

H. G. MUENCH.
 APPARATUS FOR INSPECTING BOTTLES.
 APPLICATION FILED JUNE 20, 1911.

1,030,422.

Patented June 25, 1912.

2 SHEETS—SHEET 1.

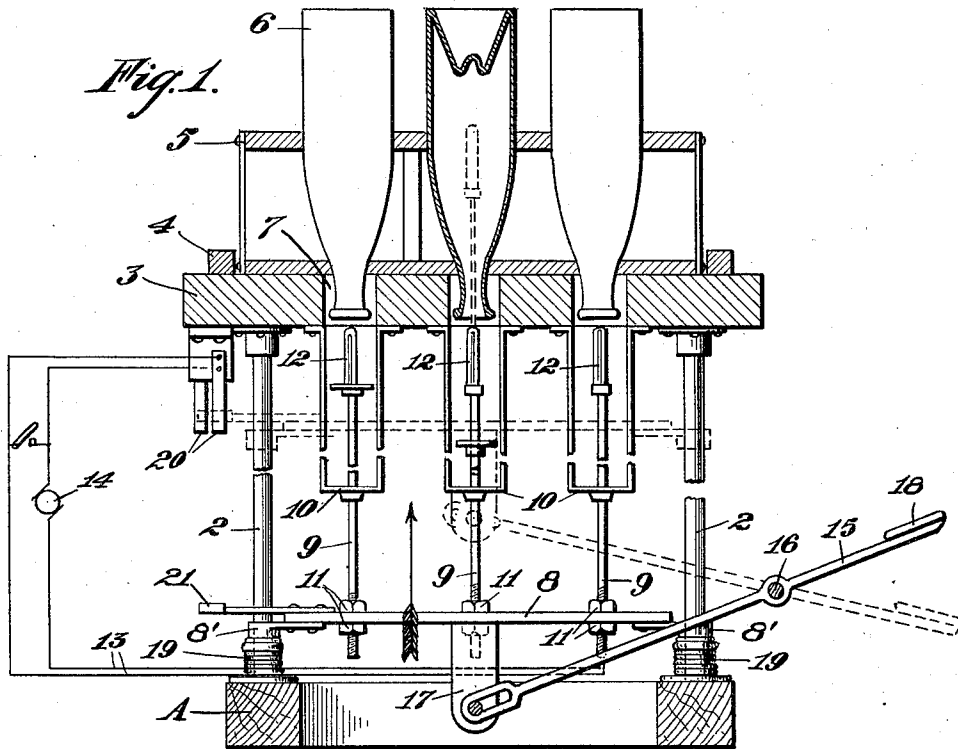
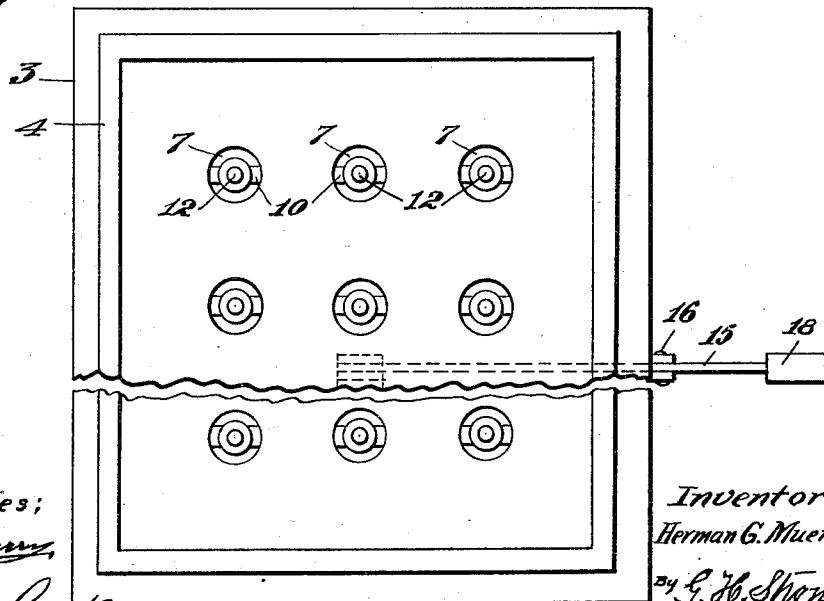


Fig. 2.



Witnesses;
A. S. Berry

Thos. Hastings

Inventor:
Herman G. Muench
 By *G. H. Strong*,
 His Att'y.

H. G. MUENCH.
 APPARATUS FOR INSPECTING BOTTLES.
 APPLICATION FILED JUNE 20, 1911.

1,080,422.

Patented June 25, 1912.

