

No. 662,004.

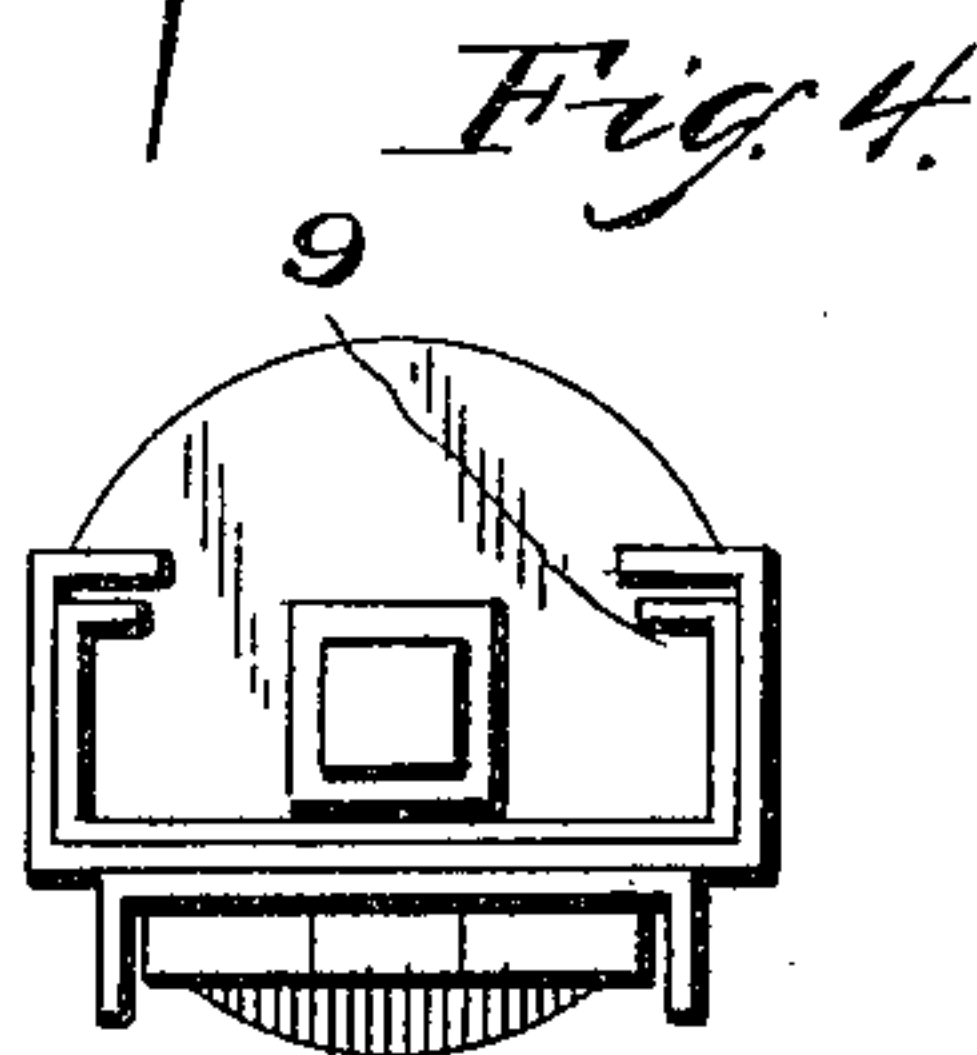
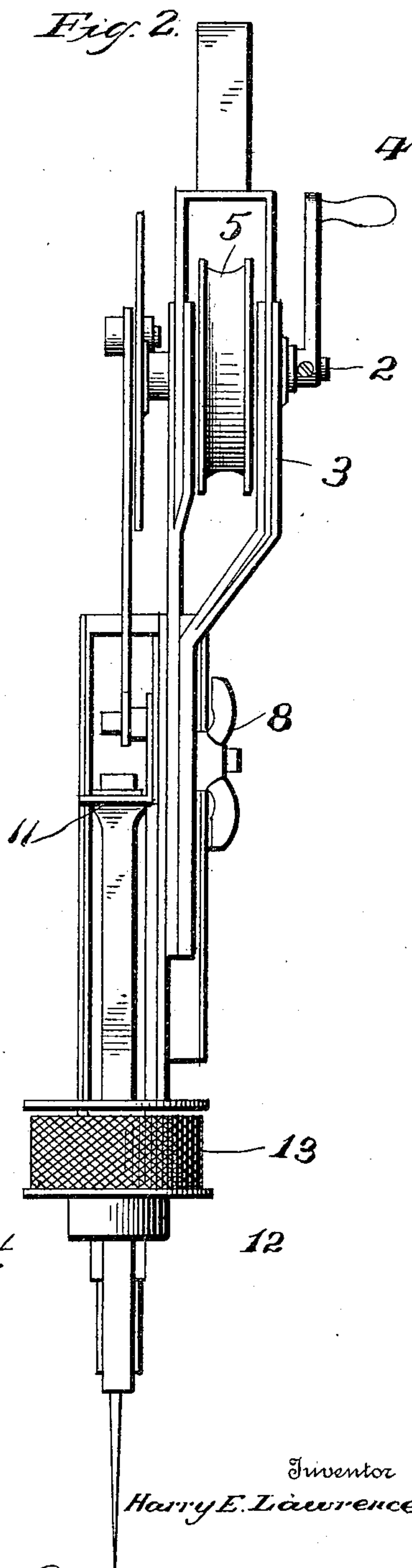
