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DISPENSER

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Fig. 1

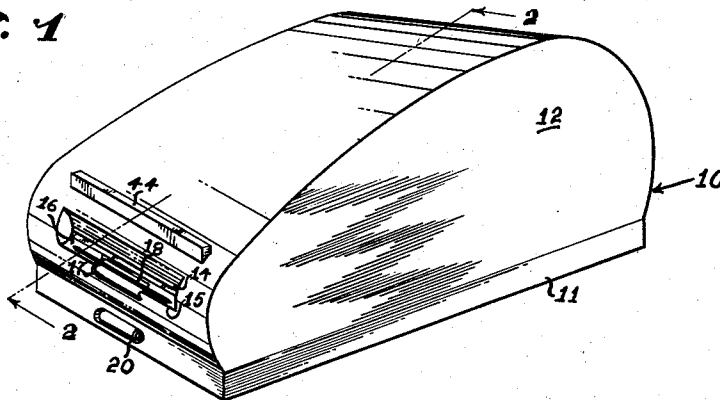


Fig. 2

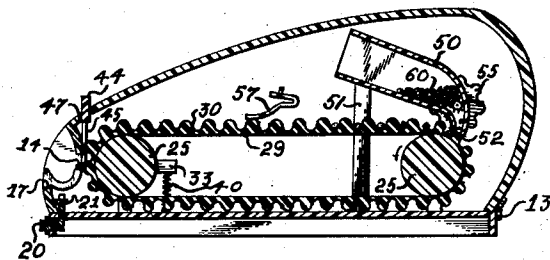


Fig. 3

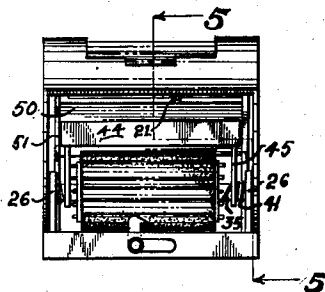


Fig. 5

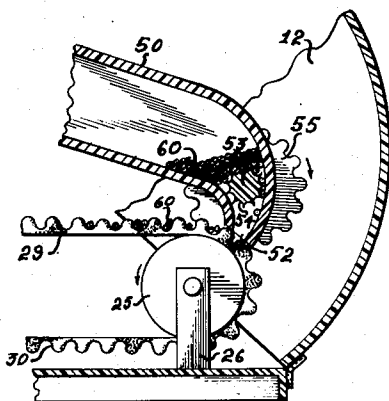
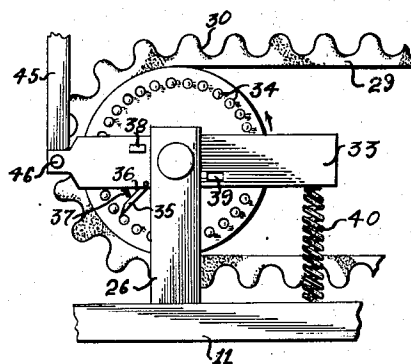


Fig. 4



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DISPENSER

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2 Claims. (Cl. 312-73)

1

The present invention relates to dispensing apparatus and more particularly to apparatus adapted to the dispensing of elongated articles such as toothpicks, matches, and the like.

In restaurants and other establishments catering to the public it is a conventional practice to provide open dishes of toothpicks and matches for the convenience of customers. In the case of matches, the practice is dangerous in that a customer in reaching for a match may readily ignite all of the matches in the dish with serious injury to himself. Such disposition of matches constitutes a serious fire hazard. In the case of toothpicks, it is an unsanitary arrangement. It is nearly impossible for a customer to select a toothpick contained in the dish without touching other toothpicks contained therein. The soiling and contamination of the toothpicks in the dish is aggravated by the fact that a substantial percentage of the customers makes no effort to avoid touching other toothpicks when selecting toothpicks for use.

An object of the present invention is to provide improved means for dispensing toothpicks, matches, and the like.

Another object is to provide a dispensing apparatus for such articles that is safe to employ and that maintains the articles, preliminary to their dispensing, in a clean and sanitary manner inaccessible to contamination by handling incident to prior selections.

