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PATENT



SPECIFICATION

Application Date, July 5, 1918. No. 11,075/18.

Complete Accepted, July 7, 1919.

COMPLETE SPECIFICATION.

Improvements in and relating to Self-filling Fountain Pens.

I, EDWARD CHARLES ROBERT MARKS, of 57 & 58, Lincoln's Inn Fields, London, W.C. 2, Consulting Engineer, do hereby declare the nature of this invention (a communication to me from abroad by The Conklin Pen Manufacturing Company, a corporation of the State of Ohio, of Toledo, Ohio, United States of America, Manufacturers), and in what manner the same is to be performed, to be particularly described and ascertained in and by the following statement:—

This invention relates to that type of fountain-pen in which the ink reservoir comprises a flexible tube which is compressed to exclude the air and is permitted to expand and draw in a supply of ink, and the invention relates more particularly to the actuating lever for the reservoir compressor.

The object of the invention is to provide a simply constructed and efficient operating lever for the compressor bar of a fountain-pen, which, when in closed position, will be securely locked against accidental opening and the consequent depression of the compressor bar.

With the above and other objects in view, the invention consists of certain novel features of construction and combination hereinafter more fully described and claimed.

In the accompanying drawings:—

Figure 1 represents a plan view of a fountain-pen equipped with this improvement;

Fig. 2 is a longitudinal section thereof showing the compressor bar actuating lever in closed locked position;

Fig. 3 is a similar view, showing the tongue of said lever in the act of being depressed to disengage the free end thereof from the forward end of the slot;

Fig. 4 is a similar view showing the lever in the position it assumes after said tongue has been disengaged from the wall of the slot, said lever being tilted for compressing the reservoir;

Fig. 5 is a similar view showing the lever in raised position which it assumes when the reservoir has been compressed;

Fig. 6 is a similar view showing the lever in the position which it assumes during the closing movement and just prior to the engagement of the front end of the tongue with the front end of the slot, said tongue being bent for this purpose.

Fig. 7 is a transverse section taken on the line 7—7 of Fig. 2;

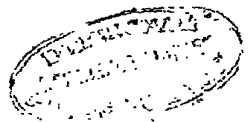
Fig. 8 is a similar view taken on the line 8—8 of Fig. 2;

Fig. 9 is a detail perspective view of the compressor bar showing this improved actuating lever connected therewith;

Fig. 10 is a detail transverse section showing a slightly modified form in which a wearing plate is placed in the front end of the slot.

In the embodiment of the invention illustrated in the drawings, 1 denotes the

[Price 6d.]



usual barrel or casing, 2 the pen point holding member, and 3 the ink reservoir usually in the form of an elastic rubber tube or bag. The latter is compressed by any suitable compressing member 4, which is actuated by a lever 5. While any suitable form of compressing device may be used in carrying out my invention, the form here shown consists of a bar or plate extending longitudinally 5 alongside of the ink reservoir within the casing and having a suitable loose pivotal connection with the operating lever, whereby when the latter is moved to operative position, the compressor bar will uniformly compress the reservoir substantially from end to end; and when the lever is moved to its closed or normal position, the compressor bar will be lifted off of the elastic ink reservoir and held in 10 retracted position so that the reservoir will be free to suck in ink in the filling operation.

The operation of the compressor bar 4 is effected by means of a member 6 entering through a longitudinal slot 7 formed in the casing, said member 6 being preferably formed integrally with the lever 5. The said lever 5 may be 15 varied in form and is fulcrumed, on an axis which does not lie in the same plane as the member 6, in any suitable manner to the casing, so that it has a free end to move toward and from the casing.

My invention contemplates a locking arrangement between the end of the member 6 and the end wall of the slot 7 whereby the lever, when in closed position, will be retained and locked in such position against casual movement which would result in the discharge of ink from the pen point when that is not desired. In the specific embodiment of the lever and its locking mechanism illustrated 20 in the accompanying drawings, the resilient locking member 6 is shown in the form of an arm or tongue carried by and preferably forming an integral portion 25 of the body part of the lever and adapted for interlocking engagement with the front flat end wall 8 of the slot. In this specific embodiment, I have also shown the main portion of the lever of U-shape and it is also preferably but not necessarily made crescent shape to give it strength and to add to its ornamental qualities. When made in this manner, it closely hugs the curved exterior of the 30 cylindrical casing or barrel 1 when the lever is in its closed position shown at Fig. 1. It is to be noted that the main portion or body of the lever is U-shaped when viewed from the top as in Fig. 1 and it is also curved transversely so that it is U-shaped when viewed from the end as in Fig. 8. When viewed in side elevation as in Fig. 5, the lever body with its tongue or extension 6 is substantially V-shaped and this construction enables more effective spring action to be 35 obtained than would be the case if the pivotal axis of the lever was closer to the longitudinal axis of the tongue 6.

