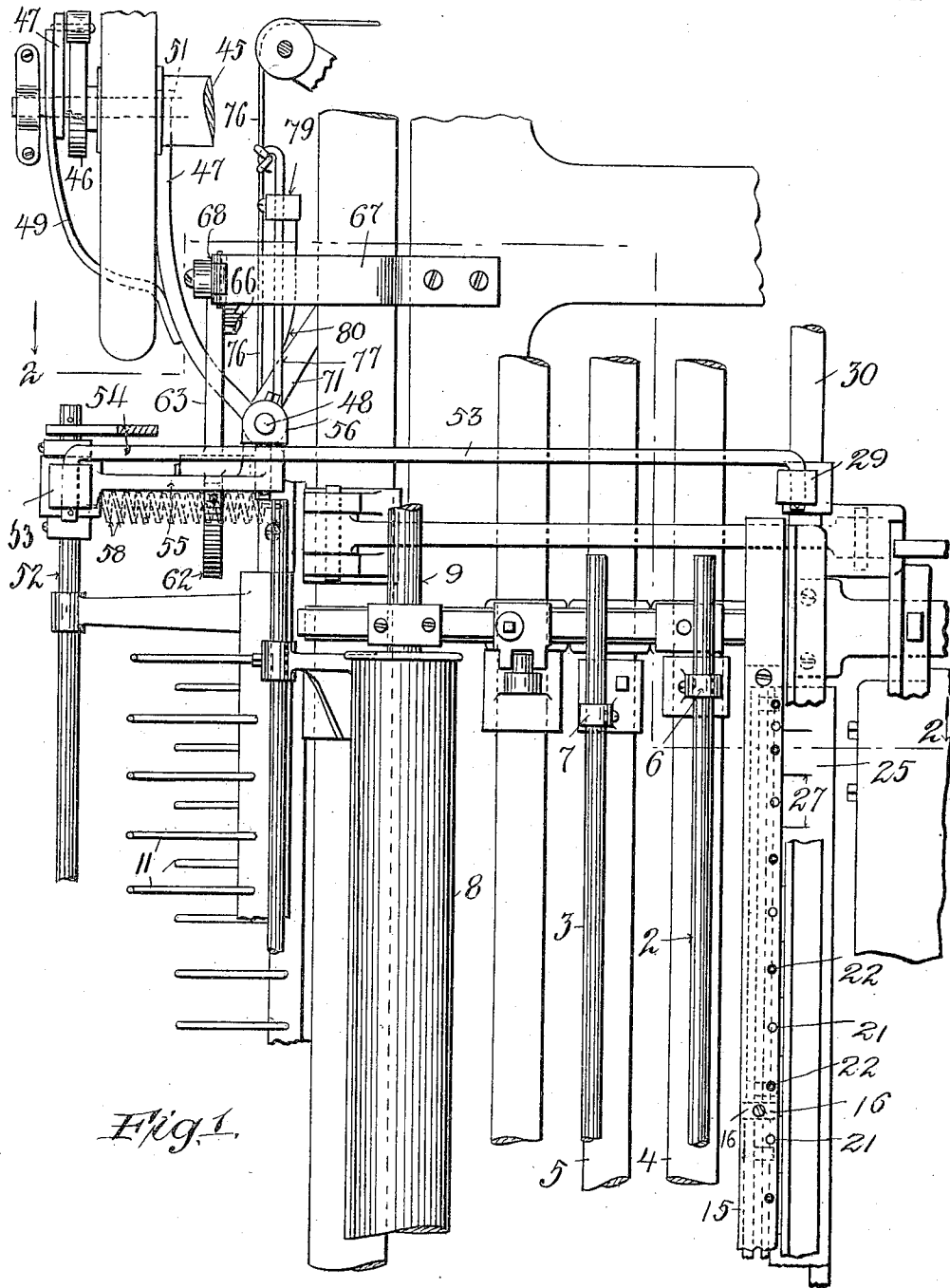


Fig. 1.

