

No. 648,557.

Patented May 1, 1900.

P. W. FLINT.
BROOM SEWING MACHINE.

(Application filed Mar. 11, 1899.)

(No Model.)

2 Sheets—Sheet 1.

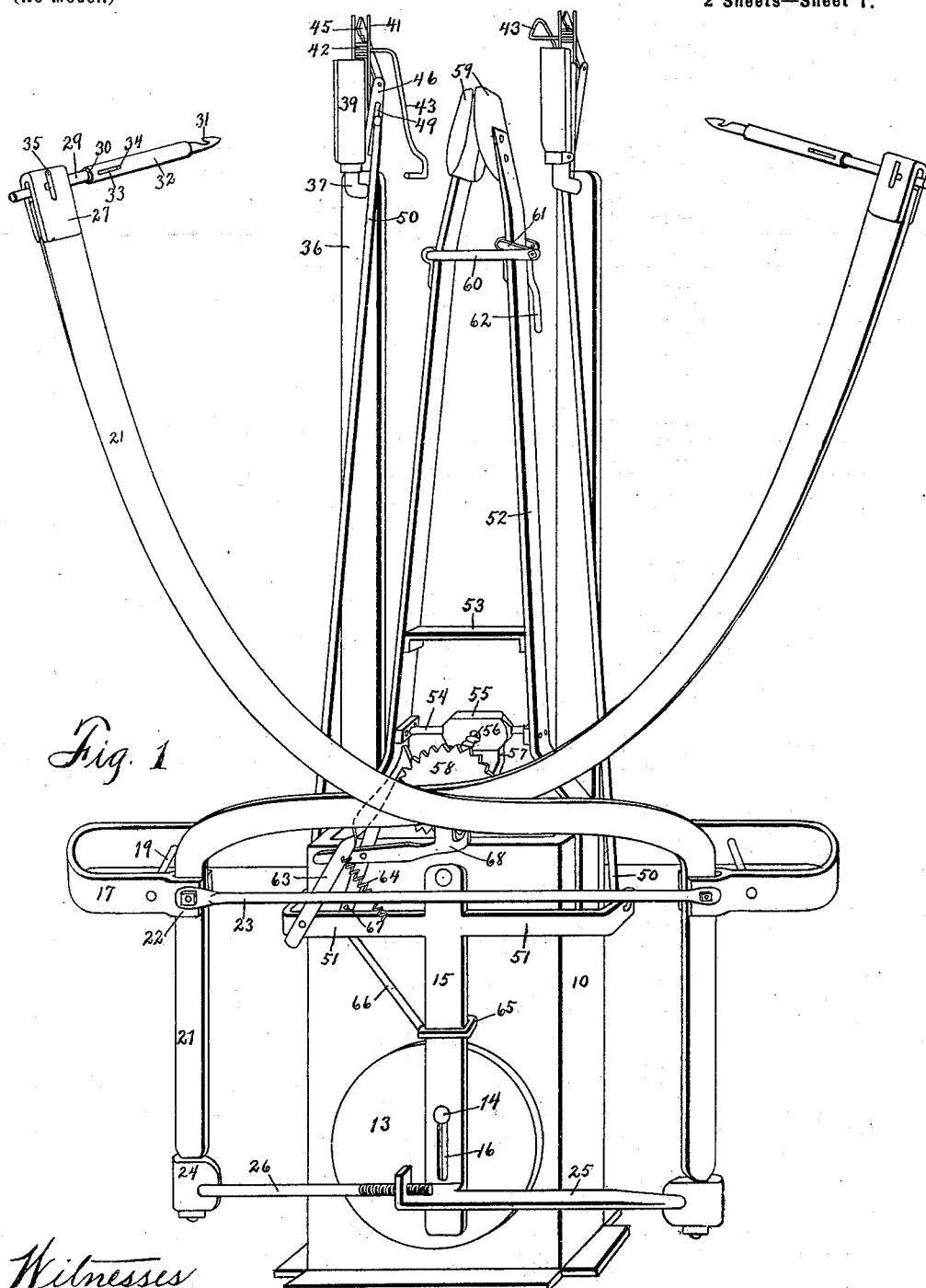


Fig. 1

Witnesses
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by J. Ralph Drury, Atty

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Fig. 2.

