

(No Model.)

D. J. CORCORAN.
BOTTLE STOPPER.

No. 402,124.

Patented Apr. 23, 1889.

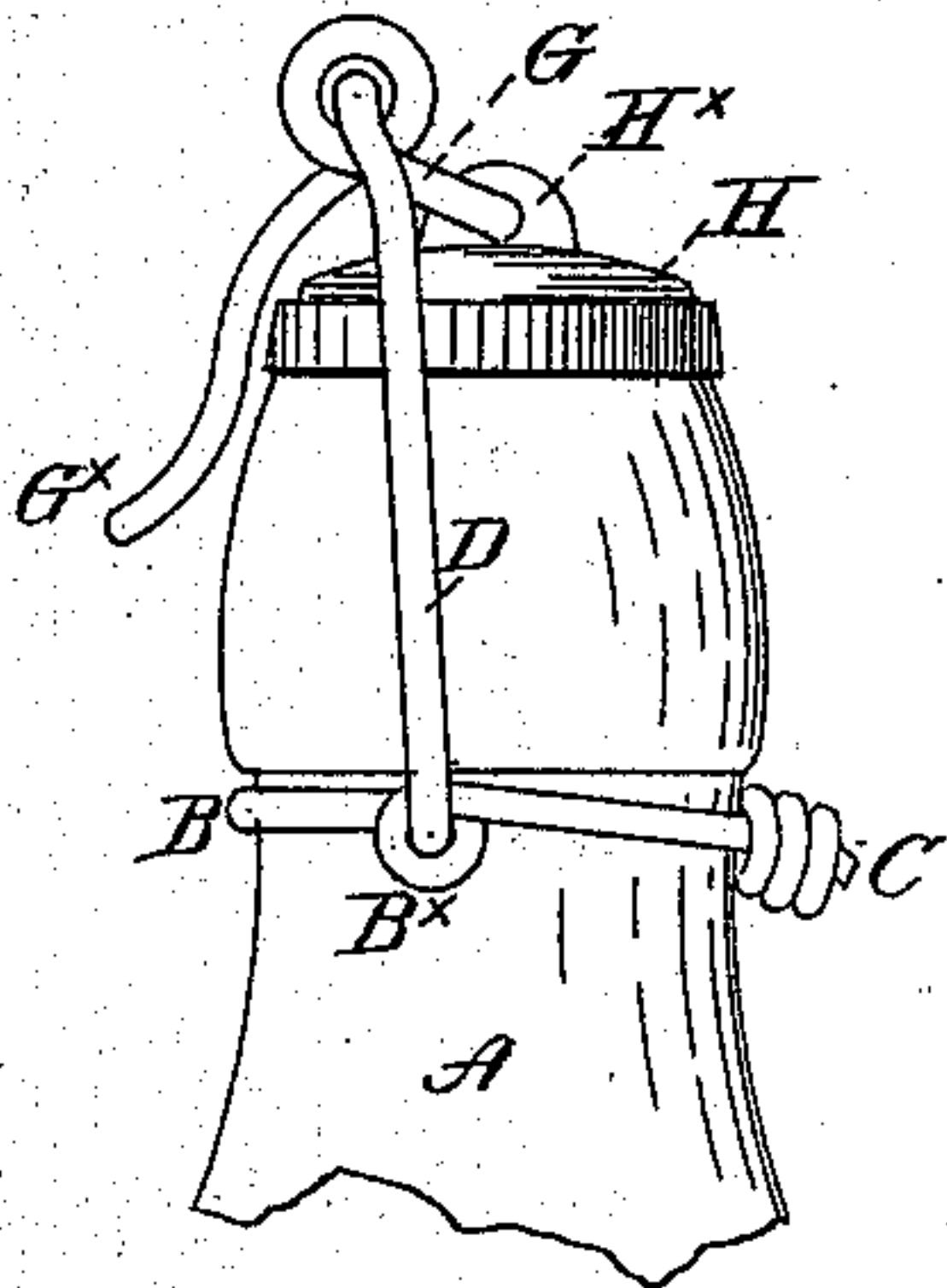


Fig. 1.