Witnesses:
 Benjamin
 Robert

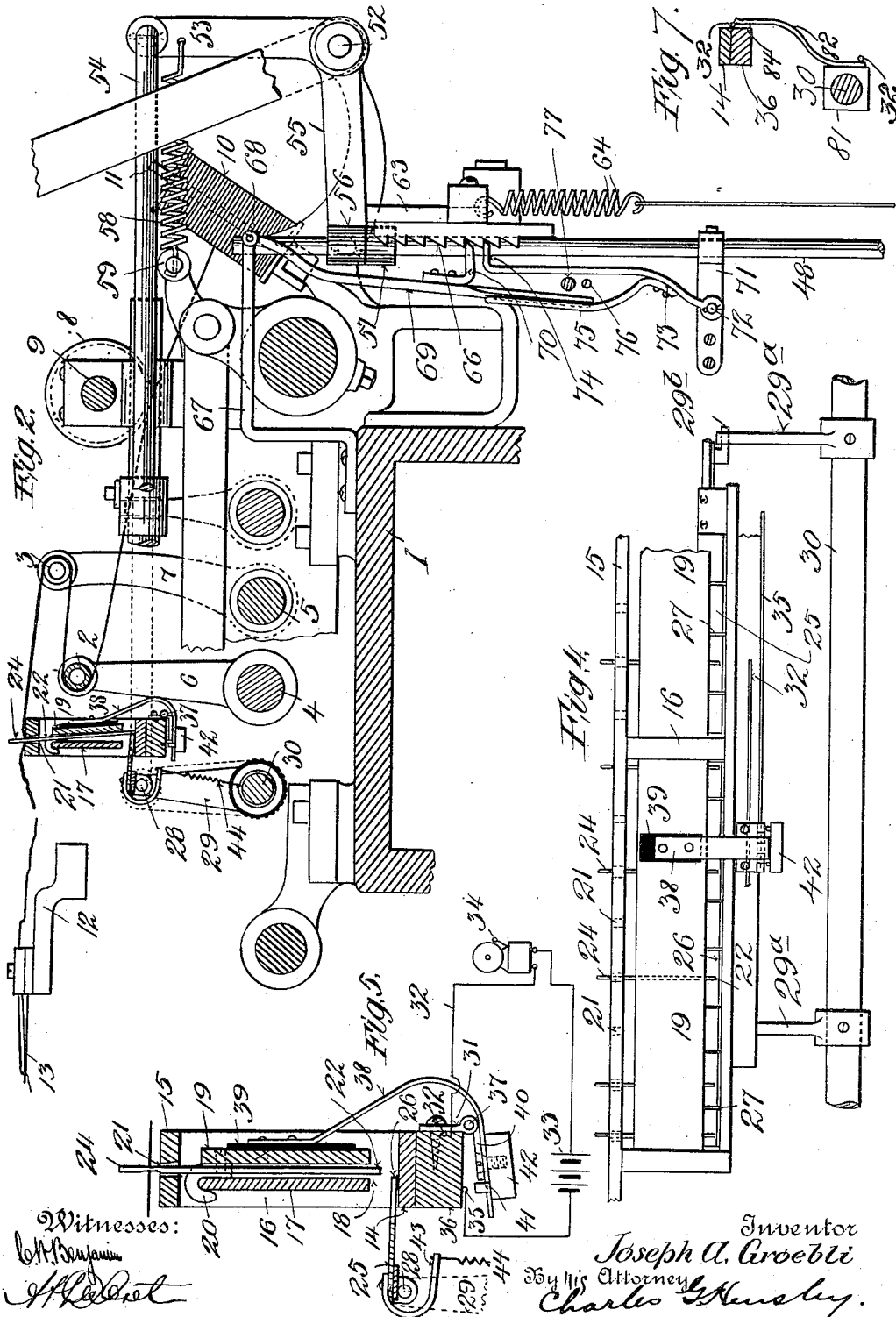
Inventor
 Joseph A. Groebli
 By his Attorney
 Charles Hensley.

