

No. 796,355.

PATENTED AUG. 1, 1905.

F. RECHT.
CAP FOR BOTTLES.
APPLICATION FILED NOV. 22, 1904.

Fig. 1.

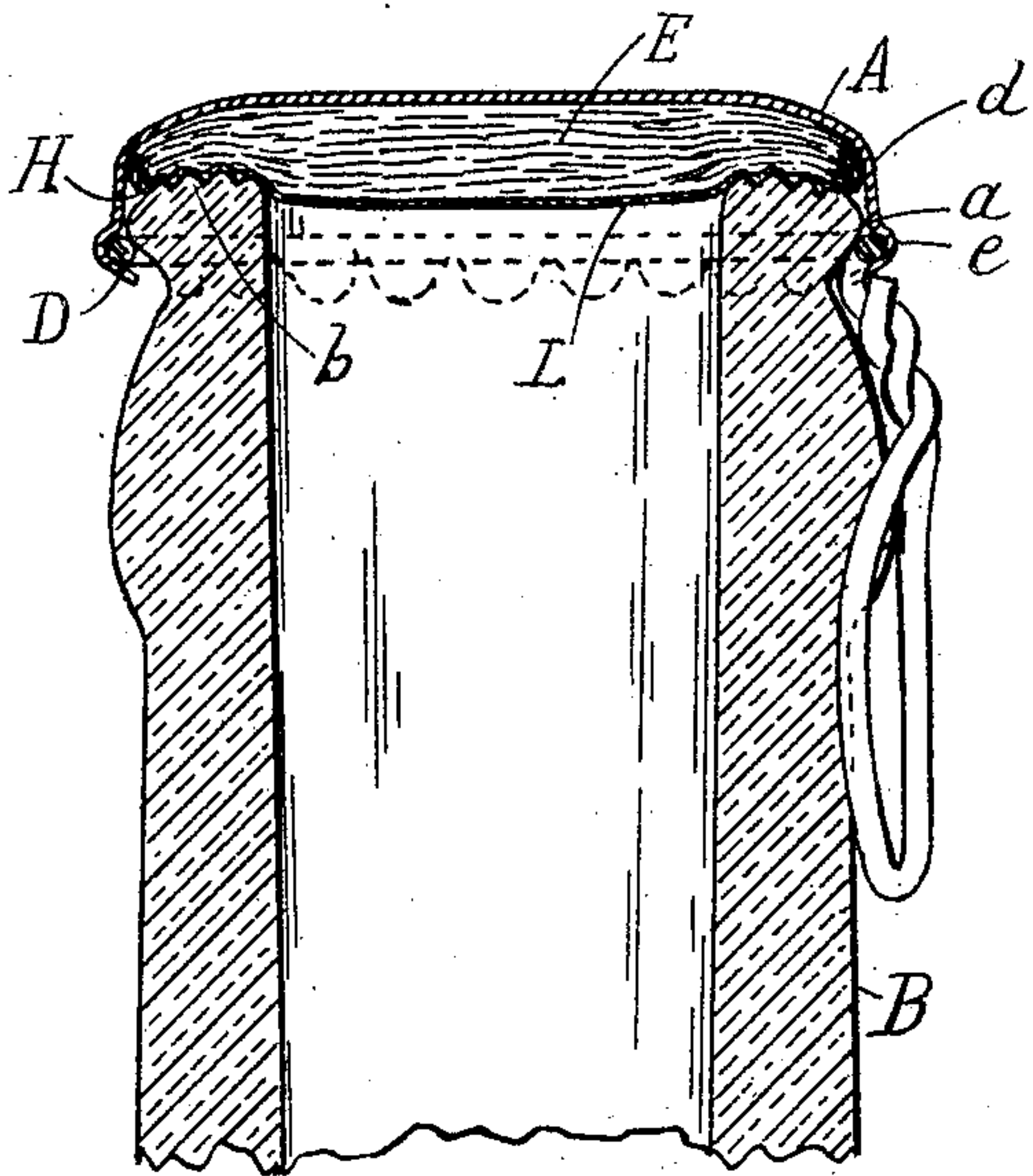


Fig. 2.

