

Mar. 27, 1923.

H. F. GALLAGHER ET AL

1,450,031

EMBROIDERING MACHINE

Filed Apr. 17, 1922

2 sheets-sheet 1

Fig. 1.

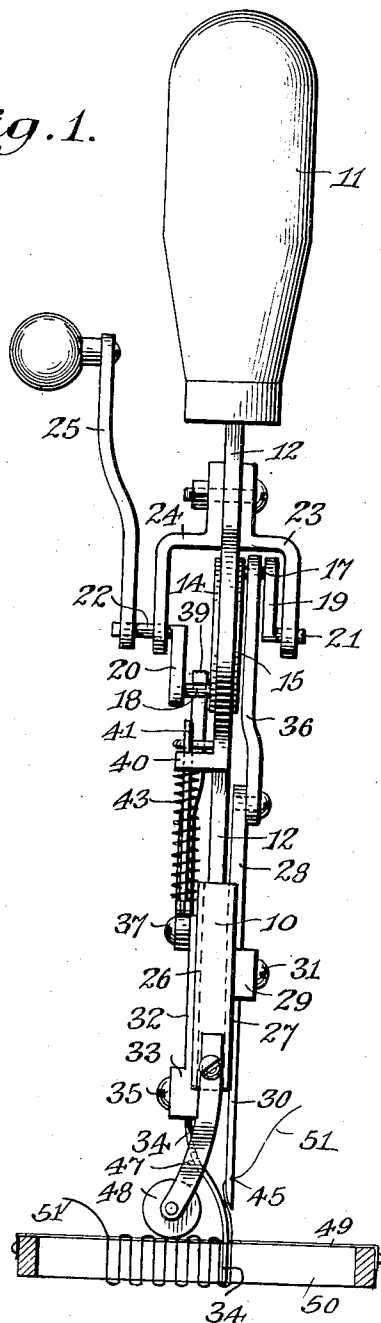
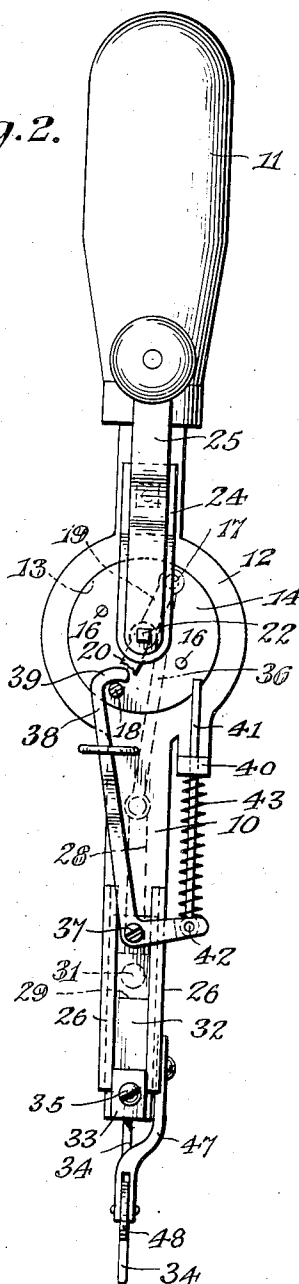


Fig. 2.



Hugh F. Gallagher
Michael P. Gallagher INVENTORS

BY
Geo. F. Kimmel
ATTORNEY.

Mar. 27, 1923.

H. F. GALLAGHER ET AL

1,450,031

EMBROIDERING MACHINE

Filed Apr. 17, 1922

2 sheets-sheet 2

Fig. 3.

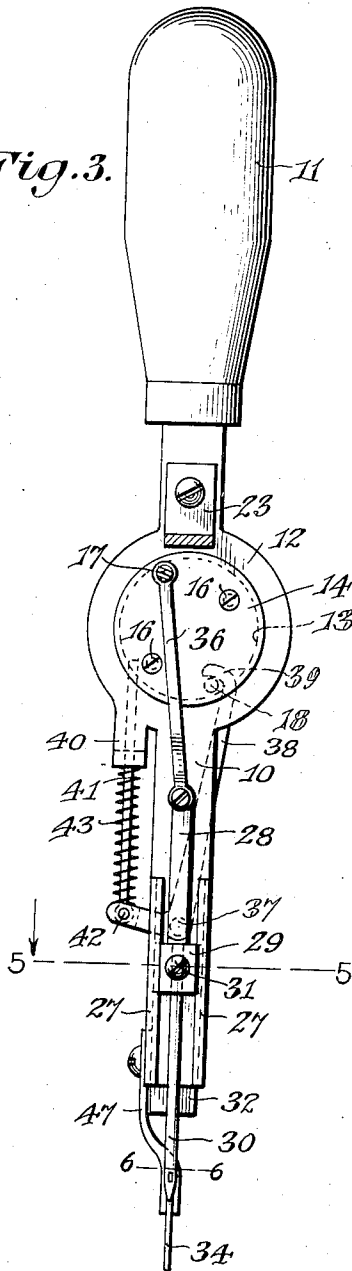


Fig. 4.

