Sept. 12, 1933. C. G. TWOHY 1,926,466

MECHANICAL BOTTLE INSPECTING DEVICE

Filed Oct. 27, 1930 2 Sheets-Sheet 1

Fig. 1

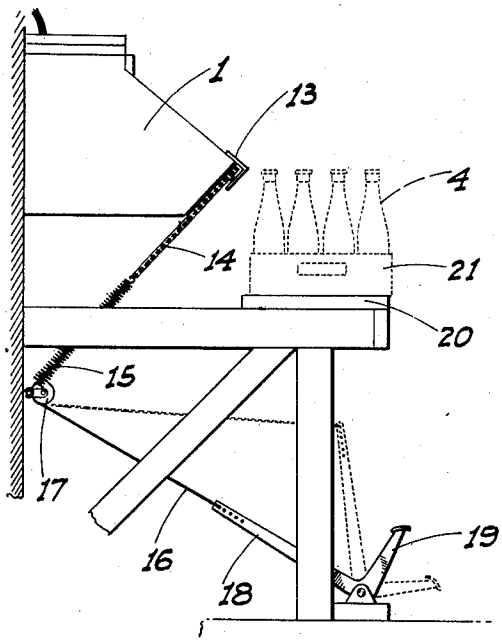
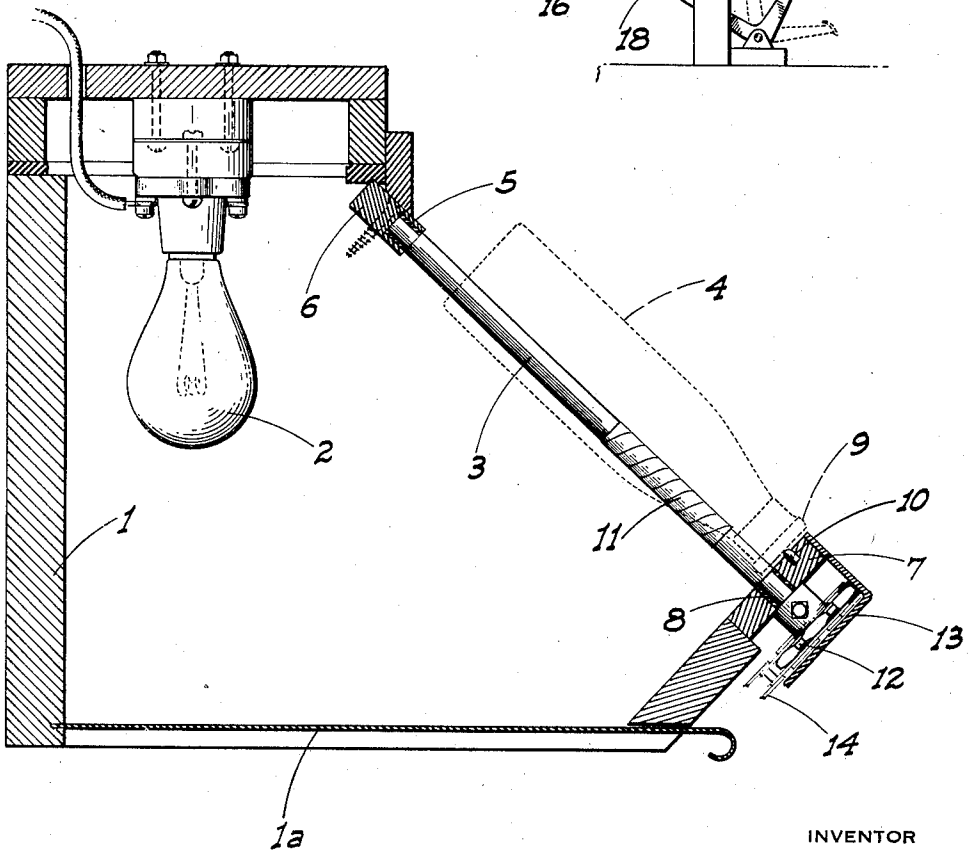


