

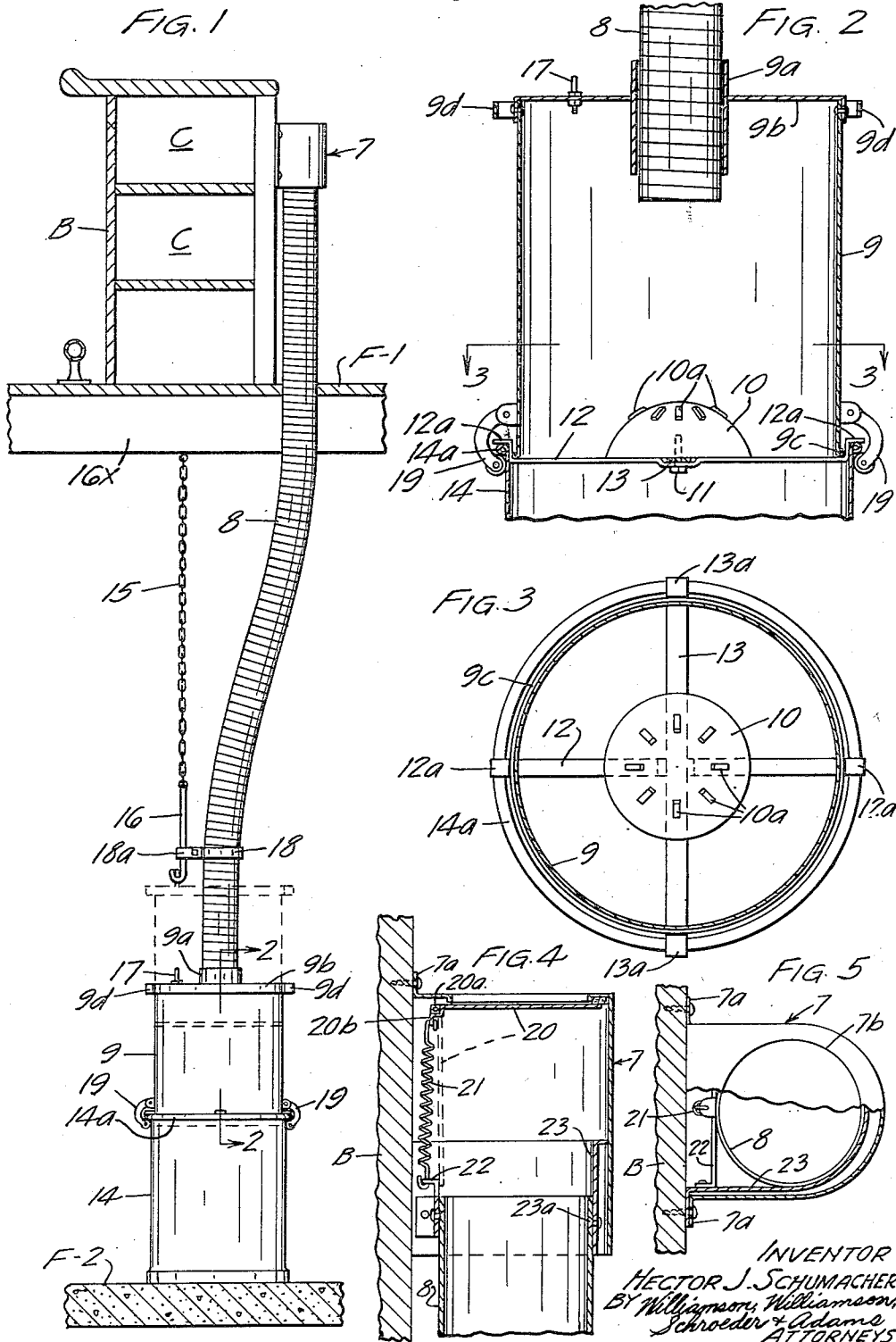
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BOTTLE BREAKER AND DISPOSAL SYSTEM

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BOTTLE BREAKER AND DISPOSAL SYSTEM

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This invention relates to a system and apparatus for the breaking and disposal of bottles.

United States laws require that liquor bottles be broken and destroyed after original use thereof in bars, restaurants and the like. In the past, some apparatus has been devised for facilitating disposal of empty bottles when dropped through a receiver at a bar or restaurant. Also, crude apparatus has been developed for breaking bottles in their fall through a chute. Such prior art devices and apparatus have not been generally satisfactory and have, to applicant's knowledge, required considerable labor in disposing of the collected bottles or the fragments thereof. Most of the bottle breaking mechanism heretofore used has been uncertain and at least in part, unreliable.

It is an object of my invention to provide comparatively simple apparatus including a bottle receiver mounted in a convenient location behind a bar or restaurant counter and including positive and reliable gravity-actuated mechanism for successively demolishing bottles in downward travel through a chute and in combination with a highly efficient disposal receptacle whereby the fragments of the bottle glass may be easily and safely handled and disposed of.

