

No. 715,393.

Patented Dec. 9, 1902.

J. H. KOEHLER.
BOTTLE ILLUMINATING MACHINE.

(Application filed May 7, 1902.)

(No Model.)

3 Sheets—Sheet 1.

Fig.1.

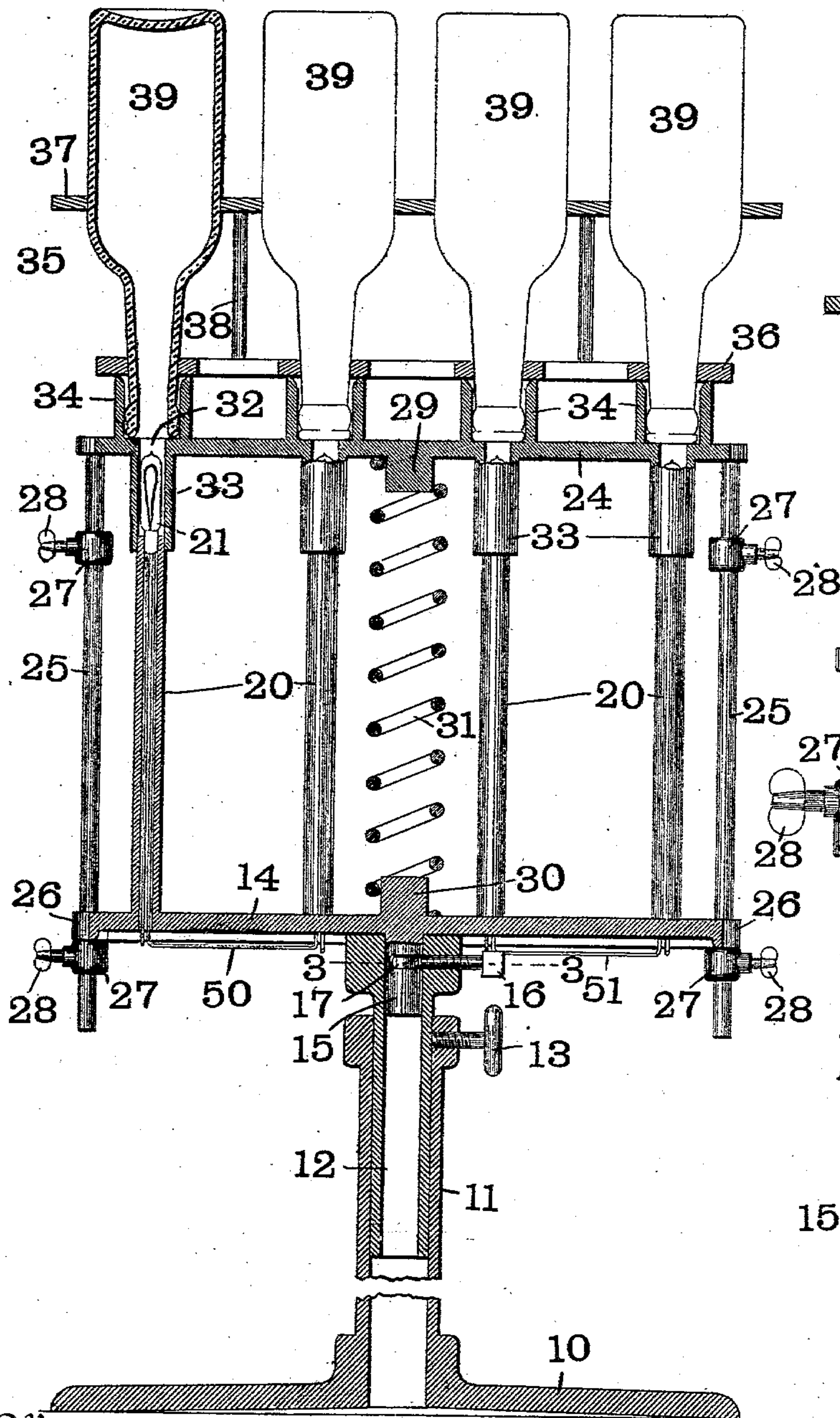


Fig.2.

