(No Model.)

M. F. CONNETT, Jr.

MACHINE FOR TURFING FABRICS.

No. 337,306. Patented Mar. 2, 1886.

Fig. 1.

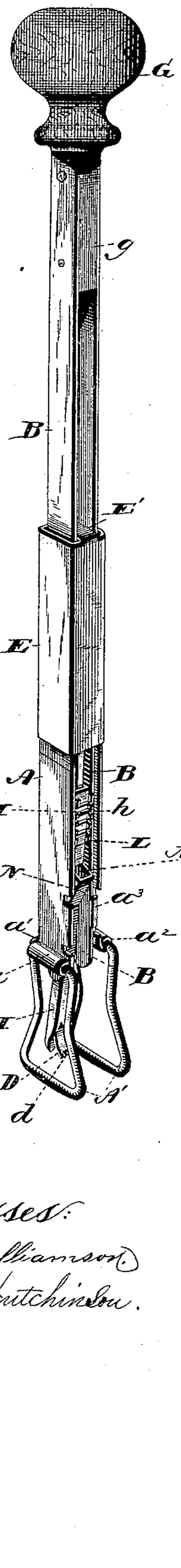


Fig. 2.

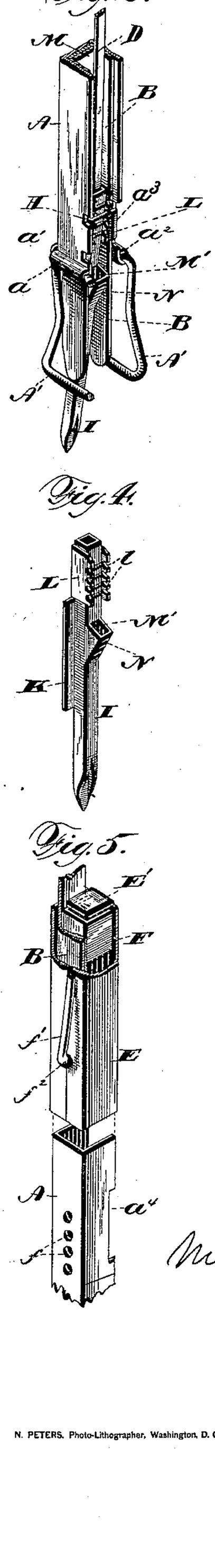
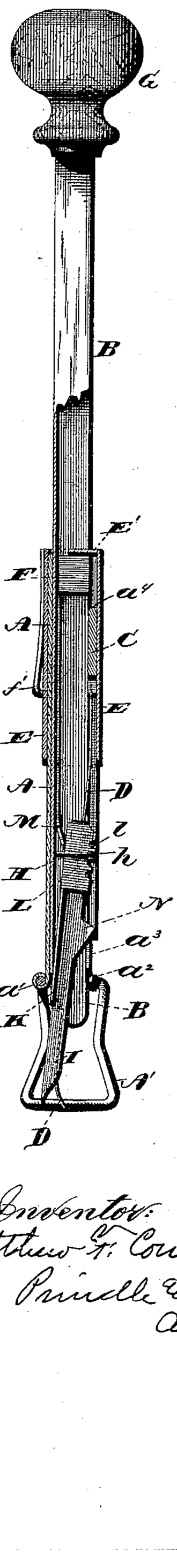


Fig. 4.

Fig. 5.

Fig. 3.



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UNITED STATES PATENT OFFICE.

MATTHEW F. CONNETT, JR., OF SPRINGFIELD, ILLINOIS, ASSIGNOR OF ONE-HALF TO HORATIO B. BUCK AND WILLIAM SCHULZE, BOTH OF SAME PLACE.

MACHINE FOR TURFING FABRICS.

SPECIFICATION forming part of Letters Patent No. 337,306, dated March 2, 1886.

Application filed November 5, 1885. Serial No. 181,937. (No model.)

To all whom it may concern:

Be it known that I, MATTHEW F. CONNETT, Jr., of Springfield, in the county of Sangamon, and in the State of Illinois, have invented certain new and useful Improvements in Machines for Turfing Fabrics; and I do hereby declare that the following is a full, clear, and exact description thereof, reference being had to the accompanying drawings, in which—

Figure 1 shows a perspective view of my improved turfing-machine with the needle-bar and needle raised; Fig. 2, a similar view of the lower portion of the machine with the needle-bar and needle down; Fig. 3, a side elevation of the machine with portions of the sheath and needle-bar broken away to show the parts more clearly; Fig. 4, a detail perspective view of the needle removed, and Fig. 5 a detail perspective view showing the means for regulating the upward throw of the needle-bar.