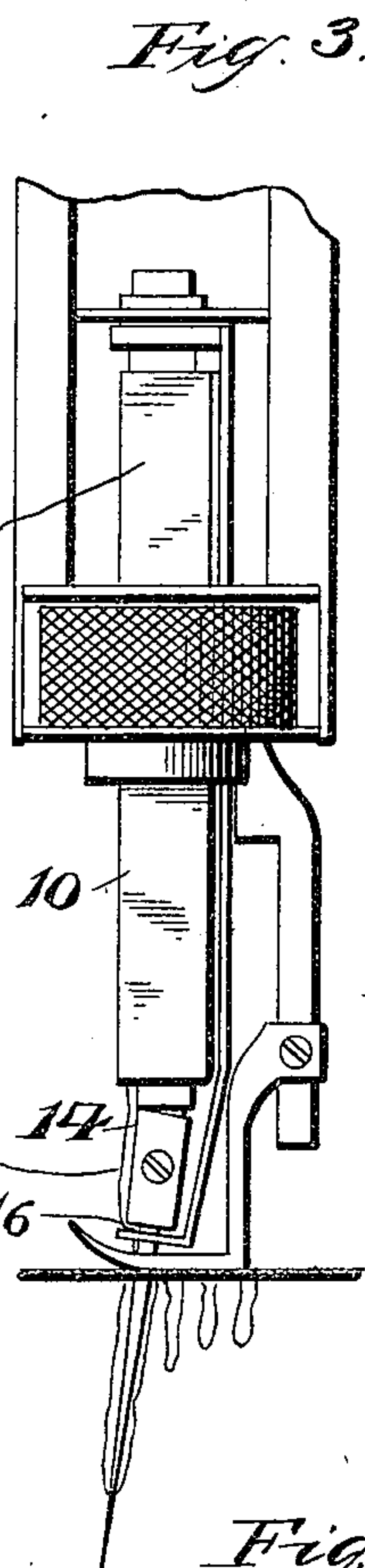
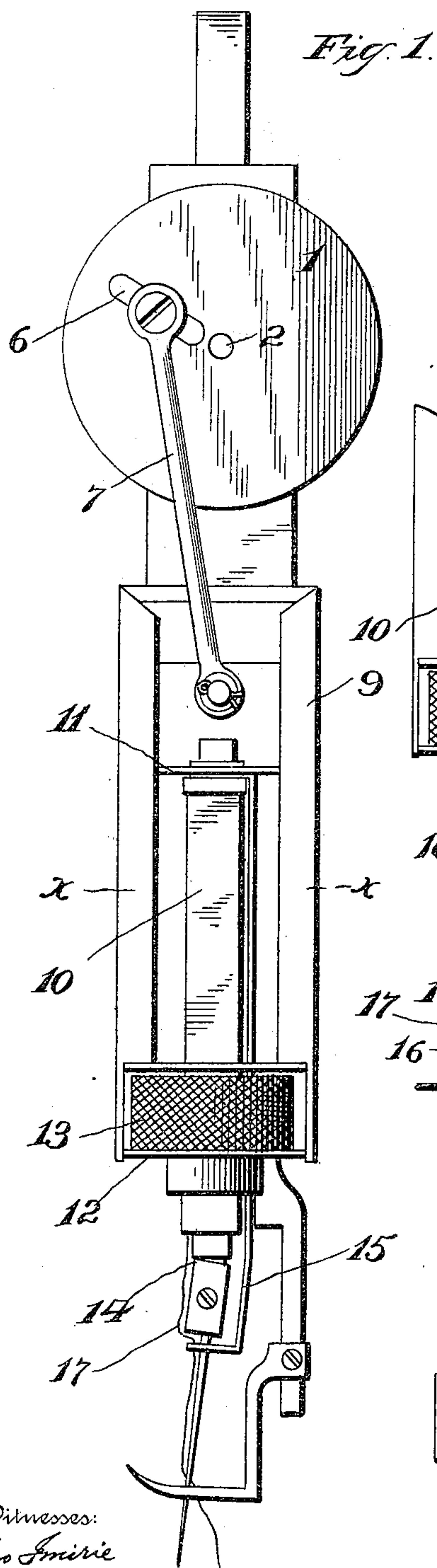
Patented Nov. 20, 1900.

