

No. 649,607.

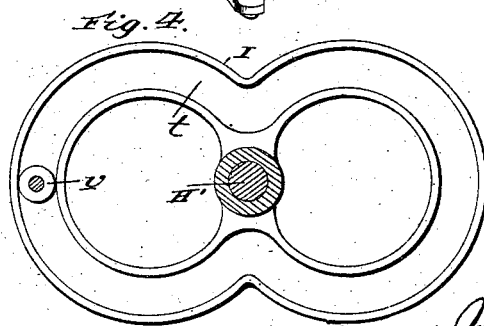
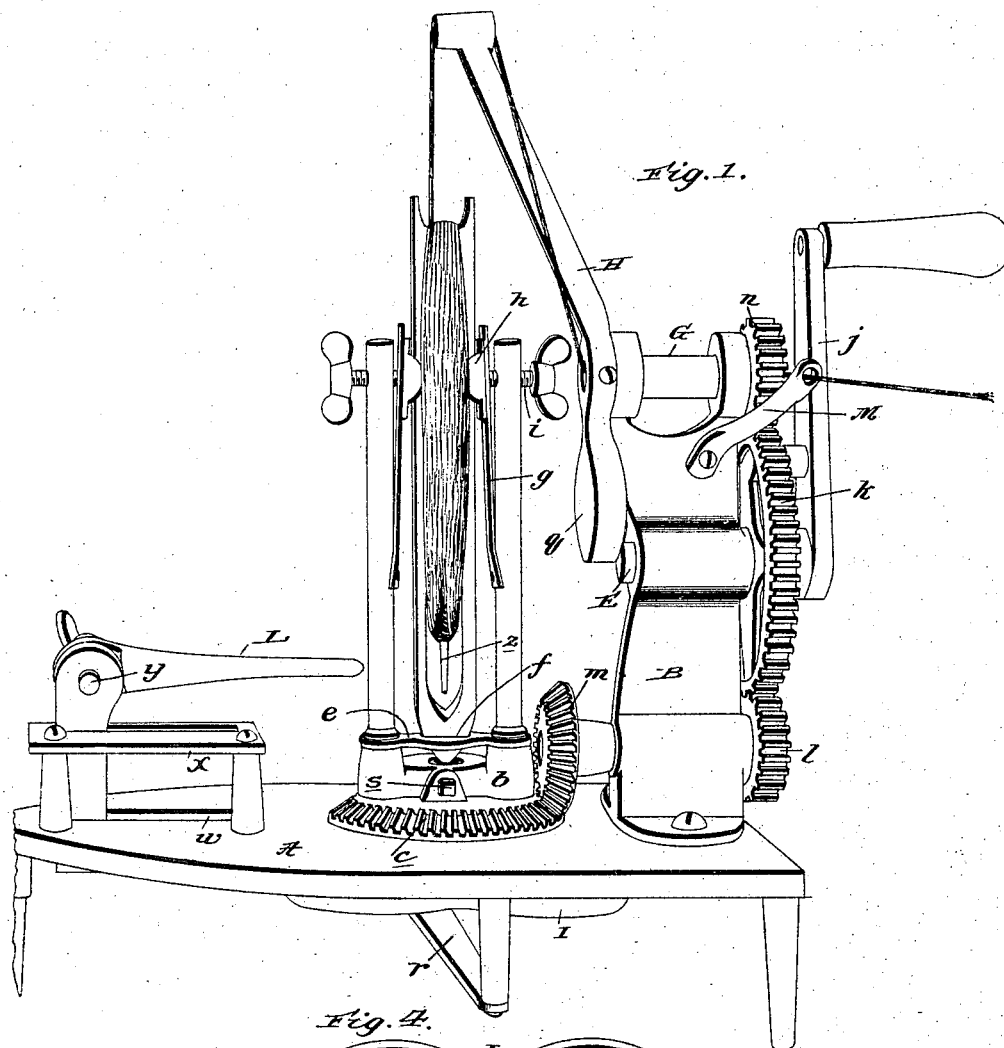
Patented May 15, 1900.

J. E. INMAN.
NEEDLE FILLING MACHINE.

(Application filed Aug. 26, 1899.)

(No Model.)

