

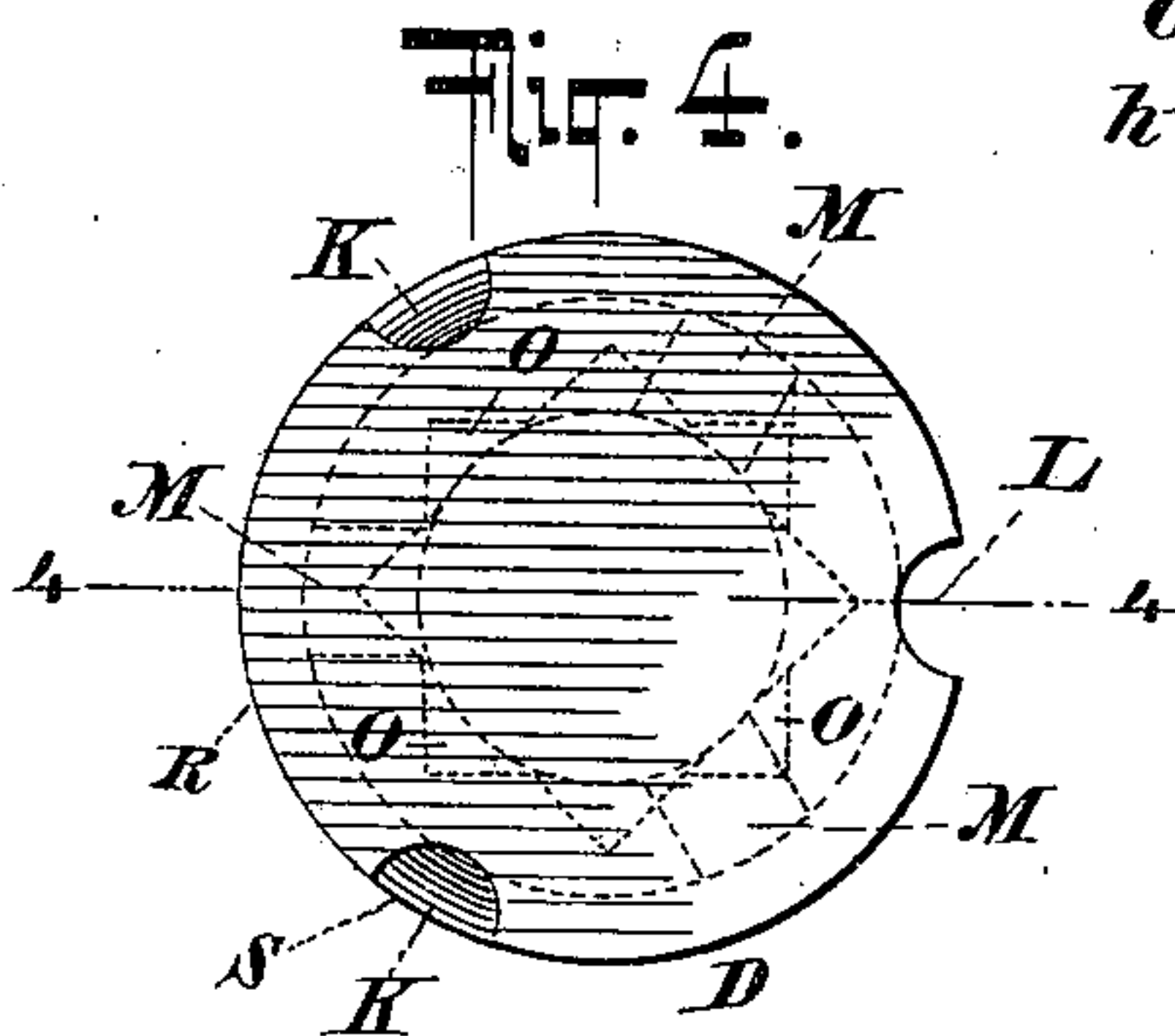
