

*Specification of the Patent granted to JOHN ISAAC HAWKINS, of Pen-  
tonville, Civil Engineer, and SAMPSON MORDAN, of Union-street,  
City Road, Portable Pen Maker, for improvements on pencil-holders  
or port-crayons, and on pens, for the purpose of facilitating writing  
and drawing, by rendering the frequent cutting or mending the  
points or nibs unnecessary. Dated December 20, 1822.*

—◆—  
WITH AN ENGRAVING.  
—◆—

TO all to whom these presents shall come, &c. &c.  
Now know ye, that in compliance with the said proviso,  
we, the said John Isaac Hawkins and Sampson Mordan,  
do hereby declare that our said invention of improvements  
on pencil-holders or port-crayons, and on pens, for the  
purpose of facilitating writing and drawing, by rendering  
the frequent cutting or mending the points or nibs un-  
necessary, is fully set forth and ascertained in the following  
description, illustrated by the drawings hereunto annexed,  
as explained by the references herein contained, that is  
to say:—Our invention of improvements on pencil-holders  
or port-crayons consists in the gradual protruding, by the  
means hereinafter described, of pencils or crayons from a  
tube, as they wear away by use, which means are shown  
by figs. 1, 2, 3, 4, and 5, of the said drawings.

Fig. 1, (Pl. IX.) A represents one of our pencil-holders  
or port-crayons, as seen in a state fit for use: B, longitu-  
dinal section through the axis of the holder and pencil.

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together : c, d, e, f, g, h, i, and k, represent, respectively, the various parts of **B** separately. It is to be noted that the small letters refer, in all cases, to the same articles in the different parts of the drawings ; and that where a part is too minute to admit of a letter being put upon it, or so near it as to indicate clearly the place intended, a dot is made, and, in the nearest vacant place, two converging lines are drawn, pointing towards the dot ; and the letter referring to the place of the dot is put between these converging lines. *a*, the pencil or crayon : *b*, a tube of gold, silver, or other metal, or metallic compound, into which the pencil or crayon is fitted so tightly as not to fall out by its own weight, but loose enough to be easily protruded at pleasure ; this tube we denominate the nozzle. On one end of the nozzle is a male screw, and two milled rims, to enable the nozzle to be held firmly between the finger and thumb, in order to screw it tightly into its place : *c*, a tube, a little longer than the nozzle, which may be called the nut piece, having a female screw at one end to receive the male screw of the nozzle, and another female screw or nut at the other end, to receive the screw of the driver hereinafter described. The visible parts of the nut piece we usually make of gold or silver ; and those parts not exposed to view, of brass. There are also, near the nozzle end of this tube or nut piece, two milled rims, by which it may be firmly held : *d*, the driver, made of steel, one end of which is cylindrical, fitting into and nearly filling up the nozzle. The middle part of the driver is formed into a screw, to work in the nut piece ; the length of this screw part of the driver is somewhat more than the length of the cylindrical part. The other end of the driver is made semi-cylindrical, of about the same length as the screw, with a small part at the end, quite cylindrical : *e*, a short tube of brass, put on upon the semi-cylindrical part of the driver, having a steel pin through one side, to prevent the tube turning round upon the driver, but to allow it to slide the whole length of the semi-cylindrical part.