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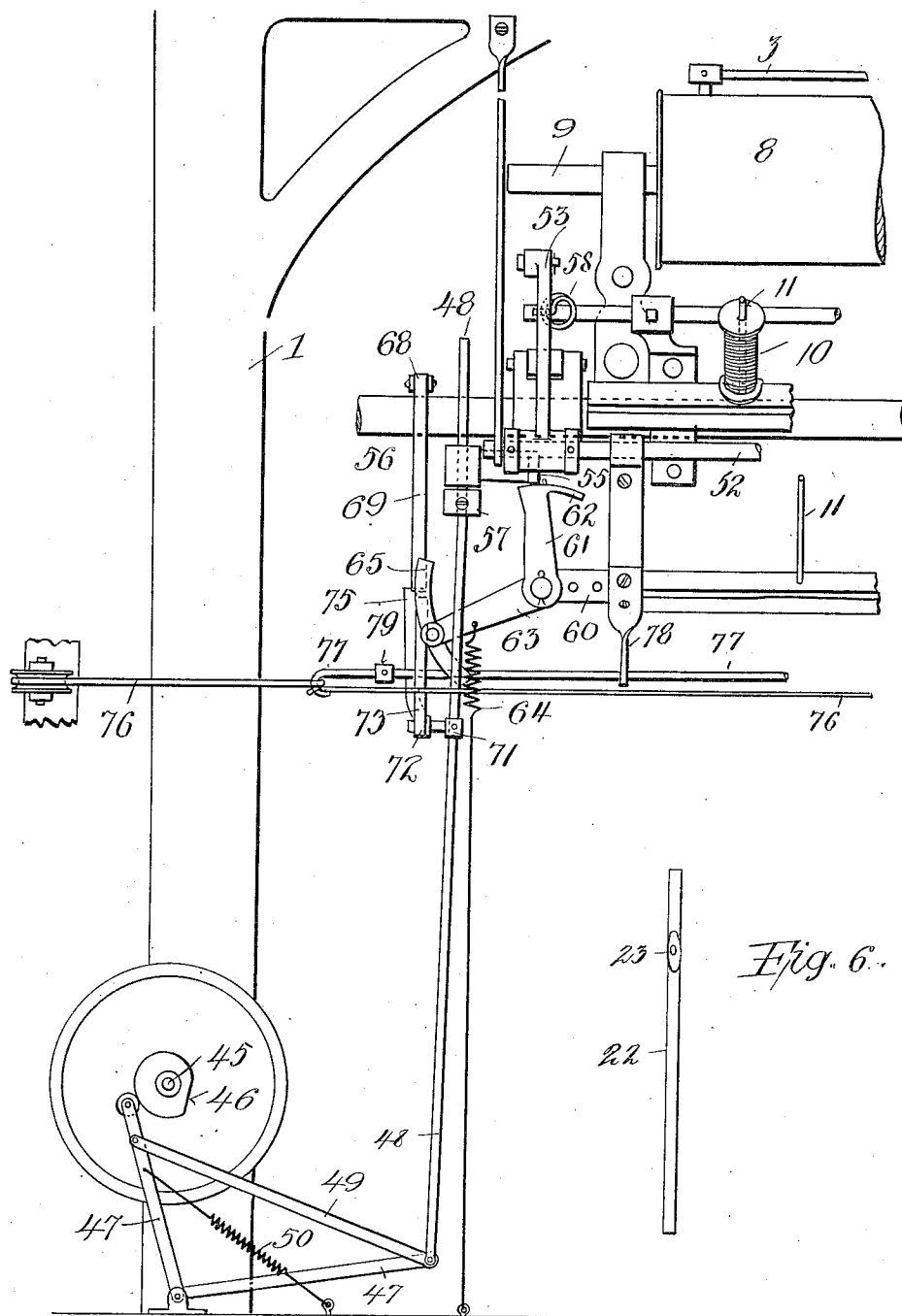
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3 SHEETS—SHEET 3.

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Fig. 3.

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UNITED STATES PATENT OFFICE.

JOSEPH A. GROEBLI, OF NEW YORK, N. Y., ASSIGNOR, BY MESNE ASSIGNMENTS, TO
ALPHONSE H. KURSHEEDT, OF NEW YORK, N. Y.

PROTECTIVE DEVICE FOR EMBROIDERING-MACHINES.

1,045,971.

Specification of Letters Patent.

Patented Dec. 3, 1912.

Application filed August 17, 1909. Serial No. 513,246.

To all whom it may concern:

Be it known that I, JOSEPH A. GROEBLI, a citizen of the United States, and a resident of the city, county, and State of New York, have invented certain new and useful Improvements in Protective Devices for Embroidering-Machines, of which the following is a specification.

My invention relates to a device for automatically informing an operator of an embroidering machine when any of the threads becomes broken or unduly slack, during the operation of the machine. Where many needles, say hundreds, on an embroidering machine are simultaneously stitching a fabric it is difficult for the operator or operators to watch the threads carefully enough to determine the exact moment when any thread becomes broken or unduly slack, in order to immediately stop the machine. If the machine is not stopped immediately, the sewing will be continued by the perfect threads and will get ahead of the one which has become broken, so that the latter will have to be afterward filled in by hand.

It is the object of my invention to provide a detecting device having separate elements operated by the various threads, which will detect when any of the threads becomes broken or unduly slack. I am aware that there have been attempts to provide such a detecting device for embroidering machines, but they have failed to fulfil the requirements and my object is to provide a mechanism which will be simple, and which will obviate the difficulties of the former devices.

I provide a series of reciprocating elements, which are preferably actuated by gravity, that are acted upon by the threads and which, when a thread becomes broken or unduly slack, will have a slight movement, enough to move into engagement with an automatically operated element which will cause an alarm to be given. One branch of my invention may be used with either means for giving a visible or audible alarm so that the operator may bring the machine to a stop; or with means which will automatically stop the machine and in using the term safety device in the claims I mean to include a device which answers either of the above purposes. In my preferred form I employ the first mentioned and I will therefore describe such, though I do not intend thereby

to exclude the latter from the scope of my invention.