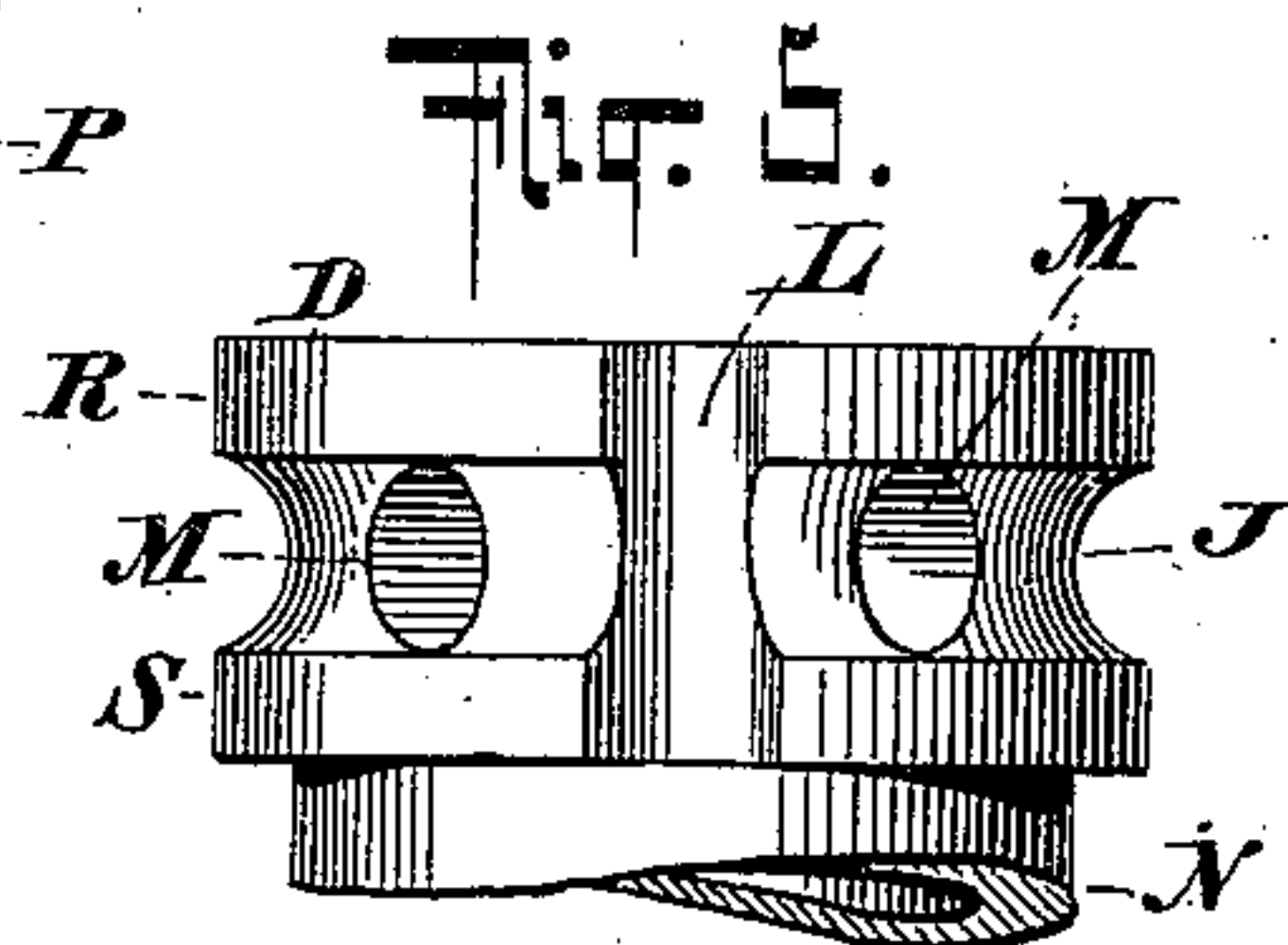
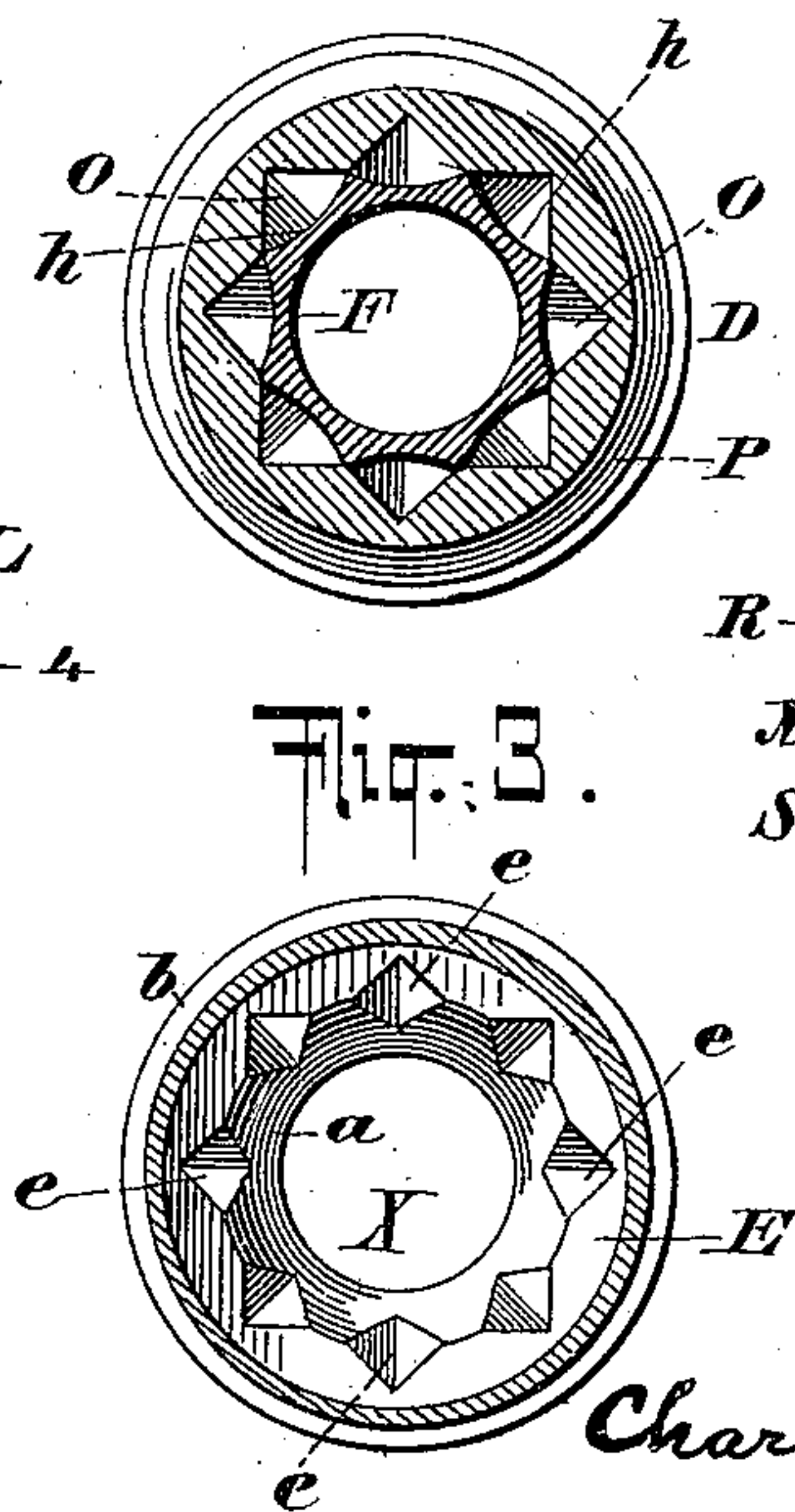
