June 19, 1923. 1,459,073

S. E. PETERS

SELF FILLING FOUNTAIN PEN

Filed Sept. 23, 1919

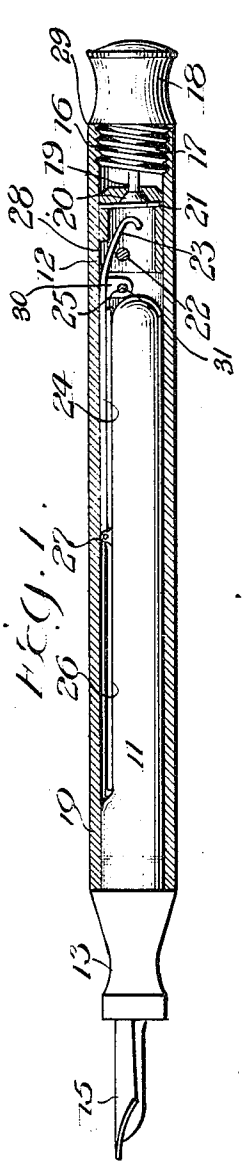

Fig. 1.

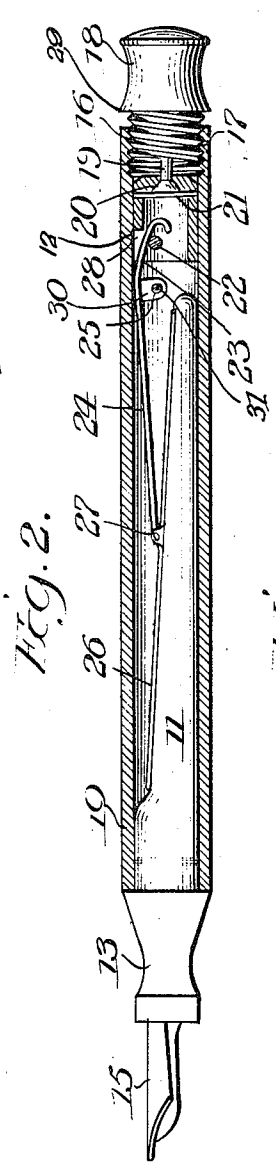

Fig. 2.

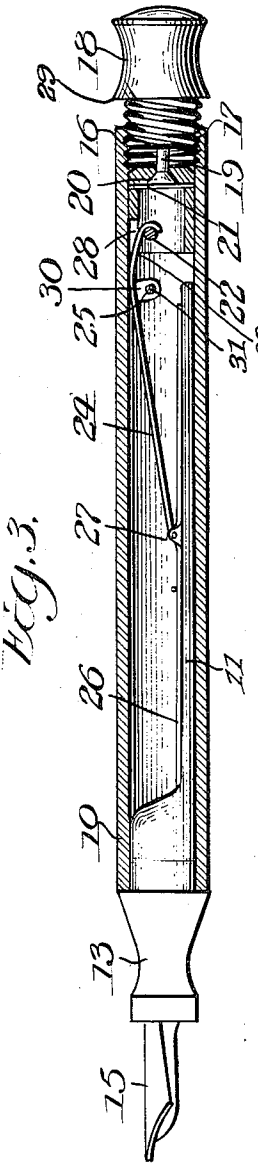

Fig. 3.

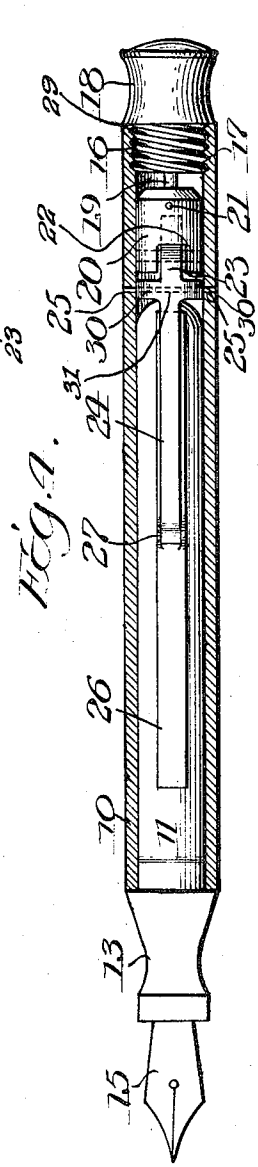

Fig. 4.

