

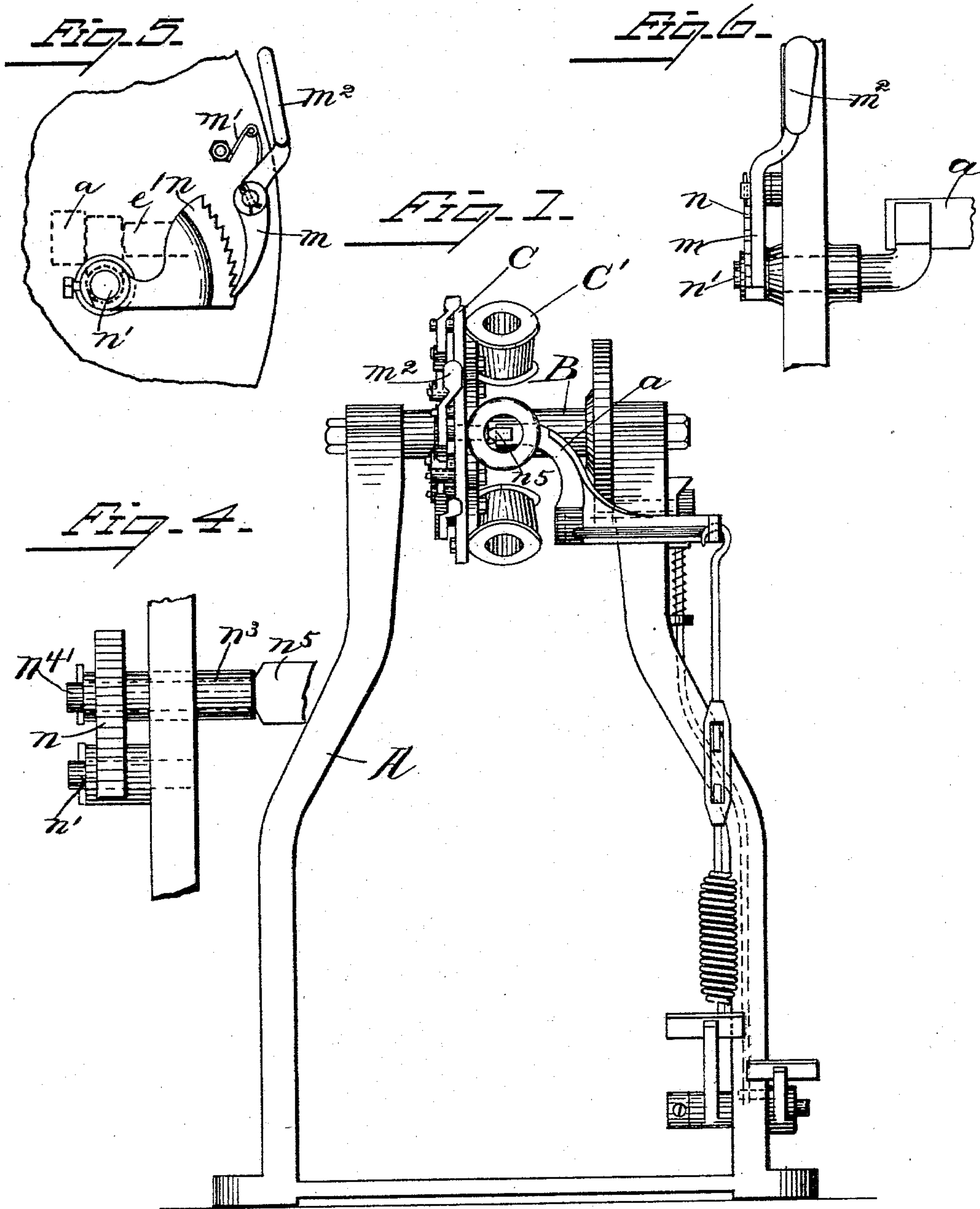
(No Model.)

2 Sheets—Sheet 1.

J. E. LAWTON.
BOOT OR SHOE TREE.

No. 589,731.

Patented Sept. 7, 1897.



WITNESSES.
Charles B. Crocker.
F. H. Davis.

INVENTOR.
John E. Lawton,
by A. J. Hayes.