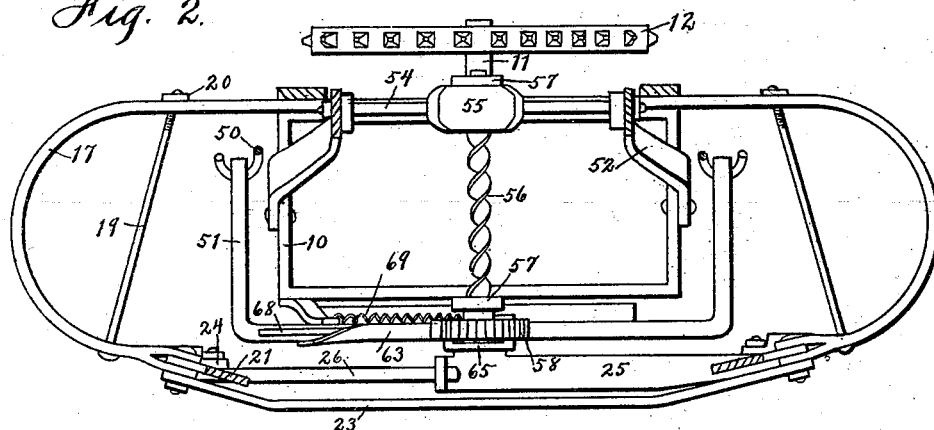
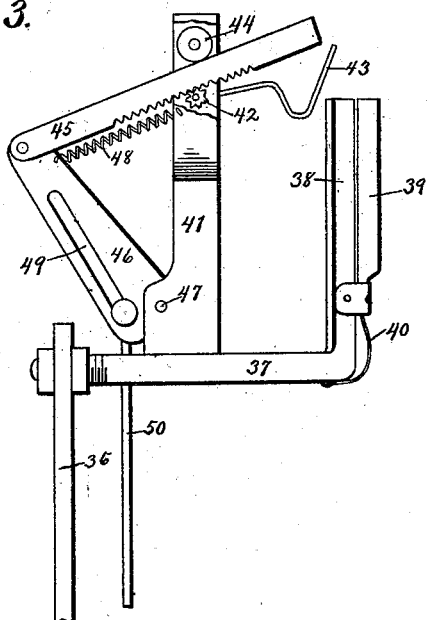


Fig. 3.



Witnesses

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UNITED STATES PATENT OFFICE.

PLINY W. FLINT, OF DES MOINES, IOWA.

BROOM-SEWING MACHINE.

SPECIFICATION forming part of Letters Patent No. 648,557, dated May 1, 1900.

Application filed March 11, 1899. Serial No. 708,623. (No model.)

To all whom it may concern:

Be it known that I, PLINY W. FLINT, a citizen of the United States, residing at Des Moines, in the county of Polk, State of Iowa, have invented certain new and useful Improvements in Broom-Sewing Machines, of which the following is a specification.

The object of this invention is to provide a broom-sewing machine of simple, strong, durable, and inexpensive construction that may be operated either manually or with a minimum of applied power.

My invention consists in the construction, arrangement, and combination of the various parts of the device whereby the objects contemplated are attained, as hereinafter more fully set forth, pointed out in my claims, and illustrated in the accompanying drawings, in which—

Figure 1 shows the complete device in perspective. Fig. 2 shows a horizontal sectional view of the same on a line a short distance above the ratchet-wheel. Fig. 3 shows an enlarged detail view illustrating the needle-guide and thread-holding device, also an arm for throwing the thread over and means for operating said arm.

Referring to the accompanying drawings, I have used the reference-numeral 10 to indicate the base of the machine, which is preferably composed of a rectangular metal frame. Near the lower end of this frame a shaft 11 is mounted, and on one end of this shaft is a sprocket-wheel 12, to which power is applied, and on the other end of this shaft is a wheel 13, having a wrist-pin 14 thereon. A lever 15 is pivoted near the top of the frame 10 and extends straight downwardly and is provided with a slot 16, through which the said wrist-pin projects, and obviously as the shaft is rotated the said lever is oscillated. On the back of the frame 10 I have fixed a spring-support 17, having its end curved forwardly and then inwardly and bifurcated at 18. Rods 19 extend through the ends 17 and also through the straight back of the same, and nuts 20 on the rear ends of these rods provide means whereby the ends may be bent toward or away from the back. Within these bifurcated ends 18 I have mounted the needle-bearing arms 21, which are held in place by means of the bolts 22, a rod 23 be-

ing provided to connect these ends and prevent their separating. The lower ends of the arms 21 project straight downwardly, and the upper ends are curved inwardly and then upwardly, so that they cross each other above the rod 23. On the lower end of each of the needle-bearing arms is a block 24, and an arm 25 is detachably connected with one of the blocks 24, and fixed to the lower end of the lever 15 a screw-threaded rod 26 is attached to the other one of the blocks 24 and adjustably connected with the said arm 25, so that the lower ends may be adjusted relative to each other.

