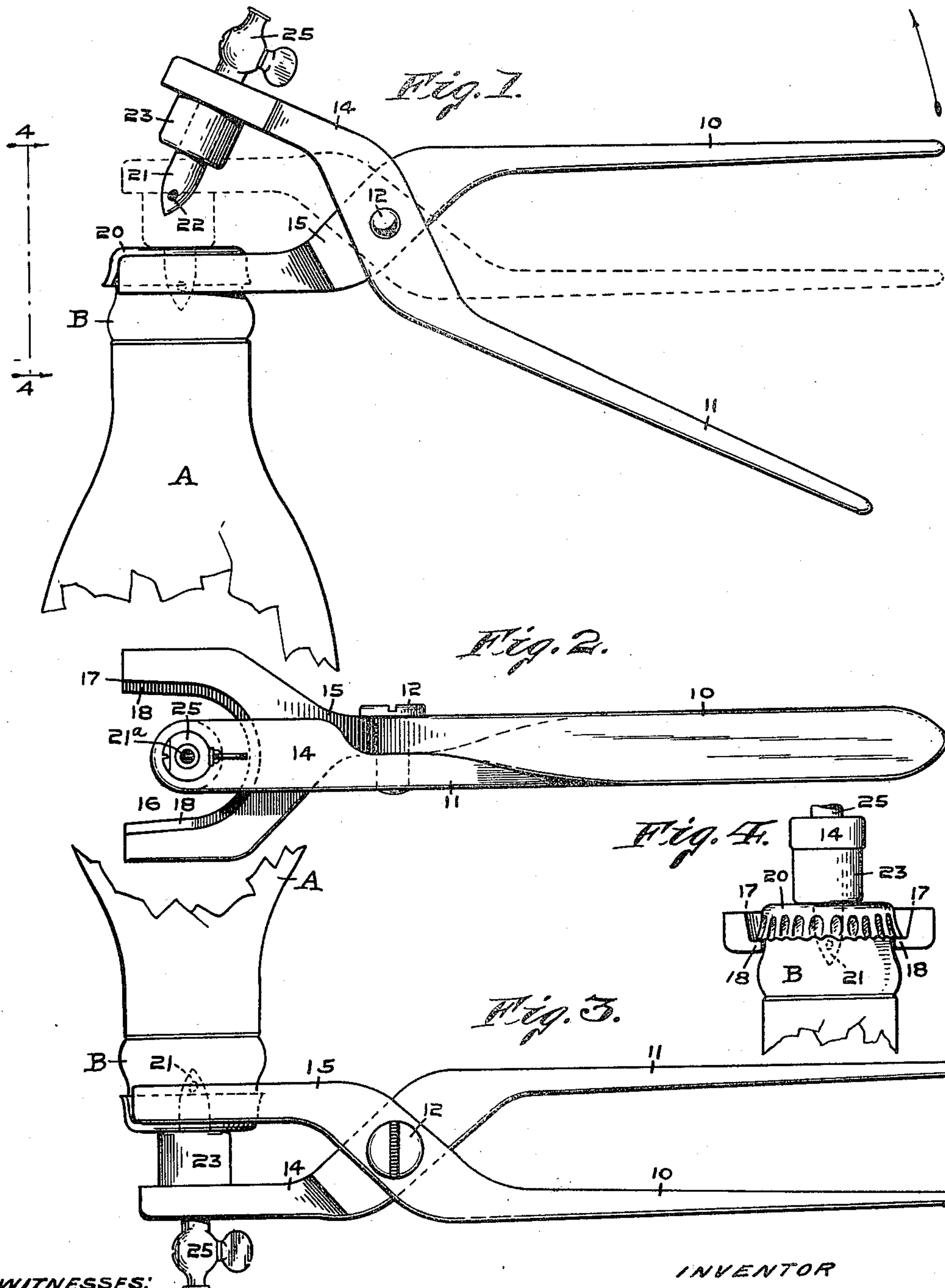


J. R. NEFF.
BOTTLE CAP PERFORATOR AND REMOVER.
APPLICATION FILED JULY 12, 1915.

1,154,718.

Patented Sept. 28, 1915.



WITNESSES:

L. B. Moerner.
Wm. Hurte.

INVENTOR

James R. Neff,
By Winturn Woerner,
ATTORNEYS.

UNITED STATES PATENT OFFICE.

JAMES R. NEFF, OF INDIANAPOLIS, INDIANA.

BOTTLE-CAP PERFORATOR AND REMOVER.

1,154,718.

Specification of Letters Patent.

Patented Sept. 28, 1915.

Application filed July 12, 1915. Serial No. 39,429.

To all whom it may concern:

Be it known that I, JAMES R. NEFF, a citizen of the United States, residing at Indianapolis, in the county of Marion and State of Indiana, have invented certain new and useful Improvements in Bottle-Cap Perforators and Removers, of which the following is a specification.

This invention relates to a tool for perforating and for removing the metal caps employed on bottles containing carbonated water; and has for its chief object the securing of the two stream discharge obtainable in soda fountains, first, the initial discharge of a portion of the liquid in the form of a spray, and second, the full flow, these being necessary to impart to this favorite beverage the creamy, foamy top and requisite amount of liquid.

A further object of the invention is to provide means for perforating and removing the metal caps from bottles containing carbonated water, and for controlling the discharge of the contents of the bottle after the cap is perforated and before its complete removal from the bottle neck.

A still further object of the invention is to provide means whereby, after perforating the metal caps on bottles, in controlling the liberation of the gas, that portion of the water subject to displacement by the outgoing gas may be removed from the bottles in separate successive steps.

A still further object of the invention is to provide means whereby, after the removal of that portion of the water from the bottles incident to the liberation of the gas through the perforated caps, said caps may then be removed from the bottle necks.