Another object is the provision of a simplified system whereby liquor bottles or the like, after the original contents have been consumed, may be successively dropped into a receiver whereafter through guided fall by gravity and efficient breaker mechanism, the bottles are with certainty demolished and the fragments collected in a safe and readily disposable manner.

A further object is the provision of a system of the class described wherein the disposal receptacle is conveniently mounted on a floor or support below the floor of the bar or restaurant and has embodied therein a means of very easily disconnecting the discharge chute and breaker mechanism therefrom to enable the collecting receptacle to be readily removed and the accumulated contents emptied into a truck or vehicle.

These and other objects and advantages of my invention will more fully appear from the following description made in connection with the accompanying drawings wherein like reference characters refer to similar parts throughout the several views and in which:

Fig. 1 is a diagrammatical, vertical section taken through the ground floor and basement of a building showing my system operatively applied with a receiver mounted at the rear of a bar and a collection receptacle disposed upon the basement floor and the dotted lines indicating the elevated positioning of the bottle breaking mechanism and lid of the receptacle when it is desired to discharge the accumulated glass fragments from the receptacle;

Fig. 2 is a vertical section taken on a somewhat larger scale illustrating the bottle breaking mechanism and its housing and slidable connection with the discharge chute;

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Fig. 3 is a cross section taken on the line 3—3 of Fig. 2;

Fig. 4 is a vertical section showing a suitable type of bottle receiver mounted on a bar or the like and its connection with the upper portion of the delivery chute; and

Fig. 5 is a top plan view of the bottle receiver with some portions broken away.

As shown in the drawings, my system is installed in a building having a main floor F-1 and a basement floor F-2 disposed directly below. A typical bar B is supported from the floor F-1 having as is usual, divided compartments C for storage. At the back of the bar, a bottle receiver indicated as an entirety by the numeral 7, is attached in vertical position and having an open upper end for receiving successively, liquor bottles of various shapes and sizes. A tubular chute 8 constructed preferably of a non-corrosive material connects at its upper end with the interior of receiver 7 and extends downwardly below floor F-1 to a point some distance above the basement floor F-2. The tubular chute 8 may if desired be constructed of flexible, tubular material in order that it may be bent somewhat to communicate properly with a sleeve or extension 9a affixed to the circular top 9b of a cylindrical housing 9. As shown the lower end of tubular chute 8 slidably telescopes through the sleeve 9a and is correlated in length with the operating position of housing 9 to insure communication and proper connection with the sleeve while permitting relative elevation of the housing and sleeve to the chute 8. The housing 9 has mounted within the lower portion thereof, bottle breaking mechanism which comprises a central upwardly projecting, hard metal dome 10, as shown, being substantially semi-spherical in shape and disposed axially of the lower end of chute 8. The dome 10 preferably has circumferential ribs 10a thereon extending from the axial top of the dome circumferentially and radially relative to the axis. Said ribs project outwardly a short distance beyond the general contour of the dome, say from one-sixteenth to one-half inch. The dome is secured by suitable means such as a headed bolt 11 to the intersection of a pair of crossed spider bars 12 and 13, one of said bars (12) being downwardly offset at its medial portion to engage and retain the medial portion of the second bar 13. The outer ends of bars 12 and 13 are upturned to engage the lower beaded edge 9c of housing 9, and their outer extremities 12a and 13a respectively are then out-turned to form support feet which normally rest upon the upper beaded edge 14a of a disposal receptacle 14.

Disposal receptacle 14 may constitute a conventional garbage can or any cylindrical receptacle preferably constructed from non-corrosive, rigid material and having an open upper end and a peripheral wall of adequate strength to contain a large quantity of bottle fragments and to support the bottle breaking mechanism and its housing 9. Housing 9 is removably but positively secured to the top beaded edge of receptacle 14 by a pair of suitable fastener elements 19 disposed diametrically opposite near the lower end of housing 9 and spring-actuated (not shown) in conventional manner to engage below the bead 14a of the receptacle.

To facilitate elevation and disconnection of housing 9 with the top of receptacle 14, I preferably provide a suspension mechanism which may be readily connected with the top 9b of housing 9 and which, when it is desired, will retain the housing in an elevated position a short distance above the disposal receptacle. As shown in the drawings, this suspension mechanism may comprise a flexible supporting element such as a chain 15 affixed at its upper end to an overhead support or beam 16x and having attached to the lower end thereof, a hook 16 which is adapted to engage a staple or loop 17 fixed to

the top 9b of the breaker mechanism housing 9. Hook 16, in the form shown, is provided with an elongated shank which is slidably guided by the eye 18a of a keeper strap 18 which is clamped or fixed to tubular chute 8 a short distance above the lower end thereof. Handle members 9d are preferably provided near the top of the housing 9 to facilitate lifting of the housing. Chain 15 is of such length that when the fasteners 19 are released and housing 9 elevated to the position shown in dotted lines, the hook 16 will readily be engaged with the loop 17 at the top of the housing and will retain the housing elevated several inches above the dome 10 of the breaker mechanism. The breaker mechanism may thereafter be lifted from its support upon the top of receptacle 14.

