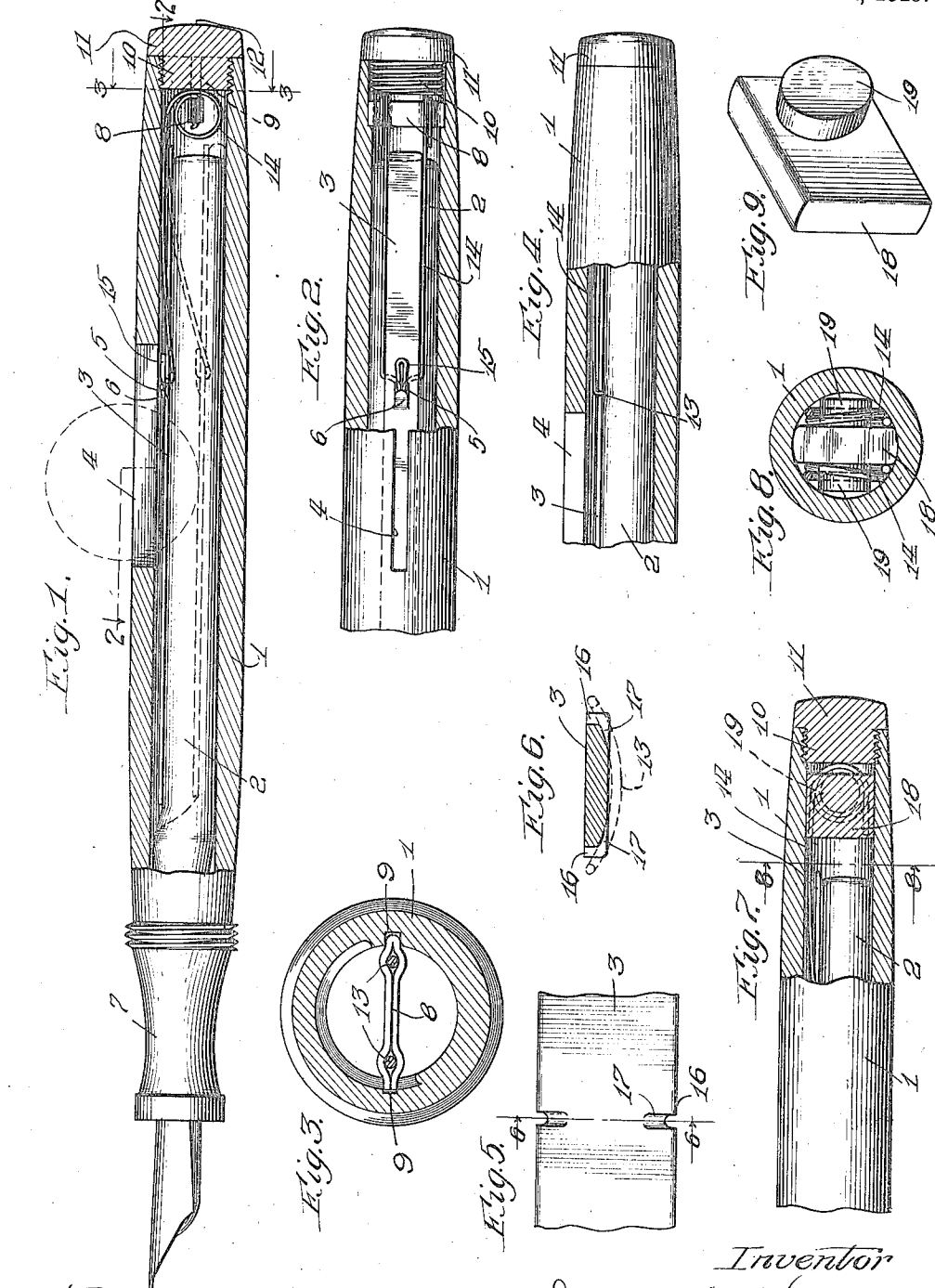


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 FOUNTAIN PEN.
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UNITED STATES PATENT OFFICE.

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FOUNTAIN-PEN.

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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 St. Joseph 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 that class of fountain pens in which a collapsible ink-sack is employed, and which is equipped with a sack-collapsing follower adapted to be actuated from the exterior of the barrel.

The particular object of the present invention is to provide a cheap and efficient spring for normally supporting the sack-collapsing follower, ordinarily termed a bar, against the inner wall of the barrel so as to permit the sack to expand fully for the purpose of filling with ink.

A further particular object of the invention is to provide a spring adapted to perform the aforesaid function which will occupy substantially no space within the fountain pen barrel which is adapted to be occupied by the ink reservoir or sack so that a sack or reservoir of maximum capacity may be inserted in the barrel.

