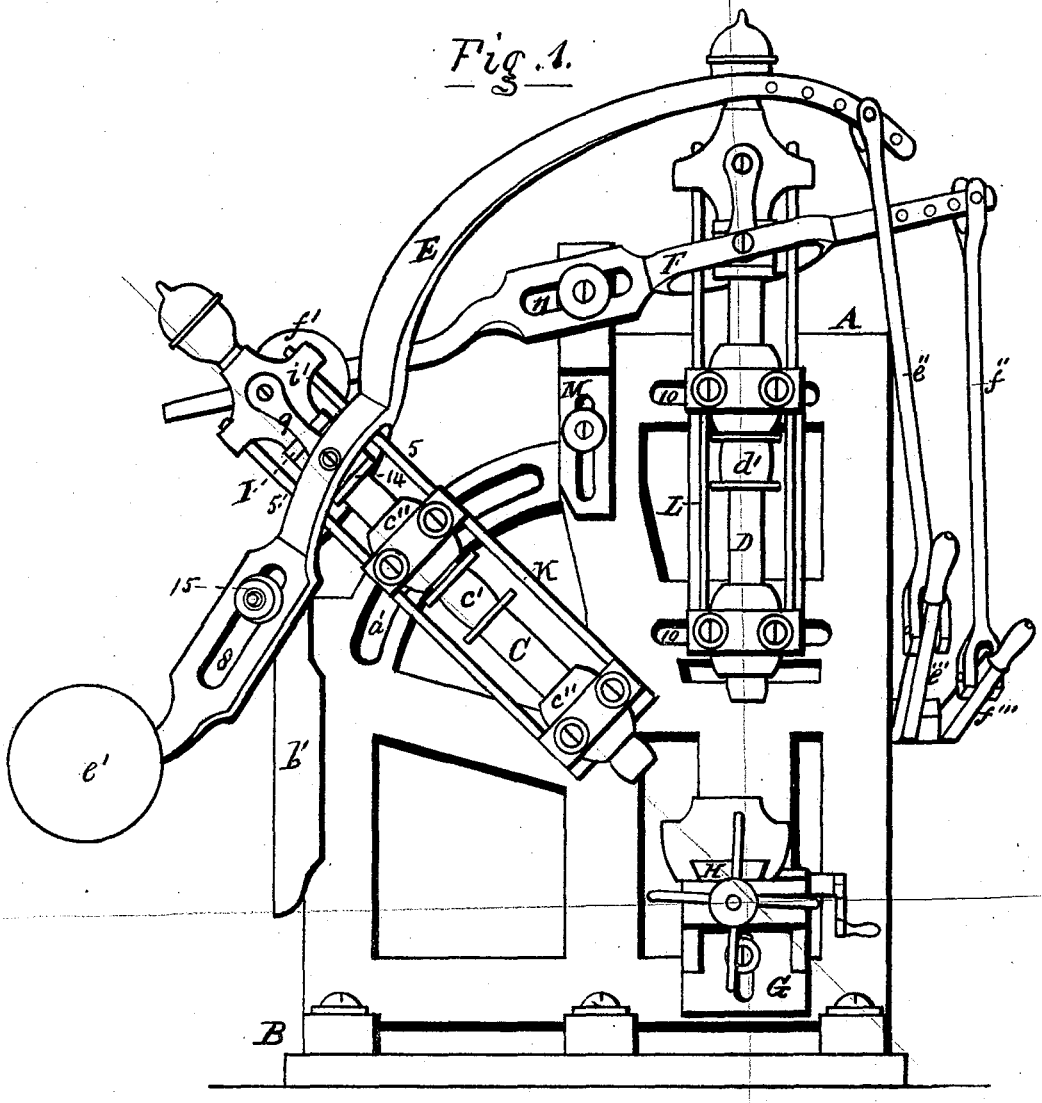
2 Sheets--Sheet 1.

C. KRAPF.

Lathes for Turning Tobacco Pipes.

No. 141,279. Patented July 29, 1873.

Fig. 1.



Witnesses:

Benj Morison.
Wm H. Morison.

Inventor:

Charles Krapf

2 Sheets--Sheet 2.

C. KRAPF.

Lathes for Turning Tobacco Pipes.

No. 141,279. Patented July 29, 1873.

Fig. 2.

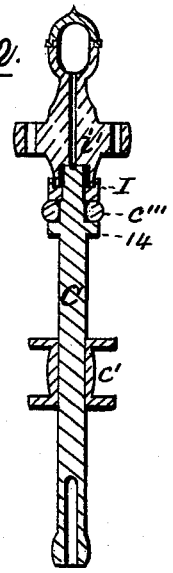


Fig. 5.