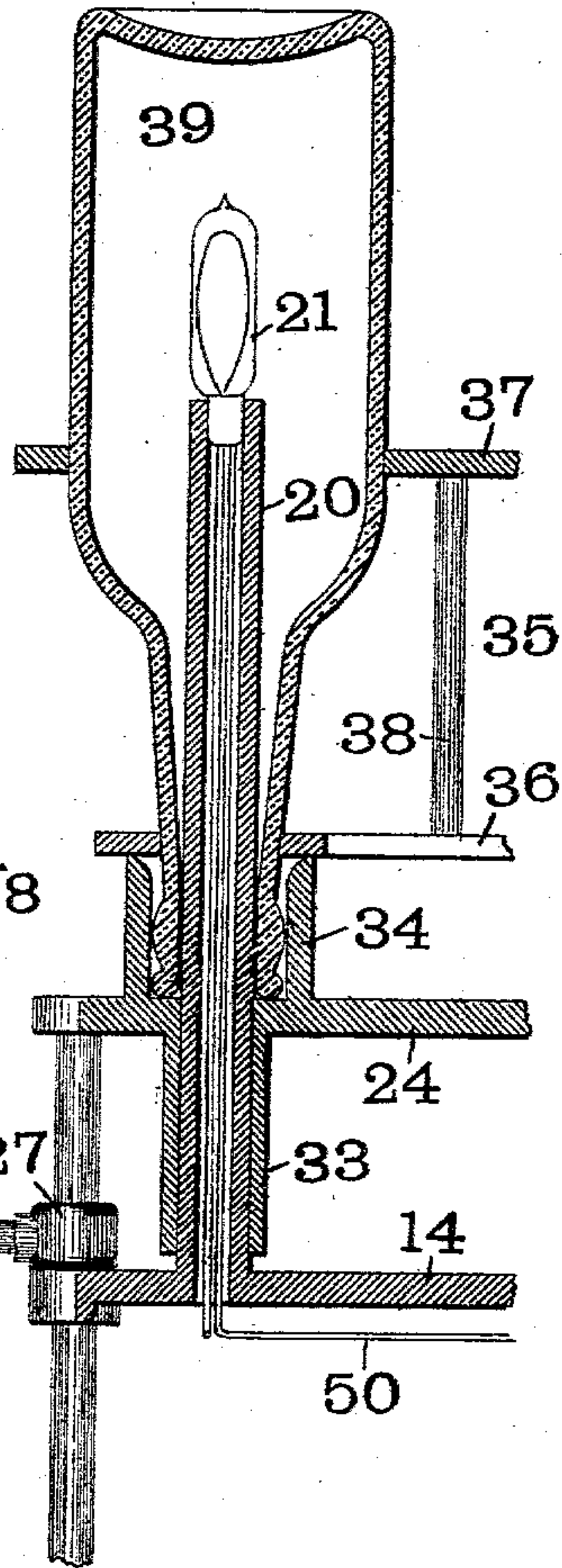
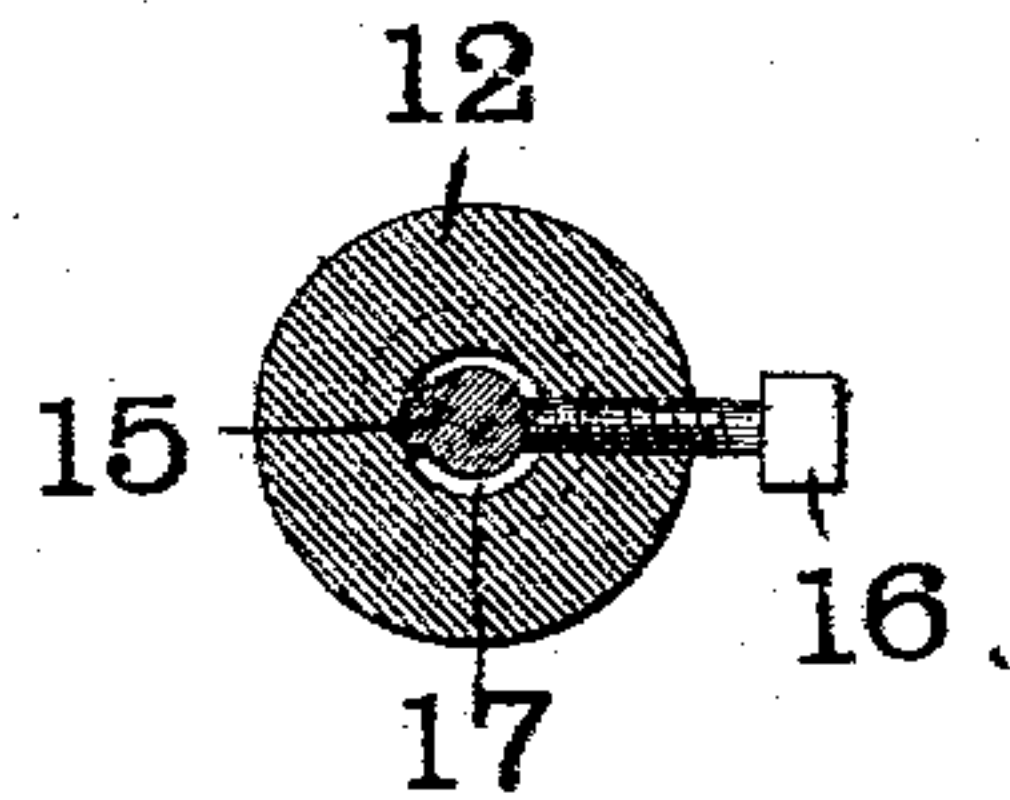


