

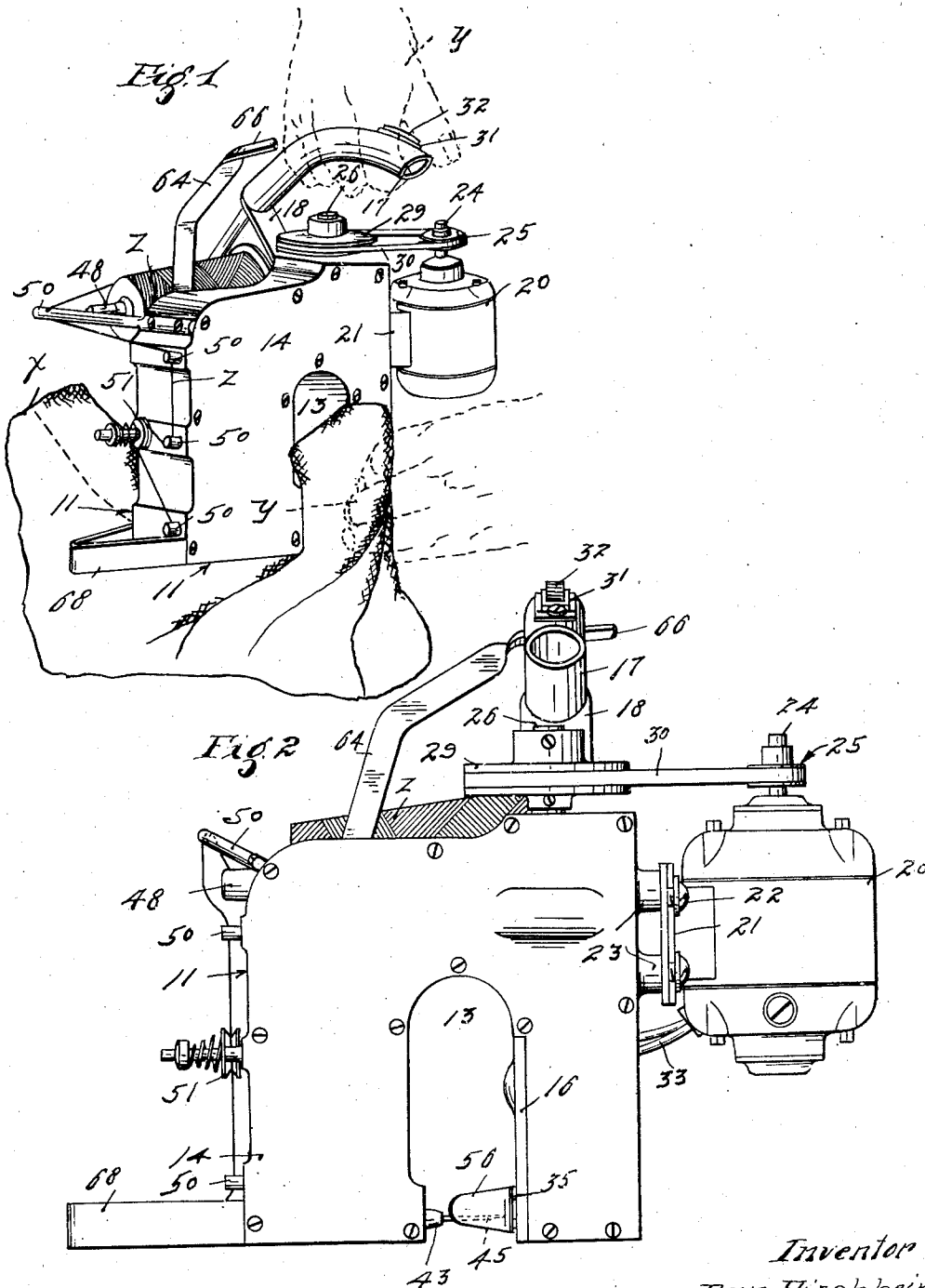
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D. FISCHBEIN
ELECTRIC SEWING MACHINE