The outer diameter of this tube is the same as the outer diameter of the nut piece: *f*, a long brass tube, fitting upon the nut piece, *c*, and short tube, *e*, having a pin, *g*, to work in the circular groove, *h*, of the nut piece, and allow the tube to be turned upon the nut piece without coming off; and also a pin, *k*, going through its side, and into the side of the short tube, *e*, so that when the long tube is turned around, it shall carry the short tube around with it: *l*, a groove, around near the middle of the nut piece, to receive a wrapping of silk or other elastic substance, for the purpose of occasioning a small degree of friction, and thus of preventing the tube, *f*, from turning too easily: *m*, an outer tube of gold, silver, tortoiseshell, ivory, or other substance, fastened upon the brass tube, *f*, to form an ornamental handle to the pencil-holder or port-crayon. The whole of these parts being put together in their respective places as described, and as seen in the section, *B*, and the point of the pencil or crayon being worn away close to the end of the nozzle, if the milled rims are then held in one hand, and the handle, *m*, turned around with the other hand, it will carry around with it the tubes, *f* and *e*, and the driver, *d*, which, working in the screw of the nut piece, *c*, will be moved longitudinally, and drive or force the pencil or crayon out of the nozzle, to whatever distance may be required for use. When it is desired to make the holder draw in the pencil or crayon, as well as drive it out, we cut a female screw in the end of the driver, and screw the pencil or crayon into it; or we form, for a short distance, the end of the driver into a hollow cylinder, having thin sides, and cut three or more longitudinal slits in the sides, so as to render them elastic, and capable of embracing the end of the pencil or crayon: *n*, the end of the driver, made hollow, with slits in the sides, to embrace the end of the pencil or crayon. When the pencil or crayon is worn out, and the holder requires to be re-charged, hold two of the milled rims in each hand, and unscrew the nozzle; then put a new pencil or crayon

into the screw end of the nozzle, the opening of the tube at that end being made conical, to facilitate the entrance. Before the nozzle is returned to its place, hold the two milled rims remaining attached to the handle, and turn the handle the reverse way to that which protrudes, and the driver will be drawn in; after which, the nozzle may be returned into its place, and the pencil or crayon is ready for use.

In describing this our most favourite pencil-holder or port-crayon, we have given no dimensions, because these must ever depend upon the size and length of the pencils or crayons to be used, which may vary from a quarter of an inch, or more, to the one fiftieth of an inch, or less, in diameter, according as the artist may require a bold line, a fine line, or an extremely delicate line; and from three inches, or more, to half an inch, or less, in length. But we sometimes make five or more nozzles, of different dimensions, to fix into the same handle, by forming the driver as shown in fig. 2, and having a separate cylindrical piece, L, M, N, O, to put on upon the driver, to fit each of the four larger nozzles respectively.

Fig. 3, section of a simple form of making the pencil-holder or port-crayon, in cases where the varying in length of the handle is no objection: *p*, the pencil or crayon; *q*, the nozzle, united with the nut piece; *r*, the driver, like the driver of fig. 1, except that instead of the semi-cylindrical end, it has a short cylinder at the end of the screw, fitting into the outer tube: *s*, an outer tube, fitting tightly on, and pinned to the larger end of the driver, and sliding freely over the nut piece. This tube projects far enough beyond the end of the driver to form a socket for a handle of wood, ivory, or other substance, *t*.

Fig. 4, section of a pencil-holder or port-crayon, differing from fig. 3 in having the male screw outside of the tube which corresponds to the nut piece, and the female screw within the outer tube, and in having the driver an equal sized cylinder throughout its length, except a short

