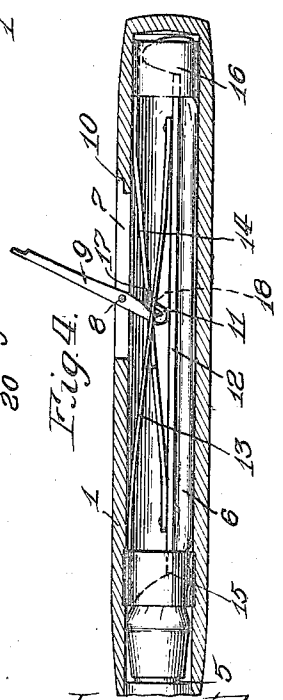
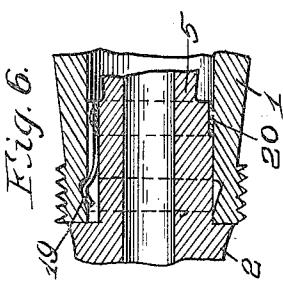
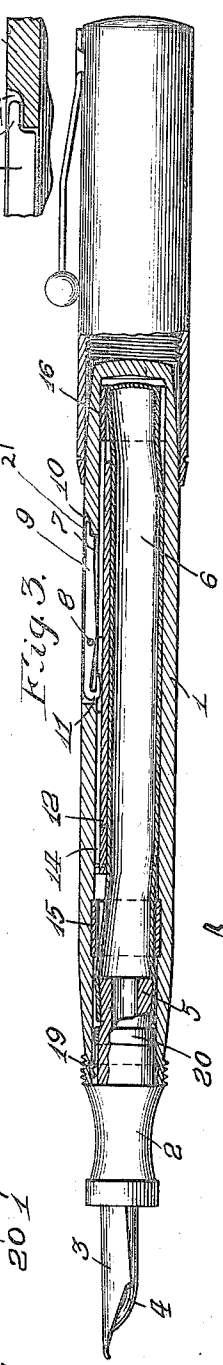
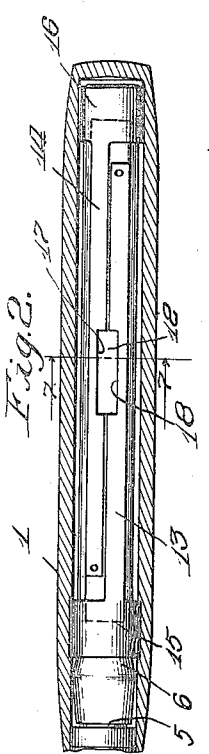
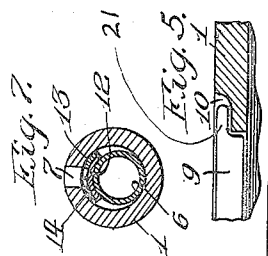
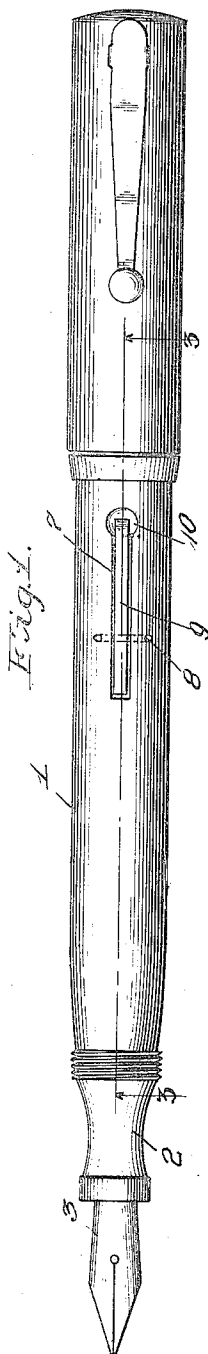


G. M. KRAKER.
 LEVER FILLER FOUNTAIN PEN.
 APPLICATION FILED FEB. 25, 1914.

1,194,510.

Patented Aug. 15, 1916.



Witnesses:
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UNITED STATES PATENT OFFICE.

GEORGE M. KRAKER, OF KANSAS CITY, MISSOURI, ASSIGNOR TO KRAKER PEN CO., OF KANSAS CITY, MISSOURI, A CORPORATION OF MISSOURI.