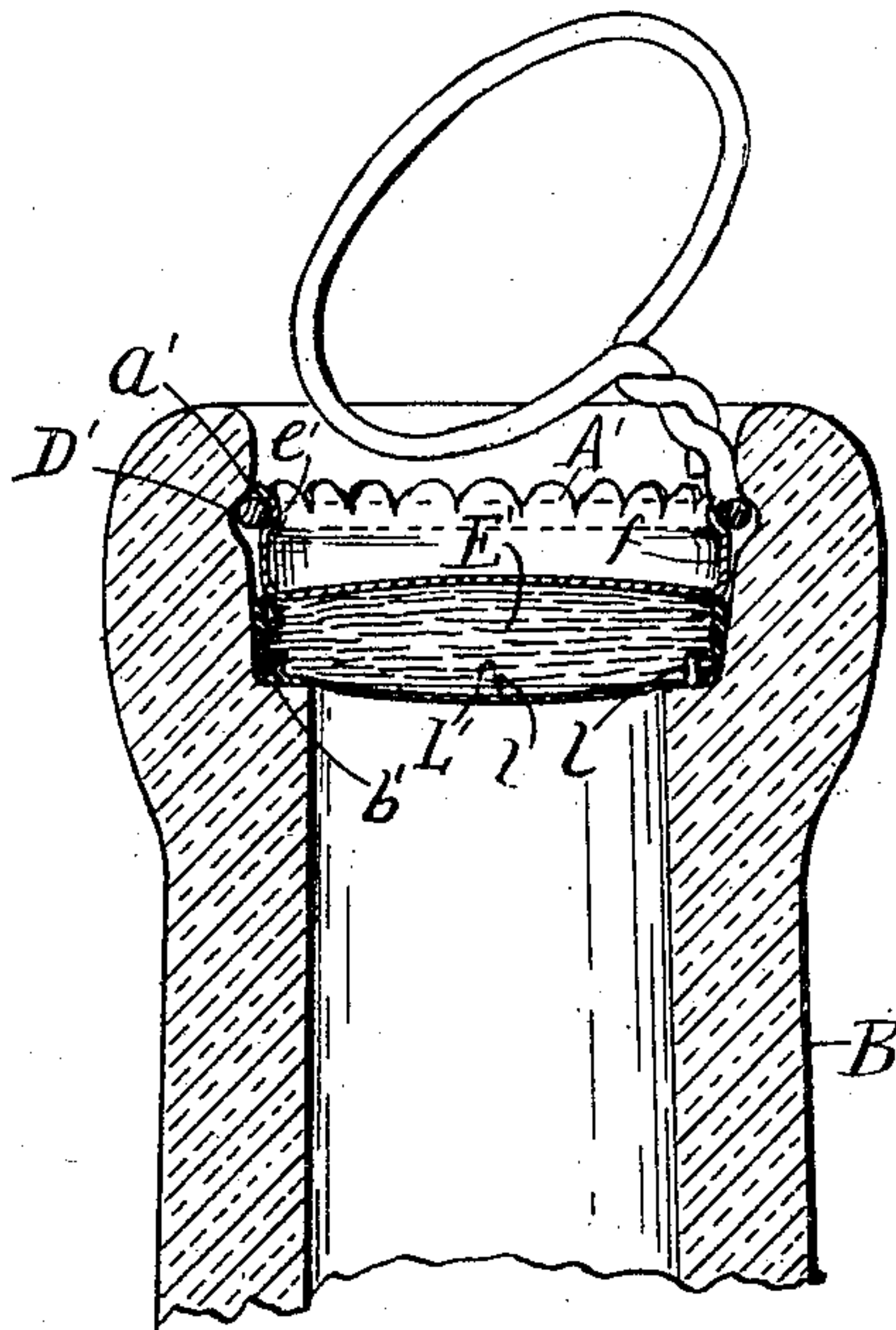


Fig. 3.