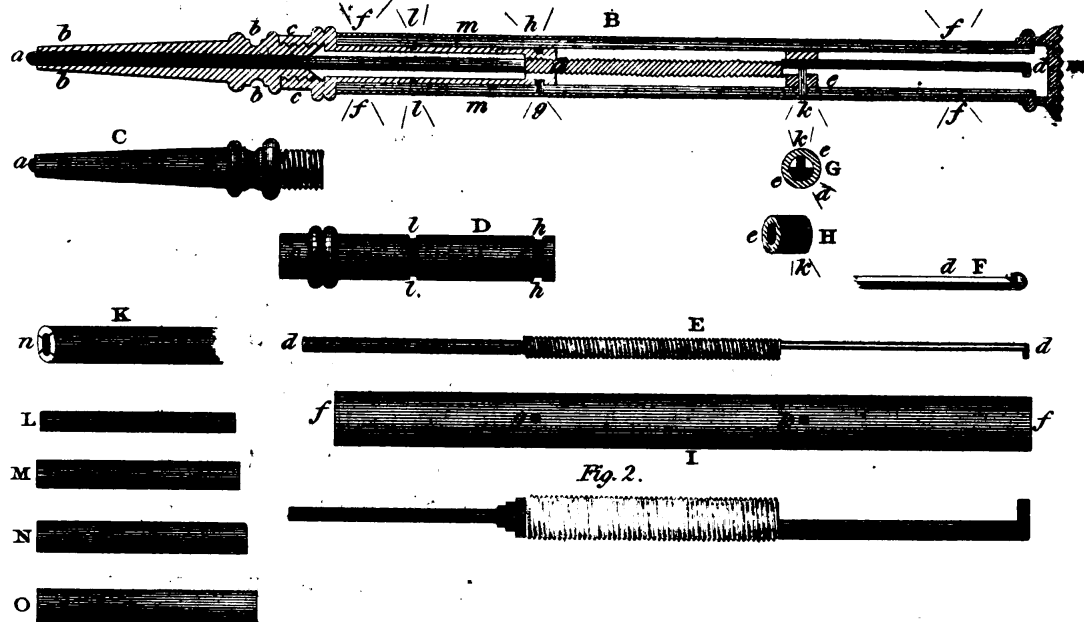
part at the handle end, larger, to fix it in the outer tube; this arrangement is adopted, and the diameters of the tubes increased, to make room for a reserve of six pencils or crayons, ready to be pushed into the nozzle, as it may be emptied by use: *p* shows the appearance of the end of the tube which corresponds to the nut piece, when charged with the six pencils or crayons: *u*, six short thin brass tubes, of the same diameter inside as the pencils or crayons are outside; these tubes are slit on one side to make them elastic, and soldered around inside the orifice of the tube which corresponds to the nut piece of fig. 1.

Fig. 5, a holder for holding pencils or crayons, nearly as long as itself: *q*, another view of part of the same: *n*, transverse section from *v* to *v*, with end view of *z*: *s*, perspective view of the driver. This holder consists of a tube, *w*, having a slit nearly the whole length, and the outside of the tube cut into a screw, with a seal or cap screwed on at the end opposite to the writing end: *x*, the pencil or crayon: *y*, a short cylinder or driver, sliding against the pencil, having a stud sliding in and projecting through the slit: *z*, a milled nut, turning upon the screw of the tube, and pressing against the stud of the driver, to drive out the pencil or crayon at pleasure.

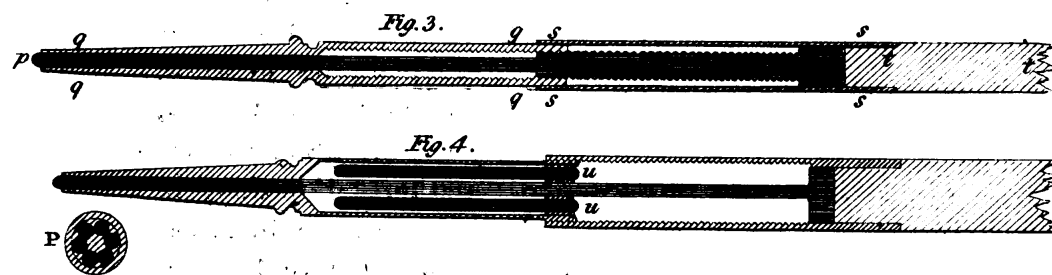
To charge this holder, take off the seal or cap, then the milled nut, and take out the driver; after which, put the pencil or crayon into the tube, which is made a little conical at the cap end, then return the driver to its place, against which screw the milled nut, and put on the cap; the whole is then ready for use.