Letters of like name and kind refer to like parts in each of the figures.

The object of my invention is to provide an improved machine or apparatus for turfing fabrics; and to this end my invention consists in the machine and in the parts thereof arranged, constructed, and combined as hereinafter specified.

In the drawings, A designates the sheath of the machine, within which fits and reciprocates the needle-bar B.

Both the sheath and the needle-bar, which is hollow, are preferably made, as shown, rectangular or square in cross-section, and are open at their rear sides. At the sides of the lower end of the sheath are the parallel feet A′ A′, adapted to rest upon the fabric to be turfed, and to allow said fabric to be fed along rearward past the sheath end as the machine is used, as hereinafter set forth. I prefer to make these feet both of one piece of wire, as shown. To do this one end of the wire at one side is fastened in a socket, *a*, on the side of the sheath end. The wire is from this socket bent downward, then forward, the substantially horizontal portion thus formed being curved slightly, so as to ride easily over the fabric, then upward, then across through sockets *a′ a′*, formed on the front side of the sheath, then downward, then rearward with a slight curve, as on the other side, then upward, and finally forward in the socket a^2 on the sheath side.

The sockets *a*, *a′ a′*, and a^2 are preferably made, as shown in the drawings, of portions of the material of the sheath bent upward and inward. With this construction the feet can be most cheaply and strongly made and attached to the sheath. Near the lower end of the latter a portion, a^3, of one of the sides of the sheath is turned inward to form a lug to engage and guide the rear edge of the needle-bar side. If desired, a similar guiding lug can be formed on the other side of the sheath. Near its upper end the sheath is provided with notches a^4 a^4 in its sides, which receive and hold the sides of plate C which spans the open rear side of the sheath, and has attached to it the upper end of the narrow spring D, which extends downward within the sheath to or about to the plane of the lower sides of feet A′ A′. Near its lower end this spring bends slightly toward the rear, and its lower end is formed with the sharp teeth *d d*. The plate C is held firmly down in place by the sleeve E, which fits around, and is capable of being slid along the sheath A. Said plate then, besides supporting spring D, acts as a guide for the needle-bar in its movements within the sheath, engaging the rear edges of the sides of the needle-bar. The upper end of the sleeve E is provided with a lug, E′, projecting forward into the needle-bar, as shown in the drawings. This lug serves to limit the upward stroke of the needle-bar by engaging a stop F, fixed within the bar.

To make the sleeve adjustable, so that it can be moved and fixed at any desired adjustment with reference to the sheath, I provide the front side of the sheath with a longitudinal series of holes, *f f*, adapted to be engaged by the end of the spring-catch *f′*. The latter is attached to the sleeve so that its engaging end projects through an opening, f^2, in the sleeve in position to engage any of the holes *f f* in the sheath. With this construction, upon disengaging the catch or latch *f′* from the sheath the sleeve can be slid up or down the desired

distance, and then locked by letting the catch engage one of the holes *f f*. This adjustment of the sleeve obviously adjusts the height or position of the lug E′ with reference to the sheath, and so regulates the possible upward throw of the needle-bar in the latter. The length of stroke, and so the size of the loop made, is thus regulated as desired. The handle or head G of the needle-bar is preferably attached to the upper end thereof, as shown, by means of a shank or stem, *g*, extending down into the upper portion of the bar, and held in place by pins passing through such shank and the sides of the bar. Near the lower end of the needle-bar and within the same is fastened the staple or hasp-shaped piece H, whose cross or transverse portion *h* extends across the bar beyond the rear side thereof. The needle I is hollow, and preferably made rectangular in cross-section, its lower end being beveled or cut away on its rear side to make a penetrating-point on the front side. On the front side of the needle is a plate, K, which, fitting within the sheath, serves to steady the needle from swinging to one side or the other, and also as a bearing-plate resting against the front side of the sheath as the needle is moved up and down. Attached to the upper portion of the needle, and extending beyond the rear side thereof, are the notched plates L L, provided with notches *l l*, adapted to engage the cross-bar *h* on the needle-bar.