In the drawings forming a part of this application, Figure 1 is a plan view of my improvements as applied to an ordinary embroidering machine, Fig. 2 is a cross section taken on the line 2—2 of Fig. 1, looking in the direction of the arrows, Fig. 3 is a front elevation of the operating mechanism, Fig. 4 is a front elevation of the detecting portion of my invention, Fig. 5 is an enlarged cross section of the same, Fig. 6 is an elevation of one of the detecting needles, and Fig. 7 is a detail view showing the automatic circuit closer,

I have embodied my invention in an embroidering machine having the usual tension roller and take up bars. The frame 1 of the machine supports the various mechanisms in the usual way, including the various elements relating to the stitching mechanism of the machine. The take up bars 2 and 3 are carried upon upwardly extending arms 6 and 7, the latter being carried by the shafts 4 and 5, which are journaled at various points throughout the length of the machine in the usual way. The take up bars are disposed between the needle bar and the tension roller 8, which latter is operated on a shaft 9 to let off the threads at the desired speed as they come from the spools mounted forward of the tension roller, on the pins 11. The threads are passed from their spools around the tension roller 8, thence around the take up bar 2, thence oppositely around the take up bar 3, and on to the needle, the detecting device being disposed so as to engage the threads preferably between the take up bars and the sewing needles.

The tension and take up may be of any well known construction, since my improvements do not require the modification of the construction of either.

The needle bar 12, which extends lengthwise of the machine is provided at the usual intervals with the needles 13, secured thereto in any well known manner, the needle bar being adapted to be moved to pass the needles into and out of the fabric stretched before them on the tambour frame.

As before stated, I prefer to dispose the detecting part of my mechanism between the take up and the sewing needles whereby the threads may be tested as near as possible to

the needles; and some features of my invention are particularly important because the detecting can take place at any place where the thread is affected by the operation of the take up. The detecting parts are as follows.

Running lengthwise of the machine is a bed plate or bar 14, which supports an upper plate or bar 15 by means of the uprights 16, the latter being preferably duplicated at regular intervals so that the space intermediate the bars 14 and 16 will be blocked off in sections, though such construction is only preferable. Between the bars 14 and 15 I have provided longitudinal plates 17 which are secured to the uprights 16, on a vertical plane, a space 18 being provided between the lower edge of this plate 17 and the bar or bed 14. There is another and movable plate 19 lying between the bars 14 and 15 and between the uprights 16, and preferably on a plane parallel with the plate 17, which is supported by the latter by means of the curved lugs 20 on the upper part of the plate 19 which engage over the upper edge of plate 17 so that the plate 19 may swing on the lugs, forwardly, or away from the plate 17. The upper bar 15 is provided with a number of apertures 21 which are disposed in line with the paths of the various threads, and extending through each of these apertures there is an element which may move freely vertically therein and I have provided for such purpose the detector needles 22 having an eye 23 and a portion 24 above the eye, by which the operator may handle the needles. When the sewing needles are threaded the threads, after passing over the take up bars are passed through the eyes 23 of the several detector needles 22 above the bar 15, and then over to the sewing needles. The detector needles 22 are so proportioned, and their eyes 23 so disposed, that when the threads are drawn taut by the take up the lower ends of the detector needles will be raised a slight distance above the bar 14. The detector needles, as will be seen, lie in the holes in the bar 15 and between the two bars 17 and 19.

I provide a reciprocating element which is operated automatically at each stitch of the machine, which will engage with any of the detector needles in case any of the latter are in their low position at the time such reciprocating element is moved forward and which will operate the safety mechanism. For this purpose I provide a plate 25 which has its forward edge 26 resting on the rod 14 and it is slightly pitched downward in the front so that it will hug closely at its front edge to the bar 14; and in order to have this as close and regular as possible I preferably slot the plate 25 as at 27 (see Fig. 4) so there will be no bulging of the plate 25.

The plates 25 are secured by fulcrums 28 to rocking levers 29, which latter are carried on the shaft 30, as shown in Fig. 2, so that as the shafts are rocked the plates 25 are reciprocated under the bars 17 and 19. The plate 25 has secured at its rear an arm 43 which passes forward of the fulcrums 28 and its end is pulled down by a spring 44, the end of which latter engages about the shaft 30, thus keeping the front edge 26 of the plate in close contact with the bar 14. Where the shaft 28 is long as in the present showing, I provide throughout its length lugs 29^b which are engaged by arms 29^a on shaft 30, to cause an even motion to be transmitted to shaft 28 throughout its length.

The insulating bar 36, which is secured to the bar 14 is preferably provided with a plate 31, which is connected to an electrical circuit 32, which includes a battery, or other source of electrical supply 33, and means for indicating that the circuit is closed, in the present showing, a bell 34. The other end 35 of this circuit is preferably secured to the underside of the insulating bar 36. Hinged at 37 to the plate 31 is a plate 40 which carries a weighted contact arm 38, the upper end of which is provided with an insulating facing 39, where it engages against the bar 19 and at its under end with a contact point 41, disposed so that it will be moved into contact with the end 35 of the circuit and thereby close the circuit. The disposition of the contact arm 38 is such that when the bar 19 is in the position shown in Fig. 5, the point 41 will be held out of contact with the end 35 by the gravity of the weight 42, so that the circuit will be open and the bell idle.

