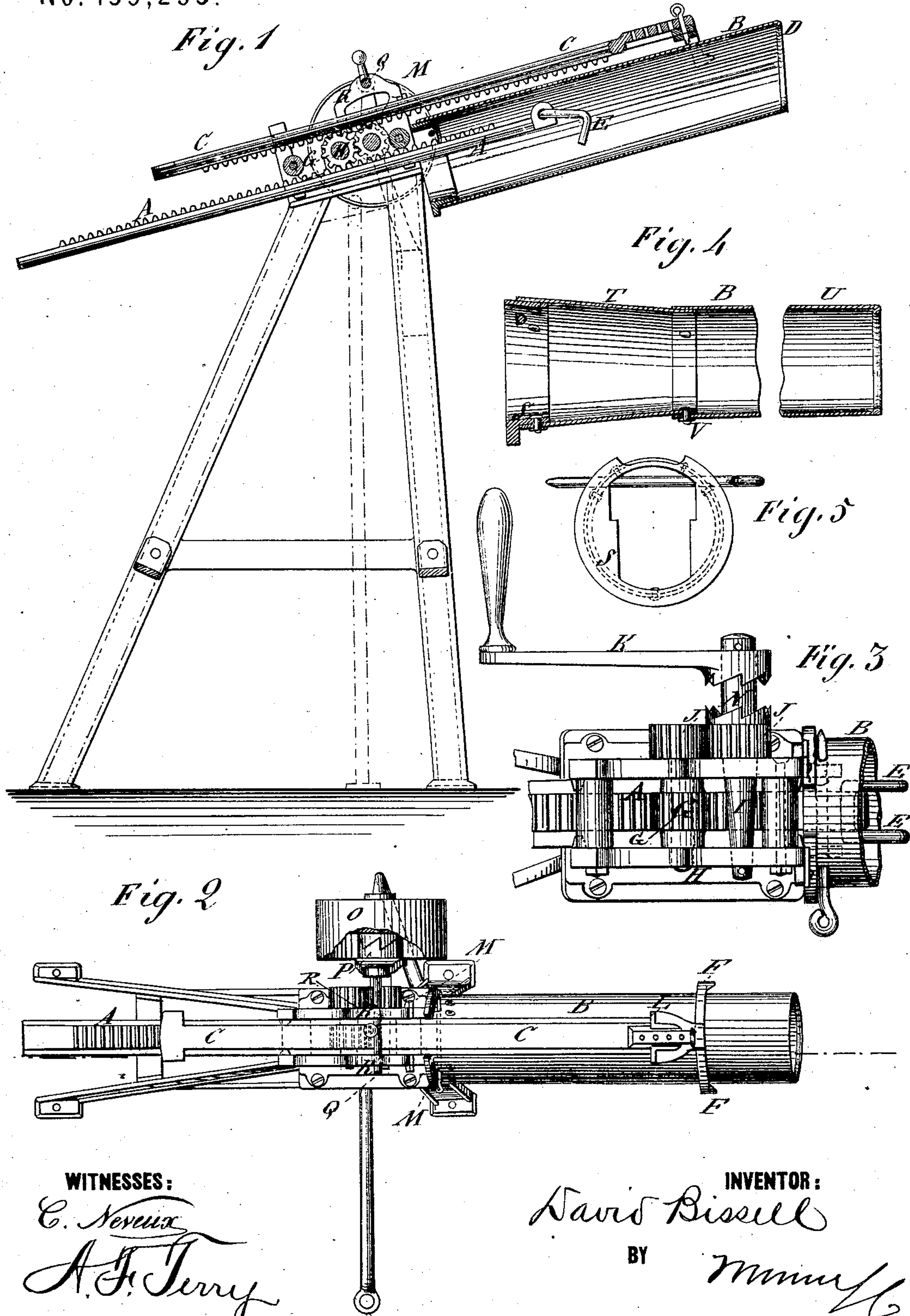


D. BISSELL.
Boot-Leg Turning Machine.

No. 159,295.

Patented Feb. 2, 1875.



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UNITED STATES PATENT OFFICE.

DAVID BISSELL, OF DETROIT, MICHIGAN.

IMPROVEMENT IN BOOT-LEG-TURNING MACHINES.

Specification forming part of Letters Patent No. **159,295**, dated February 2, 1875; application filed December 5, 1874.

To all whom it may concern:

Be it known that I, DAVID BISSELL, of Detroit, in the county of Wayne and State of Michigan, have invented a new and Improved Boot-Leg-Turning Machine, of which the following is a specification:

My invention relates to the boot-leg-turning machine in which a pulling-bar is operated inside of a tube on which the leg is drawn, and a pushing-bar is operated on the outside, to turn the leg over the end of the tube, the said bars being worked by a pinion working between the bars and gearing with cogs on them, so as to move them simultaneously in opposite directions.