The pivotal mounting of the tapered and curved ends 9 of the lever is preferably effected by forming their extremities with intumed pivots 10 to be sprung 40 into holes 11 drilled at suitable points, preferably at diametrically opposite points in the casing, 1 in rear of the front end of the slot, the common axis of the said holes not lying in the same plane as the locking member. When the locking member or tongue 6 is made of sheet metal and integral with the body portion of the lever, it is channeled in cross section as shown in Fig. 8 to give 45 it strength and it projects from the center of the concaved edge of the crescent-shaped body. When the lever is in closed position, the locking member or tongue 6 is disposed substantially within the slot 7 and its free end is entirely within said slot so that there is no likelihood of said end being caught upon the clothing or being casually depressed. The distance between the pivotal axis 50 of the lever and the top corner of the end of the resilient tongue 6 is slightly greater than the distance between such axis and the bottom corner of the end wall 8 of the slot 7 so that on pressing down part 5 of the lever into contact with the body of the pen, the resilient tongue 6 will contact with the bottom corner of the end wall 8 of the slot 7 and be bent longitudinally and will then spring 55 into the slot 7 with the end thereof engaging the wall 8 of said slot, thus effectively locking the lever in its closed position. To permit the lever to be

unlocked, the upper surface of the free end of the tongue 6 is formed with a finger-nail receiving notch 12 so that said end may be readily sprung downwardly to disengage it from and cause it to move out of the slot and into the casing to the position shown in Fig. 4.

5 The loose connection between the lever and the compressor bar 4 is here shown in the form of a link or hook and eye connection and is detachable to permit the parts to be assembled as hereinafter explained. This connection is arranged at a slight distance from the extremity of the tongue 6 and is preferably effected by forming short integral arms on opposite edges of the tongue and bending
10 them downwardly and inwardly into engagement as shown in Fig. 7 to form an eye or loop 13. The latter is engaged by a hook or hook-shaped end 14 of a spring strip or plate 15 riveted or otherwise suitably secured at its opposite end as at 16 to the compressor bar 4. This connection is also preferably arranged
15 midway the length of the bar 4 so that the pressure which it exerts on the ink reservoir will be substantially uniform throughout its length.

The end wall 8 of the slot 7 may be provided with a metallic wear plate 17 which as shown in Fig. 10, is U-shape and made of resilient metal with a thickened portion or enlargement 18 at one end to spring into a suitable depression in the casing 1, whereby the wear plate will be retained in position.

20 In assembling the parts, a suitable instrument is inserted under the resilient hook 14 to hold its end off of the bar 4 and the bar is then inserted in the open end of the pen casing. The member or tongue 6 of the lever is then inserted through the slot 7 so that its eye 13 may be engaged with the hook 14, whereupon the instrument is removed to permit said bar 4 to spring to its closed position, thereby loosely linking or connecting the compressor to the lever. When
25 this has been done, the pivots 10 may be sprung into the openings or sockets 11.

In the operation of this device, when the parts are in the position shown in Figs. 1 and 2 and it is desired to depress the lever for compressing the reservoir 3, pressure must be exerted on the free end of the tongue of said lever which
30 will cause said lever to bend into the position shown in Fig. 3 and thus permit the free end to be sprung out of engagement with the front end of the wall of the slot 7 into the position shown in Fig. 4 and the rear end of the lever may then be readily raised by inserting the finger-nail under the rear portion thereof and turning it on its pivots into the position shown in Fig. 5, whereby the
35 reservoir may be compressed for forcing out air and ink contained therein in the usual manner. After this has been accomplished and it is desired to close the lever to raise the compressor bar and permit the expansion of the reservoir, pressure is exerted on the rear end of said lever to force it downwardly and to raise the tongue 6 thereof into normal locking position. When the free end of said
40 tongue engages the lower edge of the front wall of the slot 7, said lever is bent longitudinally into the position shown in Fig. 6, owing to the fact that the distance between the pivotal axis of the lever and the top corner of the free end of the tongue is longer than the distance from the bottom corner of the front wall of the slot 7 to said axis or fulcrum of the lever with the casing. When said
45 end, owing to the longitudinal bending of said tongue, passes beyond the wall 8 of the slot the tongue will spring up into the slot owing to the resiliency of the material with which it is composed, and the free end of the tongue, abutting against the front wall of the slot as shown in Fig. 2, will reliably lock said lever in closed position and prevent all possibility of its being again opened until
50 sufficient pressure is exerted on the free end of the tongue to force it into the casing out of engagement with the front wall of the slot. When said lever is locked in this position, it will be obvious that the compressor bar connected therewith will be raised into close engagement with the casing 1 and held securely thereagainst and thus all danger of the reservoir being accidentally
55 compressed is avoided.