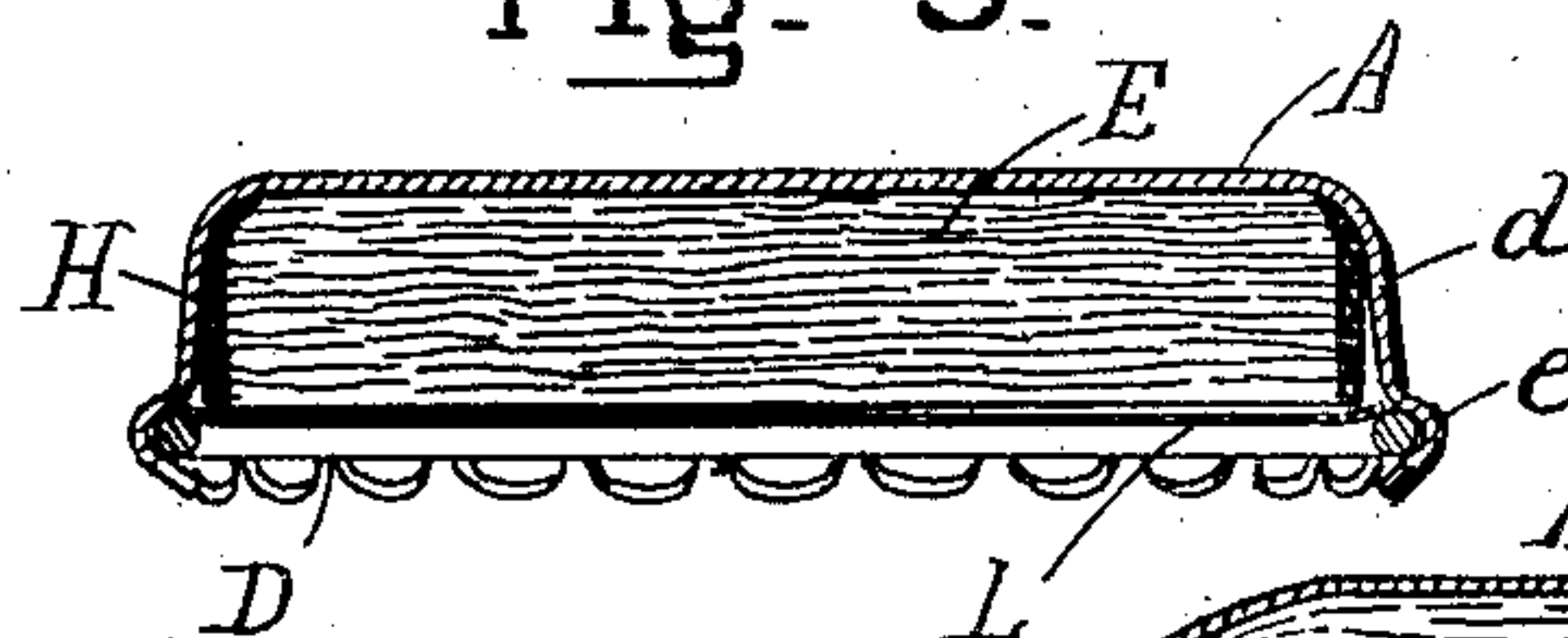


Fig. 6.

