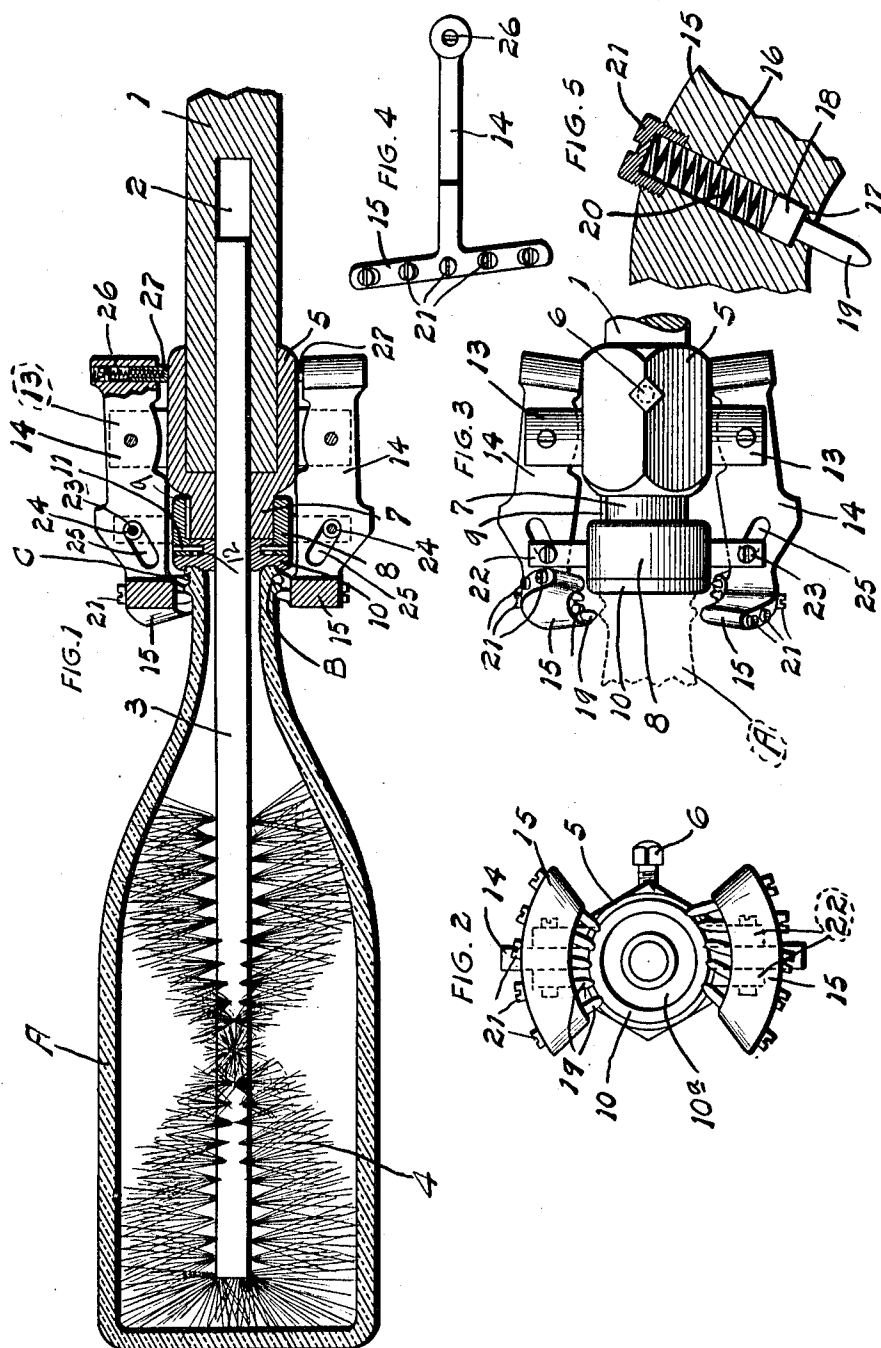


E. PETZ.
BOTTLE CLEANING DEVICE.
APPLICATION FILED JULY 10, 1911.

1,020,510.

Patented Mar. 19, 1912.



WITNESSES

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BOTTLE-CLEANING DEVICE.

1,020,510.

Specification of Letters Patent. Patented Mar. 19, 1912.

Application filed July 10, 1911. Serial No. 637,595.

To all whom it may concern:

Be it known that I, EGNAZ PETZ, a subject of the German Emperor, residing at East St. Louis, St. Clair county, Illinois, have invented a certain new and useful Improvement in Bottle-Cleaning Devices, of which the following is a full, clear, and exact description, such as will enable others skilled in the art to which it appertains to make and use the same, reference being had to the accompanying drawings, forming part of this specification, in which—

Figure 1 is a sectional view of a bottle cleaning device of my improved construction and showing a bottle in proper relation to said cleaning device while the lip of the bottle is being cleaned. Fig. 2 is a front elevation of my improved bottle cleaning device. Fig. 3 is a side elevation of the device. Fig. 4 is a plan view of one of the jaws which carries the yielding cleaning pins or fingers. Fig. 5 is an enlarged detail section taken through one of the jaws and showing one of the spring pressed cleaning pins or fingers therein.

