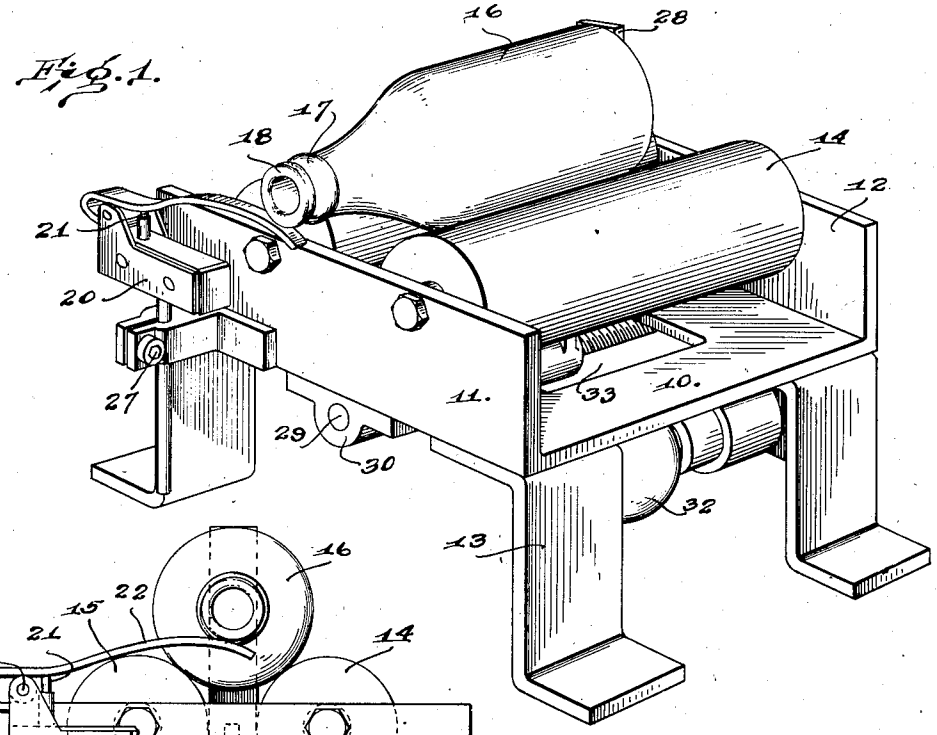
July 18, 1944. K. K. DEEREN 2,353,813

GAUGING APPARATUS

Filed Jan. 29, 1943

Fig. 1.



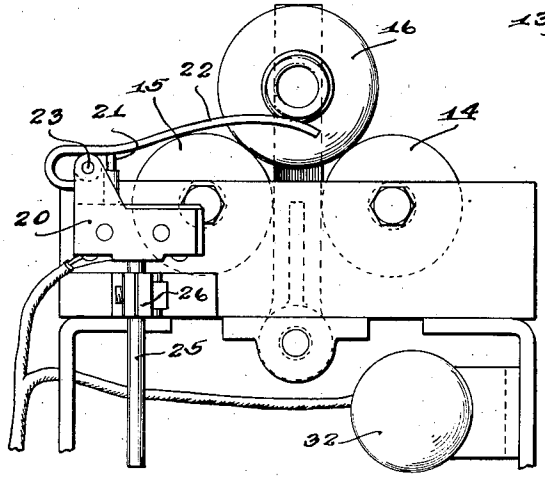


Fig. 2.

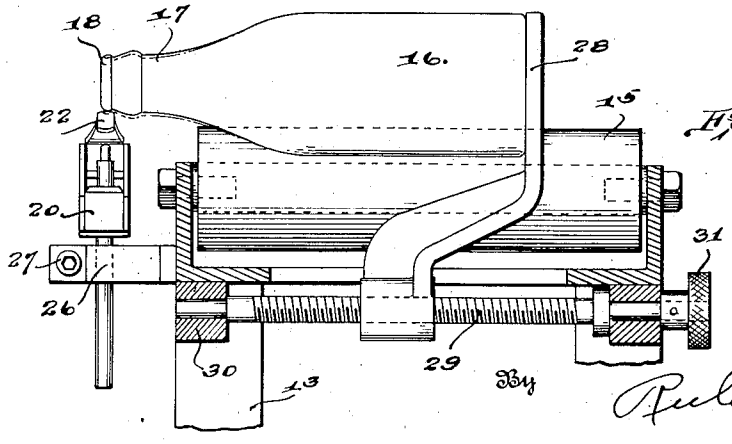


Fig. 3.

Inventor

K. K. Deeren

By Rule & Hoge,

Attorneys

Patented July 18, 1944 2,353,813

UNITED STATES PATENT OFFICE

2,353,813

GAUGING APPARATUS

Kemp K. Deeren, Streator, Ill., assignor to Owens-Illinois Glass Company, a corporation of Ohio

Application January 29, 1943, Serial No. 473,909

6 Claims. (Cl. 73—51)

My invention relates to apparatus for gauging round articles.

An object of the invention is to provide an apparatus for quickly and accurately gauging and testing round bottles or similar articles to indicate any of various possible defects in the shape of the article.

The requirements in respect to bottles with which automatic machinery is used in filling or capping the bottles, are exacting as to size and shape of the necks and neck openings and their alignment centrally with the axes of the bottles. An object of the present invention is to provide an apparatus adapted for gauging the bottles in a manner to indicate whether the bottles are perfect in these respects or within prescribed tolerances.

Other objects of the invention will appear hereinafter.

Referring to the accompanying drawing:

Fig. 1 is a perspective view of a gauging apparatus embodying one form of the present invention.

Fig. 2 is a front elevation of the same.

Fig. 3 is a part-sectional side elevation.