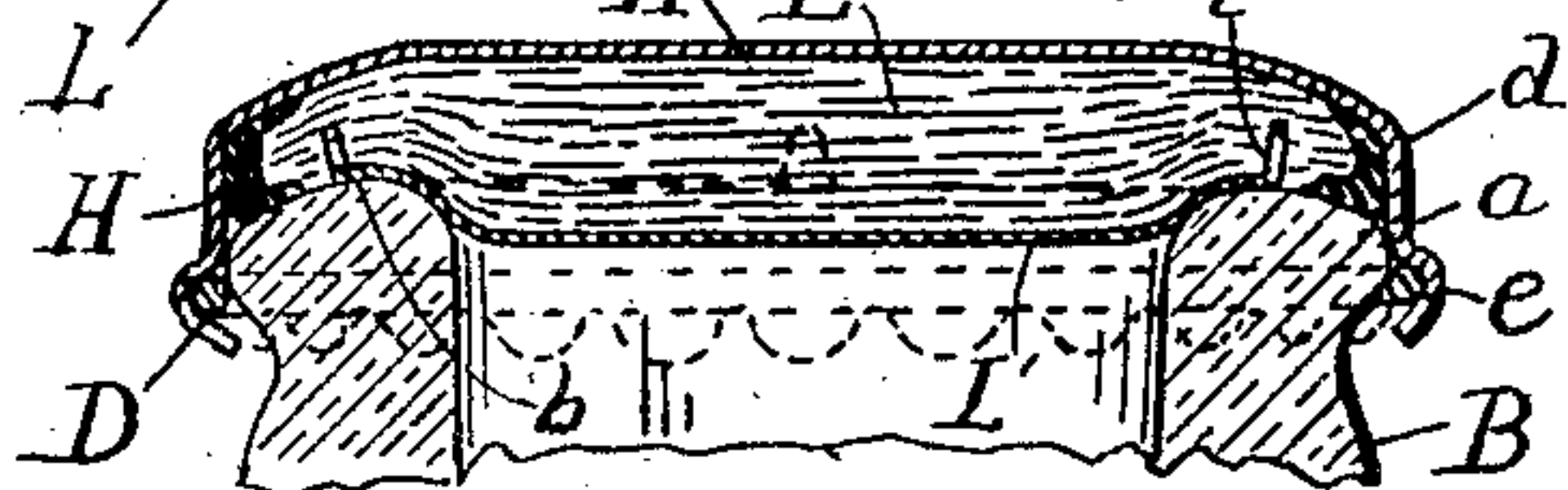


Fig. 4.