H. E. LAWRENCE.  
TURFING IMPLEMENT.

(Application filed Feb. 18, 1899.)

(No Model.)

2 Sheets—Sheet 1.



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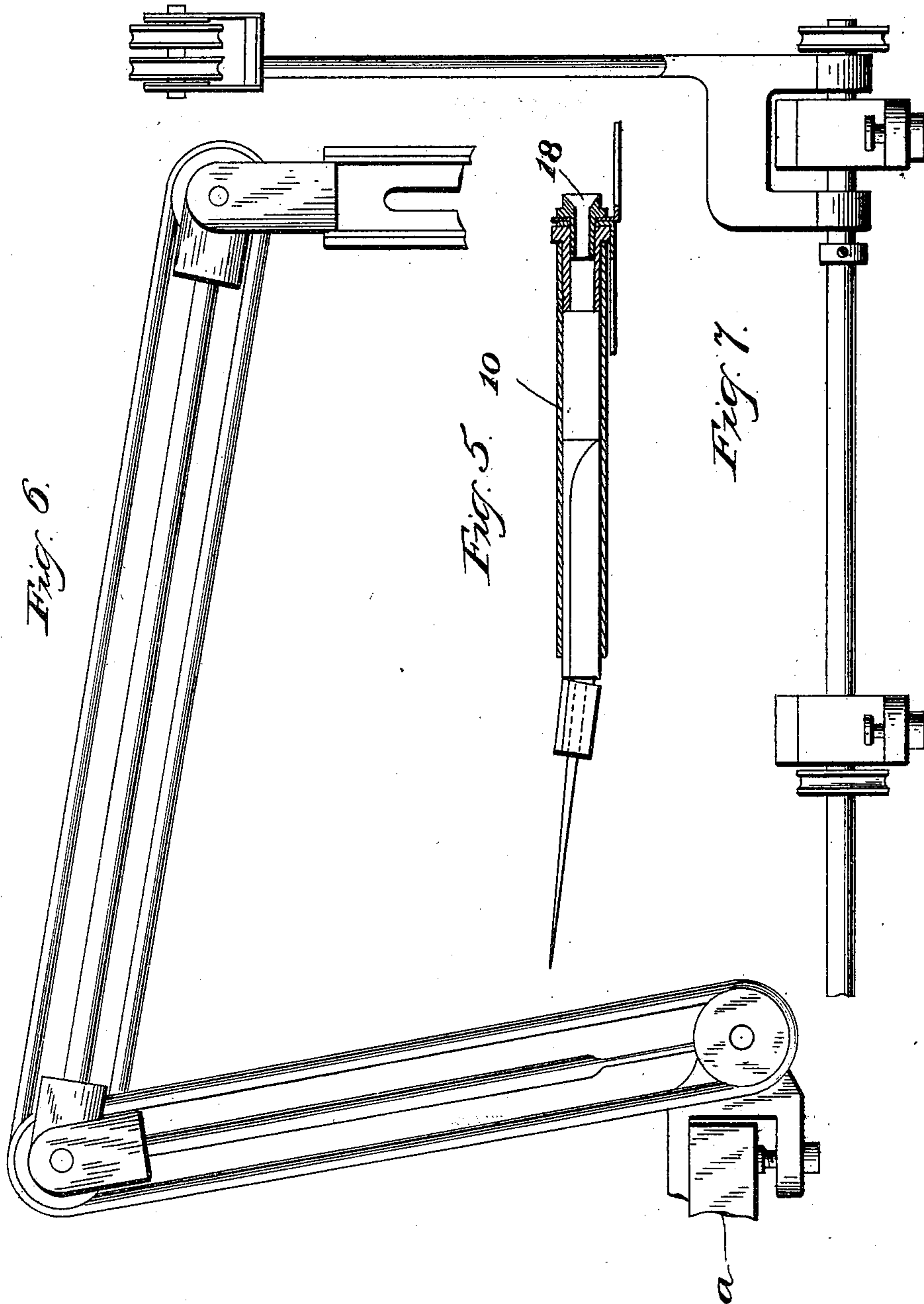
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2 Sheets—Sheet 2.