Another object is to provide a dispensing apparatus that is conveniently and easily loaded.

Another object is to provide a simple dispensing apparatus that is characterized by dependable operation.

Another object is to provide a dispensing apparatus adapted to make available by unitary discharge thereof toothpicks, matches, and the like in response to manual manipulation.

Other objects are to provide improved elements and arrangements thereof in a device of the character and for the purposes set forth that is attractive, economical to produce, and safe to employ.

In accomplishing these and other objects of the present invention, improved details of structure are provided, the preferred form of which is illustrated in the accompanying drawing, wherein:

Fig. 1 is an isometric view of a dispensing apparatus embodying the principles of the present invention.

Fig. 2 is a section taken on line 2-2 of Fig. 1.

Fig. 3 is a front elevation of the device of the present invention viewed with a hood portion thereof elevated to reveal inner elements.

Fig. 4 is an enlarged fragmentary view of a portion of the driving and conveying means of the present invention.

2

Fig. 5 is a somewhat enlarged section taken on line 5-5 of Fig. 3.

Referring in greater detail to the drawing:

In Fig. 1, a housing is indicated generally at 10 comprising a substantially rectangular base member 11 and a hood member 12. The hood member is preferably hingeably mounted on the base member as at 13, in Fig. 2, at a position which, for purposes of clarity of description, is arbitrarily designated as the rear end of the base member. The hood has a discharge opening 14 formed in the front end portion thereof and a dispensing receptacle 15 provided in registration with the opening. The dispensing receptacle preferably comprises an elongated, substantially horizontal, transversely concaved member positioned below the opening, as shown in Fig. 1. A groove 16 is formed longitudinally therein and said concaved member provided with a centrally located depressed portion 17. Thus, as toothpicks, matches, or similar articles are discharged through the opening 14, by a structure presently to be described, said articles are funneled into the groove by the concave character of the receptacle and supported in the groove with opposite end portions of said toothpicks, matches, and the like shielded from handling but with an intermediate portion disposed for grasping convenience in the depression 17. This is demonstrated by a conventional toothpick illustrated at 18.

A simple catch mechanism 20 is slideably mounted in the base member 11 for engagement with a stud 21 formed on the hood. Said catch and stud illustrate a convenient latching arrangement for securing the hood in operating position. It is clearly apparent that any suitable latch means may be employed without departing from the spirit or the scope of the present invention.

A pair of spaced cylinders 25 are mounted for rotation on the base member, as by brackets 26 upwardly extended from the base member. The cylinders are preferably arranged in parallel relation in a substantially horizontal plane and transversely disposed to the base member 11 with one of said cylinders positioned adjacent to the opening 14. The axis of rotation of the cylinder adjacent to the opening 14 is preferably at an elevation substantially equal to the elevation of said opening.

An endless conveyor 29 is arranged in circumferential relation to the cylinders 25, for travel thereabout, and is provided with outwardly disposed, transverse, corrugations 30. Although the conveyor may be formed of any suitable material, it has been discovered that elastic material, such as rubber, is admirably suited to the purpose and when tensioned about the rollers provides an effective conveying means.

3

A rocker arm 33 is pivotally mounted in coaxial arrangement with the forward cylinder 25 adjacent to said roller. A plurality of studs 34 are axially extended from the cylinder in a circular arrangement concentrically related to the cylinder. The arrangement of studs functions as a ratchet wheel. A pawl 35 is pivotally mounted on the rocker arm for engagement with the studs. As viewed in Fig. 4, the pawl is precluded from moving in a clockwise direction from a predetermined rest position by a stop 36 borne by the pawl abutable with the rocker arm. A helical tension spring 37 interconnects the pawl and the rocker arm and serves to urge the pawl into said rest position. The rocker arm is normally maintained in a predetermined resting position, which may conveniently be horizontal, as shown in Fig. 4. To preclude clockwise rotation of the rocker arm from the resting position, lips 38 and 39 are struck from the rocker arm in positions abutable with the adjacent bracket 26. To urge the rocker arm into the resting position, a helical tension spring 40 is interconnected with an end of the rocker arm and the base element 11, as shown in Fig. 4. It has been found convenient to employ a rocker arm and ratchet means, as described, at each end of the roller 25 that is adjacent the opening 14. A pair of springs 41 are interposed the brackets 26 and the rocker arms 33 to aid in positioning said rocker arms relative to the forward cylinder 25 and to aid in centering a push-bar, presently described, in the hood member 12.