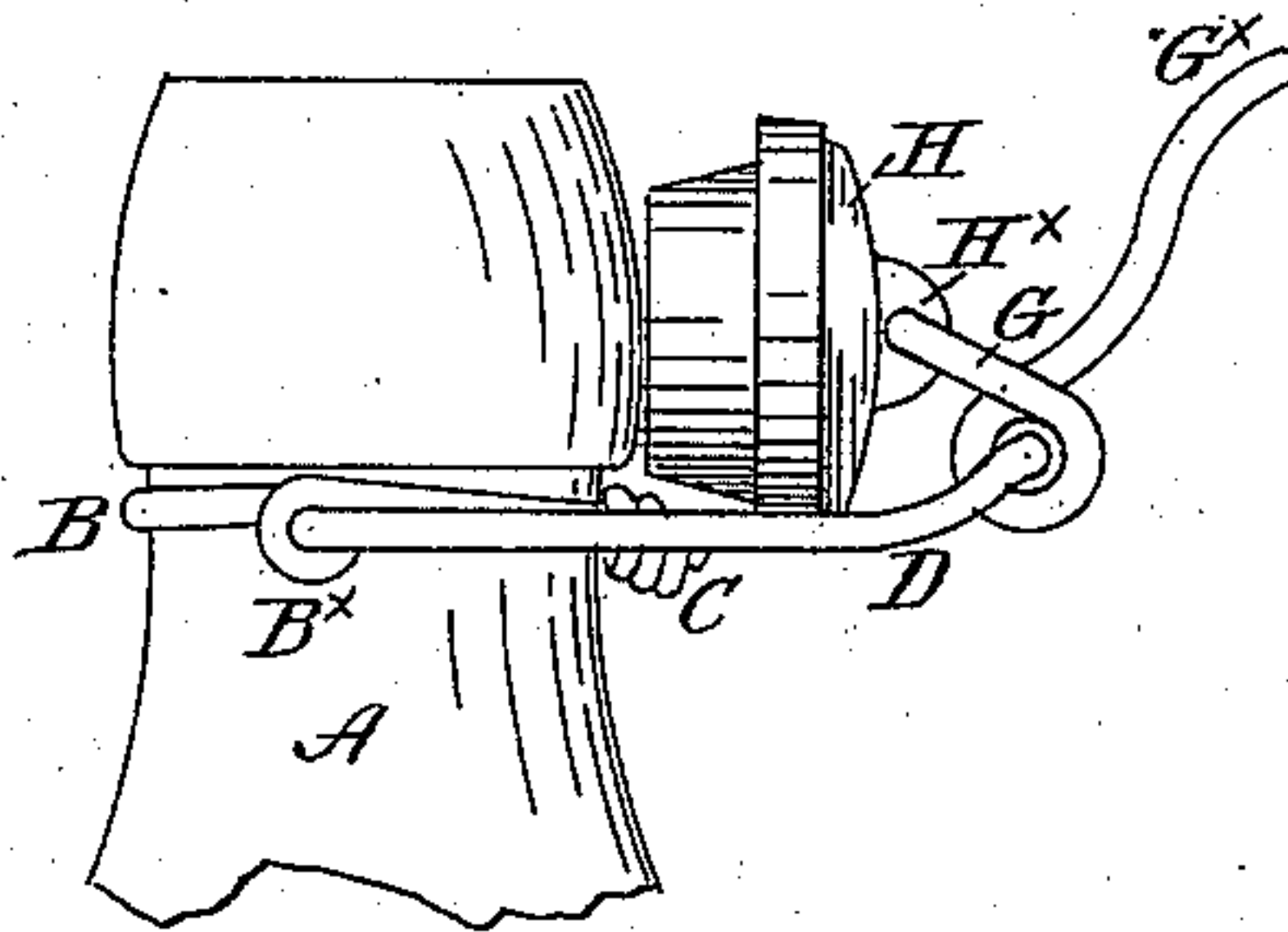


Fig. 2