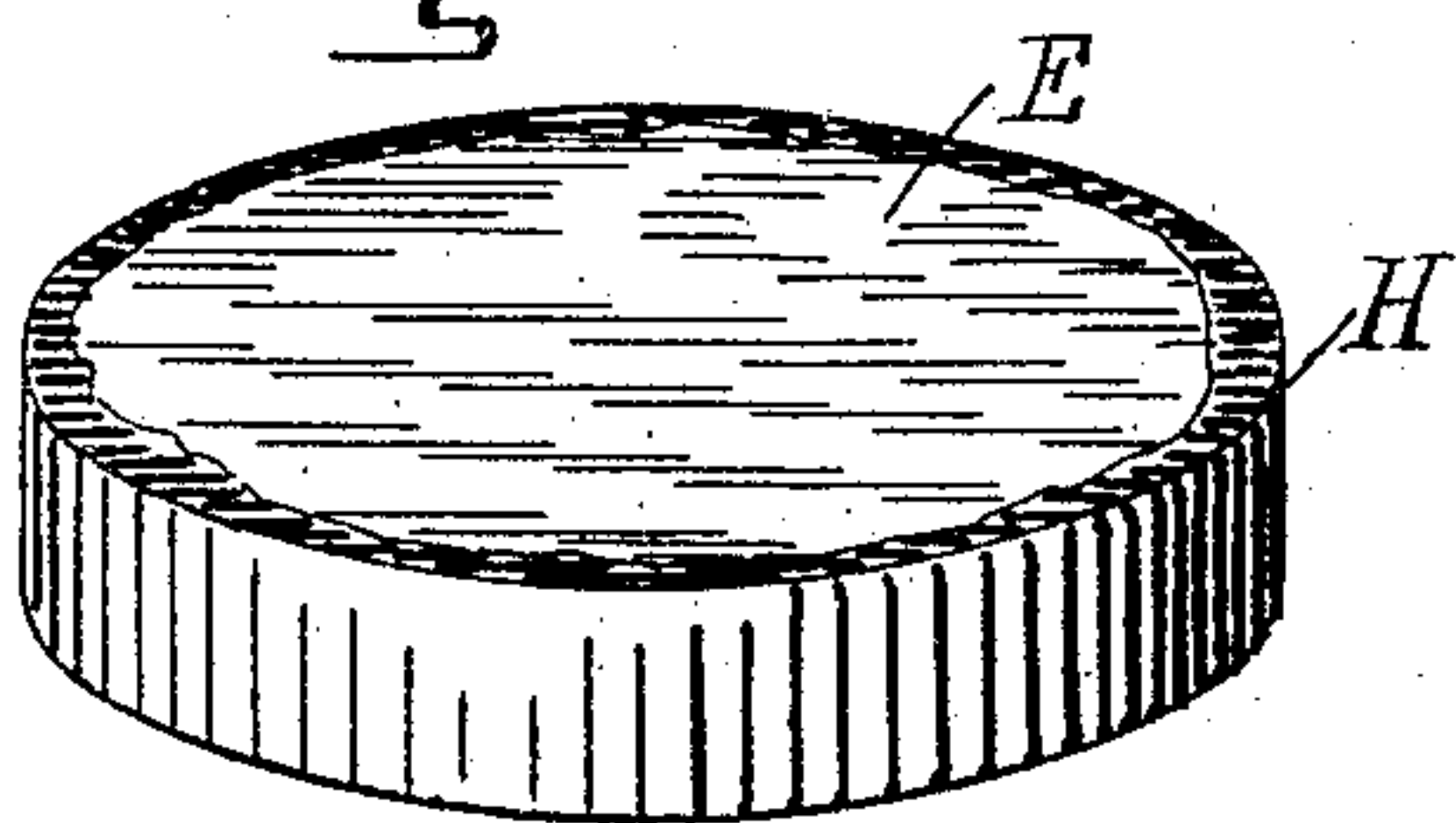


Fig. 5



Witnesses:

Leah L. Curtis
Oscar H. Goddell.

Inventor,

Frederick Recht,

by *Samuel W. Bulch*
Attorney.

UNITED STATES PATENT OFFICE.

FREDERICK RECHT, OF NEW YORK, N. Y., ASSIGNOR TO REX CAP AND CORK COMPANY, OF NEW YORK, N. Y., A CORPORATION OF NEW YORK.

CAP FOR BOTTLES.

No. 796,355.

Specification of Letters Patent.

Patented Aug. 1, 1905.

Application filed November 22, 1904. Serial No. 233,798.

To all whom it may concern:

Be it known that I, FREDERICK RECHT, a citizen of the United States of America, and a resident of the borough of Brooklyn, in the city of New York, county of Kings, and State of New York, have invented certain new and useful Improvements in Caps for Bottles, of which the following is a specification.

This invention is an improvement upon that class of bottle-sealing devices wherein one side of a suitable sealing medium in the form of a flat disk is held in sealing contact with the mouth of a bottle by means of pressure which is maintained against the opposite side of the disk. This pressure is maintained, preferably, by a metal cap which is locked to the bottle in some suitable manner. The cap is usually formed of tinned iron, commonly known as "sheet-tin," as this possesses the required strength, can be readily formed to the required shape, provided with suitable locking devices, and is the least expensive material which possesses these properties to the required degree. The disk, which is the sealing medium, has heretofore usually been of cork. For this purpose a material is required which will conform under pressure to any irregularities in the mouth of the bottle against which it is seated and will not be attacked by and taint such liquids as are to be placed in the bottle. Furthermore, the disk should have a uniform structure without exceptionally hard or soft spots or cracks or pores, since these materially reduce its efficiency as a sealing medium. Cork does not possess such uniformity, and it is only by careful inspection and the rejection of large quantities of cork that sufficiently uniform sealing-disks are obtained of this material. This greatly enhances the cost of the cork for the purpose, and owing to increasing scarcity and cost a suitable bottle-cap is desired in which cork is not required as a sealing medium. Such a cap is shown in the accompanying sheet of drawings, in which—

Figure 1 is a vertical section through a cap, aluminium sealing-disk, interposed disk of compressible material, and a bottle embodying my invention, the cap being provided with a depending flange adapted to be locked to the outer periphery of the mouth of a bottle. Fig. 2 is a modified structure also embodying my invention wherein the cap is provided with an upturned flange and is locked inside

the neck of a bottle. Fig. 3 is a vertical section through the cap illustrated in Fig. 1 before it is applied to a bottle. Fig. 4 is a perspective view of a disk of wood, which serves as a suitable compressible material to be interposed between the cap and sealing-disk. Fig. 5 is a perspective view of the aluminium sealing-disk; and Fig. 6 is a vertical section through a modified structure in which the aluminium sealing-disk is somewhat smaller than the mouth of the bottle, so that the compressible material above the sealing-disk and a rubber band surrounding this compressible material also seats against the mouth of the bottle.