For the sake of rendering our description less intricate, and of avoiding circumlocution, we have stated peculiar metals, metallic compounds and materials, for the various parts of our pencil-holders or port-crayons; but it is obvious that our invention is not restricted to the use of those respective metals or materials only, since, in order to suit the taste of many persons, ivory, tortoiseshell, or other substances, may be used instead of metal or the

materials described, without altering the principles of our improvements. And we do further declare, that our said improvements on pens do consist, first, in making the pens of tortoiseshell or horn, and in impressing into the nibs or wearing parts of the said pens, when they are softened with water at near the boiling heat, small particles of diamond, ruby, or other very hard substances; by which means we combine great durability with pleasant elasticity. Secondly, in affixing to the wearing parts of tortoiseshell pens larger pieces of diamond, ruby, gold, or other hard substances, than could be used in the first plan, and securing the same in their places by soldering or cementing, according to well known methods, pieces of tortoiseshell over them, taking care that these pieces do not extend far enough backwards from the nibs to injure the elasticity of the pen. Thirdly, in lapping a small piece of thin sheet gold over the end of a piece of tortoiseshell, intended to be made into a pen; and pressing the gold into the tortoiseshell, while it is in a soft state, and afterwards forming the pen by cutting away the superfluous gold and tortoiseshell together. Fourthly, in applying to the nibs of pens, whether made of tortoiseshell, horn, or quills, small particles of diamond, ruby, or other very hard substances, and causing the same to adhere by means of any tough and hard varnish or cement that is not corroded by ink, such as copal dissolved in oil, shell-lac dissolved in alcohol, sealing wax, and the tough resins and resinous compounds soluble by heat, which are used by lapidaries for cementing their precious stones to handles, for the purpose of holding them to be cut and polished, taking care that the composition be such as not to require heat enough to burn or scorch the tortoiseshell, horn, or quill. And fifthly, in placing against the back of a pen two springs, or a forked spring of tortoiseshell, horn, quill, or metal, to be slidden towards or from the nib at pleasure, in order to increase or diminish the stiffness of the pen, to suit various kinds of hand-



*Fig. 2.*



*Fig. 3.*

*Fig. 4.*

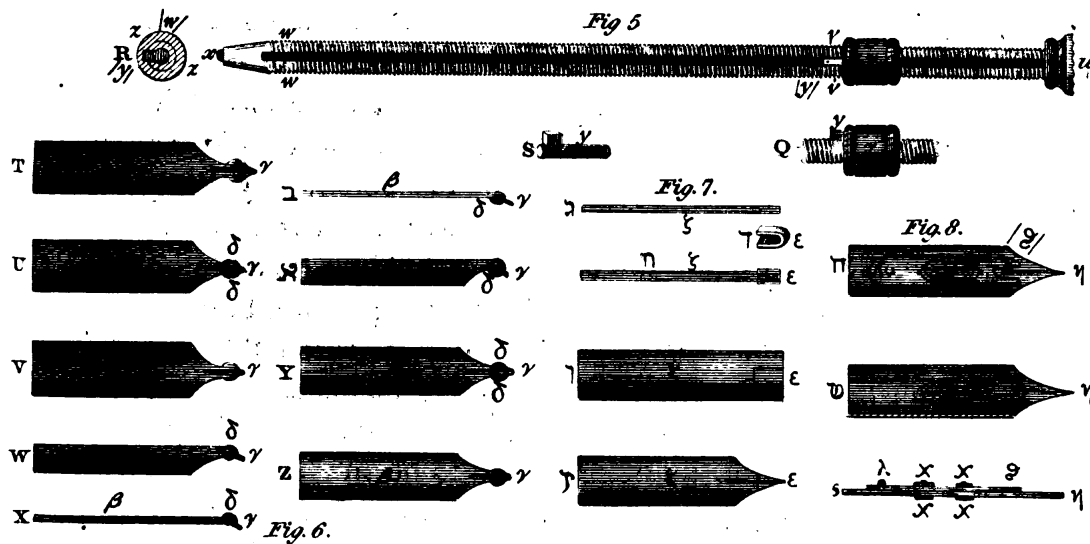
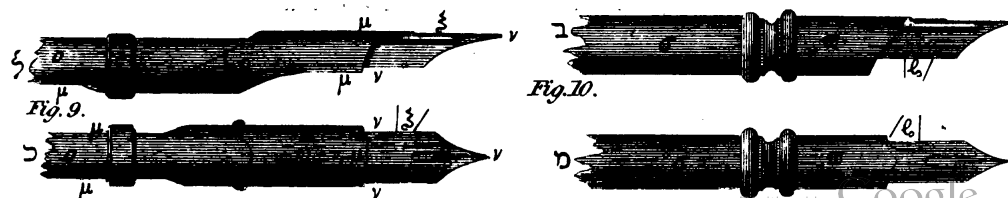