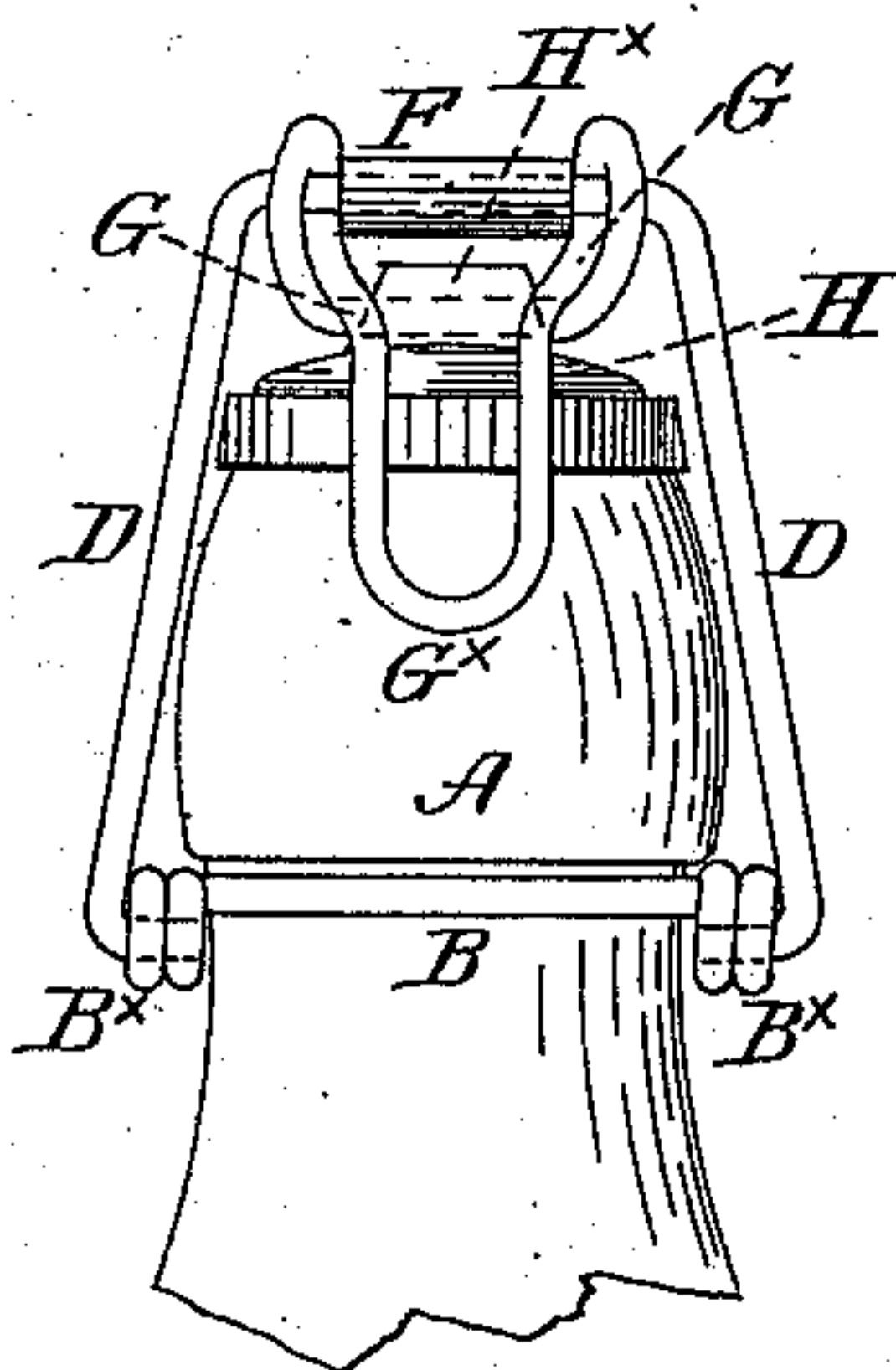


Fig. 3.

