

J. HOLLAND.

WRITING POINT FOR STYLOGRAPHIC PENS.

No. 258,299.

Patented May 23, 1882.

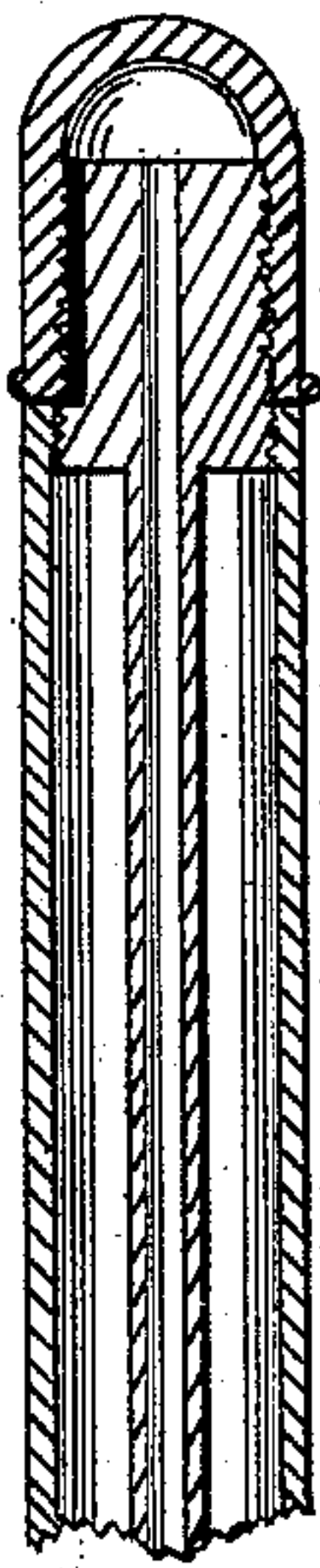


Fig. 1.