2,484,495

Filed Aug. 29, 1945

3 Sheets-Sheet 1



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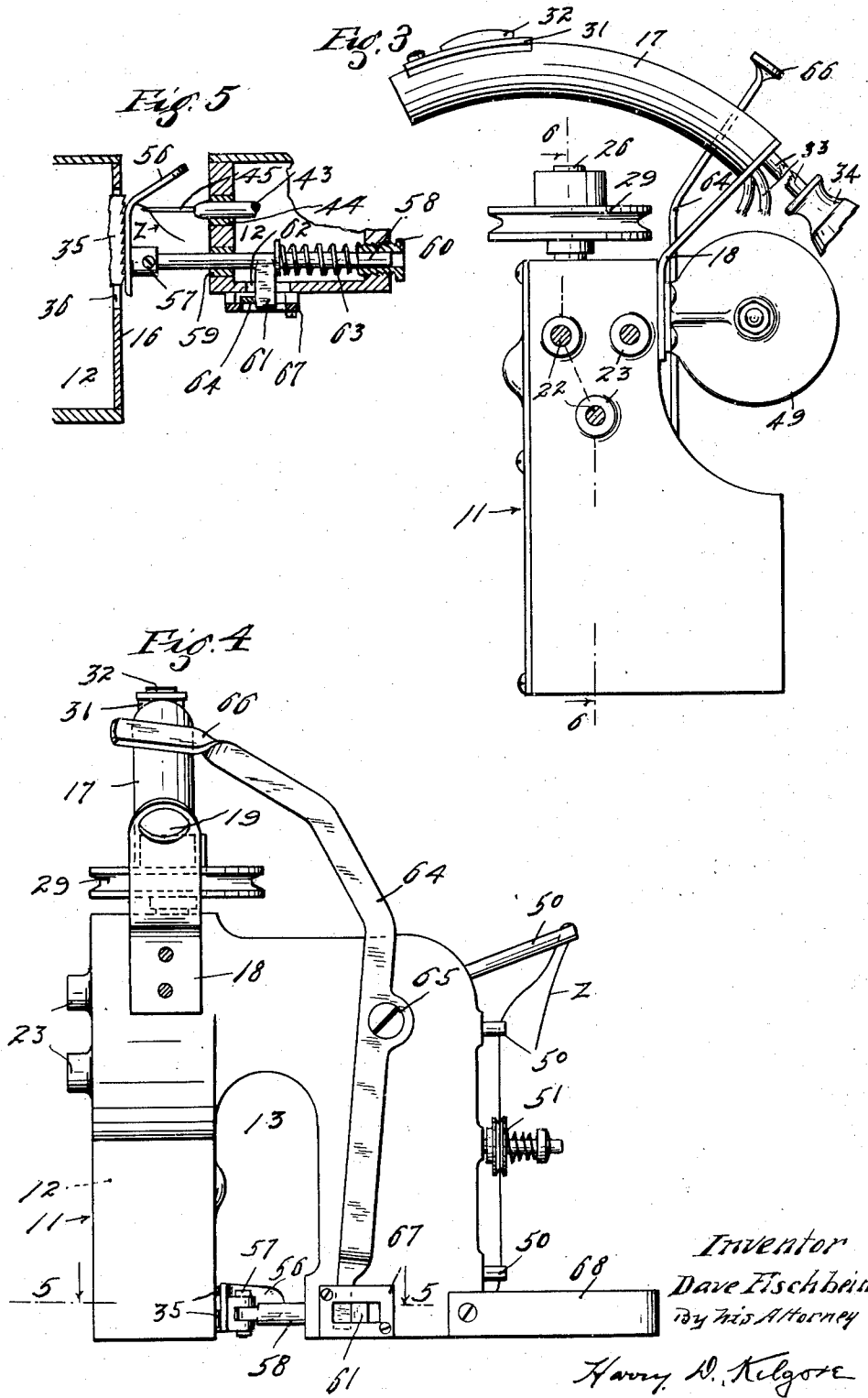