Inventor
Stanley F. Peters
by Otto M. Wernick Atty.

Patented June 19, 1923. 1,459,073

UNITED STATES PATENT OFFICE.

STANLEY E. PETERS, OF CHICAGO, ILLINOIS, ASSIGNOR, BY MESNE ASSIGNMENTS, TO KRITIKSON BROS., INC., OF CHICAGO, ILLINOIS, A CORPORATION OF ILLINOIS.

SELF-FILLING FOUNTAIN PEN.

Application filed September 23, 1919. Serial No. 325,629.

To all whom it may concern:

Bt it known that I, STANLEY E. PETERS, a citizen of the United States, residing at Chicago, in the county of Cook and State of Illinois, have invented a certain new and useful Improvement in Self-Filling Fountain Pens, of which the following is a full, clear, concise, and exact description, reference being had to the accompanying drawings, forming a part of this specification.

The invention relates to fountain pens and primarily to those of the self filling type.

The invention has among its various objects the provision of an arrangement whereby the sack or ink container may be easily compressed to deflate it, the initial operation of the compressing means acting upon the closed end of the sack first, thereby expelling any sediment which may have become lodged in the sack at said end during the time it is carried in the pocket of the user.

It is also an object of the invention to provide an arrangement whereby the sack may be partially depressed or expanded and held in this condition. Thus the attention of the user may be momentarily distracted during the filling operation without necessitating the complete compression of the sack and also the expulsion of the writing fluid previously taken into the sack to complete the filling operation.

It is a further object to produce a device capable of performing these results the construction of which cannot at any time be accidentally operated.

The invention has as an additional object the production of a construction for accomplishing these advantages which is conveniently arranged with relation to the barrel of the pen and also arranged so that the ornamentation of the barrel will not be interfered with.

It is also an object to provide a simple and inexpensive arrangement of this nature which can readily be assembled for use and disassembled for repairs and in which the parts will be held in their proper relative position within the barrel to permit the insertion of the sack within the barrel, and also to provide a means for limiting the movement of that portion which is actuated to cause the sack to be compressed or expanded.

The invention has these and other objects all of which will be explained in detail and more readily understood when read in conjunction with the accompanying drawings, in which one embodiment of the invention is illustrated, and in which—

Fig. 1 is a longitudinal section of a fountain pen having the invention applied thereto and showing the position of the parts when the sack is expanded or filled with writing fluid;

Fig. 2 is a sectional view similar to Fig. 1 showing the relative position of the parts while the sack is being compressed;

Fig. 3 is a view similar to Figs. 1 and 2 showing the sack fully compressed; and

Fig. 4 is a sectional plan view of the parts shown in Figs. 1, 2 and 3.

In the structure shown in the drawings the use of the outer barrel 10 is contemplated this being open at both ends for the reception of the ink container or sack 11, and the sack actuating mechanism generally designated by the numeral 12, it being understood that one end of the sack is connected with the portion 13 which carries the pen 15 and that this portion 13 closes this end of the barrel, also that the fluid enters the sack through this portion 13 in the usual manner.

The opposite end of the barrel 10 is provided with the internal screw threads 16 into which is threaded the end 17 of the portion 18 which is rotatable relatively to the barrel and relatively to the remaining mechanism and provides the means for controlling said mechanism and the consequent compression or expansion of the sack 10 during the filling operation. These threads 16 and 17 are preferably a left hand thread and of a pitch which will cause the rapid operation of the mechanism within the barrel, yet will not permit of an accidental operation. A headed member 19 projects from the member 18 and is loosely seated in the member 20, and connects this member 20 and the member 19 together, these parts being held against relative longitudinal movement by the pin 21 which is carried by the member 20 and confines the head between the wall of the member 20 and the pin 21. I desire to have