My invention relates to a device for cleaning the grooves formed in the lips of that type of bottles which are closed or sealed with metal caps, and which bottles are now in general use for containing beverages. Bottles ordinarily used for containing soda water, ginger ale, mineral waters and beer are usually closed and sealed by means of metal caps, the edges of which are crimped by suitable machinery into an annular groove formed in the exterior surface of the bottle immediately adjacent the mouth thereof, and where the bottles stand for any length of time before being unsealed the grooves which receive the crimped edges of the caps become filled or partially filled with rust which forms on the edge of the cap and with dust and dirt. This accumulation of foreign matter in the cap receiving grooves of the bottles can not be removed by ordinary methods used in cleaning the bottles, viz; the soaking of the bottles and the scrubbing of the interior thereof with bristle brushes, and it is the object of my invention to provide a simple inexpensive device carrying a series of yielding pins or fingers, which as the device is rotated travel over the surface of the lip of the bottle and through the groove therein, thereby quickly and

efficiently removing all foreign matter which may accumulate in the cap receiving groove.

My improved device is particularly intended for use in connection with a rotating spindle carrying a brush, which latter extends into the bottle and effectually scrubs and cleans the interior thereof at the same time the lip and cup receiving groove is being cleaned and scrubbed.

To the above purposes my invention consists in certain features of novelty herein-after more fully described and claimed.

Referring by numerals to the accompanying drawings 1 designates a shaft or spindle which is adapted to be rotated and seated in a socket 2 formed in the end of said shaft or spindle is a rod 3, the outer portion of which is provided with bristles to form a brush 4, and which latter is utilized for scrubbing the interior surfaces of the bottles.

The bottle A illustrated in Fig. 1 is of the type ordinarily employed for bottling soda water, ginger ale and like beverages and is provided with the usual lip B, having an annular groove C formed therein, which groove receives the crimped edges of the metal cap which closes the mouth of said bottle. A sleeve 5 is mounted on the end of the shaft 1 by means of a set screw 6, and formed integral with the forward end of this sleeve is a head 7 which is perforated so as to receive the rod 3. Arranged to slide lengthwise upon this head 7 is a collar 8, and this collar is held to rotate with said head by means of a key 9 formed on said head 7, which key engages in a corresponding groove formed on the interior of said collar. A face plate 10 is arranged on the front end of the collar 8 and seated in said collar are pins 11, the inner ends of which engage in a groove 12 formed in said face plate thus said plate is held to move longitudinally with the collar 8, but has rotary movement independently thereof. Formed in the outer face of the plate 10 is an annular groove 10^a, which is adapted to receive the ends of the bottles while the same are being cleaned. Formed on or fixed to the sleeve 5 and on opposite sides thereof are ears 13 arranged in pairs and fulcrumed between each pair of ears is an arm 14 carrying on its forward end an arcuate head 15. Each head is formed on a slight angle relative to a plane at right angles to the plane occupied

by the plates 14, and as said plates are on opposite sides of the sleeve 5 the arcuate heads are reversely positioned with respect to each other immediately outside and in front of the face plate 10. Formed through each head 15 is a series of tangentially arranged apertures 16, and formed within each aperture adjacent the lower end thereof is a shoulder 17. Arranged to slide freely through the lower portion of each aperture is a cylindrical head 18 and formed on or fixed thereto is a pin or finger 19 having a rounded outer end, which finger extends through the lower portion of aperture 16. The shoulder 17 forms a stop for the head 18 and restricts the outward movement of the corresponding pin or finger 19. Positioned in each aperture behind the head 18 is an expansive coil spring 20, and screw seated in the head 15 at the upper end of each aperture is a cap 21, against which the upper end of the spring engages.

Formed integral with the collar 8 on opposite sides thereof are pairs of ears 22, and seated in the outer end of each pair of these ears is a pin 23. Mounted on said pin between the ears is a roller 24, which occupies and is adapted to traverse an inclined slot 25 formed in the forward portion of each plate 14. The rear end of each plate 14 is provided with a recess 26, and seated therein is a spring pressed plug 27 the outer end of which bears against the outer face of the sleeve 5. The normal tendency of the springs behind these plugs 27 is to force said plugs toward the sleeve 5 and consequently force the rear ends of the plates 14 outward away from said sleeve, thereby moving the arcuate heads 15, carrying the fingers 19, inwardly toward the axis of the device, but when the device is properly mounted upon the shaft 1 and said shaft is rotated at a comparatively high speed, the outer ends of the plates 14 carrying the heads 15 will be moved outward by centrifugal force. Such action causes the rollers 24 on the pins 23 to traverse the inclined slots 25, and therefore, as a result the collar 8 carrying the face plate 10 is moved forward on the head 7.