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# UNITED STATES PATENT OFFICE

HARRY ERNEST LAWRENCE, OF FRESNO, CALIFORNIA.

## TURFING IMPLEMENT.

SPECIFICATION forming part of Letters Patent No. 662,004, dated November 20, 1900.

Application filed February 18, 1899. Serial No. 706,027. (No model.)

*To all whom it may concern:*

Be it known that I, HARRY ERNEST LAWRENCE, a citizen of the United States, residing at Fresno, in the county of Fresno and State of California, have invented certain new and useful Improvements in Turfing Implements; and I do hereby declare the following to be a full, clear, and exact description of the invention, such as will enable others skilled in the art to which it appertains to make and use the same.

My invention relates to implements for turfing cloth or similar fabric with thread, silk, yarn, or other fibrous material, and is designed particularly to be operated either by a hand-crank or by means of flexible and universal shafting driven either by foot-treadle, electric motor, or other motive power.

My invention is particularly designed to be suspended from a table or from the ceiling and to be universally movable by hand to follow the lines of a pattern traced upon a piece of fabric. However, the machine may be held within the hands of an operator and moved about to follow the lines of the pattern, being sufficiently light in weight for this purpose.

One of the objects of my invention is to provide simple and efficient means for permitting a universal movement of the needle to follow curved or irregular lines.

Another object is to provide in an implement of this character an automatic gripping device or thread-tension which will hold the thread from feeding when the needle-bar is at its lowermost position or just prior to its upward stroke.

Another object is to provide means for changing the length of the turf or loop to suit different patterns or the character of the work to be produced.

I attain these and other objects by means of the mechanism represented in the accompanying drawings, which form a part of this specification, and in which—

Figure 1 is a front view of the implement. Fig. 2 is a side view of the same with the front side of the needle-bar guide removed. Fig. 3 is a front view of the lower part of the implement, showing the needle passed through a fabric and ready for the upward motion of

the needle, the thread being gripped by the lower end of the needle-bar. Fig. 4 is a transverse section on the line  $x x$ , Fig. 1. Fig. 5 is a vertical section of the needle-bar and its contiguous parts. Fig. 6 is a side view of a certain form of flexible connection which I may use to suspend the weight of the implement and to permit it to be universally moved to follow the lines of the pattern. Fig. 7 is a rear view of a part of the said flexible connection.

Like characters of reference denote like parts wherever they occur in the various views of the drawings.

1 is a disk fixed to one end of the axle 2, journaled within the frame 3.

4 is a hand-crank rigidly fixed to the opposite end of the axle. Within the frame a grooved pulley 5 is fixed or keyed to the axle. This pulley is to be revolved by a belt or band from the flexible gear or foot-power, if desired.

The disk 1 is slotted at 6 to serve the purpose of adjusting the connecting-bar 7 to suit the length of the throw of the needle-bar. The length of the loop in the thread may be adjusted by the set-screw 8, Fig. 2. This set-screw passes through the lower portion of frame 3 and holds said frame adjustably to the needle-bar frame. The needle-bar being connected to the frame 3 is adjusted therewith to project the needle more or less from the needle-bar guide.