My invention consists, first, of the aforesaid pinion, geared to the racks by an intermediate shaft and pinions, in order to allow the crank to be turned in the reverse direction to that in which it must go when geared directly to the bars, and thus turn in the way most natural to the operator, whereas in the old arrangement it must be turned the unnatural way, which it is very difficult and awkward for some operators to do. My invention also consists of the hand-crank for turning the gears connected to the shaft, by a rose-clutch or other equivalent contrivance, which will slip out of gear when the bars are run back by pulling the turned leg off the tube, the object of which is to avoid the shock and strain on the machine caused by the sudden stopping of the crank, which is caused to run very quick by this mode of readjusting the machine, by pulling it back by the turned leg when stripping it off from the tube. My invention also consists of converting the machine into a power-machine, by the application of an interchangeable driving-shaft with a pulley and a sliding clutch, also a slider for operating the clutch, and also a detachable bearing for the outer end of the shaft, so that the machine may be worked by hand or power, and be readily changed from one condition to the other. My invention also consists of the construction of a turning-tube with one or more reducing joints or sections, whereby smaller legs can be turned on the machine than it has been possible to turn as it has been heretofore made.

Figure 1 is a sectional elevation of my improved machine, taken on the line *x x* of Fig. 2. Fig. 2 is a plan view, with a part broken out. Fig. 3 is a plan of a portion of the machine on an enlarged scale. Fig. 4 is a section of the turning-tube, with a reducing-joint for small boot-legs. Fig. 5 is an end elevation of the turning-tube.

Similar letters of reference indicate corresponding parts.

A represents the pulling-bar, working inside of the turning-tube B, and C represents the pushing-bar, working outside of the tube to turn the leg, which is drawn on the tube over the end D, the inside bar being connected to the straps of the leg by the hooks E, and the bar C bearing against the lower edge of the heel of the leg by its horn F. These bars are toothed on one side and geared with a pinion, G, for moving them, as heretofore; but instead of having the pinion on the driving-shaft, I have now arranged it on an intermediate shaft, H, geared with the driving-shaft I by the pinions J, in order to enable the crank K to be turned in the natural way, as before stated. And in order to allow the machine to be reversed by pulling the bar A back by the turned leg when stripping it off without turning the crank, so that the shock which it causes by stopping suddenly when the shoulders L of pushing-bar G strike the frame at M will be avoided, I have arranged the crank loosely on the shaft with a rose-clutch, N, to couple with it, so contrived that it will slip out of gear when the shaft turns back, and thus the crank will remain stationary while the machine reverses, and all strains and shocks caused by the crank when attached in the ordinary way will be avoided. These shocks have often been so severe as to strip off the teeth of the gears and otherwise break the machine. I also propose to provide with each machine interchangeable driving-shafts, one with a crank for working it by hand, and the other with a pulley, O, for working it by power, and in connection with the one for working it by power I arrange the sliding clutch P, with a slider, Q, for connecting and disconnecting it, and for the support of the slider I extend the housings of the machine at

R sufficiently above their previous upper terminations for supporting the slider above the bar C.

Heretofore it has been impossible to turn legs smaller than the collar S, which must of necessity be of a particular size, larger than the smaller legs, for attaching to the machine, and to allow the hook to pass in and out freely, because the tubes have always been made cylindrical. I have therefore contrived a reducing-tube for smaller sizes, by making it of a tapered section, T, and a cylindrical section, U, the latter being of the size of the small end of the former, and jointed to it at V, either permanently or detachably, and thus it is adapted for smaller legs, which greatly augments the usefulness of the machine.

Two or more reducing-tubes, of different sizes, may be used, the joints being permanently attached, or one section, T, may be employed with two or more interchangeable sections, U, one or more of the sections being also tapered for a short distance from the joint, to make different sizes.

Having thus described my invention, I claim

as new and desire to secure by Letters Patent—

1. The combination, with the driving-crank shaft and the pulling and pushing bars, of an intermediate gear, to reverse the motion of the crank relatively to the machine and the operator, substantially as specified.

2. The combination, with the driving-shaft I, having a half-clutch pinion, G, and toothed bars A C, of the crank K, provided with a half-clutch, and arranged to slide on said shaft, as shown and described.

3. An interchangeable driving-shaft, I, driving-pulley O, sliding clutch P, slider Q, and vertical housing-extensions R, combined, as herein described.

4. In a boot-leg-turning machine, the reducing-tube formed of a tapering base-section, T, adapted for attachment to the machine, and a section, U, of uniform diameter, substantially as shown and described.

DAVID BISSELL.

Witnesses:

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ALEX. F. ROBERTS.