The mechanism for rocking the shaft 30 forms the next branch of my invention and is constructed as follows: This mechanism is preferably disposed at one end of the machine. The operating shaft 45 of the embroidering machine is provided, as shown in Figs. 1 and 3 with a cam 46, which rocks a bellcrank lever 47, fulcrumed to a stationary fulcrum 51, thereby moving the rod 48 up and down at each revolution of the shaft of the embroidering machine. The bellcrank lever is preferably braced by a tie rod 49 and the spring 50 retains the end of the lever in contact with its cam. By this means the rod 48 is continually operated during the operation of the embroidering machine. Higher up on the machine there is provided a bellcrank lever which fulcrums on the bar 52, and to one end 53 of this lever a rod, 54, is fulcrumed, with its other end fulcrumed to the arm 29 of shaft 30. The lower end 55 of the bellcrank lever has a collar 56 which fits loosely over the rod 48 in such a position that it may be engaged by a collar 57 secured to the rod 48, and a spring 58 connected to the arm 53 of the bellcrank lever

and to a stationary lug 59 pulls on the bellcrank lever so as to cause its arm 55 to follow the collar 57 of the rod 48. Below the bellcrank lever previously described I have fulcrumed another bellcrank lever to a suitable bracket 60, the upper arm 61 of which has a segmental cam surface 62 adapted to engage the under side of the arm 55 to retain the same in its elevated position where the collar 57 will not operate. The other arm 63 of this lever is pulled downwardly by the spring 64, and it is provided with a ratchet sector 65, having ratchet teeth 66, (see Fig. 2) on its inner side, by which the lever may be raised step by step. Supported upon a bracket 67 by a hinge joint 68, is a depending arm 69, which may be swung to and from the ratchet 66 and there is carried by this arm a dog 70 directed forward toward the ratchet; and the arm 69 is carried below the dog for the purpose which will appear hereinafter. Preferably below the dog 70 there is a bracket 71, carried by the rod 48 to which at 72, a bifurcated arm 73 is fulcrumed. One of the ends of this latter arm terminates in a dog 74 which engages the ratchet teeth 66, while the other 75, rests against the lower end of arm 69. Gravity will cause the arms 69 and 73 to retain the positions shown in Fig. 2, unless otherwise prevented. I have attached the means for releasing the dogs from the ratchet, to the stopping rope or cable 76, of the embroidering machine. Such rope is disposed longitudinally of the machine as shown in the usual manner and by pulling the rope in one direction the machine is started and in the other it is stopped. I have secured a rod 77 to the rope which moves in a bracket 78 which guides it. To this rod I have secured a block 79, one side 80 of which is slanted, and is adapted to engage the arms 69 and 75 and rock them, for the purpose of disengaging the dogs from the ratchet 66.

Where there are several machines in a room it might be considered annoying to have the signaling device operate continually when the circuit has been once closed, so I have provided means for automatically opening and closing the electric circuit independently of the first mentioned circuit closer, which is shown in Fig. 7. Preferably at one end of the machine the shaft 30, carries an insulating block 81 to which a contact arm 82 is secured so that it will rock with the rocking of the shaft 30; and this contact arm is connected with one of the wires of the electrical circuit 32. To a stationary block 36 is connected a contact plate 84 which is connected with the other wire of the circuit. As the shaft 30 rocks the circuit is opened and closed so far as this part of the circuit is concerned. If the circuit should be closed by the contact arm 38 upon the breaking of a thread, the signal will be

given, but if the machine should not be stopped immediately, the rocking of the contact arm 82 with the shaft 30 will break the circuit and upon the return movement will close the circuit, again causing the signal to operate. In this way the signal is operated intermittently when the circuit is once closed by one of the arms 38; and by using a single stroke bell and repeating the stroke it is not so annoying as if the circuit remained closed and a bell used which would ring as long as the circuit was closed.