Having now particularly described and ascertained the nature of my said

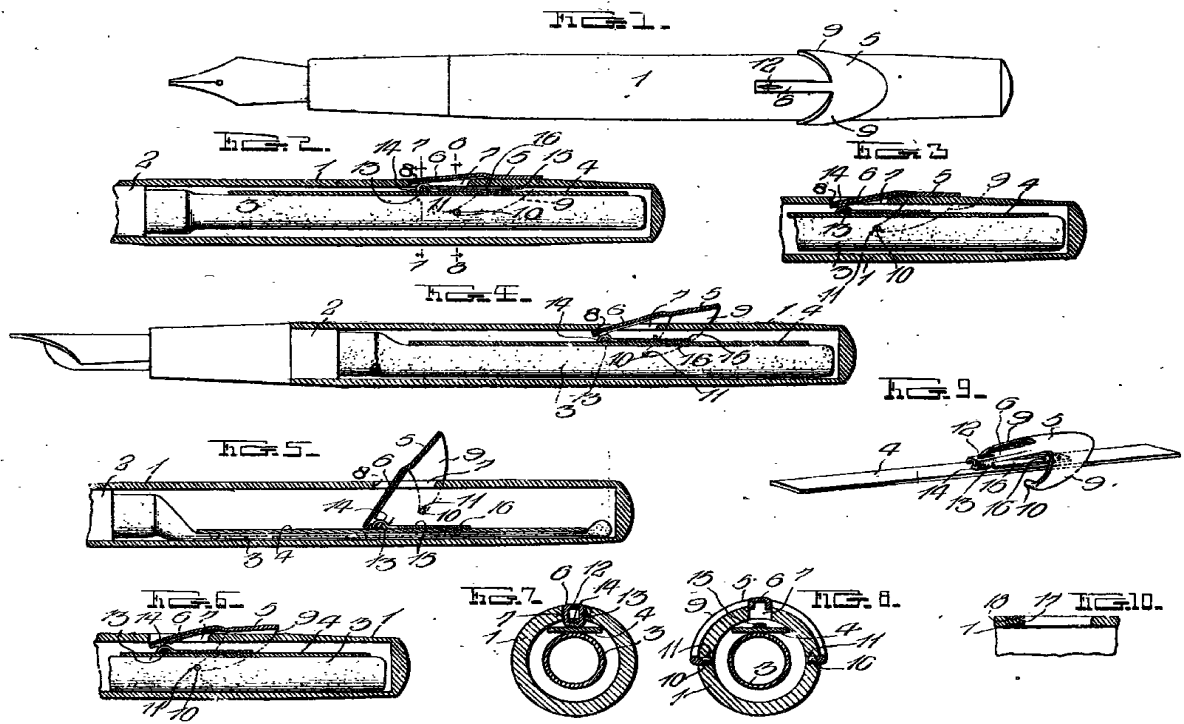
invention and in what manner the same is to be performed, I declare that what I claim is:—

