

2 Sheets—Sheet 1.

J. W. BALL & H. CLARK.

MACHINERY FOR BREASTING THE HEELS OF BOOTS AND SHOES.

No. 282,255.

Patented July 31, 1883.



Attest:
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Edmond Broahag

Inventors:
John Woard Ball,
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Attorney.

(No Model.)

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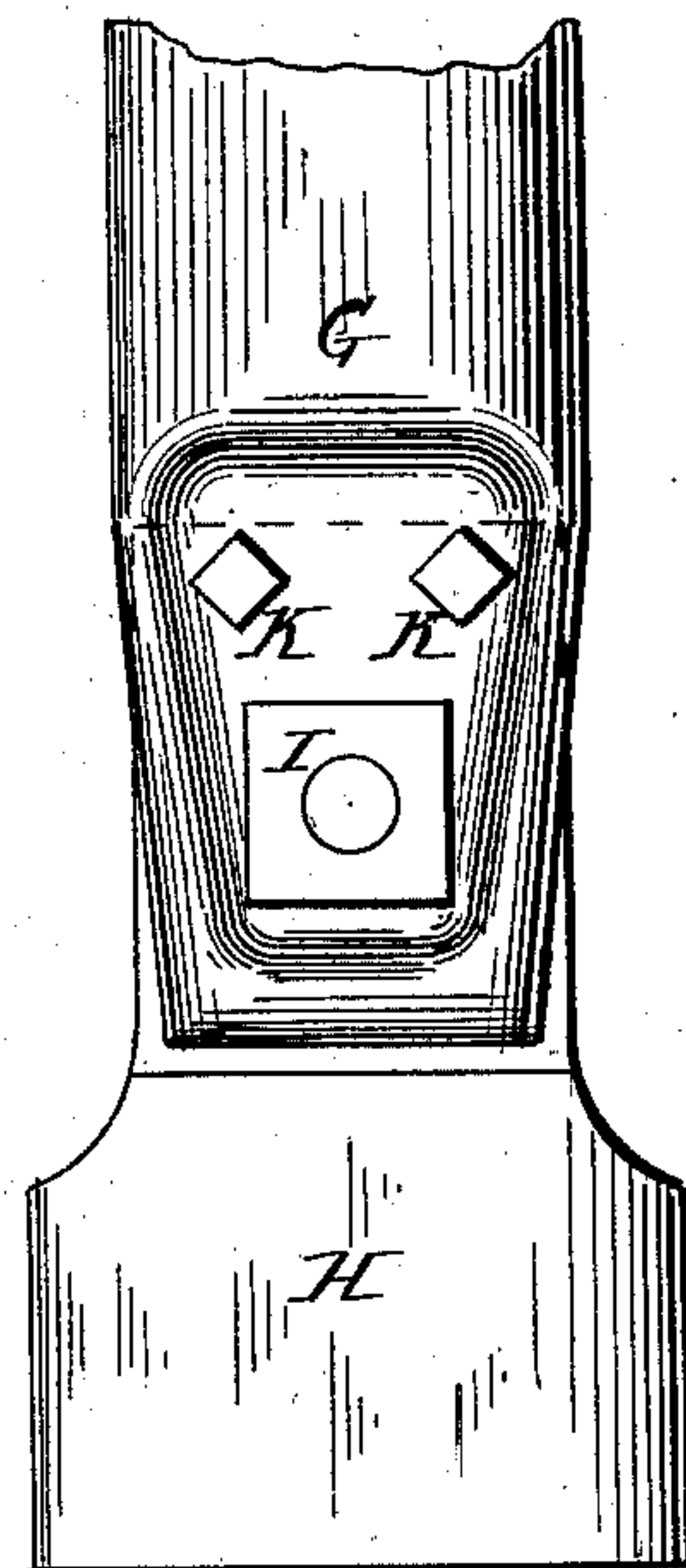
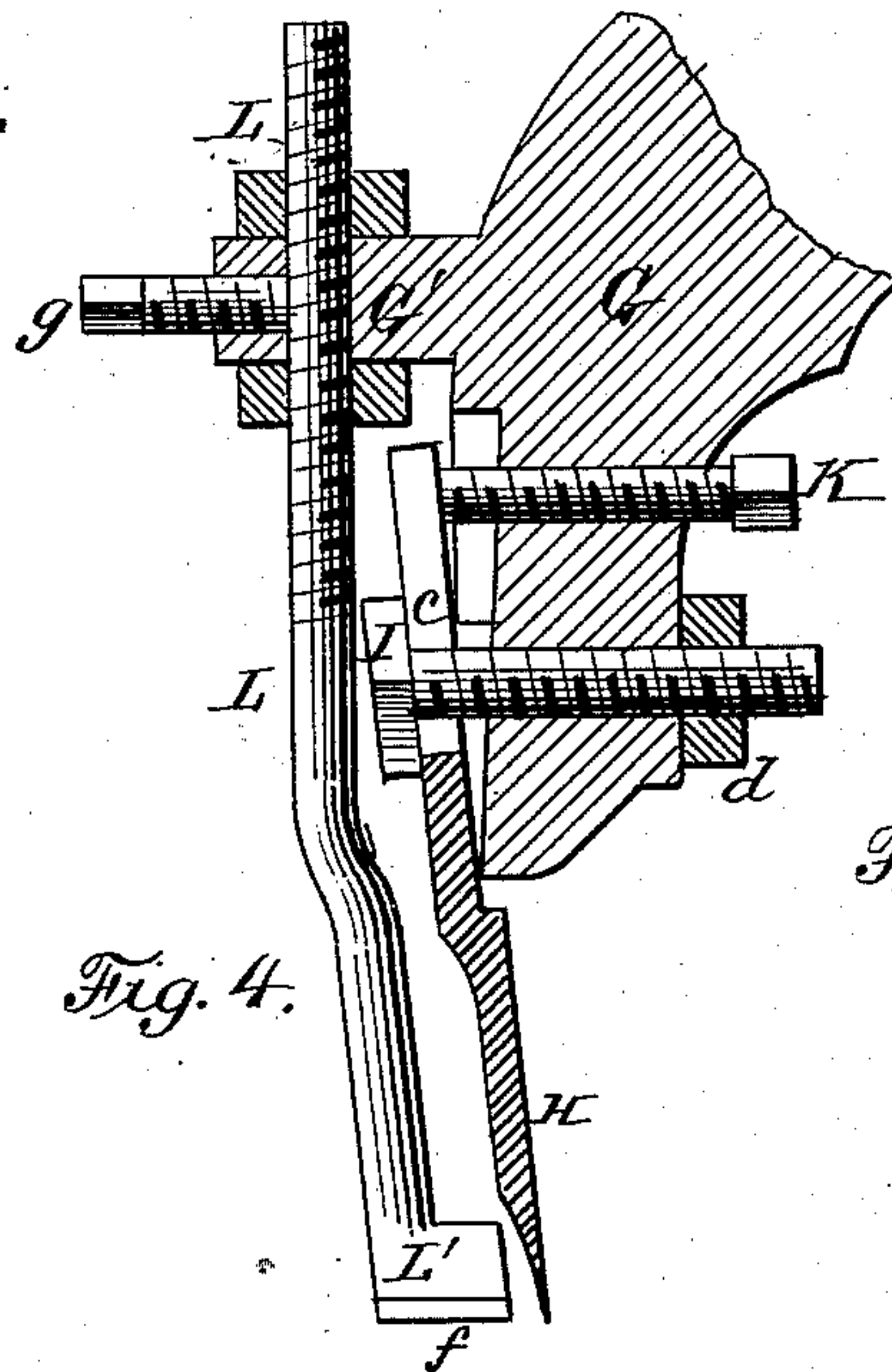
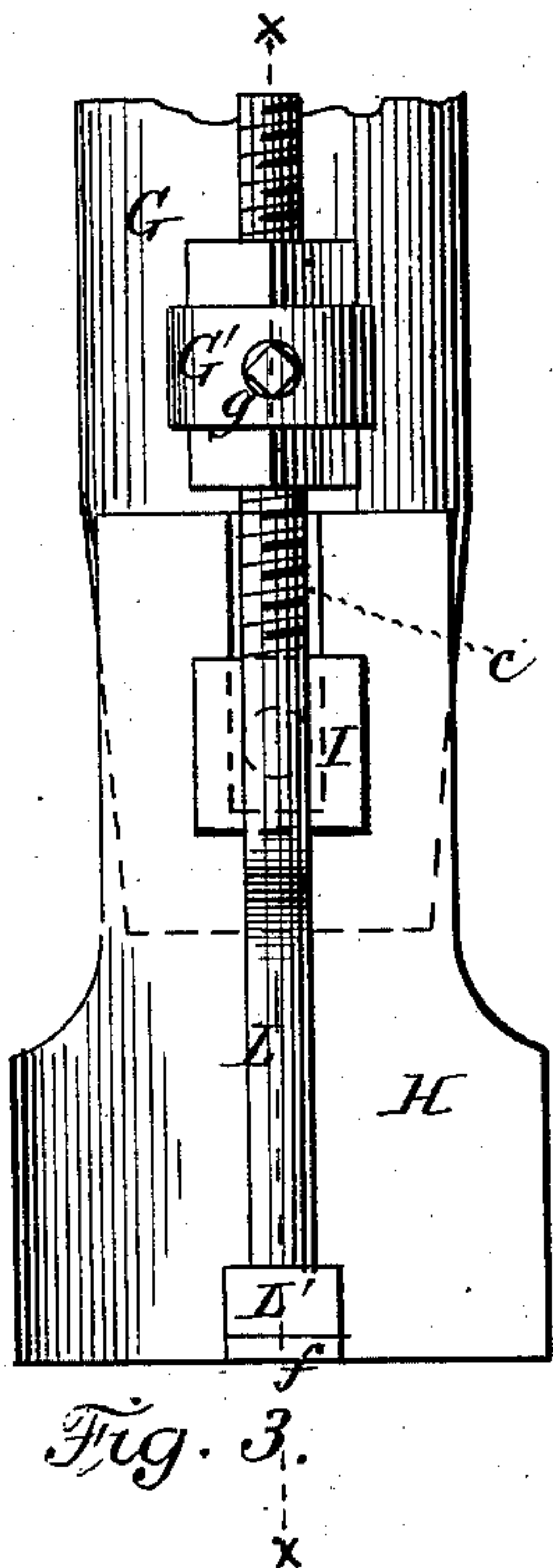


