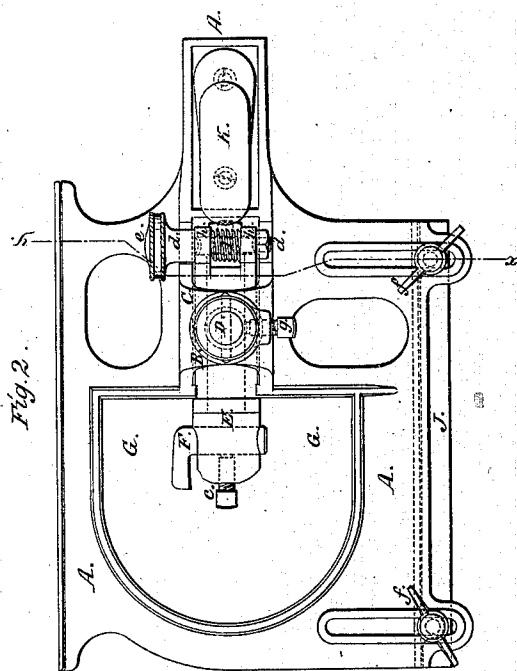
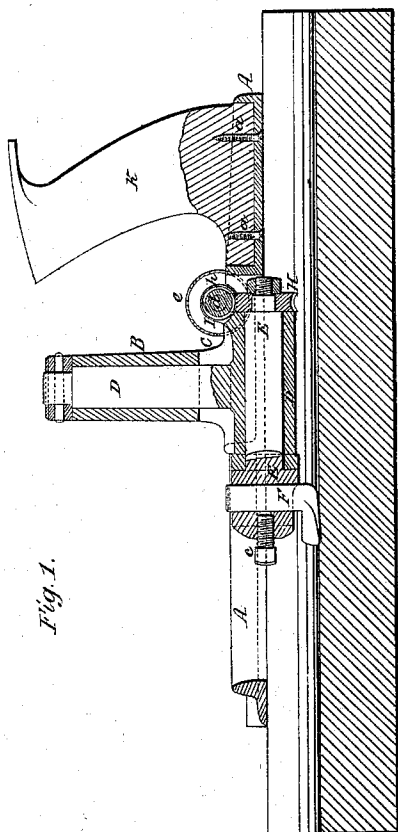
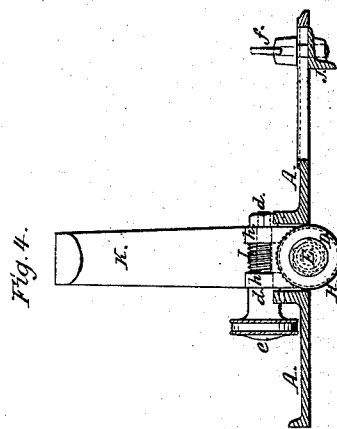
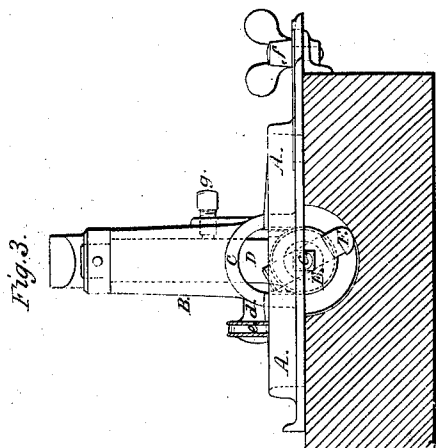


E. W. Lewis, *Bench Plane.*

No. 60,200.

Patented Dec. 4, 1866.



Witnesses.
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United States Patent Office.

IMPROVEMENT IN CORE-BOX PLANES.

ELISHA W. LEWIS, OF PHILADELPHIA, PENNSYLVANIA.

Letters Patent No. 60,206, dated December 4, 1866.

SPECIFICATION.

TO ALL WHOM IT MAY CONCERN:

Be it known that I, ELISHA W. LEWIS, of the city of Philadelphia, and State of Pennsylvania, have invented a new and improved Core-Box Plane for pattern-makers' use; and I do hereby declare the following to be a full and exact description of the construction and operation of the same, reference being had to the annexed drawings, and to the figures and letters of reference marked thereon.

My invention consists of an improved instrument for planing out the semi-cylindrical concavities in wooden core-boxes, which are generally composed of two halves, and serve as moulds for preparing cylindrical sand cores of an infinite variety of shapes; these cores being afterwards used in connection with sand moulds, when any kind of hollow cylindrical castings are to be produced. The improved planing instrument possesses many important advantages over the kind of planes heretofore in common use for this class of pattern work; it is very accurate and expeditious in its operation, and capable of the nicest adjustment for any required diameter of cylinders within the extreme limits of its capacity. Certain peculiar kinds of cylindrical core-box work, which cannot be accomplished with the common round-faced plane, and had to be heretofore worked out by hand, are easily performed with this instrument, as hereinafter fully described.