1. A self filling fountain pen of the type hereinbefore referred to wherein the compressor bar actuating lever is provided with a resilient locking member and the fulcrum of said operating lever is so arranged that the distance between it and the front wall of the slot through which the locking member is made to project is less than the distance between said fulcrum and the end of the locking member whereby, when the movement of said lever is commencing or ending, a slight longitudinal deformation of the locking member is necessary to open or close the lever, thereby causing a positive locking or latching action. 5
2. A self filling fountain pen according to Claim 1 wherein the resilient locking member carried by the lever is disposed in the slot in the casing when the lever is closed, the free end of such lever acting as a locking member and springing into engagement with the flat end wall of the slot. 10
3. A self filling fountain pen according to Claim 1 or 2 wherein the pivotal axis of the actuating lever does not lie in the same plane as the locking member. 15
4. A self filling fountain pen as claimed in any of the preceding claims wherein the lever is substantially U-shaped to conform to the curvature of the casing with the ends of its arms fulcrummed on said casing, preferably at diametrically opposed points, and the locking member extends from the intermediate part of the lever which is movable toward and from the casing. 20
5. A self filling fountain pen according to any of the foregoing claims wherein the lever is of substantially V-shape when viewed in side elevation, said lever having one of its extremities fulcrummed to the casing and its other extremity forming a resilient tongue co-acting with the casing to lock the lever in closed position. 25
6. A self filling fountain pen according to any of the preceding claims wherein the compressor bar is disposed in the casing between the wall thereof and an elastic reservoir and the lever has a loose, or detachable, connection with said bar intermediate the ends thereof. 30
7. A self-filling fountain pen as claimed in Claim 6, wherein a hook is provided on the compressor bar and the end of the locking member is provided with an eye adapted to co-act with said hook to form said loose, or detachable, connection said hook preferably being formed at the free end of a spring strip secured at its other end to the bar. 35
8. A self filling fountain pen, according to any of the preceding claims wherein the pivotal axis of the compressor bar actuating lever intersects the longitudinal axis of the casing.
9. A self filling fountain pen, according to any of the preceding claims wherein the end of the lever, or locking member thereon, when the lever is in inoperative position, has an end thrust contact with a wall of the opening in the casing, to prevent movement of the lever from inoperative position until said end thereof has been moved inwardly out of such contact with the opening wall. 40
10. A self filling fountain pen, according to any of the preceding claims wherein the compressor bar actuating lever comprises a U-shaped member having a tongue extending at substantially right angles from the intermediate part thereof, the ends of said member being bent laterally toward each other, or otherwise provided with pivots, and said member preferably being of crescent shape in plan. 45
11. The self filling fountain pen, and the compressor bar actuating lever therefor substantially as described with reference to the accompanying drawings. 50

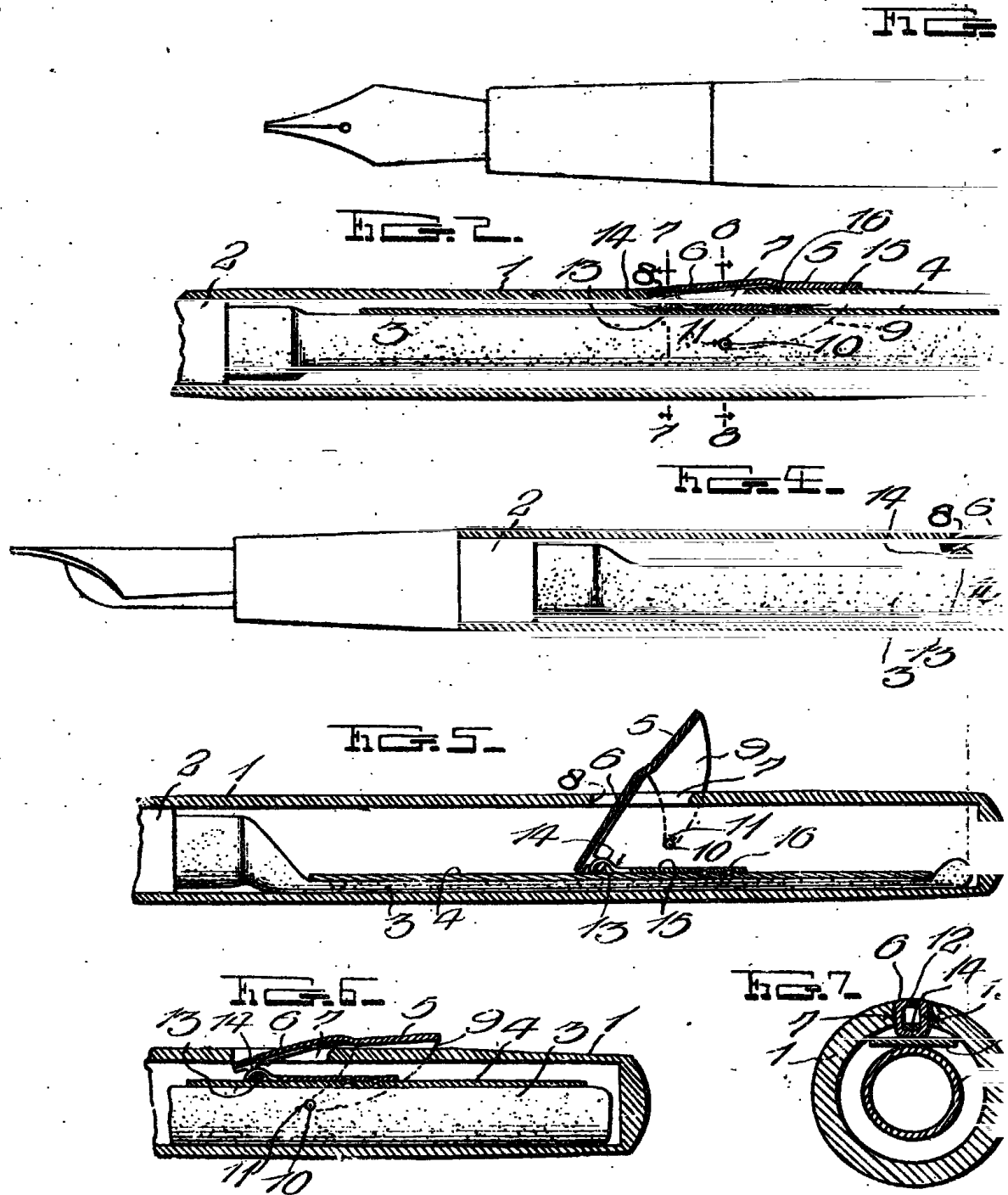
Dated this 5th day of July, 1918.

