

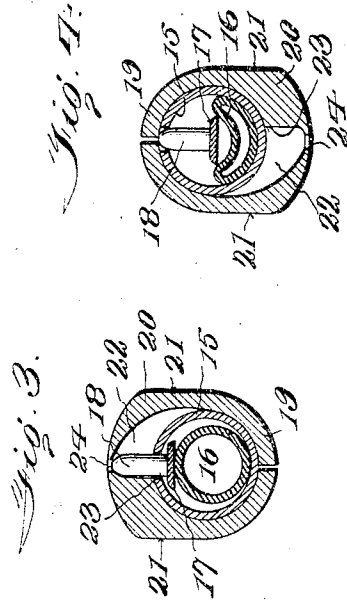
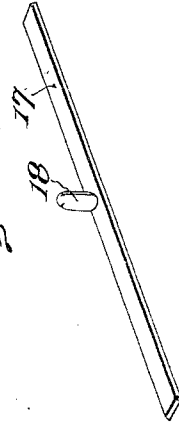
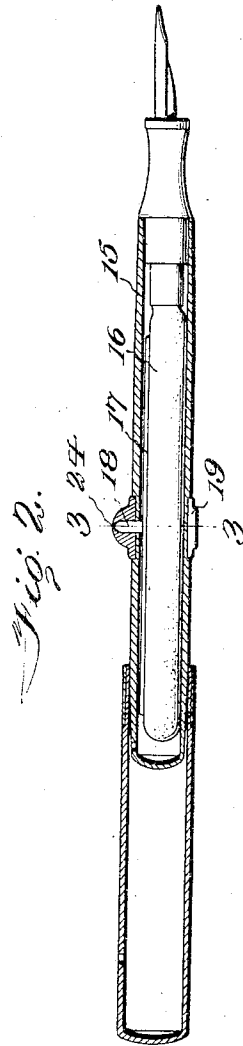
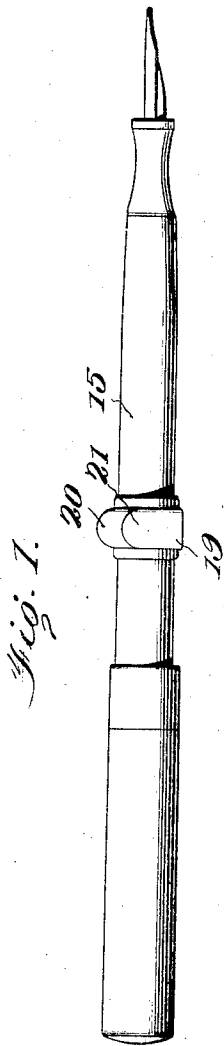
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J. L. SCHNELL.  
SELF FILLING FOUNTAIN PEN.  
APPLICATION FILED JUNE 12, 1912.

1,060,137.

Patented Apr. 29, 1913.