Having described one form of my invention I will describe its operation. The threads from the various spools are first brought around the tension roller and then engaged over the take up bars, when they are passed over the top of the plate 15, through the eyes of the detecting needles 22 and then to the sewing needles. In threading the detecting needles the operator may lift them by the projecting end 24 if desired, or they may be entirely removed for threading. When the machine is in its inoperative position the plate 25 lies under the detecting needles and supports them in such a position that the eyes of the detecting needles will be above the surface of the bar 15, whereby the threads may feed there-through freely. The bar 19 in such case is in the position shown in Fig. 5, with the detecting needles resting between it and the bar 17; and the electric circuit is open. If now, the machine is otherwise ready for operation, the starting rope 76 in Fig. 3 is moved to the left, thereby setting the operating shaft 45 of the machine into operation, and at the same time moving the wedge block 79 free of the arms 75 and 69. These latter will then swing until the dogs 70 and 74 enter the teeth of the ratchet 66. The revolving of the cam 46 with the operating shaft will impart a rocking movement to the lever 47, which will in turn move the rod 48 up and down a certain extent each time. When this operation begins, the lever 55 is held up by the segment 62 and prevented from following the collar 57 of the rod 48, thereby causing the bellcrank lever 53, 55, to remain idle. Upon the first operation of the rod 48 upwardly the dog 74, engaging the rack 66, moves the same upwardly one notch, the ratchet in such movement escaping the dog 70, when the latter will reengage the rack at the new notch in line with it. The downward movement of rod 48 will cause the dog 74 to ride over the ratchet until it engages the same one notch lower than before. In this manner the dogs 70 and 74 raise the rack segment step by step and I prefer that the machine require say five such movements before the segmental portion 62 of the bellcrank lever 61, 63, moves free of the arm 55. When the segment does move free of the arm 55 the

spring 58 causes the latter to follow the collar 57 on the rod 48, when the arm 53, through the connecting rod 54 will rock the shaft 30 and thereby cause the plate 25 to be reciprocated backward and forward. The object of this construction is not to set the safety device into operation when the machine has been started until several stitches have been taken by the sewing needles and any slack in their threads has been taken up. The detecting mechanism is now in operation. The movement of the plate 25 backward takes the edge 26 thereof free of the detector needles and then moves forward at a time when the take up is pulling the threads taut. Should any one of the threads become broken or unduly slack, there will be nothing to hold its detecting needle up at this moment and gravity will cause it to drop down until its lower end rests on the bar 14 in advance of the forward edge of the plate 25. The plate 25 then moving forward will engage such lowered detector needle and move it with it, when the needle, rocking from its point of contact with the bar 15 will cause the bar 19 to rock on its supporting lugs when the latter will contact with the upper end of the circuit closing arm 38. When the latter is rocked on its hinge the point 41 will contact with the end 35 of the circuit, closing the circuit and giving the alarm. Immediately the operator is warned that somewhere along the machine there is broken thread and may stop the machine by pulling the rope 76 to the right. The swinging outwardly of the particular arm 38 which operates the signal will make it apparent when the operator looks along the machine, in which section or group the trouble has occurred. The stopping operation will cause the wedge block 79 to rock both the arms 73 and 69 until the dogs are released from the ratchet, when the spring 64 will draw the bellcrank lever 61, 63, back to its first position. When the thread or threads which were broken have been located and the needles rethreaded the machine is again started and again the machine will take several stitches before the detectors become operative.

By making the plate 25 slanting on its top surface the detector needles are forced up sufficiently high thereby, so that during the greater part of the time when the stitch is being formed the detector needles are entirely free of the threads. The bar 14 prevents the detector needles from dropping more than a very small extent when the plate 25 is withdrawn from beneath the detector needles and the thread slackens. If they were allowed to drop very far the taking up of the slack of the thread by the take up would cause the detectors to jump.

It will be obvious that instead of operating a signaling device visible, audible, or

both, the detector needles may be made to stop the machine, though I prefer to use a signaling device since many imperfections may be remedied while the machine is in action. I have shown an electrical signaling device operated by the detecting elements, but the detecting part of my invention is susceptible of use in connection with a mechanical signal.

It will be obvious that the bars 17 and 19 may be duplicated throughout the length of the machine or each detector needle may operate an individual circuit closer and the movable plate 19 may be dispensed with, without departing from the broad object of my invention.

Some of the advantages of the present construction are that by utilizing the reciprocating action of the detector needles only to engage them with the operating mechanism and utilizing another movement for setting the signaling device I am enabled to accomplish my object with a very slight movement of the needles, in practice but a small fraction of an inch, which is a decided improvement over the prior art. Furthermore the action of the thread is light and the signaling is accomplished automatically and positively by the embroidering machine. The threads are not required to be kept taut at all times, as the detector needles are supported by the plate 25 during a part of the time and the test of the threads only takes place when the take up is drawing on the threads in the take up action of each stitch. In this way the threads are tested at each stitch at the appropriate time. The actual operation of the signaling device is positively caused by mechanism which is automatically operated by the embroidering machine. By allowing the machine to take several stitches before the detecting mechanism becomes operative, any slack in the threads at the time of first starting with the newly threaded needles is taken up and unnecessary and erroneous signaling is avoided. The mechanism is simple and positive and throws as little burden upon the threads as possible. It is obvious that the detectors may be used to detect a break in the thread and also to detect any undue slack in the thread at the time of the take up action.