To motivate the rocker arm, a push-bar 44 having downwardly extended legs 45, spaced to correspond with the rocker arms, is pivotally connected, as at 46, to each of the rocker arms. The hood 12 is transversely slotted, as at 47, and the push-bar extended upwardly therethrough for external manipulation thereof. The hood serves to position the push-bar while permitting elevational reciprocal movement thereof. From the structure described, it is clearly evident that successive depressing movements of the push-bar pivots the rocker arms, and through the engagement of the pawls 35 with the studs 34 imparts stepped rotational movement to the forward cylinder in a counterclockwise direction, as viewed in Fig. 4, and stepped advancement of the conveyor 29 about the cylinders. Downward movement only of the push-bar motivates the cylinder. Upon release of downward pressure, the spring 40 returns the rocker arm 33 to rest position and said push-bar to a position preconditioned for subsequent depressing.

A hopper 50 is mounted within the hood 12, as by a supporting bracket 51, upwardly extended from the base element 11 adjacent the conveyor 29. It will be clearly apparent that the hopper may be mounted on the hood, if desired. The hopper is adapted to receive toothpicks, matches, and the like transversely therein, in substantially horizontal positions. The hopper is preferably of a width in excess of the length of articles received thereby for freedom of movement of said articles while contained in the hopper. The hopper provides convergent side walls delineating a constricted opening 52 adjacent the conveyor. A substantially cylindrical agitator 53 having longitudinally arranged peripheral corrugations 54 is rotatably mounted in the hopper in a substantially horizontal position adjacent to the constricted opening. The corrugations are preferably of a size and shape adapted to receive single articles of the type to be dispensed.

4

A cog 55 is mounted in coaxial, unitary relation with the agitator 53 externally of the hopper 50 and in engagement with the conveyor 29. The cog has driving connection with the agitator and driven connection with the conveyor. Thus, as the conveyor 29 is motivated in stepped advancement, as previously described, the cog 55 in engagement therewith is rotated and serves to rotate the agitator in timed relation to the conveyor. The corrugations 30 in the conveyor and the corrugations 54 in the agitator are preferably spaced and synchronously rotated so that the agitator rotates sufficiently to drop an article carried in its corrugation as each new corrugation of the conveyor is moved to loading position below the hopper.

As shown in Fig. 2, depressing of the push-bar 44 results in counterclockwise rotation of the cylinders 25 and in clockwise rotation of the cog 55 and its agitator 53. The clockwise rotation of the agitator tends to lift articles finding their way into its corrugations upwardly prior to downward movement of such articles to discharge position. This has been found conducive to free movement of the articles with a minimum of jamming in the hopper.

A spring sweep 57 is mounted on the hopper and curved downwardly and forwardly therefrom to a position closely adjacent the conveyor 29 between the loading position of the conveyor 29 and the opening 14. The sweep assists in arranging articles deposited on the conveyor 29 by the hopper in the corrugations of said conveyor.

Operation

The already clearly disclosed operation of the apparatus of the present invention is briefly summarized at this point. To load the apparatus, the latch 20 is released and the hood 12 pivoted upwardly until the hopper is conveniently available. The articles to be dispensed are deposited in the hopper in substantially horizontal positions. This is accomplished in a sanitary manner and quite conveniently, by opening an end of a carton or box, not shown, containing such articles, inserting the open end of the same into the hopper, and thus pouring the articles into position. This is of particular advantage in that it permits the loading of toothpicks into the apparatus and the dispensing thereof without handling or manually touching the toothpicks in any way. In this way, toothpicks may be dispensed by the apparatus of the present invention without any person but the user touching the same. Matches are preferably inserted into the hopper so that their handle end portions are closely adjacent to a side of the hopper and their heads spaced from the opposite side to avoid accidental ignition. Once so positioned in the hopper the matches are safely housed and dispensed, their original disposition and the parallel relation of the corrugations 30 and 54 assuring continued maintenance of the matches with their heads spaced from their adjacent side of said hopper and adjacent side of the hood.

