

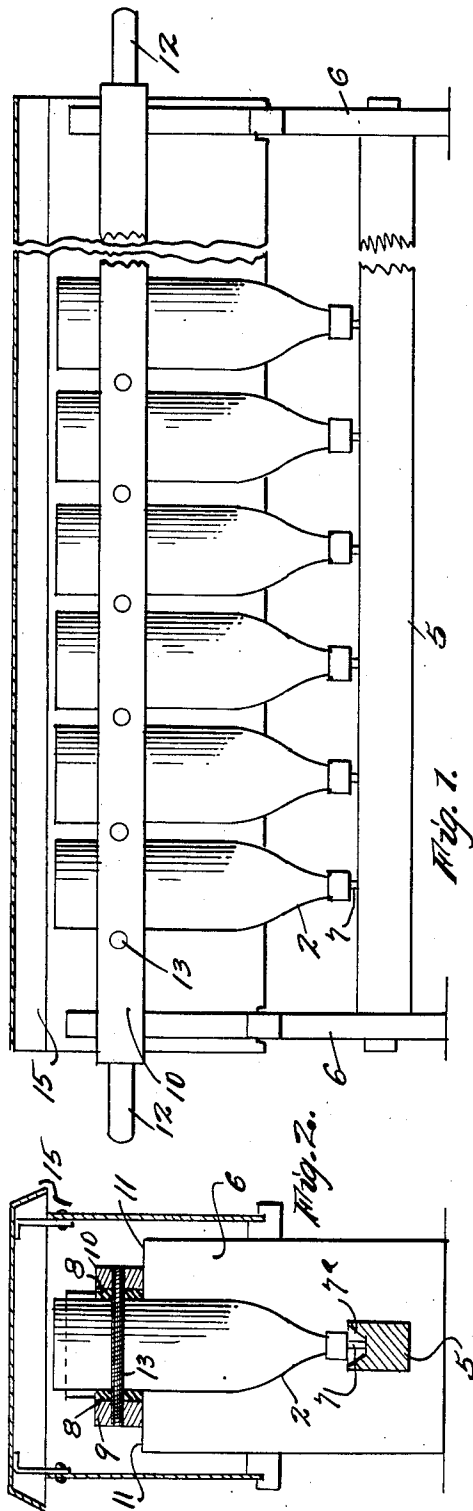
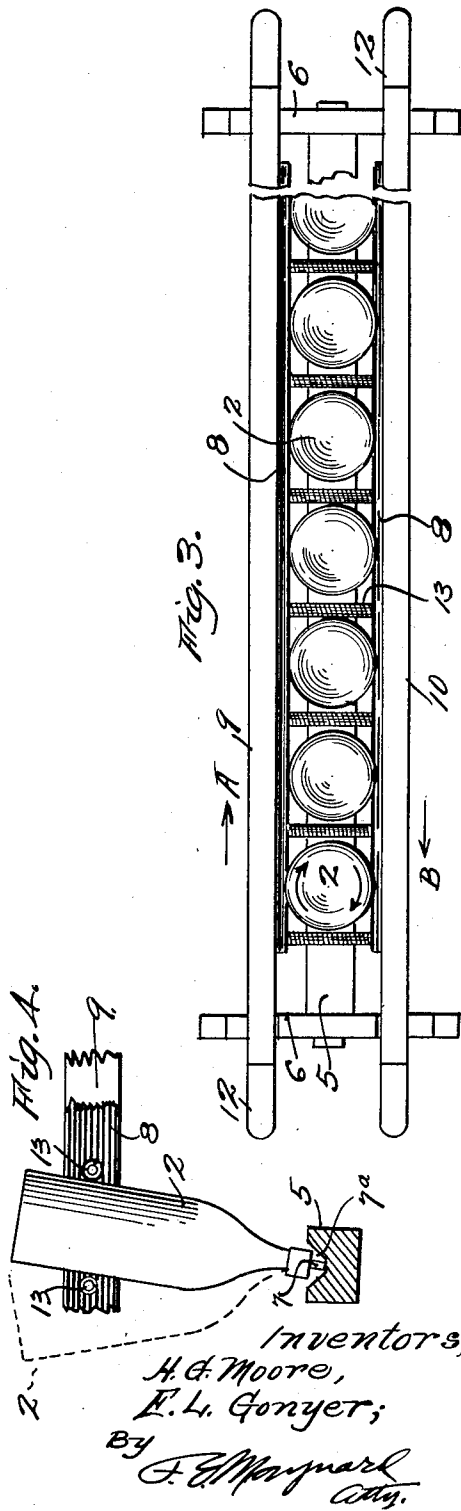
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H. G. MOORE ET AL

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WINE BOTTLE SPINNING AND TILTING RACK

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WINE BOTTLE SPINNING AND
TILTING RACKHarry G. Moore, Los Angeles, and Edward L.
Gonyer, Beverly Hills, Calif.

