No. 684,896. Patented Oct. 22, 1901.

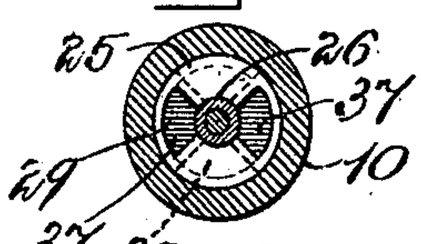
J. S. WRIGHT.

FOUNTAIN PEN.

(Application filed Jan. 28, 1901.)

(No Model.)

Fig-4-



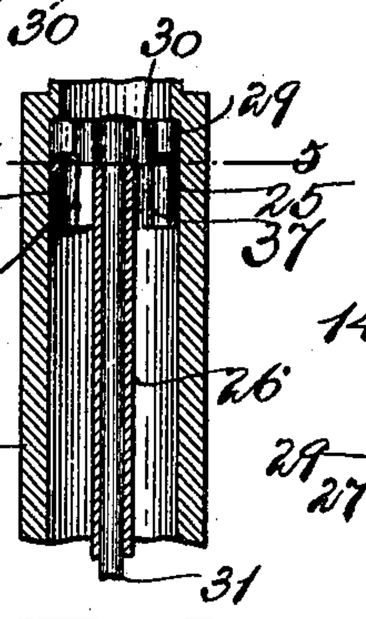


Fig-2-

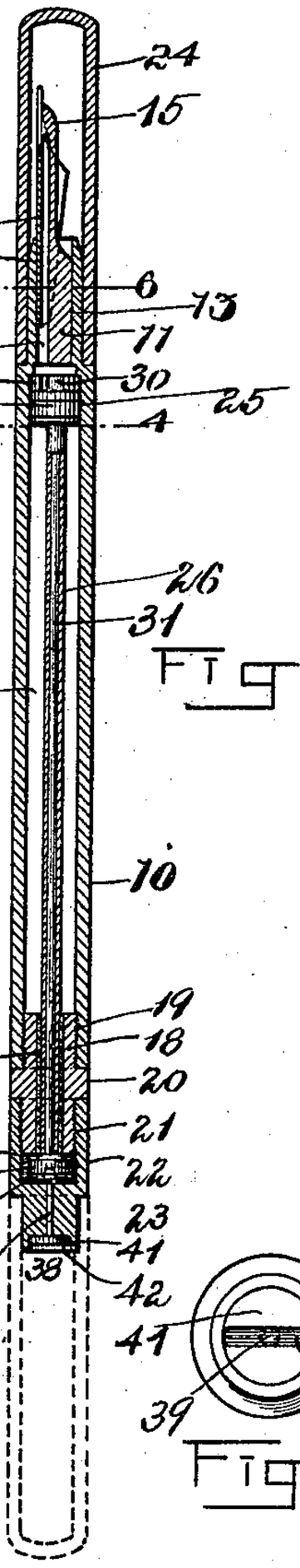
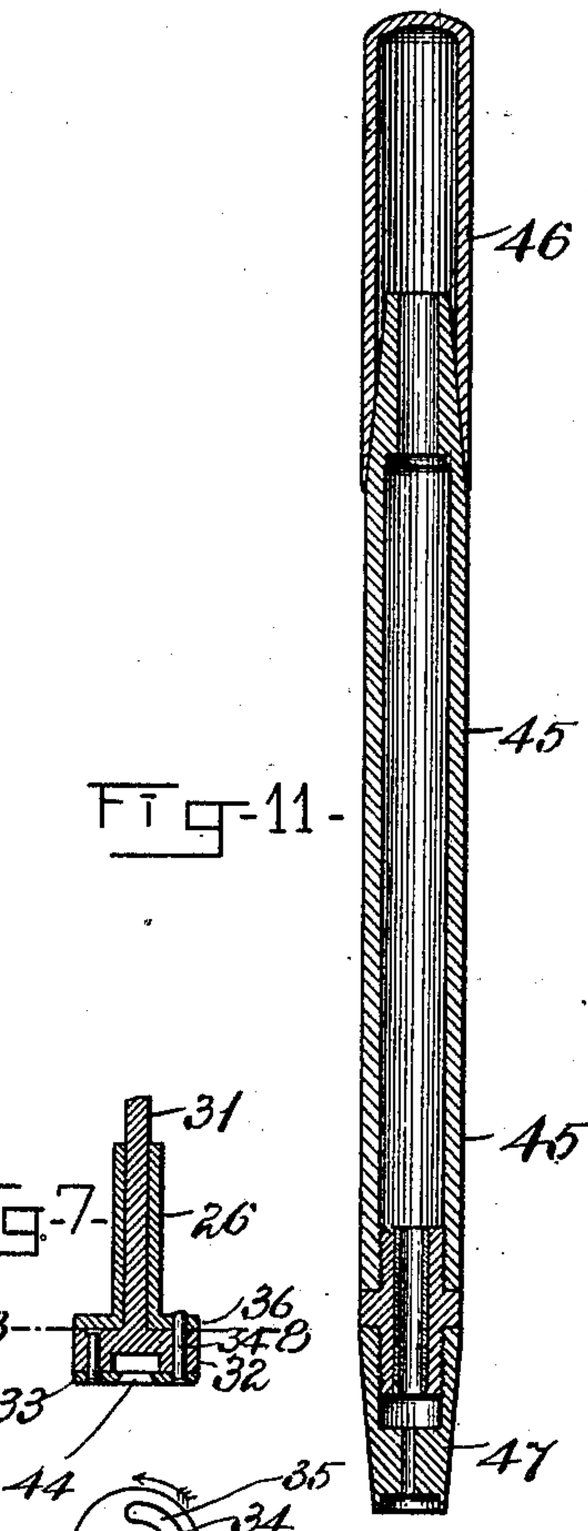


