

(No Model.)

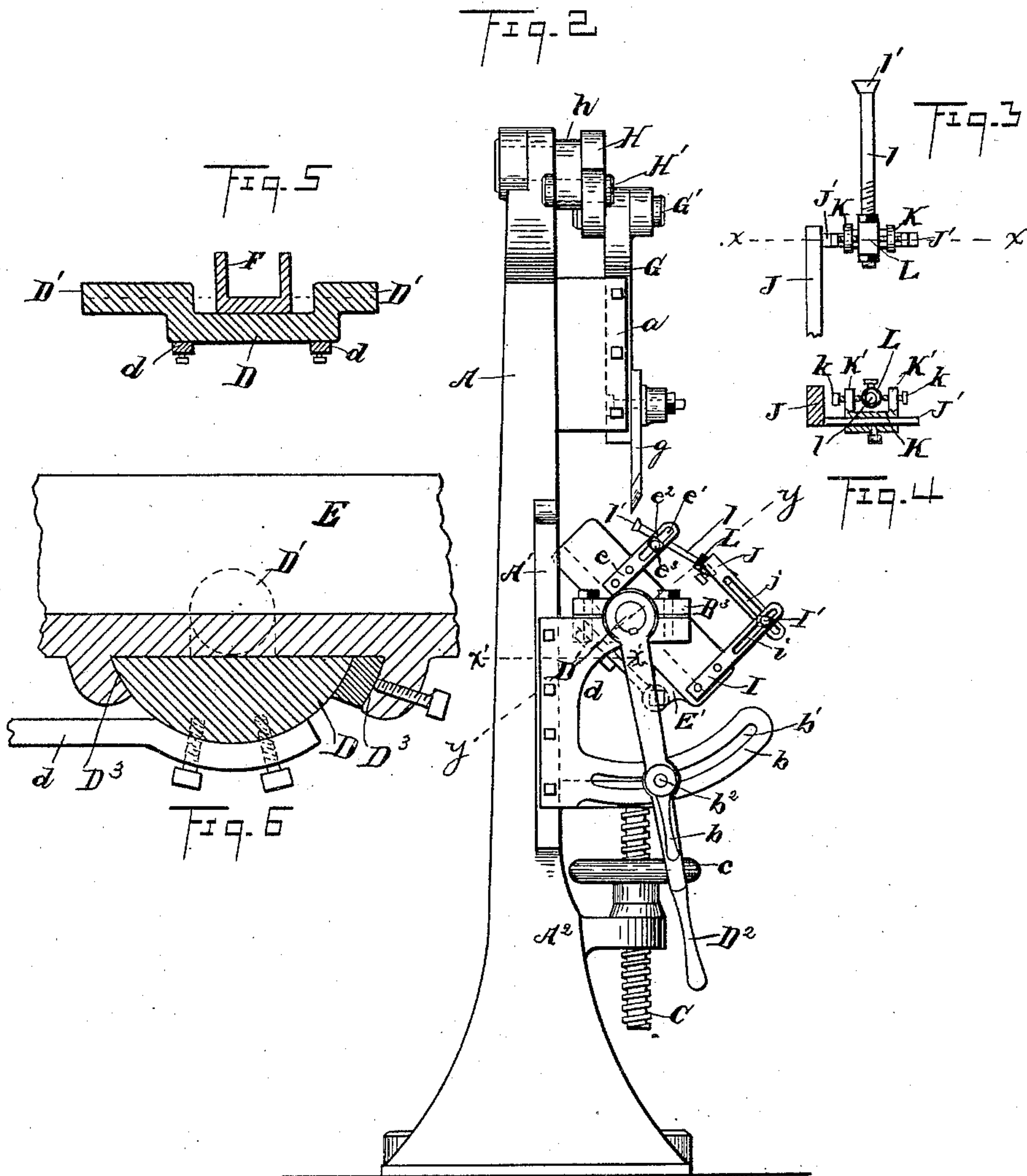
2 Sheets—Sheet 2.

J. A. MONTGOMERY.

MACHINE FOR DRESSING THE THROATS OF WOODEN PLANES.

No. 431,381.

Patented July 1, 1890.



Witnesses.

Will S. Brown
[Signature]

Inventor

Joseph A. Montgomery
[Signature]
Leggett and Leggett
Attorneys.

UNITED STATES PATENT OFFICE.

JOSEPH A. MONTGOMERY, OF SANDUSKY, OHIO, ASSIGNOR TO THE
SANDUSKY TOOL COMPANY, OF SAME PLACE.

MACHINE FOR DRESSING THE THROATS OF WOODEN PLANES.

SPECIFICATION forming part of Letters Patent No. 431,381, dated July 1, 1890.

Application filed February 15, 1890. Serial No. 340,541. (No model.)

To all whom it may concern:

Be it known that I, JOSEPH A. MONTGOMERY, of Sandusky, in the county of Erie and State of Ohio, have invented certain new and useful
5 Improvements in Machines for Dressing the Throats of Wooden Planes; 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
10 it pertains to make and use the same.

