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2,094,765

DISPLAY AND DISPENSING RACK

Filed Aug. 29, 1935

2 Sheets-Sheet 1

Fig. 2-

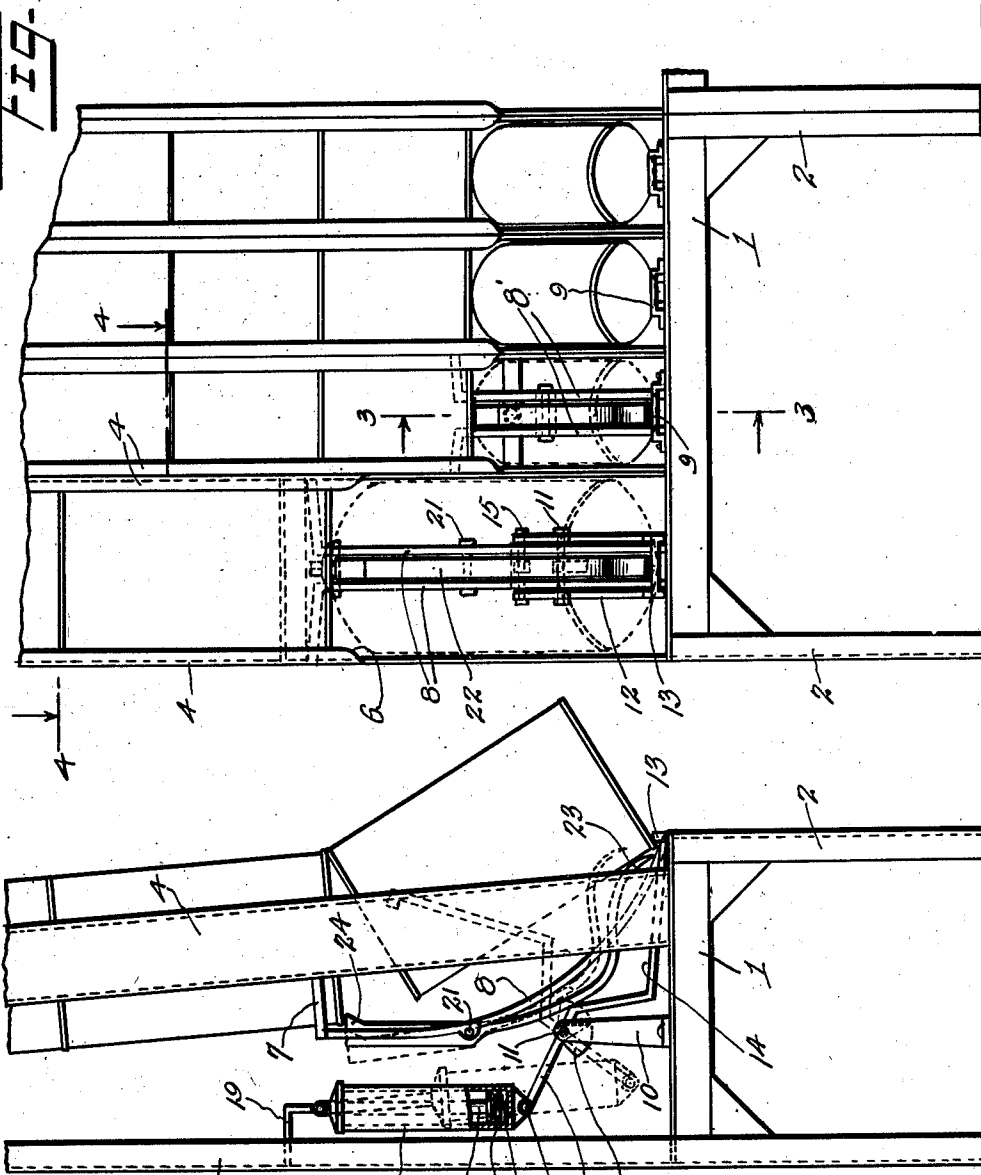


Fig. 1-

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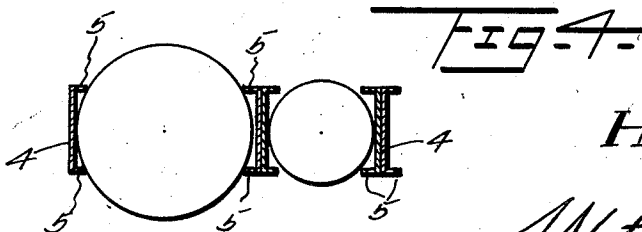
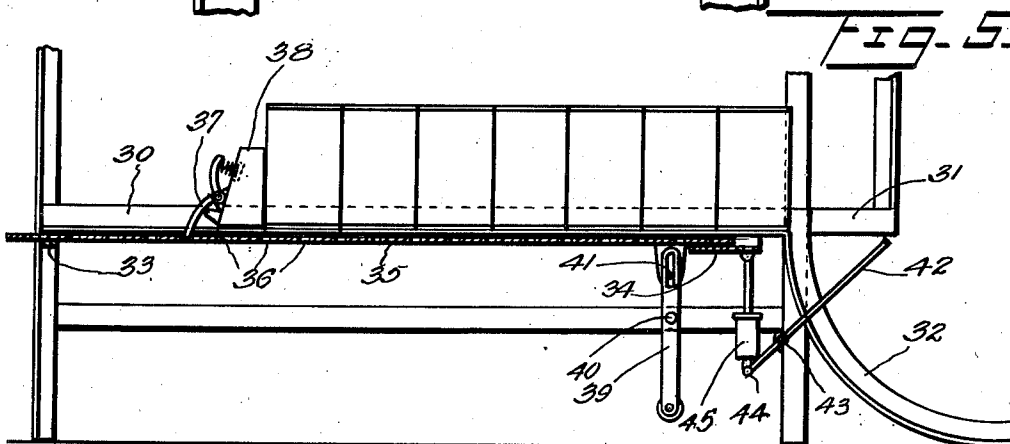
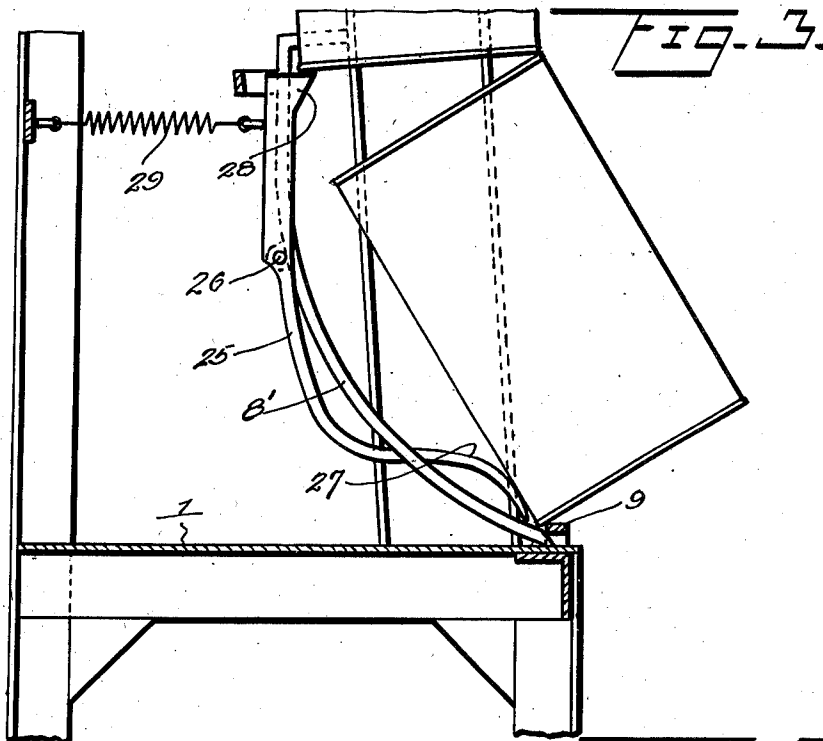
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DISPLAY AND DISPENSING RACK

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4 Claims. (Cl. 312-45)

This invention relates to the class of dispensing display fixtures and pertains particularly to a fixture which is designed for dispensing articles of the nature of cans.

5 The primary object of the present invention is to provide a fixture which is designed primarily for the display of cans of material, particularly cans of oil, and for the releasing of single cans for discharge from the display as needed.