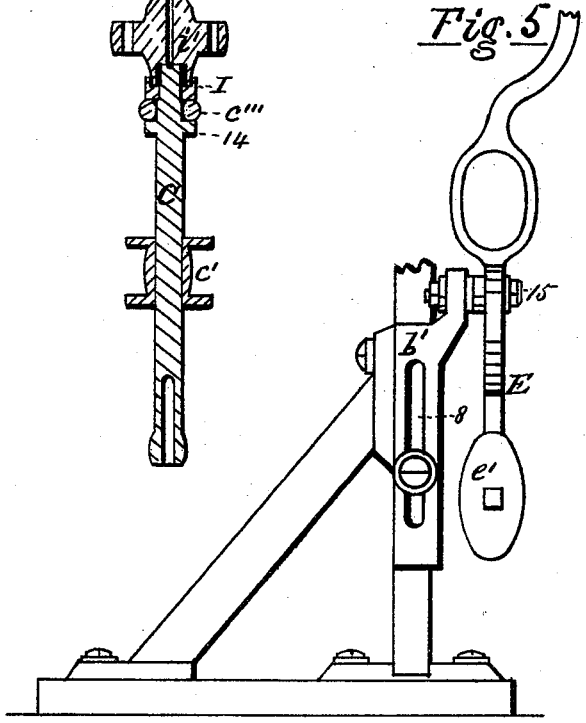


Fig. 3.

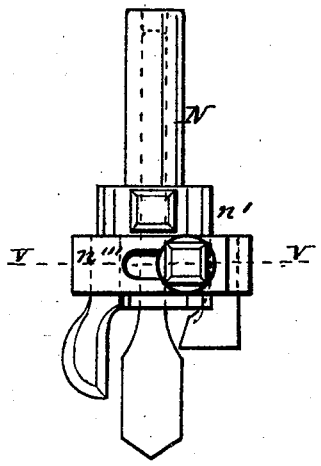


Fig. 4.

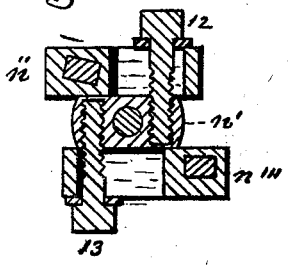
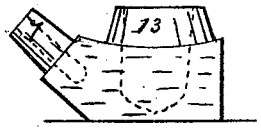


Fig. 6.



Witnesses:

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UNITED STATES PATENT OFFICE.

CHARLES KRAPF, OF PHILADELPHIA, PENNSYLVANIA.

IMPROVEMENT IN LATHES FOR TURNING TOBACCO-PIPES.

Specification forming part of Letters Patent No. **141,279**, dated July 29, 1873; application filed May 13, 1873.

To all whom it may concern:

Be it known that I, CHARLES KRAPF, of the city of Philadelphia, in the State of Pennsylvania, have invented certain Improvements in Lathes for Turning Tobacco-Pipes, of which the following is a specification:

The object of my invention is to form the cavity and the upper end of the bowl of a wooden tobacco-pipe and the stem end with the hole for the stem of the same with greater accuracy and rapidity, and without changing the position of the block of wood in producing the form of the two said parts of the pipe. The different parts of my invention are fully illustrated in the accompanying drawings, in which—

Figure 1 is a front elevation of the machine embodying my invention. Fig. 2 is a central longitudinal section of one of the rotary tool-shafts, with its oil-cup and friction collar or bearing. Fig. 3 is an enlarged side elevation of one of the tool-carriers, having the tools for forming the bowl end and cavity of a tobacco-pipe attached thereto in a readily-detachable manner. Fig. 4 is a transverse section of Fig. 3 in the dotted line *v* of the latter. Fig. 5 is a sectional side view of the adjustable sliding support for the fulcrum of the hand-lever, whereby longitudinal movements are given to the tool-shaft for forming the stem end of the tobacco-pipe; and Fig. 6, a vertical central section of a block of wood after the bowl and the stem ends have been formed thereon by the machine.