On the upper ends of each of the needle-bearing arms is a loop 27, having an opening therein to receive a needle. Each needle is composed of a straight shank 29, having a shoulder at 30 and with a hook 31 formed in the upper face of its inner end.

A loose sleeve 32 is slidingly mounted upon the needle proper and is provided with a slot 33 at its side. A limiting-pin 34 projects backwardly from the needle into the said slot. In practical use this needle enters the broom and after it is passed through the sleeve 32 will stick in the broom sufficient to permit the needle to withdraw until the said sleeve covers the hook in the needle. Then the entire needle and sleeve will be withdrawn, and the said sleeve will thereby prevent the hook from engaging with the broom-corn and thread. A thumb-screw 35 is provided to secure the needle in the loop 27.

At the rear of the frame 10 two uprights 36 are placed, and in the top of each upright a support 37 is secured to project forwardly and then upwardly at 38. A guide 39 is pivoted to the upright part 38, and a spring 40 is provided to normally hold it against the upright 38. This guide is in position to admit the needle, so that the said needle will pass between the upright 38 and the guard 39 as it enters the broom, and as the needle is withdrawn the thread will be engaged by the said guide and there held. Near the central portion of the arm 37 is an upright 41, and near the top of this upright a pinion 42 is mounted for rotation. The shaft of said pinion projects inwardly and then at substantially right angles, and a hook 43 is formed in its outer end. A roller 44 is mounted in the support

41 above the pinion. A rack 45 is passed through the support 41 and is in engagement with the pinion 42, the said roller 44 being provided to limit the upward movement of the said rack. A lever 46 is pivoted at 47 to the support 41, and at its upper end it is pivoted to the rack 45. A tractile spring 48 is provided for normally holding the said lever toward the support 41. A slot 49 is provided in the said lever 46 to receive a rod 50, which is operated by means hereinafter set forth. Obviously when the said rod 50 is drawn downwardly the rack will be moved from the support 41, and thereby the pinion 42 will be rotated and the hook 43 be turned a complete revolution. Then when the pressure upon the rod 50 is removed the spring 48 will return the rack and again place the hook 43 in its starting position. Two laterally-projecting arms 51 are formed on the lever 15 and the said rods 50 are fixed thereto. Hence this movement of the hooks 43 would take place in unison with the operation of the needles.

On opposite sides of the arm 10 I have pivoted the uprights 52. These uprights incline toward each other and the bars connect them a short distance above the arm 10. Beneath these bars 53 a rod 54 is extended from one upright to the other, and on this rod a nut 55 is fixed.

A screw 56 is mounted for rotation on the front and rear of the frame 10 and passes through the nut 55. A ratchet-wheel 58 is fixed to the forward end of said screw. Means are provided for operating this ratchet, and obviously when the screw is turned the nut 55 will travel upon the screw 56, and thereby move the uprights 52 forwardly and rearwardly between the uprights 36. At the top of the uprights 52 I have mounted a broom-clamping device 59, into which the broom is inserted, and the said uprights are drawn together and there held by means of the link 60, which is pivoted to one of the uprights and also pivoted to the curved rod 61, having its bearing on the inner face of the opposite upright 52 and its ends pivoted to the said link 60. The said part 61 has a downwardly-projecting lever 62. Hence when this lever is moved the upper ends of the parts 52 may be brought together to securely hold a broom, and when moved to the position shown in Fig. 1 the broom will be firmly held. However, when the lever is moved upwardly the parts 52 will be forced apart and the broom may be withdrawn.