In Figs. 1 and 3 the invention is illustrated in connection with a bottle-cap of the general type heretofore patented to me in United States Letters Patent No. 646,627, dated April 3, 1900, and modified as set forth in my pending application for Letters Patent of the United States, Serial No. 223,087, filed September 2, 1904. The cap A is formed conveniently of tinned iron, preferably of a thickness of about twelve-thousandths of an inch for ordinary bottles requiring a cap of about one and one-eighth inches in diameter, and applied to the mouth *b* of a bottle B. The bottle-mouth is formed with an outwardly-projecting lip *a*, which surrounds the outer periphery of the mouth of the bottle. The cap has a depending flange *d* and a bead *e*, with an inwardly-facing annular groove formed around the lower margin of the depending flange. A wire D is placed in the groove, and when the cap is placed on the bottle the wire partly underlies the lip of the bottle, and the consequent engagement of the bead with the lip of the bottle, preferably through the interposed wire, securely holds the cap over the mouth of the bottle. Within the metal cap and interposed between it and the mouth of the bottle are two disks, one disk being of a compressible material E, for which I find a soft close-grained wood, such as basswood, well adapted, and the other disk being a sealing-disk L, by which I mean a disk in direct sealing contact with the mouth of the bottle. This sealing-disk is of aluminium, preferably of a thickness of three to five thousandths of an inch. In the form shown in Figs. 1 and 3 it is of a diameter before the cap is applied to a bottle sufficient to be engaged by and held in place by the wire. The

disk of compressible material may be of other substances than wood, as good sealing can be effected when the disk is of ground-cork sheeting, as linoleum, or thick paste-board or rubber. When wood is used and the bottles are to be steamed after the cap is applied, it is desirable to render the edge of the disk waterproof. For this purpose rubber-cement H can be applied or a rubber band slipped over the edge, or other suitable waterproofing material may be used—as, for an example, a band of cork.

In Fig. 2 the invention is shown in connection with a bottle-cap A', with an upwardly-turned flange *f'* instead of a depending flange, and a bead *e'* with an outwardly-facing annular groove formed around the margin of the flange. In this form the mouth *b'*, against which the closure is made, is within the neck of the bottle, and an inwardly-turned lip *a'* is formed above the mouth of the bottle. A wire D' lies in the groove and under the lip to lock the cap in place. A disk of compressible material E' and a sealing-disk of aluminium L' lie between the cap and bottle-mouth, the latter disk in sealing contact with the mouth. Several prongs *l* are formed around the margin of the aluminium disk, turned upwardly and driven into the wooden disk as a means of attachment.

In the form shown in Fig. 6 the construction is similar to that of Figs. 1 and 3 as to the cap and manner of locking it to the bottle; but the aluminium disk is smaller and is held in place by prongs, as in Fig. 2, so that when applied to a bottle the rubber band H also contacts with the mouth of the bottle and prevents water from reaching the wooden fibers over the aluminium disk when the bottle is steamed, for the compressibility and elasticity of wood is somewhat impaired when wet, and hence the desirability of waterproofing the edge to prevent access of water. Such impairing also results if the material used in waterproofing is in liquid form and is permitted to impregnate that part of the wood which lies over the mouth of the bottle where the sealing is effected. It is therefore desirable that only the edge and faces of the disk closely adjoining the edge be subject to such waterproofing. In the form illustrated in Fig. 6 the rubber band, which is used for waterproofing, also supplements the aluminium disk in effecting a seal directly with the mouth of the bottle.

The effectiveness of the seal between the aluminium disk and the bottle-mouth is enhanced by providing the bottle-mouth with a series of concentric corrugations, as illustrated in Fig. 1, so that the pressure will be concentrated at the top of the corrugations, and they will cut into or make a more effective seal with the sealing-disk and the extent of surface under seal will be extended.

As compared with bottle-caps in which well-

selected cork is the sealing medium a somewhat greater pressure is requisite in capping bottles with caps constructed in accordance with this invention to make the aluminium disk conform to the irregularities of the bottle-mouth and be brought into proper sealing contact therewith. However, this pressure is no greater than is required in effecting the locking engagement of the cap and bottle with the form of lock herein set forth by the method of applying pressure to the bead for the double purpose of first effecting the sealing engagement and then turning the bead inwardly to carry it and the locking-wire into engagement with the lip of the bottle, as set forth in my application for Letters Patent of the United States, Serial No. 223,088, filed September 2, 1904, for a machine for applying caps to bottles. The strain of this pressure is transmitted through the flange, which is a separate element from the sealing-disk of greater tensile strength by reason of the employment of a metal either of greater unit strength or greater thickness, or both.

The tin cap and the interposed disk of compressible material have a further function in shielding the sealing-disk when on the bottle.