LEVER-FILLER FOUNTAIN-PEN.

1,194,510.

Specification of Letters Patent. Patented Aug. 15, 1916.

Application filed February 25, 1914. Serial No. 820,849.

To all whom it may concern:

Be it known that I, GEORGE M. KRAKER, 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 Lever-Filler 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.

My invention relates to self-filling fountain pens and more particularly to the type of such pens equipped with compressible sacks of soft rubber or similar material, which sacks are adapted to store the ink and to fill themselves by suction after they have been suitably compressed.

The prime object of my invention is to provide simple and effective means for distributing the compressing action substantially throughout the entire length of the ink sack so as to effectively empty the latter of air when it is to be filled with ink, and for rapidly returning the compressing means to their normal positions to permit an unhampered distending of the ink sack.

Another object is to provide means for anchoring the holder portion of the fountain pen with respect to the barrel thereof so as to prevent an accidental separation of the same.

Further objects are to prevent injury to the finger-tip while operating the actuating lever, and to prevent noise due to accidental motion of the latter.

Still another object is to provide simple and easily assembled means for maintaining the actuating and the pressure-distributing means of the filling mechanism in operative alinement.

Further objects will appear from the following specification and from the accompanying drawings in which:

Figure —1— is a plan view of a fountain pen embodying my invention. Fig. —2— is a fragmentary longitudinal section through the same. Fig. —3— is a fragmentary vertical section through Fig. —1—. Fig. —4— is a fragmentary vertical section showing the ink sack as compressed by the operating mechanism. Fig. —5— is an enlarged fragmentary view of the rear end of the actuating lever and of the portion of the

barrel adjacent thereto. Fig. —6— is a fragmentary enlarged section showing the method of anchoring the holder of the pen to the barrel. Fig. —7— is a transverse section through Fig. —2—.

In the drawings, my invention is shown as applied to a fountain pen comprising a barrel 1 fitted at one end to a holder 2 carrying a pen 3 and a feeder tube 4. Fitted to the inner end 5 of the holder is the open end of an ink sack 6 made of soft rubber and extending through substantially the entire length of the bore of the barrel 1. The barrel 1 is equipped upon one side with a slot 7 and with a pin 8 extending transversely of the said slot, which pin serves as a pivot for a lever 9. The lever 9 preferably has its longer end equipped with a finger 21 normally resting in a recess 10 formed upon the outer surface of the barrel adjacent to the rear end of the slot 7, and preferably has its shorter end bent back upon itself to present a toe portion 11 normally projecting somewhat inwardly of the barrel and normally engaging the outer surface of a substantially inflexible pressure-distributing bar 12, which bar normally bears lightly against the outer surface of the rubber sack 6. To maintain the said pressure-bar in its normal position and to guide the same so that it will remain substantially parallel to the axis of the barrel at all times I secure the ends of the bar 12 respectively to flexible members 13 and 14, which flexible members are respectively equipped with annular formations 15 and 16 each disposed adjacent to the opposite end of the bar 12 to which the said flexible member is fastened. The flexible members 13 and 14 are normally disposed laterally of each other or adjacent to each other circumferentially of the barrel, and are equipped upon their adjacent faces with recess formations 17 and 18, which recesses coact to form an elongated aperture through which the short end of the said lever may move freely while the elbow of the said end is forcing the pressure-bar 12 toward the side of the barrel opposite the said slot. To maintain the said recesses and the portion of the pressure bar adjacent thereto in alinement with the slot 7, I preferably make one of the annular ends of the said flexible members, as for example the end 15, of an outside diameter normally

somewhat greater than the bore of the barrel and preferably enlarge a portion of the said bore near the open end of the barrel, so that when the said member 15 is in its normal position its resiliency will cause it to spring outwardly into firm engagement with the walls of the barrel at its said larger-bored portion, so as to hold the flexible member 13 immovable with respect to the barrel. However, I preferably make the other annular member (which in this case would be the end portion 16 shown as integral with the flexible member 14) of a size freely slidable within the bore of the barrel, so that this portion 16 may either slide back and forth slightly within the bore of the barrel to permit of the flexing of the members 13 and 14, or may tilt sufficiently to permit the movement of the parts required when the flexible shanks 14 and 13 are moved into the position of Fig. —4— or returned to that of Fig. —3—.