2 SHEETS-SHEET 1.



Witnesses

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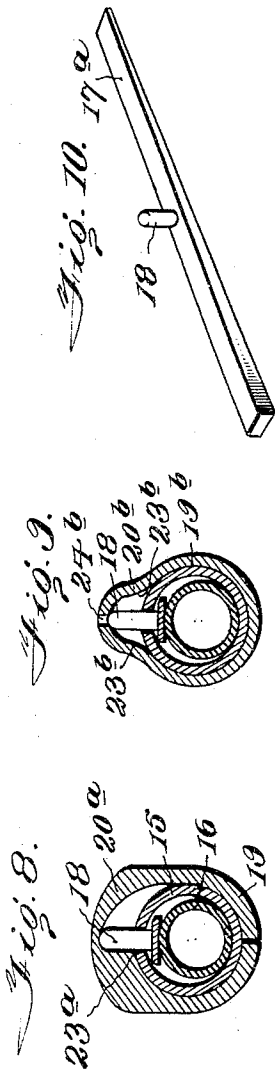
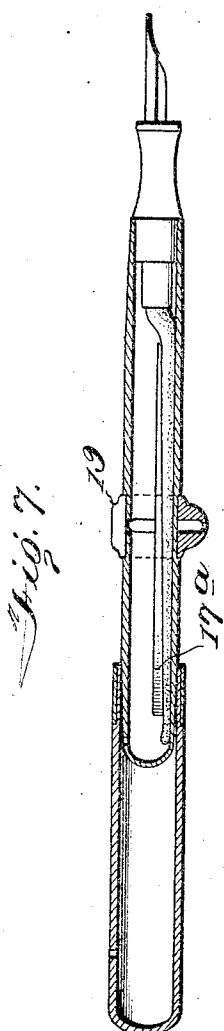
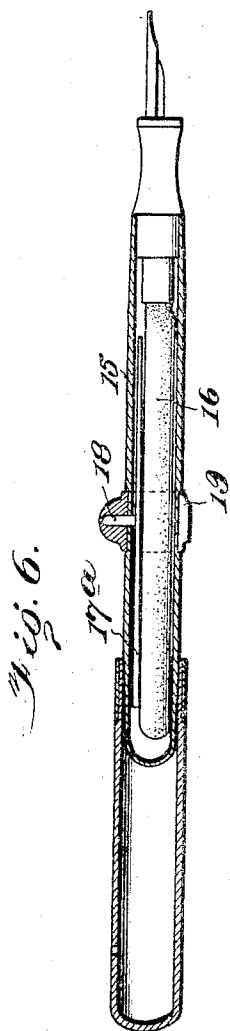
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2 SHEETS—SHEET 2.



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# UNITED STATES PATENT OFFICE.

JULIUS L. SCHNELL, OF ARLINGTON, NEW JERSEY.

## SELF-FILLING FOUNTAIN-PEN.

1,060,137.

Specification of Letters Patent.

Patented Apr. 29, 1913.

Application filed June 12, 1912. Serial No. 703,347.

*To all whom it may concern:*

Be it known that I, JULIUS L. SCHNELL, a citizen of the United States, residing at Arlington, in the county of Hudson and State of New Jersey, have invented new and useful Improvements in Self-Filling Fountain-Pens, of which the following is a specification.

This invention relates to fountain pens of the self-filler type, and has particular reference to certain improvements in pens of the character having a collapsible ink-receiving tube in the barrel adapted to draw in the ink by the expansion of the tube.

It is one of the objects of this invention to overcome this difficulty by so peculiarly forming the operative parts of the pen that they assist in positioning the pen in the hand, are not in the way of the fingers, and which are so arranged and formed that an accidental discharge of the ink is practically impossible.

In carrying out this object, the invention contemplates the use of but a single ring or collar lying snugly about the barrel and having but one slight projection or enlargement at one side, the ring being so associated with the remaining elements of the filling mechanism that the ring must be turned about the barrel to an appreciable extent before the flexible tube is compressed to expel the ink or air therefrom prior to the refilling of the pen. Further, the ring or sleeve is so peculiarly formed that it can be turned in but one direction and cannot be moved inwardly toward, or eccentric to, the barrel, so that it is practically impossible for the fingers grasping the barrel to accidentally collapse the tube and discharge the ink.

Another object of this invention is to provide a filling mechanism which is automatic in releasing the flexible tube irrespective of the slow or quick turning of the ring. It has been found that the most desirable results obtained in filling collapsible tubes of this nature is in releasing them suddenly and permitting their sudden expansion whereby the tubes are more completely filled than by allowing them to expand slowly. The ring of this invention is provided with novel means for suddenly releasing the tube after the ring has completed a predetermined turning movement, even if the ring is slowly turned.

A further feature of this invention is in providing a visual indication of the com-

pletion of the predetermined turning movement of the ring, or when the tube is released.

The invention also embraces a novel means for insuring the expulsion of the air or other fluid from the tube when the ring is turned.

Other objects and advantages of this invention will be more particularly pointed out in the following specification of the embodiment of the invention illustrated in the accompanying drawings.

