

June 28, 1932.

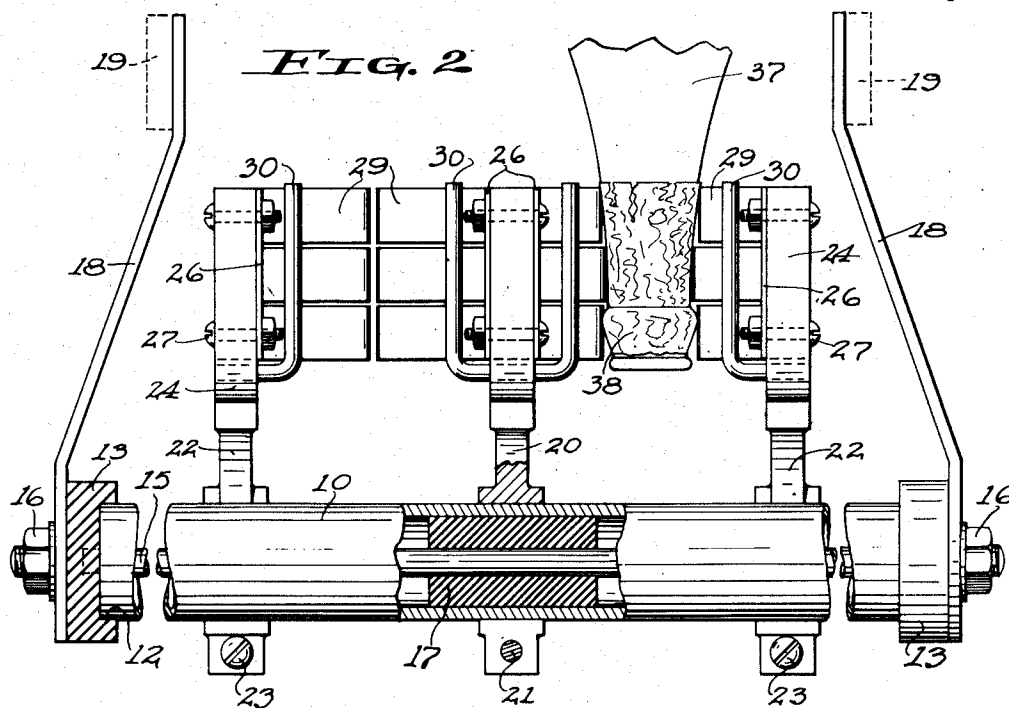
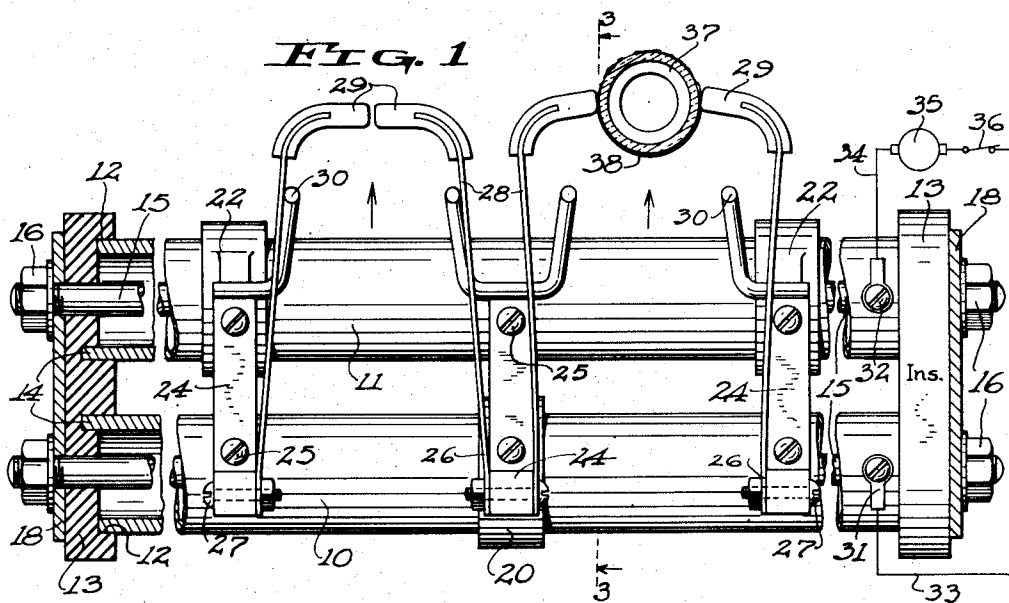
C. W. GRIFFIN ET AL

1,864,592

MEANS FOR REMOVING FOIL FROM BOTTLES

Filed June 12, 1930

2 Sheets-Sheet 1



WITNESSES

*Irvin J. Rose*  
*M. E. Downey*

INVENTORS  
*Charles W. Griffin*  
*Daniel Schmidt*  
*Lawrence P. Linn*  
By *R. S. Caldwell*  
ATTORNEY

June 28, 1932.