I accomplish the above objects by means of the construction shown in the accompanying drawings, forming a part hereof, in which—

Figure 1 is a side elevation of my improved device for perforating and removing metal caps from bottles. Fig. 2 is a top or plan view of the construction shown in Fig. 1 with the bottle omitted. Fig. 3 is a side elevation of the device holding a bottle in an inverted position. Fig. 4 is a front view on the line 4—4 in Fig. 1.

It may here be appropriately stated that the well known summer beverage ice cream is merely combining carbonated water—water charged with carbonic acid gas—frozen cream, together with such flavor or syrup as

may be desired. This well known beverage is dispensed at all soda fountains.

The invention here is to conveniently handle carbonated water in bottles in the production of ice cream sodas in the home or at out door gatherings, without the necessity and expense of installing a soda fountain.

Referring to the drawings, the device for perforating and for removing the metal caps from bottles containing carbonated water comprises the member 10 and 11 which are pivoted together at 12, and forming a tool somewhat in appearance to that of a pair of pliers. The members 10 and 11 terminate in the jaws 14 and 15, in which the jaw 15 is bifurcated to provide a recess 16 adapted to receive the neck of the bottle, as shown. The forked ends of the jaw 15 are off-set at 17 to provide a ledge 18 adapted to form a support for the lower edge of the metal cap 20, thereby sustaining the bottle neck in position within the device and preventing longitudinal displacement of the bottle during the operation of perforating and removing the cap from the bottle neck. The jaw 14 is provided with a needle 21 which perforates the metal cap 20 when the jaws 14 and 15 are moved toward each other. The needle 21 is provided with a longitudinal passageway 21^a through which the liquid discharges, and access is secured to said passageway through suitable openings 22 located in the wall near the pointed end of the needle. A buffer 23, composed of rubber or similar material, surrounds the needle 21 and absorbs the vibration incident to the perforation of the metal caps, and prevents said vibration from being communicated to the bottle. The passageway 21^a in the needle 21 communicates with a pet-cock 25 whereby the discharge of the gas and water from the bottle may be controlled.

The operation of the device is as follows: The operator places the neck of the bottle A into the recess 16 with the lower flaring edge of the metal cap 20 resting upon the ledge 18, then by moving the members 10 and 11 of the device toward each other the jaws 14 and 15 are likewise driven toward each other, the pointed end of the needle penetrating the cap 20 until its movement is arrested by the top of the cap coming into contact with the buffer 23, at which time the needle has penetrated a sufficient distance to allow the openings 22 to clear the cap and

its cork lining. The operator now turns the device over so as to place the bottle into an inverted position, as shown in Fig. 3, and opening the pet-cock 25 allows the contents of the bottle to be discharged into a glass containing the requisite amount of ice cream. The gas in the bottle being under constant pressure and liberated by the opening of the pet-cock 25 rushes out through the hollow needle 21 and at the same time induces the removal of a portion of the liquid from the bottle, at least to such an extent until the space, that becomes available through the displacement of the liquid, is sufficient to permit complete expansion of the gas remaining in the bottle, after which further displacement through the medium of compression ceases and displacement through gravitation begins. When the gas is initially released from the bottle the liquid passing out with the gas is ejected through the passageway 21^a in the form of a spray and with such force as to produce the creamy foam so characteristic and essential in the dispensing of this favorite beverage. After the gas remaining in the bottle has fully expanded the liquid remaining in the bottle is then introduced into the glass, this being called the full flow, and imparting the requisite amount of liquid to the drink. As the process of removing the balance of the liquid from the bottle through the passageway 21^a would consume too much time, the operator merely turns the device over into its initial position, as shown in Fig. 1, and then by elevating the members 10 and 11 in the direction indicated by the arrow the bifurcated end of the jaw 15 is brought to bear upon the rounded portion B of the bottle neck and providing a fulcrum for the tool during the operation of removing the cap from the bottle neck.

Having thus fully described my said invention, what I desire to secure by Letters Patent, is—

1. A device of the above described class comprising a pair of hinged members terminating in jaws, means on one jaw for temporarily supporting a bottle, and means carried by the other jaw for perforating the

cap on the bottle while the latter is being supported in the device when the two jaws are made to approach each other by an oscillatory movement about said hinge.

2. A device of the above described class comprising a pair of hinged members terminating in jaws, means on one jaw for temporarily supporting a bottle, and a hollow perforating device carried by the other jaw for perforating the cap and allowing the contents of the bottle to discharge through said perforating device.

3. A device of the above described class comprising a pair of hinged members terminating in jaws, means on one jaw for temporarily supporting a bottle, a hollow perforating device carried by the other jaw for perforating the cap and allowing the contents of the bottle to discharge through said perforating device, and means for limiting the insertion of said perforating device into the bottle.

4. A device of the above described class comprising a pair of hinged members terminating in jaws, means on one jaw for temporarily supporting a bottle, a hollow perforating device carried by the other jaw for perforating the cap and allowing the contents of the bottle to discharge through said perforating device, and means for controlling the discharge of the contents of the bottle.

5. A device of the above described class comprising a pair of hinged members terminating in jaws, means carried by one jaw for temporarily supporting a bottle and for removing the cap from the bottle neck, and a perforating device carried by the other jaw for perforating the cap and retaining it during the removal of the cap from the bottle neck by a prying movement of the bottle supporting jaw.

In witness whereof, I, have hereunto set my hand and seal at Indianapolis, Indiana, this 6th day of July, A. D. one thousand nine hundred and fifteen.

JAMES R. NEFF. [L. s.]

Witnesses:

WILLIAM H. FAUST,
F. W. WOERNER.