2 SHEETS-SHEET 2.

Fig. 3.

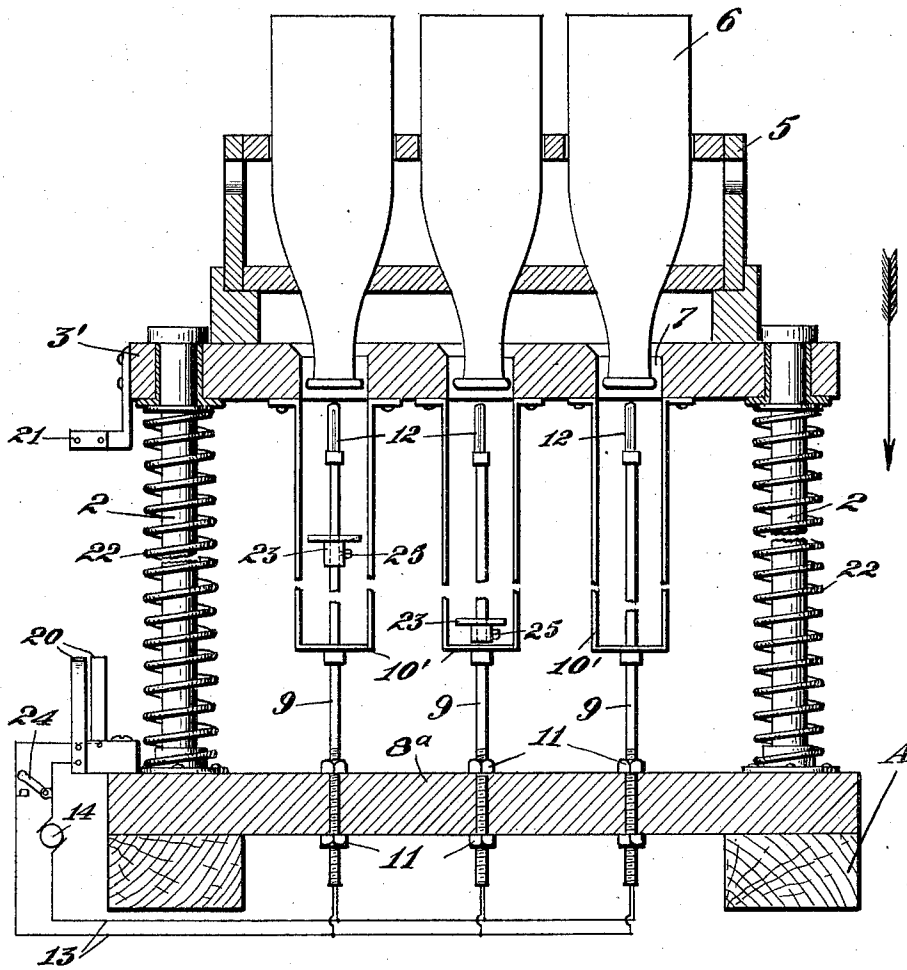
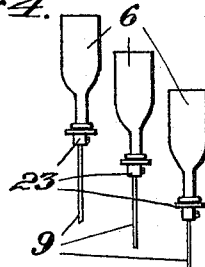


Fig. 4.



Witnesses:
R. S. Berry
Thos. Kashberg

Inventor:
Herman G. Muench
 By *G. H. Strong*.
His Atty.

UNITED STATES PATENT OFFICE.

HERMAN G. MUENCH, OF SAN FRANCISCO, CALIFORNIA.

APPARATUS FOR INSPECTING BOTTLES.

1,030,422.

Specification of Letters Patent.

Patented June 25, 1912.

Application filed June 20, 1911. Serial No. 634,365.

To all whom it may concern:

Be it known that I, HERMAN G. MUENCH, citizen of the United States, residing in the city and county of San Francisco and State of California, have invented new and useful Improvements in Apparatus for Inspecting Bottles, of which the following is a specification.

This invention relates to an apparatus for facilitating the examination of transparent containers.

It is the object of this invention to provide an apparatus by means of which transparent containers, such as beer bottles, wine bottles and the like, may be easily and quickly inspected before filling.

In bottling alcoholic beverages, such as beer, wine and other fermented liquors, it is essential that the bottles or containers in which the liquors are packed be absolutely free from dirt or other substances.

It is the purpose of this invention to provide improved means to facilitate the inspection of bottles singly or in large quantities, and by means of which the condition of a bottle or container may be determined with absolute certainty.

The invention consists of the parts and the construction and combination of parts, as hereinafter more fully described and claimed, having reference to the accompanying drawings in which—

Figure 1 is a vertical section of the invention. Fig. 2 is a plan view of same. Fig. 3 is a vertical section showing a modified form of the invention. Fig. 4 is a detail, showing the position occupied by the bottles while being inspected.