What I claim as new, and desire to secure by Letters Patent of the United States, is—

1. The combination with a metal cap adapted to be locked over the mouth of a bottle, of an aluminium sealing-disk adapted to be held by the cap in sealing contact with the mouth of a bottle, and a disk of compressible material interposed between the cap and sealing-disk.

2. The combination with a metal cap having a depending flange adapted to be locked to the outer periphery of the mouth of a bottle, of an aluminium sealing-disk adapted to be held by the cap in sealing contact with the mouth of the bottle, and a disk of compressible material interposed between the cap and sealing-disk.

3. The combination with a metal cap having a flange with an annular bead through which it is adapted to be locked over the mouth of a bottle, of an aluminium sealing-disk adapted to be held by the cap in sealing contact with the mouth of a bottle, and a disk of compressible material interposed between the cap and sealing-disk.

4. The combination with a metal cap having a depending flange with an annular bead, of a locking-wire within the groove of the bead adapted to lock the cap over the mouth of a bottle, a metal sealing-disk adapted to be held by the cap in sealing contact with the mouth of the bottle, and a disk of compressible material interposed between the cap and sealing-disk.

5. The combination with a metal cap having a depending flange with an annular bead, of a locking-wire within the groove of the bead adapted to lock the cap over the mouth of a

bottle, an aluminium sealing-disk adapted to be held by the cap in sealing contact with the mouth of the bottle, and a disk of compressible material interposed between the cap and sealing-disk.

6. The combination with a metal cap adapted to be locked over the mouth of a bottle, of a metal sealing-disk adapted to be held by the cap in sealing contact with the mouth of the bottle, a disk of compressible material interposed between the cap and sealing-disk, and a band of waterproofing material surrounding the edge of the disk of compressible material but not impregnating that part of the wood which lies over the mouth of the bottle where the sealing is effected.

7. The combination with a metal cap adapted to be locked over the mouth of a bottle, of a metal sealing-disk adapted to be held by the cap in sealing contact with the mouth of the bottle, a disk of compressible material interposed between the cap and sealing-disk, and a band of waterproofing material surrounding the edge of the disk of compressible material and also adapted to be held by the cap in sealing contact with the mouth of the bottle.

8. The combination with a bottle, of a metal cap adapted to be locked over the mouth of the bottle, an aluminium sealing-disk adapted to be held by the cap in sealing contact with the mouth of the bottle, and a disk of compressible material interposed between the cap and sealing-disk.

9. The combination with a bottle, of a metal cap adapted to be locked over the mouth of the bottle, a metal sealing-disk adapted to be held by the cap in sealing contact with the mouth of the bottle, a disk of compressible material interposed between the cap and sealing-disk, and a band of waterproofing material surrounding the edge of the disk of compressible material but not impregnating that part of the wood which lies over the mouth of the bottle where the sealing is effected.

10. The combination with a bottle, of a metal cap adapted to be locked over the mouth of the bottle, a metal sealing-disk adapted to be held by the cap in sealing contact with the mouth of the bottle, a disk of compressible material interposed between the cap and sealing-disk, and a band of waterproofing material surrounding the edge of the disk of compressible material and also adapted to be held by the cap in sealing contact with the mouth of the bottle.

11. The combination with a bottle the mouth of which is provided with a series of concentric corrugations, of a metal cap adapted to be locked over the mouth of the bottle, a metal sealing-disk adapted to be held by the cap in sealing contact with the corrugated mouth of the bottle, and a disk of compressible material interposed between the cap and sealing-disk.

12. The combination with a bottle, of a metal cap having a depending flange with an annular bead, a locking-wire within the groove of the bead adapted to lock the cap over the mouth of the bottle, a metal sealing-disk adapted to be held by the cap in sealing contact with the mouth of the bottle, and a disk of compressible material interposed between the cap and sealing-disk.

13. The combination with a bottle, of a metal cap having a depending flange with an annular bead, a locking-wire within the groove of the bead adapted to lock the cap over the mouth of the bottle, an aluminium sealing-disk adapted to be held by the cap in sealing contact with the mouth of the bottle, and a disk of compressible material interposed between the cap and sealing-disk.

Signed by me in New York city, New York,
this 19th day of November, 1904.

FREDERICK RECHT.

Witnesses:

SAMUEL W. BALCH,
HUGH H. SENIOR.