Fig 5

*Fig. 7.*

*Fig. 8.*

*Fig. 6.*



*Fig. 10.*

*Fig. 9.*

*writings.* In order to effect our first plan, we cut an indentation in a steel die, fitting the nibs of the pen, and place the particles of diamond or other hard substances in the bottom of the indentation; we then soften the nibs of the pen in water, nearly boiling hot, and lay them in the indentation, and immediately put on a piece of steel fitting the back of the pen, and apply a moderate degree of pressure, which we continue until the tortoiseshell or horn is nearly cold.

Fig. 6, exhibits different views of pens, with bits of diamond, ruby, or other hard substances, secured into the nibs, by soldering or cementing pieces of tortoiseshell over them, according to our second plan: *r*, represents a bit of diamond laid on each nib of a tortoiseshell pen, either on the back or inside of the pen: *u*, shows the back of a pen, with pieces of tortoiseshell soldered or cemented over the bits of diamond: *v*, the inside of the same pen: *w*, profile of the same: *x*, section in profile: *y*, the inside of a pen, with pieces of tortoiseshell soldered or cemented to the inside of the nibs: *z*, the back of the same pen: *a* profile of the same: *b* section in profile: *β* the body of the pen: *γ* the bits of diamond: *δ* the tortoiseshell, cemented to the nibs, and inclosing the diamonds, except at their writing parts.

Fig. 7, represents five successive stages of a pen, manufactured according to our third plan: *1* section, in profile, of the tortoiseshell prepared for the pen: *2* perspective view of the thin piece of gold turned up into the form of a staple: *3* the staple, lapped over the end, and pressed into the tortoiseshell: *4* view of the same, as seen either at the inside or at the back: *5* view of the pen, as it appears on both sides when finished: *6* the gold: *7* the tortoiseshell.

In carrying our fourth plan into effect, we sometimes take two bits of diamond or other hard substances, formed to a proper figure, and dip them in the varnish, or melted sealing wax or cement, and immediately adjust them in



their places in the inside of the nibs. And sometimes we mix a quantity of diamond or other hard substances, in grains not exceeding the two hundredth part of an inch in diameter, with about an equal quantity of varnish, sealing wax, or cement, and dip the nibs of the pens in the composition.

Fig. 8, shows the manner of placing a spring on the back of a pen, to increase or diminish the stiffness of the nibs, according to our fifth plan:  $\pi$  view of the back of a pen:  $\rho$  view of the inside:  $\sigma$  section in profile:  $\tau$  the pen:  $\theta$  a forked spring, one prong of which presses upon each nib of the pen:  $\kappa$  two rivets and four washers, the rivets passing through two holes in the pen, and through two slots or mortices in the body of the spring:  $\lambda$  a knob, by which the spring may be slidden. In the case of portable or fragment pens, we sometimes affix the forked spring to the back of the holder, in the same manner as just described, for the back of a pen; and sometimes we make the forked spring a mere prolongation of the back or upper jaw of the pen-holder, and adjust the degrees of stiffness of the pen by putting it to a greater or less depth into the holder.

Fig. 9, shows a common portable pen-holder, with the back or upper jaw prolonged into a forked spring:  $\alpha$  view of the back of the holder, spring, and pen together:  $\beta$  profile of the same:  $\mu$  the pen-holder, usually extending no further over the pen than the dotted line:  $\nu$  the pen:  $\xi$  the spring:  $\circ$  the handle.

Fig. 10, another common portable pen-holder, with which the forked spring is united by a prolongation of the ferrule:  $\alpha$  view of the back of the holder, spring, and pen together:  $\beta$  profile of the same:  $\tau$  the pen-holder, usually extending to the dotted line:  $\rho$  the spring:  $\circ$  the handle.

In witness whereof, &c. &c. &c.