Fig.3.



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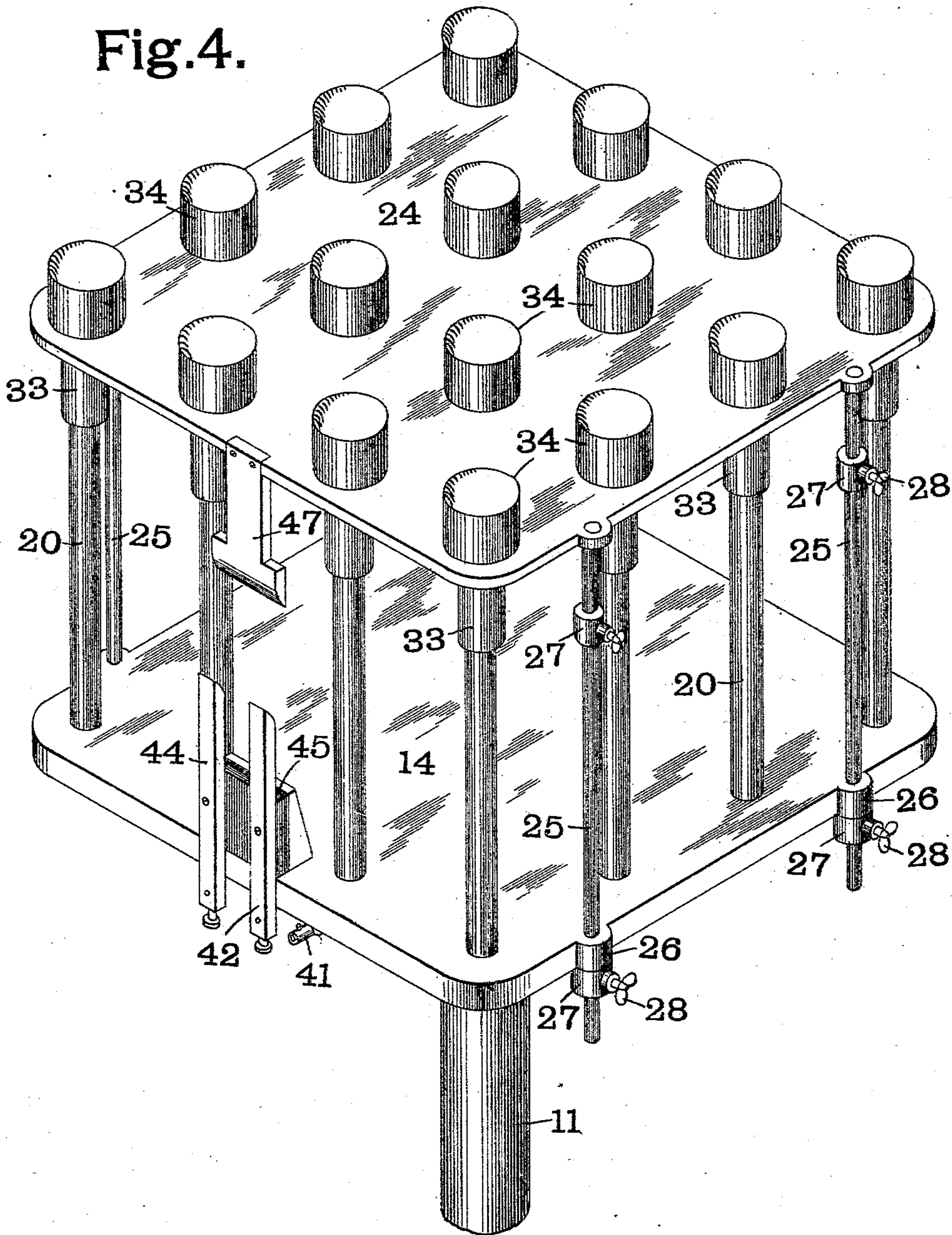
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Fig. 4.



