Mar. 3, 1925. 1,527,971

A. FORSELL ET AL

PEN

Filed Jan. 30, 1923

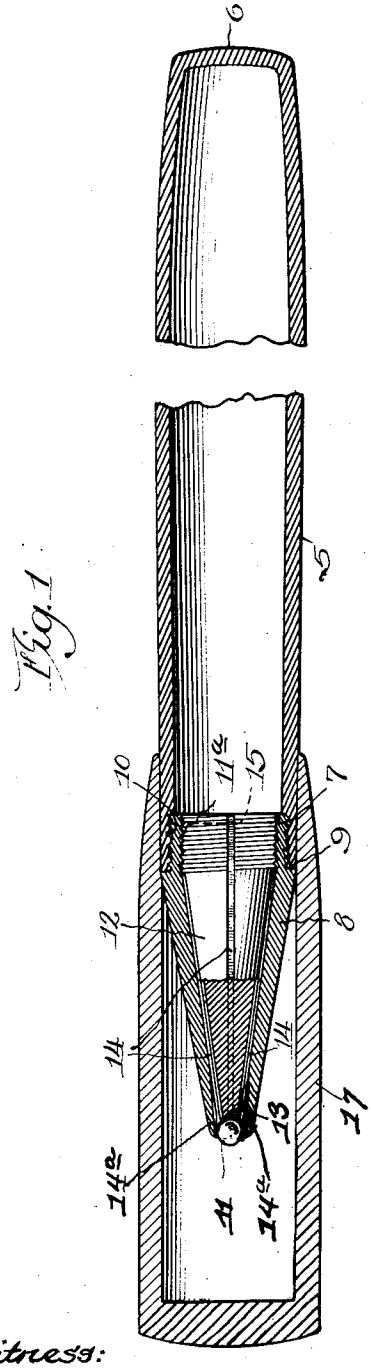


Fig. 1

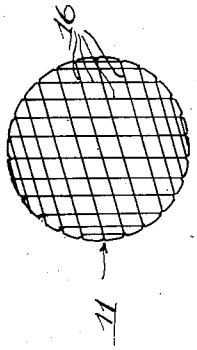


Fig. 3

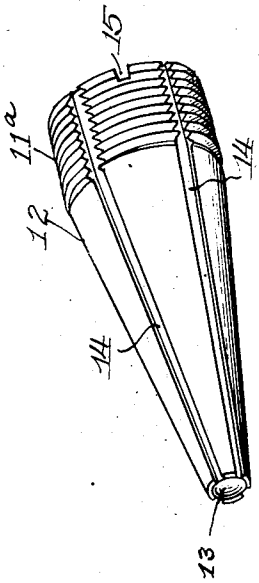


Fig. 2

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UNITED STATES PATENT OFFICE.

ARTHUR FORSELL AND ROBERT H. HARMON, OF BLUE ISLAND, ILLINOIS.

PEN.

Application filed January 30, 1923. Serial No. 615,842.

To all whom it may concern:

Be it known that we, ARTHUR FORSELL and ROBERT H. HARMON, citizens of the United States, and residents of Blue Island, in the county of Cook and State of Illinois, have invented certain new and useful Improvements in a Pen, of which the following is a specification.

Our present invention relates to improvements in pens, and has special reference to pens of the fountain type which are adapted to take ink or other writing fluid during the operation of writing from a reservoir containing a supply of the writing fluid. The special objects of our invention are, first, the provision of a pen which may be employed for writing on a great many different materials and surfaces, whether soft or hard or comparatively rough or comparatively smooth; second, the provision of a pen which will be comparatively free from wear incident to the friction of the writing point against the writing surface; third, the provision of a pen which may be readily adjusted for writing fluids of different fluidity; and, fourth, the provision of a pen of few and simple parts not liable to get out of order and easily replaced which may be manufactured and assembled economically, and sold at a moderate price. We prefer to attain the foregoing objects by means of the structure illustrated in the accompanying drawings, in which—

Fig. 1 is a central longitudinal section of a pen embodying our invention, drawn to an exaggerated scale for greater clearness.

Fig. 2 is a perspective view of a feed adjusting plug, and

Fig. 3 is a perspective view of a modified type of ball adapted to handle a heavier and more viscid fluid, and suitable for use in labeling and addressing packages and boxes for shipment.