The apparatus includes a framework comprising a platform or table 10 with an integral vertical front wall 11 and rear wall 12, the platform being mounted on legs 13. Cylindrical rolls 14 and 15 are journalled in bearings in the end walls 11 and 12, the axes of the rolls being parallel and at the same height. The rolls are spaced a short distance apart and provide a support for the workpiece 16, herein shown as a round bottle, comprising a cylindrical body portion, and a neck 17, the outer end of which is formed with an annular bead or "finish" 18.

Means for gauging the bottle includes a micro-switch 20, including a contact piece 21 which operates when depressed to close the switch. A contact operating lever arm 22 is fulcrumed on a pivot pin 23. The arm 22 extends forwardly into position to be engaged by the finish 18 of the bottle under test. The micro-switch is carried on a vertical rod 25 which is mounted in a bracket 26 attached to the framework. The rod is adjustable vertically for adjusting the contact arm 22 to the workpiece and is clamped in adjusted position by a screw 27.

A vertically disposed arm 28 is positioned to engage the bottom of the bottle under test and serves as a gauge for gauging the length of the bottle, also for holding the bottle in the proper position lengthwise of the rolls during the test. The arm 28 has a screw threaded mounting on a screw shaft 29 journalled in bearings 30 beneath and secured to the platform 10. The rod 29 is rotatable by means of a knob 31 for adjusting the gauge arm 28. Said arm extends upwardly between the rolls 14 and 15 which serve to hold it in upright position.

The micro-switch 20 is connected in circuit with a signaling device 32, herein shown as a lamp, mounted beneath an opening 33 in the platform 10.

In operation, the bottle to be tested is placed on the rolls, as shown, with the bottom of the bottle bearing against the gauging arm 28 which is so adjusted that if the bottle is of the prescribed length, the finish 18 will be directly over the gauging arm 22. The bottle is then rotated about its axis. If there are no defects in the shape of the finish 18, and the latter is in axial alignment with the bottle, the micro-switch will remain open during the test. If the finish is defective or off-center, as indicated by the broken lines in Fig. 3, the contact arm 22 is depressed and operates the micro-switch to establish a circuit for the signal lamp 32 which is thus lighted and indicates that the bottle is defective.

The apparatus may be used to indicate various defects in the shape of the bottle such as bulges in the body thereof, flat or sunken sides, non-circular or otherwise distorted bottoms, and other irregularities. The position of the switch and contact arm 22 relative to the article under test may be varied. The contact arm may be positioned for example to engage any part of the neck, body or bottom of the article. Evidently, if desired, more than one switch and contact arm might be used and arranged for gauging the article at different points simultaneously and/or concurrently.

Modifications may be resorted to within the spirit and scope of my invention.

I claim:

1. A gauging apparatus comprising a pair of parallel spaced cylindrical rolls, a supporting frame in which the rolls are mounted to rotate freely about horizontal axes, a contact arm positioned to contact an article supported on said rolls, an indicating device actuated by said arm, a gauging arm extending upwardly between said rolls, and a screw rod on which said gauging arm is mounted, said rod being mounted in the frame parallel with said rolls and rotatable for adjustment of said gauging arm lengthwise of the rolls.

2. Gauging apparatus comprising a pair of rolls mounted for rotation about parallel axes,

said rolls being spaced apart and providing a support for a round article to be gauged, a contact arm positioned to engage the article while it is rotated, indicating means actuated by said contact arm, a gauging arm extending upwardly between the rolls in position to engage the end of the article and determine its position on the rolls, and means for adjusting said gauging arm lengthwise of the rolls.

3. A gauging apparatus comprising a pair of parallel spaced cylindrical rolls, a supporting frame in which the rolls are mounted to rotate freely about horizontal axes, a contact arm positioned to contact an article supported on said rolls, an indicating device actuated by said arm, a gauging arm extending upwardly between said rolls in position to engage the end of the said article, and means for adjusting said gauging arm in a direction lengthwise of the rolls and thereby adjusting the article relative to the contact arm.

4. A gauging apparatus comprising a frame including a horizontal platform and front and rear walls rising from the platform, parallel cylindrical rolls mounted in the frame over the platform and journalled in said walls for rotation about parallel horizontal axes, said rolls being spaced apart and providing a support for a round article to be gauged, a micro-switch mounted on said front wall, and a contact arm extending transversely of said rolls and located forwardly beyond the front end of the rolls in position to engage the neck portion of a bottle supported on the rolls and arranged to operate said micro-switch.

5. A gauging apparatus comprising a frame including a horizontal platform and front and rear walls rising from the platform, parallel cylindrical rolls mounted in the frame over the platform and journalled in said walls for rotation about parallel horizontal axes, said rolls being spaced apart and providing a support for a round article to be gauged, a micro-switch mounted on said front wall, a contact arm extending transversely of said rolls and located forwardly beyond the front end of the rolls in position to engage the neck portion of a bottle supported on the rolls and arranged to operate said micro-switch, a gauging arm extending upwardly between said rolls into position to engage the rear end of the said article while the latter is supported on the rolls, and means for adjusting said gauging arm in a direction lengthwise of the rolls and thereby adjusting the article lengthwise.

6. A gauging apparatus comprising a frame including a horiozntal platform and front and rear walls rising from the platform, parallel cylindrical rolls mounted in the frame over the platform and journalled in said walls for rotation about parallel horizontal axes, said rolls being spaced apart and providing a support for a round article to be gauged, a micro-switch mounted on said front wall, a contact arm extending transversely of said rolls and located forwardly beyond the front end of the rolls in position to engage the neck portion of a bottle supported on the rolls and arranged to operate said micro-switch, said platform being formed with an opening beneath said rolls, and a signal lamp mounted beneath said opening and connected in circuit with said switch.

KEMP K. DEEREN.