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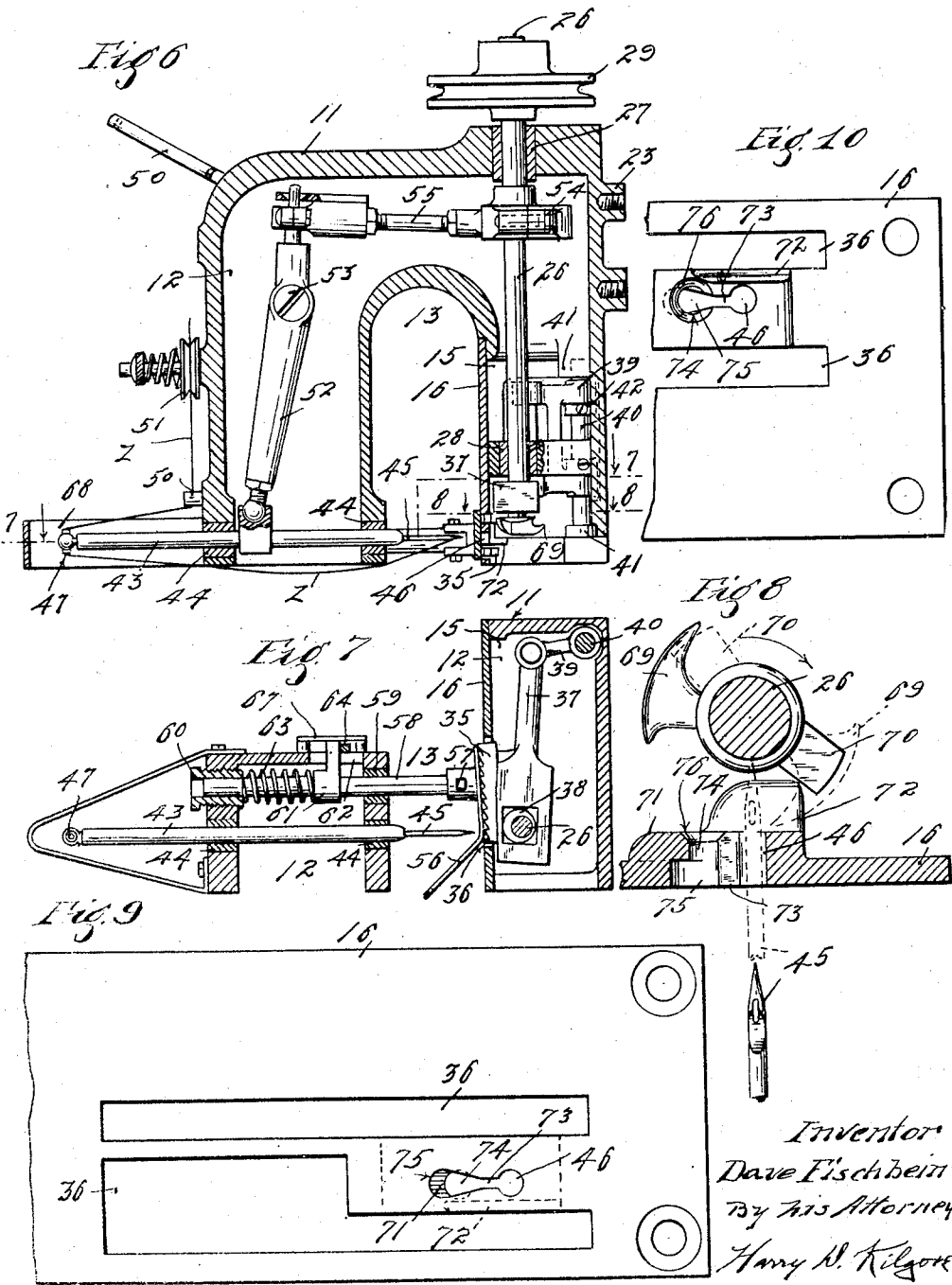
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UNITED STATES PATENT OFFICE

