

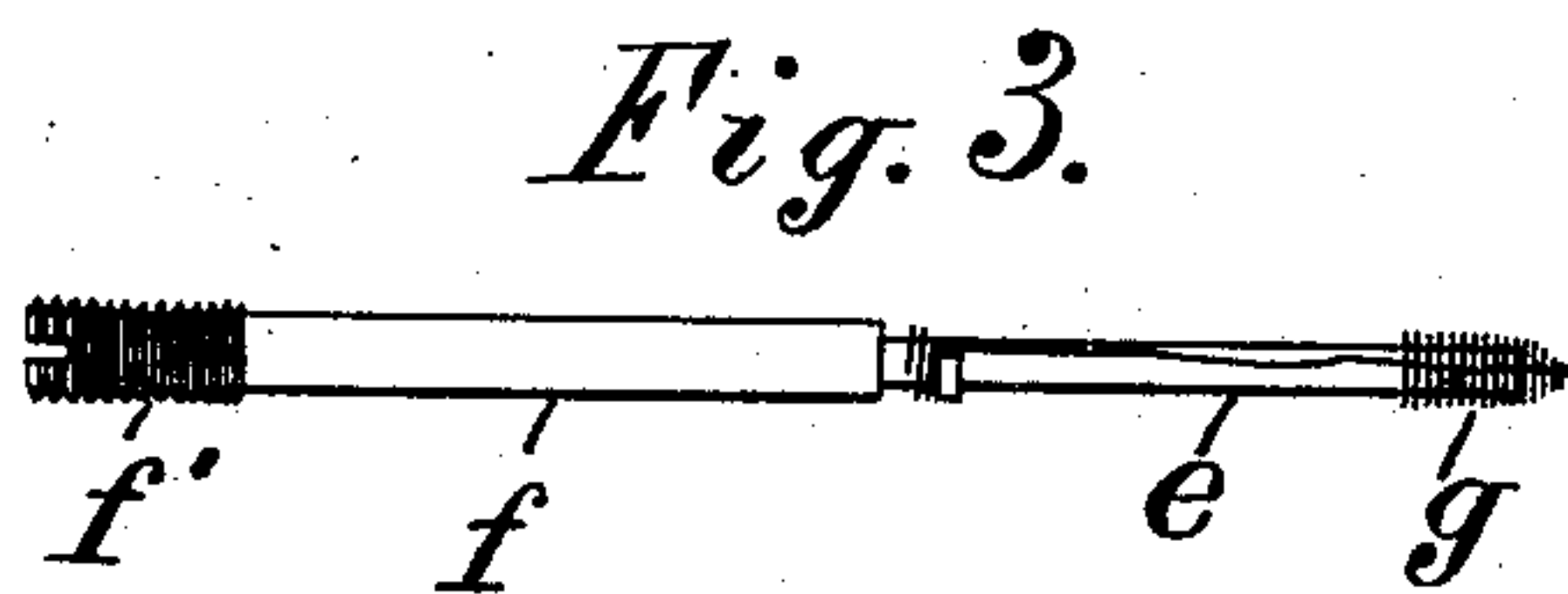
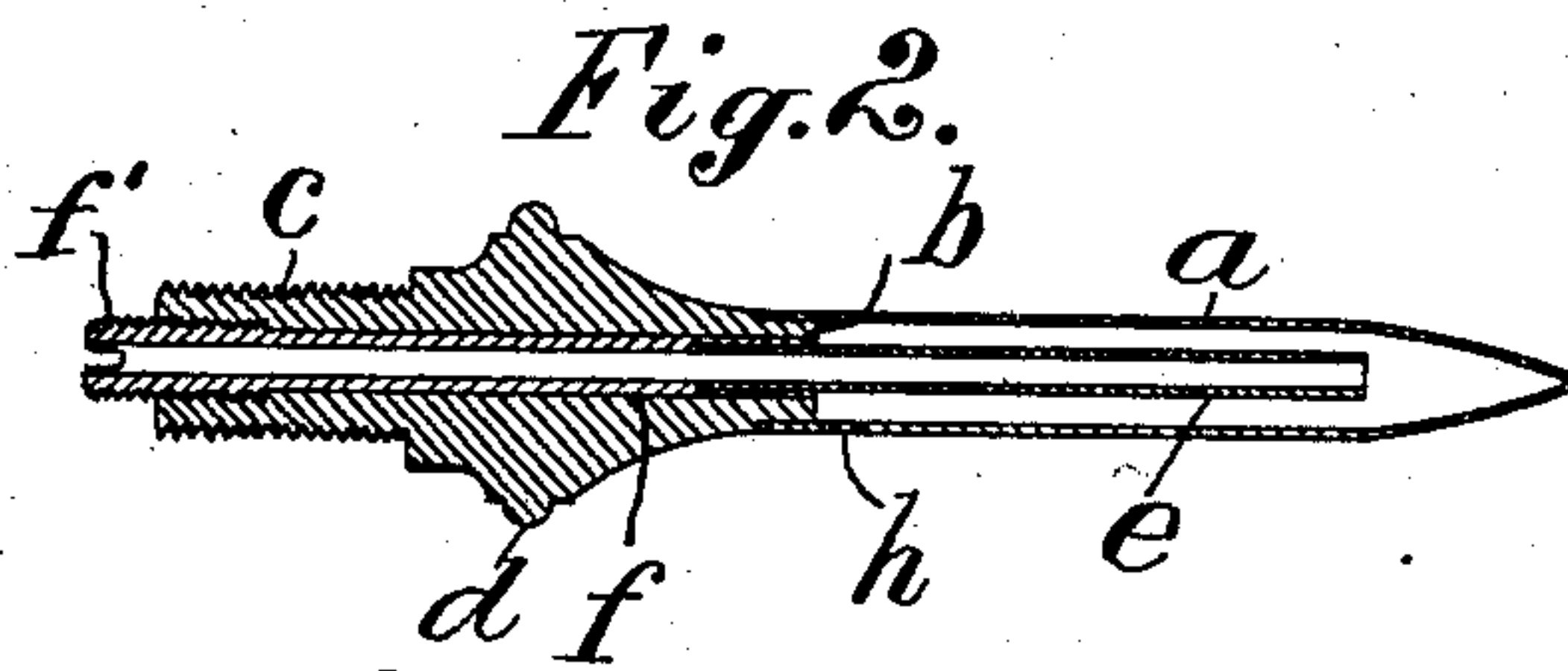
