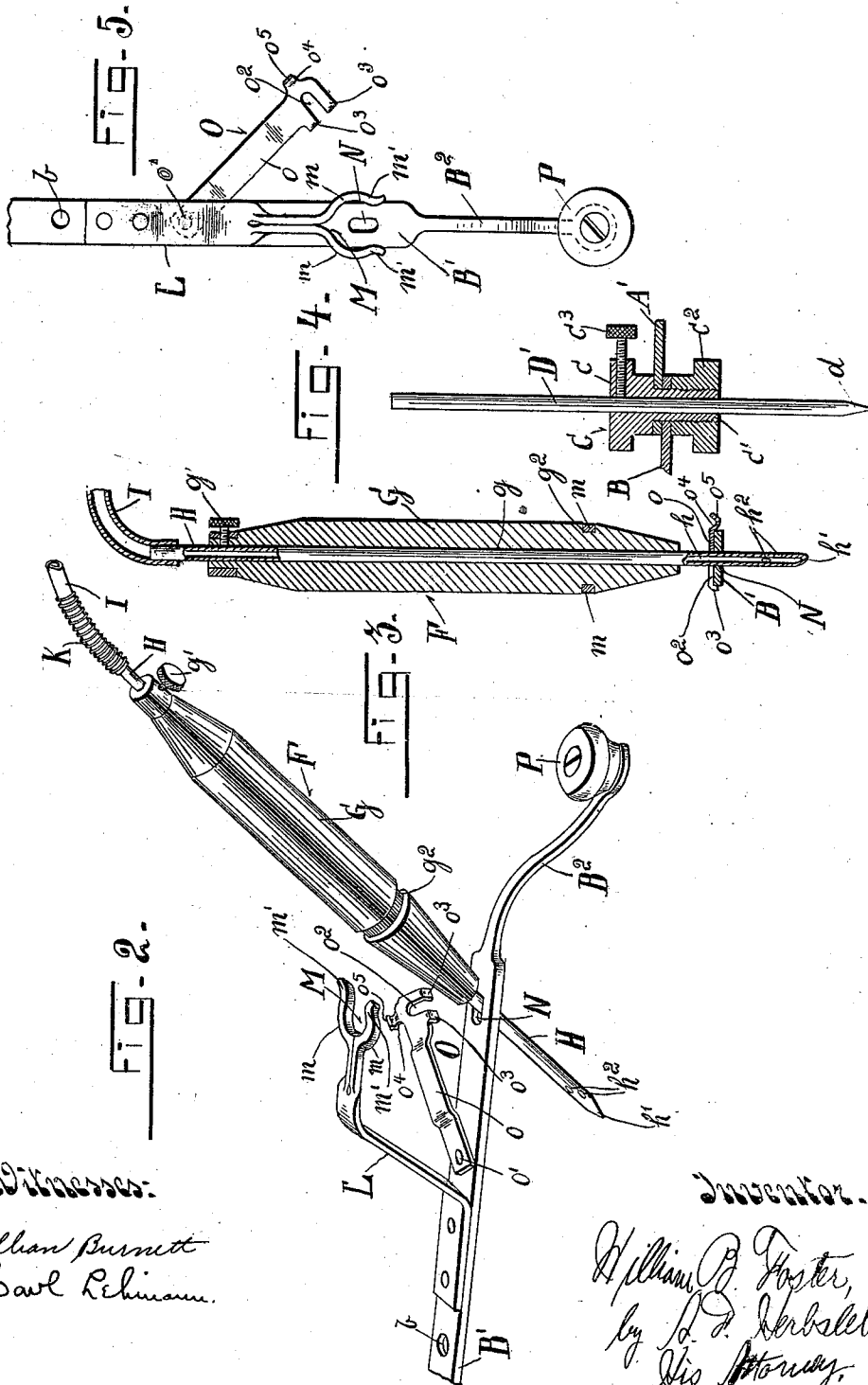


W. B. FOSTER.
PANTOGRAPHIC PYROGRAPH.
APPLICATION FILED JAN. 6, 1910.

978,012.

Patented Dec. 6, 1910.

2 SHEETS—SHEET 2.



Witnesses:

Lillian Burnett
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His Attorney.

UNITED STATES PATENT OFFICE.