Fig. 3.

Fig. 5.

Fig. 4.

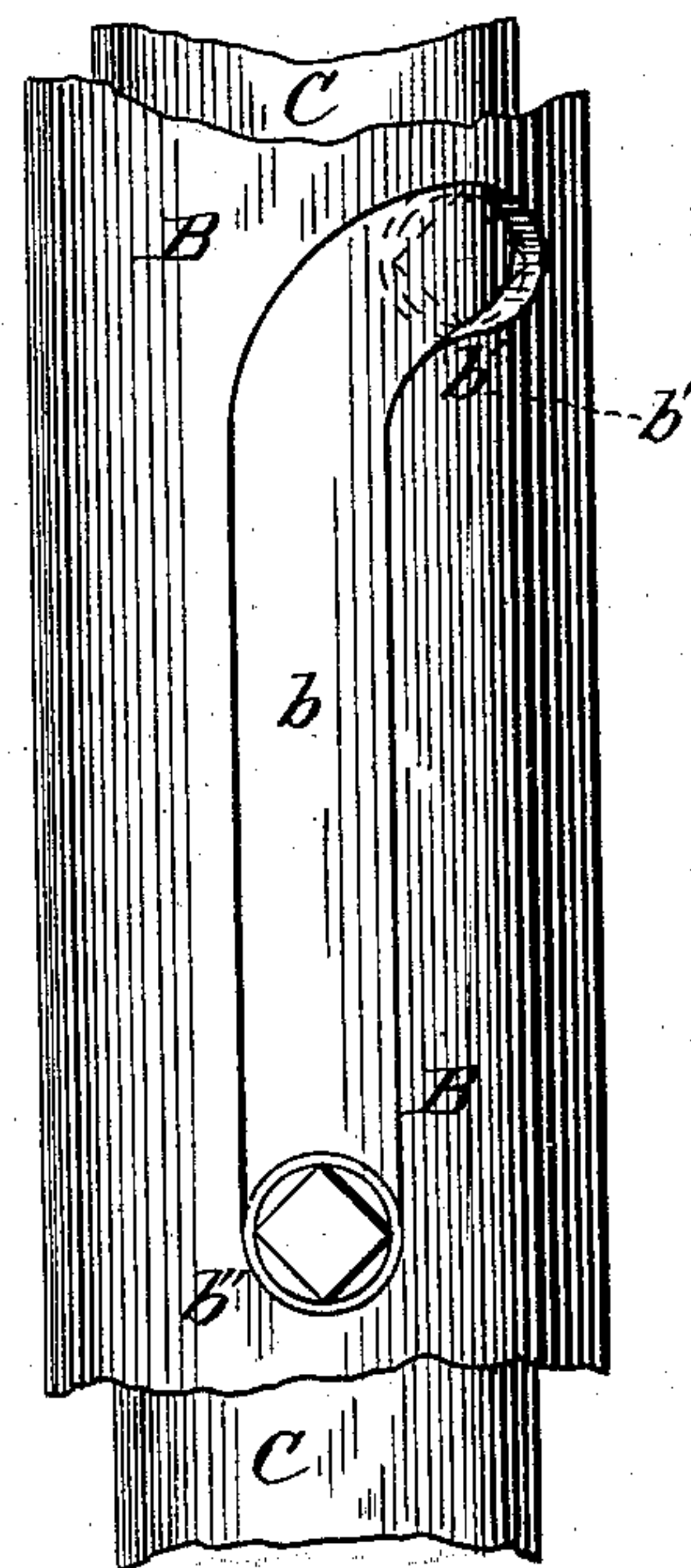