Fig-11-



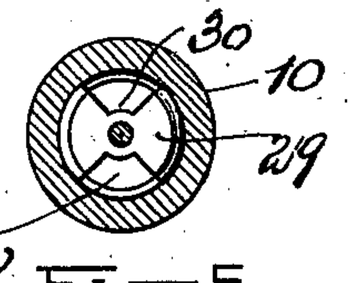


Fig-5

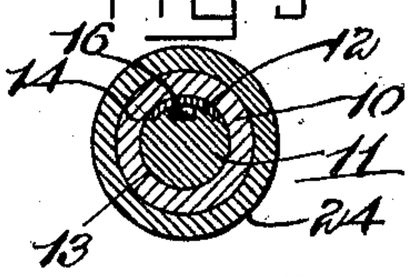


Fig-6-

Fig-7-

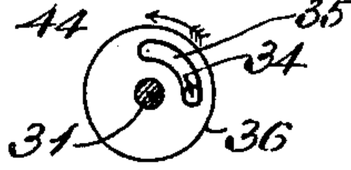


Fig-8-

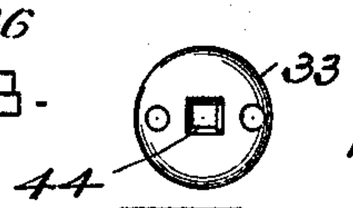


Fig-10-

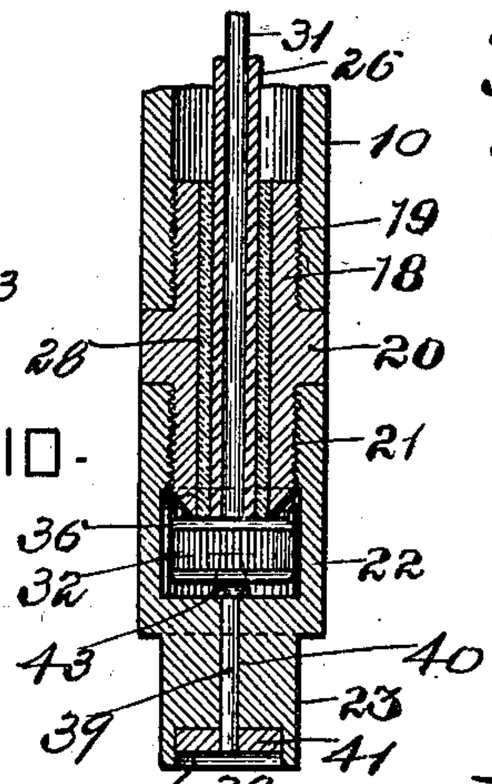


Fig-3-

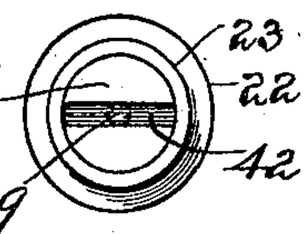


Fig-9-

Witnesses
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William H. Forrest

Inventor
John S. Wright
by his Attorney
Charles S. Goodwin.