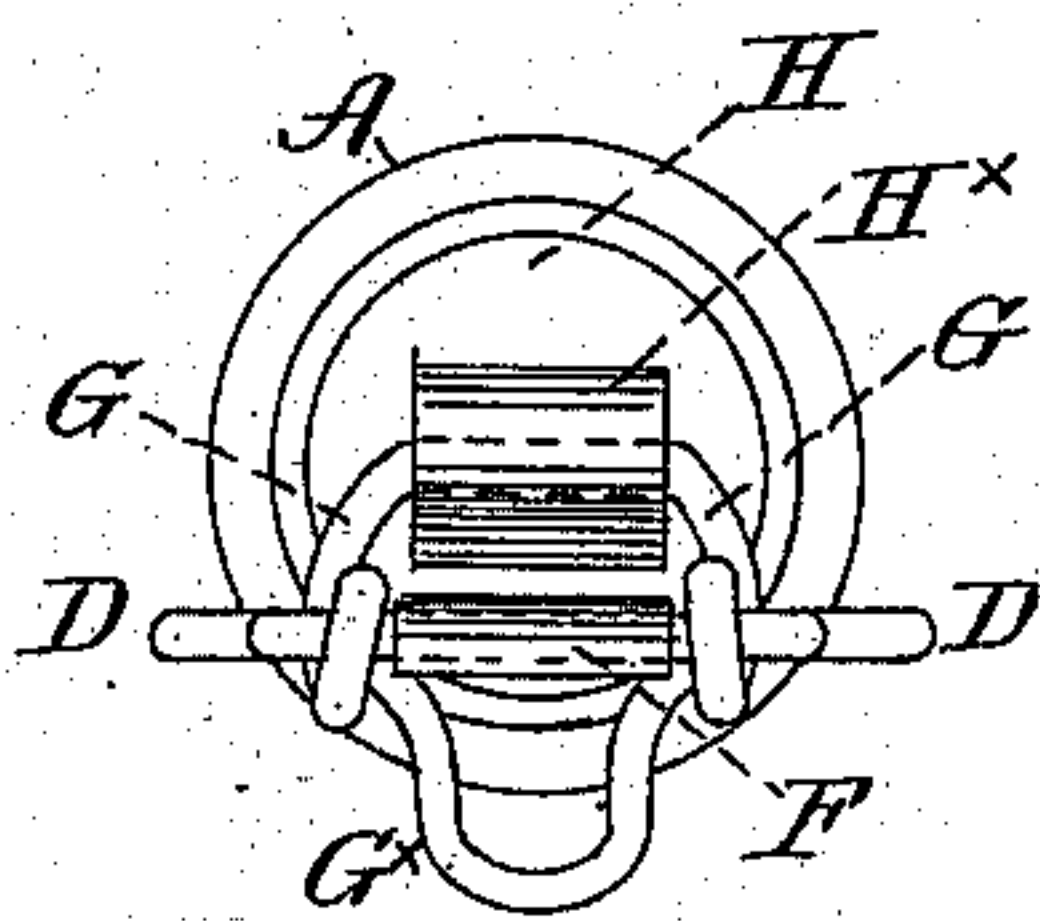


Fig. 4.

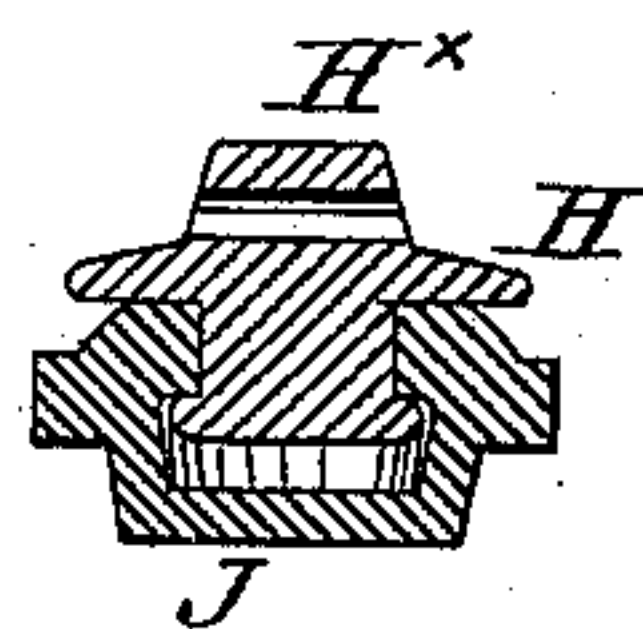


Fig. 5.

Witnesses.

A. V. Hall

John A. Lyon

Inventor:

David James Corcoran

for Lemad. P. JENKINS. atty

UNITED STATES PATENT OFFICE.

DANIEL JAMES CORCORAN, OF DEDHAM, ASSIGNOR TO LAWRENCE MICHAEL
ALOYSIUS CORCORAN, OF BOSTON, MASSACHUSETTS.

BOTTLE-STOPPER.

SPECIFICATION forming part of Letters Patent No. 402,124, dated April 23, 1889.

Application filed January 31, 1889. Serial No. 298,269. (No model.)