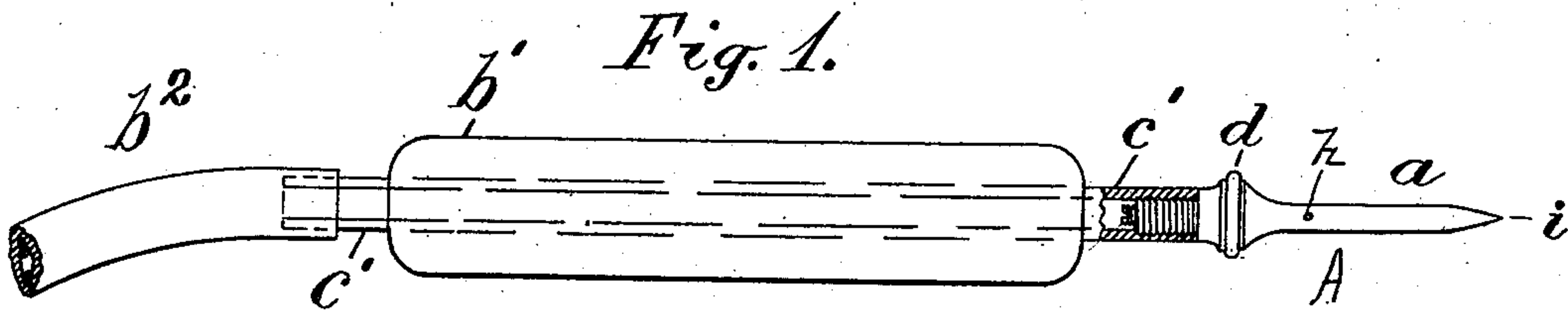
No. 715,720.