WILLIAM B. FOSTER, OF NORWOOD, OHIO, ASSIGNOR, BY DIRECT AND MESNE ASSIGNMENTS, OF ONE-THIRD TO MILLARD J. KLAU AND ONE-THIRD TO ALFRED H. DUWELIUS, BOTH OF CINCINNATI, OHIO.

PANTOGRAPHIC PYROGRAPH.

978,012.

Specification of Letters Patent.

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To all whom it may concern:

Be it known that I, WILLIAM B. FOSTER, residing at Norwood, in the county of Hamilton and State of Ohio, have invented certain new and useful Improvements in Pantographic Pyrographs, of which the following is a specification.

It is the object of my invention to produce a pantographic pyrograph, and to provide certain novel and useful improvements in a device of this character, and the invention will be readily understood from the following description and claims, and from the drawings, in which latter:—

Figure 1 is a perspective view of my improved device, showing the same adjusted for reproducing matter on a substantially thick article from a thin pattern, the surface plane of the reproduction being at a substantially higher elevation than the surface plane of the pattern. Fig. 2 is a perspective view of the securing means for the pyrographic hand-instrument, showing the parts in partly assembled relation. Fig. 3 is a cross-section of the same in assembled relation, taken on the axial line of the pyrographic handle and showing the tube therein partly in side elevation. Fig. 4 is an axial section showing the joint between the bars of the pantograph frame having the tracer-rod therein; and, Fig. 5 is a plan view of the securing means for the pyrographic hand-instrument, the pivoted clasp of the same being swung into open relation.

A A' and B B' represent the pantographic bars having joints C between the same. These joints comprise thimbles *c* provided with threaded shanks *c'* which are received through apertures *a* and *b* in said bars, the threaded ends of said shanks receiving nuts *c*² for holding the bars about the shanks. Each of the respective bars is provided with a suitable number of said apertures *a* and *b*, so that the joints may be located at different points lengthwise of the bars for making reproductions of the same size as the pattern, or larger or smaller than the pattern, as may be desired. One of the thimbles and nuts is also located at the free end of each of the bars A and B.

D D are supporting rods, D' is a tracer-rod, and D² is a positioning-rod. The supporting rods D D are located at the free end of the bar B and at the rear joint be-

tween the bars A and B'. The tracer-rod is located at the forward joint between the bars B and A', and the positioning-rod is located at the free end of the bar A. The rods pass through the bores of the thimbles at their respective locations. They have the thimbles secured thereto at desirable elevations by means of thumb-screws *c*³ for adjusting the bars of the pantographic frame to desired elevation to accommodate articles of various thicknesses upon which the work is to be performed. The positioning-rod has a positioning-block *e* at its bottom which is provided with prongs *e'* arranged to be forced into the table upon which the device is to be used.

F is a pyrographic hand-instrument and comprises a handle G through the bore *g* of which a tube H passes, the tube being held at desirable elevations with relation to the handle by means of a thumb-screw *g'*. A flexible hose I is arranged to be received over the upper end of the tube, where a spring-support K is received about the upper end of the tube and the part of the hose adjacent thereto, for preventing kinking of the hose at the tube, and resiliently supporting the end of the flexible hose adjacent to the tube. The free end of the tube may be provided with a similar spring-support K' arranged to be secured to a suitable pipe from which the fuel-supply is received.

The tube is provided with a passage *h* extending longitudinally thereof and at its lower end has a burner-point *h'*, the passage terminating adjacent to the burner-point, where lateral apertures *h*² pass through the wall of the tube and communicate with the passage. The supply of fuel passes through the hose and tube in the form of vapor which ignites at the outer ends of the apertures *h*² for maintaining the burner-point *h'* in heated condition. This pyrographic instrument is detachable from the pantographic frame and is arranged for employment as a hand-instrument. The handle G of the same is provided with an annular recess *g*². L is a bracket which extends upwardly from the bar B' and is provided with a fork M at its upper end the times *m* of which are of spring material and have inwardly curved fingers *m'* at their outer ends. The distance between the inner

faces of these curved fingers is less than the diameter of the handle G at said annular recess, and these tines are resilient so that the handle may be forced between the tines and the tines hold the handle at said recess with resilient pressure. The bar B' is provided with an elongated slot N extending longitudinally of said bar and located under the fork M.