In the drawings A represents the base of the machine, which may be of any suitable construction, which base supports a plurality of standards 2; in this case four in number. The standards 2, shown in Fig. 1, support a table-top or plate 3 which forms a working or bench surface. This plate 3 has a guide flange 4 formed on its upper surface, which flange is provided for the purpose of guiding a crate 5 in which a number of bottles 6 are mounted in an inverted position so that the downward necks of the bottles will enter perforations 7 formed in the plate 3, as shown in Fig. 1.

Disposed beneath the plate 3 is a vertically movable carriage, here shown as consisting of a rectangular plate 8 supported upon sleeves 8' slidably mounted on the

standards 2. Mounted on the plate 8 is a series of vertically disposed tubular standards 9, which standards 9 are arranged on the plate 8 in such positions as to register with the perforations 7 in the plate 3, and pass through hangers 10 depending from the underside of the plate 3. The hangers 10 serve as guides for the upper ends of the tubular standards 9 to insure the latter entering the necks of the bottles 6 in the perforations 7, as later described.

The standards 9 are threaded on their lower ends and are mounted in correspondingly threaded perforations in the plate 8, and are held in position by means of lock nuts 11; this construction permitting of the length of the standard 9 above the carriage plate 8 being adjusted so as to regulate the distance the standards 9 will extend into the bottles 6.

Mounted on the upper end of each standard 9 is an incandescent light 12, the electrical conductors of which pass through the interior of the tubular standard 9 and are connected to line wires 13, leading from any suitable source of current supply, indicated at 14.

The plate 8 is designed to be reciprocated in a vertical direction on the standards 2. While various mechanisms may be employed for raising and lowering the carriage 8, the means employed for accomplishing this purpose is here shown as consisting of a lever 15, which is fulcrumed at 16, and has its inner end pivotally connected to a hanger 17 mounted on the underside of the plate 8; the outer end of the lever 15 being provided with a foot-tread 18.

The form of the device shown in Figs. 1 and 2 and just described is operated as follows: The parts being in a normal position, in which position the standard carrying plate 8 is in its lowermost position with the lamps 12 beneath the perforations 7 in the plate 3, the operator now picks up the crate 5 containing a number of bottles 6 which are placed in the crate 5 open end downward, as shown in Fig. 1, and sets the crate upon the table-top 3 in such manner that the open ends of the bottles 6 will be disposed above, or extended into the perforations 7 in the plate 3. The lever 15 is then actuated by the pressure of the foot on the tread 18, which causes the plate 8 to move upward on the standards 2, which movement carries the lamps 12 into the interior of

the bottles 6, as shown in dotted lines in Fig. 1. The lights 12, being lighted by the flow of current flowing thereto through the conductor 13, now light up the interior of the bottles 6, so that any dirt particles or other foreign substances therein may be readily observed by the operator. A crate of bottles, being thus examined, is then set aside and the plate 8 is allowed to move downward by releasing the foot-tread 18 on the lever 15, and this places the machine in readiness for another operation. The carriage or plate 8 in gravitating to its lowermost or normal position is buffeted on spring buffers or shock absorbers 19 mounted on the standards 2.

If desired, the lamps 12 may be lighted continuously while the machine is being worked, but means are provided whereby the lamps will be lighted only when in and near their uppermost position, which means is here shown as consisting of a knife switch 20, which is mounted on the underside of the table-top 3 and is connected to terminals on the conductors 13 in the usual manner. The knife 21 of the knife switch is mounted on the carriage plate 8 in such manner that when the latter is elevated to a point in its uppermost position, the blade 21 will pass between the spring contact plates 20 so as to complete the circuit and cause the lamps 12 to be lighted at this point. The blade 21 passes from between the spring contact plates 20 as the carriage moves downward so as to break the circuit and extinguish the light, so that the current will not be flowing through the lamps while the carriage plate 8 is in its lowermost position. This arrangement is provided as a means for economizing the lighting current.

