(No Model.)

W. I. STAAF.

FOUNTAIN PEN.

No. 551,101. Patented Dec. 10, 1895.

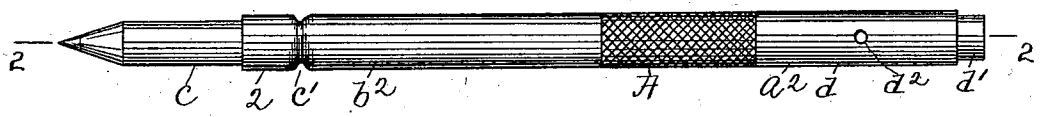

Fig. 1.

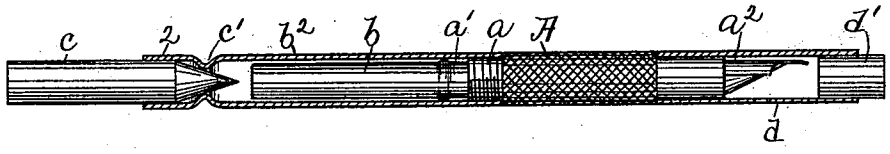

Fig. 2.

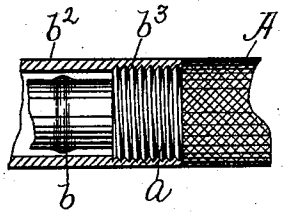

Fig. 3.

WITNESSES.
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UNITED STATES PATENT OFFICE.

WERNER I. STAAF, OF CAMBRIDGE, ASSIGNOR OF ONE-HALF TO GEORGE D. WILDES, OF BOSTON, MASSACHUSETTS.

FOUNTAIN-PEN.

SPECIFICATION forming part of Letters Patent No. 551,101, dated December 10, 1895.

Application filed December 21, 1894. Serial No. 532,523. (No model.)

To all whom it may concern:

Be it known that I, WERNER I. STAAF, residing in Cambridge, county of Middlesex, and State of Massachusetts, have invented an Improvement in Fountain-Pens, of which the following description, in connection with the accompanying drawings, is a specification, like letters and numerals on the drawings representing like parts.

This invention relates to that class of pens known as "fountain-pens," and has for its object to provide a fountain-pen which is self-feeding.

In accordance with this invention the hollow penholder or ink-reservoir of the fountain-pen has secured to its end opposite to that to which the pen is secured a hollow compressible air chamber or tube, preferably of rubber, which is attached to the hollow penholder, so as to communicate therewith, whereby the air within the holder or reservoir may be forced out by compressing the flexible air-chamber, so as to permit the ink to flow into the hollow penholder or reservoir when the pressure upon the flexible air-chamber is relieved, thereby automatically supplying the hollow holder or reservoir with ink.

In order that the air-chamber may be guarded against pressure while the pen is in use, a shield for the said air-chamber is provided, which is preferably made in the form of a cylinder or tube of substantially the same diameter as the ink-reservoir and adapted to be secured to the penholder by screw-threads or in other suitable manner, so that its outer surface is flush with the outer surface of the said reservoir, and preferably made longer than the air-chamber referred to, so that the free end of the said shield may be utilized as a holder for a pencil. The penholder is preferably provided at its other end with a hollow tube or cap, preferably provided with a rubber.

These and other features of this invention will be pointed out in the claim at the end of this specification.

Figure 1 represents a fountain-pen embodying this invention with a pencil shown in operative position; Fig. 2, an elevation and section of the fountain-pen shown in Fig. 1, the cover for the pen and the shield for the air-chamber being shown in section, the pencil being shown in its inoperative condition; and Fig. 3, a sectional detail, on an enlarged scale, to more clearly show the manner preferred by me of attaching the shield for the air-chamber to the penholder or ink-reservoir.

A represents the penholder or ink-reservoir of a fountain-pen, which penholder or ink-reservoir may be of any usual or suitable construction, such as now commonly employed, except that in the present instance it is preferably made substantially shorter than the common form and is preferably provided with a threaded rear portion a and a stem or projection a' of smaller diameter than the threaded rear portion a.

The front portion of the reservoir or ink-holder A may be of any suitable or usual construction for the reception of the pen a^2.