In Figs. 1, 4 and 5, a suitable type of bar-mounted, bottle receiver is illustrated, although it will, of course, be realized that any receiver or sleeve or ring to which the upper end of tubular chute 8 is securely affixed will suffice. As shown, receiver 7 comprises a U-shaped housing provided with attachment flanges 7a which are rigidly secured as by screws to an upright member of the bar B. The internal cross sectional area of the housing 7 is of larger size and shape than the diameter or cross sectional areas of any and all size liquor bottles or other bottles for which the apparatus is intended. In the form shown, an open collar 7b is provided at the upper end of the receiver normally closed by a metal trap door 20 which is hinged at its inner edge on a pintle 20a and has an angled lever arm 20b to which is connected a light, contractile spring 21 anchored at its lower end to a bracket 22 for normally maintaining the trap door in horizontal, closed position. The lower portion of the interior of the housing 7 is provided with a rigid skirt 23 which is adapted to externally fit the upper end of tubular chute 8 and be secured thereto by suitable means such as rivets 23a.

Operation

In use with the apparatus installed and positioned as shown in Fig. 1, bottles may be successively dropped longitudinally into the top of receiver 7, the trap door immediately yielding to the weight of the bottle and the bottles then dropping downward through chute 8 and acquiring considerable momentum before striking at their ends, the top of the symmetrical, upstanding breaker element 10. Breaker element 10 being convex and upstanding and having its apex axially aligned with the delivery end of chute 8, assures positive breakage of all bottles discharged from the chute. The ribs 10a on the breaker element are found to somewhat increase the general efficiency although entirely satisfactory results have been attained without the use thereof. Shattering however, into finer particles is assured through utilization of the ribs.

The fragments of the broken bottles must of necessity fall into the top of the disposal receptacle since the housing 9 is a completely closed housing and the lower edge thereof fits within and below the top of receptacle 14, being supported on the feet 12a and 13a provided by the spider.

When substantial glass fragments have accumulated in the disposal receptacle 14, the breaker mechanism may be readily disengaged from the top of the receptacle by releasing the fasteners 19. Thereafter, by guiding housing 9 through the medium of handles 9d, the housing may be elevated to engage the hook 16 at the end of chain 15 with the loop 17 and thereby retained in elevated

position as shown in dotted lines in Fig. 1. In the elevation of housing 9, the sleeve 9a at the upper end slides upwardly upon the lower portion of the discharge chute.

It will be obvious that after elevation of the breaker housing 9, the large disposal receptacle may be readily transported to dump the contents of the same into a disposal vehicle or the like.

From the foregoing description, it will be seen that I have provided an economical, but highly efficient apparatus for successively breaking and disposing of bottles. The apparatus or system is particularly adapted for the use by bars and restaurants but of course is capable of other uses for the breaking of glass or other frangible containers and the collection of the fractured particles thereof.

It will of course be understood that various changes may be made in the form, details, arrangement and proportions of the parts without departing from the scope of my invention.

What is claimed is:

1. Apparatus for breaking and disposing of bottles having in combination a depending bottle chute having bottle-receiving means at its upper end, bottle breaking mechanism connected with the lower end of said chute and comprising a removable housing having substantially closed communication at its upper end with the lower end of said chute and a bottle breaking element supported within said housing, substantially coaxially of the lower end of said chute, said housing completely surrounding said bottle breaking element and having means at the lower edge thereof for support upon and intercommunication with the upper end of a collection receptacle said chute having an unrestricted lower end disposed a substantial distance above said bottle-breaking element and said bottle-breaking element being of convex semi-spherical shape and of greater diameter than said chute.

2. The structure set forth in claim 1 and fastener mechanism for detachably securing the lower portion of said housing in a telescoped relation within the upper end of a collection receptacle.

3. In a bottle-breaking and disposal system, a depending tubular chute of a diameter larger than the maximum cross sectional dimension of largest bottles to be broken, said chute terminating in an unrestricted open end, a disposal receptacle removably supported some distance below the lower unrestricted end of said chute, bottle-breaking mechanism removably supported upon the upper end of said receptacle and having an upstanding convex symmetrical breaker element medially supported thereof and disposed axially some distance below said chute and a housing also removably supported upon the upper end of said receptacle and slidably mounted upon the lower portion of said chute for elevation thereon, said housing being of much larger diameter than said chute and concentrically defining a chamber between the lower end of said chute and said receptacle, said chamber having a closed upper end and an open lower end.

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