M. C. TAYLOR.

FOUNTAIN PEN.

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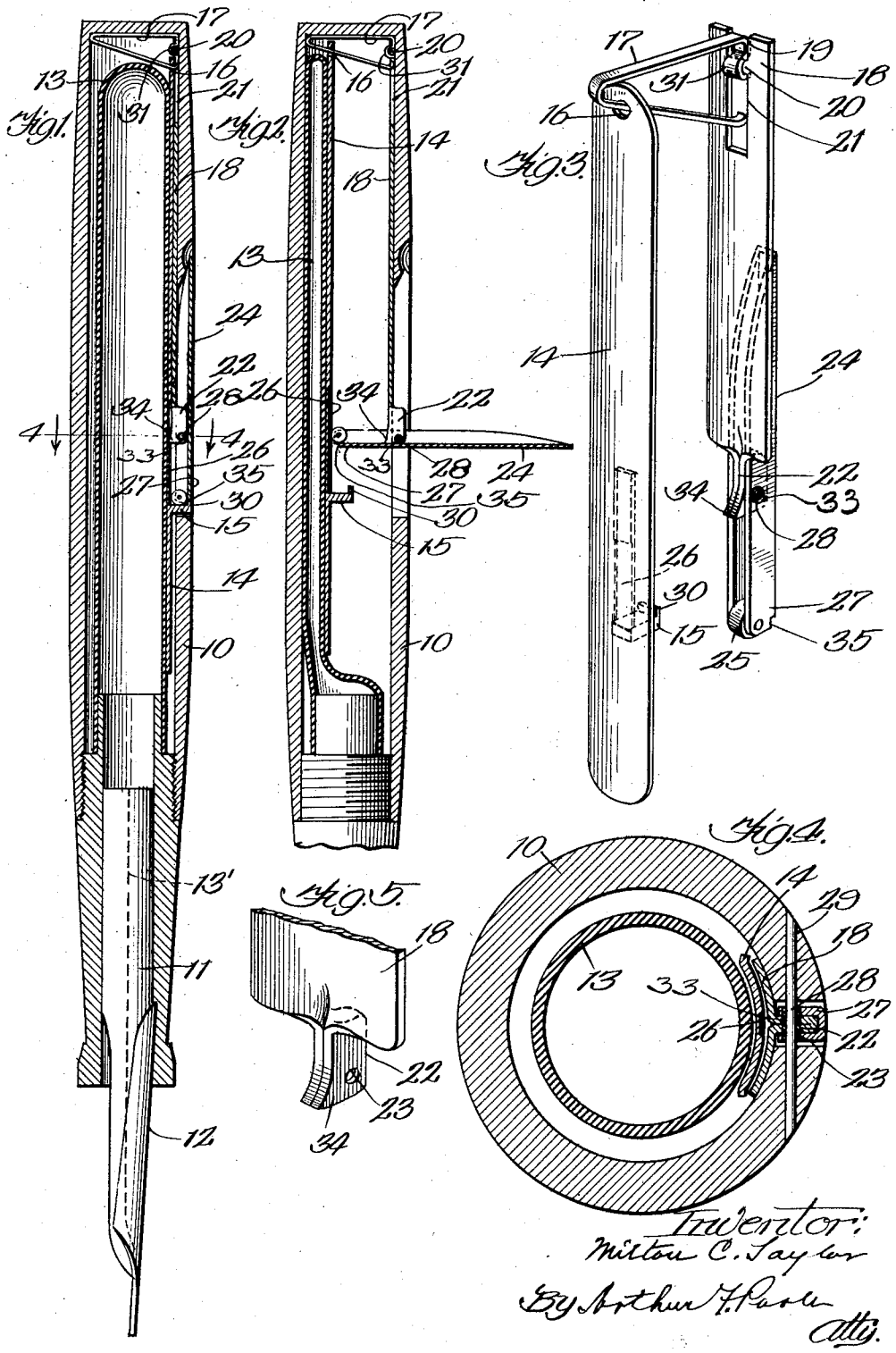
1,391,430. Patented Sept. 20, 1921.



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UNITED STATES PATENT OFFICE.

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FOUNTAIN-PEN.

1,391,430. Specification of Letters Patent. Patented Sept. 20, 1921.

Application filed June 25, 1917. Serial No. 176,793.

To all whom it may concern:

Be it known that I, MILTON C. TAYLOR, a citizen of the United States, and resident of Chicago, in the county of Cook and State of Illinois, have invented certain new and useful Improvements in Fountain-Pens, of which the following is a specification.

My invention is a self-filling fountain pen of the special class in which there is a lever pivoted in the casing containing a presser bar and a rubber sack which are adapted to be operated by said lever. The rubber sack contains the ink and is in communication with a channel serving to conduct the ink to the pen. When it is desired to refill the pen, the lever normally parallel to the casing is moved to a position at right angles to the casing, thereby compressing the rubber sack; the pen is then inserted in ink and the lever restored to its normal position. This action restores the presser bar and the sack consequently expands and draws the ink up through the pen. The pen is then ready for use.

The object of my invention is to improve certain structural details of pens of this class, as will be apparent from the accompanying figures, of which—

Figure 1 is a longitudinal section of a pen embodying my invention;

Fig. 2 is a partial longitudinal section showing the lever and presser bar in their operated positions;

Fig. 3 is a perspective detail showing the presser bar, the lever and a certain spring serving to operate the presser bar;

Fig. 4 is a section through the line 4—4 of Fig. 1;

Fig. 5 is a detail of the upper bar serving to support the lever.

Similar numbers of reference refer to like parts throughout all the figures.