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ELECTRIC SEWING MACHINE

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6 Claims. (Cl. 112-11)

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My present invention relates to improvements in electric sewing machines of the type for closing, by sewing, the open mouth of a filled bag.

The primary objects of this invention are: first, to provide an electric sewing machine of simple construction and of such light weight that the same is easily carried by an operator in one of his hands and fed to its work while he uses his other hand to gather the sides of the open mouth of a stationary filled bag and holds the same as he feeds the machine thereto; and second, to provide novel means to facilitate "chaining" at the completion of the closing of the mouth of a filled bag by sewing. It may be here stated that "chaining" is the continuation of forming stitches by sewing after the material being sewed has been fed past the needle and said needle is no longer operating in a material. The purpose of "chaining," at the completion of closing the mouth of a filled bag by sewing, is to prevent the stitches from unravelling. Or in other words, "chaining" acts as a tie or knot in the thread at the completion of a sewing operation.

Other objects of the invention will be apparent from the following description, reference being had to the drawings.

To the above end, the invention consists of the novel construction and arrangement herein-after described and defined in the claims.

In the accompanying drawings, which illustrate the invention, like characters indicate like parts throughout the several views.

Referring to the drawings:

Fig. 1 is a perspective view of the improved sewing machine as held by an operator, his hands being illustrated by means of broken lines, while closing the open mouth of a filled bag, fragmentarily shown;

Fig. 2 is a front elevation of the improved sewing machine;

Fig. 3 is an end elevation in which the electric motor is removed and its supporting means sectioned;

Fig. 4 is a rear elevation;

Fig. 5 is a view partly in plan and partly in horizontal section taken on the line 5-5 of Fig. 4;

Fig. 6 is a view partly in elevation and partly in section taken on the line 6-6 of Fig. 3, some parts being removed;

Fig. 7 is a view partly in plan and partly in section taken on the line 7-7 of Fig. 6;

Fig. 8 is a fragmentary detail view principally in section taken on the line 8-8 of Fig. 6, on an enlarged scale;

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Fig. 9 is a front elevation of the throat plate, as shown in Fig. 8; and

Fig. 10 is a fragmentary view of the throat plate shown in Fig. 9 turned over to show the back thereof.

The numeral 11 indicates a shell in the form of a casting that affords a housing 12 for the major portion of the operating mechanism of the machine. This shell is formed to provide an arched feed passageway 13 for the top portion of a filled bag *x*, fragmentarily shown in Fig. 1. The hands *y* of an operator are also shown in Fig. 1 by means of broken lines.

The passageway 13 extends completely through the shell 11 from the front to the back thereof. The bottom of the shell 11 on each side of the passageway 13, is open. A displaceable plate 14 normally closes the open front of the shell 11 and is attached thereto by screws. Formed in the shell 11, at the right-hand side of the passageway 13, is a throat 15 normally closed by a plate 16 secured to the shell by screws.

A handle 17 is provided for carrying and holding the sewing machine. This handle 17 is tubular and is in the form of a segment of a circle and extends over and above the shell 11 from the back to the front thereof. A bracket 18 rigidly secures the handle 17 at its rear end to the back of the shell 11. A hole 19 in the bracket 18 is coincident with the opening through said handle. The tubular handle 17 affords a conduit for electric wires, as will presently appear.

The mechanism of the sewing machine is operated by an electric motor 20. This motor 20 is mounted on a frame 21 attached to the shell 11 by screws 22 that have threaded engagement with bosses 23 on the right-hand end of the shell 11. The motor 21 is mounted with its armature shaft 24 upright and a small V-pulley 25 is secured on said shaft above the motor 20.

An upright shaft 26 is journaled in a bearing 27 in the top of the shell 11 and a lower bearing 28 in the right-hand section of the housing 12. This shaft 26 extends above the shell 11 and large V-pulley 29 is secured thereto in alignment with the pulley 25. A V-belt 30 is arranged to run over the pulleys 25 and 29.

A switch 31 in the motor circuit mounted in the front end portion of the handle 17 includes a sliding thumb-piece 32 on top of said handle. The end portions of wires 33 leading to the motor 20 and switch 31 extend into the handle 17 which afford a conduit therefor. On the outer ends of the wires 33 is a plug 34, fragmentarily shown,

for attaching said wires to a suitable outlet, not shown.

Feed dogs 35 operating in upper and lower slots 36 in the throat plate 16 are actuated by a feed bar 37 which receives its motion from an eccentric 38 on the shaft 26. The feed bar 37 is carried by a rocker frame 39 pivoted on an upright shaft 40 mounted in upper and lower bearings 41 in the housing 12. Collars 42 on the shaft 40 hold the rocker frame 39 against axial movement thereon.