Patented Dec. 9, 1902.

H. WILCOX.  
PYROGRAPHIC TOOL.

(Application filed Nov. 21, 1901.)

(No Model.)



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# UNITED STATES PATENT OFFICE.

HENRY WILCOX, OF NEWARK, NEW JERSEY.

## PYROGRAPHIC TOOL.

SPECIFICATION forming part of Letters Patent No. 715,720, dated December 9, 1902.

Application filed November 21, 1901. Serial No. 83,162. (No model.)

*To all whom it may concern:*

Be it known that I, HENRY WILCOX, a citizen of the United States, residing at 22 Court street, Newark, county of Essex, State of New Jersey, have invented certain new and useful Improvements in Pyrographic Tools, fully described and represented in the following specification and the accompanying drawings, forming a part of the same.

10 The primary object of this invention is to furnish an improved construction for a pyrographic burner, by which, first, the burner-point may be made very near to the supporting-handle and may be formed substantially  
15 integral with its shank, so that it cannot become loosened by protracted use, and, second, to provide a means of conveniently removing the gas-tube from such burner-point. This second object is effected by forming the  
20 shank of the point with a removable stem which carries the gas-tube and has a base threaded and screwed to a shoulder in the shank. The handle is formed with a non-conducting shell upon a section of gas-pipe  
25 adapted for union with a supply-hose, and such gas-pipe is formed with a threaded bore inside one end, and the shank of the burner adjacent to the base of the removable stem is fitted to such threaded bore and can be  
30 readily detached at any time to change the point upon the handle or to remove the stem for inspection or for renewing the gas-tube.

In some constructions, especially the pyrographic tool for decorating or carving wood, the heated burner-point is sometimes formed  
35 of a thin platinum tube on account of the non-corroding character of such metal, and to connect such platinum point with the screw-shank (which is formed of brass or composition) the shank is commonly made with a  
40 cylindrical nozzle of considerable length and the tubular point fitted to the exterior of such nozzle and indented upon one side to prevent it from slipping off of the same. In  
45 such construction the nozzle can be removed by straining the dented portion off of the nozzle to afford access to the gas-tube, which is of very slender proportions and is exposed to the intense heat of the combustion, so that  
50 it becomes injured and worn out before the

exterior point. With such construction the tubular point becomes by use and wear loose upon the nozzle, so that it cannot be held and used steadily by the operator. The great  
projection of the nozzle within the tubular  
55 point usually compels the formation of the vent-hole much nearer to the apex of the point than is desirable.

One of the objects of my invention is to furnish a cheap, efficient, and durable pyro-  
60 graphic tool for burning or decorating wood, and in experimenting to secure this object I have found that the point of the tool projects too far from the handle (for convenient  
use in pyrographic work) if it is made with  
65 a long nozzle to form a combustion-chamber of suitable dimensions within the tubular point. To obviate such inconvenient projection of the point and to wholly prevent  
the loosening of the point from the nozzle, I  
70 greatly shorten the nozzle and braze the platinum point permanently upon the nozzle, so that it becomes practically integral with  
the screw-shank and can never be loosened  
by wear or use. This construction makes the  
75 point more strong and durable and permits the enlargement of the combustion-chamber without lengthening the tubular point; but it prevents access (through the removal of  
the point) to the gas-tube within. To per-  
80 mit the renewal and repair of the gas-tube, I form the screw-shank with a threaded bore at its base and construct the gas-tube with a  
screw-stem fitted to such threaded bore, thus  
85 permitting the removal of the gas-tube through the base of the screw-shank. By this  
modification of construction I greatly improve  
the combustion of the gas and the burning  
power of the point, while I render the point  
90 more firm and durable in its attachment to the screw-shank and provide means for readily removing the gas-tube for renewal or repairs. These improvements will be understood by reference to the annexed drawings,  
in which—  
95

Figure 1 is an elevation of the handle and burner-point. Fig. 2 is a longitudinal section of the burner. Fig. 3 is a side view of the gas-tube removed from the burner, and  
Fig. 4 is a side view of the platinum point 100



removed from the shank. Figs. 2, 3, and 4 are drawn upon a larger scale than the actual object to exhibit the construction clearly.

The letter A designates in general that part of the burner which is removable from the handle.

*a* designates the tubular burner-point, made of platinum.

*b* represents the nozzle upon the shank, to which the burner-tube is brazed.

*c* represents the screw-neck of the shank, and *d* the collar or thumb-piece upon the shank, by which it is screwed into the handle.