My invention relates to improvements in machines for dressing the throats of wooden planes; and it consists in certain features of construction and in combination of parts
15 hereinafter described and pointed out in the claims. The irregular but in the main triangular-shaped mortise that constitutes what is known as the "throat" of a wooden plane is usually cut on a power mortising-machine;
20 but the sloping rear end wall of the mortise, against which the plane-iron is to rest, cannot be made with sufficient accuracy by such means, and heretofore this face has been dressed by hand. Such work required the
25 labor of an expert, who was supposed to exercise the utmost care, and even then the work was not done with the accuracy and uniformity that was desirable. Such hand-work was slow and expensive and seldom entirely
30 satisfactory. I have therefore devised a machine for doing such work whereby much greater accuracy and dispatch are attained, such machine being illustrated in the accompanying drawings.

35 Figure 1 is a front elevation, partly in section. Fig. 2 is a side elevation. Figs. 3 and 4 are respectively plan and elevation in detail, the latter being partially in section on line $x x$, Fig. 3. Figs. 5 and 6 are sectional elevations in detail, the former being on line $y y$, Fig. 2,
40 and the latter being on line $z z$, Fig. 1, these sections being at right angles to each other. Fig. 7 is a horizontal section on line $x' x'$, Fig. 2. Fig. 8 is a side elevation in section of a
45 portion of a wooden plane.

A represents a standard having vertical ways A' , these ways having beveled edges that are embraced by the gib B' of table B. (Shown more clearly in Fig. 7.) The
50 standard is provided with a forwardly-pro-

jecting lug A^2 , the latter having a vertical hole for receiving loosely screw C, this screw having a hand-nut c , that rests on top of lug A^2 , and the upper end of the screw being
operatively connected with table B, this screw 55 being adapted to adjusting and holding the table vertically. The table on the sides thereof is provided with boxes B^3 , in which boxes are journaled the trunnion D' of yoke D. The one trunnion projects outside of its
60 box and has mounted thereon hand-lever D^2 . This hand-lever engages and may sweep past the face of arm b , the latter projecting forward from the table. This arm has a curved slot b' , having as a radial center the axis of
65 the trunnion to which the hand-lever is attached. A bolt b^2 operates in this slot and extends through a hole in the hand-lever, this bolt being provided with a hand-nut, as shown at b^3 . By moving this hand-lever yoke
70 D is adjusted with the face thereof at the desired inclination, and by tightening nut b^3 these parts are held in adjustment. The body of yoke D in cross-section is shown in Fig. 6,
having undercut edges D^3 , as shown. 75

E is a metal trough resting on the top surface of the yoke, the trough extending crosswise the yoke and embracing the latter, as shown in Fig. 6, whereby the trough may
80 slide a limited distance endwise the yoke. The arrangement of parts is such that the internal bottom of the trough is on a line with the axis of the yoke. To the underside of the yoke are attached forwardly-projecting
85 arms $d d$ for supporting screw-rod d' , this screw-rod being provided with jam-nuts, as shown at d^2 , for rigidly securing the rod to arms $d d$. Trough E has a depending arm
90 E' , the latter having a lateral hole adapted to receive loosely rod d' . This rod is provided with jam-nuts d^3 , located on either side of arm E' . For doing a part of the work nuts
95 d^3 are screwed against arm E' , so as to hold the trough rigidly in place. For doing another part of the work nuts d^3 are backed off
from arm E' , so that the trough may be moved a limited distance by hand lengthwise the yoke. A portion of a wooden plane F is
shown in vertical longitudinal section in Fig. 8. The plane is set in the trough and held 100

by means of clamping-screw E^2 , arranged as shown, the latter extending through a hole in the side of the trough, this screw being provided with a crank E^3 for operating the same.

5 The yoke and trough are adjusted by means of lever D^2 to bring the plane F in approximately the inclined position shown in Fig. 8, whereby the face of wall f , that is to be dressed and against which the plane-iron is

10 to rest, is vertical.

G is a cross-head engaging and reciprocating between ways a of standard A . To the upper end of this cross-head is pivoted at G' hand-lever H , the latter being of the bell-

15 crank variety, as shown more clearly in Fig. 1. The short arm of this lever is pivoted at H' to link h , the latter in turn being pivoted at h' to the upper section of the standard. To the lower end of the cross-head are attached the tools or chisels for doing the work,

20 one such tool being shown at g , Figs. 1 and 2. By operating hand-lever H the cross-head and attached tools are reciprocated vertically, and by means of the lever and link, that constitute substantially a toggle-joint, ample

25 power is had for doing the work. The plane F , before it is clamped in its position in trough E , is first adjusted lengthwise thereof, so that the tool will cut a light chip or shaving—say a thirty-second or sixty-fourth of

30 an inch, more or less, in thickness—and as a stop for thus gaging the succeeding planes I provide as follows: To the one side of trough E are rigidly attached upwardly-projecting

35 arms e and I , these arms having longitudinal slots, respectively, e' and i . In slot e' operates a horizontal pin e^2 , this pin extending over the line of trough E . This pin is secured to arm e by means of jam-nuts engaging

40 either side of the arm, as shown at e^3 . By loosening one of these jam-nuts pin e^2 may be adjusted lengthwise of arm e , this pin being always at such elevation above the trough as will admit of sliding a plane endwise into

45 the trough underneath the pin. This pin serves merely as a rest for the stop hereinafter mentioned. An arm J , provided with a longitudinal slot j , is clamped to the side of arm I by means of bolt I' , this bolt operating

50 in slots i and j , by which construction arm J has a universal adjustment in a vertical plane. Arm J is of the angular variety, (shown more clearly in Figs. 1 and 3,) the lateral arm J' thereof extending over the line of

55 trough E . On member J' is mounted block K , the latter having upwardly-projecting ears K' . These ears are pierced laterally in line with each other, and the holes are screw-threaded for receiving the conical-ended set-

60 screws k k .