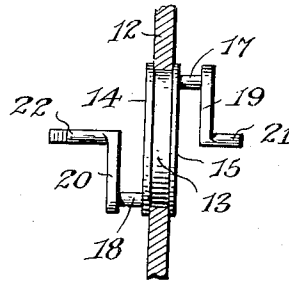


Fig. 5.

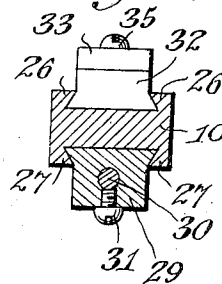
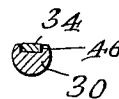


Fig. 6.



Hugh F. Gallagher
Michael P. Gallagher, INVENTORS

BY
Geo. P. Himmel

ATTORNEY.

UNITED STATES PATENT OFFICE.

HUGH F. GALLAGHER, OF PORTLAND, MAINE, AND MICHAEL P. GALLAGHER, OF
LITTLETON, NEW HAMPSHIRE.

EMBROIDERING MACHINE.

Application filed April 17, 1922. Serial No. 553,395.

To all whom it may concern:

Be it known that we, HUGH F. GALLAGHER and MICHAEL P. GALLAGHER, citizens of the United States, and residents of Portland, in the county of Cumberland and State of Maine, and Littleton, in the county of Grafton and State of New Hampshire, respectively, have invented certain new and useful improvements in Embroidering Machines, of which the following is a specification.

This invention relates to an implement for producing embroidery stitching or "tufting" in a fabric, and has for one of its objects to provide a simply constructed device of this character of increased efficiency, utility and simplicity.

Another object of the invention is to provide a device of this character including a coacting needle and plunger, and in which the plunger operates without injury to the body of the fabric.

With these and other objects in view the invention consists in certain novel features of construction as hereinafter shown and described and then specifically pointed out in the claims, and in the drawings illustrative of the preferred embodiment of the invention:—

Fig. 1 is a front elevation of the improved implement,

Fig. 2 is side elevation of the same viewed from the plunger side,

Fig. 3 is a side elevation viewed from the needle side,

Fig. 4 is a sectional detail illustrating the construction and operation of the face plate and cranks,

Fig. 5 is a transverse section, enlarged, on the line 5—5 of Fig. 3,

Fig. 6 is a transverse section, enlarged, of the channelled needle, on the line 6—6 of Fig. 3.

The improved implement comprises a body or stock 10 having a holding handle 11 at one end and an intermediate bearing 12 in which a face wheel is mounted for rotation.

The face wheel is formed of a body portion 13 engaging in the bearing 12 and flanges 14 and 15 engaging the opposite faces of the bearing 12 and secured in position as by clamp screws 16 or the like. The face wheel 13 and its flanges are provided with crank pins 17 and 18 extending from

the flanges and at diagrammatically opposite points, as shown in Figs. 2 and 3.

The crank pins are extended respectively into crank arms 19 and 20, the crank arms terminating in stub shafts 21 and 22 in alignment with each other and with the center of the face wheel.

Attached to the opposite faces of the body 10 are hangers 23 and 24 in the lower free ends of which the stub shafts 21 and 22 are journaled. By this means the crank arms and crank pins are effectually supported for rotation with the face wheel, an operating crank arm 25 being applied to one of the stub shafts, for instance the shaft 22.

At its lower portion the body 10 is formed with spaced guide ribs 26 on one side and similar spaced guide ribs 27 on the other side, the confronting faces of the ribs being preferably overhung or dovetailed, as shown in Fig. 5. Slidable between the guide ribs 27 is a guide member 28 having a projection or "head" 29 apertured to receive a needle 30, the latter held in position by a set screw 31.

Slidable between the guide ribs 26 is another guide member 32 having an enlargement or head 33 apertured to receive a plunger member 34, the latter held in place by a set screw 35.

At its upper end the guide member 28 is coupled to the crank pin 17 by a connecting rod 36, so that the rotary motion of the face wheel will cause the guide member and needle to travel vertically.

Pivoted at 37 to the guide member 32 is an L shaped arm 38 with the terminals of its longer arm offset as shown at 39 and engageable by the crank pin 18 when the face wheel is rotated.

Extending from the stock 10 is a perforated lug 40 through which a rod 41 is slidably disposed, the lower end of the rod being pivoted at 42 to the shorter arm of the L shaped lever 38. A spring 43 surrounds the rod 41 between the lug 40 and the lever arm 38, and operates to maintain the guide member 32 and the plunger 34 yieldably in downward position, and the offset end of the arm 38 in the path of the crank pin 18.

A stop loop 44 is attached to the stock 10 and encloses the arm 38 and limits its motion laterally.

The needle 30 is formed with its eye 45 near the point and with a longitudinally directed groove or guide channel 46 to receive the lower portion of the plunger 34, whose lower portion is curved laterally as shown in Fig. 1 to enable it to travel in the groove in the needle while passing through the fabric.

