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Patented July 5, 1898.

P. DOFLEIN & K. BILLING.

NON-REFILLABLE BOTTLE.

(Application filed May 8, 1897)

(No Model.)

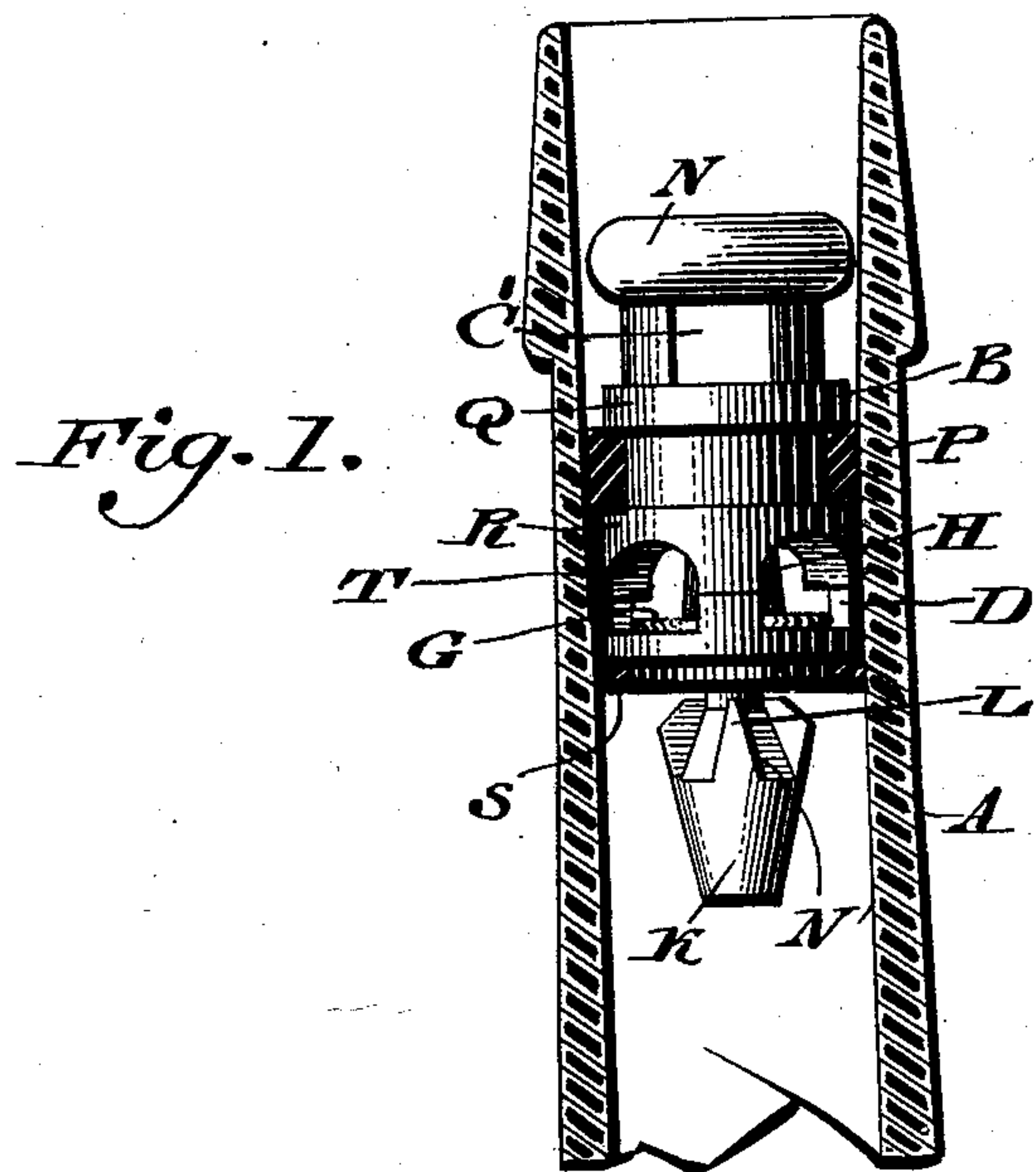
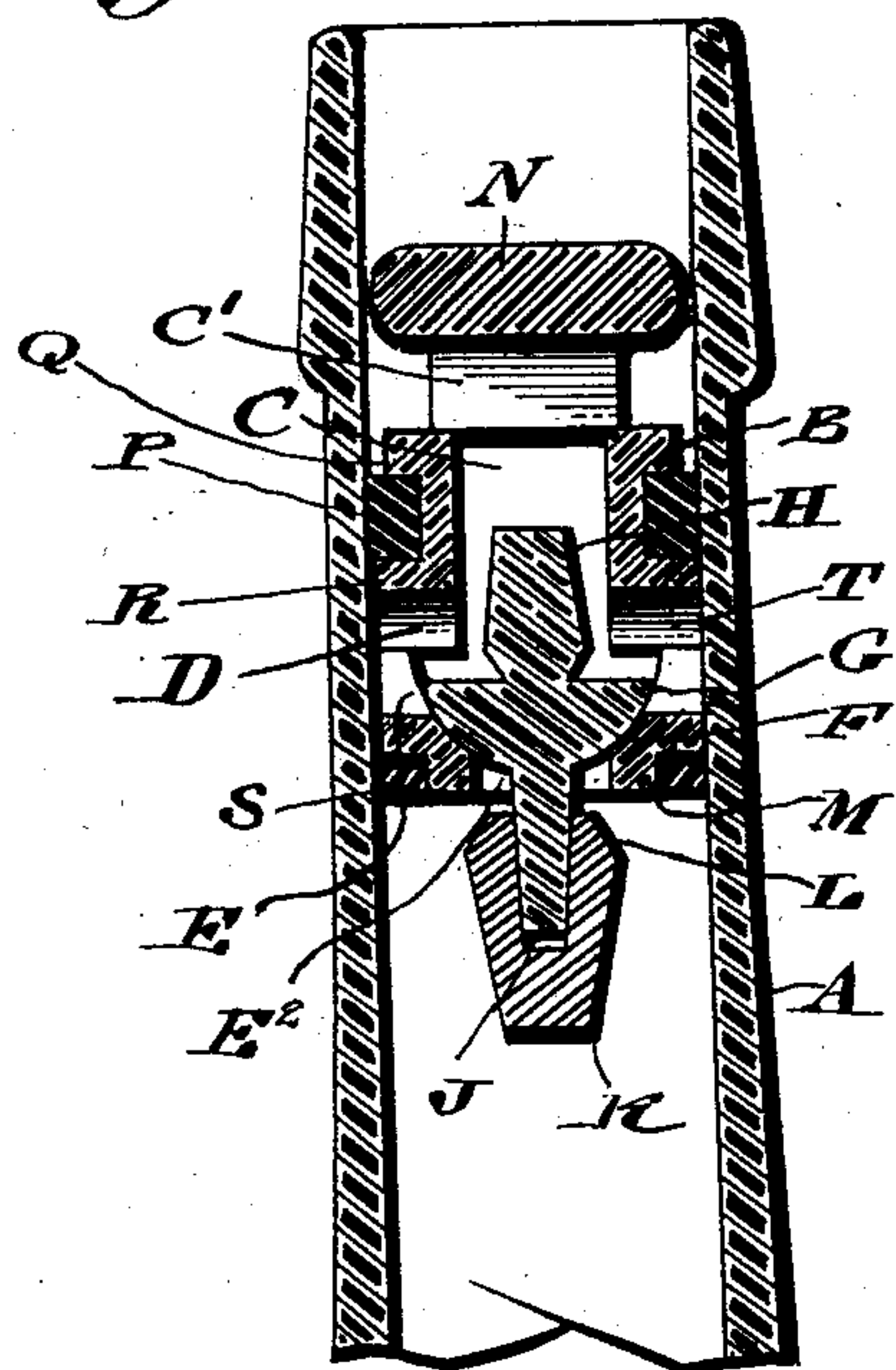