In order that my said invention may be clearly understood, I will now proceed to describe more particularly the construction and operation of the same.

On reference to the drawing, making part of this specification, and in which similar letters of reference allude to like parts throughout the several views—

Figure 1 is a sectional elevation of the improved plane.

Figure 2 is a plan.

Figure 3, an end view; and

Figure 4, a transverse section through the line *xy*, fig. 2.

The casting A forms the stock of the plane, and is made as light as is consistent with required stability of its parts; it has at its rear end a wooden handle, K, the base of which is fitted into a recess in the stock, and further secured to the latter by the screws, *aa*. The stock A is, near the middle, provided with a vertical sleeve, B, which rests upon an arched support, C, and serves to carry a vertically adjustable $\perp$ shaped piece, D; the solid upright stem of D is fitted into the sleeve, B, and its horizontal cylindrical part carries the rotative tool-holder, E, the axis of which coincides with the line of motion of the plane, and is ordinarily so adjusted by means of the set-screw, *g*, as to intersect the line of the bottom bearing surface of the stock, A, but it may be set either above or below this level for peculiar kinds of work requiring such adjustment. F is the cutting tool, the shank of which is inserted into a transversely bored hole in the enlarged head of the holder, E, in which it is laterally adjustable for work of various diameters, and secured in any required position by means of a set-screw, *c*. In the stock A is provided a large opening, G, (fig. 2,) wide enough to allow the largest cutting tool to rotate within the same, when set out for the full capacity of the instrument, and which also serves to liberate the chips. A rotative feed movement is imparted to the cutting tool in the following manner. Upon the rear end of the tool-holder E is a small worm-wheel, H, into which gears a worm, I. This worm is fitted upon a round pin, *d*, which has its bearings in two lugs, *h h*, cast on the back end of sleeve D, and is provided with a milled head, *e*, the latter being so placed in relation to the handle, K, that it can be readily actuated by the extended fore-finger of the right-hand while working the plane, without releasing its hold on the handle, K. The plane is provided with an adjustable gauge, J, secured to the left-hand bottom side of the stock, A, by means of thumb-screws, *ff*, passing through slotted openings in the stock; this gauge being made to bear against the side of the piece of wood being planed, serves as a sufficient guide to keep the plane in the correct line of motion during the entire operation, and, when once set, insures the proper mating of the two halves of the core-box. It must be evident to any one practised in pattern-making, that this instrument will produce work of the greatest accuracy, which by means of the heretofore employed planes, with rounded face, could only be done with great care and consumption of time; but it will further be easily understood that it is applicable to such kinds of work which cannot be done with the rounded plane at all, viz, the dressing out of short lengths of various diameters, and with sharp offsets in one piece of wood. In the common rounded plane, the face of the stock bears upon the same surface of the wood, which is being operated upon by the cutting tool, and that part of the stock which is in advance of the cutting edge precludes all possibility of working into sharp corners or offsets, while in my

improved plane the edge of the tool is capable of cutting out sharply offsetted variations in the diameter of the box, which heretofore could only be dressed out in a tedious manner by means of gouges or chisels. Although this improved instrument is mainly designed for the planing out of cylindrical core-boxes, it is evident that its use may be extended with equal advantage to many kinds of pattern or other wood-work, as, for instance, the fluting of column patterns, and in other similar cases.

Having thus described the construction and operation of my improved plane, I desire to be understood that its arrangement in detail may be modified in various ways without impairing my invention, among which modifications I name the following: the lateral adjustment of the cutting tool may be effected by a set-screw placed in line with the shank of the cutter, and so arranged that the turning of the screw will move the tool in the direction for increasing or decreasing the radius of the cutting point. The bearings of the worm-shaft, *d*, may be so arranged that the worm can be lifted out of the teeth of the worm-wheel, for setting the cutter back to the proper position for commencing a next cut, without turning it back by means of the worm, *I*, or the worm-shaft *d* may be provided with a ratchet feed motion, operated in various ways, for producing a regular feed for the cutting tool, which intermittent motion can be readily given by means of the handle, *K*, if the same were hinged to the stock and had a limited rocking motion, which would naturally be imparted by the hand at every reversion of the motion of the plane, and which movement may by means of a suitable connecting link and ratchet pawl give the feed motion to the worm spindle. I therefore do not wish to limit myself to the precise arrangement of detail as shown in the annexed drawing.

But what I claim as my invention, and desire to secure by Letters Patent, is—

In combination with the stock *A*, the rotative tool-holder *E*, carrying a transversely adjustable cutter *F*, to which a circular feed motion is given by means of the worm *I* and worm-wheel *H*, or in any other equivalent manner.

ELISHA W. LEWIS.

Witnesses:

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THEODORE BERGNER.