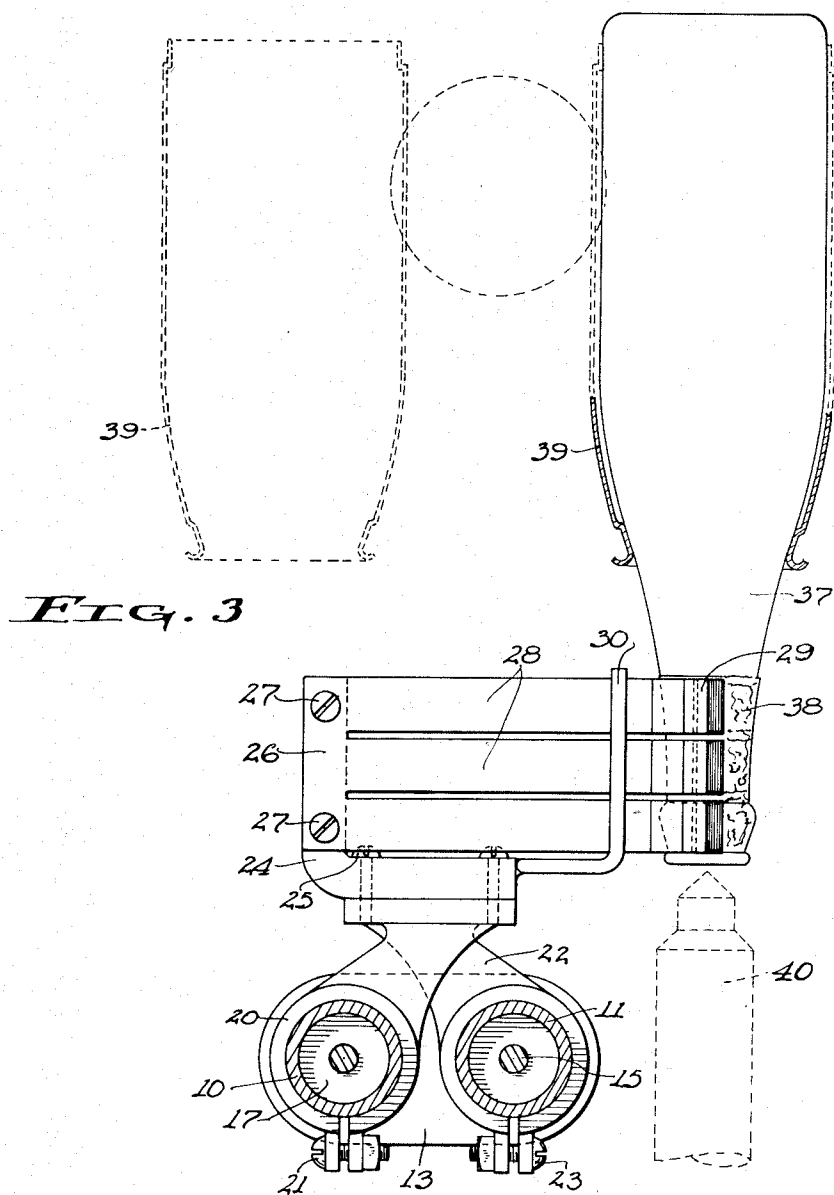
C. W. GRIFFIN ET AL

1,864,592

MEANS FOR REMOVING FOIL FROM BOTTLES

Filed June 12, 1930

2 Sheets-Sheet 2



WITNESSES

*Swain J. Rose*  
*M. E. Downey*

INVENTORS

*Charles W. Griffin,*  
*Samuel Schmid &*  
*Lawrence P. Ling*  
*By A. B. Caldwell*  
ATTORNEY

## UNITED STATES PATENT OFFICE

CHARLES W. GRIFFIN, OF LYNNWOOD, DANIEL SCHMID, OF PASADENA, AND LAWRENCE P. SINZ, OF LOS ANGELES, CALIFORNIA, ASSIGNORS TO GEO. J. MEYER MANUFACTURING COMPANY, OF CUDAHY, WISCONSIN, A CORPORATION OF WISCONSIN

## MEANS FOR REMOVING FOIL FROM BOTTLES

Application filed June 12, 1930. Serial No. 460,736.