Once the hopper 50 is loaded, the hood is returned to operable position and the latch 20 manipulated to secure the hood in position. The push-bar 44 is successively depressed resulting in stepped rotation of the cylinders 25, stepped advancement of the conveyor 29, and responsive stepped rotation of the agitator 53. The matches, toothpicks, or other articles indicated generally at 60 in the hopper gravitationally descend in the hopper to the agitator 53, whereupon individual units thereof are conveyed by the corrugations 54

to the opening 52. The articles descend through the opening 52 and are lodged in the corrugations 30 of the conveyor 29. In preconditioning a completely emptied apparatus for operation, the push-bar is successively depressed until the conveyor has been advanced a sufficient distance to bring loaded corrugations thereof into adjacent relation to the opening 14. As the conveyor travels downwardly around the forwardmost of the cylinders 25, the articles being dispensed are discharged through the opening 14 into the concave receptacle 15, wherein they are funneled into the groove 16, in which position their ends are shielded from handling. So positioned, the articles present portions intermediate their end portions for grasping convenience.

The apparatus of the present invention is dependable in operation, dispenses articles such as toothpicks, matches, and the like by unitary discharge, safely, and in a clean and sanitary manner.

Although I have shown my invention in the form of a dispensing apparatus comprising a housing having a discharge opening formed therein, a hopper within the housing, and a manually operated conveyor for moving articles to be dispensed from the hopper to the discharge opening, it is apparent that my invention is not limited to the specific details of the design shown. It is recognized that departures may be made from such details within the scope of my invention which is not to be limited to the specific details disclosed but is to be accorded the full scope of the claims so as to embrace any and all equivalent devices.

Having described my invention, what I claim as new and desire to secure by Letters Patent is:

1. A dispensing apparatus comprising a base member; a pair of spaced, substantially parallel cylinders rotatably mounted on the base; an endless conveyor having transverse corrugations mounted in circumscribing relation to the cylinders; a hood mounted on the base member in covering relation to the conveyor providing a discharge opening adjacent to a cylinder; a dispensing receptacle accessible from exteriorly of the hood mounted in registration with the discharge opening of the hood; a hopper mounted on the base and positioned in feeding relation to the conveyor near the cylinder opposite to the discharge opening; an agitator rotatably mounted in the hopper; a cog having driven connection with the conveyor and driving connection with the agitator; and manually manipulable means having driving connection with a cylinder for

stepped rotation thereof and stepped advancement of the conveyor from the hopper to the discharge opening.

2. A dispensing apparatus comprising a base member; mounting brackets upwardly extended from the base member; a pair of spaced, substantially parallel, cylindrical members mounted for rotation in the mounting brackets in a substantially horizontal plane; an endless conveyor having transverse corrugations formed therein mounted in circumscribing relation to the cylindrical members; a rocker arm pivotally mounted coaxially with a cylindrical member; ratchet means having driven connection with the rocker arm and driving connection with said rocker arms coaxially associated cylindrical member; resilient means urging the rocker arm into a predetermined resting position; a hood mounted on the base member in housing relation to the brackets, cylindrical members, conveyor, rocker arm, ratchet means, and resilient means, said hood having a discharge opening formed therein adjacent to a cylindrical member; a dispensing receptacle mounted on the hood in registration with the discharge opening; a hopper mounted in superposed relation to the conveyor adjacent to the cylindrical member opposite to the discharge opening; an agitator rotatably mounted in the hopper; a cog having driven connection with the conveyor and driving connection with the agitator; a spring sweep borne by the hood in association with the conveyor intermediate the hopper and the discharge opening; and a push-bar pivotally connected to an end of the rocker arm and upwardly extending through the hood for manual manipulation thereof externally of the hood.

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