The frame A B is intended to be made of cast-iron; the rotary shafts C and D of steel; the tool-head, Figs. 2 and 3, of steel; and the respective tools or cutters of steel, with beveled or chisel cutting-edges, afterward duly tempered. The levers E and F should be made of wrought-iron, with their counterbalancing-weights e' f' of cast-iron or lead, and the latter of sufficient weight to lift the respective connecting-bars e'' f'' and hand-levers e''' f'''. The adjustable slide G and vise-jaws H H should be made of cast-iron. The inclined shaft C has a fixed band-pulley, c', whereby it is rotated in suitable bearings c'' c'', and an end bearing or friction-collar, c''', of lignum-vitæ wood, fixed between the flange on upper end of the shaft C and the bottom of the receiver I of the oil-cup feeder i'. The shaft C is supported in its bearings c'' c'', which are fixed in a frame, K, the lower end of which latter is secured so as to turn on a nutted screw-bolt in the frame A B and allow its upper end to be moved over a slot, a', which is concentric to the turning-point of its lower end, and by means of a nutted screw-bolt enables the operator to adjust the inclination of the shaft C to suit the inclination desired in the stem end of the tobacco-pipe, which is to be formed on the block of wood, previously fixed in the vise-jaws H H of the supporting-slide G in the lower part of the main frame A B. (See Fig. 1.) The oil-feeder i' and the oil-cup I are secured by tie-rods 5 5 to the upper end of the frame K, so as to sustain the friction-collar c''' against the upward pressure of the flange of the shaft C when the latter is being pressed forward in forming the stem end 7 (see Fig. 6) of the pipe. The downward or forward movement of the shaft is effected by means of the lever E, which has its fulcrum in a slot, 8, in the lever, the fulcrum-pin being fixed in an adjustable slide, b', which is bolted to the side of the frame A B. (See Figs. 1 and 5.) The weight-point of the lever E is connected by means of the rods g to the feeder i'. The shaft D is supported and operated by its lever F substantially in the same manner as described for the shaft C; but the frame L, which supports the said shaft D, is supported in a vertical position by means of top and bottom screw-bolts and two horizontal slots, 10 10, whereby the said frame L with the shaft D can be adjusted laterally to suit the size of the pipe to be formed, the block for the latter being secured in the vise-jaws H H of the horizontally-adjustable support G. The fulcrum-pin of the lever F is in a slot, 11, in the lever, and is fixed in an adjustable sliding support, M, on the frame A B. The tool-heads (Figs. 3 and 4) are alike for each shaft C and D, and are secured to the lower ends of the shafts, respectively, by means of a socket in the shaft and a stem, N, of the tool-head and a set-screw, so that the heads can be readily applied and detached as occasion may require. The heads are each formed of a center part, n', and two adjustable sliding blocks, n'' n''', which

are secured by respective screw-bolts 12 13 to the center part n'. The opposite ends of the two blocks n'' n''' have each a rectangular mortise or hole for the reception of the stem of the cutting-tool, which may be appropriate for the part of the pipe to be formed; and the center part n' has a hole for the reception of the drilling-tool, which makes the hole in the bowl, or the hole in the end of the tobacco-pipe, as the respective parts require. The two side tools or cutters form the top edge and the sides of the bowl and of the stem end, respectively, while the drill or center tool forms the cavity in the bowl and the hole for the stem, respectively. The tools or cutters and the drills are each separate pieces, have their cutting-edges made chisel form, and of whatever form in the outline the desired form of the appropriate part of the bowl and stem end of the pipe may require, and, each being separate from any one of the others, they can be readily taken out of the head and their edges ground on a stone—a matter of great importance, because it permits the said cutting-tools to be made of steel and hardened. The old mode of constructing the top and side cutters in one piece requires that the same be soft enough to be filed sharp, because the square corner edge between the top and side of the bowl, or the angle or short curve required between two parts of the cutter, cannot be properly applied to a grindstone, as will be apparent even in the most simple form of the stem end 7 and bowl end 13 of the block of wood having the said parts formed thereon, as shown in Fig. 6. The shafts C and D are rotated by separate bands applied to their respective pulleys c' d', and both shafts, with their respective tool-heads and tools (see Figs. 3 and 4) attached, are intended to be kept in rotary motion at the same time; and it will therefore be seen that as the block of wood to be operated upon is permanently secured in the vise-jaws H H of the adjusted slide G, and the two shafts C and D adjusted to form thereon the bowl end and the stem end of the pipe, greater facility and rapidity will be afforded than if the block, Fig. 6, had to be separately adjusted and secured for each part, as heretofore. It will also be seen that the required longitudinal motions and pressure can be readily given to the shafts C and D by means of the respective levers E and F, operated by hand applied to the respective levers e''' f'''. (See Fig. 1.)

The friction-collar c''', being made of lignum-vitæ, wears longer and better than those made of metal; and being made annular, as shown in Fig. 2, there is ample space for the shaft C or D to pass through and rotate without touching it, and also to allow of its lateral motion without touching the sides of the shaft, as the longitudinal motions required are given to the latter by means of the levers E and F during the operations of the machine, disclaiming anything shown and described in the Patent No. 42,991, granted to D. A. Dickinson and dated May 31, 1864.

I claim as my invention—

1. The adjustably-inclined rotary shaft C and the adjustable block carrier or holder G H, when constructed and arranged in relation to each other for the purpose of enabling the attendant to adjust the two said devices to suit the required inclination to be given to the stem end of the pipe, without changing the fixed position of the block of wood in the jaws H of the said block-holder, substantially as hereinbefore set forth and described.

2. The arrangement of the inclined shaft C and its carrying-frame K 5, the weighted lever E with its slot 8, and its fulcrum-pin 15 in the adjustable supporting-slide b', the said parts being constructed and secured to the main supporting-frame of the machine, so as to operate substantially as and for the purposes hereinbefore set forth and described.

3. The arrangement of the vertical rotary shaft D and its carrying-frame L, the lever F with its adjustable supports M and 11, and the slots 10 10 in the main frame of the machine, the said parts being constructed and attached to the said main frame of the machine, substantially as and for the purposes hereinbefore set forth and described.

4. The tool or cutter-head, with its respective, distinct, and separable cutters, constructed and secured adjustably together, substantially as shown in Figs. 3 and 4 and described, for the purposes specified.

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