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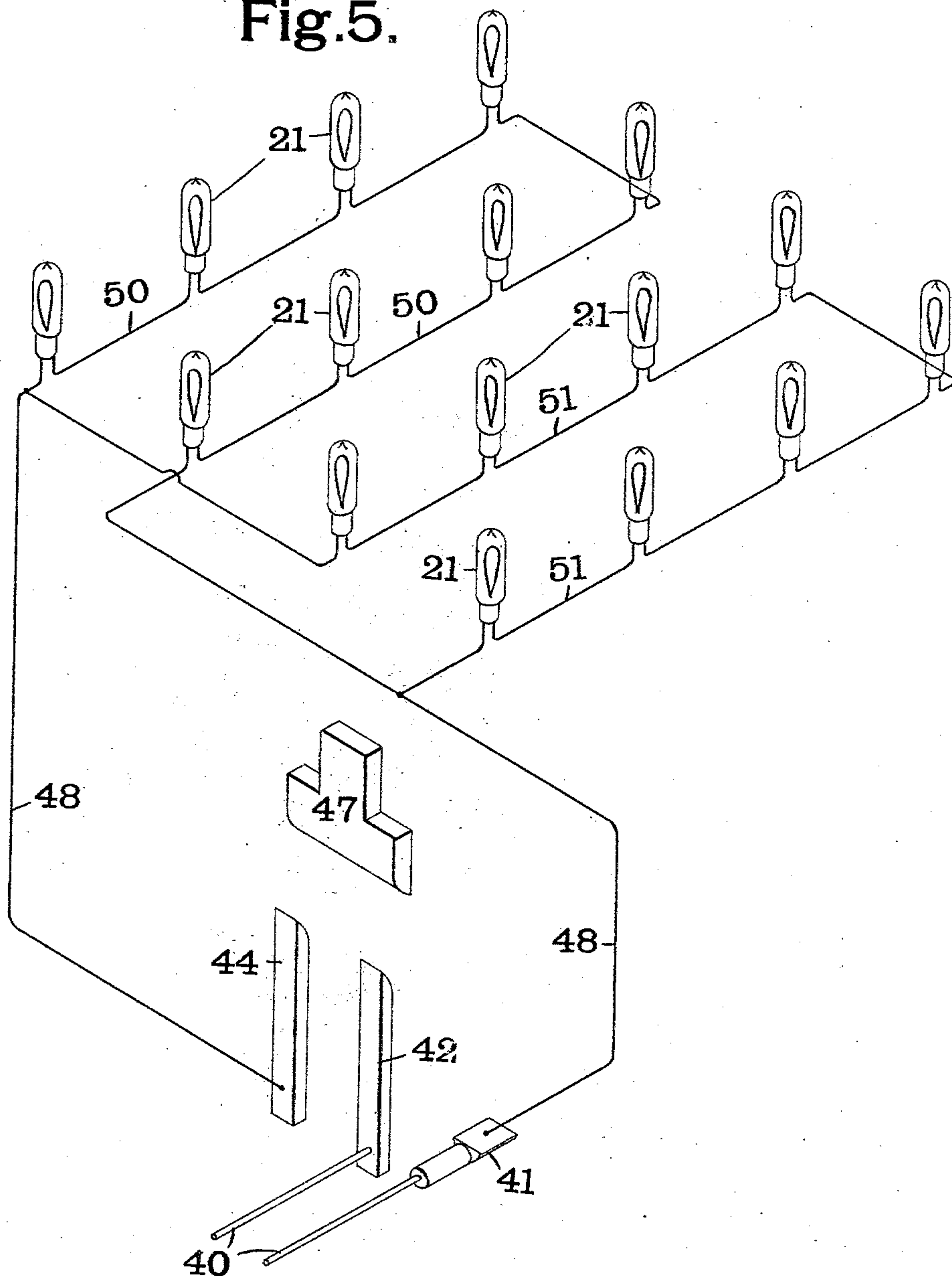
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3 Sheets—Sheet 3.

Fig. 5.



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UNITED STATES PATENT OFFICE.

JULIUS H. KOEHLER, OF ST. LOUIS, MISSOURI.

BOTTLE-ILLUMINATING MACHINE.