To force the upper portion of the needle outward, so that when any of the notches are placed in engagement with cross-bar *h* they will remain so, I provide the leaf-spring M within the needle-bar, bearing against the needle at a point above the level of bar *h*. With this construction and arrangement, while the spring acts to force the upper end of the needle rearward to keep the notches and bar *h* in engagement, it also tends to keep the needle swung on the bar *h* as a pivot with its lower end to the front and its shank of course inclined in that direction. Automatic feed is thus provided for, as will be hereinafter set forth.

While the plate K and the notched plates L L can be made separate, as desired, and attached to the needle, they can of course also be made in one piece therewith to form a complete needle, and I shall therefore speak of the needle herein as provided or formed with the bearing-plate and with pivotal notches. In its rear side below its pivotal portion the needle is provided with an opening, M′, connecting with its bore, and with a lip, N, to facilitate the threading of the needle. The rear side of the needle is at its lower end notched or cut V-shaped, so as to prevent the yarn or other material used from slipping as the needle is thrust down through the fabric. If desired, the lower end of this side at the top of the angle upon which the needle-point is cut could be roughened or serrated instead of notched for the same purpose. When the needle is in place on the bar, the narrow spring D, with its serrated end, passes down within the needle, as shown in the drawings. The downward stroke of the needle-bar is limited by the lower ends of the bar sides coming in contact with the fabric being turfed.

To allow the needle to be swung by the spring D, as described hereinbefore, so as to stand at quite an angle with reference to the direction of the needle-bar, the lower end of the forward side of the latter is cut away, as shown, so as to leave the lower ends of the bar sides in the form of downwardly-projecting ears, said ears being rounded at their lower ends.

I do not limit myself to any particular shape or construction of the sheath and needle-bar, though I prefer that fully shown and described.

The operation of my machine or apparatus is as follows: To thread the needle, the needle-bar is first thrust down to its lowest limit, so as to bring the opening M below the toothed end of the spring D within the needle. The end of the yarn or material to be used is then thrust into this opening, and the needle-bar is drawn up. As the needle rises, the teeth on spring D engage the end of the yarn and hold it down, so that when the needle has been raised to its highest point the yarn end will project with the spring end beyond the needle-point. The apparatus is then held perpendicularly over the fabric to be turfed, with the feet A′ A′ on the sheath resting thereon, and the needle-bar is moved downward to thrust the needle through the fabric. As the needle descends, the notch at its lower end engages the yarn and prevents its slipping, so that the proper amount of yarn will be drawn from the supply, and taken down through the fabric by the needle to make the loop. The needle-bar is thrust down until the ears formed by the lower ends of its sides strike the fabric. As the needle stands inclined forward with reference to the needle-bar, the fabric will evidently be fed rearward by the needle as it passes down through it. When the needle-bar is raised again, the yarn is held from being drawn upward by the needle by the teeth on the lower end of spring D. As the needle rises, the spring D allows it to swing into vertical position as it passes up through the fabric, and, as soon as it clears the latter, swings it forward again, so that its point is in position to pierce the fabric in advance of the former point of penetration. The amount of projection of the needle below the end of the needle-bar, and so the distance to which the needle-point can pass below the fabric, is easily increased or lessened by causing the pivot-bar *h* on the needle-bar to engage higher or lower notches on the needle.

In order to draw the yarn or other material used closely to the pattern on the reverse side of the fabric, I make the needle pass through the pattern a little farther than it rises above it. As the machine pays out material to form

a loop both below and above the pattern, this adjusting of the relative amounts of movement of the needle above and below the fabric secures tightness of material on the reverse side of the pattern.

Instead of using a flat leaf-spring serrated at its lower end and projecting down into the needle, as shown and described, I contemplate using, if desired, a thin arm or wire roughened or serrated, so as to catch the yarn within the needle in substantially the same way and for the same purpose.

The needle is preferably made square in section, as shown, but can of course be made of any other desired shape.

Having thus described my invention, what I claim is—

1. In combination with the sheath and the needle-bar, the stop on the bar, and the sleeve on the sheath provided with a lug to engage the stop on the bar, substantially as and for the purpose shown.

2. In combination with the sheath, the needle-bar, the stop on the bar, and the sleeve on the sheath made adjustable along the sheath, and provided with a lug or stop to engage the stop on the needle-bar and limit the upward movement of the latter, substantially as and for the purpose described.