Fig. 2



INVENTOR

Chas. G. Twohy

BY

ATTORNEY

Sept. 12, 1933. C. G. TWOHY 1,926,466

MECHANICAL BOTTLE INSPECTING DEVICE

Filed Oct. 27, 1930 2 Sheets-Sheet 2

Fig. 3

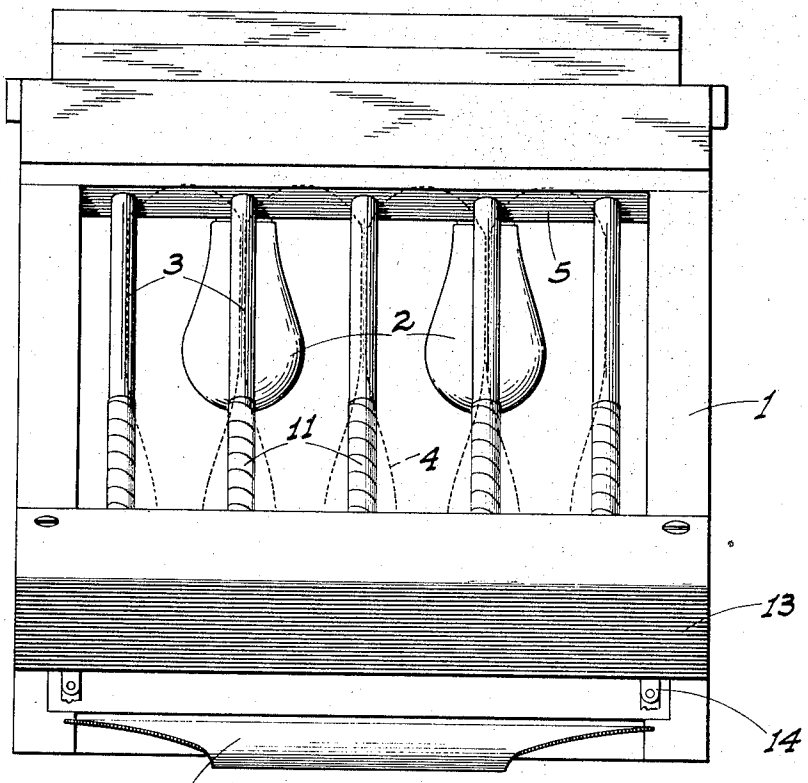
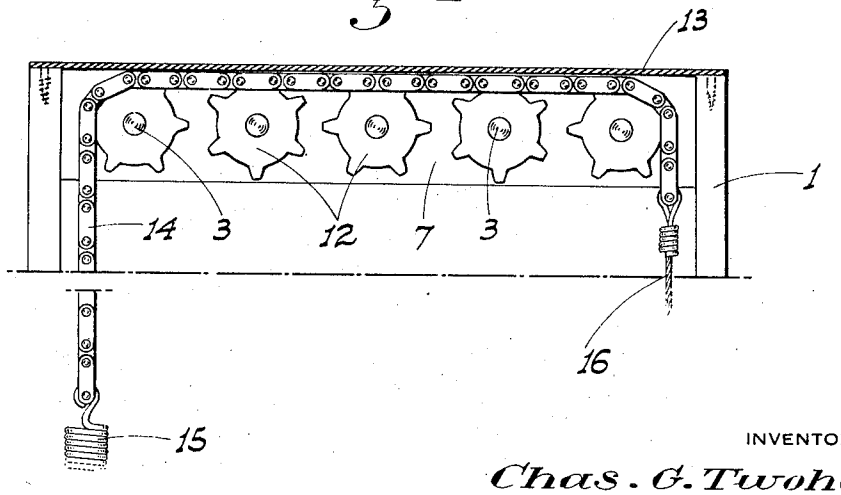


Fig. 4



INVENTOR

Chas. G. Twohy

BY

ATTORNEY

Patented Sept. 12, 1933 1,926,466

UNITED STATES PATENT OFFICE

1,926,466

MECHANICAL BOTTLE INSPECTING DEVICE

Charles G. Twohy, Riverside, Calif.

Application October 27, 1930. Serial No. 491,507

3 Claims. (Cl. 88—14)

This invention relates to inspecting devices for bottled beverages, particularly of that type generally known as "sodas", and which are retailed in capped bottles. By means of these devices the beverages are inspected for color and for foreign particles; any possible leakage at the caps is detected, and the syrup and charged water which constitute the beverage are thoroughly mixed.

Devices for this purpose are already on the market and consist essentially of spaced bottle supporting rods behind which lights are placed so that the rays from the lights will shine through the contents of the bottles. The bottles with these devices however must be individually rotated by hand, which is not only a slow procedure, but is hard on the fingers of the operator.

The principal object of my invention is to provide a device for the purpose in which the hand rotation of the bottles is eliminated and a number of the bottles are rotated simultaneously and by mechanical means. The necessary rotation of the bottles during inspection is therefore facilitated and speeded up over the present crude method.

A further object of the invention is to produce a simple and inexpensive device and yet one which will be exceedingly effective for the purpose for which it is designed.

These objects I accomplish by means of such structure and relative arrangement of parts as will fully appear by a perusal of the following specification and claims.

In the drawings similar characters of reference indicate corresponding parts in the several views:

Fig. 1 is an end elevation of my improved inspecting device.

Fig. 2 is an enlarged cross section of the inspection housing of the apparatus.

Fig. 3 is a front view of the same.

Fig. 4 is a front view showing the mechanism for rotating the bottle supporting rods.

Referring now more particularly to the characters of reference on the drawings, the device comprises a box-like housing 1 closed on the top, bottom, and back, but open to the front, which is disposed on a downward and outward slant from top to bottom. Electric lights 2 depend into the housing area from the top of the same. These lights are mounted so as to be protected against vibration and shocks which may be imparted to the housing in a manner common to the devices for the purpose as are already on the market. The bottom of the box is preferably in the form of a removable sheet metal slide 1*a* so that if any leakage from the bottles being inspected should occur the leaking liquid will be caught by this slide and may be readily wiped off the same upon pulling out the slide.