To all whom it may concern:

Be it known that I, DANIEL JAMES CORCORAN, of the town of Dedham, Norfolk county, State of Massachusetts, have invented a new and useful Bottle-Stopper, of which the following is a specification.

The nature of my invention is that of a combination of three wires, one fastened round the neck of a bottle and another attached to it by twisting, and the third connected with the last-named wire in the same manner, this third wire passing through an aperture in the upper part of a metallic device, which latter bears a stopper whose under portion enters into the mouth of the bottle and is there firmly fixed, or at pleasure withdrawn, the whole device being at all times firmly held to the first-named wire round the neck of the bottle; and the object is to furnish a strong, lasting, and easily-managed device for closing or opening at pleasure an ordinary bottle.

Figure 1 is a side view of the upper part of the bottle-neck, bearing the cork or stopper, showing the bottle stopped or closed. Fig. 2 is a similar view showing the bottle open. Fig. 3 is a front view of the bottle-neck, shown as closed. Fig. 4 is a view from above of the stopper and its attachments, the bottle being closed. Fig. 5 is a view in vertical section of the stopper, and is hereinafter more fully explained.

In the drawings, A, Fig. 1, is the bottle-neck.

B is a piece of wire, called the "neck-wire," passing round the bottle-neck just beneath the bottle-chin and held there by its ends being twisted together, as seen at C on the right-hand side in Fig. 1. The neck-wire has at each side of the bottle-neck a double twist or convolution, B^x, Fig. 1, inclosing an aperture or hole, through which holes respectively pass the ends of a wire, D, Fig. 1, called the "bearing-wire," (as it bears the stopper,) which ends rest close to the bottle-chin. The bearing-wire proceeds diagonally upward on each side, respectively, to a short distance above the stopper, and there, bending on each side, respectively, passes horizontally across over the bottle-neck, being continuous from the point, Fig. 3, B^x on one side of the bottle-neck to the point B^x on the other. At the center of its

horizontal portion and a short distance, respectively, on each side of the center the bearing-wire D carries a light metallic cylinder, Fig. 3, called the "brace," (or it may be entitled a "collar.") I sometimes substitute for this cylinder a coil of wire.

G, Fig. 1, (G G, Figs. 3 and 4,) is the "latch-wire," (so called because by means of it the bottle-mouth is closed and unclosed,) whose two ends meet in the center of an aperture running horizontally through the "stopple-block boss" H^x, hereinafter more particularly described. Proceeding outward from this aperture on each side the latch-wire G bends upward on each side and proceeds diagonally (see Fig. 3) till it reaches the horizontal portion of the bearing-wire D, under which it passes, and then round over it. (See Fig. 1.) The latch-wire then proceeds downward diagonally, (disposed with a slight inner and a slight outer curve, as seen in Figs. 1 and 2,) and, retaining its original continuity, (the respective ends being enveloped by the stopple-block boss H^x,) presents a loop, as shown at the point G^x in Fig. 3, which point I call the "latch-loop."

I am now to describe the stopper, which consists of the stopple and the stopple-block, as I will explain.

In Fig. 5 is seen H, the stopple-block. This is a block, made of metal, preferably of shape as seen in Fig. 5, which may be described as being composed of a solid cylinder, disposed with its axis vertical, with, fastened to the lower end of the cylinder, a flat disk of diameter considerably less than that of the bore of the bottle-neck. The solid cylinder bears at its upper end another metallic disk, of larger diameter than the lower disk, cast upon it, and upon the upper side of this upper disk is cast a boss, H^x, Fig. 5, called the "stopple-block boss." This is seen in Fig. 4 to be an oblong, in view from above, and in Fig. 5 to have an aperture, which aperture runs in a line coincident with its longest dimensions. Into this aperture, as stated, pass the two ends of the latch-wire G.

J, Fig. 5, is the stopple in vertical section. It is preferably a piece or block of vulcanized rubber, formed in the shape of a cup, of such size as readily to enter into the bottle-

mouth, with inclined external sides, (the whole forming the frustum of a cone.) Across the top of the cup and fastened there concentrically to the cup edge is a cover, (see Fig. 5,) of vulcanized rubber, bearing at its center an aperture or hole of diameter a little less than that of the solid cylinder, above described, of the stopple-block H. Into this last-named aperture the stopple-block lower disk is pressed, and the sides or edges of the hole in the rubber stopple-cover (above described) contracting hold the stopple tightly to the stopple-block and thus to the latch-wire G.