it understood that the precise arrangement or connection between the parts 18 and 20 as shown, need not be adhered to, as any other arrangement whereby relative rotatable movement of the parts 18 and 20 is permitted. This member 20 is confined in the barrel 10 and moves longitudinally with relation to the barrel with the member 18 when said last mentioned member is operated. This member 20 is preferably tubular and has a portion of the wall cut away to provide the slot 28 and is also provided with a pin 22 arranged transversely to the axis of the member 20. This slot 28 and pin 22 cooperate with the end 23 of the lever 24 to operate it. This lever is pivoted at 25, the opposite end thereof being pivotally connected at 27 with the bar 26 which rests upon the sack 11. The end 23 of the lever 24 is arranged in the slot 28 and between the pin 22 and the wall of the member 20, and is formed to produce a cam which cooperates with the pin 22 and the wall to cause operation of the bar 26 to compress or release the sack when the member 18 is operated. The cam shaped portion of the lever has a hooked end portion which engages the pin 22 to thereby limit the movement of the member 18 when same is moved outwardly, the inward movement of this member 18 being limited by the shoulder 29, contacting with the end of the barrel 10. The lever 24 is provided with the transverse portions 30—30, which are bent to conform with the shape of the interior of the barrel and are provided with apertures for the reception of the pin 31 upon which said lever is pivoted. This arrangement produces a structure which securely yet freely holds the lever in its proper relative position within the barrel and prevents any sidewise movement thereof.

From the foregoing explanation of the structure it can readily be seen that upon the rotation of the member 18 in one direction the same will be caused to move outwardly with relation to the barrel of the pen. This movement will cause the member 20 to be moved therewith. By virtue of the fact that the pin 22 is in engagement with the under surface of the cam end of the lever 24 this last mentioned end will be raised and the opposite end thereof lowered upon the outward movement of the member 18. This depresses the bar 26 and compresses the sack 11. It is also evident that when the member 18 is moved in the opposite direction the face of the member 20 adjacent the slot 28 will engage the upper surface of the cam and cause the end of the lever 24 to which the bar 26 is connected to be raised permitting the sack to expand, which draws the fluid into it and fills the same. By pivoting the bar 26 to the lever 24 between its ends, and allowing the bar to be greater in length from the pivot to the forward end, the bar will assume the position shown in Fig. 2 wherein the closed end of the sack is shown as being depressed to a greater extent than the opposite end. This causes the sediment contained at this end to be forced out of the sack.

It is also evident that by employing an arrangement such as the threads 16 and 17 that the member 18 may be moved to intermediate positions, and that the mechanism controlled thereby will be held in said intermediate positions depending upon the particular position of the member 18. Thus the filling operation may be momentarily suspended, and resumed later without necessitating the expulsion of the fluid previously taken into the sack, as required by various structures now on the market.

It is also evident by the arrangement shown that the accidental operation of the mechanism is eliminated, this being prevented by utilizing an actuating device that is rotatable and which may be moved to any intermediate position and held against movement while in said intermediate position.

It is further evident that the actuating means is positioned so that the pen may be conveniently and easily filled and that said actuating means is arranged so that the barrel of the pen may be ornamented without interference by said actuating means.

Having described one embodiment of the invention it is obvious that changes and modifications may be resorted to without departing from the spirit of the appended claims.

What I claim and desire to cover by Letters Patent is:

1. In a self filling fountain pen the combination of a barrel, a sack arranged within the barrel and means operable lengthwise of the sack for compressing the sack, said means including a member movable lengthwise relatively to the barrel and a rotatable member for actuating the movable member, said members being connected to move in the same direction when actuated by the rotatable member.

2. In a self filling fountain pen the combination of a barrel, a sack arranged within the barrel, and means for compressing the sack, said means including a rotatable member and a non-rotatable member connected and movable together in the same direction lengthwise of the barrel to cause the compression of the sack.

3. In a self filling fountain pen the combination of a barrel, a sack arranged within the barrel, means operable lengthwise of the sack for compressing the sack, said means including a rotatable member movable lengthwise of the barrel and means actuated by the rotatable member which is movable in the same direction and lengthwise of the barrel to cause the compression of the sack.

4. In a self filling fountain pen, the combination of a barrel, a sack arranged in the barrel, means for compressing the sack, rotatable means for actuating the compressing means, said compressing means including an element which is movable with the rotatable means and held against relative endwise movement with respect thereto.