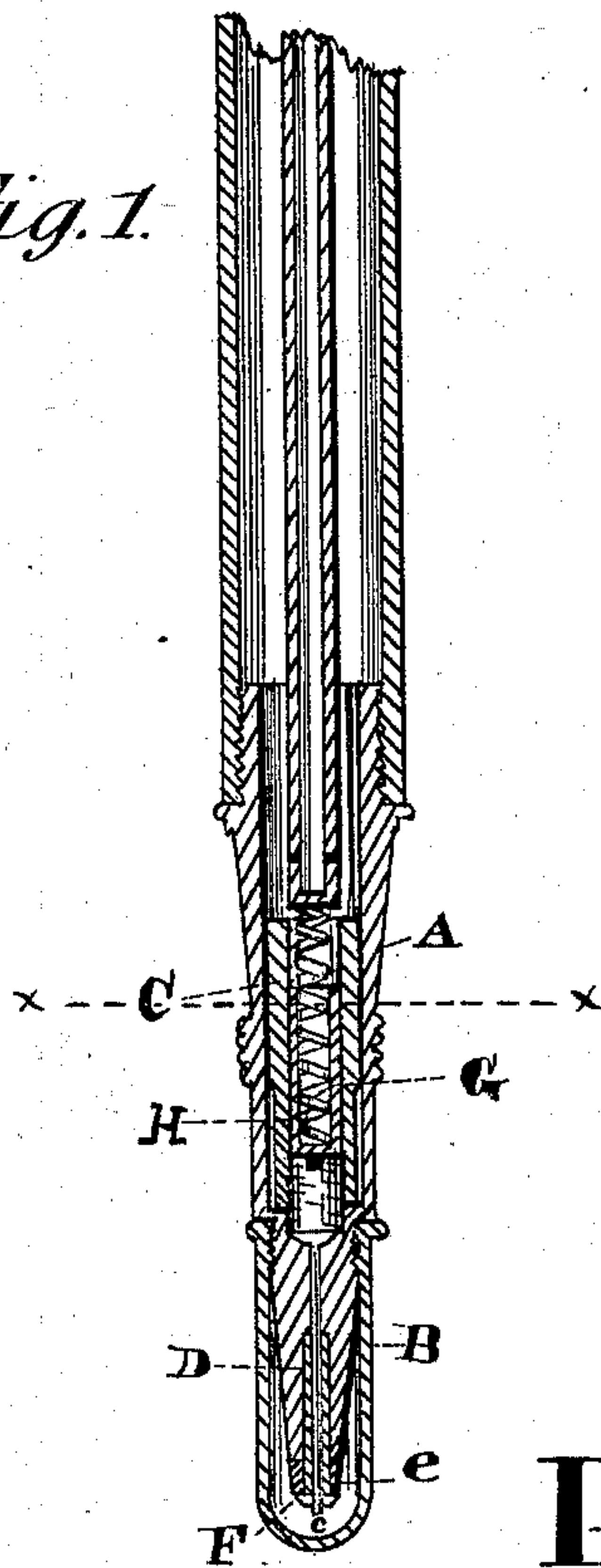


Fig. 2.



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WRITING-POINT FOR STYLOGRAPHIC PENS.

SPECIFICATION forming part of Letters Patent No. 258,299, dated May 23, 1882.

Application filed November 7, 1878.

To all whom it may concern:

Be it known that I, JOHN HOLLAND, of Cincinnati, Hamilton county, and State of Ohio, have invented a new and useful Improvement in Writing-Points for Stylographic Fountain-Pens, of which the following is a specification.

This invention is an improvement upon the writing-point for which Letters Patent No. 202,655 were granted to me April 23, 1878. The invention described in that patent was intended to furnish a cheap iridium point for fountain-pens and obviate the necessity of boring or drilling the iridium. This, while it gave a durable point, did not in use retain a perfectly smooth surface, as the solder between the grains would wear and expose any sharp or uneven projections upon the grains of iridosmine. I have discovered a rapid process of drilling and constructing points for this class of pens of one piece of iridium, by which this defect in my former improvement is overcome. Another defect in this class of pens is in the mode of securing the writing-point to the tube or holder. This consisted of a parallel cylinder, at the upper portion tapering to a smaller diameter to form a seat for the writing-point, which was forced into this tube or holder. In this mode of construction, if the pen should fall upon the point, or if in writing, to induce a flow of ink, the point was pressed or tapped hard upon the paper, the point would be dislodged and driven back. This defect I obviate by making my writing-point of a small parallel tube having the iridium soldered to the end, and a tube or collar of larger diameter soldered upon this tube, back of the iridium point, which forms a shoulder to rest against the lower end of the writing-point holder, and thus prevent the point from being driven in. Another defect which I remedy is in the mode of holding the gravitating valve to its seat. Formerly the valve was thus held by a rod which passed up through the air-tube, the upper end resting against an elastic spring or cushion in the cap at the top of the pen-holder, or by a loose spiral spring compressed between the end of the air-tube and the valve. In the first of these, when the cap was loosened to admit air, the weight of the valve was depended upon to shut off the flow when the pen was removed from the paper. In practice it was found that in order to keep the duct free

it was necessary that the needle should constantly work back and forth in it. This office the weight of the valve would not perform after the cap was raised, and the loose spiral spring, when used, was liable to become caught or be broken over from the side and destroy the usefulness of the pen. These defects I overcome by extending the valve to near the end of the air-tube, boring it out centrally, and providing the bore with a spiral spring, the lower end of which is secured within a tube made small enough to drop loosely within the cavity in the valve, the upper end of the spring projecting far enough above the valve to rest against the closed lower end of the air-tube.

The invention which I desire to cover by this application consists of a point of one piece of iridium constructed by the process hereinafter described.

It consists, also, in providing the point-tube with a collar and securing the point to the lower end of the tube and collar.