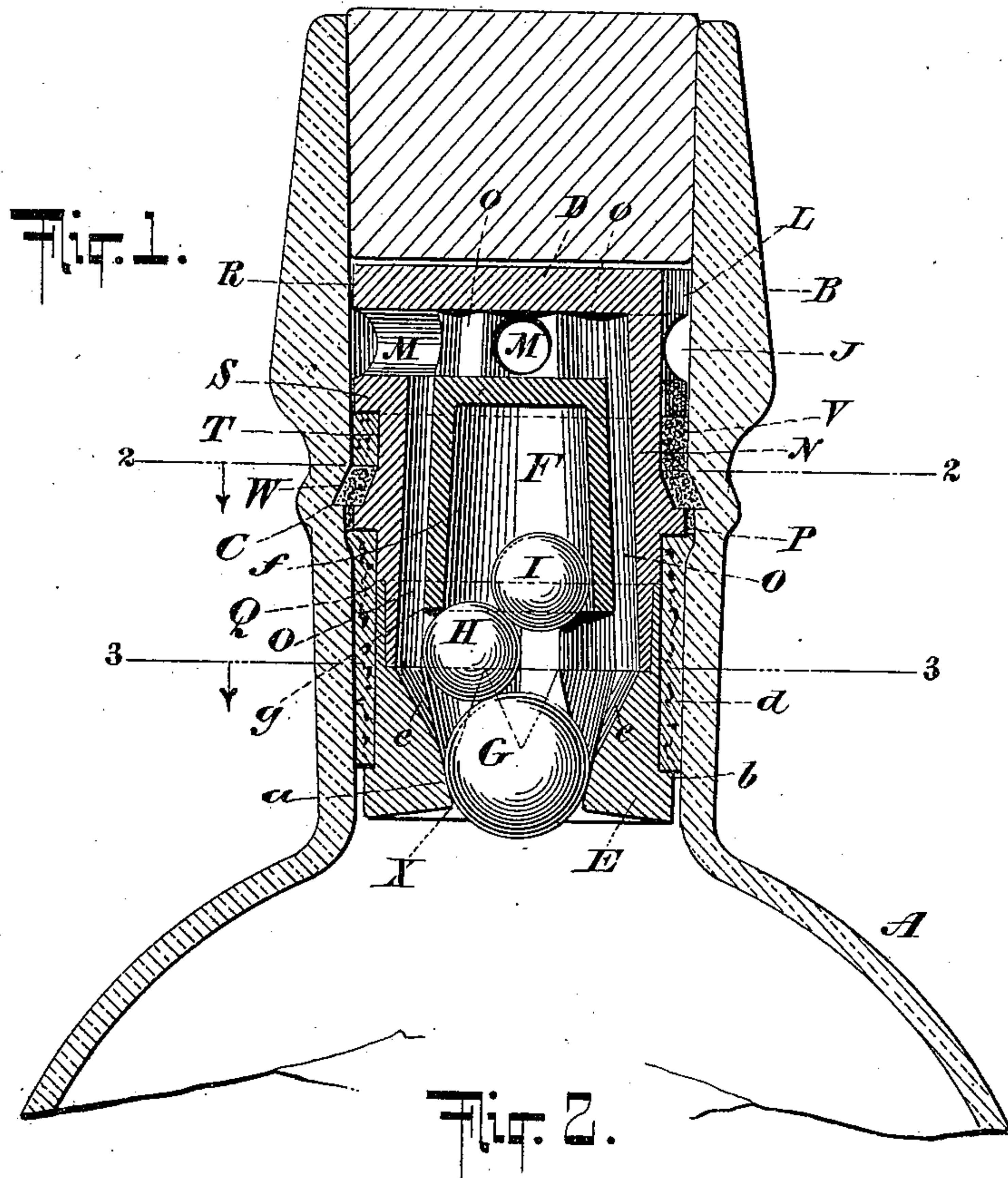
No. 656,259.