2 Sheets—Sheet 1.



Witnesses:

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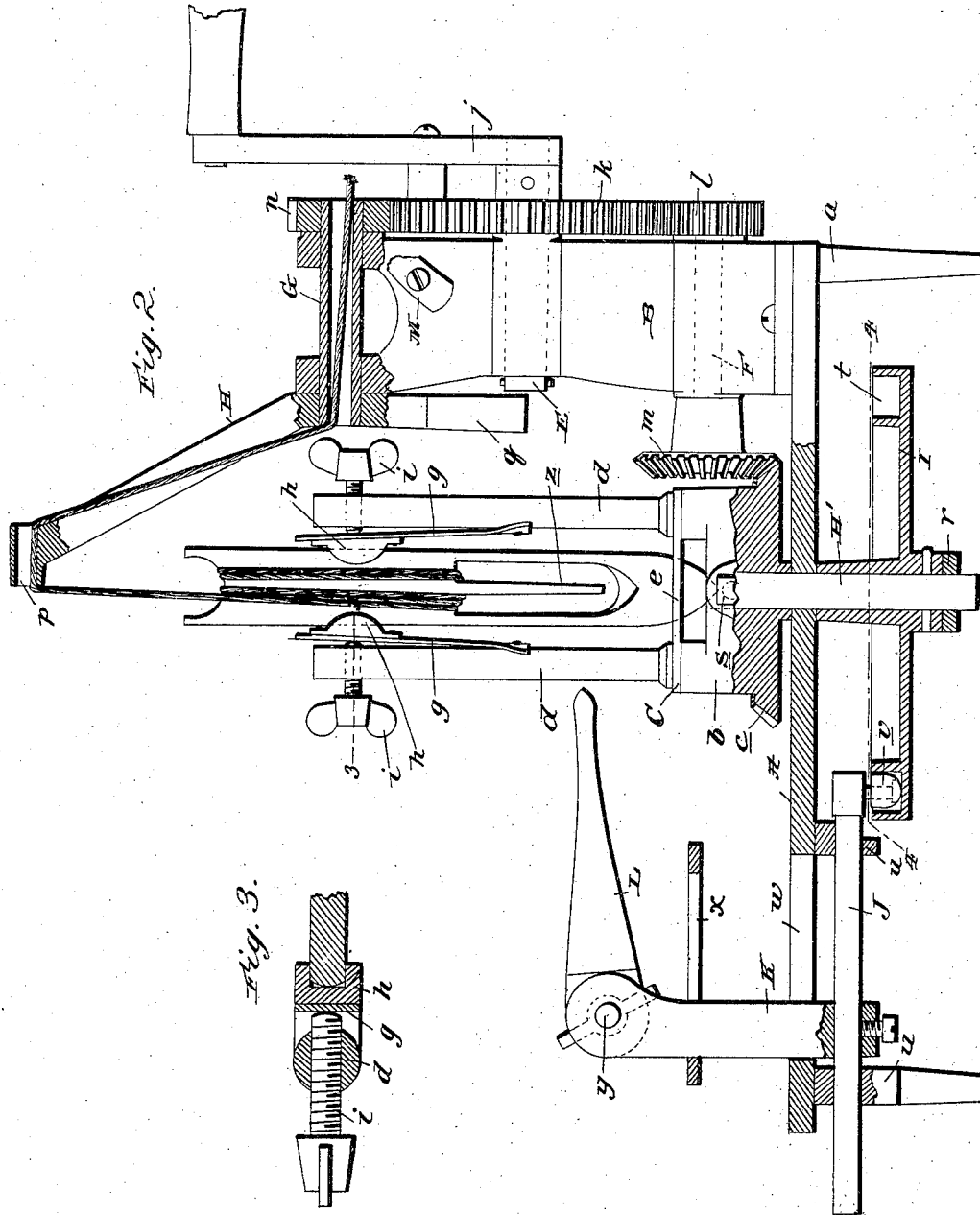
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UNITED STATES PATENT OFFICE.

JOHN E. INMAN, OF KALAMA, WASHINGTON.

NEEDLE-FILLING MACHINE.

SPECIFICATION forming part of Letters Patent No. 649,607, dated May 15, 1900.

Application filed August 26, 1899. Serial No. 728,626. (No model.)

To all whom it may concern:

Be it known that I, JOHN E. INMAN, a citizen of the United States, residing at Kalama, in the county of Cowlitz and State of Washington, have invented new and useful Improvements in Needle-Filling Machines, of which the following is a specification.

My invention relates to needle-filling machines; and it consists in a machine calculated to expeditiously fill or place twine upon needles such as are used for knitting gill-nets and the like.