Having described my invention, what I claim is:

1. An embroidering machine embodying a sewing needle and a thread tension or let off, a thread take up adapted to act upon the sewing thread between the said tension and a needle, a detecting element adapted to detect a slack or broken thread by engagement with the thread between said tension and the sewing needle, means for making said detecting element inoperative during a period of the stitch by relieving the sewing

thread of the action of the detecting element and for making the same operative during a period when the threads are drawn taut by the take up, and a safety device adapted to be initiated by the detecting element.

2. An embroidering machine embodying sewing needles and a thread tension or let off, a thread take up adapted to act upon the sewing threads between the said tension device and the needles, detecting elements adapted to detect a slack or broken thread by engagement with the threads between said take up and the sewing needles, means for relieving the threads of the action of said detecting elements during a period of the stitching operation and for making the detecting elements operative during a period when the threads are drawn taut by the take up, and a safety device adapted to be initiated by the detecting elements.

3. An embroidering machine comprising a sewing needle and a thread take up, a safety device and means for causing the operation of the safety device, comprising a thread testing element, mechanism adapted to support the thread testing element during a period of the take up action and to leave said thread testing element supported by the thread during a period when the thread is normally taut, said mechanism embodying means for engaging the detecting element if the thread fails to support the same during the take up action and means cooperating therewith to actuate said safety device.

4. An embroidering machine comprising a sewing needle and a thread take up, a safety device and means for operating the same, comprising a detecting element engaging the sewing thread at a point where the thread is alternately slack and taut, means adapted to support the detecting element during a period of the stitch and adapted to be withdrawn to leave the detecting element supported by the thread during at least a part of the active period of the take up and to be moved across the path of the detecting element, at such a point that if the detecting element is supported by the thread there will be no engagement between the support and the detecting element, but wherein there will be an engagement between said supporting element if the detecting element is permitted to move by reason of a slack or broken thread and means whereby the engagement of the supporting element with a detecting element will cause the operation of the safety device.

5. In an embroidering machine, a sewing needle and a take up for the thread, safety mechanism and means controlling the operation thereof, comprising a vertically movable element engaging the sewing thread and means for moving said vertically movable element laterally to cause the

operation of the said safety device, the said vertically movable element being adapted to be held by the thread out of engagement with the laterally operating element during the action of the take up on the thread and adapted to move into engagement with the laterally operating element if the thread be slack or broken at the time of the take up action.

6. In an embroidering machine having a sewing needle and a take up, a safety device and means for operating the same, comprising a vertically movable thread engaging element, means adapted to support the thread engaging element and means for withdrawing said supporting element during the take up action on the thread, and for moving said supporting element across the path of the thread engaging element and means whereby the movement of the thread engaging element into the path of said supporting element will cause the operation of the safety device.

7. In an embroidering machine having a sewing needle and a take up, a safety device and means for operating the same, comprising a free, vertically movable thread engaging element, a horizontally movable element adapted to support the thread engaging element during a period of the stitching operation and means for withdrawing the said horizontally movable element from the support of the thread engaging element during a period of the take up action and for moving the same across the path of the thread engaging element and means whereby the engagement of the thread engaging element, upon the slackening of a thread, with the horizontally movable element upon its last mentioned movement, will cause the operation of the safety device.

8. In an embroidering machine having sewing needles and a take up, a safety device and means for operating it, comprising a bar having apertures therein and free, vertically movable elements guided in said apertures and engaging the threads above the bar, a reciprocating element adapted to support the said thread engaging elements during a period of the stitching operations and means for withdrawing the reciprocating element from the support of the thread engaging elements during a period of the action of the take up on the threads and for moving said reciprocating element across the path of the thread engaging elements, the reciprocating element, upon engagement with a thread engaging element upon its last mentioned movement, being adapted to operate the safety device.

9. An embroidering machine having sewing needles and a take up, a reciprocating element operating synchronously with the embroidering machine, detecting elements engaging the threads and adapted to move

into the path of said reciprocating element, and an electric circuit including a signaling device and a circuit closing element actuated by the reciprocating element operating against the detecting element when the latter moves into the path thereof.

10. In an embroidering machine having means for stitching a fabric, a safety device, means for operating the safety device, means actuated by the sewing thread for effecting the operation of the safety device by its operating means, means operated by the embroidering machine adapted to make the safety device operating means operative after the embroidering machine has completed one or more stitches, and means for initiating the operation of the embroidering machine and adapted to initiate the operation of said device for making the safety device operating means operative.

11. In an embroidering machine having means for stitching a fabric, a safety device, means for operating the safety device, means actuated by the sewing thread for effecting the operation of the safety device by its operating means, means for initiating the operation of the safety operating means, and means operated by the embroidering machine and adapted to make the said safety device operating means operative after the embroidering machine has completed one or more stitches.

