

1,212,744.

Patented Jan. 16, 1917.

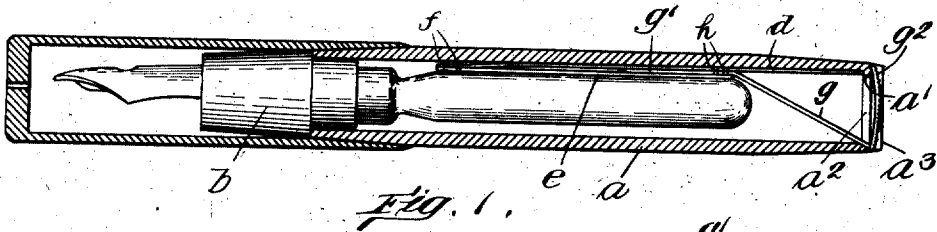


Fig. 1.

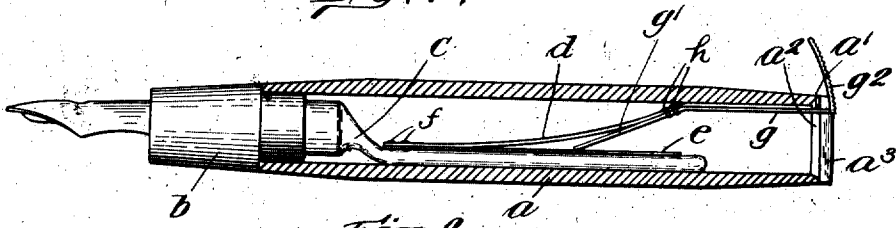


Fig. 2.

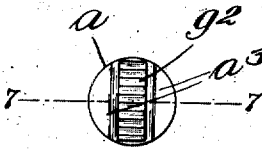


Fig. 3.

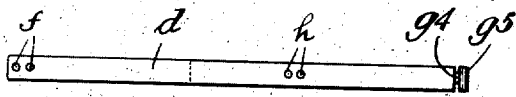


Fig. 4.

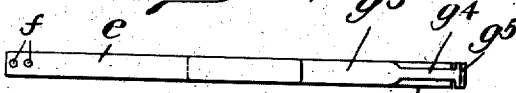


Fig. 5.

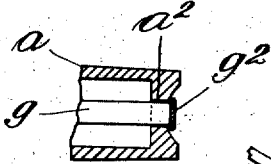


Fig. 7.

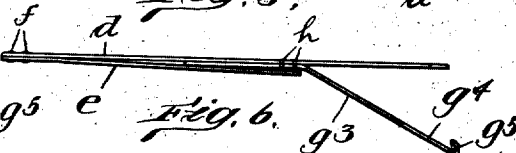


Fig. 6.

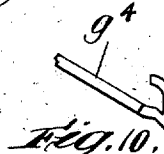


Fig. 10.

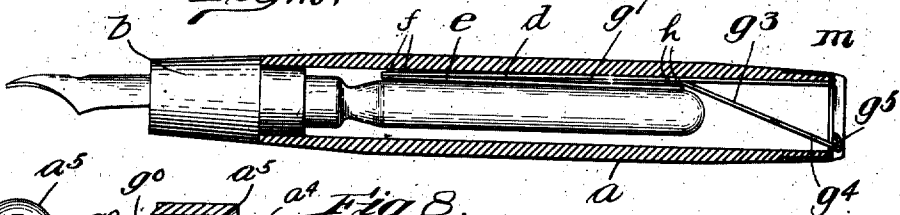


Fig. 8.

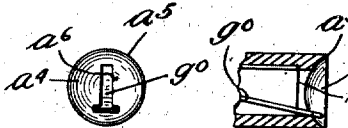


Fig. 12.

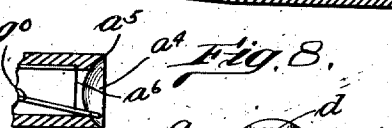


Fig. 11.

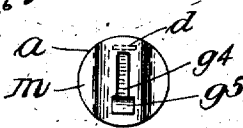


Fig. 9.

