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A. SIMONI

1,784,078

DEVICE FOR AUTOMATICALLY-FILLING FOUNTAIN PENS

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Fig. 1

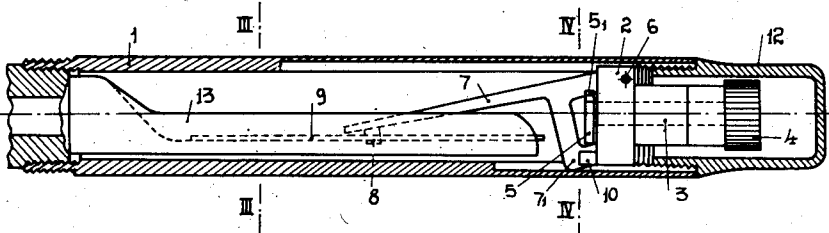


Fig. 2

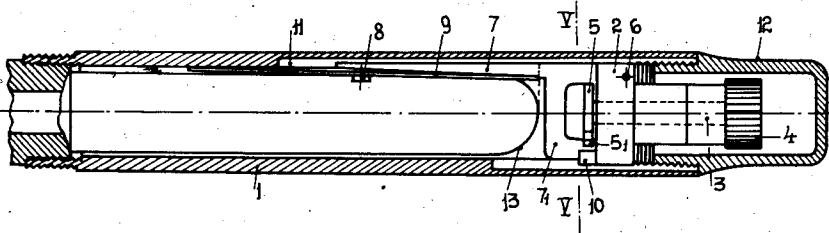


Fig. 3

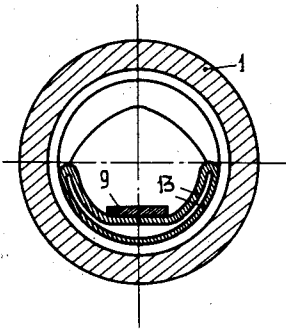


Fig. 4

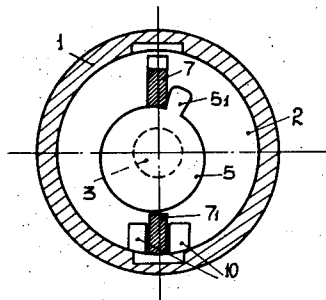
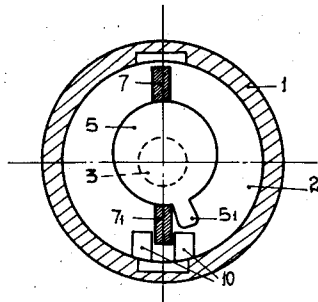


Fig. 5



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UNITED STATES PATENT OFFICE

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DEVICE FOR AUTOMATICALLY FILLING FOUNTAIN PENS

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The invention relates to operating mechanisms for compressing sacs in fountain pens whereby upon release of the sacs, ink will be sucked therein, and has for its object to provide a device of this character wherein a pivoted lever is oscillated by a rotatable eccentric for forcing a presser bar against the side of the sac and away from the sac.

A further object is to provide a fountain pen sac operating mechanism comprising a plug mounted in the end of the barrel of the pen, and having a presser bar lever pivoted to one side thereof and a yoke adjacent the pivoted end of the lever, and with which yoke a rotatable eccentric cooperates for oscillating the lever for compressing or releasing the sac.

A further object is to provide the eccentric with a lug cooperating with the arms of the yoke for limiting the rotation of the eccentric and the presser bar at its extreme positions.

A further object is to provide a longitudinal channel in the inner wall of the barrel in a position to receive the lever when in outer position, thereby allowing full expansion of the sac in the chamber of the barrel.

A further object is to provide the eccentric with a shaft rotatably mounted in the plug, and terminating in a knob, which knob may be easily reached for operating purposes by the removal of a cap threaded in the barrel.

With the above and other objects in view the invention resides in the combination and arrangement of parts as hereinafter set forth, shown in the drawing, described and claimed, it being understood that changes in the precise embodiment of the invention may be made within the scope of the claims without departing from the spirit of the invention.

In the drawing:—

Figure 1 is a vertical longitudinal sectional view through the pen barrel showing the sac operating device in operated position.

Figure 2 is a vertical longitudinal sectional view through the pen barrel, show-

ing the sac operating device in inoperative position.

Figure 3 is a vertical transverse sectional view taken on line III—III of Figure 1.

Figure 4 is a vertical transverse sectional view taken on line IV—IV of Figure 1.

Figure 5 is a vertical transverse sectional view taken on line V—V of Figure 2.

Referring to the drawing, the numeral 1 designates the barrel of a conventional form of fountain pen, and disposed in one end thereof is a plug 2, which may be held in any suitable manner. Rotatably mounted in the plug 2 is a shaft 3, the rear end of which terminates in a knob 4 adapted to be grasped by the operator for rotating the shaft 3 in the plug 2. The inner end of shaft 3 is provided with an eccentric 5, which when rotated, oscillates on its pivotal point 6, the presser bar lever 7, as clearly shown in Figures 1 and 2. Loosely connected at 8 to the free end of presser bar lever 7 is a presser bar 9, which presser bar 9 maintains a substantially longitudinal position in relation to the axis of the barrel during the oscillation of the lever 7.