SPECIFICATION forming part of Letters Patent No. 715,393, dated December 9, 1902.

Application filed May 7, 1902. Serial No. 106,328. (No model.)

To all whom it may concern:

Be it known that I, JULIUS H. KOEHLER, a citizen of the United States, residing at the city of St. Louis, in the State of Missouri, have invented a certain new and useful Bottle-Illuminating Machine, of which the following is such a full, clear, and exact description as will enable any one 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.

The object of my invention is to provide an apparatus by means of which beer-bottles may be thoroughly and quickly examined to see if they are perfectly clean after they have been taken from the cleansing-machines and before they are sent to the filling-machine. For this purpose I have devised the apparatus described below, by means of which a large number of beer-bottles may be examined simultaneously by inserting into each of them an electric lamp which emits the light by which the bottles are inspected.

In the drawings, in which like characters of reference refer to similar parts in the different views and which show a bottle-illuminating machine embodying my invention, Figure 1 is a vertical central section through the machine, showing the bottles in position. Fig. 2 is an enlarged sectional detail view of a portion of the apparatus shown in Fig. 1, the position of the parts, however, being changed to show one of the lamps inserted into a bottle. Fig. 3 is a section on the line 3 3 of Fig. 1. Fig. 4 is an isometric projection of the bottle and lamp holding devices shown in Fig. 1, the bottles being removed; and Fig. 5 is a diagram of the circuit supplying current to the lamps and the means for making and breaking said circuit.

A base 10 is provided with a tubular standard 11, in which a tubular support 12 is slidably mounted. The support 12 is held in position frictionally in the standard 11 by means of the set-screw 13. A plate 14 is provided at its center with a downwardly-extending cylindrical stud 15, which enters the upper end of the tubular support 12 and is adapted to rotate therein. The enlarged upper end of this tubular support 12 carries a set-screw 16, the inner end of which enters a

segmental groove 17 in the stud 15, as best shown in Figs. 1 and 3, and serves to limit the rotation of the stud 15 in the tube 11.

Extending upward from the plate 14 are a plurality of tubes 20, open at their lower ends. These tubes are shown as sixteen in number, but may be more or less than this, and each of them is provided at its upper end with an incandescent electric lamp 21, which is approximately cylindrical in shape, so as to be adapted to easily enter the mouths of the bottles, as hereinafter described. The wires which convey the current to these lamps extend from the bottom of the plate 14 upward to the lamps through the tubes 20, as shown in Figs. 1 and 2.

Rigidly fastened to a second plate 24 are downwardly-projecting rods 25. These rods are four in number and at their lower ends pass through eyes 26, formed at the edges of the plate 14, and are adapted to reciprocate in said eyes. The movement of these rods 25 is limited by the stops 27, carried by said rods near their upper and lower ends. These stops 27 are made adjustable by being fastened to the rods 25 by thumb-screws 28.

Projecting downwardly from the center of the plate 24 and upwardly from the center of the plate 14 are the bosses 29 and 30, which serve to hold in position a spiral spring 31, which yieldingly supports the plate 24. This plate 24 normally occupies the position shown in Fig. 1 and is provided with a number of perforations 32, corresponding in number to the number of tubes 20 carried by the plate 14. These perforations register with the upper ends of said tubes 20 and have depending from them annular sleeves 33, the lower ends of which surround the upper ends of the tubes 20 and are adapted to reciprocate over said tubes. The perforations 32 are also surrounded by upwardly-projecting annular flanges 34, which are slightly beveled inwardly at their upper ends and form sockets into which the necks of the bottles 39 are received. The bottles 39 are preferably brought to the machine sixteen at a time in the rack 35. This rack forms no part of my invention, as it is old and in common use in the beer-bottling art as at present practiced. It is composed of two gratings 36 and 37, fastened together by the pillars 38. The grat-

ing 36 is provided with a number of circular openings into which the necks of the bottle fit, and the grating 37 is provided with a similar number of openings, which surround the bodies of the bottles.

Referring now to Figs. 4 and 5, 40 represents the line-wires, by means of which the current for operating the lamps is brought to the machine. One of these line-wires 40 is fastened to a binding-post 41 and the other is fastened to a contact-strip 42. The contact-strip 42 and a similar contact-strip 44 are fastened to an insulating-block 45, carried by the plate 14. The plate 24 carries a metallic bridging-piece 47, which when said plate 24 is depressed, as hereinafter described, connects the contact-strips 42 and 44 and completes the circuit through the lamp. The lamp-circuit proper is numbered 48 and leads from the contact-strip 44 through the lamps and back to the binding-post 41. The circuit 48 is divided into two other circuits 50 and 51, each of which has eight of the sixteen lamps employed in the machine connected in it in series.