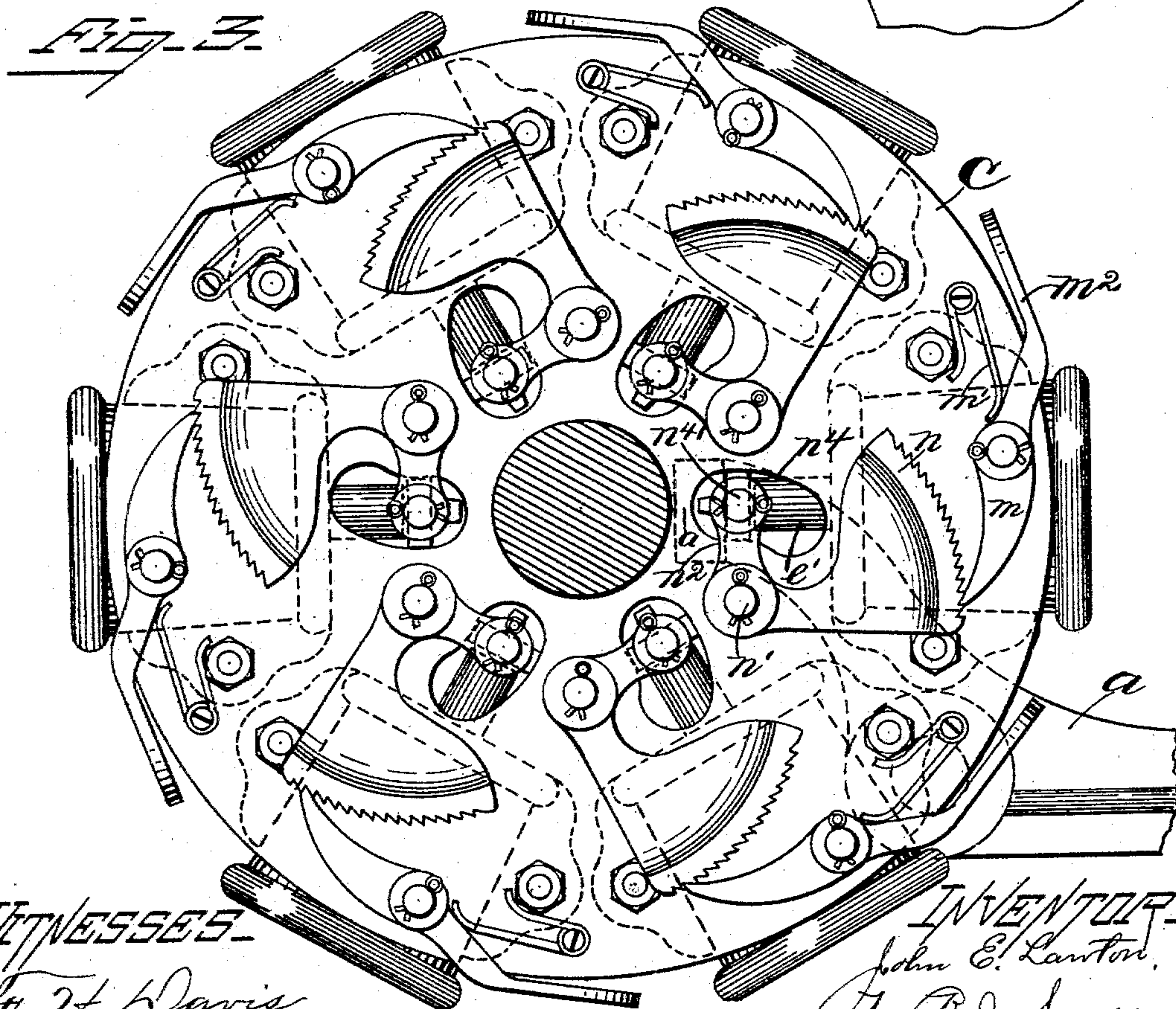
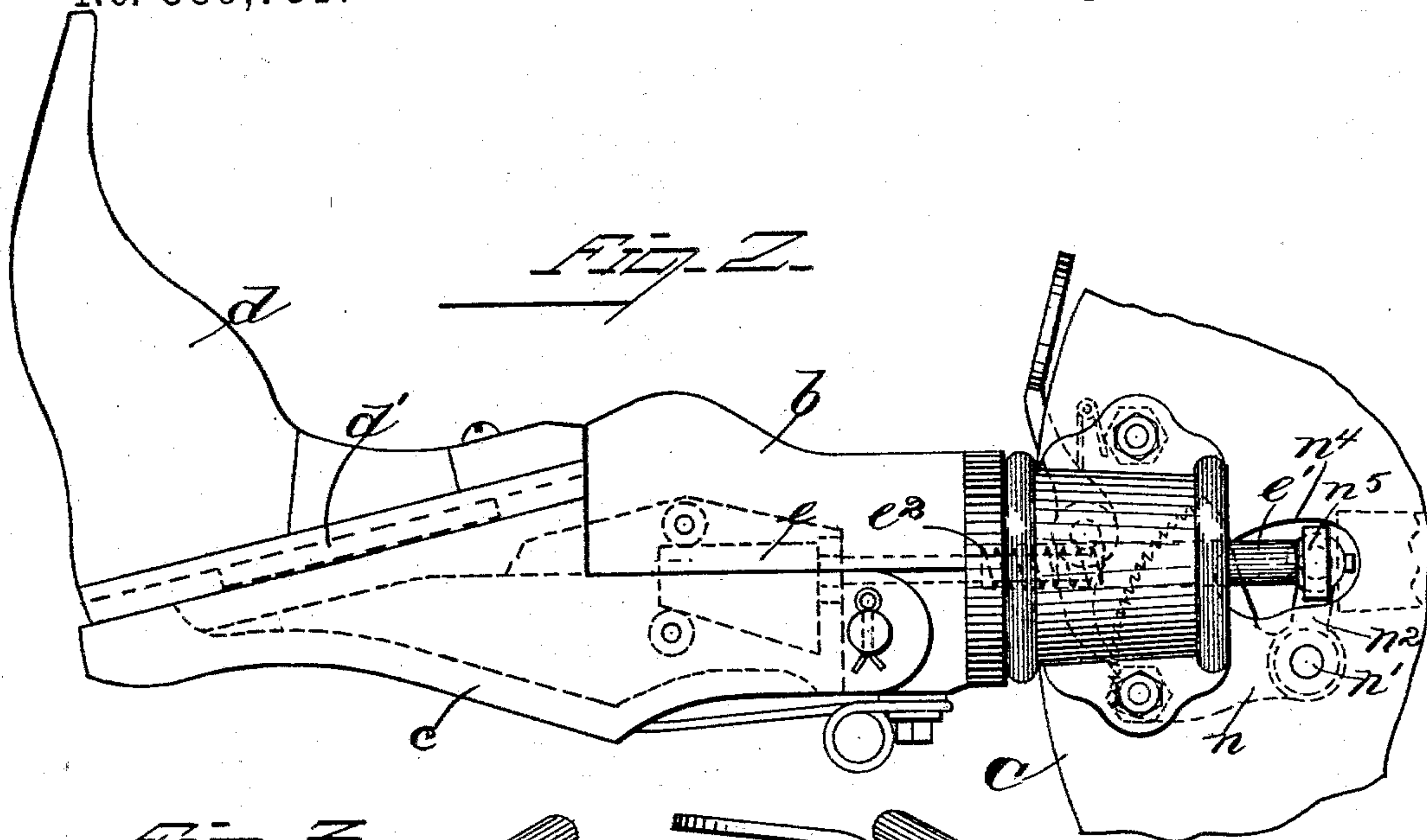
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F. H. Davis.
Charles T. Becker.

