E. R. SMITH.

FOUNTAIN DRAFTING PEN.

APPLICATION FILED MAY 27, 1908.

929,037. Patented July 27, 1909.

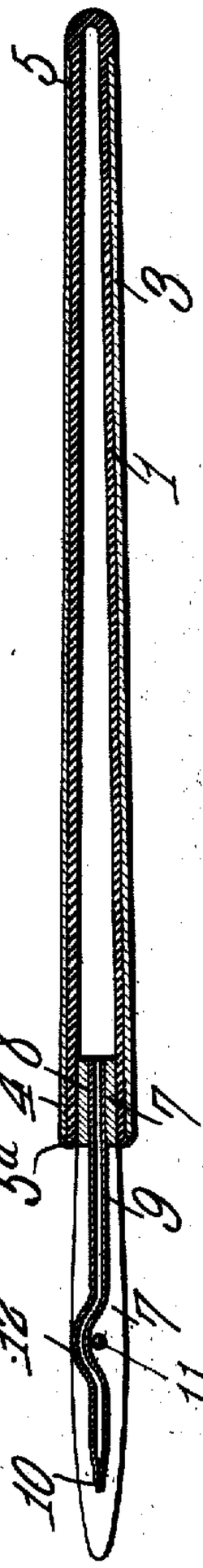

Fig. 1.

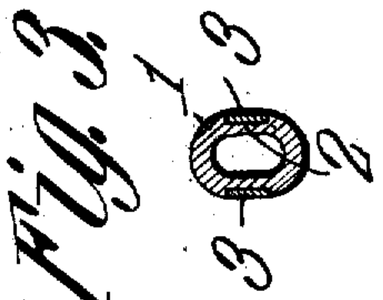

Fig. 3.

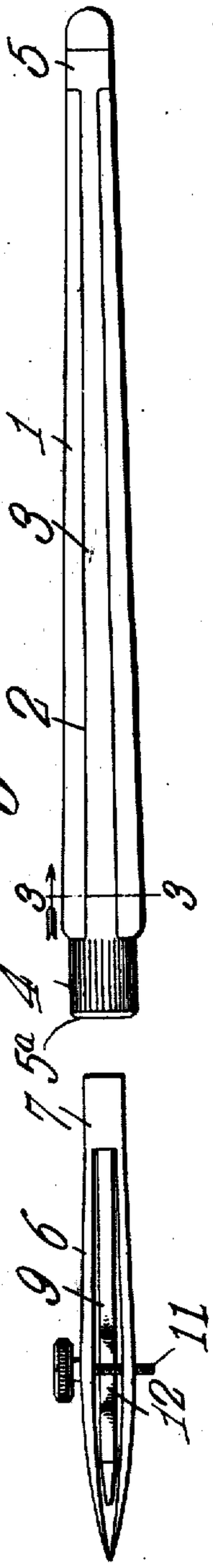

Fig. 2.

Witnesses:

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UNITED STATES PATENT OFFICE.

EDWIN RUTHVEN SMITH, OF PARIS, TEXAS.

FOUNTAIN DRAFTING-PEN.

No. 929,037. Specification of Letters Patent. Patented July 27, 1909.

Application filed May 27, 1908. Serial No. 435,352.

To all whom it may concern:

Be it known that I, EDWIN RUTHVEN SMITH, a citizen of the United States, residing at Paris, in the county of Lamar and State of Texas, have invented a new and useful Fountain Drafting-Pen, of which the following is a specification.

This invention relates to fountain drafting pens.

The object of the invention is to provide a novel and thoroughly efficient article of this character in which, by the peculiar arrangement and assemblage of the parts thereof, the flexing of the handle will operate either to supply ink, in requisite quantities, to the pen points, or to draw ink into the handle which constitutes a reservoir.

With the above and other objects in view, as will appear as the nature of the invention is better understood, the same consists, generally stated, in a fountain drafting pen embodying a handle or reservoir that is adapted to be flexed through an arc sufficient to expel practically all of the contained air therein, whereby when released, a suction will be created which may be utilized for filling the handle with ink. In order to provide a handle having this characteristic, it is necessary that it shall be capable of resuming and maintaining normally a straight line, and of possessing sufficient rigidity to permit of its being used for drafting purposes without too ready yielding. To accomplish this result the handle will be made of a length of rubber, such as is commonly employed for syringe tubes, and assembled with the handle is a reinforcing member embodying a pair of collars through which the terminals of the handle project, and a plurality of ribs or bars connecting the collars, and being of resilient material whereby to permit the bending or flexing of the handle above referred to. As a matter of further and specific improvement the handle will be approximately ovoidal in cross section with practically flat sides, and these sides will be provided with channels or grooves to receive the reinforcing members.

The pen may be constructed in any preferred manner and is provided at one end with a sleeve to fit within the larger end of the handle and be held in place therein by frictional contact with the walls of the rubber tube. The sleeve is provided with a central orifice in which is disposed the inner end of the ink feed, the outer end of which is provided with a longitudinal slit to permit the escape of the ink and also the drawing of the same into the handle or reservoir. The ink feed is by preference made of rubber, although it may be made of any other suitable material, and is held within the orifice of the sleeve by frictional engagement with the walls thereof.