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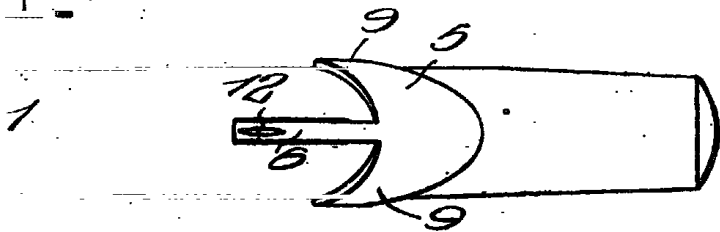


FIG. 2

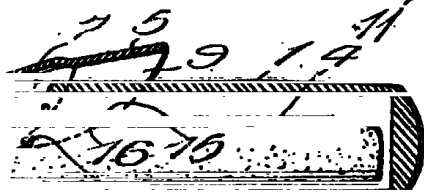
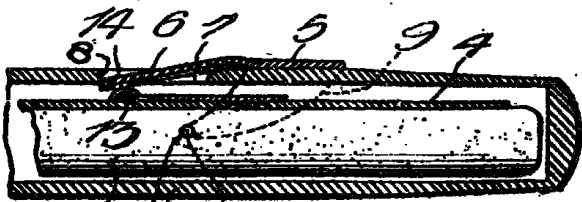


FIG. 9

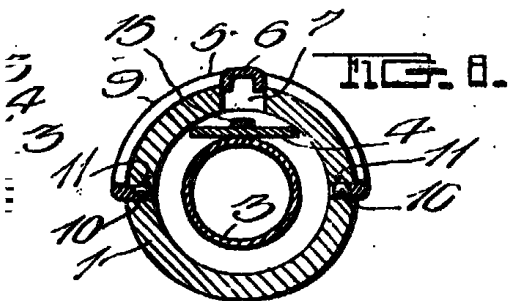
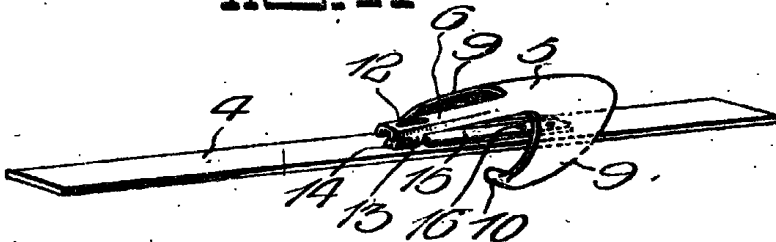


FIG. 8

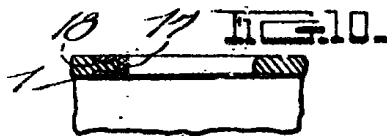


FIG. 10