INVENTOR.
John E. Lawton.
By D. J. Hayes.

UNITED STATES PATENT OFFICE.

JOHN E. LAWTON, OF SWAMPSCOTT, MASSACHUSETTS, ASSIGNOR, BY
MESNE ASSIGNMENTS, TO THE MORLEY FINISHING MACHINE COM-
PANY, OF MAINE.

BOOT OR SHOE TREE.

SPECIFICATION forming part of Letters Patent No. 589,731, dated September 7, 1897.

Application filed October 21, 1895. Serial No. 566,320. (No model.)

To all whom it may concern:

Be it known that I, JOHN E. LAWTON, of
Swampscott, county of Essex, and State of
Massachusetts, have invented an Improve-
ment in Boot or Shoe Trees, of which the fol-
lowing description, in connection with the
accompanying drawings, is a specification,
like letters on the drawings representing like
parts.

This invention relates to treeing or shaping
machines for boots or shoes of that class such
as shown and described in United States Pat-
ent No. 543,147, granted to G. H. Clark July
23, 1895, and has for its object to improve
the construction of the independent locking
devices for the expanding devices of the ex-
pansible forms; and the invention consists in
details of construction to be hereinafter set
forth and claimed.

Figure 1 shows in front elevation a treeing
or shaping machine embodying this invention,
the expansible forms being removed from
their supports for clearness; Fig. 2, a side
view of one of the expansible forms, its sup-
port and independent locking device for its
expanding device; Fig. 3, a left-hand side
view of the rotatable disk which supports the
expansible forms, it being shown as adapted
to carry six forms; Fig. 4, an edge view of
one of the independent locking devices; Figs.
5 and 6, side and edge views of a modified
form of locking device comprehending this
invention.

The main frame A, rotatable shaft B, disk
C, mounted thereon and having sockets C',
which receive the trees or expansible forms,
the locking device for said shaft B, by means of
which it is held in different positions to pre-
sent the different forms to the operator, and
bell-crank lever a, pivoted to the frame and
adapted to operate the expanding device of
any form that may be brought into proper po-
sition with relation thereto, and means for
operating said bell-crank lever, the expansi-
ble trees, which consist of the separable parts
b c, with a detachable fore part d and slide
d', carrying it, and the expanding device for
the tree or form, composed, essentially, of
the wedge e and rearwardly-extended rod or

pin e', are all substantially as have heretofore
been constructed.