O is a clasp and comprises an arm *o* pivoted at *o'* to the bar B', and having an elongated slot *o²* extending from one of its sides and registering with the elongated slot N, the side walls of the elongated slot *o²* extending transversely to the side walls of the elongated slot N. The elongated slot N permits the tube H to be passed slantingly through the bar B' and permits the upper end of the handle G to be forced in a direction longitudinal of the bar B' for forcing the recessed part of the said handle between the tines of the fork M. When so positioned, the clasp O is swung on its pivot for bringing the side walls of the elongated slot *o²* into engagement with the front and rear faces of the tube H, the side faces of said tube being engaged by the side walls of the elongated slot N, thereby centering the tube. The side walls of the elongated slot *o²* prevent movement of the tube longitudinally of the bar B' and the side walls of the elongated slot N prevent movement of the tube laterally of the bar B'. The clasp O is provided with lips *o³* *o⁴* received against the respective side edges of the bar B' for maintaining the clasp in clasp position, and is also provided with a finger-piece *o⁵*, for readily releasing and closing the same.

The bar B' has a forward depending extension B² upon which a guiding handle P, preferably of heat-insulating material, is located. By means of this guiding handle the tracer-point *d* at the end of the tracer-rod D' is caused to follow the lines of the pattern, represented at Q, and the burner-point *h'* is directed across the surface of the article upon which the pattern is being reproduced, represented as a box R, and held at proper elevation with relation to said surface for properly reproducing the same according to the character of work being done.

The pantographic rods D, D', D² are of substantial length and the pantographic bars are adjustable to considerable variations of elevation lengthwise of the rods for permitting the pantographic bars to be raised to substantial height above the lower ends of the rods for permitting reproductions to be made upon articles varying considerably in height, from patterns of substantially similar thicknesses. Thus in the drawing I have indicated the reproduction being made on a box of substantial height from a pattern of minimum thickness, for instance, a pattern on a sheet of paper.

Having thus fully described my invention, what I claim as new and desire to secure by Letters Patent is:

1. In a pantographic pyrograph, the combination of a pantographic frame comprising bars having joints between them and rods upon which said bars are supported, a pyrographic hand-instrument comprising a handle and a burner-tube, one of said bars being provided with an elongated opening extending lengthwise of said bar, a clamp on said last-named bar extending above the same and received about said handle and a keeper pivoted to said last-named bar and provided with a slot the side-walls of which extend crosswise of the side walls of said elongated opening for positioning said tube lengthwise of said elongated opening, substantially as described.

2. In a pantographic pyrograph, the combination of a pantographic frame comprising bars having joints between them and rods upon which said bars are supported, a pyrographic hand-instrument comprising a handle and a burner-tube, one of said bars being provided with an opening for receiving said tube, a clamp on said last-named bar received about said handle, and a keeper on said last-named bar received about said tube adjacent to said opening, substantially as and for the purpose specified.

3. In a pantographic pyrograph, the combination of a pantographic frame comprising bars having joints between them and rods therefor, a pyrographic hand-instrument comprising a handle having an annular recess and a burner-tube, one of said bars being provided with an elongated opening extending lengthwise of said bar, a spring-fork on said last-named bar the tines whereof are received in said annular recess for clasp ing said handle, and a keeper on said last-named bar provided with a slot the side walls of which extend crosswise of the side walls of said elongated opening, and are arranged to engage said tube for positioning said tube lengthwise of said opening, substantially as described.

4. In a pantographic pyrograph, the combination of a pantographic frame comprising bars having joints between them and rods therefor, a pyrographic hand-instrument comprising a handle having an annular recess and a burner-tube, a guiding handle on one of said bars, said last-named bar being provided with an elongated opening extending lengthwise of said bar in rear of said guiding handle, a spring-fork on said last-named bar the tines whereof are located above said elongated opening and are received in said annular recess for clasp ing said first-named handle, and a resilient keeper pivoted to said last-named bar and provided with a slot the side walls of which extend crosswise of the side walls of said

elongated opening and are arranged to engage said tube for locking said tube lengthwise of said opening, said keeper being provided with lips engaging the side edges of
5 said last-named bar for keeping said keeper in locking position, substantially as described.

In testimony whereof, I have signed my name hereto in the presence of two subscribing witnesses.

WILLIAM B. FOSTER.

Witnesses:

LILLIAN BURNETT,
CARL LEHMANN.