In the drawings: Figure 1 is a side elevation of the improved self-filling fountain pen. Fig. 2 is a longitudinal section through the same. Fig. 3 is a transverse section on the line 3—3 of Fig. 2. Fig. 4 is a similar view showing the parts adjusted to collapse the flexible tube preparatory to filling the pen. Fig. 5 is a detail perspective view of the presser bar employed. Fig. 6 is a longitudinal section through the pen showing in normal position the operative parts and a modified form of the presser bar. Fig. 7 is a similar view disclosing the parts moved into the position to collapse the tube. Fig. 8 is a transverse section similar to Fig. 3 disclosing a slight modification in the operating ring. Fig. 9 is a similar view disclosing a further modified form of the operating ring. Fig. 10 is a detail perspective view of the modified form of presser bar disclosed in Figs. 6 and 7.

Referring to the drawings, in which similar characters of reference indicate like parts throughout the several views, 15 designates the barrel of the pen provided with the pen section, pen point and cap in the usual manner. Within the barrel 15 is located a flexible tube 16 having suitable connection with the pen section and adapted to receive the ink carried by the pen. Within the barrel 15, and at one side is located a longitudinal presser bar 17 lying against the tube 16 throughout practically its entire length and having intermediate its ends an outwardly extending pin 18. The barrel 15 is provided at one side with a small opening through which extends, and through which is adapted to slide, the pin 18 in moving the presser bar 17 against and away from the collapsible tube 16.

The barrel 15 has an annular depression or groove in its outer surface intermediate its ends, through which the pin 18 projects at one side of the barrel, the annular groove of the barrel receiving a closely fitting ring

19 lying substantially flat against the barrel. The ring 19, as may be best seen from Figs. 3 and 4, is provided at one side with an enlargement or projection 20 presenting opposed flat faces 21 for a purpose hereinafter pointed out. Within the enlargement 20, and at one side of the same, is formed a groove 22 of a width sufficient to receive the pin 18 and having an inclined wall eccentric to the axis of the ring 19 and serving as a cam for operation against the outer end of the pin 18 to move the pin through the side of the barrel 15 when the sleeve is rotated. The projection 20 is provided at its opposite side with an abrupt or sharp shoulder 23 adapted to suddenly release the pin 18 after the same has been compressed against the inner wall of the sleeve 19 when the sleeve is moved into normal position, as disclosed in Fig. 3. Normally the pin 18 is extended and rests in the outer removed end of the groove 22, and for the purpose of giving a visual indication of such position of the pin 18, the projection 20 is provided with a small opening 24 through which may be readily seen the outer end of the pin 18, the opening 24 registering with the outer end of the groove 22.

In Figs. 6, 7 and 10 there is disclosed a slight modification in the form of presser bar. From Fig. 10 it will be seen that the presser bar 17<sup>a</sup> is enlarged at its inner end, and is given substantially wedge shape so that the lower surface of the presser bar 17<sup>a</sup> is inclined toward the tube at its inner end. It is not necessary that this presser bar be of solid construction as disclosed in the drawings, but it may be formed in any suitable manner with an inclined face for performing the functions ascribed to this particular presser bar. When the presser bar 17<sup>a</sup> is in normal position, as disclosed in Fig. 6, the upper end thereof is in contact with the tube 16, while the lower end of the presser bar is removed slightly from the tube. When the presser bar is moved inwardly by the ring 19 the upper end of the tube is first compressed and the fluid is expelled from that end prior to the compression of the lower end of the tube. Since the face is inclined the tube is compressed from its upper to its lower end gradually, thus insuring the complete expulsion of the air or other fluid in the tube.

In Fig. 8 of the drawing is disclosed a slightly modified form of projection 20<sup>a</sup> upon the sleeve 19 wherein the indicator opening 24 is done away with, and the expansion of the tube is determined by the sound produced in the snapping of the pin from the shoulder 23<sup>a</sup>, and the difference in pressure necessary to turn the sleeve 19 about the barrel 15.

