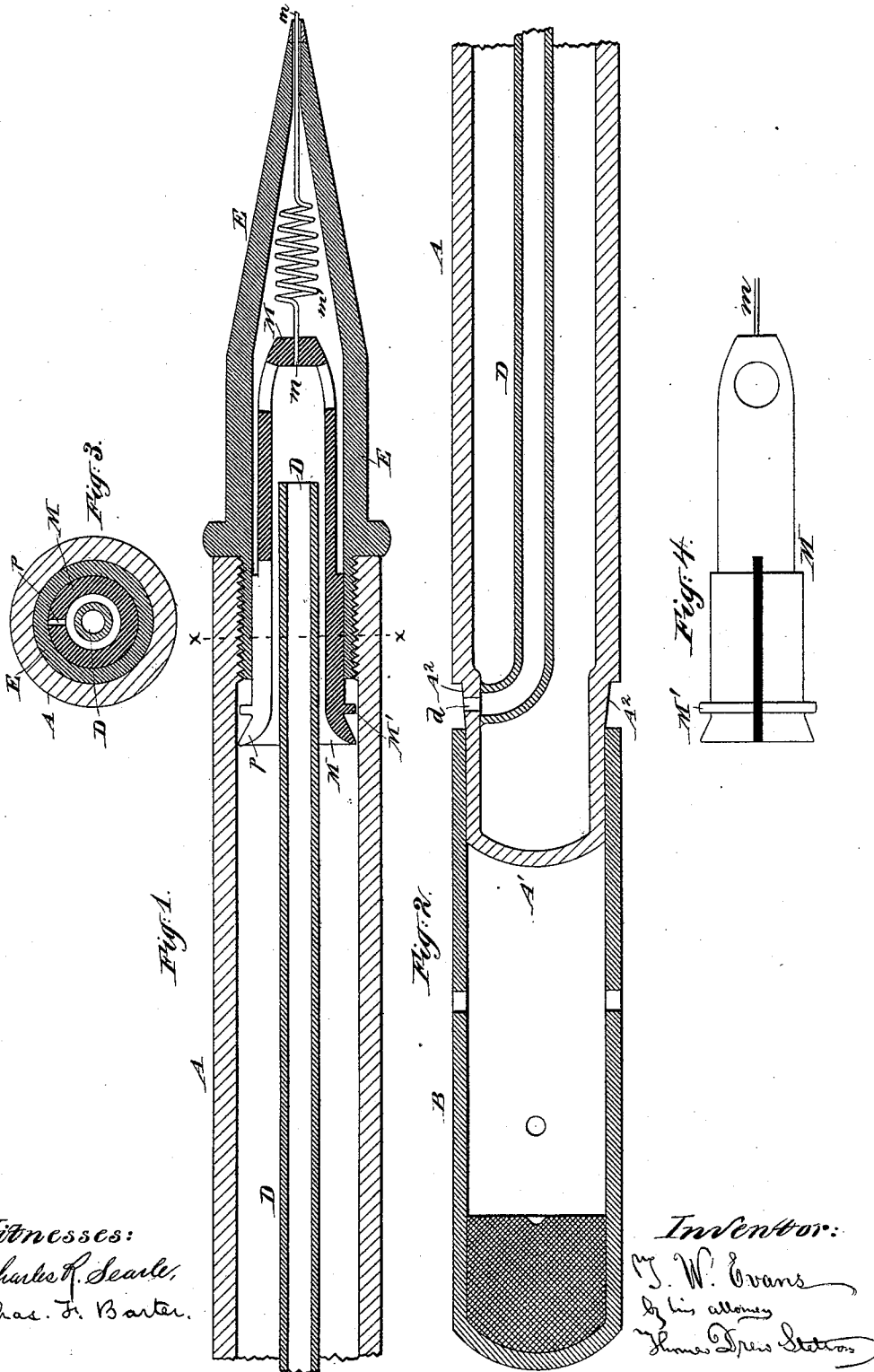


(No Model.)

T. W. EVANS.
STYLOGRAPHIC PEN.

No. 421,069.

Patented Feb. 11, 1890.



Witnesses:
Charles F. Seale,
Chas. F. Barter.

Inventor:
T. W. Evans
by his attorney
James D. Peters

UNITED STATES PATENT OFFICE.

THOMAS W. EVANS, OF NEW YORK, N. Y.

STYLOGRAPHIC PEN.

SPECIFICATION forming part of Letters Patent No. 421,069, dated February 11, 1890.

Application filed March 23, 1889. Serial No. 304,485. (No model.)

To all whom it may concern:

Be it known that I, THOMAS W. EVANS, a citizen of the United States, residing in the city and county of New York, in the State of New York, have invented a certain new and useful Improvement in Stylographic Pens, of which the following is a specification.

The term "stylographic" is used to indicate a class of writing-instruments carrying each a large quantity of liquid ink, and for this reason properly a fountain-pen, but differing from fountain devices using a split point in the fact that the ink is admitted to the paper through a cylindrical rather than a plane joint.