12. In an embroidering machine having means for stitching a fabric, a safety device, means for operating the safety device, a thread detecting element for effecting the operation of the safety device by its operating means, means adapted to initiate the operation of the stitching mechanism and the safety device operating means, and means operated by the embroidering machine and adapted to set the safety device operating means into operation after the embroidering mechanism has completed one or more stitches.

13. An embroidering machine comprising means for stitching a fabric, a safety device, means operated by the embroidering machine for operating the safety device, means actuated by the sewing thread for effectuating the operation of the safety device by its operating means, means for setting the said stitching means into operation and for initiating the operation of the said safety operating means and means operated by the embroidering machine, which will make the said safety operating means operative after the embroidering mechanism has completed one or more stitches.

14. An embroidering machine comprising means for stitching a fabric, a safety device and an operating element therefor, means effectuated by the sewing thread adapted to cause the operation of the safety device by its operating element, means con-

tinually operated during the operation of the embroidering machine for operating the safety operating element and other means operated by said continually operating means, adapted to determine the time at which the operation of the said safety operating element shall become operative.

15. An embroidering machine comprising means for stitching a fabric, a safety device and mechanism for operating the same, a thread testing element effecting the operation of the safety device by its operating mechanism, means continually operated during the operation of the stitching mechanism and adapted to be set into operative relation with the safety operating means, means operated by the continually operated element adapted to determine the time at which the operation of the said safety operating element shall become operative and means for setting the stitching mechanism into operation and for initiating the device for determining when said safety operating element shall become operative.

16. An embroidering machine comprising means for stitching a fabric, a safety device and mechanism for operating the same, a thread testing element effecting the operation of the safety device by its operating mechanism, means continually operated during the operation of the embroidering machine and adapted to be set into operative relation with the safety operating means and means operated step by step by the continually operated element for setting the same into operative relation with the safety operating means.

17. An embroidering machine comprising means for stitching a fabric, a safety device and mechanism for operating the same, a thread testing element effecting the operation of the safety device by its operating mechanism, means continually operated during the operation of the stitching mechanism and adapted to be set into operative relation with the safety operating means, means operated step by step by the continually operated element for setting the same into operative relation with the safety operating means and means for controlling the starting and stopping of the stitching mechanism and adapted to initiate the operation of said step by step device when the stitching mechanism is started and to restore said step by step device when the stitching mechanism is stopped.

18. An embroidering machine comprising means for stitching a fabric, a safety device and means for operating the same, embodying a lever, an element continually operated during the operation of the embroidering machine and adapted to operate said lever, means for retaining the said lever out of operative relation with the continually operated element, said means being provided

with a rack, a dog operated by the continually operated element and adapted to act upon the rack to cause the release of the said lever and means controlled by the sewing thread adapted to cause the operation of the safety device by its operating mechanism.

19. An embroidering machine comprising means for stitching a fabric, an electric circuit and a signal device operated thereby, a circuit closer therefor, operating to intermittently close the circuit and operated automatically with the operation of the embroidering machine, another circuit closer and means for operating the same, comprising a thread testing element and means operated automatically with the operation of the embroidering machine adapted to be engaged by the thread testing element and when so engaged to operate said second circuit closer.

20. An embroidering machine having a plurality of sewing needles, detecting elements, engaging the sewing threads a safety device, a moving element common to a plurality of the detecting elements and adapted to be moved by either of said detecting elements without affecting the position of the remaining detecting elements, and an element operated by the embroidering machine, common to a plurality of the detecting elements, and adapted when engaged by a detecting element, to operate the moving element and actuate the safety device.

21. In an embroidering machine, sewing needles, a safety device and means for operating the same, comprising a supporting ele-

ment and a superimposed bar 15, having apertures therein, vertically disposed needles passing through said bar 15, and engaging the threads, stationary and movable bars 17 and 19, between which the thread engaging needles lie, a plate 25, having an inclined upper surface and adapted to be automatically reciprocated across the plane of the thread engaging elements and means for operating said plate, the engagement of a thread engaging element with the automatically reciprocating means being adapted to rock said bar 19, and means whereby the rocking of the latter will effect the operation of said safety device.

22. An embroidering machine comprising means for stitching a fabric, a safety device and means for operating the same, comprising a detecting element engaging the sewing thread and a supporting element therefor, the said detecting element being adapted to be raised by the sewing thread above the supporting element and a safety device operating element adapted to be moved across the path of said detecting element and over the said supporting element, the engagement of the detector element with the said operating element being adapted to cause the operation of the safety device by its said operating element.

Signed at the city, county and State of New York, this 13th day of August, 1909.

JOSEPH A. GROEBLI.

Witnesses:

EDWARD D. C. SPERRY,
ARTHUR F. DUBRET.