No. 737,697. PATENTED SEPT. 1, 1903.

W. BOLLES.

COLLAPSIBLE TUBE FOR FOUNTAIN PENS.

APPLICATION FILED MAY 16, 1903.

NO MODEL.

FIG. 1.

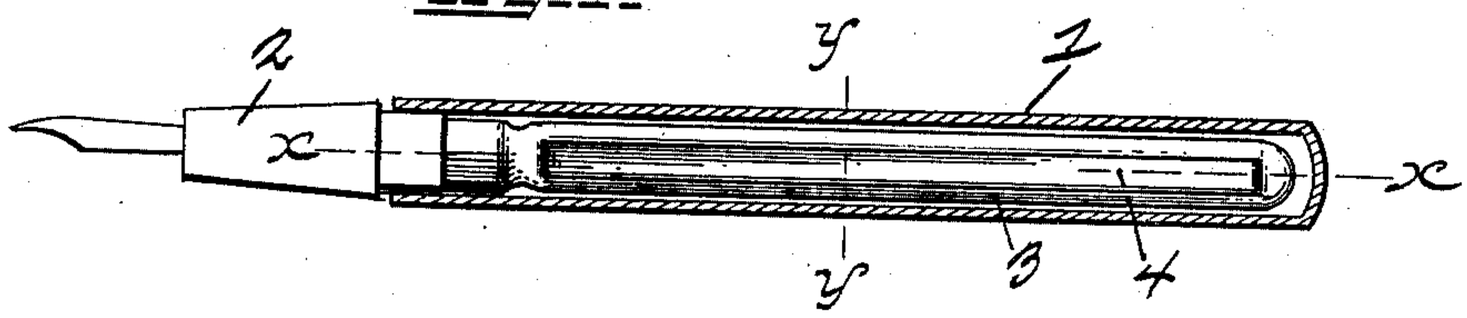


FIG. 2.

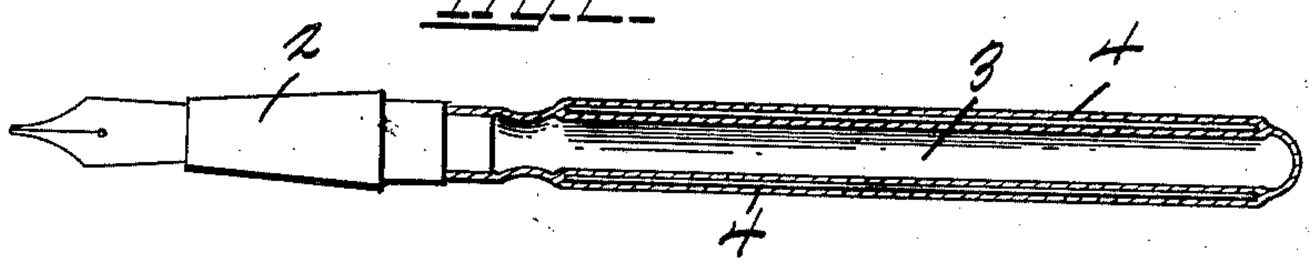


FIG. 3.

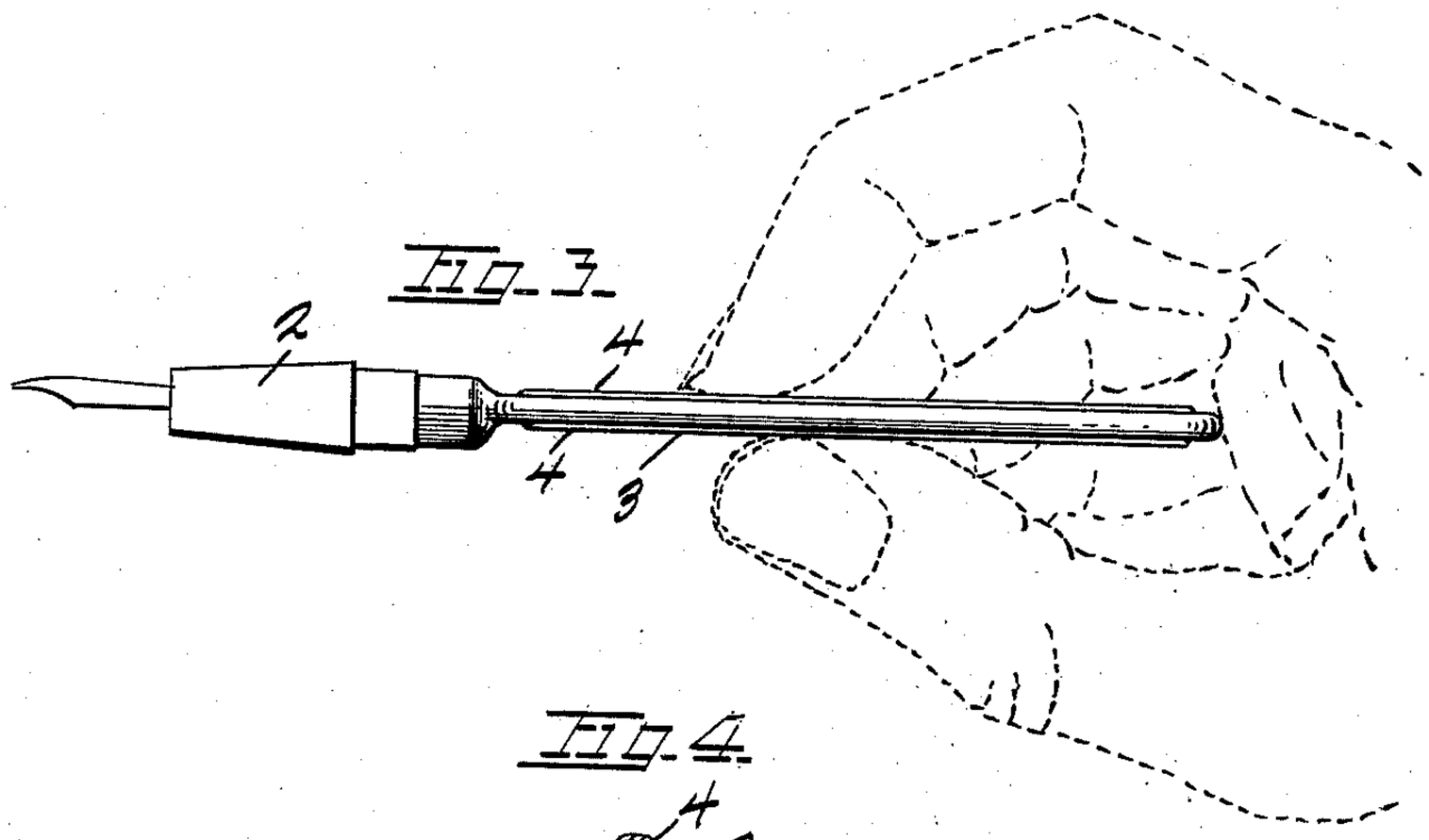
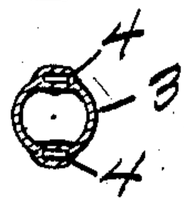