Another object of the invention is to provide a spring of the character set forth in combination with means for anchoring the same within the barrel so that it will be held permanently in a predetermined position against movement about the axis of the barrel or longitudinal thereof whereby said spring will be enabled to maintain the sack-collapsing bar normally in a predetermined position within the barrel and opposite to a longitudinal slot in the latter through which it may be actuated from the exterior of said barrel.

Other objects of the invention will appear from the following specification.

In the accompanying drawings illustrating the preferred embodiment of the invention: Figure —1— is a view in central longitudinal section partly in elevation of a fountain pen equipped with a collapsible ink sack and sack-collapsing bar normally supported by a spring, constructed, and mount-

ed within the barrel of the pen in accordance with my invention. Fig. —2— is a fragmentary horizontal section partly in elevation on the line 2—2 of Fig. —1—. Fig. —3— is a vertical transverse section on the line 3—3 of Fig. —1—, the coils of the spring and parts connected therewith being omitted. Fig. —4— is a fragmentary detail view partly in section and partly in elevation similar to Fig. —1— showing a modified form of construction. Fig. —5— is a fragmentary detail plan view of the inner or sack side of the collapsing bar shown in Fig. —4—. Fig. —6— is a detail section on the line 6—6 of Fig. —5—, the position of the spring engaging said bar being indicated in dotted lines. Fig. —7— is a fragmentary detail view similar to Fig. —1— showing another means for securing the spring within the barrel. Fig. —8— is a detail section on the line 8—8 of Fig. —7—. Fig. —9— is a detail perspective view of the spring-fastening block shown in Figs. —7— and —8—.

In said drawings, 1 indicates the barrel of the fountain pen provided with a collapsible ink reservoir or sack of the ordinary construction, and which is equipped with a sack-collapsing follower or bar 3 adapted to be actuated by means acting through the longitudinal slot 4 in the said barrel; said means consisting of any of the usual and well-known devices commonly employed for this purpose in pens of this character. The said bar 3 is provided at a point between its ends with an opening 5 formed by cutting a U-shaped incision in said bar and forcing up the metal so removed in the shape of a tongue 6 integral with said bar and overhanging the said opening 5. At the inner end of said barrel 1 at the point farthest removed from the pen carrier 7 a cross-piece 8 is mounted, the latter being inserted from the open end of the barrel into diametrically opposed longitudinal grooves 9 in the inner wall thereof, each of said grooves being ninety degrees removed from the slot 4 in said barrel. Said grooves extend through the threads in said end of the barrel which engage the threaded shank 10 of the cap 11 mounted therein, and a short distance into the smooth bore of the barrel beyond said threads. The said cross-piece may be made in any suitable way, but preferably is made of a strip of sheet metal which is folded and

between which the ends of the spring 13 are clamped. The said spring 13 consists of a U-shaped piece of wire having parallel arms ending in the coils 14, the ends of which are secured in the said cross-piece 8, the middle portion of said spring being suitably engaged with the said bar 3. This is preferably effected by providing at the middle portion of the spring 13 a narrow tongue 15 which is bent back toward the coil end thereof to provide what may be termed a hook, the nose portion of which extends through the opening 5 in the bar and is clamped in place by forcing the tongue 6 into close engagement therewith. The said arms of said spring are separated from each other by a space slightly greater than the width of said bar 3 so as to permit the end portion of the latter lying between said arms of said spring to pass freely therebetween in moving the same to collapse the sack 2. The said bar extends from a point between the cross-piece 10 and the contiguous or closed end of the sack 2 to a point contiguous to the forward end portion of said sack which is secured to the inner end of the pen carrier 7. The said tongue 15 of the spring and the tongue 6 of the bar are disposed in radial alinement with the longitudinal slot 4 in the barrel 1 so that when the bar is in its normal outer position said parts will project into said slot, thus enabling the bar to more closely hug the inner peripheral wall of the barrel than would otherwise be the case. In Fig. —1— the bar 3 is shown in full lines moved slightly inwardly of its normal position and in dotted lines at the inner limit of its movement. The spring normally rests against the inner circumferential wall of the barrel on either side of said bar 3 and, being of substantially the same or less thickness than said bar, said spring will obviously not occupy any space within the barrel by means other than shown of being occupied by the sack or reservoir 2. The said spring may also be held in position within the barrel by means other than shown in Figs. —1— to —3— inclusive, and may also be engaged with the bar 3 in a different manner from that illustrated in said figures. Thus as shown in Figs. —5— and —6—, the bar 3 may be provided at either side at a suitable point between its ends with a recess 16 communicating with transverse grooves 17 in that face of the bar which opposes the ink sack, and the middle portion of the spring 13 may comprise a slightly arched cross portion fitting said grooves and recesses 16 and 17, thus holding the bar against longitudinal movement relatively to the spring, and being held against lateral movement relatively thereto by being embraced between the arms of said spring, as clearly indicated in Fig. —6—. Said spring may also be engaged with the bar in any other