UNITED STATES PATENT OFFICE.

JOHN S. WRIGHT, OF DUXBURY, MASSACHUSETTS.

FOUNTAIN-PEN.

SPECIFICATION forming part of Letters Patent No. 684,896, dated October 22, 1901.

Application filed January 28, 1901. Serial No. 45,021. (No model.)

To all whom it may concern:

Be it known that I, JOHN S. WRIGHT, a citizen of the United States, residing at Duxbury, in the county of Plymouth and State of Massachusetts, have invented new and useful Improvements in Fountain-Pens, of which the following is a specification.

The object of this invention is to produce a fountain-pen which will not leak when carried in the pocket with the pen pointing downward, and, further, to produce a pen which can be filled by means of a device located in the interior of the handle thereof; and, further, it is the object of this invention to produce a fountain-pen which shall be practical and durable in construction and the size of which shall not exceed that of the fountain-pens in ordinary use.

The invention consists in the combination and arrangement of parts set forth in the following specification, and particularly pointed out in the claims thereof.

Referring to the drawings, Figure 1 is a central longitudinal section of my improved fountain-pen. Fig. 2 is an enlarged central longitudinal section of a portion of the pen handle or staff near the end at which the pen is attached and also of the piston and piston-rod, by means of which said pen-handle is filled with ink. Fig. 3 is an enlarged central longitudinal section of a portion of the pen handle or staff and the parts contained therein at the opposite end to that at which the pen is attached. Fig. 4 is an enlarged transverse section taken on line 4 4, Fig. 1, looking toward the penholder. Fig. 5 is a similar section taken on line 5 5, Fig. 2, looking in the same direction. Fig. 6 is a section on line 6 6, Fig. 1. Fig. 7 is an enlarged central longitudinal section of the valve-rod head and a portion of the valve-rod and piston-rod. Fig. 8 is a section on line 8 8, Fig. 7, looking toward the penholder. Fig. 9 is an end elevation of the cap 22 with the rotator therein. Fig. 10 is an end elevation of the plate 33 upon the valve-rod head. Fig. 11 is a sectional view of a modified form of penholder.

Like numerals refer to like parts throughout the several views of the drawings.

In the drawings, 10 is the handle of the pen, consisting of a hollow cylinder having a holder 11 for the pen at one end, which also constitutes a feeder for the pen 12. The holder 11 is cylindrical for a portion of its length, as at 13, and is grooved at 14 to receive the shank of a pen, which is held in said groove between the cylindrical portion 13 of the holder and the inner periphery of the hollow cylindrical handle 10. The holder 11 is provided with a feed-point 15, which extends outwardly therefrom to a point near the nibs of the pen, against the inner face of which said feed-point bears. A passage 16 conducts the ink from the inner chamber 17 of the pen-handle 10 to the nibs of the pen. At the opposite end of the pen-handle 10 to that at which the pen is attached I provide a cylindrical plug 18, screw-threaded at 19 to fit a corresponding thread in the end of the pen-handle 10 and having an enlarged portion 20 thereon, which forms a shoulder to bear against the end of the pen-handle 10. The plug 18 is screw-threaded at 21 to receive a cap 22. Said cap has a reduced cylindrical portion 23 of a diameter to receive the pen-cover 24. When the pen is not in use, the cover 24 is applied to the end of the handle 10, as shown in Fig. 1, and when in use the pen-cover is placed upon the cap 22, as shown in dotted lines, Fig. 1.