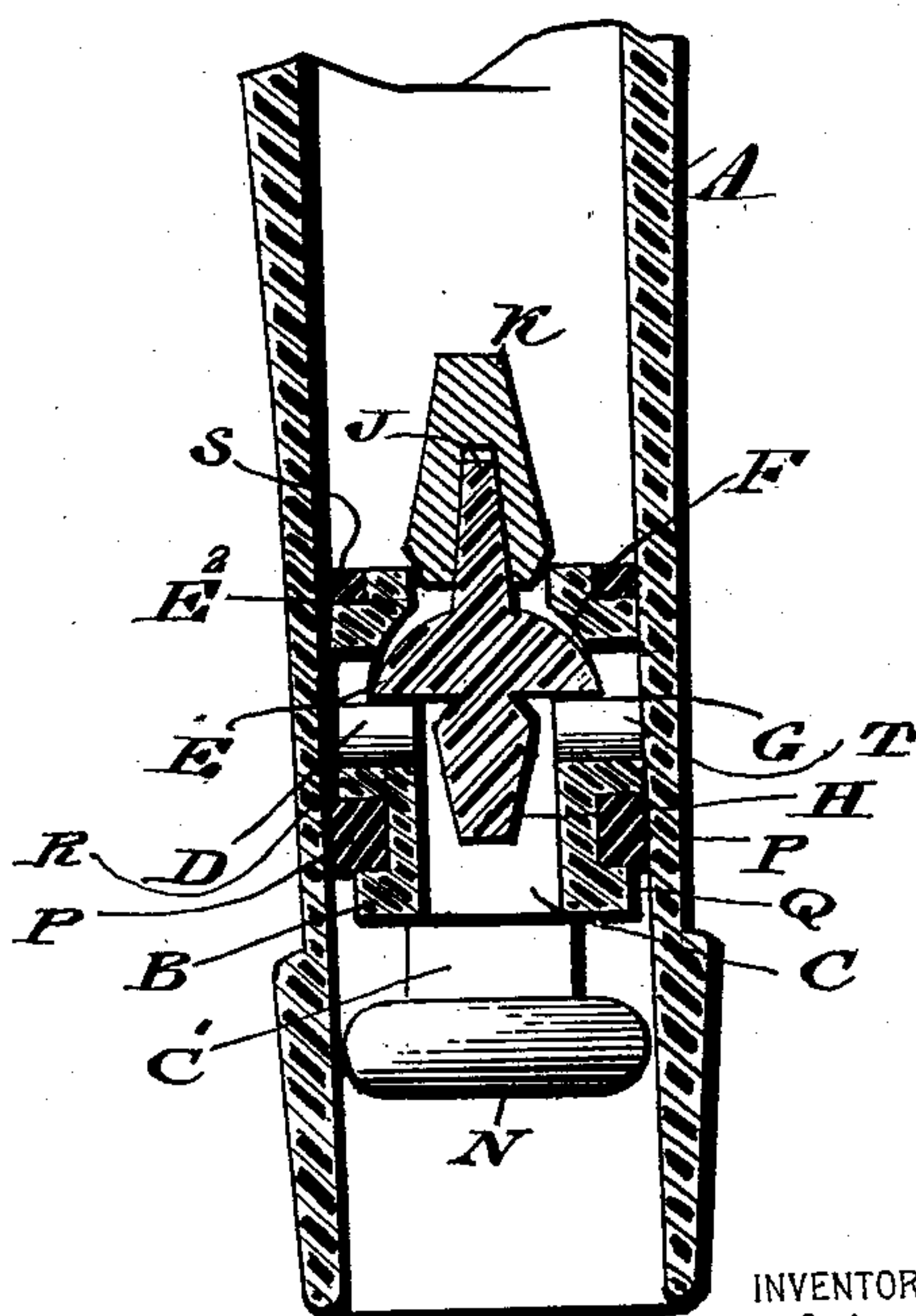
Fig. 2.