Patented Aug. 21, 1900.

C. B. OVERBAUGH.
NON-REFILLABLE BOTTLE.

(Application filed Jan. 9, 1899.)

(No Model.)



WITNESSES :

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NON-REFILLABLE BOTTLE.

SPECIFICATION forming part of Letters Patent No. 656,259, dated August 21, 1900.

Application filed January 9, 1899. Serial No. 701,578. (No model.)

To all whom it may concern:

Be it known that I, CHARLES B. OVERBAUGH, a citizen of the United States, and a resident of New York, in the county of New York and State of New York, have invented certain new and useful Improvements in Non-Refillable Bottles, of which the following is a specification.

The invention relates to improvements in non-refillable bottles; and it consists in the novel features and combinations hereinafter described, and particularly pointed out in the claims.

The object of the invention is to produce a bottle which when once emptied cannot be refilled and which while containing the means for preventing refilling will permit of a proper flow of the liquid therefrom.

The invention will be fully understood from the detailed description hereinafter presented, reference being had to the accompanying drawings, in which—

Figure 1 is a central vertical section of a bottle constructed in accordance with and embodying the invention, the body portion of the bottle being broken away. Fig. 2 is a horizontal section on the dotted line 2 2 of Fig. 1, the bottle-neck being omitted. Fig. 3 is a like section on the dotted line 3 3 of Fig. 1, the bottle-neck being omitted. Fig. 4 is a top view of the means provided within the neck of the bottle for preventing refilling, and Fig. 5 is a side elevation of the upper portion of the same.

