H. G. CRAIG.

FOUNTAIN PEN.

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1,237,619.

Patented Aug. 21, 1917.

Fig. 1.

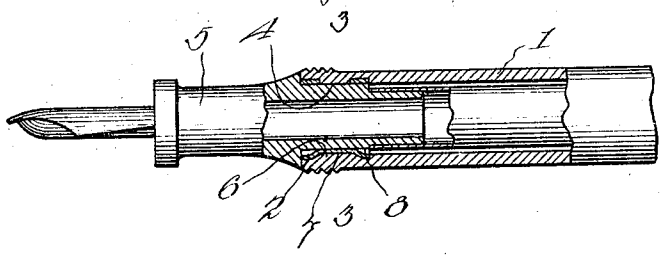


Fig. 2.

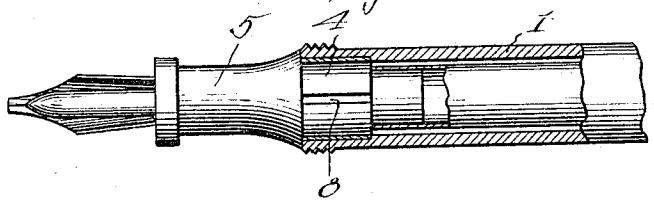


Fig. 3.

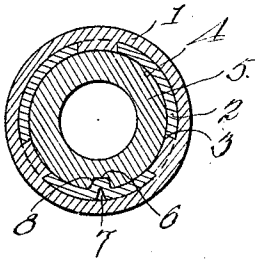
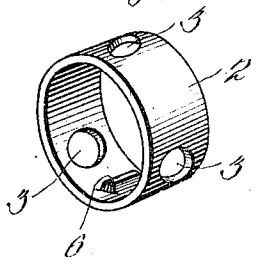


Fig. 4.



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UNITED STATES PATENT OFFICE.

HARVEY GREEN CRAIG, OF KANSAS CITY, MISSOURI, ASSIGNOR TO KRAKER PEN CO., OF KANSAS CITY, MISSOURI, A CORPORATION OF MISSOURI.

FOUNTAIN-PEN.

1,237,619. Specification of Letters Patent. Patented Aug. 21, 1917.

Original application filed April 9, 1914, Serial No. 830,636. Divided and this application filed September 23, 1915. Serial No. 52,304.

To all whom it may concern:

Be it known that I, HARVEY GREEN CRAIG, citizen of the United States, residing at Kansas City, in the county of Jackson and State of Missouri, have invented certain new and useful Improvements in Fountain-Pens; and I do hereby declare the following to be a full, clear, and exact description of the invention, such as will enable others skilled in the art to which it appertains to make and use the same.

This invention relates to improvements in fountain pens and more particularly to self-filling fountain pens equipped with collapsible ink-sacks.

Fountain pens of this class are equipped with so-called "slip sections" which receive the pen point and feed device and to which the collapsible ink-sacks are secured, said sections fitting telescopically in the mouths of the casings or barrels containing the ink-sacks and the mechanism for collapsing the same. The said slip-sections are fitted relatively snugly in the mouths of the fountain pen barrels and are held in place therein solely by friction.

Fountain pen barrels, pen-sections and caps are most generally made of hard rubber and, as is well-known, this material expands under the influence of even mild heat. It, therefore, very commonly occurs that under the influence of summer heat, the heat of the hand in writing with the fountain pen, and by exposure to the sun's rays in show-windows in which fountain pens are displayed, the barrel or casing of the pen expands to such an extent as to leave the pen section only relatively loosely engaged therein thus causing it to drop out or to interfere with the operation of the pen in writing. This trouble can only be remedied by proper repairs and is the cause of considerable trouble to manufacturers and dealers as well as users, it being frequently necessary to return a whole stock of fountain pens to the manufacturers for such repairs especially if such stock has remained in the dealers' hands through a period of very hot weather.

In this type of fountain pens another difficulty met with is that in inserting the slip-section and collapsible sack into the barrel, the operator will naturally relatively rotate the barrel and slip section thereby twisting the sack and materially reducing its ink-containing capacity. The sacks are generally as large in diameter as the barrel will permit in order that the pen may have the maximum ink-capacity for the diameter of the barrel and as the sack-collapsing means contained in the barrel generally slightly crowd the sack, it will be readily seen that the resumption of the normal shape of the twisted sack is resisted so that it will remain in this twisted or distorted shape and, unless removed and carefully reinserted within a short time, said sack will become set, that is, permanently retain its distorted shape.