I have provided the following means for automatically operating the said ratchet-wheel 58, as follows: On one of the arms 51 is a pawl 63, in engagement with the said ratchet-wheel, and a spring 64, attached to the pawl, and an arm 51 tend to hold the pawl in engagement with the ratchet. On the lever 15 is a sliding loop 65, and an arm 66 projects upwardly therefrom and is pivoted at 67 to the frame 10. At a point above the pivot 67 a pawl 68 is pivoted thereto to engage the under surface of the

ratchet 58, and a spring 69 is attached to the said pawl and also to the upper end of the part 67, thereby normally holding the pawl against the ratchet. Hence when the lever 15 is oscillated the ratchet will be rotated slowly to thereby advance the nut 55, and hence moves the broom between the needles.

In practical operation and assuming that a broom was in position in the clamp, the operator first takes a thread cut to a length necessary for sewing the broom once and after attaching one end of the thread to the broom in the ordinary way the thread is first wrapped twice around the broom, and then the free end is passed over one of the hooks 43. Then the machine is started and the needle on the said opposite side from the thread passes through the broom under the thread on the side which it enters and over the thread on the opposite side and far enough through so that the hook on the end of the needle will engage the thread held by the hook 43. Then the needle is withdrawn as the machine is further operated and the thread is drawn through the broom and so far outwardly that the free end will be drawn completely through the broom. Then the hook 43 on the same side will be rotated in its turn to raise the thread in position where it will be engaged by the needle on the opposite side in the same manner as before described. Each needle thus draws the thread completely through the broom and by means of the ratchet device the broom is advanced till the entire broom is sewed. Then the free end of the thread is secured to the broom and one sewing has been completed. It is obvious that as many sewings as may be desired may be taken on one broom, and when the broom is finished it may be readily and quickly removed and a new one substituted therein.

Having thus described my invention, what I claim, and desire to secure by Letters Patent of the United States therefor, is—

1. In a broom-sewing machine, the combination, of a frame, two arms extending diagonally across the front of the machine and pivoted to the frame, a needle at the top of each, means for connecting the lower ends of the arms and for moving them laterally in unison, a thread-holder on the frame near each needle, a device adjacent thereto for engaging and supporting the thread after passing through the broom, a broom-holder pivotally supported between the needles, means for oscillating the broom-holder between the needles, for the purposes stated.

2. In a broom-sewing machine, the combination, of a frame, a power-shaft in said frame, a wheel fixed to the power-shaft, a pin on the wheel, a lever fulcrumed to the frame and having a longitudinal slot for receiving said pin, two uprights pivoted to the machine-frame, broom-holders at their tops, means for clamping the holders together to engage a

broom, two arms pivoted to the machine-frame and crossed above the shaft, rods for connecting their lower ends to the said lever, and needles in the upper ends of said arms, for the purposes stated.

3. In a broom-sewing machine, the combination, of a frame, a power-shaft in the frame, a wheel fixed to the shaft, a pin on the wheel, a lever fulcrumed to the frame and having a longitudinal slot for receiving said pin, two uprights pivoted to the machine-frame, broom-holders at their tops, means for clamping the holders together to engage a broom, two arms pivoted to the machine-frame and crossed above the shaft, rods for connecting their lower ends to the said lever, needles in the upper ends of said arms, a curved spring-support fixed to the frame, and having said arms pivoted in the ends of the said spring-supports, means for adjusting the ends of said spring-supports to thereby regulate the position of the crossed arms, for the purposes stated.

4. In a broom-sewing machine, the combination, of two reciprocating arms extending diagonally across the machine, needles in the upper ends of said arms, two thread and needle guiding devices each consisting of a sup-

port, a guide pivoted to the support and a spring for normally holding the guide against the said support, supports adjacent to each of said devices, a pinion in each of said supports, a curved thread-supporting arm for each pinion, a rack held against each pinion, means for moving the rack during each operation of the needles, for the purposes stated.

5. In a broom-sewing machine, the combination with needles and needle-operating devices for sewing brooms, of two uprights pivoted to the machine-frame, broom-holders at their tops, means for clamping the holders together to engage a broom, a rod attached to said arms, a nut on said rod, a screw-threaded shaft passed through the nut at right angles to the said rod, a ratchet-wheel on the end of said shaft, spring-actuated pawls to engage said ratchet connected with the said needle-operating devices of the machine to thereby turn the shaft and advance the broom relative to the needles, for the purposes stated.

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Witnesses:

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