In the drawings, A designates a portion of a bottle whose neck B is of usual construction, with the exception that it is at a suitable point provided with the annular angular groove C, which groove, as hereinafter described, is intended to cooperate with cement in securing within the neck B the means, hereinafter described, of preventing the refilling of the bottle.

The means for preventing the refilling of the bottle consists of a plug comprising the three parts lettered D, E, and F, respectively, said parts when brought together forming an interior chamber containing the ball-valve G and smaller balls H I.

The part D may at its upper edges be ground to fit the bottle-neck and is formed with the annular groove J, the vertical grooves K L,

the horizontal apertures M, leading from the interior chamber outward to said annular groove J, and the downwardly-extending walls N, whose inner surfaces are formed with the vertical grooves O and whose outer surfaces are formed with the annular shoulder P and annular shoulder Q. The upper portion of the part D at opposite sides of the annular groove J has along its circumference the annular shoulders R S, which may be ground to fit the neck of the bottle, and below the shoulder S is the recess T, which may receive the split cork ring V and leads to the annular shoulder P and the annular groove C, formed in the bottle-neck, said groove C being intended to receive the cement W, by which the plug may be locked within the bottle-neck. The vertical groove L extends downward through the annular shoulders R S in order that by means of a syringe the cement W in a state of fluidity may be introduced to the groove C above the annular shoulder P. The cork ring V is split below the groove L in order that the cement may fill up to a point about on a level with the lower edge of the groove J. The cement W when introduced downward through the groove L will fill the annular groove C in the bottle-neck, and when said cement has become set or hardened it will form a wedge-like substance which will securely hold the plug within the bottle-neck and prevent its removal. The vertical grooves K will only extend downward through the upper shoulder R in order that the liquid contents of the bottle may at the proper time escape through the horizontal apertures M into the annular groove J and thence through the vertical grooves K.

The lower portion E of the plug is hollow and is formed with the central opening X, surrounded by the inclined walls a, which form a valve-seat for the ball-valve G. The walls a of the lower part E incline upward and outward and merge into the lower edges of the walls N of the upper part D, and the sides of the lower part E pass upward upon the exterior surfaces of the lower portions of said walls N until the upper edges of the lower part E meet the annular shoulder Q, formed on the said walls N, as shown in Fig. 1. The part E may be permanently secured to the

part D by cement or otherwise, and said part E is preferably formed with the annular shoulder *b*, between which and the shoulder P of the upper part D may be applied a cork band *d* to snugly fit the bottle-neck and prevent the liquid contents of the bottle from passing upward around the part E.

As above described, the inner surfaces of the upwardly-extending walls N of the upper part D are formed with the vertical grooves O, and these grooves O will preferably continue to a limited extent along the inner surfaces of the part E (denoted at *e*) above the valve-seat *a*. The grooves *e* and O are continuous and extend from the valve-seat *a* to the upper interior portion of the upper part D, and they constitute the outlet for the liquid contents of the bottle. The grooves *e* and O will be made as large as possible, so as to increase the area of the outlet from the bottle to the greatest possible extent.

Within the chamber formed within the upper part D is the part F, above referred to, which part F is in the shape of a thimble and forms a central interior chamber *f*, which is entirely closed except at its lower end. The lower end of the part F terminates at a suitable elevation above the ball G and forms an annular shoulder *g*, which is utilized to aid in preventing the refilling of the bottle, as hereinafter described. The sides of the part F at their inner surfaces are inclined downward and outward, as shown, and the exterior surfaces of said part F are formed with grooves *h*, which register with the aforesaid grooves O, and thus increase the capacity for the outflow from the bottle. The position of the grooves *h* with respect to the grooves O is illustrated in Fig. 2. The part F may be cemented to the part D or otherwise secured, as may be preferred.