The invention relates to means for removing foil from bottles.

It is customary to wrap the necks of certain beverage bottles with foil, which is secured thereon with a suitable adhesive. When cleaning these bottles, difficulty has been experienced in removing the foil, because the foil resists the action of the usual soaking solution employed in the washing operation.

In order to overcome this difficulty, it is an object of the present invention to provide simple but effective means for removing or loosening the foil from the bottles by an electric current of fusing strength passing through the foil, the current either burning off the foil completely or breaking it up into small patches, fragments or shreds, to thereby enable the soaking solution to penetrate beneath the foil and attack the adhesive in accordance with the method covered in the application of Charles W. Griffin and Lawrence P. Sinz for removal of foil from bottles, Serial No. 454,671, filed May 22, 1930.

Another object of the invention is to provide a foil-removing apparatus including spaced yielding electrodes or contactors between which the bottle is passed.

A further object of the invention is to provide a foil-removing apparatus including a plurality of independently yielding electrodes or contactors engageable with longitudinally spaced portions of the foil-covered bottle neck.

A further object of the invention is to perfect details of construction generally.

The invention further consists in the several features hereinafter set forth and more particularly defined by the annexed claims.

In the accompanying drawings, Fig. 1 is a top plan view of a foil-removing apparatus constructed in accordance with the invention, as it appears when operating on a bottle neck, parts of the apparatus being broken away and parts being shown in section;

Fig. 2 is an elevation of the apparatus of Fig. 1, parts being broken away and parts being shown in section, and

Fig. 3 is a sectional elevation of the ap-

paratus, taken along the line 3—3 of Fig. 1.

In these drawings, the numerals 10 and 11 designate a pair of spaced parallel metal tubes which at their opposite ends fit within shallow bores 12 formed in the faces of insulating blocks 13, projections 14 on the tubes entering recesses in at least one of the blocks to prevent relative rotation of the tubes with respect to the blocks. The tubes and insulating blocks are held in assembled relation by tie rods 15 passing centrally through the respective tubes and extending through the blocks, nuts 16 being threaded on the opposite ends of the rods. At an intermediate portion of each tube, the tie rod therein passes through an insulating bushing 17 which holds the rod centrally within the tube.

The nuts 16 on the ends of the tie rods also clamp the lower end portions of hangers 18 to the outer faces of the insulating blocks. These hangers are fixedly secured to any suitable supports 19 which may form parts of a bottle washing machine frame.

An upstanding metal bracket 20 is clamped about the metal tube 10 by a bolt 21, and a pair of similar brackets 22 are clamped on the tube 11 by bolts 23, the brackets 22 being spaced at opposite sides of the bracket 20, and all of the brackets being in electrical contact with their respective supporting tubes. The number of brackets to be mounted on the tubes will depend upon the number of bottles to be simultaneously treated. A metal angle piece 24 forms an extension of each of the brackets 20 and 22 and is secured thereon by screws 25.

Resilient metal blades 26 are conductively secured to the upstanding portions of the angle pieces 24 by means of bolts 27 and have their free end portions projecting in the same direction, as seen in Fig. 1. Each of the blades 26 is longitudinally slotted, as seen in Fig. 3, to form a plurality of parallel spring fingers 28 which have laterally extending electrodes or contactors 29 secured to their free ends. The opposite electrodes or contactors are spring-urged toward each other by the spring fingers 28 on which they are mounted, but are prevented from touching each other in their nearest positions by up-

standing stop arms 30 secured to the angle pieces 24 and engageable with the fingers.

The metal tubes 10 and 11 are provided with respective terminals 31 and 32 which are respectively connected by conductors 33 and 34 with a suitable source of current 35, there being a switch 36 included in the conductor 33. The source of current may furnish either alternating-current or direct-current at a suitable voltage.