Witness:

H. B. Davis.

Inventor:  
 S. S. Crocker  
 by *Wm. H. ...*  
 City

# UNITED STATES PATENT OFFICE.

SETH S. CROCKER, OF WOLLASTON, MASSACHUSETTS.

## FOUNTAIN-PEN.

1,212,744.

Specification of Letters Patent.

Patented Jan. 16, 1917.

Application filed February 12, 1916. Serial No. 78,001.

To all whom it may concern:

Be it known that I, SETH S. CROCKER, a citizen of the United States, residing at Wollaston, in the county of Norfolk and State of Massachusetts, have invented an Improvement in Fountain-Pens, of which the following is a specification.

This invention relates to certain improvements in that class of fountain-pens which are provided with a collapsible rubber sack for containing the ink within the pen-barrel, and more particularly to that class of devices in which a laterally movable presser-bar is employed for collapsing the sack, so as to expel the air and permit it to become filled with ink by suction.

Prior to my invention various devices of this character have been produced, many of which have objectionable features, such as lateral projections which interfere with the convenient holding of the pen.

The object of the present invention is to provide mechanical means for collapsing the sack which is arranged to be operated from the end of the pen-barrel, and which is of simple construction, and is adapted to be readily applied to a hard rubber pen barrel and to avoid the necessity of a permanent connection thereto, so that all the parts may be readily removed. I accomplish these objects by the means shown in the accompanying drawing in which:—

Figure 1 is a longitudinal central sectional view of a fountain-pen provided with my invention. Fig. 2 is a similar view showing the parts in position to collapse the sack. Fig. 3 is an end view thereof. Figs. 4, 5 and 6 are detail views of a slightly modified form of collapsing means, which I preferably employ. Fig. 7 is a central sectional view of the end-portion of the barrel on the line 7—7 of Fig. 3. Fig. 8 is a sectional view, similar to Fig. 1 showing the application of the modified form of Figs. 4 to 6, to a somewhat modified form of barrel. Fig. 9 is an end view thereof, and Fig. 10 is a detail view of the end-portion of the form of operating lever shown in Figs. 6 and 8. Figs. 11 and 12 are, respectively, a detail sectional view, and an end view of another slightly modified form of pen barrel and operating lever.

As shown in the drawing the pen-barrel  $a$  is provided with the usual pen section  $b$ , to which a flexible rubber sack  $c$  is connected

and which fills, when expanded, the greater portion of the space within the barrel.

According to my invention, I provide a normally straight, flat spring-bar  $d$  which is adapted to lie against the interior walls of the barrel, and to extend from an abutment  $a'$  at the end of the barrel to within a short distance of the pen section.

A presser-bar  $e$  is connected by rivets  $f$  to the end of the spring-bar  $d$ , adjacent the pen section, and extends throughout approximately the length of the sack. An operating arm  $g$  is connected, by rivets  $h$ , to the inner side of the spring-bar  $d$ , at an intermediate point therein, and preferably adjacent the free end of the presser-bar  $e$ , and an engaging-arm  $g'$  is extended therefrom between the bars  $d$  and  $e$  to a point adjacent the middle of the latter, and at an obtuse angle thereto, from a point adjacent its point of connection with the bar  $d$ . In the normal position of the parts, the arm  $g$  extends obliquely from the point at which it is connected to the bar  $d$  across the pen barrel through an opening  $a^2$  in the end of the latter. In the construction of Figs. 1 and 2, a transversely extending thumb-piece  $g^2$  is provided, at the end of the arm  $g$ , the length of which is approximately equal to the diameter of the pen-barrel, and which has a convexly curved corrugated surface. The end of said thumb-piece normally rests, at its inner side, against the extreme end of the barrel, so that it may be pushed longitudinally to swing the arm  $g$  from one end to the other of the slot  $a^2$ . The end of the barrel is slightly recessed at the sides of the slot  $a^2$ , so that ribs  $a^3$  are formed on the barrel at each side of the thumb-piece  $g^2$ , which extend slightly beyond the surface thereof and protect it from being moved accidentally.