In accordance with this invention the penholder or ink-reservoir A has secured to its rear end an air-chamber b, preferably made in the form of a cylinder or tube of rubber, closed at one end and having its other end adapted to slip over the projecting stem a' on the holder A, the projecting stem a' being preferably provided with an enlargement or annular bead or collar b', (represented by the shading in Figs. 2 and 3,) over which the open end of the air-chamber b is passed and by which an air tight joint is effected.

The air chamber or tube b is protected by the shield b^2, preferably of metal, but which may be of any other suitable material, and which, for the best results, is tubular in shape and of substantially the same diameter as the ink reservoir or holder A.

The tubular shield b^2 is designed to be firmly secured to the holder A, which may be effected by providing the shield b^2 at one end with internal screw-threads b^3, adapted to engage the threaded portion a of the holder A. The shield b^2 in practice prevents the rubber air-chamber b from being struck or otherwise subjected to pressure, which would cause a discharge of the ink from the holder A. The shield b^2 may be closed at its outer end; but I prefer to extend the said shield beyond the air-tube b and utilize the said extension (marked 2) as a holder for a pencil c, the latter, when in its operative position, (shown in

Fig. 1,) having its unpointed end fitted into the extension 2 of the shield b^2, and in order to prevent the pointed end of the pencil from striking the air-chamber b when the pencil c is reversed and its pointed end inserted into the extension 2, as shown in Fig. 2, the said shield may be compressed into the form of an annular groove c', which forms a guard to limit the entrance of the pointed end of the pencil into the shield b^2.

Instead of having a continuous annular compression of the shield b^2, the same result may be effected by providing a series of inward projections after the manner of a series of internally-pointed nubs formed in the shield b^2.

The pen a^2, carried by the ink reservoir or holder A, may and preferably will be protected by a cover d, which is removable from the holder A and is preferably provided with an open end, into which a rubber d' may be inserted.

When it is desired to supply the ink reservoir or holder A with ink, the cover a^2 and the shield b^2 are removed from the said holder and the air chamber or tube b is compressed between the fingers, after which the end of the holder A, carrying the pen a^2, may be submerged in ink, and when thus submerged the pressure upon the air-tube b may be relieved, which will cause the ink to flow up into the holder A, but not into the air-chamber b.

If it is desired to use the pen after being filled, the shield b^2 is secured to the holder A, so as to protect the air-chamber b, and the pen may then be used after the manner of an ordinary writing-pen. By means of the shield b^2 the flexible air-chamber b is protected from pressure, and as a result a free and even flow of the ink is obtained; whereas if the shield b^2 were omitted the air-chamber b would be liable to strike the hand of the operator and cause an abnormal flow of the ink, which would produce a blot upon the paper.

By means of the extension 2 of the shield b^2 the fountain-pen may be rendered capable of use as a lead-pencil, and when it is desired to use it the blunt end of the pencil c may be withdrawn from the extension 2, and the rear end of the said pencil inserted into the said extension and into the position shown in Fig. 1.

By providing the hollow cover d with a rubber d' the latter may be utilized after the manner of an ordinary eraser. The cover d may be provided with an air-vent d^2.

In the improved fountain-pen above described the ink is received within and held by the reservoir or holder A, and the air tube or chamber b does not serve as an ink-reservoir and is made of such length with relation to the length of the reservoir A that when the said tube is compressed and then relieved the quantity of ink taken up is not sufficient to pass through the reservoir into the air tube or chamber, and as a result the air-tube always remains flexible and in operative condition and is not attacked and rendered hard, as would be the case if the air-chamber constituted the ink-reservoir of the pen.

I claim—

As an improved article of manufacture, a fountain pen consisting of an ink reservoir A, carrying at one end a pen, which is supplied with ink from said reservoir and having its opposite end reduced in diameter, a flexible air-chamber b attached to the reduced end of the said reservoir and communicating therewith, and a tubular shield of substantially the same diameter as the pen-holding ink reservoir, having closed sides to protect the air chamber b against outside pressure and attached to the reduced end of the said reservoir with its outer surface substantially flush with the outer surface of the pen-holding ink reservoir and forming a continuation of the same in the completed fountain pen, the said air chamber being of such size with relation to the pen-holding ink reservoir as not to receive the ink admitted into the said reservoir, substantially as described.

In testimony whereof I have signed my name to this specification in the presence of two subscribing witnesses.

WERNER I. STAAF.

Witnesses:

JAS. H. CHURCHILL,

J. MURPHY.