Our pen comprises a reservoir of any desired form or configuration. We have shown such a reservoir of a conventional pattern consisting of a cylindrical tube 5 closed at one end 6, and interiorly threaded at the other end 7. Into threaded end 7 of the reservoir is screwed the rear or posterior end of a hollow conical nozzle 8, the forward or anterior portion of which is suitably truncated. The posterior threaded portion 10 of the nozzle is reduced and shouldered so that the exterior surfaces of the nozzle and reservoir will be practically flush.

Into the rear end of the nozzle is dropped a ball or sphere 11 of a size to fit the anterior cavity therein with just enough play to provide a capillary clearance between the ball and the surface of the cavity, and the cavity being slightly greater than a hemisphere will prevent the ball from falling through the truncated end thereof. The ball may be made of any suitable material, either metal or a non-corrosive composition, as the rotation thereof in its cavity eliminates, or, at least, greatly reduces wear between the ball and the writing surface, and the anterior end of the bore of the nozzle is channeled, as at 14^a.

The interior of the posterior end of the nozzle is also threaded to receive the threaded, slightly enlarged posterior end 11^a of the ball retaining and feed adjusting plug 12, the anterior end of which is provided with a spherical depression 13 to conform to the surface of the ball and the size of which plug is proportioned to fill the conical interior cavity of the nozzle with a slight possibility of longitudinal adjustment. Upon the exterior of plug 12 are provided a plurality of longitudinal capillary channels 14 for the passage of the writing fluid from the reservoir to the ball. We have provided four such channels, but the number thereof is immaterial, as it will be seen that the rotation of the ball through its friction with the writing surface will wipe or draw the writing fluid from the ends of the channels, and that by screwing plug 12 further in or out the amount of the fluid withdrawn from the channels may be controlled. This, as will be readily perceived, provides an adjustment for regulating the pen for use with writing inks of different fluidity. A screw slot 15 may be provided in the rear or posterior end of plug 12 to receive the blade of a screw driver with which adjustments may be facilitated. We have shown the exterior ends of the reservoir slightly tapered in the usual manner for the receipt of a hollow dust and point protecting cap 17 that may be removably mounted upon either end.

In Fig. 3 we have shown a slightly modified type of ball 11 upon the surface of which are striations 16 disposed in checkered relation. This form of ball is capable of withdrawing a greater amount of the writ-

ing fluid from the capillary channels, and is peculiarly suitable for use in addressing packages, boxes, etc., and for all work or service requiring considerable of the writing fluid. We have found with balls as large as an eighth of an inch in diameter the lines are surprisingly fine and clear, and our pens may be employed upon writing surfaces as delicate as tissue and as hard as stone with equal facility.

What we claim new is:

1. A pen having a reservoir, a hollow nozzle provided with an anterior sphere retaining cavity, means for establishing a feed from said reservoir to said cavity and a striated sphere revolvably seated in said cavity.

2. A pen comprising a reservoir having a hollow conical nozzle provided with an anterior sphere retaining cavity, a sphere revolvably seated in said cavity, and a conical plug seated within said nozzle and having threaded relation therewith, whereby the adjustment of the sphere and its seat may be controlled, said plug having longitudinal channels leading from said reservoir to said cavity.

3. A pen comprising a reservoir, a hollow nozzle for said reservoir; said nozzle being provided with an anterior sphere retaining cavity, a striated sphere revolvably seated in said cavity, a longitudinally channeled conical plug disposed within said nozzle and having threaded relation therewith, providing facilities for adjusting the relation of said sphere to said cavity and the flow of fluid from the reservoir to said cavity.

4. A pen having a reservoir, a hollow conical nozzle provided with an anterior sphere retaining cavity, a sphere having intersecting striations revolvably seated in said cavity, and a conical plug seated within said nozzle having channels establishing a feed between said reservoir and said cavity.

5. A pen comprising a reservoir, a hollow conical nozzle for said reservoir; said nozzle being provided with an anterior sphere retaining cavity, a sphere revolvably seated in said cavity, and a longitudinally channeled conical plug disposed within said nozzle between said reservoir and said cavity.

Signed at Chicago, county of Cook and State of Illinois, this 24th day of January, 1923.

ARTHUR FORSELL.
ROBERT H. HARMON.