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13 Claims. (Cl. 259—54)

This invention is a bottle rack for alternately tilting and turning, at one time, any desired number of inverted, highly charged bottles of fermenting liquid for the purpose of segregating the sediment of such fermentation down in the neck and on the cork of the bottle.

In the sparkling wine and brewing business such liquids, especially wines, are partially fermented in large containers and then bottled. The filled bottles are placed in very large numbers on racks for settling of the sediment. By the old process the bottles are turned on their axes by hand daily for a period of many months; as long as fermentation is active. This requires a great amount of labor by numerous operatives who turn the bottles individually by hand. An object of the present invention is to greatly reduce the manual labor and time required in turning the bottles; by turning and tilting a large number of bottles in the same period of time now required to turn one.

Another object is to eliminate individual handling of the bottles by manual labor and to provide a simple, practical, low cost, efficient and reliable means providing not only a storage rack for the fermenting periods of the bottle contents, but especially to provide means whereby a considerable number of applied bottles may be concurrently and readily changed from one angle of repose to an upright position and turned and tilted over to a new angle of rest; all in a time-saving manner. And, further, to accomplish this tilting and turning without removal of the inverted bottles from their respective supports.

It is understood that the reference hereinafter to "spinning" the bottles is intended to mean the rotation thereof at any desired speed on their own axes; the effect being the same as a rotation of the bottle by hand action as now generally in practice.

An additional object is to provide a bottle handling rack which will accommodate a number of bottles and will compensate for small variation in their diameters so that the bottles will be efficiently gripped and all will be rotated at the same time and to the same degree at each operation of the rack mechanism.

The invention consists of certain advancements in this art as set forth in the ensuing disclosure and having, with the above, additional objects and advantages as hereinafter developed, and whose construction, combination and details of means, and the manner of operation will be made manifest in the description of the herewith illustration; it being understood that modifications, variations and adaptations may be resorted to within the scope, principle and spirit of the invention as it is more directly claimed hereinafter.

Figure 1 is a broken-away, side elevation of the rack.

Figure 2 is a transverse, vertical section of the rack.

Figure 3 is a broken-away, plan of the rack.

Figure 4 is a detail showing tilted positions of a bottle in the rack.

Reference is here made to U. S. Patent No. 2,021,635, to Moore, one of the joint inventors in the instant disclosure. This patent shows a bottle 2 having a screw stem 7 projecting from its top or mouth end.

Such a bottle 2 and its stem 7 are shown in the accompanying drawing illustrating the use of the invention here concerned for handling such bottles, though it is not to be considered as so limited.

In a simple embodiment the rack includes an elongated bench 5 such as a stiff wooden beam with its ends securely fixed in standards 6.

The upper face of the bench is provided with a row of sockets 7^a adapted to receive the inverted top end of a bottle 2, which, as above stated, is shown with a projecting stem 7. It is understood that the sockets may be readily adapted to receive the mouth ends of bottles having no such stem 7, since the sockets may be of any desired structure or form.

The body of the inverted bottle 2, of which a row or gang is here shown, is gripped with a suitable degree of firmness between elongated cushion strips 8 of rubber or other appropriate material which is secured along the inside faces of a pair of reciprocating bars 9 and 10 whose ends are slidably supported on shoulders 11 of the standards 6, or in other desired manner mounted for reciprocation.

The bars project beyond the standards and have handles 12 to be grasped by operatives for reciprocation, though they may be otherwise motivated.

The bars 9 and 10 are sufficiently spaced to provide for insertion of the inverted bottles between the cushion strips 8 and are constantly drawn toward one another by suitable means here shown as consisting of a number of transverse helical springs 13 which are here shown as spaced apart along the side bars sufficiently to provide an opening between the springs to receive an inserted bottle.

Thus each bottle is independently sustained by the side cushion strips on the bars 9 and 10, and by the adjacent transverse springs 13; all the intermediate springs serving to rest two bottle bodies according to their tilt.

The cushion strips 8 not only grip the interposed bodies of the bottles but are yieldable enough to receive bodies of some variation in diameter.

In operation of the rack, a row or gang of filled bottles 2 is formed along the bench by inserting each bottle in inverted position between the grip-

ping strips of the bars so that the opposite sides of the bottle are firmly gripped in the cushions, in the present case one bottle is placed between the two springs 13 of a relative pair so that the springs insure positive spacing of the bottles one from the other to avoid glass contacting glass with possible injury.