10 Another object of the invention is to provide a novel mechanism whereby heavy cans of oil or other canned material may be dropped from a vertically arranged display group or through a vertically disposed guide from a horizontally ar-
15 ranged group onto a receiver and have its movement checked in dropping so that no damage will be done to the can.

A still further object of the invention is to provide a novel mechanism whereby a single can
20 of material will be released for discharge automatically upon the removal of a can previously discharged from the displayed group.

The invention will be best understood from a consideration of the following detailed description taken in connection with the accompanying
25 drawings forming part of this specification, with the understanding, however, that the invention is not confined to any strict conformity with the showing of the drawings but may be changed or
30 modified so long as such changes or modifications mark no material departure from the salient features of the invention as expressed in the appended claims.

In the drawings:

35 Figure 1 is a view in side elevation of a display rack showing the discharge mechanism associated therewith.

Figure 2 is a view in front elevation of the rack illustrated in Figure 1.

40 Figure 3 is a sectional view taken substantially upon the line 3-3 of Figure 2.

Figure 4 is a sectional view taken upon the line 4-4 of Figure 2.

45 Figure 5 is a view in vertical section through a modified form of rack showing can discharging means and means for shifting the cans thereon.

Referring now more particularly to the drawings wherein like numerals of reference indicate corresponding parts throughout the several views, the display rack illustrated in Figures 1 to 3 com-
50 prises a base or platform 1 having supporting front legs 2 and connected at its back to uprights 3 which, at their lower ends, provide back legs for the platform, as illustrated in Figure 1.

55 Disposed in upwardly and rearwardly inclined

position upon the platform 1 are a series of pairs of guides 4. Each of these guides of each pair comprises a channel shaped member having the flanges 5 arranged in opposed relation with the flanges of the other member so that a can or
5 other object of circular cross section may be positioned therebetween, as illustrated in Figure 4, so as to have movement longitudinally of the guides without falling out from between the same. As shown in Figures 2 and 4, the guide members
10 4 which lie between the outermost ones are in back to back relation so that one strengthens and gives added rigidity to the other and, if desired, for the purpose of strengthening the struc-
15 ture, the outer guides may have similar channel shaped members secured in back to back relation therewith.

The flanges 5 of each pair of guides are cut away adjacent the lower ends thereof, as indicated by the numeral 6 in Figure 2, so that a can
20 of material reaching the bottom of the guides, may be conveniently removed therefrom.

Supported at their upper ends in any convenient manner, such as by rearwardly converging
25 arms 7 secured to each pair of guides, is a pair of downwardly and forwardly curving skids, each of which is indicated by the numeral 8. These skids, as shown in Figure 2, are disposed centrally between each pair of guides and terminate at their forward ends at the forward edge of the
30 platform 1. As shown in Figure 2, a guideway is provided for large cans and one or more is provided for smaller cans. The skids 8 are shown between the guides which are designed to handle the larger cans and the skids 8' which are of the
35 same design as the skids 8 are associated with the guides which handle the smaller cans. However, at the forward ends of the skids 8' a stop 9 is located upon the platform 1 to prevent the cans from falling off the platform, whereas a different
40 stop means is provided in association with the skids 8 as will be described.

In association with the large can handling portion of the structure, there is provided a pair of posts 10 located behind the skids 8, and oscillat-
45 ably supported upon a shaft 11 which these posts carry is a relatively long oscillating frame 12 which is made up of two side rails connected at the forward ends by the cross rail 13 which stands at a slightly higher elevation than the side rails
50 and which serves as a stop means for a can as the same moves down the skids 8, in the manner illustrated in Figure 1. The frame 12 has portions of the sides thereof lying between the shaft 11 and the forward end 13 offset or dropped, as
55

indicated at 14, so that when the frame is in the lowered position shown in Figure 1 it will be well below the skids 8.

At its rear end, the frame 12 has its sides connected by a shaft 15 and this shaft is pivotally attached to a cylinder 16 in which is an apertured piston 17, which is connected by a rod 18 with a suitable support 19 on the frame of the rack. The piston being fixed on the support 19, the oscillation of the frame 12 causes the cylinder to move thereon and the cylinder is filled with oil or any other suitable fluid which passes through the aperture of the piston and thus serves to prevent the too rapid movement of the cylinder and the frame connected therewith. Within the cylinder beneath the piston is a spring 20 which acts, when a can is removed from the forward end of the frame 12, to force the rear end downwardly so that the frame will rise to the position in which it is shown in dotted lines in Figure 1.