It will be evident from Fig. —4—, that by suitably positioning the pivot 8 with respect to the ends of the bar 8 and the annular portions 15 and 16 of the flexible members connected to the said bar, the pressure of the actuating lever will be substantially central of the said bar, thereby permitting the flexible members 13 and 14 to maintain the bar substantially parallel to the axis of the barrel at all times. Consequently, said bar will effectively expel practically all of the air from the ink sack when the actuating lever is moved to its extreme operating position, substantially as in Fig. —4—. Then if the pen portion of the fountain pen is dipped into a supply of ink while the operating lever is in the position of Fig. —4— and the digital pressure upon the operating lever is then relaxed, the resiliency of the members 13 and 14 will quickly return the latter to their normal positions and in so doing they will carry the pressure bar 12 with them to its normal position. Thereupon the partial vacuum in the ink sack will coact with the normal resiliency thereof to gradually expand the said sack and to fill the same with ink during the said gradual distension. To further increase the effectiveness of the sack compression, I preferably make the bar 8 of such length that its ends will be housed by the annular portions 15 and 16 of the flexible guide members. To prevent the operating lever 10 from accidentally being actuated either by the hands or by contact with the clothing of the party carrying the fountain pen I preferably make the toe portion 11 of the said lever of such a shape that it will continuously engage the upper surface of the pressure bar 12, so that the resiliency of the flexible guide members 13 and 14 will continuously press the said toe portion of the lever outwardly until the finger 21 engages the recessed por-

tion 10 of the barrel, thereby forcing the actuating end 9 of the said lever to remain in an inoperative position substantially below the exposed surface of the barrel. To allow for variations in the sizes and shapes of the assembled parts, or in the relative position of the pivot 8 with respect to the compressing mechanism, the actuating member 9 is preferably made of a material permitting the curved end thereof to be bent to vary the extent to which the toe 11 enters the barrel. This permits of a simple adjustment for insuring a continuous and effective bearing of the opposite ends of the member 9 against the compression bar and the barrel respectively, so as to avoid the rattling which would ensue if this bearing were not firm at all times. I also preferably make the cooperating recesses 17 and 18 of such length that the rear end thereof will afford a stop for limiting the motion of the actuating lever, as shown in Fig. —4—. To insure a similar interlocking of the holder 2 with the barrel 1 of my fountain pen, I provide one of the members with a groove or recess normally engaged by the spring formation carried by the other of said members. Thus, in the embodiment of Figs. —3— and —6— the bore of the barrel 1 is equipped near its forward end with a tapering enlargement, which enlargement affords a socket for a spring finger 19 carried by an annular member 20 secured to the holder 2 forwardly of the open end of the sack 6. By placing the said annular member 20 in its said position upon the neck 20 of the holder 2 while the said neck is suitably softened (as by prolonged immersion in water heated close to its boiling point) and then cooling the said neck, I cause the portions of the neck adjacent to the said annular member to swell slightly, thereby forming shoulders which will effectively prevent a detachment of the annular member 20 from its said position upon the neck of the holder.

It will be evident from the drawings that by using such an auxiliary latching means, the holder of the pen will be prevented from accidental detachment from the barrel even though the usual snug fit therebetween may have been disturbed by temperature changes. It will also be evident that by making the annular ends 15 and 16 of the flexible guide members normally of diameters respectively larger and slightly smaller than the bore of the barrel, the guide members together with the pressure-bar carried thereby can readily be anchored in their normal positions with respect to the barrel and the ink sack without the use of screws or other auxiliary fastening members.

To provide a maximum of room within the barrel for the ink sack, I preferably curve both the compression bar 8 and the flexible members 13 and 14 substantially

concentric of the sack and the barrel, as shown in Fig. —7—. I also preferably equip the lever 9 with a shoulder 23 adjacent to the finger 21, which shoulder or stop will engage the end of the finger nail prying up the adjacent end of the lever 9, thereby preventing the said lever from sliding under the finger nail for a distance sufficient to injure the finger.

10 While I have shown the flexible shanks 13 and 14 of the guide members as equipped with opposed recesses coacting to form an aperture through which the actuating lever may have access to the pressure-bar, I do not wish to be limited to this or other details of the construction herein disclosed, as the same might be modified in many ways without departing from the spirit of my invention.