The main object of my present invention is to provide a fountain pen barrel equipped at its mouth or pen-section receiving end, with means for preventing enlargement of said mouth portion to an extent sufficient to render the said pen-section of the telescopically interfitting type from becoming loose therein.

A further object of the invention is to provide means accomplishing the foregoing object which also strengthen and reinforce the mouth of the barrel.

Another object of the invention is to provide a fountain pen barrel and pen section adapted to fit telescopically therein provided with interengaging formations for preventing relative rotation thereof whereby to prevent twisting of the collapsible ink-sack while inserting the pen-section in the barrel mouth.

A suitable embodiment of the invention is illustrated in the accompanying drawings in which—

Figure —1— is a fragmentary central longitudinal section of a fountain pen constructed in accordance with the invention.

Fig. —2— is a similar sectional view at right angles to that shown in Fig. —1— and showing the pen-section in elevation.

Fig. —3— is a transverse section of the same on the line 3—3 of Fig. —1—.

Fig. —4— is a detail perspective view of the reinforcing ring employed.

The present invention is substantially identical with that described and claimed in my pending application for patent for improvements in fountain pens, filed April 9, 1914, Serial Number 830,636, of which the present application is a division in so far as

it discloses the same subject-matter as is disclosed in the aforesaid application.

My invention consists in embodying in the mouth of the fountain barrel 1 a metal ring 2, preferably of copper, brass or other metal which is affected by the sulfur of the rubber during vulcanization of the latter to oxidize the surface of said ring and cause it to get a firm hold on the rubber. The said ring 2 is also provided with means for receiving rubber during vulcanization of the latter, said means being best exemplified by the perforations 3 in said ring into which the rubber flows thus forming lugs on the inner face of the barrel opposing said ring which will effectually prevent any relative movement between the latter and said barrel.

In the manufacture of fountain pens, the wall of the tubing of which the barrel is made is rendered relatively very thick and is subsequently bored out and turned off externally to the desired thickness of barrel wall. Thus in the raw stock the rings 2 are completely embedded in the rubber and in boring the same a thin film of rubber is usually left on the inner face of the ring so that the lugs or projections filling the perforations cannot be withdrawn from the latter by expansion of the barrel mouth, the loosening of the latter from the outer face of the ring being further prevented by the adhesion between ring and barrel caused by the action of the sulfur on the metal, so that the ring becomes inseparably connected with the barrel as to limit expansion and contraction of the part of the latter in which the ring is embedded to the degree of expansion and contraction of said ring under variations in temperature.

The smooth cylindrical end portion 4 of the pen section 5 is turned to snugly fit the mouth of the barrel and I have found that in practice said pen-section never becomes loose.

The ring 2 is further provided with an inwardly projecting longitudinal rib 6 formed by indenting the outer face thereof to provide a longitudinal recess 7 therein which is also filled with rubber during vulcanization and adds to the rigidity of the connection between the ring and the barrel. The said rib 6 is preferably of less length than the ring but may be of any length up to the full length thereof. This rib is adapted to enter the longitudinal groove 8 in the said smooth portion 4 of the pen section 5 thus preventing relative rotation between the latter and the barrel, this being advantageous for reasons hereinbefore set forth.

My invention is capable of being variously embodied to attain the several aforesaid objects and all variations or modifications of the construction illustrated and described which attain such objects are included in the invention as defined in the appended claims.

I claim as my invention:—

1. In a fountain pen having telescopically interfitting barrel and pen section, the barrel provided at its mouth with a metallic reinforcing ring provided in its surface with recesses, said ring embedded in the barrel mouth and the material of the latter filling said recesses for holding said ring rigid therewith.

2. A fountain pen barrel adapted to telescopically receive a pen-section and having a metallic reinforcing ring embedded in the mouth portion receiving said pen-section, said ring rigid with said barrel mouth and a pen section having a longitudinal groove therein and adapted to be telescopically received in the mouth of the barrel, said ring equipped with an inwardly extending projection adapted to enter the longitudinal groove in the pen-section for preventing rotation of the latter relatively to the barrel.

In testimony whereof I have signed my name in presence of two subscribing witnesses.

HARVEY GREEN CRAIG.

Witnesses:
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John W. Webster.