To the rotatable disk C, which supports the
forms or trees, the independent locking de-
vices for the expanding devices of the trees
are attached, they being herein represented
as ratchet-toothed segments n, pivoted at n'
to the disk C, and each having a right-angu-
lar arm n² n³ secured to it, the portion n' of
which projects radially from the pivot of the
segment at substantially a right angle to the
segment and the portion n³ of which passes
through a slot n⁴ in said disk C, terminating
near by the rod or pin e' of the expanding
device.

The arm n³ has a hole bored through it lon-
gitudinally, which receives the stem or spin-
dle n⁴ of a rocker-plate n⁵, which projects be-
yond the end of the arm n³ and also back of
the end of the rod e' of the expanding device.
This rocker-plate is not a necessity, however,
and may be omitted.

Pawls m, one for each ratchet-toothed seg-
ment n, are pivoted to the disk C, each being
acted upon by a spring m' to normally hold
it in engagement with its ratchet-toothed seg-
ment, and said pawls have hand engaging
portions m², which lie within easy reach of the
operator of the machine, to be pressed, when
desired, to disengage the pawl from its ratchet-
toothed segment.

When one of the trees is brought into po-
sition to be expanded, the actuating-arm of
the locking device of said tree stops in front
of one end of the bell-crank lever a, so that
as said bell-crank lever is operated its end
strikes the rocker-plate n⁵, and the latter in
turn strikes the pin e' of the expanding de-
vice, forcing its wedge e forward to expand
the tree and at the same time moving or turn-
ing the ratchet-toothed segment n, the teeth
of which slip beneath the pawl m.

The bell-crank lever may then resume its
normal position, but the expanding device
still holds the tree expanded by reason of the
ratchet-toothed segment n being held by the
pawl m, and the expanding device will remain
so held until its locking device is released by
disengaging the pawl from the ratchet-toothed

segment. When the pawl is thus operated and the segment disengaged, the expanding device is restored by a spring e^2 on the rod e' , and said rod e' , acting upon the actuating-arm of the locking device, restores the segment n . There will be as many of these independent locking devices as there are trees or forms, and as the machine is herein arranged for six trees the disk C is shown as having six independent locking devices.

In case of a single-leg machine the support for the expansible form will be a fixed frame instead of a rotatable disk, but the locking device and operating device for the expanding device will be the same.

It will be observed that the toothed engaging portion of the locking device is a much greater distance from the pivot than the end portion n^5 of the actuating-arm and consequently travels proportionately a greater distance, and hence large teeth may be cut or formed on the segment for strength and durability, and for each tooth of the ratchet the wedge of the expanding device will be moved but a very short distance. This construction therefore provides a very durable locking device for very fine variations of the expanding device. This locking device may be used in connection with an expanding device of any construction of expansible form.

Referring to Figs. 5 and 6, the ratchet-toothed segment n is secured to a short shaft, the inner or opposite end of which is upturned and forms the actuating-arm for the ratchet, the end of said arm lying just back of the rod e' of the expanding device and adapted to be brought in position in front of the bell-crank lever.

I claim—

1. In a machine for treeing or shaping boots and shoes, a rotatable disk, two or more expansible forms on one side of it, a spring-controlled expanding device for each form having

a pin e' , a locking device for each expanding device on the opposite side of said disk, consisting of the pivoted ratchet-toothed member n , and pawl in engagement therewith, and an arm at the other side of said disk attached to and movable with said member n , which terminates just back of said pin e' , and an operating-lever common to all of the expanding devices which engages said arm and thereby moves both the expanding and locking devices, substantially as described.

2. In a machine for treeing or shaping boots and shoes, an expansible form, an expanding device therefor, a locking device for said expanding device, consisting of a ratchet-toothed segment, an actuating-arm connected therewith having a rocker-plate which engages the expanding device, and means for moving said arm to turn the segment and also operate the expanding device, and a pawl for said segment, substantially as described.

3. In a machine for treeing or shaping boots and shoes, the rotatable disk C, two or more expansible forms supported thereby, expanding devices therefor having pins e' , a treadle-operated bell-crank lever common to all said expanding devices, an independent locking device for each expanding device, consisting of a ratchet-toothed segment n , pivoted to the disk C, having secured to and movable with it a right-angular arm $n^2 n^3$, which works in a slot in said disk and terminates just back of said pin e' , and in position to be acted upon by said bell-crank lever, and a pawl m for each ratchet-toothed segment having a hand engaging portion, substantially as described.

In testimony whereof I have signed my name to this specification in the presence of two subscribing witnesses.

JOHN E. LAWTON.

Witnesses:

WALTER E. COLLINS,
B. J. NOYES.