In order to fill the chamber 17 with ink and also to provide a means for preventing the ink from leaking out of said chamber when the pen is not in use and is placed in an inverted position—as, for instance, in the pocket with the pen pointing downwardly—I provide in the chamber 17 a piston 25, having a tubular piston-rod 26 fast thereto or integral therewith. The piston 25 is packed with a ring of cork 27 and has two openings or ports 37 therein extending longitudinally therethrough. The tubular piston-rod 26 has a bearing consisting of a cork tube or sleeve 28, fast in the interior of a hole drilled in the center of the plug 18. A rotary valve 29, having two parts 30 therein, bears against the outer end face of the piston 25 and is fast to a rotary valve-rod 31. The valve-rod 31 fits the interior of the tubular piston-rod 26 and is provided with a cylindrical head 32, by means of which it may be rotated, together with the valve 29. The head 32 has a plate 33 riveted thereto, and a pin 34, fast to said head 32, projects into a slot 35, formed in a

flange 36, integral with the tubular piston-rod 26, said slot extending through an angle of about ninety degrees. When the parts are in the relative positions indicated in the drawings, the pin 34 is at the right-hand end of the slot 35 and the ports 37 in the piston 25 are then closed. Upon rotating the head 32 to the left or in the direction of the arrow, Fig. 8, the valve 29 will be rotated by means of the rod 31 until the ports 30 come in line with the piston-ports 37, and the pin 34 will move around in the slot 35 until it comes to the upper end of said slot. When the ports in the piston and in the valve are thus brought into alinement, it is evident that the ink will flow out of the chamber 17 to the pen 12 or that ink may be pumped into said chamber, as hereinafter described.

When the cap 22 is removed from the handle 10 by unscrewing the same, the head 32 may be rotated directly by the fingers to open and close the piston-ports, as hereinbefore described; but to avoid the necessity of removing said cap, which would be inconvenient, I provide a valve-rotator 38, consisting of a stem 39, which may be rotated in a bearing 40 in the cap 22 by means of a flange 41, fast to said stem and having a slot 42 across the face thereof, by means of which said rotator may be rotated by inserting the thumbnail therein and turning it.

The stem 39 has a head 43 thereon, which is square in cross-section and tapers longitudinally to fit a square hole 44 in the plate 33, so that as the flange 41 is rotated the plate 33, head 32, valve-rod 31, and valve 29 will rotate with it, and according to the direction in which said collar is rotated the piston-ports 37 will be opened or closed, as hereinbefore described.

It will be seen that when the pen is in the pocket in an inverted position, with the cap 22 attached to the plug 18, the valve-rod head 32 cannot be accidentally rotated, thus rotating the valve 29, opening the piston-ports 37, and allowing the ink to flow out. The periphery of the flange 41 being surrounded by the reduced portion 23 of the cap 22, said flange cannot be accidentally rotated by rubbing against the clothing.

In order to provide for the escape of air from the chamber 17 when the piston is being raised in the operation of filling, I unscrew the plug 18 by means of the enlarged portion 20 until said enlarged portion 20 is drawn away from the end of the pen-handle 10, thus allowing the air to escape around the screw-thread 19, which is made sufficiently loose for the purpose, and between the enlarged portion 20 and the end of said pen-handle. Prior to returning the piston to the position shown in Fig. 1 after the ink has flowed into the chamber 17, as hereinafter described, the plug 18 is screwed tightly into the pen-handle 10, with the enlarged portion thereof bearing against the end of said handle and forming a tight joint, which prevents the ink from flowing out of the chamber 17 at that point.