It consists, also, in the arrangement of spring and valve for the purpose of closing the ink-duct and facilitating the flow of ink when the pen is in use.

In the accompanying drawings, forming part of this specification, Figure 1 represents upon an enlarged scale an axial section of a fountain-pen embodying my improvements; but as my improvements relate wholly to the writing-point the description will be confined to that part. Fig. 2 is a section of the valve or tube, taken at line *x x*, Fig. 1.

A is the point-holder, consisting of a tube of rubber or other non-corrosive material. The upper end is screw-threaded externally to enter a tap in the handle, and the lower end is also threaded above the point to secure the cap or point-protector B. The bore of the holder A is large enough at the top to receive the valve C, and terminates in a small bore, through which the valve-stem *c* passes. The point of the holder is counterbored from the end to receive the tube D of the writing-point.

The writing-point is constructed in the following manner: Grains of iridosmine of suitable size are selected and soldered upon a plate of brass to be drilled. By using diamond-dust with a drill made of soft steel or copper, which is speeded up to about four thousand revolu-

tions per minute, I am enabled to rapidly drill through the grains of iridosmine. These are then unsoldered from the plate and are ready to be attached to the point. Into the end of the tube D, to which the collar *e* has been fitted, is inserted a soft-metal wire, leaving the end projecting out. Over this wire is slipped one of the perforated grains of iridosmine and then soldered to the end of the tube, as at F. The tube D of the writing-point is driven into the holder, the point dressed down to the proper size, after which the soft-metal wire is drilled out, thus completing the point.

The valve which regulates the flow of the ink will now be described.

The lower edge of the tube C fits closely upon an offset in the point-holder, thus forming the valve, the offset forming its seat. The lower portion of the tube is turned off smaller in diameter than the bore in the point-holder A, and the upper portion is fluted externally to permit the ink to reach the point, while the ridges left by the fluting serve as guides to steady the motion of the valve. In the lower end of the tube C is a screw-plug, to which is attached the valve-stem or needle *c*. The purpose of this is to regulate the flow of ink and to compensate for the wear of the stem *c*. The plug can, by the insertion of a screw-driver in its notch, be protruded or withdrawn, so as to lengthen or shorten the stem, as desired. A spiral spring, G, is secured by its lower end within a tube, H. This tube is dropped into the tube C, (which forms a valve,) leaving the spring projecting above the upper edge of the tube C and pressing against the end of the air-tube. It will be seen by this arrangement all the parts can be made light, while being at the same time strong and durable, and can be readily regulated to suit the hand of the user, and taken apart for cleaning or repairs.

The process described in the foregoing speci-

fication of drilling or perforating iridium tips is not made the subject of a claim in this application; but I reserve the right to file a separate application embodying this described process.

I claim—

1. The tube D of a fountain-pen, tipped with a bored grain of iridosmine, applied substantially as specified.

2. In a fountain-pen, the combination of the pen-holder A, tube D, collar *e*, and point F, constructed substantially as and for the purpose specified.

3. In a fountain-pen, the combination, substantially as specified, of the gravitating valve C, the needle-point secured thereto, the tube H and its spring G, said valve C being centrally bored to receive the tube H and its spring G, for the purpose set forth.

4. The described method of constructing fountain-pens with non-wearing writing-points, which consists in inserting an easily-drilled core within the discharge-tube, leaving the end of the core projecting, placing the perforated writing-point over the projecting end of the core, and securing the parts together, after which the core is bored out and the writing-point dressed down to a cone shape.

5. A writing-point for fountain-pens, formed of a single piece of iridium perforated and ground to a cone shape, as described, in combination with a tube, as D, as and for the purpose specified.

6. In a stylographic fountain-pen, the tube formed and secured to the shortest section of the pen-holder, in combination with a perforated point or tip formed of a single piece of iridium, as set forth.

JOHN HOLLAND.

Witnesses:

J. J. KING,

S. L. ANDERSON.