FIG. 4.



WITNESSES.

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No. 737,697. Patented September 1, 1903.

UNITED STATES PATENT OFFICE.

WILLIAM BOLLES, OF TOLEDO, OHIO, ASSIGNOR OF ONE-HALF TO JAMES L. CHASE, OF TOLEDO, OHIO.

COLLAPSIBLE TUBE FOR FOUNTAIN-PENS.

SPECIFICATION forming part of Letters Patent No. 737,697, dated September 1, 1903.

Application filed May 16, 1903. Serial No. 157,400. (No model.)

To all whom it may concern:

Be it known that I, WILLIAM BOLLES, of Toledo, county of Lucas, and State of Ohio, have invented certain new and useful Improvements in Collapsible Tubes for Fountain-Pens; and I do hereby declare that the following is a full, clear, and exact description of the invention, which will enable others skilled in the art to which it appertains to make and use the same, reference being had to the accompanying drawings, and to the figures of reference marked thereon, which form part of this specification.

My invention has reference to a collapsible tube for fountain-pens, and relates particularly to elastic tubes or reservoirs for fountain-pens of the class generally termed "self-filling."

It is my object to produce as an article of manufacture an elastic ink-reservoir for fountain-pens which is capable of being efficiently operated without the employment of accessory mechanical devices other than those contained in the tube itself.

The nature of my improvement will be best understood by reference to the accompanying drawings, which form part of this specification, and the same consists in the novel arrangement hereinafter shown, described, and claimed.

In the drawings, Figure 1 is an illustration of a fountain-pen employing my improved collapsible tube, the tubular shell of the pen adapted to contain the tube being in section. Fig. 2 is a longitudinal section of the tube on line *y y*, Fig. 1, and showing the same attached to the pen-socket. Fig. 3 shows the manner in which the tube is operated to fill the same. Fig. 4 is a transverse section of the tube on line *x x*, Fig. 1.

Referring to the details, 1 indicates the tubular shell or body of a fountain-pen into the open end of which is adapted to be inserted a pen-socket 2. To the reduced inner end of the pen-socket I attach my improved elastic tube, (indicated by the numeral 3.) This tube is constructed of suitable elastic material, preferably soft rubber, and in the walls thereof are embedded elongated strips 4, adapted to impart stiffness and rigidity to the tube. These strips may be flat elongated sections of metal. However, other material having the required stiffness may be employed. The strips, as shown, are arranged on opposite sides of the tube, so that when the same are pressed between the thumb and forefinger the tube will be collapsed along its entire length. This effect would obviously not result if the tube were not provided with the longitudinal strips. A plain elastic tube unprovided with strips, as herein shown, would collapse only at the actual point of pressure thereon. My improved tube is strengthened and reinforced by the longitudinal strips, being stiffened to such an extent that it may be conveniently handled for the purpose of removal and insertion when it becomes necessary to fill the tube.

It is obvious that a plain ordinary elastic tube, especially one fitting snugly within the tubular shell of the holder, when filled with ink would be liable to discharge a portion of its contents while being inserted into the shell, owing to the tendency of the tube to contract or shorten its length because of contact with the internal walls of the shell. This tendency is overcome in my improved tube, the pressure upon the tube while undergoing the operation of insertion being directed upon the longitudinal strips.

It is evident that instead of two strips arranged upon opposite sides of the tube I may employ a plurality of strips arranged lengthwise of the tube at equal distances apart.

I prefer to use metal strips or wires in carrying out my invention, although strips of whalebone, bamboo, hard rubber, or other material imparting the required stiffness to the tube may be employed.

From the foregoing it is apparent that by the employment of my improved collapsible tube a "self-filling" fountain-pen may be manufactured at minimum cost, and the same will be convenient to operate and neat and attractive in appearance. The novelty and utility of my invention are also apparent.

Having described my invention, what I claim, and desire to secure by Letters Patent of the United States, is—.

1. A collapsible tube for fountain-pens con-

structed of elastic material, reinforced by strips of stiff material embedded in its walls, substantially as described.

2. A collapsible tube for fountain-pens constructed of elastic material and having a pair of metal strips embedded in its walls and extending longitudinally of the tube on opposite sides, substantially as described.

In testimony that I claim the foregoing as my own I affix my signature in presence of two witnesses.

WILLIAM BOLLES.

Witnesses:
CARL H. KELLER,
J. G. NORTON.