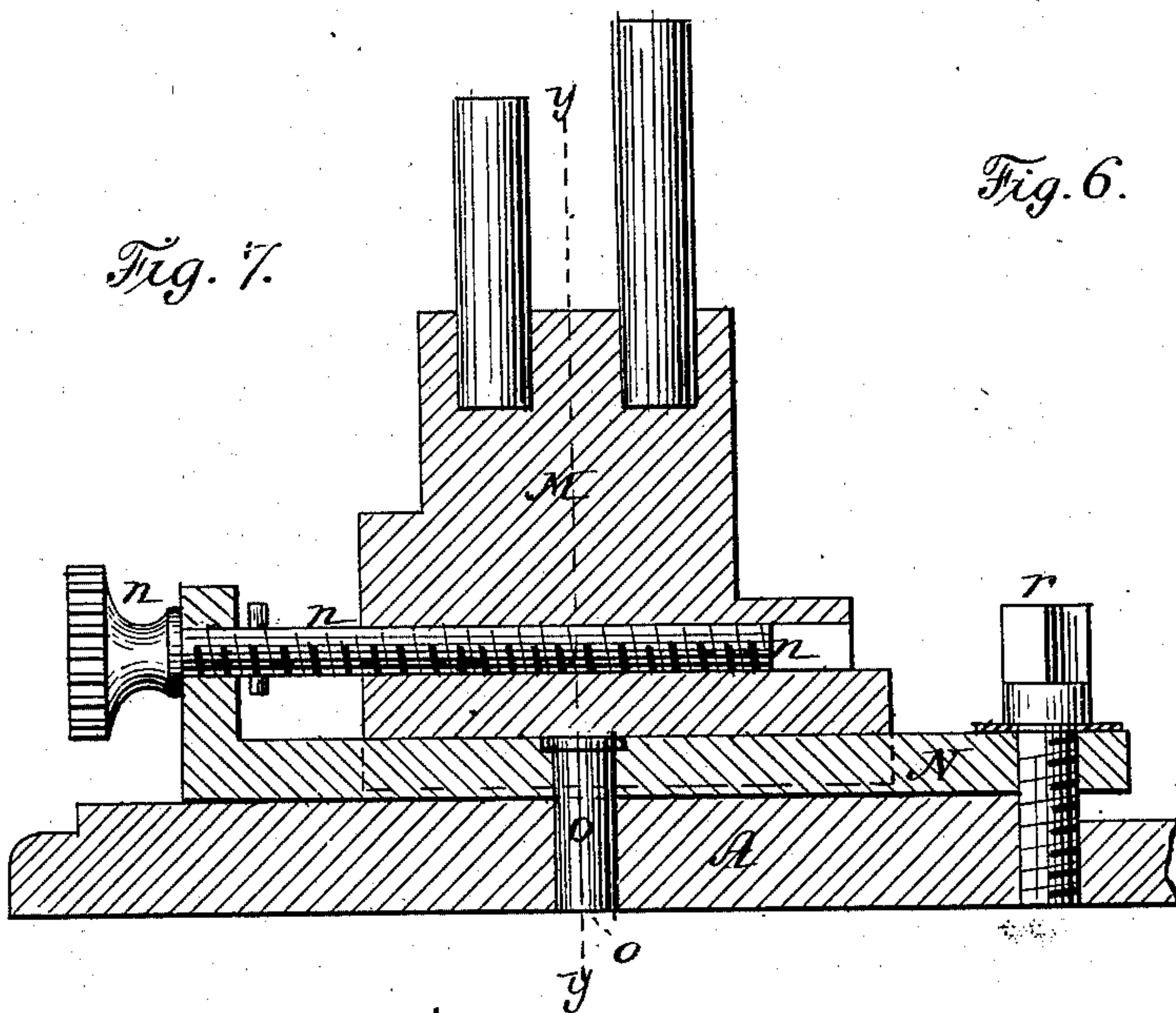


Fig. 6.