5. In a self filling fountain pen the combination of a barrel, a sack arranged in the barrel, means engaging the sack for compressing the sack and rotatable means having means for actuating the compressing means, said compressing means and actuating means having means engaging each other whereby the movement of the rotatable means is limited.

6. In a self filling fountain pen the combination of a barrel, a sack arranged within the barrel and means for compressing the sack, said means including a lever, a member for actuating the lever movable lengthwise relatively to the barrel, and a rotatable member controlling the movable member, said lever having means cooperating with the member for limiting the movement thereof.

7. In a self filling fountain pen the combination of a barrel, a sack arranged within the barrel and means for compressing the sack, said means including a lever having a cam, a member for engaging the cam, said member and cam cooperating with each other to actuate the lever, said member being movable outwardly relatively to the barrel and a rotatable member for controlling the outwardly movable member.

8. In a self filling fountain pen, the combination of a barrel, a sack arranged within the barrel and means for compressing the sack, said means including a lever and a member for engaging said lever to actuate the same, said member being movable lengthwise relatively to the barrel to actuate said lever, and a rotatable element for moving said member, said member and rotatable element being connected together to move with each other in the same direction upon the movement of said element.

9. In a self filling fountain pen the combination of a barrel, a sack arranged within the barrel and means for compressing the sack, said means including a lever and a member for engaging one end of said lever which cooperates with the lever to actuate the same, said member being movable lengthwise relatively to the barrel, to actuate said lever, said lever having means for limiting the outward movement of said member, and a rotatable member for controlling the movement of said member.

10. In a self filling fountain pen the combination of a barrel, a sack arranged within the barrel and means for compressing the sack, said means including means for engaging the sack and a non-rotatable movable member and a rotatable member connected against relative endwise movement with respect to each other for moving the non-rotatable member.

11. In a self filling fountain pen the combination of a barrel, a sack arranged within the barrel, means for compressing the sack, said means including a rotatable member and means which is movable endwise, forwardly and rearwardly relatively to the barrel, with the rotatable member to cause the compression of the sack, and means for limiting the movement of said means which is movable by the rotatable member.

12. In a self filling fountain pen, the combination of a barrel, a sack arranged within the barrel, and means for compressing the sack and releasing the same to permit it to expand, said means including a lever, a rotatable member movable to actuate the lever, and means engaging the opposite sides of the lever whereby the lever is moved to compress the sack and permit it to expand when the rotatable member is actuated.

13. In a self filling fountain pen the combination of a barrel, a sack arranged within the barrel and means for compressing the sack and releasing the same, said means including a lever, a rotatable member and a member operable thereby which is slidable within the barrel and which is moved outwardly to cause the lever to be depressed and inwardly to raise the same.

14. In a self filling fountain pen, the combination of a barrel, a sack arranged in the barrel and means for compressing the sack and releasing the same, said means including a lever, a rotatable member and a member operable thereby, which is movable lengthwise of the barrel in the same direction as the rotatable member and having means to cause the lever to be depressed and raised, said rotatable member providing a means for holding said lever in intermediate positions.

15. In a self filling fountain pen the combination of a barrel, a sack having a closed end arranged within the barrel, and means for compressing the sack, said means including a rotatable member which is moved outwardly with relation to the barrel to compress the sack and a member which is normally arranged so that it is substantially parallel to the barrel the initial movement of which operates upon the closed end of the sack, said member being constructed to permit the opposite end to be positioned so that said member is substantially parallel with said barrel.

16. In a self-filling fountain pen the combination of a barrel, a sack having a closed end arranged within the barrel, means for depressing the sack, said means including a member for actuating said depressing

means, said member being longitudinally movable to cause the operation of the depressing means, and means secured to the depressing means the initial movement of which operates upon the closed end of the sack.

17. In a self filling fountain pen the combination of a barrel, a sack arranged within the barrel, a lever for depressing the sack, a member for actuating said lever said member being movable lengthwise of the barrel and having a rotatable member connected therewith for moving said member, said last mentioned member being rotatable with relation to the member which actuates the lever, said member having means cooperating with the lever for limiting the movement of said rotatable member.