The device being supposed to be as shown in Fig. 2, the bottle is open and unclosed. The stopper, resting at the side of the bottle-chin, interposes no obstruction to the passage outward of the bottle contents, while the whole device remains at the same time firmly attached to the bottle. Shaking the bottle with unlimited freedom, no rattling noise is heard. The latch-wire, confined on each side by the rounded angles of the bearing-wire D, and kept apart, as to its two sides, by the brace F, moves practically in two grooves, semi-rotating freely, but incapable of moving sidewise. The annoying noise common to some other devices, and particularly noticeable when a large number of bottles is in process of transportation, is entirely abrogated. For this reason I call my device the "anti-rattle bottle-stopper." Supposing the bottle to be duly filled with its destined contents, it is desired to cork the bottle. To do this, the stopper is, by means of the thumb and finger, placed with its lower projecting portion (the "cup" of the rubber stopple) in the mouth of the bottle. The bearing-wire D, turning loosely at its ends in the bearings B^x B^x, Fig. 3, and the latch-wire G turning with equal freedom upon the horizontal portion of the bearing-wire, the stopper is located instantaneously. To fasten it, the looped end of the latch-wire G (the latch-loop G^x) is pressed still farther to the left, and, the upper end of the upright portion of the bearing-wire D semi-rotating on the points B^x B^x at each side, respectively, carries with it the latch-wire G and also the stopper attached to it. The cover (seen in section in Fig. 5) is compressed as the part of the latch-wire nearest to the stopper (as seen in Figs. 1 and 2) assumes a perpendicular position. The latch-loop G^x being, by the continuous action of the hand of the operator, pressed still farther to the left, the portion of the latch-wire nearest the stopper inclines diagonally to the left, the compression of the stopple-cover is slightly relaxed, and the resilience of the cover presses the stopper upward. As the rigid character of the short portions of the latch-wire G (seen in Figs. 1 and 2 as nearest to the stopper, one on each side, respectively, of the axial center of the bottle-neck, see

Fig. 3) prevents the bending of them, the stopple is firmly held in the mouth of the bottle, no shaking, casual or intentional, no expansion of gases contained in the bottle, no laying of the bottle on its side, or any other force less than would suffice to draw the bearing-wire D apart lengthwise, or to bend the short and rigid portions of the latch-wire, all these being of not the slightest avail to unseal, uncloze, or unstopper the bottle. The latch-loop or curved left-hand end G^x, Fig. 1, of the latch-wire G meanwhile remains, pressed by the expansion of the stopple-disk, close to the side of the bottle-chin, free of any liability to catch the hand or coat-sleeve or any other object.

When the bottle is to be opened, it is taken by the fingers of one hand, clasping the bottle-neck, and the upward pressure of the thumb of the same hand upon the point marked G^x of the latch-wire G repeats the above-described process of closing the bottle in reverse order, and as soon as the short portions of the latch-wire G reach, in the pressure by the operator to the right-hand side, the point at which these short portions incline diagonally to the right hand, the resilience of the compressed stopple-cover completes the desired action, the stopple and the stopple-block fly suddenly to the right and take the position shown in Fig. 2, leaving the bottle-mouth entirely free from obstruction to egress or ingress and my device firmly attached to the bottle and ready at any instant for endless repetition of the operations described.

I do not confine myself to the peculiar stopple shown, as I can use my three wires, bent and pivoted, as shown, with other forms of compressible stopper, and with stoppers not compressible.

I claim in bottle-stoppers—

1. The combination and arrangement, in connection with a bottle, of the neck-wire B, the bearing-wire D, held to the neck-wire B by coils in said neck-wire, and the stiff latch-wire G, held to the bearing-wire D by a pair of single coils and carrying the latch-loop G^x, with the metal stopple-block H, provided with the boss H^x, the boss holding the two respective ends of the latch-wire G and holding at its lower portion the hollowed rubber stopple J, all constructed and arranged substantially as described and shown.

2. The combination, with a bottle and any stopper, of the wires B, D, and G, the last-named wire, accompanied by the brace F, playing on the horizontal portion of the bearing-wire D, all substantially as described and shown.

DANIEL JAMES CORCORAN.

Witnesses:

LEMUEL P. JENKS,
O. B. HALL.