With the foregoing in mind the invention will be fully understood from the following description and claims when taken in conjunction with the annexed drawings, in which—

Figure 1 is a perspective view of the machine. Fig. 2 is a vertical longitudinal central sectional view of a portion of the same with some parts in elevation. Fig. 3 is an enlarged detail transverse section taken in the plane indicated by line 3 3 of Fig. 2. Fig. 4 is a detail horizontal section taken in the plane indicated by the broken line 4 4 of Fig. 2.

In the said drawings similar letters designate corresponding parts in all of the several views, referring to which—

A is a bed mounted on legs *a* and forming part of the main frame of the machine.

B is a standard fixed to and rising from the bed at one end of the same, and C is an upright rotary needle-holder disposed above the bed. The needle-holder in the preferred embodiment of my invention is made up of a base *b*, on which is a miter-gear *c*, parallel up-rights *d*, rising from the base, a cross-bar *e*, bridging the space between the up-rights adjacent to the lower ends thereof and having a slot *f*, spring-strips *g*, connected at their lower ends to the inner sides of the up-rights *d* and having grooved enlargements *h* at their upper ends, and screws *i*, mounted in the up-rights *d* and arranged to bear at their inner ends against the spring-strips *g*. By virtue of this construction when it is desired to secure a needle D, such as shown in Fig. 2, in the holder it is simply necessary to arrange the needle between the grooved enlargements *h* of strips *g*, with its point resting in the slot *f* of cross-bar *e*, and then turn the screws *i* in-

wardly, so as to clamp the needle between the strips *g*. To release the needle, it is simply necessary to turn the screws *i* outwardly, when the needle may be readily lifted from the holder.

E is the primary shaft of the machine, which is journaled in standard B and provided with a crank *j* and gear *k*.

F is a shaft which is disposed below the shaft E in standard B and is equipped with a pinion *l*, intermeshed with gear *k*, and a miter-gear *m*, intermeshed with the gear *c* of the holder-base *b*, and G is a hollow shaft which is disposed above shaft E in the standard B and is provided at its outer end with a pinion *n*, intermeshed with the gear *k* of the primary shaft. At its inner end the said shaft G is equipped with a winder H, which has an eye *p* at one end and a counterbalance-weight *q* at its opposite end, the latter being designed to gain momentum when the winder is rotated and render the movement of the same easy.

H' is a shaft which is journaled in the bed A and in a cross-bar *r*, disposed below the bed, and extends up into the holder-base *b*, to which it is fixed by a set-screw *s*.

I is a cam fixed on shaft H' and having a groove *t* shaped like the figure 8.

J is an endwise-movable rod arranged in boxes *u* below the bed A and having an anti-friction-roller *v* at its inner end movable in the groove of the cam.

K is an upright arm fixed on rod J and extending through a longitudinal slot *w* in the bed and also through a guide *x*, disposed above the bed, and L is a presser or finger which is adjustably connected by a screw *y* to the arm K and has for its purpose to engage and press the resilient tongue *z* of the needle in the holder laterally at intervals, as will be presently described.

M is a guide on the standard B, through which the twine to be placed on a needle is carried prior to being passed through the hollow shaft G and the eye *p* of winder H.

By reason of the gearing interposed between the primary shaft E and the winder H and needle-holder C said winder H will make two revolutions to one of the needle-holder, while by reason of the disposition of the cam

I the presser L will be caused to move endwise in and out twice incident to each revolution of the needle-holder C. The movements of the parts are also so timed that
 5 precedent to the eye *p* of winder H reaching its lowermost position the flat side of the needle in holder C will be presented to the arm, and the finger L will move inwardly and press the tongue *z* of the needle laterally out
 10 of alinement with the body thereof. The tongue *z* will be held in the position stated by finger L until the eye *p* of winder H passes and places a bight of twine over the tongue, after which the finger L will recede
 15 to a position out of the way of holder C, while the winder H will carry the twine up and over the heel of the needle. It follows from the foregoing that after placing a bight of twine over the tongue *z* the winder H carries the
 20 twine up one side, over the heel, and down the other side of the needle and after placing another bight of twine over the tongue *z* carries the twine up such other side of the needle and again over the heel of the same, and so on.
 25 In the practical operation of the invention after an empty needle is placed and secured in the holder C in the manner before described the operator draws the twine through the eye *p* in winder H and holds the end of
 30 the same between the prongs at the heel end of the needle with his left hand, meanwhile turning the crank *j* with his right hand until two or more bights of twine are placed on the tongue of the needle and two or more
 35 stretches of the same are laid over the body of the needle. The operator now releases his hold on the end of the twine and loosely grasps it before it passes through guide M, so as to hold it under suitable tension, and continues
 40 to turn the crank until the needle is filled. Two bights of twine are placed on the tongue *z* of the needle incident to each revolution of the needle-holder, and hence the filling of the needle is expeditiously effected. When the
 45 needle is filled, the twine is cut between the needle and eye *p* of winder H, and the needle is removed from the holder after the manner before described.