Extending from top to bottom of the open front of the housing are a plurality of horizontally spaced and parallel rods 3 which are longer than the bottles 4 to be inspected. At their upper ends these rods are journaled in bushings 5 mounted in a longitudinally extending bar 6 secured to the housing. At their lower ends the rods project through another longitudinally extending bar 7 secured to the housing and are journaled in bushings 8 pressed into said bar. The bars are spaced apart equal distances lengthwise of the housing, this spacing however being less than the diameter of the bottles or so that adjacent rods form a supporting cradle for a bottle. The bottles are disposed with their caps 9 downwardly and said caps bear against round nosed pins 10 mounted in the bar 7. These pins are disposed with their axes parallel to the rods and so as to engage the caps centrally of their area. Said pins therefore prevent the bottle caps from contacting with the bars and permit the bottles to be freely rotated without undue frictional resistance. The purpose of placing the bottles with their caps down is of course to detect any possible leakage at the caps. The lower portions of the rods are preferably wrapped with tape or similar friction material 11 so as to protect the bottles and also frictionally engage the same so that they will be rotated as the rods rotate.

Means to rotate all of the rods simultaneously is provided as follows:

Secured on the lower ends of the rods 3 below or outwardly of the bar 7 are sprocket wheels 12, which are preferably concealed and protected by a guard plate 13 secured to the bar 7 and overhanging said sprockets. A chain 14 extends across and engages the top teeth of all the sprockets, and it will be seen that if the chain is driven or reciprocated, all the sprockets and consequently all the rods will be rotated or slanted simultaneously. This driving of the chain may be accomplished by any desired power means, but in the present case I have shown the chain as being driven by foot and spring power in the following manner:

The ends of the chain depend from the endmost sprockets, and to one end of the chain a tension spring 15 is secured. To the other end of the chain a cable 16 or the like is attached which passes forwardly about a direction changing pulley 17. At its forward lower end this

cable is attached to the outer end of one arm 18 of a bellcrank which is pivoted in a fixed position, and whose other arm normally projects upwardly and forms a pedal 19. Upon the depression of the pedal therefore the cable will be pulled and the chain moved in one direction against the resistance of the spring which is placed under tension. When the foot pressure on the pedal is released, the spring acts to move the chain in the opposite direction and the pedal is of course again raised. The extent of reciprocating movement thus imparted to the chain is preferably sufficient to oscillate the rollers and bottles supported thereon through an arc of substantially 90 degrees.

To arrange the structure so that it is convenient for use the housing 1 is preferably secured at a convenient height against a wall or the like and a table 20 for the support of a case 21 of bottles to be inspected is arranged under and in front of the housing. The pedal is disposed in a plane adjacent the front edge of the table and of course near the floor so that the operator standing in a position convenient to move the bottles from the case onto the inspecting rods and vice versa can also conveniently manipulate the pedal. The pedal may be manipulated as many times as may be desired or necessary with each group of bottles being inspected, so that the thorough inspection and mixing of the contents of the bottles is assured.

It is to be understood that while I have shown an apparatus designed to hold four bottles at a time said device may be made to hold a larger number of botles if desired, as will be obvious.

From the foregoing description it will be readily seen that I have produced such a device as will substantially fulfill the objects of the invention as set forth herein.

While this specification sets forth in detail the present and preferred construction of the device, still in practice such deviations from such detail may be resorted to as do not form a departure from the spirit of the invention, as defined by the appended claims.

Having thus described my invention what I claim as new and useful and desire to secure by Letters Patent is:

1. In a bottle inspecting device, horizontally spaced and parallel rods, adjacent ones of which are arranged to form a supporting cradle for a bottle, journal means turnably supporting the rods, sprocket wheels fixed on the rods at one end, a chain engaging all the sprockets on one side of the same, a depressible pedal, connecting means between the pedal and one end of the chain for moving the latter in one direction with the depression of the pedal, and a tension spring connected to the other end of the chain and resisting the depression of the pedal.

2. In an inspecting device for capped bottles, horizontally spaced rods disposed at a downward slant from end to end, adjacent ones of said rods forming a supporting cradle for a bottle disposed with its capped end down, a rigid member extending across the rods at their lower ends, and round-nosed pins mounted in said member parallel to the rods and centrally between adjacent rods to engage the caps of the bottles centrally thereof and hold the bottles against downward movement on the rods without interfering with their rotation, and means to rotate the rods whereby the bottles will be rotated.

3. In a bottle inspecting device, elements disposed at a downward slant from end to end, adjacent ones of said elements forming a support for a bottle and to permit of its rotation while supported, a fixed pin axially alined with a supported bottle to engage the lower end of the same to hold it against downward sliding movement along the elements without interfering with rotation of the bottle, and means to rotate the bottle.

CHARLES G. TWOHY.