Fig. 7.

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UNITED STATES PATENT OFFICE.

JOHN W. BALL AND HENRY CLARK, OF BALTIMORE, MARYLAND.

MACHINERY FOR BREASTING THE HEELS OF BOOTS AND SHOES.

SPECIFICATION forming part of Letters Patent No. 282,255, dated July 31, 1883.

Application filed May 14, 1883. (No model.)

To all whom it may concern:

Be it known that we, JOHN WOVARD BALL and HENRY CLARK, citizens of the United States, residing at Baltimore city, in the State of Maryland, have invented certain new and useful Improvements in Machines for Breast-
ing the Heels of Boots and Shoes, of which the following is a specification, reference be-
ing had therein to the accompanying draw-
ings.

The invention relates to power-machines for breast-
ing the heels of boots and shoes, in which a cutter operated by a treadle or other power device descends to breast the heel as the shoe
is held in a last upon a support beneath.

The objects of our improvements are, first, to breast the heel by a cutter carried by a single vertically-moving arm, in such manner as to avoid the objectionable features of the com-
mon falling knife in the double standard; second, to provide means whereby said arm may be operated by power to descend to its breast-
ing action, and to rise automatically out of the way when such action is finished, into a posi-
tion in readiness for the next descent; third, to provide such a construction as will cause said arm, in rising automatically, to have a lat-
eral movement as well, in order to carry the cutter up and away from the work and work-
man; fourth, to provide means for giving to the cutter, in addition to its vertical adjust-
ment, a second adjustment for altering its angle of stroke, so that it may be made to breast the heel, either with a plane vertical cut, or
with a cut flaring inward toward the sole; fifth, to render the last or shoe support adjust-
able in any desired relation to the cutter in breast-
ing different kinds and sizes of shoes; sixth, to provide a stop for limiting the de-
scend of the cutter to prevent its cutting the sole; and, seventh, to render said stop verti-
cally adjustable. We attain these objects by the mechanism hereinafter described, and illus-
trated in the accompanying drawings, in
which—

Figure 1 is an elevation of our improved heel-breasting machine, showing the breast-
ing-cutter as at the limit of its descent. Fig. 2, a top view, showing the cutter-carrying arm
as raised and turned laterally out of the way; Fig. 3, a front view of so much of the cutter-

arm as shows the stop and the adjustable cut-
ter and its parts. Fig. 4 is a vertical longi-
tudinal section on the line *xx* of Fig. 3. Fig. 5 is a rear view of the cutter-carrying bar, with
the cutter attached; Fig. 6, a detail of the tu-
bular standard, showing the cam-slot therein,
within which the guide-stop pin of the cutter-
arm rides; Fig. 7, a vertical longitudinal sec-
tion of the last-support, and Fig. 8 a section
on the line *yy* of Fig. 7, like letters indicat-
ing like parts in the several figures.

Let A represent the base of the machine, which is fastened to a table and otherwise suit-
ably situated, and B a tubular standard rising
therefrom a sufficient distance to give a long
bearing-support to a cutter-carrying arm, C,
which is operated within said tubular standard
by a treadle-connection, D, or by any suitable
connection with a power-shaft, and which is con-
nected to D by a swiveling yoke, E, to permit of
a horizontal movement within its long tubular
bearing-standard. This movement takes place
as it is lifted automatically by the action of the
spring F, joined to the base A and the treadle,
and a pin, *a*, which projects from the cutter-
arm, and preferably provided with an anti-fric-
tion roll, following, as it rises, a guide-cam slot,
b, in the wall of the tubular standard B, curving
to one side a suitable distance to cause the arm,
as it rises to a sufficient height, to force its
goose-neck G, or cutter-carrying part above the
shoe, to turn laterally, and thus bring its end
G out of the way of work and workman, and
there to rest in the horizontal end portion *b'* of
said slot until forced down by the action of the
treadle for another cutting operation. The
bottom portion, *b''*, of said slot also limits the
descent of the cutter-carrying arm, so that
the movement of the arm vertically and lat-
erally is guided and controlled by the action
of the pin in the slot. We prefer to give the
arm this movement and to provide a construc-
tion for the purpose; but we do not limit our
claim to invention to the construction shown,
nor confine ourselves to its use in the machine,
as not only may other constructions answer to
obtain the desired vertical and lateral move-
ment, but the lateral movement may be dis-
penssed with and the force of the spring F de-
pendent upon to hold the cutter-arm raised up
above the work until power is applied for the