Attached to the lower part of the stock 10 is a standard 47 forked at the lower end to pivotally receive a bearing roller 48.

The fabric in which the thread is to be woven or "tufted" is indicated conventionally at 49 and preferably stretched relatively tight on a suitable holding frame, such as an embroidery frame indicated at 50.

The thread is indicated conventionally at 51, and is threaded through the eye 45 of the needle, as illustrated in Fig. 1.

In starting the operation of the improved device, the handle 25 is first rotated to an intermediate position to bring the point of the needle 30 and the lower end of the plunger at the same level. The needle and plunger are then placed on the fabric 49 at the point where the first stitch or "tuft" is to be made, and the crank 25 operated to thrust the needle through the fabric carrying the thread with it, this initial movement of the plate 13 causing the pin 18 to engage the offset 39 of the arm 38 and elevate the guide member 32 and the plunger 34 carried thereby against the resistance of the spring 43, the upward movement of the plunger continuing until the pin 18 passes from beneath the overhang 39, when the plunger carrying member will be quickly released and moved downwardly by the reaction of the spring 43 and engaging the loop of the thread 51 at the point of the depressed needle below the line of the fabric 49, the sudden depression of the plunger taking place slightly before the beginning of the return stroke of the needle, and thus holding the loop of the thread and preventing it from being drawn upward by the return stroke of the needle. In its downward movement the lower portion of the plunger operates in the channel in the needle, thereby obviating the cutting of an unnecessarily large opening through the fabric.

By this means a loop is formed at each stroke of the needle and plunger, as will be obvious.

The bearing wheel 48 insures the uniform action, and holds the device in proper relation to the fabric.

After the loop or tuft has been produced it can be shirred at one side of the fabric to produce a velvet-like effect.

The preferred embodiment of the invention is disclosed in the drawings and set forth in the specification, but it will be understood that modifications within the

scope of the claimed invention may be made in the construction without departing from the principle of the invention or sacrificing any of its advantages.

Having thus described the invention, what is claimed as new, is:—

1. In an implement of the class described, a supporting stock having spaced guideways in its opposite faces, a needle head movable between said guideways at one side of the stock, a needle carried by said head, a plunger member movable between said guideways at the other side of the stock and coacting with said needle, yieldable means for retaining said plunger normally in projected position, and means for alternately actuating said needle head and the plunger against the resistance of said yieldable means.

2. In an implement of the class described, a supporting stock having spaced guideways in its opposite faces, a needle head movable between said guideways at one side of the stock, a needle carried by said head and having a longitudinally directed open guideway, a plunger member movable between said guideways at the other side of said stock and engaging in the guideway of said needle, yieldable means for retaining said plunger normally in projected position, and means for alternately actuating said needle and the plunger against the resistance of said yieldable means.

3. In an implement of the class described, a supporting stock, a face wheel mounted for rotation in said stock and having crank pins extending from its opposite faces and at diametrically opposite points, means for rotating said face wheel, guideways on the opposite faces of said stock, a head member slidable in each of said guideways, a needle secured in one of said head members, a plunger connected to the other of said head members and coacting with the needle, a connecting rod between said needle carrying head and one of said crank pins, an arm pivoted at one end to the plunger carrying head and with an offset at the other end extending into the path of the other of said crank pins, and yieldable means operating to swing said arm laterally and to maintain the plunger carrying head in its projected position.

4. In an implement of the class described, a supporting stock, a face wheel mounted for rotation in said stock and having crank pins extending from its opposite faces and at diametrically opposite points, guideways on the opposite faces of the stock, a head member slidable in each of said guideways, a needle secured in one of said head members, a plunger connected to the other of said head members and coacting with the needle, a connecting rod between said needle carrying head and one of said

crank pins, an L shaped arm pivoted at its elbow to the plunger carrying head and with an offset at one end extending into the path of the other of said crank pins, and yieldable means operating on the other end of the L shaped arm to swing the same laterally and to maintain the plunger carrying head in its projected position.

5. In an implement of the class described, a supporting stock, a face wheel mounted for rotation in said stock and having crank pins extending from its opposite faces and at diagrammatically opposite points, crank arms carried respectively by said crank pins, brackets attached to said stock and rotatively supporting said crank arms, means applied to one of said crank arms for rotating the same and the face wheel connected therewith, guideways on the opposite

faces of said stock, a head member slidable in each of said guideways, a needle secured in one of said head members, a plunger connected to the other of said head members and coacting with the needle, a connecting rod between said needle carrying head and one of said crank pins, an arm pivoted at one end to the plunger carrying head and with an offset at the other end extending into the path of the other of said crank pins, and yieldable means operating to swing said arm laterally and to maintain the plunger carrying head in its projected position.

March 27, 1922.

In testimony whereof, we affix our signatures hereto.

HUGH F. GALLAGHER.
MICHAEL P. GALLAGHER.