In operating said parts to fill the sack with ink, the thumb-piece is pushed to one side, as shown in Fig. 2. This movement causes the inner portion of the spring-bar  $d$  to be swung downward, the portion thereof directly opposite the point, at which the arm  $g$  is bent, acting as the fulcrum on which the bar  $d$  is swung. This movement of the arm  $g$  on its bent portion as a fulcrum, causes its end-portion  $g'$  to be swung down with the inner end of the spring-bar  $d$ , so that downward pressure is applied to the presser-bar  $e$  at two points, thereby

causing said bar to be moved laterally so as to collapse the sack *e* and expel the air therefrom. When the arm *g* is released, or moved in the opposite direction, the pressure on the sack will be relieved, so that the latter will be permitted to expand and suck in the ink. The operating arm *g* is thus provided with two yielding arms which engage the presser bar *e* at different points intermediate its length, viz., the arm *g'* which lies against and slidably engages the bar *e*, and the portion of the bar *d* beyond the point at which the arm *g* is connected thereto, and which has a riveted connection with the end of the bar *e* adjacent the pen section.

In the construction of Figs. 4, 5, 6, 8, and 9 the form of the lever, corresponding to the lever *g*, is slightly modified. That is, a lever as *g<sup>3</sup>* is provided having a narrowed end-portion *g<sup>3</sup>* extending through a transversely slotted cap *m* on the end of the barrel, and a small thumb-piece *g<sup>6</sup>* is formed on the end of said lever by bending the end-portion of said lever over on itself at an acute angle to provide a V-shaped portion, which may be easily engaged by the thumb and pushed aside in the manner already described with relation to the construction of Figs. 1 to 3. In Figs. 10 and 11, another slightly modified construction of barrel is shown, in which a cup-shaped recess *a<sup>4</sup>* is formed in the end of the barrel, the bottom of which is spherical, so that the rim *a<sup>5</sup>*, about it, is uniform, and projects at all points, beyond the end of the operating lever *g<sup>0</sup>*, which is arranged to extend through a slot *a<sup>6</sup>* formed in the bottom of the cup-shaped recess *a<sup>4</sup>*. The projecting end-portion of the lever *g<sup>0</sup>* is of sufficient size to enable it to be readily operated by pressing the thumb nail against it. The forms of Figs. 4 to 11 are advantageous over the other form, in that no portion of the operating lever extends beyond the walls of the pen-barrel, at any time. The end of the lever is thus protected from being moved by accident and a removable cap, or other protecting means is rendered unnecessary.

In the construction of Figs. 1 and 2, the

entire sack collapsing-means may be removed through the slot *a<sup>2</sup>*, by turning the parts so that they lie flat-wise with the slot *a<sup>2</sup>* while in the construction of Fig. 8, it is merely necessary to remove the cap *m* and then the whole sack collapsing-means may be withdrawn.

The latter construction is more desirable than the integral construction, as it is less expensive to manufacture, for a simple open-ended barrel may be formed, and the cap or ferrule *m* may be died from metal at small expense. The construction in each instance is, however, substantially the same.

It will be noted that, when the arm *g* is moved to the position of Fig. 2, to collapse the sack, the spring bar *d* will yield to some extent to permit the arm *g'* to move the portion of the presser-bar which it engages, to the same extent as that to which the inner portion of the presser-bar is moved by the spring-bar. It will also be noted that the arrangement is such that the closed end of the sack will be pressed slightly in advance of the other end, so that all the air will be expelled therefrom when the lever is operated.

I claim:—

A fountain-pen comprising a pen-barrel having a pen section in one end, and an opening in its opposite end, an elastic ink sack in the barrel connected to said pen section, a presser-bar arranged at one side of said sack, a supporting bar connected to said presser-bar adjacent the pen section end of the barrel, and extending to the opposite end thereof, and an operating lever connected at an intermediate point therein to said supporting bar and having its opposite portions extending at an angle to each other, one portion through the open end of the barrel, and the other into engagement with said presser-bar between the point of connection of the supporting bar therewith and its opposite end.

In testimony whereof, I have signed my name to this specification.

SETH S. CROCKER.

Witness:

L. H. HARRIMAN.