In the form of the invention shown in Fig. 3 the movable plate 8 is dispensed with, and the table-top 3' is slidably mounted upon the standards 2 and is normally retained in its uppermost position by means of helical springs 22 which are wound around the standards 2 and bear between the plate 8^a on the frame A and the underside of the table-top 3'. The tubular standards 9 in this case are mounted on the stationary plate 8^a and extend through guide hangers 10' on the underside of the table-top 3'. The springs 22 are designed to be of sufficient tension to approximately balance the weight of the table-top 3' and the crate 5 loaded with bottles 6, so that when the crate 5 is placed on the table-top 3' a slight pressure on the crate 5 by the operator will cause the table-top 3' to move downward on the standards 2 in opposition to the springs 22, and thereby causing the lamps 12 on the upper end of the standards 9 to enter the open ends of the bottles 6. On this pressure being relieved, the springs 22 will restore the table-top 3' to its uppermost position,

whereupon the operator removes the crate 5 with the bottles 6 and the operation is repeated. In this form of the invention the knife 21 of the knife switch is mounted on the edge of the table-top 3', and the spring contact plates 20 are mounted on the frame A in such relative position that when the table-top 3 is depressed to a point near its lowermost position the knife will pass between the spring contact plates 20 so as to cut in the current supplying the lamps 12 and light the lamps when the table-top 3' with its crate of bottles is in its lowermost position.

When it is not desired to have the lamps 12 lighted intermittently, a switch 24 may be thrown so as to maintain a constant flow of current in the lamps 12 so that the lights will be lighted continually.

It is manifest that this machine may be adapted for use in handling any number of bottles desired. It is also manifest that while I have shown and described the invention as applied to the inspection of the bottles, that it is also adapted for use in inspecting other transparent articles.

By the use of this invention it is possible for a single operator to examine a large number of bottles in a short space of time, for the reason that the crates 5 may be handled with great rapidity, and any foreign substances in the bottles will be readily detected by reason of the intense light disposed therein.

It is desirable that the adjacent rows of bottles be disposed in a stepped-up position when being examined, as illustrated in Fig. 4, so that the inspector can look through the sides as well as the bottoms of the bottles. The arranging of the bottles in this position may be accomplished in a variety of ways, but the means here shown consists of adjustable collars 23, which are mounted on the standards 9 in such a position as to engage the lower ends of the bottles, and either lift them up as the standards 9 are elevated, or to limit the downward movement of the bottles as the table 3' is lowered. The collars 23 being slidable on the standards 9 may be positioned thereon as desired, and held in place by means of set screws 25.

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

1. In a bottle inspecting machine, a series of electric lamps, vertically disposed, adjustable standards on which said lamps are mounted, a table having a series of perforations disposed above said lamps, said perforations registering with the lamps and adapted to register with the mouths of a series of bottles in a crate, and means for supporting a number of bottles at various elevations.

2. In a bottle inspecting machine, a series

of electric lamps, vertically disposed, adjustable standards on which said lamps are mounted, a table having a series of perforations disposed above said lamps, said perforations registering with the lamps and adapted to register with the mouths of a series of bottles in a crate, and open hangers on the table for insuring the mouths of bottles inverted in a crate registering with said perforations, and adjustable members on the standards for supporting a number of bottles at various elevations.

3. In a bottle inspecting machine, a series of electric lamps, vertically disposed, adjustable standards on which said lamps are mounted, a table having a series of perforations disposed above said lamps, said perforations registering with the lamps and adapted to register with the mouths of a series of bottles in a crate, guide means on the table for insuring the mouths of bottles inverted in a crate registering with said perforations, means for causing the lamps to pass through said perforations and enter the mouths of the bottles, automatic means for withdrawing the lamp from the bottles, and adjustable means on said standards for supporting a number of the bottles at various levels.

4. In a bottle inspecting machine, a series of electric lamps, vertically disposed, adjustable standards on which said lamps are mounted, a table having a series of perforations disposed above said lamps, said perforations registering with the lamps and adapted to register with the mouths of a series of bottles in a crate, guide means on the table for insuring the mouths of bottles inverted in a crate registering with said perforations, means for causing the lamps

to pass through said perforations and enter the mouths of the bottles, automatic means for withdrawing the lamp from the bottles, adjustable means on said standards for supporting a number of the bottles at various levels, and open hangers for guiding the lamps and standards into the perforations in the table, said adjustable means being disposed within said hangers.

5. In a bottle inspecting machine, a series of electric lamps, vertically disposed, adjustable standards on which said lamps are mounted, a table having a series of perforations disposed above said lamps, said perforations registering with the lamps and adapted to register with the mouths of a series of bottles in a crate, guide means on the table for insuring the mouths of bottles inverted in a crate registering with said perforations, means for causing the lamps to pass through said perforations and enter the mouths of the bottles, automatic means for withdrawing the lamp from the bottles, adjustable collars on said standards for supporting a number of the bottles at various levels, means for guiding the lamps and standards into the perforations in the table, and automatic means for directing an electric current through the lamps when the latter are in the bottles and for cutting off the current when the lamps are withdrawn from the bottles.

In testimony whereof I have hereunto set my hand in the presence of two subscribing witnesses.

HERMAN G. MUENCH.

Witnesses:

CHARLES EDELMAN,
C. C. COOK.