Oscillatably supported upon a pivot pin 21 which is carried by the skids 8, is a trigger arm 22, the lower free end of which has a sharp upward curve to form the contact portion 23 which projects upwardly between the skids 8 to be struck by a can moving downwardly on the skids. At its upper end, the trigger 22 is formed to provide an inwardly projecting dog 24 which assumes a position normally to support all of the cans on the display rack which lie above the one can which has been discharged onto the skids.

The shaft 11, which supports the frame 12, and which oscillates with the frame, carries a cam member 25 which acts during a period of operation of the apparatus to engage the lower end of the trigger 22 and force the same to swing forwardly in the manner about to be described.

When the area between the guides for the large cans is filled with the cans, as illustrated in Figure 1, and one of the cans rests in the inclined position illustrated, it will be supported upon the forward end of the oscillating frame 12 and held by its contact with the bar 13 thereof. It will also rest against the tail portion 23 of the trigger 22. When this can is removed, the forward end of the frame 12 will be released and the spring 20 in the cylinder 16 will force the cylinder down to depress the rear end of the frame 12 and raise the forward end in the manner illustrated in dotted outline. During this raising movement of the frame, the cam 25 will engage the trigger 22 below the pivot point 21 therefor and will oscillate the trigger so as to remove the dog 24 from beneath the next can of the overlying group. The released can drops, strikes the raised end or bar portion 13 of the frame 12 and forces the latter down at the same time forcing the cylinder upwardly so that the oil therein is forced through the aperture of the piston and the rapid descent of the can is checked. As the lower end of the can swings forwardly on the skids 8, an opening will be formed between its upper end and the next can above so that the dog may move in beneath the next can under the urge of the lower can against its upwardly curved lower end.

In the handling of smaller or lighter cans of material, the oscillating frame and oil cylinder are not employed. There is employed, however, an oscillating trigger similar to the trigger 22, which is indicated by the numeral 25. This trigger is mounted upon a supporting pivot pin 26 which is carried by the skids 8' and has its lower end curved sharply forwardly and downwardly to form the tail piece 27 which projects between the skids 8' in the manner illustrated in

Figure 3. At its upper end, a dog 28 is formed which engages beneath the lower one of the group of cans lying above the one which is in position to be removed so as to hold this group back to permit the lower can to be taken out when necessary. When the lowermost can, which is resting upon the skids 8' against the stop 9 as shown in Figure 3, is taken out, a spring 29 which connects the upper end of the trigger 25 with a fixed portion of the frame, pulls the upper part of the trigger back so that the dog 28 will release the next can and allow it to move downwardly. In its downward movement it strikes the end portion 27 of the trigger and oscillates the upper end to move the dog back into place to catch and stop the next can.

In Figure 5 there is illustrated a slightly modified form of the present invention, wherein the display fixture is designed to support cans in a horizontal instead of a vertical row. In this type of fixture, the cans are arranged in a horizontal row upon the spaced opposed flanges of a pair of angle beams, one of which is shown and indicated by the numeral 30, and at the forward end of these supporting beams a vertical guide or chute 31 is arranged into which the cans are moved singly and from which they are discharged downwardly onto forwardly curving skids, one of which is indicated by the numeral 32.

Extending transversely beneath the can supporting beams 30 are guide bars 33 and 34 which support a plate 35 which is provided with a longitudinally extending row of apertures 36. The row of apertures is disposed in the area between the opposed flanges of the bars 30 and these are adapted to be selectively engaged by a spring pressed pawl 37 carried by a pusher block 38 which is slidably mounted upon the bars 30 and engages the last or rear can of the group upon the rack. Means in the form of a lever 39 which is oscillatably mounted in any suitable manner, as indicated at 40, is provided for reciprocating the apertured plate 35. The upper end of the lever has a loose connection of any suitable character such as is indicated by the numeral 41, with the plate so that when the lever is oscillated, the plate will be caused to reciprocate and when moved rearwardly it will slide beneath the spring pressed pawl 37 so as to permit the same to enter another aperture and then when the plate is moved forwardly, the pawl will hold in the aperture and force the pusher block 38 forwardly to move the row of cans so that the forward one of the row will drop into the chute 31 onto the skids 32.