Within the interior of the plug is the ball-valve G and the coöperating balls H I, the ball G being of light material, so as to be capable of floating, and the balls H I being of heavier material, so as to aid in retaining the ball G against its seat *a*. The ball G will preferably be of greater diameter than the balls H I in order that the opening X may be as large as possible, and thus facilitate the outflow of the liquid from the bottle. The relative proportions of the ball G with the balls H I are substantially illustrated in Fig. 1, in which it will be observed that when the ball G is upon its seat *a* the ball H will engage the lower end or shoulder *g* of the part F and operate as a lock to retain the ball G against the seat *a*, except when the bottle has been turned to such inclination beyond a horizontal position that the ball H may leave the shoulder *g* and pass into the chamber *f*. The shoulder *g* is annular in outline, and it is intended that the ball H may pass around the apex of the ball G and partly under the shoulder *g* in accordance with which side of the bottle may be turned downward, the ball H always remaining in contact with the shoul-

der *g* and locking the ball G against its seat *a*, except when the bottle has been turned to such inclination as will permit the said ball H to pass entirely from contact with the shoulder *g* and enter the chamber *f*. The exact inclination of the bottle at which it may be desired to have the contents of the bottle leave the latter may be regulated to a considerable extent by the size of the ball H and the distance between the ball G and shoulder *g*, since the extent to which the ball H passes beneath the shoulder *g* will regulate the inclination necessary to give the bottle in order to cause said ball to leave said shoulder and pass into the chamber *f*. The ball I never passes below the shoulder *g*, but remains within the chamber *f* and presses against the ball H to aid in retaining the latter in its locking position, except when it is positively desired that the ball H shall leave said shoulder *g*. When the balls G H I are in the position in which they are illustrated in Fig. 1, the opening X in the lower part E will be effectually closed and nothing can be poured into or from the bottle. When the bottle is turned to a suitable inclination, the ball I will pass into the chamber *f* and the ball H will thereafter follow the same into the chamber *f*, and thereupon the liquid contents of the bottle during their escape will move the ball G from its seat *a* and may be poured outward through the opening X, grooves O *h*, apertures M, annular groove J, and vertical grooves K K. As many of the grooves K K as desired may be employed, so as to secure as much capacity for the outflow of the liquid as possible.

The ball G forms a float-valve in order that the liquid contents of the bottle may move the same at the proper time from the seat *a* and in order that any attempt to force liquid into the bottle, as in refilling, will result in said ball G again finding its seat *a* and closing the inlet to the bottle. The upper portion of the part F is closed, and thus the interior chamber *f* is closed at its upper end, and this is advantageous in that upon the application of any exhaust mechanism to the bottle-neck the suction would tend to draw the balls H I downward from the chamber *f*, and the result of this would be that said balls H I would force the ball G to its seat *a*.

Above the plug which prevents the refilling will be applied a usual cork stopper, as shown.

What I claim as my invention, and desire to secure by Letters Patent, is—

1. The bottle, and the plug for preventing refilling, said plug comprising the parts D, E, F, the upper part D having the horizontal annular groove J, the vertical grooves K leading therefrom, the horizontal passages M leading outwardly into said groove J, and the downwardly-extending walls N forming a central chamber and having the grooves O, and the said part E fitting upon the lower portion of said walls N and having the opening X and valve-seat *a*, and the said part F being in the form of a thimble with solid walls fitting

within said central chamber and surrounded by said grooves O, while the lower edge of said thimble is above the lower ends of said grooves O and above said valve-seat α and forms the shoulder g , combined with the ball G adapted to said seat, and the ball H adapted to engage said ball G and said shoulder; substantially as set forth.

2. The bottle, and the plug for preventing refilling, said plug comprising the parts D, E, F, the upper part D having the horizontal annular groove J, the vertical grooves K leading therefrom, the horizontal passages M leading outwardly into said groove J, and the downwardly-extending walls N forming a central chamber and having the grooves O, and the said part E fitting upon the lower portion of said walls N and having the opening X and valve-seat α , and the said part F being in the

form of a thimble with solid walls fitting within said central chamber and surrounded by said grooves O, while the lower edge of said thimble is above the lower ends of said grooves O and above said valve-seat α , and forms the shoulder g , combined with the ball G adapted to said seat, the ball H adapted to engage said ball G and said shoulder, and the ball I confined within said part F by said ball H and exerting its downward force upon said ball H; substantially as set forth.

Signed at New York, in the county of New York and State of New York, this 6th day of January, A. D. 1899.

CHARLES B. OVERBAUGH.

Witnesses:

CHAS. C. GILL,
E. JOS. BELKNAP.