By virtue of the adjustable connection of
 50 the presser L to the arm K said presser may be readily raised or lowered, so as to engage the tongue of a needle at the proper point.

The cam I, shaped like the figure 8, is advantageous, since it quickly moves the presser
 55 L into and out of engagement with the tongue of the needle in the holder, and thereby enables said presser to move the tongue into a position to receive a bight of twine without interfering with said bight being drawn up-
 60 wardly on the tongue by the winder H.

Having thus described my invention, what I claim is—

1. In a needle-filling machine, the combination of a rotary needle-holder, a winder, and
 65 means for moving a portion of a needle, in the holder, with respect to the remainder thereof, incident to the rotation of the holder,

so as to enable said portion of the needle to receive a bight of twine from the winder, substantially as specified. 70

2. In a needle-filling machine, the combination of a rotary needle-holder, a rotary winder for placing twine on a needle held by the holder, and means for moving a portion of the needle with respect to the remainder thereof, 75 incident to the rotation of the holder, so as to enable said portion of the needle to receive a bight of twine from the winder.

3. In a needle-filling machine, the combination of a needle-holder, a winder, and a presser 80 for moving a portion of a needle into a position to receive a bight of twine from the winder, substantially as specified.

4. In a needle-filling machine, the combination of a rotary needle-holder, a rotary winder, 85 and a reciprocatory presser for moving a portion of a needle in the holder into a position to receive a bight of twine from the winder, substantially as specified.

5. In a needle-filling machine, the combination of a main frame, a primary shaft, a rotary needle-holder, a rotary winder, a reciprocatory presser, mechanism intermediate of the primary shaft and the holder and winder 90 for rotating said holder and winder, and mechanism intermediate the holder and the presser for reciprocating the latter. 95

6. In a needle-filling machine, the combination of a needle-holder, a rotary winder for placing twine on a needle held by the holder, 100 and means for moving a portion of the needle, in the holder, with respect to the remainder thereof, incident to the rotation of the winder, so as to enable said portion of the needle to receive a bight of twine from the winder. 105

7. In a needle-filling machine, the combination of a needle-holder, a rotary winder for placing twine on a needle held by the holder, and a presser for moving a portion of the needle into a position to receive a bight of twine 110 from the winder.

8. In a needle-filling machine, the combination of a needle-holder, a rotary winder for placing twine on a needle held by the holder, and a reciprocatory presser for moving a portion 115 of the needle into a position to receive a bight of twine from the winder, substantially as specified.

9. In a needle-filling machine, the combination of a rotary needle-holder, a rotary winder, 120 a reciprocatory presser, a cam fixed with respect to the rotary needle-holder, and a driving connection between the cam and presser, substantially as specified.

10. In a needle-filling machine, the combination of a main frame, a primary shaft, a rotary needle-holder, a rotary winder, gearing intermediate of the primary shaft and the holder and winder, a cam fixed with respect 125 to the needle-holder, a reciprocatory presser for moving a portion of a needle in the holder into a position to receive a bight of twine from the winder, and a driving connection between the cam and presser, substantially as specified. 130

11. In a needle-filling machine, the combination of a main frame, a primary shaft, a rotary needle-holder, a rotary winder, gearing intermediate of the primary shaft and the holder
5 and winder, a cam fixed with respect to the needle-holder and having an 8-shaped groove, a slide-rod engaging the groove of the cam and having an upright arm, and a presser adjustably connected to said arm of the rod,
10 substantially as specified.

12. In a needle-filling machine, a needle-holder comprising a base, uprights rising therefrom, a cross-bar interposed between the

uprights adjacent to the base and having an opening, spring-strips connected at one end 15 to the uprights and having recessed enlargements at their opposite ends, and screws mounted in the uprights and arranged to bear against said strips, substantially as specified.

In testimony whereof I have hereunto set 20 my hand in presence of two subscribing witnesses.

JOHN E. INMAN.

Witnesses:

D. J. SULLIVAN,
ANDREW TOGGATT.