When the apparatus is in use, a bottle 37, having its neck portion covered with foil 38, is passed between the electrodes or contactors 29 in the direction indicated by arrows, the foil-covered neck portion of the bottle engaging the resiliently-mounted electrodes or contactors and urging them apart during the passage of the bottle. The conducting foil about the bottle-neck completes a circuit from the source of current 20 with the result that current of fusing strength flows through the foil and either burns it off completely or separates it into small patches, fragments and shreds. These small pieces of foil can be easily removed during the washing operation, since the soaking solution can then readily penetrate beneath the foil and attack the adhesive. The use of a plurality of spring fingers on each blade permits the electrodes or contactors to engage the neck portion of the bottle along points of different diameters, as seen in Fig. 2, thus facilitating the fusing or burning of the foil.

The bottle is shown to pass between the electrodes in an inverted position, but it may obviously assume any desired position if the electrodes or contactors are suitably arranged. While the passage of the bottles between the electrodes or contactors may be effected by hand, the bottle is preferably supported and propelled by a suitable conveyor 39 of a type well-known in the bottle washing machine art. This conveyor, which may be either continuously or intermittently driven, is, in many instances, a part of a bottle washing machine. As exemplified in United States Patent No. 1,429,960 to George J. Meyer for bottle washing machines, dated September 26, 1922, the conveyor is of the type having transversely extending rows of bottle-holding pockets mounted on side chains by which the conveyor is supported and impelled. The bottles in each transversely-extending row on the conveyor pass simultaneously between the respective pairs of electrodes or contactors. The bottles while passing between the electrodes or contactors may be rotated, and this may be accomplished either by hand or by means of suitably driven reciprocatory spindles 40, one being shown in Fig. 3, engageable with the bottle necks, such bottle-rotating spindles being well known in the bottle washing machine art. Spindles of this type are shown in the above United States Patent No.

1,429,960 and are lifted at intervals to engage and rotate the bottles.

What we claim as new and desire to secure by Letters Patent is:

1. Apparatus for removing foil from a bottle, comprising a pair of spaced hollow bars, insulating members on which the opposite ends of said bars are mounted, tie rods extending through said bars for securing said bars to said insulating members, brackets carried by said bars and spaced longitudinally of said bars, and yielding bottle-deflected electrodes carried by said brackets and engageable with the foil-covered portion of the bottle passed therebetween to direct an electric current through the foil to burn the foil.

2. Apparatus for removing foil from bottles, comprising a pair of spaced electrodes between which the foil-covered portions of the bottles may be passed for conducting an electric current through the foil to fuse or burn the foil, and conveyor means for passing the successive bottles between the electrodes.

3. Apparatus for removing foil from bottles, comprising a plurality of pairs of spaced yielding bottle-deflected electrodes arranged in a row between which a plurality of bottles may be respectively and simultaneously passed in a direction perpendicular to said row for directing an electric current through the foil to fuse or burn the foil.

4. Apparatus for removing foil from a bottle, comprising a pair of groups of independently-yielding bottle-deflected electrodes between which the foil-covered portion of the bottle may be passed for directing an electric current through the foil to burn the foil, the electrodes in each group being engageable with and adapted to be urged apart by longitudinally spaced portions of the bottle.

5. Apparatus for removing foil from bottles comprising supporting means, and a plurality of pairs of spaced yielding bottle-deflected electrodes carried in a row on said supporting means and between which a plurality of bottles may be respectively passed in a direction transversely of said row for directing a fusing electric current through the foil.

6. Apparatus for removing foil from bottles comprising a pair of supporting members insulated from each other and forming electrical conductors, a row of brackets conductively carried on said supporting members in alternate relation thereon, and pairs of electrodes conductively carried on said brackets and engageable with respective foil-covered bottles adapted to be passed therebetween in a direction transversely of said supporting members for directing a fusing electric current through the foil.

7. Apparatus for removing foil from bottles, comprising a pair of yielding bottle-deflected electrodes adapted to engage and to be urged apart by the foil covered portions of

bottles passed therebetween for conducting an electric current through the foil to fuse or burn the foil, and conveyor means for passing the successive bottles between the electrodes.

5 In testimony whereof, we affix our signatures.

CHARLES W. GRIFFIN.  
DANIEL SCHMID.  
LAWRENCE P. SINZ.

10

15

20

25

30

35

40

45

50

55

60

65