Extending downwardly from the lever 7 is an angularly shaped arm 7', which in connection with a portion of the lever 7 forms a yoke arching the eccentric 5 and therefore it will be seen that as the eccentric 5 is rotated, it will cooperate with the lever 7 and the arm 7' for oscillating the lever 7 and forcing the presser bar inwardly or outwardly in relation to the axis of the barrel of the pen. Arm 7' is guided during the oscillation of the lever by the spaced lugs 10 carried by the plug 2, and disposed on opposite sides of the arm 7'. When the lever 7 is in its extreme outer position as shown in Figure 2, it is received in the longitudinal channel 11 in the inner periphery of the barrel where it will not interfere with or reduce the size of the chamber of the barrel, the purpose of which will presently appear. Threaded on the outer end of the barrel 1 is a cap 12, which may be easily removed for allowing access to the knob 4, and disposed within the barrel 1 is a compressible rubber sac 13, which may be of conventional structure.

In operation the operator removes the cap 12, grips the knob 4, rotates the same, which will impart a rotation to the eccentric 5 from the positions shown in Figures 2 and 5 to the position shown in Figures 1 and 4. The operator continues the rotation until the lug 5' engages the side of the lever 7, as shown in Figures 1 and 4, and which operation will force the lever 7 inwardly and the presser bar 9 towards the opposite sides of the barrel, thereby compressing the ink sac 13. The pen is placed with its end submerged in ink, and the operator reverses the direction of rotation of the eccentric, which will cooperate with the lever 7, and move the presser bar outwardly thereby allowing ink to be sucked into the sac when the sac expands. When the lever 7 is in its inoperative position, it is received in the channel 11 and therefore it will be seen that the sac can extend to its full diameter in the chamber of the barrel.

From the above it will be seen that an operating device is provided for fountain pens of the sac type, which is controlled by a rotatable eccentric cooperating with an oscillating lever, thereby making the operating device compact, positive in its operation and simple in construction.

The invention having been set forth what is claimed as new and useful is:

1. A fountain pen operating mechanism comprising a barrel, a collapsible sac disposed in said barrel, said mechanism comprising a plug in the barrel, a rotatable shaft in said plug, a presser bar lever pivoted to the plug and overlying the sac, a presser bar carried by said lever and engaging the sac, an L-shaped arm carried by the lever thereby forming an eccentric receiving recess, an eccentric carried by the shaft within the recess, said eccentric forming means when rotated for oscillating the presser bar lever.

2. An operating device for filling fountain pen sacs, said device comprising a barrel, a sac disposed in said barrel, a plug mounted in the barrel spaced from one end of the sac, a presser bar lever pivoted to the plug and overlying one side of the sac, a presser bar carried by said lever and engaging the sac, an eccentric rotatably mounted and carried by the plug and a yoke carried by the presser bar lever and arching the eccentric and forming means whereby upon rotation of the eccentric the presser bar lever will be forced towards and away from the sac.

3. An operating device for filling fountain pen sacs, a barrel in which the sac is disposed, said device comprising a plug disposed within the barrel adjacent the sac, a lever pivoted to said plug adjacent one side thereof and overlying the sac, a presser bar carried by said lever and adapted to engage and collapse the sac upon movement of the lever in one direction, a rotatable eccentric

carried by the plug, a yoke carried by the lever and arching the eccentric and with opposite sides of which the eccentric cooperates for oscillating the lever upon rotation of the eccentric and a stop carried by said eccentric and cooperating with the yoke for limiting the movement of the lever in its extreme position.

4. An operating device for filling fountain pen sacs, a pen barrel, said device comprising a plug disposed in the barrel adjacent the sac, a pivoted lever carried by the plug and overlying the sac, means for oscillating said lever, said means comprising an eccentric rotatably mounted on the plug, a yoke carried by the lever, said yoke arching the outer side of the eccentric and opposite edges of the eccentric and means whereby said eccentric may be rotated.

5. An operating device for filling fountain pen sacs, a pen barrel, said device comprising a plug disposed in the barrel, spaced from one end of the sac, a pivoted lever carried by the plug adjacent one side thereof and overlying the sac, a rotatable eccentric carried by the plug, a yoke arching the eccentric, said eccentric cooperating with opposite sides of the yoke whereby upon rotation of the eccentric the lever will be oscillated according to the direction of rotation of the eccentric, and a stop carried by the eccentric and cooperating with opposite sides of the yoke for limiting the oscillation of the yoke in either direction.

In testimony that I claim the foregoing as my invention, I have signed my name.

ARMANDO SIMONI.