20 I claim as my invention:

1. In a fountain pen having a barrel, a compressible ink-sack housed thereby, a sack-collapsing bar disposed within said barrel, an actuating member mounted in the circumferential wall of the barrel and manually operable to force said bar against the sack to collapse the latter, a pair of springs secured to opposite ends of said bar and extending longitudinally thereof in opposite directions, and anchoring elements at the other ends of said springs for securing the latter within the barrel.

2. In a fountain pen having a barrel, a compressible ink-sack housed thereby, a sack-collapsing bar disposed within said barrel, an actuating member mounted in the circumferential wall of the barrel and manually operable to force said bar against the sack to collapse the latter, a pair of guide members secured to opposite ends of said bar and extending longitudinally thereof in opposite directions, and anchoring elements at the other ends of said guide members for securing the latter within the barrel, said guide members maintaining said bar in engaging relation to said actuating member and normally holding the same out of sack-collapsing position.

3. In a fountain pen having a barrel, a compressible ink sack housed thereby and a compression bar bearing against one side of the said sack longitudinally of the barrel, the combination with manually operable actuating means mounted upon the barrel for forcing the bar to compress the said sack, of guide means carried by the barrel for maintaining the said compression bar in operative position relative to the said manually operable means; the said guide means comprising a pair of annular members and a pair of spring members connecting the said annular members respectively with the ends of the said bar. the said spring members normally disposed parallel of the said bar and laterally of each other, at least one of the said

spring members having a portion thereof cut away to afford access by the said operating means to the said bar.

4. In a fountain pen having a barrel, a compressible ink sack housed thereby and a compression bar bearing against one side of the said sack longitudinally of the barrel, the combination with manually operable actuating means mounted upon the barrel for forcing the bar to compress the said sack, of guide means for maintaining the said compression bar in operative position relative to the said manually operable means; the said guide means comprising a pair of annular members and a pair of spring members connecting the said annular members respectively with the ends of the said bar, the said spring members normally disposed parallel of the said bar and laterally of each other, the said spring members equipped with opposed recessed portions coacting to afford an opening for permitting access by the said operating means to the said bar through the said opening.

5. In a fountain pen having a barrel, a compressible ink sack housed thereby and a compression bar bearing against one side of the said sack longitudinally of the barrel, the combination with manually operable means carried by the barrel, for forcing the bar to compress the said sack, of guide means for maintaining the said compression bar in operative position relative to the said manually operable means; the said guide means including a pair of spring members secured at one end respectively to the ends of the said bar, the other ends thereof equipped respectively one with means for rigidly engaging and the other with means for slidably engaging the said barrel.

6. In a fountain pen having a barrel, a compressible ink sack housed thereby and a compression bar bearing against one side of the said sack longitudinally of the barrel, the combination with manually operable actuating means mounted upon the barrel for forcing the bar to compress the said sack, of guide means carried by the barrel for maintaining the said compression bar in operative position relative to the said manually operable means; the said guide means comprising a pair of annular members and a pair of spring members connecting the said annular members respectively with the ends of the said bar, the said spring members normally disposed parallel of the said bar and laterally of each other, at least one of the said spring members equipped with a recess affording access by the said operating means to the said bar, a wall of the said recess affording a stop to limit the motion of the said operating means.

7. A fountain pen including a compressible ink sack, a barrel housing the same, a compression bar interposed therebetween, 130

and spring means carried by the barrel and connected to the said bar for maintaining the latter in its normal position; the said barrel having a portion of its bore enlarged, 5 the said spring means including a portion seated in the said enlarged portion of the bore of the barrel.

8. In a fountain pen having a barrel, a compressible ink-sack housed thereby, a 10 sack-collapsing bar disposed within said barrel, an actuating lever mounted in the circumferential wall of the barrel and manually operable to force said bar against the sack to collapse the latter, a pair of 15 springs secured to opposite ends of said bar

and extending longitudinally thereof in opposite directions on opposite sides of the point of engagement of said lever with said bar and adapted to engage the latter to prevent lateral movement of said bar relatively 20 to said lever, and anchoring elements at the other ends of said springs for securing the latter within the barrel.

In testimony whereof I have signed my name in presence of two subscribing witnesses. 25

GEORGE M. KRAKER.

Witnesses:

JNO. A. RODGERS,
OTTO AUER.