In Fig. 9 there is disclosed a sleeve 19<sup>b</sup> having a tapering round projection 20<sup>b</sup>

adapted to receive the outer end of the pin 18. The projection 20<sup>b</sup> is provided with opposed shoulders 23<sup>b</sup> against which the pin 18 is adapted to move when the ring 19<sup>b</sup> is turned to compress or release the pin. The outer end or top of the projection 20<sup>b</sup> is provided with an indicator opening 24<sup>b</sup> through which may be seen the upper end of the pin 18 when the same is extended, or in normal position.

When it is desired to fill the pen, the barrel is grasped in one hand and the ring 19 is grasped in the opposite hand. The flat sides 21 provide gripping surfaces for the fingers in holding and turning the sleeve 19. The sleeve 19 is rotated to move the shoulder 23 away from the pin 18 whereupon the cam wall of the groove 22 is moved against the end of the pin 18 and effects the gradual depression of the pin into the barrel 15. As the pin 18 is moved inwardly the presser bar 17 is forced against the flexible tube 16 and collapses the same, expelling the air or other fluid from the tube. The pen section is now inserted into a quantity of ink, and the sleeve 19 is further rotated in the same direction until the end of the pin 18 passes the shoulder 23. The pin 18 is now suddenly released from the shoulder 23 and springs outwardly under the pressure of the tube 16 into the outer end of the groove 22. This sudden releasing of the pin 18 admits of the sudden expansion of the tube 16 whereupon the ink is drawn through the pen section and up into the flexible tube, nearly filling the same. As soon as the pin 18 is released from the shoulder 23 it snaps up into the outer end of the groove 22 and may be seen through the indicator opening 24. When the pin is thus seen at this opening, the user understands that the tube 16 is expanded and that the pen is filled.

If desired, the indicator opening 24 may be done away with, as is disclosed in the structure of Fig. 8. The snapping of the pin into normal position when released from the shoulder 23<sup>a</sup> in this case is deemed sufficient to give notice that the tube is expanded to its fullest extent.

In the modification shown in Fig. 9, the projection 20<sup>b</sup> of the ring 19<sup>b</sup> is provided with a pair of shoulders 23<sup>b</sup>, both of which are somewhat gradual, and which admit of the turning of the sleeve 19<sup>b</sup> in either direction. When the pin 18 is extended outwardly from the barrel in normal position, such position may be readily ascertained by observing the point of the pin 18 against or at the inner end of the opening 24<sup>b</sup>.

The modification of the presser bar is disclosed in Figs. 6, 7 and 10, the latter figure showing in detail the structure of the presser bar 17<sup>a</sup> which has an inclined face whereby one end of the presser bar comes into contact with the side of the tube before its opposite

end, and wherein the tube is flattened gradually from its inner end to its outer end. The presser bar 17<sup>a</sup> is held with its outer face in parallelism with the side of the barrel 15 by the pin 18, the latter being guided in its movement from wobbling or canting in the groove 22 of the projection 20 which is carried upon the closely fitting sleeve or ring 19. When the pin 18 is moved inwardly from the groove 22 the frictional contact between the inclined face of the presser bar 17<sup>a</sup> and the side of the tube prevents the presser bar 17<sup>a</sup> from slipping or canting. It is thus seen that during the entire movement of the presser bar 17<sup>a</sup> its inner face is presented at all times at an inclination to the axis of the tube 16, and that the air in the tube is driven from end to end in the tube as the latter is collapsed. As the presser bar 17<sup>a</sup> is moved inwardly by the turning of the sleeve 19 the frictional contact between the presser bar 17<sup>a</sup> and the adjacent side of the collapsible tube 16 increases. Since the presser bar 17<sup>a</sup> compresses the entire tube 16 against the opposite side of the barrel 15 the adjacent side of the tube 16 is stretched and exerts a slight downward pull upon the presser bar 17<sup>a</sup>, or a pull in the direction of the open end of the barrel 15. This pull or pressure of the tube 16 tends to draw the upper enlarged end of the presser bar 17<sup>a</sup> toward the opposite side of the barrel 15 against the tube 16. This action insures the collapsing of the upper end of the tube 16 prior to the collapsing of the lower end of the tube even when a presser bar of uniform thickness, such as shown at 17 in Fig. 5, the enlargement of the presser bar, as shown at 17<sup>a</sup> in Fig. 10, further insuring the prior collapsing of the upper end of the tube 16. It is thus seen that when the pin 18 carried by the presser bar is moved inwardly from the slot and groove in the sleeve 19, the frictional contact between the tube 16 and the presser bar 17 or 17<sup>a</sup> is sufficient to hold the presser bar in its true position. This peculiar arrangement or form of the face of the presser bar provides for means whereby the tube is completely exhausted of air or other fluid, and wherein the fluid cannot be trapped in the upper end of the tube.