next stroke. It is also obvious that the movement of the arm may be continuous when steam-power is used.

The cutter-carrying portion G of the cutter-arm is of goose-neck form, as shown, and the arm may be solid or hollow, and should be of cylindrical form for that portion which moves within the tubular bearing-standard, except when the lateral movement of the arm is dispensed with, in which case the form in cross-section is immaterial, so that the cutter-arm may have its movement up and down properly within a suitably-long hollow bearing-standard. To this portion G of the cutter-arm the usual chisel-cutter, H, is fastened by a bolt, I, which passes through a slot, c, in said cutter, and is secured by a nut, d, whereby the cutter may be adjusted vertically, as and for a purpose well understood; but in order to adjust the cutter as to its cutting angle, we provide set-screws K K, adapted to bear upon the inner face of the cutter, and to be set so as to permit of its use in making either a straight vertical cut or one which shall cut the heel downward and forward toward the sole. In a projection, G', of the cutter-arm there is an arm, L, which has a stop-foot, L', which may have a cushion, f, and which is secured and held to proper vertical adjustment with relation to the cutter H by a set-screw g, as shown in Fig. 4.

The support M for the lasted shoe is of the usual form, modified by a construction to adapt it for being moved lengthwise and laterally upon a pivot and secured to a proper adjustment with reference to the cutter. We effect the lengthwise adjustment by constructing the support with a dovetailed lapping bottom, m, adapted to slide upon a dovetailed bed, N, by means of thumb-screw bolt n, and for the lateral adjustment we pivot the bed N at o, and secure it in the desired position by a set-screw, r, passing into base A, which is inserted in a slot in the bed, (not shown,) so that it may have a lateral movement on its pivot o, as will be readily understood.

The operative handles the shoe as in other breasting-machines, but much more rapidly and conveniently, and the same operative who attends to the heeling-machine may have this machine within reach and breast the heeled shoes without any change of last from that up-

on which the shoe is heeled. The set-screw r is capable of holding the shoe-support M in any fixed position of lateral adjustment; thus avoiding the inconvenience of holding the support by hand during the cutting. Hitherto the shoe-support has never been held to a definite position, but has had to be adjusted for each shoe. Our improvements avoid, also, any necessity for relasting the shoe taken from the heeling-machine.

We claim—

1. In a machine for breasting the heels of boots and shoes, the combination, of a hollow bearing-standard, an arm adapted for vertical movement therein, and having a goose-neck cutter-carrying extension, means for limiting the ascent and descent of said arm, a power-connection, and a shoe-support, substantially as and for the purpose described.

2. In a machine for breasting the heels of boots and shoes, the combination of a cutter-arm having laterally-projecting cutter-carrying extension, and a guide-pin with a tubular bearing for said cutter-arm having a guide-cam slot, a power-connection, and a shoe-support, substantially as and for the purpose set forth.

3. In a machine for breasting the heels of boots and shoes, in combination, the long tubular bearing-standard B, having the cam-slot b b', an arm, C, provided with a pin, a, and swivel-yoke E, and having a goose-neck, G, carrying a cutter, H, a power-connection, D, a lifting-spring, F, and a shoe-support, M, substantially as and for the purpose described.

4. In a heel-breasting machine, the cutter H, adapted for an adjustment with reference to its angle of cut in the heel by means of slot c therein, and set-screws K K, passing through the cutter-arm, substantially as described.

5. In a heel-breasting machine, the rising and falling cutter-arm C G, having its cutter adapted both for vertical adjustment and to have an adjustment with reference to its angle of cut, substantially as and for the purpose set forth.

In testimony whereof we have affixed our signatures in the presence of two witnesses.

JOHN WOVARD BALL.
HENRY CLARK.

Witnesses:

W. L. WHEELER,
W. H. CLARK.