A reciprocal needle bar 43 is mounted in bearings 44 in the housing 12. Mounted in the inner end of the needle bar 43 is a needle 45 that extends transversely through the passageway 13 for movement through a needle hole 46 in the throat plate 16. In the rear end of the needle bar 43 is a vertical passageway 47 through which twine *z*, with which the bag *x* is sewed, is drawn by the reciprocating needle bar 43 from a cone on a spindle 48. The spindle 48 is secured to a bracket 49 on the back of the shell 11. This twine runs through guides 50 and a tension device 51 on the shell 11.

The needle bar 43 is reciprocated by a lever 52 intermediately pivoted at 53 to the shell 11. An eccentric 54 on the shaft 26 is connected to the needle bar 43 by an adjustable connecting rod 55.

Co-operating with the feed dogs 35 is a presser foot 56 pivoted at 57 to one end of a bar 58. This presser foot bar 58 is mounted for endwise sliding movement in a bearing 59 and a spring adjusting nut 60. The bearing 59 is in the wall of the shell 11 at the left-hand side of the passageway 13 and the adjusting nut 60 has screw-threaded engagement with the left-hand wall of the shell 11. An arm 61 on the presser foot bar 58 extends outwardly through a slot 62 in the ball wall of the shell 11. A coiled spring 63 encircling the presser foot bar 58 is compressed between the adjusting nut 60 therefor and the arm 61. This spring 63 is under strain to hold the presser foot 56 in co-operating relation with the feed dogs 35.

A hand lever 64 is provided for operating the presser foot bar 58 to retract the presser foot 56 and permit the sides of the bag *x*, at its mouth, to be placed between feed dogs 35 and the presser foot 56. This hand lever is intermediately pivoted at 65 to the back wall of the shell 11. The lower end portion of the lever 64 engages the arm 61 and its upper end portion extends transversely over and above the rear end portion of the handle 17. That portion of the lever 64 over the handle 17 is bent into parallel arrangement with the respective portion of said handle to afford a hand-piece 66.

The location of the hand-piece 66 relative to the handle 17 is highly important in that the operator, by tipping his hand, holding the sewing machine by said handle, backwardly, may operate the lever 64 to retract the presser foot and hold the same while inserting the sides of the bag *x* between said presser foot and the feed dogs 35.

Likewise, the mounting of the switch 31 on the front end portion of the handle 17 positions the same where the operator can manipulate the switch member 31 with his thumb while gripping said handle and holding the sewing machine.

On the back wall of the shell 11 is a guard 67 for the projecting end of the arm 61 and the free lower end portion of the lever 64. A guard 68 on the shell is provided for the projecting rear end portion of the needle bar 43.

On the lower end of the shaft 26 is the cus-

tomary hook 69 and its heel 70 for forming loops in the twine *z* during the stitching operation of the machine. On the back of the throat plate 16 is a chain-forming guide block 71 having a twine supporting lip extension 72. A restricted passageway 73, a round inner hole 74 and a tear-drop outer hole 75 are spaced from the needle hole 46 and from each other, in the order given, in the direction of the feeding of the machine to its work. The passageway 73 extends through the throat plate 16 and the block 71, the inner hole 74 extends through the block 71 and the outer hole 75 extends through the throat plate 16 to the block 71. The passageway 73 leads from the needle hole 46 to the inner hole 74 and the contracted end of the hole 75 is in communication with the passageway 73 and the inner hole 74. The block 71, at the hole 74, is countersunk, as indicated at 76.

The lip extension 72, over which the needle 45 extends when projected, prevents the twine *z* from dropping downwardly from the needle 45 into a position in which the hook 69 would not pick up said twine, when it passes over the needle 45, by entering the loop formed at the needle's eye.

The purpose of the lip restricting the passageway 72 is to retard, by friction, the drawing of the twine *z* away from the needle 45 where the same could not be reached by the hook 69 in the process of forming a stitch.