9 is the needle-bar guide, within which the needle-bar is fitted to reciprocate.

10 is the needle-bar, which is preferably rectangular in section and having its upper and lower ends circular and journaled in the partitions 11 and 12, so as to be permitted a rotary motion when desired. A milled wheel 13 is mounted loosely upon said needle-bar for the purpose of rotating the needle-bar as desired by the operator to follow the pattern and to permit the needle-bar to reciprocate therein. The lower end of the needle-bar is jointed at 14, and a spring 15, having its upper end bent at an angle and provided with an aperture fitted to the upper end of the needle-bar, extends parallel therewith and at its lower end is provided with an offset which surrounds the needle near the point where it



is attached to the jointed lower section of the needle-bar. This spring throws the needle out of alinement with the upper section of the needle-bar. The offset in the spring 15 also serves the purpose of clamping the thread 17 at the point 16, between the lower end of the needle-bar and the upper surface of the offset, at the desired time when the needle is at its lowermost position of movement. The angle of the needle is controlled by means of the milled wheel or drum 13. The needle-bar is tubular in form or hollow, as shown at 18, Fig. 5, and the thread or embroidery material passes downward through the needle-bar to the needle, and thus prevents entanglement with the gearing. When the needle begins to ascend, the needle-bar drops down and grips the thread or yarn against the spring 15.

The grip for the thread is shown in Fig. 3. By this device the loops in the thread are formed by that part of the embroidery material behind the needle and the tension is maintained for the next stitch, thus preventing the doubling or looping of the thread on the upper side of the fabric. It will be understood that the implement is operated upon the rear side of the fabric pattern.

The flexible shafting or power connection (shown in Figs. 6 and 7) may be of any desired character which may serve the purpose of sustaining the weight of the machine or permitting it a universal motion about the surface of the fabric being operated upon. This shaft or connection may be clamped to a table *a* by any suitable clamp. However, the shaft may be applied to the ceiling or wall by suitable means.

The operation of the turving implement is as follows: The operator grasps the wheel or drum 13 with one hand and with the other operates the hand-crank 4, or if power connection is used the operator has one hand free to manipulate the embroidery-frame. By turning the wheel 13 the needle-bar is rotated to take the direction desired to be given by the operator.

From the foregoing it will be seen that my machine is extremely simple and easy to operate and, being of comparatively few parts, cannot readily get out of order.

Without desiring to be limited to the exact structure shown and described, as I am aware that many changes may be made in the details

without departing from the spirit and scope of my invention,

What I desire to secure by Letters Patent and claim is—

1. In a turving implement, a reciprocating needle-bar in two sections, a spring for holding the lower section out of alinement with the upper section, and a hand-wheel through which the upper section of the needle-bar reciprocates, said hand-wheel being mounted in the frame of the implement and adapted to be rotated to direct the needle, substantially as described.

2. In a turving implement, a needle-bar made in two sections, a spring connected to the upper section and extended down to the lower end of the lower section and bent at right angles and connected to the needle to hold it out of alinement with the upper section of the needle-bar, and a hand-wheel through which the upper section of the needle-bar passes, said hand-wheel being rotatable to direct the needle, substantially as described.

3. In an implement of the character described, the combination of a needle-bar made in two sections hinged together, a spring for holding said sections out of alinement with each other, said spring having an offset at its lower end which clamps the thread or yarn against the lower end of the lower section of said needle-bar at the lowermost position of movement of said needle-bar, and a hand-wheel through which said needle-bar passes for directing the needle, substantially as described.

4. In a turving implement, a needle-bar made in two sections, a spring for holding the sections out of alinement with each other, a hand-wheel through which the upper section of said needle-bar passes, said wheel being mounted in the frame of the implement and designed to be rotated to give universal movement to the needle, the upper section of said needle-bar being tubular to serve as a guide for the yarn or thread, substantially as described.

In testimony whereof I have affixed my signature in presence of two witnesses.

HARRY ERNEST LAWRENCE.

Witnesses:

N. P. JUSTY,

W. D. CRICHTON.