The operation of the device is as follows: To fill the chamber 17 with ink, assuming the parts to be in the position shown in Fig. 1, the cap 22 and the pen-cover 24 are removed from the handle 10, the plug 18 is unscrewed one or two turns, the pen and holder are next inserted in the ink to about the depth of the line 6 6, Fig. 1, and the piston 25 and valve 29 drawn lengthwise of the handle 10 away from the pen 12 by means of the valve-rod head 32, thus creating a vacuum in the chamber 17, into which the ink from the ink-well flows, filling said chamber 17 as the valve and piston are drawn back therein until the piston abuts against the plug 18. Said plug 18 is then screwed into the handle 10 until the shoulder formed by the enlarged portion 20 is brought to bear firmly against the end of the handle 10, forming a tight joint therewith. The valve-rod head 32 is then turned to the left, thus rotating the valve-rod and valve until the valve-ports 30 come in line with the piston-ports 37. The piston 25 will remain stationary on account of the friction of the cork ring 27 and cork sleeve 28 until the pin 34 arrives at the upper end of the slot 35, Fig. 8, when the piston and valve ports will be in alinement, and any further rotation of the head 32 to the left will cause both valve and piston to rotate together. The piston and valve are now pushed forward slowly, and the ports 30 and 37 being in alinement the ink in the chamber 17 will flow through said ports from the front to the rear side thereof until said piston and valve have been pushed forward to the front end of the chamber 17. The pen is next removed from the ink-well and wiped. If it is now desired to write with the pen, the cap 22 is screwed upon the screw-threaded portion 21 of the holder and the pen-cover 24 is placed upon the reduced cylindrical portion 23 of said cap, as shown in dotted lines, Fig. 1, and the pen is in readiness for use. If it is desired to place the pen in the pocket without leaking when the pen is inverted, the head 32 is turned to the right for not less than a quarter of one rotation, bringing the respective parts into the relative positions shown in the drawings and closing the piston-ports 37 by turning the valve-ports 30 out of alinement therewith.

In Fig. 11 the handle 45 is beveled to receive a pen-cover 46, also beveled upon the inside to fit thereon, and the cap 47 is also beveled to receive said cover.

Having thus described my invention, what I claim, and desire to secure by Letters Patent, is—

1. A fountain-pen, comprising a handle, an ink-chamber in said handle, a reciprocatory piston located in said chamber, a tubular piston-rod, a port extending through said piston, from one face to the other; a rotatory valve adjacent to one face of said pis-

ton, a port extending through said valve, a valve-rod fast to said valve and arranged to rotate in said tubular piston-rod, and means to aline said valve-ports with said piston-ports when said valve is rotated in one direction.

2. A fountain-pen, comprising a piston, a tubular piston-rod, a port extending through said piston, from one face to the other; a rotatory valve adjacent to one face of said piston, a port extending through said valve, and a valve-rod fast to said valve and arranged to rotate in said tubular piston-rod.

3. A fountain-pen, comprising a piston, a tubular piston-rod, a port extending through said piston, from one face to the other; a rotatory valve adjacent to one face of said piston, a port extending through said valve, a valve-rod fast to said valve and arranged to rotate in said tubular piston-rod, and means to prevent the rotation of said piston during a partial rotation of said valve.

4. A fountain-pen, comprising a piston, a tubular piston-rod, a port extending through said piston, from one face to the other; a rotatory valve adjacent to one face of said piston, a port extending through said valve, a valve-rod fast to said valve and arranged to rotate in said tubular piston-rod, means to aline said valve-ports with said piston-ports when said valve is rotated in one direction, and to locate said valve-ports out of alinement with said piston-ports when rotated in the opposite direction.

5. A fountain-pen, comprising a piston, a tubular piston-rod, a port extending through said piston, from one face to the other; a rotatory valve adjacent to one face of said piston, a port extending through said valve, a valve-rod fast to said valve and arranged to rotate in said tubular piston-rod, a flange upon said piston-rod, a slot extending part way around said flange, concentric with the center thereof; a head upon said valve-rod and a pin fast to said head and projecting into said slot.

6. A fountain-pen comprising a rotatory valve, a valve-rod fast thereto, and a valve-rod head fast to said valve-rod, in combination with a cap adapted to be attached to the handle of said pen, inclosing said valve-rod head and having a longitudinal bore extending through its otherwise-closed end, a rotator consisting of a rotatory stem having its bearings in said bore, a head fast to said stem and arranged to engage a recess in said valve-rod head and impart to said valve-rod and valve a rotatory motion.

7. A fountain-pen comprising a rotatory valve, a valve-rod fast thereto, and a valve-rod head fast to said valve-rod, in combination with a cap adapted to be attached to the handle of said pen, inclosing said valve-rod head and having a longitudinal bore extending through its otherwise-closed end, a rotator consisting of a rotatory stem having its bearings in said bore, a head fast to said stem and arranged to engage a recess in said valve-rod head, a flange fast to said stem, and a slot extending across one face of said flange.

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

JOHN S. WRIGHT.

Witnesses:
CHARLES S. GOODING,
SYDNEY E. TAFT.