L is a roller, the ends thereof having conical depressions for receiving the points of set-screws k k , so that the roller may turn on its axis. The roller has a screw-threaded hole at

65 right angles to the axis thereof for receiving the screw-threaded section of rod l . This rod has an enlarged head l' , and has jam-nuts lo-

cated on either side of roller l for holding the rod in adjustment. By loosening these jam-nuts the rod may be turned on its axis to ad-

70 just it lengthwise, and as the screw-threads of the rod are preferably very fine—that is to say, have slight lead—such adjustment can be made with great accuracy. Arm J having

75 previously been adjusted to approximately the length required, the finer part of the adjustment only is done by turning rod l on its axis.

In operating the device, the plane F having been placed in trough E , and before the

80 plane is clamped, rod l is turned approximately to the position shown in Fig. 2, and wall f of the plane is brought in contact with head l' , which latter constitutes the stop

85 proper, rod l meantime resting on pin e^2 , after which the plane is clamped by means of screw E^2 . Rod l is then turned back out of the way while the cutter is doing its work. In plane-

90 factories usually large numbers of planes of the same kind are made at one batch. The work done on this machine comprises, first,

95 dressing the corners of the throat of the plane adjacent wall f , and, second, dressing this wall, both of which—the corners and the wall—should be dressed with great accuracy. For

100 dressing the corners is usually employed a double-corner chisel of ordinary construction, but not very broad, so that the chisel may be used on the smaller-sized planes, and

105 jam-nuts d^3 are backed off, so that the trough and plane can be moved laterally, as required, to dress, first, the one corner and then the other corner of the throat, nuts d^3 meantime serving as stops in such lateral

110 movement of the plane, the operator using one hand for such lateral movements and using the other hand for operating lever H . Having dressed the throat-corners of a batch

115 of planes, the double-corner chisel is detached from the cross-head and a flat chisel is substituted, the latter being of sufficient

120 width, more or less, according to the size of the plane, for dressing the full width of wall f . Nuts d^3 are then adjusted to hold the trough from lateral movement. The work

125 can be done expeditiously and with accuracy and with uniformity. As a matter of economy I employ two of these machines, the one operator dressing the corners of the plane-

130 throats, as aforesaid, and passing the plane to the operator of the other machine, who in turn dresses the sloping end walls of the plane. This saves much handling of the

135 planes and saves adjusting the machine for two kinds of work.

These machines are comparatively small and can be furnished at a moderate cost, and for the reasons aforesaid I consider it better

140 practice, at least for the larger plane-factories, to employ two such machines. The two machines I arrange back to back, and hence

145 they occupy but little floor-space and are in convenient position for passing the work from one operator to the other. Of course

two single-corner chisels, right and left handed, can be employed in place of a double-corner chisel, if so preferred.

What I claim is—

5 1. In a machine for dressing the throats of planes, in combination, a supporting stand-
ard or frame, a table having vertical adjust-
ment and having a screw for adjusting the
10 of the standard, a toggle and hand-lever for
operating the cross-head, the table bearing a
yoke mounted on trunnions, and the yoke
bearing a trough adapted to hold the work,
such trough having adjustment lengthwise
15 the yoke, the trough being provided with a
clamping-screw for securing the work therein,
substantially as set forth.

20 2. The combination, with standard, cross-
head, and table, and means for operating the
cross-head and adjusting the table, substan-
tially as indicated, of a yoke provided with
trunnions, the latter being journaled in boxes
connected with the table, a hand-lever con-
nected with the trunnions of the yoke for

tilting the latter, a suitable appliance, sub- 25
stantially as shown, for holding the lever and
yoke in adjustment, and a trough mounted on
the yoke crosswise the latter, such trough hav-
ing adjustment lengthwise the yoke, substan-
tially as set forth. 30

3. The combination, with table, yoke pro-
vided with trunnions, and trough mounted
on the yoke, substantially as indicated, of
arms projecting from the yoke and a screw-rod
35 mounted on such arms, the trough being pro-
vided with a depending arm adapted to em-
brace such screw-rod loosely, the latter being
provided with jam-nuts that serve as stops for
the depending arm of the trough, substan-
tially as set forth. 40

In testimony whereof I sign this specifica-
tion, in the presence of two witnesses, this
30th day of January, 1890.

JOSEPH A. MONTGOMERY.

Witnesses:

C. H. DORER,
GEO. W. KING.