The projection upon one side of the sleeve 19 having the flat sides 21 serves as a rest or means for preventing the rolling of the pen barrel when the pen is placed upon a smooth surface which is slightly inclined. Thus the projection acts as a stop to prevent the pen from rolling from desks, tables or the like which would result in the falling of the pen and the probable injury thereto.

It will be understood that various slight modifications may be made in the structure herein disclosed within the scope of the following claims.

What I claim is:

1. In a self-filling fountain pen, a barrel, a flexible tube arranged in the barrel for receiving ink, a presser bar engaging one side of the tube and having an intermediate pin projecting out through the barrel, said presser bar having an inclined inner face for engagement with said tube whereby to collapse the tube gradually from end to end, and a rotatable ring snugly fitting about the barrel over the pin and having a projection at one side with an inclined groove, the wall of which is adapted to engage said pin to retract the same.

2. A self-filling fountain pen comprising a barrel, a collapsible tube in the barrel, a presser bar in the barrel against one side of the tube, a pin outstanding from the presser bar engaging through one side of the barrel, and a ring surrounding the barrel and engaging over the pin, said ring having a lateral projection provided with an inclined groove receiving the outer end of the pin, said projection also having an abrupt shoulder arranged oppositely to the groove whereby said ring is held from rotation in a reverse direction.

3. In a self-filling fountain pen the combination with a barrel, and a collapsible tube within the barrel, of a presser bar within the barrel engaging one side of the tube, said presser bar having an inclined inner side engaging with the tube and a pin intermediate its ends projecting through one side of the barrel, and a movable member upon the barrel engaging said pin whereby to retract the pin and collapse the tube.

4. In a self-filling fountain pen the combination with a barrel, a flexible tube within the barrel and compressing means for the tube including a retractable member projecting laterally from the barrel, of a movable member arranged in the path of the retractable member and having an inclined surface adapted to bear against the retractable member to depress the same, the movable member also having an abrupt shoulder opposite to the inclined surface adapted to release the retractable member suddenly and to prevent the reverse movement of the movable member.

5. A self-filling fountain pen comprising a barrel, a flexible tube in the barrel, collapsing means in the barrel for the tube including a pin projecting outwardly through one side of the barrel, a ring rotatable on the barrel and having at one side a lateral projection for the reception of the outer end of said pin, said projection having an inclined groove providing a cam wall engaging the outer end of the pin and adapted to retract the same upon the rotation of the ring, said projection also having an abrupt shoulder arranged oppositely to the groove

and adapted to engage said pin and prevent the rotation of the ring in a reverse direction.

6. A fountain pen comprising a barrel, a flexible tube in the barrel adapted to receive ink, collapsing means for the tube located in the barrel and including a pin projecting outwardly through one side of the barrel, a rotatably mounted ring surrounding the barrel and having a projection adapted to receive the outer end of said pin, said projection having an inclined wall adapted to work against the end of said pin upon the rotation of the ring, and a

shoulder arranged opposite to the inclined wall adapted to prevent the rotation of the ring in a reverse direction and to release said pin abruptly upon the complete turning of the ring, said projection also having an indicator opening registering with the outer end of the pin when extended.

In testimony whereof I have hereunto set my hand in presence of two subscribing witnesses.

JULIUS L. SCHNELL.

Witnesses:

J. B. ALLEN GARTLE,  
OTTO W. FLEDNER.