In the operation of my machine when the bottles 39 are brought to it in the racks 35 and placed with their necks in the sockets formed by the flanges 34 the weight of the bottle depresses the plate 24 against the tension of the spring 31 until the upper stops 27 rest upon the plate 14 and the bottles have moved downward, allowing the lamps 21 to pass into them, as shown in Fig. 2. At the same time the downward movement of the plate 24 brings the bridging-piece 47 against the contact-strips 42 and 44, completing the circuit through the lamps. After the bottles have been inspected their removal allows the spring 31 to restore the plate 24 to its normal position. The plate 24 follows the upward movement of the bottles when they are removed, and thus at all times efficiently protects the lamps against being broken by the bottles. After the lamps have been inserted into the bottles the bottle and lamp supports may be rotated for the purpose of thoroughly inspecting the bottles, the set-screw 16 acting to so limit the rotation as to avoid all danger of its breaking the electrical connection, and thus extinguishing the lamps. By means of the set-screw 13 the machine may also be adjusted vertically to suit the convenience of the operator. The removal of the bottles from the machine and the consequent return of the plate 24 to normal position breaks the circuit through the lamps by reason of the removal of the bridging-piece 47 from contact with the strips 42 and 44. The extent of the movement of the plate 24 with respect to the plate 14, and consequently the final position of the lamps when inserted into the bottles 29, is regulated by suitably changing the position of the adjustable stops 27 and 28 upon the rods 25. This feature is expedient for the reason that it is often desired to use the same machine for inspecting both quart and

pint bottles, and an adjustment of the stops 27 and 28, which would place the lamps in the position most advantageous for inspecting quart-bottles, would allow the lamps to come in contact with the bottoms of pint-bottles, thus breaking the lamps. By moving the stops 28 downward a short distance on the rods 25 this danger is obviated by so limiting the downward movement of the bottles as to prevent contact between their bottoms and the lamps 21.

Having fully described my invention, what I claim as new, and desire to secure by Letters Patent of the United States, is—

1. In a bottle-illuminating machine, the combination with a bottle-holder, of a lamp-holder, and a lamp carried by said lamp-holder, one of said holders being adapted to move toward and away from the other, whereby said lamp will enter the bottle.

2. In a bottle-illuminating machine, the combination with a bottle-holder, of a lamp-holder, an electric lamp carried by said lamp-holder, one of said holders being adapted to move toward and away from the other, and means for closing the circuit through said lamp by the relative movement of said holders.

3. In a bottle-illuminating machine, the combination with a bottle-holder, of a lamp-holder, and a lamp carried by said lamp-holder, said holders being arranged to telescope whereby said lamp enters the bottle.

4. In a bottle-illuminating machine, the combination with a lamp-holder, of a lamp carried by said lamp-holder, and a movably-mounted bottle-holder by the movement of which said lamp enters the bottle.

5. In a bottle-illuminating machine, the combination with a lamp-holder, of a lamp carried by said lamp-holder, and a bottle-holder provided with a socket for receiving the neck of the bottle, one of said holders being adapted to move toward and away from the other.

6. In a bottle-illuminating machine, the combination with a lamp-holder, of a lamp carried by said lamp-holder, a bottle-holder arranged to move toward said lamp-holder, and a spring for returning said bottle-holder to its normal position.

7. In a bottle-illuminating machine, the combination with a bottle-holder, of a lamp-holder, a lamp carried by said lamp-holder, one of said holders being adapted to move toward and away from the other, and adjustable means for limiting the relative movement of said holders.

8. In a bottle-illuminating machine, the combination with a lamp-holder, of a plurality of lamps carried by said lamp-holder, a rack for holding a number of bottles, and a bottle-holder provided with a plurality of sockets for receiving the necks of the bottles held in said rack, one of said holders being adapted to move toward and away from the other.

9. In a bottle-illuminating machine, the

combination with a rotatably-mounted lamp-holder, of an electric lamp carried by said lamp-holder, a bottle-holder adapted to rotate with said lamp-holder, one of said holders being adapted to move toward and away from the other, a conductor for supplying current to said lamp, and means for limiting the rotation of said holders.

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

JULIUS H. KOEHLER. [L. S.]

Witnesses:

J. H. BRYSON,
L. B. BEACH.