The invention consists further in the various novel details of construction of a fountain drafting pen as will be hereinafter fully described and claimed.

In the accompanying drawings forming a part of this specification and in which like characters of reference indicate corresponding parts—Figure 1 is a view in vertical longitudinal section through a fountain drafting pen constructed in accordance with the present invention. Fig. 2 is a view in side elevation taken at right angles to Fig. 1, with the pen detached from the handle. Fig. 3 is a transverse sectional view taken on the line 3—3 of Fig. 2 and looking in the direction of the arrow thereon.

The handle 1 is constructed of a length of rubber tubing preferably of the type employed in syringe tubes, and is made in the form of an ordinary tapered pen holder, closed at the smaller end. As shown in Fig. 3, the handle is approximately ovoidal in cross section and is provided with flat sides, and in these sides are arranged longitudinal grooves 2 that are engaged by reinforcing members 3 in the nature of flat strips of resilient metal, the terminals of which are secured to or formed integral with sleeves 4 and 5 that are designed to fit snugly upon the parts of the handle with which they coact. In order to prevent the sleeve 4 from becoming detached from the handle from any cause, the larger or open end of the handle is outwardly flared around the end of the sleeve 4, as shown at 5^a in Fig. 1, and thereby secures the object sought.

The pen 6 may be of the usual or any preferred construction and is provided with a collar or tubular extension 7 that is designed to fit snugly within the larger end of the handle and to be held therein in the present instance by frictional contact with the walls of the bore of the handle, thus to facilitate its easy removal when it is desired to clean the pen, or the handle, or for any other purpose.

The collar 7 is provided with a central

bore 8 that is designed to receive and hold the inner end of the ink feed 9, which latter is preferably constructed of a length of rubber tubing, and is somewhat more rigid than the handle, and the outer end of which is reduced and provided with a longitudinal slit 10 through which the ink will pass to the pen points or be drawn into the handle. In order to permit the feed to pass by the adjusting screw 11, the former will be provided at the point where it would otherwise contact with the screw with a laterally curved hump or deflection 12, as clearly shown in Fig. 1.

The object of having the handle of the contour in cross section described is to facilitate its flexing; but as will be apparent it may be circular in cross section and still secure the objects sought.

In the use of the pen, when the handle thereof is to be filled with ink, the handle is flexed laterally a sufficient degree to expel the air contained therein, and the pen points will be immersed in an ink receptacle a sufficient distance to insure the covering of the end of the ink feed for some distance say up as far as the adjusting screw. When the handle is allowed to assume a straight line, a suction will be exerted which will operate to draw into the handle a quantity of ink sufficient to last for an extended period. To supply ink to the pen point, it will only be necessary slightly to flex the handle and by observing the quantity discharged overfeeding will be prevented. As will be obvious, when the handle is flexed it will be flattened on lines parallel with the reinforcing members 3, and this flattening will in a readily understood manner operate to cause the air contained within the handle to be expelled.

In addition to its function of permitting the passage of ink to and from the handle, the slitted end of the feed tube also operates as a seal or valve to exclude the entrance of air to the handle or reservoir, thus to prevent caking or drying with the ink therein. It is intended that this tube shall be of rubber having a flexibility that will permit the outer end to open and close automatically upon the manipulation of the handle.

It will be seen from the foregoing description that while the improvements herein defined are simple in character they will be thoroughly efficient for the purposes designed and will coact in the production of an efficient, durable and highly useful article for draftsmen's use.

What is claimed is:—

1. As a new article of manufacture, a pen handle constructed of flexible material, non-flexible sleeves arranged at the terminals of the handle, laterally flexible longitudinal reinforcing members secured to the sleeves and being oppositely disposed to permit flexing of the handle.

2. As a new article of manufacture, a pen handle constructed of flexible material provided in its outer side with longitudinal grooves, laterally flexible reinforcing members fixed relative to each other and arranged in the grooves and being oppositely disposed to permit of the handle being flexed, and non-flexible sleeves disposed at the terminals of the handle, and to which the reinforcing members are attached.

3. An implement comprising a flexible elastic handle having one end open and the other end closed, non-flexible sleeves mounted upon the terminals of the handle, a pen having a collar insertible into the open end of the handle to bind said open end against the inner surface of one of the sleeves, and laterally flexible longitudinal reinforcing means connecting the sleeves and normally bearing against the handle, said means being fixed relative to each other.

4. As a new article of manufacture, a pen handle consisting of flexible material and provided with a laterally flexible longitudinal reinforce bearing upon the flexible material, and non-flexible handle-engaging members secured to the reinforce and fixed relative thereto.

In testimony that I claim the foregoing as my own, I have hereto affixed my signature in the presence of two witnesses.

EDWIN RUTHVEN SMITH.

Witnesses:

A. PENDER,

R. W. WORTHAM.