Referring to the figures, 10 is a hollow casing which is preferably made of hard rubber. In the end thereof is placed a plug 11, which serves as a support for the pen nib 12 and has the customary feeding channels 13′, which serves to conduct ink to the pen. The plug 11 is provided with a nipple at its rear end, which serves to support a rubber sack 13, which contains the ink. A presser bar 14, parallel to the sack 13, serves to compress the same and contains a projection or ear 15 riveted therein, also a hole 16 in the rear end thereof through which passes a tension spring 17. In the upper part of the casing is a supporting plate 18, which has at its rear end a slot 19, a cross piece 20 and a second slot 21, the position of these parts being clearly apparent from the perspective view of Fig. 3. The front part of the plate 18 is formed into an ear 22, through which is a hole 23. The ear 22 has a stop 34 for the open position of an operating lever 24.

The lever 24 is preferably made of U section and has mounted on its lower end a small roller 25, which is adapted to engage a slight depression 26 in the presser bar 14. Said lever has also a bushing 33, by means of which the lever is pivoted to the ear 22 previously referred to. The bushing 33 has a hole therein, through which a pin 28 is passed, said pin also passing through a hole 29 in the rubber casing 10. The short end 27 of the lever 24 is adapted to engage the ear 15 on the presser bar 14 and raise the presser bar to its normal position, as shown in Fig. 1. The ear 15 has a lug 30 mounted thereon and said lug is adapted to engage a corresponding recess in the short end 27 of the lever 24 when said lever is in its normal position (Fig. 1). The position of the U-shaped lever is such that the ear 22 is between the edges of the lever 24. When the lever 24 is thrown to its normal posititon, the end 27 will first engage the ear 15 and tend to move the same toward the front of the pen, thereby putting the spring 17 under tension. The end 27 will then engage the projecting lug 30 and by means of this lug raise the presser bar to the position shown in Fig. 1. It will be observed from an inspection of Fig. 1 that the pressure exerted by the spring 17 is transmitted through the presser bar 14 and the ear 15 is in a line above the pin 29 and will, therefore, serve to hold the lever 24 firmly in its closed position, this lever 24, presser bar 14 and spring 17 forming a species of toggle joint.

The spring 17 is held from turning in respect to the plate 18 by means of an ear 31 engaging the cross bar 20 and also resting against the interior of the casing 10, and as a further precaution the sides of the slot 19 are swaged against the spring 17. The lower end of the spring 17 is supported by the lower side of the interior portion of the casing 10. This arrangement also serves to

support the rear end of the plate 18. The supporting plate 18 is slightly curved so as to conform to the section of the interior of the casing (Fig. 4), as is also the presser bar 14. This is for the purpose of providing more room for the ink sack 13.

Many advantages result from the use of my improved structure herein described, among which I may call attention to the fact that the supporting plate 18, the spring 17, the lever 24 and the presser bar 14 form a single unitary structure which may be adjusted to function properly before being inserted into the pen casing 10. This is the assemblage which is shown in Fig. 3. When it is desired to insert this assemblage into the pen casing, it is obvious that the presser bar 14 may be moved into the position as shown in Fig. 1, and the spring 17 will yield sufficiently to allow the entire structure as a single unit to be inserted into the interior of the casing 10. The lever 24 is then put into its slot in the casing from the inside and the pin 28 is inserted through the hole in the casing 10 and the entire assemblage thus securely anchored in the pen. This construction makes a very convenient pen to assemble and also lends itself to accurate manufacture, since it will be observed that the action of the parts is independent of any accurate location of the hole 29 in the casing 10, the bushing 33 serving as the bearing for the lever 24 in the supporting plate 18, and the pin 29 merely serving to hold the moving parts in their proper position in the interior of the casing. Furthermore, the assemblage shown in Fig. 3 may be adjusted to function properly before being inserted in the casing and this, of course, is a much more convenient manner of adjustment than in those pens in which the bearing of the lever is mounted in the casing itself and hence the lever and presser bar action must be adjusted while the parts are assembled in the interior of the pen casing.

It is, of course, apparent that the use of the supporting plate 18 is not limited to the precise lever and presser bar arrangement herein shown. The construction may be advantageously used with the usual spring actuated presser bar, such, for instance, as shown in the Patent to Sheaffer, No. 1,118,240, of November 24, 1914.

I do not wish to be limited to the precise structure herein shown, since many changes and departures therefrom may be made by those skilled in the art without departing from the spirit of my invention.

Having now described my improved pen, I claim:

1. In a fountain pen, the combination of a casing, a lever, a supporting plate to which said lever is pivoted, a presser bar controlled by said lever, and means for positioning said lever relative to the casing and removable from the lever and casing while maintaining the lever and supporting plate in connected relation.

2. The combination with a fountain pen casing, of an operating lever, a supporting plate for the lever, a pivot connecting the plate to the lever, and other means removable from the lever for connecting the lever to the casing.

3. In a fountain pen, the combination of a casing having a hole therein, a plate having a hole therein, a lever pivoted to said plate, and a straight pin separate from the pivot of the lever and plate inserted through the hole in said casing and said plate to thereby locate said plate in said casing.

4. In a fountain pen, the combination of an apertured casing, a plate, a lever pivoted to said plate, a spring controlled presser bar adapted to be actuated by said lever, and a straight pin separate from the pivot of the lever and plate adapted to be inserted in the apertured casing, supporting plate and lever, whereby these parts are held in operating position relative to said casing.

5. In a fountain pen, the combination of a lever, a supporting plate, a bushing forming the pivot of said lever on said supporting plate, a casing having a hole therein, and a straight pin adapted to go through said hole and thus locate said bushing and attached lever relative to said casing.

In witness whereof I have hereunto subscribed my name.

MILTON C. TAYLOR.