18. In a self filling fountain pen, the combination of a barrel, a sack arranged in the barrel, means for compressing the sack, said means including a lever pivoted between its ends, a bar for engaging the sack, said bar being pivotally connected intermediate its ends to one end of the lever, the opposite end of the lever having a cam and terminating in a means providing a stop, a member slidably arranged in the barrel and having means for engaging the opposite sides of the cam to cause said lever to be raised and lowered and to engage said stop, and a rotatable member connected to the slidable member for actuating the slidable member.

19. In a self filling fountain pen, the combination of a barrel, a sack arranged in the barrel, means for compressing the sack, said means including a lever pivoted between its ends, a bar for engaging the sack, said bar being pivotally connected intermediate its ends to one end of the lever, the opposite end of the lever having a cam and terminating in a means providing a stop, a member slidably arranged in the barrel and having means for engaging the opposite sides of the cam to cause said lever to be raised and lowered and to engage said stop, and a member connected to the slidable member for actuating the slidable member.

20. In a fountain pen, the combination with a barrel and a resilient sack, of a presser bar, an arm pivotally mounted adjacent one end acting on said bar for causing the same to press said sack, said arm adjacent the pivot being provided with a downwardly projecting member, a reciprocating member acting on the downward projecting member for causing the same to move said arm so that it will cause the presser bar to compress said sack and a threaded cap for acting on said last mentioned member to cause the same to actuate said arm.

21. In a fountain pen, the combination with a distendable bag, of a presser bar for collapsing said bag, an arm having one end resting on said presser bar, means for pivotally mounting said arm so that the arm will swing, a projection extending from said arm and a screw cap adapted to be threaded into the end of the barrel carrying said bag, said screw cap being provided with means adapted to engage said projection and swing the projection and said arm for collapsing the bag when the cap is moved in one direction and to release said arm when the cap is moved in the opposite direction.

22. In a fountain pen, the combination with a barrel and a resilient sack, of a stiff presser bar for said sack, a pivotally mounted arm positioned to move said presser bar for collapsing said bag when the arm is moved, said arm being provided with an extension, and rotatable means on said barrel acting on said extension for swinging said arm on its pivotal support.

23. In a fountain pen the combination with a barrel and a resilient sack, of a collapsible member for said sack, a pivotally mounted arm, a sleeve connected with said arm, said sleeve being movable transversely to the movement of said arm, a screw cap fitting on the end of said barrel and adapted to be screwed so as to move longitudinally of the barrel and an operating member extending from said cap into engagement with said sleeve, said operating member being appreciably smaller than the sleeve and provided with a shouldered end and adapted to engage the sleeve so that when the cap is screwed in one direction the sleeve and parts connected therewith will be moved for collapsing the sack said sleeve being operable in the opposite direction to effect a release of the sack, said connection between the arm and the sleeve permitting a loss or dead motion upon the actuation of the cap.

24. In a fountain pen, the combination with a barrel and a resilient collapsible sack, of a presser bar for collapsing said sack, an actuating member for actuating said presser bar so as to cause the same to collapse said sack, said actuating member comprising an arm, an apertured member extending at an angle to the arm, a pin extending through said actuating member and part of said barrel for pivotally mounting said actuating member, means movable longitudinally of the barrel for moving said actuating member in one direction for causing the collapsing of said sack, and a cap threaded into said barrel connected with said longitudinal movable member and acting as means for moving same.

25. In a fountain pen filler, the combination with a distendable bag of a presser bar for collapsing said bag, an arm connected with said presser bar, means for pivotally mounting said arm so that the arm will swing, a projection extending from said arm and a screw cap adapted to be threaded into the end of the bar-

rel carrying said bag, said screw cap being provided with means adapted to engage said projection and swing the projection and said arm for collapsing the bag when the cap is unscrewed and to release said arm when rotated in the opposite direction, said means being arranged to permit a predetermined dead movement for causing the operation of the cap an appreciable time after the bag has been released.

26. In a fountain pen the combination with a barrel and a resilient sack, of a presser bar for said sack, a pivotally mounted arm positioned to collapse said sack, when the arm is moved, said arm being provided with an extension and means movable longitudinally of the barrel acting on said extension, for swinging said arm on its pivotal support, said means having dead motion in both directions.

In witness whereof, I hereunto subscribe my name this 3rd day of September, A. D. 1919.

STANLEY E. PETERS.