A stylographic pen of the ordinary character, to which my invention so far conforms and on which it is based, has a tubular tapering end with a small round pin playing out and in by a slight axial movement through a hole in the point. It is thrust out by a gentle spring. When it is applied to the paper, it is caused to retreat. Every change in its motion tends to agitate it, and its movements inward and outward promote a small flow, while the closeness of the joint prevents any large flow. Means are employed to prevent the ink escaping by gravity when the pen is out of use, and a removable cover can be applied to prevent the ink from drying on the point, so as to defeat its operation. It is important to admit air to the interior to take the place of the ink properly consumed by the act of writing. It has long been common to do so by a tube extending along the interior, taking in the air near the top or end farthest from the point and allowing it to enter the capacious ink-chamber near the point. This is found to attain the end satisfactorily. When the pen is out of use, the outlet at the point should be stopped. This is done by the aid of a cap, which may fit with its cylindrical interior upon a corresponding cylindrical contracted portion near the point. When the pen is to be used, this cap is transferred to the other end, which I term the "upper" end, and fitted upon a nearly-similar contracted portion there; but, instead of being cylindrical throughout, this contraction at the upper end is slightly tapered at and near its junction with the main body. The small orifice by which the air is admitted to the air-

tube is in this tapered part and communicates with the air-tube by the latter being curved sharply to one side at that point. The cap is of such diameter internally that it will fit with gentle tightness on the cylindrical part of the contraction, and will fit very tightly when it is forced on so far as to bring its mouth upon the tapered portion. It thus becomes capable of closing the opening of the air-tube completely when required. This is required in filling the pen, or immediately after the filling when the point-piece is inserted. If the body of the pen is completely filled, the insertion of the point-piece, through its displacement of some of the ink, causes it to overflow into the air-tube and to run out at the vent in the tapered part, unless it is thus stopped. The tight fit of my cap on the tapered part of the contraction of the upper end, now held by the inversion of the pen in a low position, arrests any flow and compels the ink in the air-tube to remain. The first use of the pen, by taking away a little ink from the body and drawing in air through the air-tube, draws all the ink in the latter into the body and makes the operation cleanly. It will be understood that when the pen is in use the cap is on the upper end, but is not forced so far down as to cover the vent-hole. Thus conditioned, it takes in the air through the air-tube, entering the top and escaping near the point into the mass of ink in the body, through which it rises in bubbles. This is similar to the action in many other fountain-pens; but the tight closing of the vent by the forcing home of the cap, when required, gives an advantage of cleanliness also in the operation of filling. It will be understood that the filling is ordinarily effected by the aid of a dropping-tube, with the pen inverted and the point-piece removed.

Tightness is secured at the point when the pen is not in use by the provision, long used for such purpose, of a soft-rubber socket in the interior of the cap, adapted to apply closely to the point. In carrying the pen in the pocket this end is preferably kept downward.

The accompanying drawings form a part of this specification and represent what I consider the best means of carrying out the invention.

Figure 1 is a central longitudinal section of the lower end or point of the pen. Fig. 2 is a similar view of the upper end. Fig. 3 is a cross-section on the line xx in Fig. 1. Fig. 4 is an elevation of a portion detached.

Similar letters of reference indicate corresponding parts in all the figures where they occur.

A is the main body, made of hard rubber or other suitable material, certain portions being designated when necessary by super-numerals, as A'. An ordinary cap B, having a cylindrical interior, fits easily on the cylindrical portion of the contracted upper end A'. When it is forced down hard, its mouth fits with absolute tightness upon a tapered portion A² where the contraction A' joins the body A. In this portion is the orifice d , which communicates from the external air with the interior of the air-tube D, which latter extends along the interior of the tube A and presents its open lower end near the lower end of the latter.

M is a hollow carrier, in which is firmly set a hard-brass wire m , liberally coiled at m' , and extending thence in a straight condition through the properly-contracted point of the taper end E. The carrier M is sawed longitudinally at and near its upper end on one side, as indicated by p . Its general exterior is smooth and fits with a strong friction in the corresponding smooth interior of the point-piece E.

On the upper end of the carrier M is a head M', which may be easily siezed by the thumb and finger to draw the carrier out to any required extent from its frictional en-

gagement in the smooth interior of E. Whenever the pin m is to be retracted, this carrier is drawn out, by which I mean upward, so that it stands higher in the pen. Whenever it is to be protruded, it is forced inward relatively to E—that is, so that it stands lower in the pen. This facility of adjustment is important. It can be effected with dispatch and without requiring any tool or implement.

I attach importance to the fact that the wire m has the coiled spring m' formed integral therewith, and is carried in a slide M, which need not be elastic, but may be unyielding in any position in which it is set. This construction is cheap, efficient, and durable. The elastic action of the point is more lively and mobile than in ordinary pens, because of the small inertia and friction involved in the motion as it yields to the inequalities of pressure in the act of writing.

I claim as my invention—

In a stylographic pen, the case A, point-piece E, and air-tube D, combined with the rigid carrier M, separate from the air-tube and adapted to be independently adjusted within the point-piece E, and with the pin m and coil m' integral with said pin, said coil being connected to the rigid adjustable carrier M, substantially as described.

In testimony whereof I have hereunto set my hand, at New York city, New York, this 13th day of March, 1889, in the presence of two subscribing witnesses.

T. W. EVANS.

Witnesses:

CHAS. F. BARTER,
CHARLES R. SEARLE.