3. In combination with the sheath and the needle-bar within the same, both open at the same side, the stop within the bar and the adjustable sleeve on the sheath, provided with a lug projecting into the needle-bar, substantially as and for the purpose specified.

4. In combination with the sheath, open at its rear side, the sleeve on the sheath, the stop-lug thereon, and the spring-catch adapted to engage any one of a series of holes or notches on the sheath, substantially as and for the purpose shown.

5. In combination with the sheath and the needle-bar within the same carrying a tubular needle, the spring rigidly connected with the sheath projecting down into the needle, and serrated or roughened at its lower end, substantially as and for the purpose set forth.

6. In combination with the sheath, the needle-bar, the hollow needle carried thereby, and an arm connected with the sheath, so as to be stationary as the needle-bar and needle reciprocate, projecting down into the needle and serrated at its lower end, substantially as and for the purpose described.

7. In combination with the sheath and the needle-bar, the tubular needle carried by the latter, the plate held rigidly to the sheath, and the spring-arm attached to such plate, extending down into the needle, and adapted at its lower end to catch and hold the yarn as the needle rises, substantially as and for the purpose specified.

8. In a turfing-machine, in combination with the needle-bar, the tubular needle carried thereby, having its lower end cut away at an angle to form a point, and adapted to catch the yarn and prevent it from slipping through the needle as the latter descends, and means for causing the yarn to feed through the needle, substantially as and for the purpose shown.

9. In a turfing-machine, in combination with the needle-bar, the tubular needle having its lower end cut away at an angle to form a penetrating-point and notched or roughened at the rear side of this cut, and means for holding the yarn from being pulled upward as the needle ascends, substantially as and for the purpose set forth.

10. In combination with the needle-bar and the pivot-bar on the rear side of the same, the needle pivoted at its rear side upon this pivot-bar and a spring engaging the upper end of the needle above its pivotal point and pressing such end rearward, substantially as and for the purpose shown.

11. In combination with the needle-bar open at its rear side, the pivot-bar extending across such side, the needle pivoted to such bar near its upper end, and provided with a plate to steady it in the bar as it swings on its pivot, and the spring within the bar pressing the portion of the needle above its pivot rearward, so that the lower portion of the needle normally slants downward and forward with reference to the needle-bar, substantially as and for the purpose set forth.

12. In combination with the needle-bar and the pivot-bar extending across the same, the needle provided with a series of notches adapted to engage the pivot-bar and a spring pressing the needle toward such pivot-bar, substantially as and for the purpose described.

13. In a turfing-machine, in combination with the needle-bar provided at its lower end with ears to strike the fabric and limit its stroke, the needle provided on its rear side with several pivotal notches, the pivotal bar on the rear side of the needle-bar, adapted to be engaged by any of the notches on the needle, and the spring engaging the upper end of the needle and pressing it rearward, substantially as and for the purpose specified.

14. In a turfing-machine, in combination with the sheath adapted to rest on the fabric, the needle-bar, means for limiting the upward stroke of the bar in the sheath, means for limiting the downward stroke of the bar with relation to the fabric, and the needle so attached to the bar as to descend down through the fabric a greater distance than its point rises above the fabric, substantially as and for the purpose shown.

15. In a turfing-machine, in combination with the sheath adapted to rest on the fabric, the needle-bar within the same, having its lower end provided with suitable ears to strike the fabric and limit the downstroke of the bar, means for limiting the upward stroke of the bar and the needle carried by the bar, and so attached to it that its point projects beyond the limiting-ears a greater distance than it rises above the fabric on its upstroke, substantially as and for the purpose set forth.

16. In combination with the sheath for the

needle-bar of a turfing-machine, the two parallel feet at the sides of the lower end thereof, formed of a single piece of wire, substantially as and for the purpose described.

17. In combination with the sockets on each side of the lower end of the sheath and on the front side thereof, the feet formed of a single piece of wire having one end fastened in the socket on one side of the sheath, then extending downward, then forward, then upward, then across through the sockets on the front side of the sheath, then downward, then rearward, and finally upward and into the socket on the other side of the sheath, where it is fastened, substantially as and for the purpose specified.

In testimony that I claim the foregoing I have hereunto set my hand this 26th day of October, A. D. 1885.

MATTHEW F. CONNETT, JR.

Witnesses:
HENRY C. LATHAM,
A. G. MURRAY.