The positions of the various parts of the device while the same is in use and not engaged by a bottle are clearly shown in Figs. 2 and 3. When in use the bottle to be cleaned is manipulated so that it is positioned on the brush as shown in Fig. 1 and the operator manually engaging the bottle forces the mouth thereof against the face plate 10 and as forward pressure is applied to the bottle by the hand, the plate 10 and collar 8 will be moved rearwardly upon the head 7. This action swings the plates 14 upon their fulcrums owing to the movement of the rollers 24 through the inclined slots 25, and thus the arcuate heads carry-

ing the pins or fingers 19 are moved inwardly toward the lip of the bottle in which the groove is formed. The outer ends of the spring pressed pins or fingers 19 yieldingly engage the entire surface of the lip of the bottle, thereby rubbing all dirt or rust therefrom, and at the same time effectually removing any dirt or the like which has accumulated in the groove formed in said lip.

It will be understood that the bottles before being cleaned by my improved device are filled or partially filled with suitable cleaning liquid, and at the same time the grooved lip is being cleaned by the pins or fingers 19, the brush 4 is scrubbing and cleaning the interior of the bottle. The forward end of the bottle is pressed into the groove 10^a in the face plate 10 and while so held the cleaning liquid is prevented from discharging from the bottle. The pins or fingers 19 are backed by springs of proper tension and during the cleaning operation these pins or fingers give readily and instantly adjust themselves to the contour and shape of the lip of the bottle and the portion of the neck immediately adjacent said lip. As soon as the mouth of the bottle is withdrawn from the face plate 10 the centrifugal force developed in the rotation of the device causes the heads 15 to move away from one another, which action moves the collar 8 and face plate 10 forward into position to receive the mouth of the next bottle to be cleaned.

A bottle cleaning device of my improved construction is comparatively simple, can be operated with little power, is very compact and is very effective in cleaning the grooved lips of bottles, which are closed and sealed by metal caps, which latter naturally rust and cause the accumulation of dust and like foreign matter within and upon the grooved lips of the bottles.

While I have shown and described my improved bottle cleaning device as being used in connection with a rotary brush, it will be readily understood that said device can be advantageously used upon the end of a rotary shaft or spindle which is not provided with a brush.

It will be readily understood that minor changes in the size and construction of the various parts of my improved device may be made and substituted for those herein shown and described without departing from the spirit of my invention, the scope of which is set forth in the appended claims.

I claim:

1. In a bottle cleaning machine the combination with a head adapted to be rotated, of a collar arranged to slide on the head, a face plate connected to said collar so as to slide therewith and rotate independently

thereof, a spring-held member fulcrumed on the head, connections between the collar and said member whereby the forward end of the member is moved inwardly when the plate is engaged with pressure by a bottle to be cleaned, a transversely disposed arcuate plate carried by the forward end of the fulcrumed member and a series of spring pressed pins carried by the arcuate head.

2. In a bottle cleaning device of the class described, the combination with a rotatably mounted member, of a plate fulcrumed on said member, a transversely disposed head on the forward end of said plate in which head is formed a series of openings and spring pressed pins seated in and projecting from said openings.

3. In a bottle cleaning machine of the class described, the combination with a rotatably mounted member, of a plate fulcrumed on said member, an arcuate head on one end of said plate, which head is inclined with respect to a plane at right angles to the plane occupied by the plate and a series of spring pressed pins carried by the arcuate head.

4. In a bottle cleaning machine the combination with a rotatably mounted head, of a pair of oppositely disposed plates fulcrumed on said head, arcuate heads on the forward ends of the plates, which arcuate heads are inclined with respect to a plane

at right angles to the axis of the rotatably mounted head, a series of spring pressed pins arranged in each arcuate head and means connected to the plates and adapted to be engaged by the end of the bottle to be cleaned for simultaneously swinging the plates upon their fulcrums to move the arcuate pin carrying heads toward the head of the bottle.

5. In a bottle cleaning machine the combination with a rotatably mounted head, of a pair of plates fulcrumed on said head, spring pressed pins seated in the rear ends of said plates, the outer ends of which pins bear upon the head, an inclined arcuate head carried by the forward end of each plate, a series of spring pressed fingers arranged in each arcuate head, a collar arranged to slide lengthwise upon and rotate with the rotatably mounted member, ears projecting from said collar, pins carried by said ears, which pins pass through the inclined slots formed in the plates, and a face plate carried by and arranged to rotate independently of the collar.

In testimony whereof I hereunto affix my signature in the presence of two witnesses, this 6th day of July, 1911.

EGNAZ PETZ.

Witnesses:

M. P. SMITH,
JOY HUTTON.