The handle shown comprises a section of gas-pipe *c'*, with thread inside one end to receive the neck of the shank, a portion of hose *b<sup>2</sup>* at its left-hand end, and a non-conducting shell *b'* to hold in the fingers. The screw-neck *c* is fitted removably to the thread in the end of the handle-pipe *c'* and is also formed with a threaded bore. The gas-tube *e* is attached to a stem *f*, fitted snugly through the shank, and the stem has a threaded base *f'*, which fits to a shoulder within such threaded bore and holds the gas-tube centrally within the burner-point. The threaded base *f'* is notched or slotted transversely at its outer end for the application of a screw-driver to screw such threaded base into the shank. The stem *f* is perforated throughout its length, and the gas-tube *e* is in practice supplied with naphtha-vapor through the handle *b'* by its central gas-pipe *c'* and the hose *b<sup>2</sup>*, connected thereto. In Fig. 3 a platinum coil *g* is shown upon the gas-tube for the purpose of diffusing and igniting the gas inside the burner-tube *a*, and thus securing combustion and heating of the point upon all sides. The nozzle *b* is made very short, and the tube *a* is brazed thereto, so that the nozzle does not have to hold the tube in place by mere contact with its interior, and this permits the formation of the vent-hole *h* at an increased distance from the apex *i* of the burner-point. This increases the length of the combustion-chamber from the end of the gas-tube *e* to the vent-hole *h*, and I have found that this secures the desired extent of the combustion and the heated area of the point. It is customary to use various "points" with the same handle *b'*, and it is obvious that when any of the points is unscrewed from the handle the base *f'* of the threaded stem *f* is exposed, and the stem can then be readily unscrewed from the shank of the burner and the gas-tube wholly exposed, as shown in Fig. 3, for examination, repairs, or for replacement by a new gas-tube.

With the construction heretofore used for pyrographic burners the gas-tube is attached rigidly to the shank and can only be renewed by a workman having suitable tools, whereas by my construction an extra stem and gas-tube can always be kept on hand and can be readily substituted for the one in the pyrographic burner when necessary.

The cost of my construction is not materially greater than any of the constructions which have been commonly employed before, while it furnishes a much more durable and effective implement for pyrographic work, as the point can be brought closer to the handle, and thus manipulated with more firmness and accuracy and also affords access to the gas-tube, in connection with a simple and ordinary means of attachment to the handle by screwing the shank into the gas-pipe *c'*.

I am aware that the nozzle of a tool for thermocautery has been provided with a body-tube having a shank screwed into one end, with air-inlets around such shank, and a burner-point screwed upon the other end. With such a construction the gas-tube can be attached to that end of the shank which is inclosed within the body-tube, as access to such gas-tube is obtained by unscrewing either the burner-point from the body-tube or the body-tube from the shank. In my construction I avoid the projection of a body-tube from the holder by dispensing with the same entirely, and as I make the burner-point integral with the shank I provide the special means which is shown in the drawings for giving access to the gas-tube for renewal or repairs. I have therefore made claim to my particular construction herein.

Having thus set forth the nature of the invention, what is claimed herein is—

1. The pyrographic burner having a shank with collar *d* upon its body and provided upon one end with a screw-neck *c* and upon the opposite end with the short nozzle *b* having tubular platinum point *a* fastened integrally thereon, and the vent-hole *h* formed in the tubular point close to such nozzle, and the screw-neck *c* having a threaded bore with the gas-tube *e* having threaded screw-stem *f* fitted removably to such bore, the whole arranged and operated substantially as herein set forth.

2. The pyrographic burner having shank having upon its body the collar *d* and provided upon one end with the screw-neck *c* having threaded bore, and upon the opposite end with the short nozzle *b* with tubular platinum point *a* fastened integrally thereon, and the vent-hole *h* formed in the tubular point close to such nozzle, the shank having hole with stem *f* fitted thereto and provided with the gas-tube *e* extended into the point *a*, and the stem having a threaded base *f'* screwed to a shoulder in the bore of the screw-neck, whereby the gas-tube *e* can be removed through the shank when the shank is detached from its holder.

3. The pyrographic burner comprising the non-conducting handle *b'*, the gas-pipe *c'* fitted therein with threaded bore at one end, the shank having neck *c* screwed into such pipe and provided opposite to the neck with the short nozzle *b* having the tubular point *a* fastened permanently thereon and vent-hole *h*

formed in the point close to such nozzle, the  
stem *f* fitted within the shank and provided  
with the gas-tube *e* and having threaded base  
*f'* screwed within the neck *c*, whereby the gas-  
5 tube is removable through the shank when  
the shank is detached from the holder.

In testimony whereof I have hereunto set

my hand in the presence of two subscribing  
witnesses.

HENRY WILCOX.

Witnesses:

WILLIAM D. DONOVAN,  
THOMAS S. CRANE.