WITNESSES

P. H. Angle.
L. Norville.

Fig. 3.



INVENTORS

Philipp Doflein.
BY *Kaspar Billing.*
Wiedersheim & Airbanks
ATTORNEY.

UNITED STATES PATENT OFFICE.

PHILIPP DOFLEIN AND KASPAR BILLING, OF PHILADELPHIA,
PENNSYLVANIA.

NON-REFILLABLE BOTTLE.

SPECIFICATION forming part of Letters Patent No. 606,758, dated July 5, 1898.

Application filed May 8, 1897. Serial No. 635,628. (No model.)

To all whom it may concern:

Be it known that we, PHILIPP DOFLEIN and KASPAR BILLING, citizens of the United States, residing in the city and county of Philadelphia, State of Pennsylvania, have invented a new and useful Improvement in Non-Refillable Bottles, which improvement is fully set forth in the following specification and accompanying drawings.

Our invention consists of an improved construction of non-refillable bottles, the novel features of which will be hereinafter set forth, and pointed out in the claims.

Figure 1 represents a side elevation of a non-refillable bottle, the neck of the latter being shown in section. Fig. 2 represents a longitudinal sectional view of Fig. 1. Fig. 3 represents a sectional view similar to Fig. 2, showing the bottle inverted in the act of being emptied.

Similar letters of reference indicate corresponding parts in the figures.

Referring to the drawings, A designates the neck of a bottle of any construction suitable in the premises, in which the stopper is mounted.

The stopper consists of the shell B, secured in the upper portion of the neck. A longitudinal passage C leads from a transverse passage C' through the upper end of the shell into the chamber E. The transverse passage C' leads through the head N to the exterior of the shell. The chamber E is connected with the interior of the bottle by the passage E². In the upper end of the passage E² a valve-seat F is formed. In the chamber E is mounted the valve G, adapted to register with the valve-seat F. The valve has an upward extension H, located in the passage C and adapted to move therein.

Projecting from the lower portion of the valve is the stem J, which extends through the passage E². A weight or member K is attached to the lower end of the stem J and has its edges L chamfered or beveled. The said edges are adapted to contact with the lower wall M of the shell and are provided with the grooves N' to permit the passages of fluid between the edges and the wall where the latter are in contact.

Ports D lead from the chamber E through

the walls of the shell and permit the passage of fluid around the edges of the valve when the latter is away from its seat F. The movement of the valve away from its seat is limited by the shoulders T, projecting from the walls of the chamber E into the latter.

An annular packing P surrounds the upper part of the shell and is held in place by the shoulders Q and R. A packing S also surrounds the lower end of the shell.

The operation of the device is as follows: After its component parts have been assembled the stopper is forced into the neck of the bottle. By reason of the head N it can be driven to such a distance into the neck and held therein by the packing so as to prevent any tampering with the same.

When the bottle is in an upright position, as shown in Figs. 1 and 2, the valve G will be in register with the seat F, and thereby close the passage E², leading from the chamber E into the interior of the bottle. When the valve is in such a position, it is obvious that no liquid can be introduced into the bottle. The valve is held in position by the weight K.

When the bottle is in an inverted position, the valve leaves its seat by reason of its weight and that of its connections and rests against the shoulders T. The edges L also contact with the wall M. By this movement of the valve the passage E² is opened, and the liquid contained in the bottle passes through the grooves N' and the passage E² into the chamber E. It then passes around the edge of the valve through the ports D into the opening C and out through the passage C'. In its movements the valve is guided by the extension H and the stem J.

It is to be observed that the diameter of the head N is less than that of the neck of the bottle, so as to permit a free passage of the liquid around the same.

When the bottle is returned to its upright position, the valve registers with its seat and again closes the passage leading to the interior of the bottle.

Having thus described our invention, what we claim as new, and desire to secure by Letters Patent, is—

1. In a non-refillable bottle, a shell having

a chamber with a longitudinal passage leading from opposite ends thereof with a valve-seat at the upper end of the innermost passage and laterally-disposed ports from said chamber through the walls of the shell and a head with a transverse passage leading to the longitudinal passage communicating with the outer end of the chamber, and a single valve located in the chamber of the shell and having an upward extension working in the outer longitudinal passage, a portion extending into said lateral ports, and a downward extension carrying a weight with beveled upper face provided with grooves.

5 2. A non-refillable bottle having in its neck a shell provided with a chamber with longitudinal passages from opposite ends, a side discharge-passage C' communicating with the outer longitudinal passage, ports through the walls of the shell communicating with the chamber and a shoulder formed in said ports

intermediate their upper and lower walls to arrest the valve midway said ports when the bottle is inverted.

3. A non-refillable bottle having in its neck 25 a shell with chamber and longitudinal passages and lateral ports with a shoulder formed therein intermediate their upper and lower walls, packing about the upper and lower parts of the shell, and a valve in said chamber and adapted to close the inner longitudinal passage when the bottle is in its normal position and having a portion extending into said ports to be arrested midway the lateral ports by said shoulder when the bottle is in- 35 verted.

PHILIPP DOFLEIN.
KASPAR BILLING.

Witnesses:

E. HAYWARD FAIRBANKS,
JOHN A. WIEDERSHEIM.