suitable manner without departing from the invention. The coil end of the spring 13 may also be held in place by means of a plug 18 provided on its side faces with projections 19 adapted to enter the coils of the spring, and which is adapted to be inserted in the inner end of the barrel and cemented or otherwise suitably secured therein; the body portion of said plug serving to maintain the coils properly spaced apart so that the arms of the spring will be incapable of moving toward each other by pressure upon the cylindrical wall of the barrel and thus preventing the bar from becoming properly positioned against the wall of the barrel, and the projections 19 will obviously prevent the spring from moving longitudinally within the barrel. Any other suitable means for securing the spring in proper position within the barrel may be substituted for that herein shown without departing from the invention as defined in the appended claims.

I claim as my invention:

1. In a fountain pen having a barrel, and a collapsible ink-sack housed thereby, of a bar within the barrel adapted to be forced against the ink-sack to collapse the same, and a spring within the barrel normally holding said bar against the inner surface of the barrel, said spring secured at one end within the barrel and engaged at its other end with said bar, the intermediate portion of the spring disposed outwardly of the side edges of the bar.

2. In a fountain pen having a barrel, and a collapsible ink-sack housed thereby, of a bar within the barrel adapted to be forced against the ink-sack to collapse the same, and a spring within the barrel normally holding said bar against the inner surface of the barrel, said spring substantially U-shaped and secured at the ends of its arms within one end of the barrel and having its middle portion engaged with the bar, the arms of the spring permitting passage of the bar therebetween as the latter is moved to collapse the sack.

3. In a fountain pen having a barrel, and a collapsible ink-sack housed thereby, of a bar within the barrel adapted to be forced against the ink-sack to collapse the same, and a spring secured at one end within one end of the barrel and having two arms between which said bar is adapted to pass, the other end of said spring engaged with said bar to hold the latter normally in contact with the inner face of the barrel.

4. In a fountain pen having a barrel, and a collapsible ink-sack housed thereby, of a bar within the barrel adapted to be forced against the ink-sack to collapse the same, and a spring secured at one end within one end of the barrel and having two arms between which said bar is adapted to pass, the other end of said spring engaged with said

bar to hold the latter normally in contact with the inner face of the barrel, said arms of said spring adapted to normally lie in contact with said inner face of said barrel on either side of said bar.

5 5. In a fountain pen having a barrel, and a collapsible ink-sack housed thereby, of a bar within the barrel adapted to be forced against the ink-sack to collapse the same, 10 an anchor piece in one end of the barrel rigid with the same, and a spring engaged at one end with said anchor piece and at its other end with said bar, the intermediate portion of said spring comprising two arms 15 between which said bar is adapted to pass when moved to collapse said sack.

6. In a fountain pen having a barrel, and a collapsible ink-sack housed thereby, of a bar within the barrel adapted to be forced 20 against the ink-sack to collapse the same, a wire spring having parallel arms coiled at their ends and engaged with one end of the barrel, said arms spaced apart to permit the bar to be received therebetween, the middle 25 portion of said spring engaged with said bar.

7. In a fountain pen having a barrel, and a collapsible ink-sack housed thereby, of a bar within the barrel adapted to be 30 forced against the ink-sack to collapse the same, a wire spring having parallel arms

coiled at their ends and engaged with one end of the barrel, said arms spaced apart to permit the bar to be received therebetween, the middle portion of said spring secured to 35 said bar, the latter provided with an opening between its ends in which the middle portion of said spring is received to secure the same to said bar.

8. In a fountain pen having a barrel, and a collapsible ink-sack housed thereby, of a bar within the barrel adapted to be forced 40 against the ink-sack to collapse the same, a wire spring having parallel arms coiled at their ends and engaged with one end of the 45 barrel, said arms spaced apart to permit the bar to be received therebetween, the middle portion of said spring secured to said bar, the latter provided with an opening between 50 its ends in which the middle portion of said spring is received to secure the same to said bar, and a tongue on said bar engaging the portion of said spring passing through said opening to prevent disengagement thereof.

In testimony whereof I have signed my 55 name in presence of two subscribing witnesses.

GEORGE M. KRAKER.

Witnesses:

M. PERNOT,
M. SERAPER.