It may be assumed that the last stitch has been made in the bag *x* and the needle 45, during the next stitch-forming cycle, does not pass through the material and starts the formation of a chain. The first stitch in the chain will be between the needle 45 and the counter-sink 76. During the next cycle of operation, the first stitch will be drawn into the hole 74 and the wall of said hole, farthest from the needle 45, holds the twine *z* in a forward position to enable the heel 70 to enter the triangle formed in the twine during the stitch-forming cycle. The first stitch during the next cycle of operation will be drawn into the hole 75 to be out of the way of the second stitch entering the hole 74.

The counter-sink 76 facilitates the movement of a stitch away from the needle 45 and its entrance into the hole 74. It will thus be seen that the chain-forming stitches are progressively drawn away from the needle 45 by a step-by-step movement. The exact relative arrangement of the passageway 73 and the holes 74 and 75 to the needle 45 and each other and their several functions are highly important to the successful "chaining" operation of the machine.

From what has been said, it will be understood that the sewing machine described is capable of modifications as to details of construction and arrangement within the scope of the invention herein disclosed and claimed.

What I claim is:

1. In a portable electric sewing machine, a housing, an electric motor mounted on the housing, a handle overlying the housing and by which handle the sewing machine may be carried in suspension by one hand of an operator to its work and thus held during the operation thereof, in combination with a yieldingly held lever for operating the presser foot of the machine, said lever being closely positioned to the rear end portion of the handle whereby the same may be operated by a rocking movement of the hand holding the handle.

2. In a portable electric sewing machine, a housing, an electric motor mounted on the hous-

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ing, a handle overlying the housing and by which handle the sewing machine may be carried in suspension by one hand of an operator, to its work and thus held during the operation thereof, in combination with a yieldingly held lever for operating the presser foot of the machine, said lever having a hand-piece extending transversely of the handle at the rear end portion thereof, whereby the same may be operated by a rocking movement of the hand holding the handle.

3. In a portable electric sewing machine, a housing having an open bottom passageway through which the needle of the sewing machine operates, an electric motor mounted on one side of the housing, a handle overlying the housing substantially parallel to the passageway and by which handle the sewing machine may be carried in suspension by one hand of an operator to its work and thus held during the operation thereof, said housing and electric motor being in balanced arrangement transversely of the handle, in combination with a switch in the circuit wires of the motor mounted on the front end portion of the handle, and a yieldingly held lever for operating the presser foot of the machine having a hand-piece extending transversely of the handle at the rear end portion thereof, whereby the same may be operated by a rocking movement of the hand holding the handle.

4. A portable sewing machine, a substantially U-shaped housing including a base, standard, and an overhanging arm, a motor secured on the base, needle and looper mechanisms carried in the lower ends of the overhanging arm and the base respectively, said motor having operable connection with the needle and looper mechanisms, a handle secured to the housing and overlying the base thereof opposite the looper mechanism, and said handle being disposed centrally above the concentrated center of gravity of the combined motor and housing whereby the machine may be readily suspended from and manipulated by one hand of the operator during the sewing operation.

5. A portable sewing machine, a substantially U-shaped housing including a base, standard, and an overhanging arm, a motor secured on that face of the base opposite the overhanging arm, needle and looper mechanisms in the lower ends of the

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overhanging arm and base respectively, said motor having operable connection with the needle and looper mechanisms, a handle secured to and transversely overlying the housing intermediate the overhanging arm and the motor opposite the looper mechanism, and said handle being disposed centrally above the concentrated center of gravity of the combined motor and housing whereby the machine may be readily suspended from and manipulated by one hand of the operator during the sewing operation.

6. A portable sewing machine, a substantially U-shaped housing including a base, standard, and an overhanging arm, a motor secured on the base, needle and looper mechanisms carried in the lower ends of the overhanging arm and the base respectively, said motor having operable connection with the needle and looper mechanisms, a handle secured to the housing and overlying the base thereof opposite the looper mechanism, said handle being disposed centrally above the concentrated center of gravity of the combined motor and housing whereby the machine may be readily suspended from and manipulated by one hand of the operator during the sewing operation, and a lever for operating the presser foot of the machine having one end thereof terminating adjacent one end of the handle.

DAVE FISCHBEIN.

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