In Figs. 1, 2 and 3 the bottles of the row are shown in a vertical position with their neck ends stepped in the seats 7^a. In this position the bottles are all concurrently, easily rotated on their axes by concurrently reciprocating the bars 9 and 10 in opposite directions as indicated by arrows A—B, Fig. 3, so that the bars roll on the interposed bottles as these turn on the vertical axis of each. Such a reciprocative action is readily provided for by the slight extension of the several springs 13 which draw the bars toward each other and compress the cushion strips 8 onto the engaged bodies of the bottles; the springs acting to automatically restore the bars to the normal, relative position when released, as in Fig. 3.

After each turning operation of the bars on the bottles 2 the bars are concurrently pushed in one direction to tilt each bottle in the row on the rack to an inclined position as shown in Fig. 4, in which position they are left for further fermentation of the liquid after which the rack is worked to bring the bottles up vertical on the rack seats to be again rotated by opposite reciprocation of the bars 9 and 10 as above described. Following this the bottles of the row are tilted over to the position shown in dotted lines for another fermenting and settling period; this treatment being repeated until the liquid is clear and is in condition for removal of the sediment, for which see the patent above referred to.

Any number of the racks may be combined in one apparatus; each holding a very considerable number of bottles. The saving of labor and time results in great economy in the industry.

A safety, removable, ventilating hood 15 covers the rack and bottles.

What is claimed is:

1. Apparatus for tilting and spinning bottles, comprising bottom rests for the individual bottles, and means for sustaining the bottles in inverted position on their rests and including a device for gripping and spinning the bottles comprising parallel, bottle engaging bars which are concurrently, oppositely reciprocative, and are bodily shiftable together for tilting the bottles to one side or the other of a vertical position.

2. Apparatus for tilting and spinning inverted bottles, including means to individually receive the lower end of each bottle and hold it against shift, and concurrently relatively, oppositely reciprocative supports, for the upper portions of the bottles, having means to grip the interposed bottles and being operative bodily together unidirectionally to tilt the bottles to opposite positions at will the bottles being rotated on their axes when the supports are oppositely reciprocated.

3. Apparatus as set forth in claim 2 and in which the supports are yieldably mounted.

4. Apparatus for handling inverted bottles, including a rest for the lower end of each bottle, and means engaging and sustaining the upper portions of the bottles; said means including oppositely reciprocative, devices engaging the sides of and on which the bottles may roll and being bodily movable to concurrently tilt the bottles to and fro between desired positions while standing on their rests.

5. Apparatus as set forth in claim 4, and said device being provided with means to prevent the bottles from engaging one another.

6. Apparatus for sustaining a row of inverted bottles and for tilting and spinning them, comprising a series of rests for mouth ends of the bottles, and means including relatively oppositely reciprocative side bars spaced to receive and rollably grip interposed bottles standing on said rests; said bars being concurrently reciprocative as a unit in either direction to tilt the bottles past a vertical line.

7. Apparatus as set forth in claim 6, and in which said bars are concurrently, oppositely reciprocative to roll the bottles.

8. Apparatus for handling a row of inverted bottles, including an individual seat for and on which the lower end of each bottle is spinnable and tiltable, and means for sustaining the bottles upright on their seats and including spaced elements to grip the bottles and oppositely shiftable concurrently for spinning them concurrently, and unidirectionally shiftable together for concurrently tilting them to different positions independently of the spinning function.

9. Apparatus for handling inverted bottles, including a support with means to receive and hold the lower end of each bottle in given position, and means to sustain the upper portions of the bottles and including cushions to grip the interposed bodies; said means being reciprocative to spin the bottles on their supports and being operative to tilt the bottles from one position to another and vice versa, independently of the spinning action.

10. Apparatus for handling inverted bottles, including a stationary bench with seats for the individual bottles to retain them in place on the bench, and bodily reciprocative means including relatively reciprocative bottle body engaging devices for the support and isolation of the upper portions of the bodies; said devices being unidirectionally, concurrently shiftable to tilt the bottles concurrently from an inclined to a vertical position and then relatively reversely reciprocative concurrently to concurrently turn the bottles, and then unidirectionally shiftable together to tilt the bottles concurrently to an opposite inclined position.

11. Means to tiltably and turnably support the lower ends of a row of inverted bottles, a pair of parallel bars spaced to receive and grip the interposed bodies of inverted bottles and having means to isolate the bottles relatively; said bars being concurrently, oppositely reciprocative to rotate the interposed bottles, and being concurrently shiftable in either direction longitudinally to tilt the bottles on the support.

12. A bottle handling rack including a bench with individual seats for the lower ends of a row of inverted bottles, a pair of bars spaced to receive the bodies of the bottles, gripping cushions along the inner faces of the bars and which compensate for the size variation of the bodies, and means for isolating the bottles along the row; said bars being shiftable as a unit to tilt the bottles on their seats, and being oppositely reciprocative to turn the interposed bottles.

13. A rack as set forth in claim 12, and in which the isolating means includes cross springs movably connecting the bars.

HARRY G. MOORE.
EDWARD L. GONYER.