The fall of the can as it leaves the chute 31 will be checked by its contact with the oscillating arm 42 which is pivotally mounted, as at 43, and pivotally engages at its opposite end at 44 with an oil cylinder 45 which is of the same character as that illustrated in connection with Figure 1 and indicated by the numeral 16.

From the foregoing it will be apparent that with the mechanism here described, cans of material may be kept on display in such manner that one may be readily removed from the display and no damage will be done to the others as they move forward into a position where another may be removed if required. By means of the shock absorbing mechanism, the descent of the cans is slowed up so that the possibility of bursting the cans is avoided.

While reference has been made through the specification to the displaying and dispensing of cans of oil from the present apparatus, it is to be

understood that the use of the apparatus is not to be confined to this article as it will be obvious it may be used for displaying and dispensing canned goods of any character, or for dispensing any other type of packaged article.

While in Fig. 3 a spring has been illustrated for effecting the return movement of the arm 25, it will be obvious that this also acts to a slight degree as a check to the downward movement of the can when it strikes the end 27 of the arm by reason of the fact that the spring is placed under tension when the lower end of the arm is depressed. It will be obvious that this spring element may, if desired, be replaced by any other suitable type of shock absorbing device.

It will also be obvious that although the structures illustrated have been shown as upon frames, they may be encased in housings of any suitable character with transparent walls to effect the display of the contents.

I claim:

1. A dispenser of the character described, comprising means for supporting a plurality of articles in a vertical line, a receiver comprising a downwardly and forwardly curving skid disposed beneath said line, an arm oscillatably mounted adjacent said skid and having a dog at one end adapted to retain said line of articles against movement, a tail-piece forming an extension of said arm and projecting across the surface of said skid for contact with a descending article, a lever pivotally mounted adjacent the skid and having one end projecting into the line of descent of an article, a dash pot coupled with the other end of said lever, spring means associated with said other end of the lever and normally urging the first end upwardly in the skid toward the lower part of the article supporting means, and a cam member carried by the lever and engaging said arm upon the movement of said lever end upwardly to effect the retraction of the dog from beneath the line of articles.

2. A device of the character described, comprising a carrier for a plurality of articles from which carrier the articles are discharged singly downwardly, a downwardly and forwardly curving skid for receiving a discharged article, a vertically disposed oscillatably mounted member adapted to support upon its upper end an article in the carrier, a tail extending down from said member formed to describe an ogee curve, the free end of the tail being disposed adjacent the lower end of the skid and the lower part of the curve bowing into the skid to be struck by an

article descending therein, said lower part of the tail being constantly engaged by an article while in the skid, and means for oscillating said member and tail when an article is removed from the skid to release an article from the carrier.

3. In an article dispenser, a pair of spaced parallel channel members arranged with the channels in opposed relation and having the opposed faces of the channels spaced apart a distance sufficient to snugly receive an article vertically therebetween, said channel members each having a portion of its flange cut away on one side at the bottom of the dispenser to facilitate the removal of an article, a downwardly and forwardly curving skidway in the lower part of the dispenser for directing articles through the cut away parts of the channels, an elongated member pivotally mounted on an axis extending across the skidway and having its upper end at an elevation to enter the skidway at the upper end of the latter to support a series of articles between the channel members, the lower end of said pivoted member being positioned in the lower part of the skidway, and resilient means normally urging the pivoted member to oscillate in a direction to remove its upper end from beneath an overlying article for discharge into the skidway.

4. A device of the character described, comprising a carrier for a plurality of articles from which carrier the articles are discharged singly downwardly, a downwardly and forwardly curving skid for receiving a discharged article, a vertically disposed oscillatably mounted member adapted to support upon its upper end an article in the carrier, a tail extending down from said member formed to describe an ogee curve, the free end of the tail being disposed adjacent the lower end of the skid and the lower part of the curve bowing into the skid to be struck by an article descending therein, said lower part of the tail being constantly engaged by an article while in the skid, a pivot support disposed transversely of said skid and rearwardly thereof, an arm secured to said support and extending forwardly relative to the skid, said arm when oscillated upwardly having its free end disposed beneath the lower one of the articles in said carrier, resilient means normally urging said arm to oscillate upwardly, and a cam member coupled with said arm to oscillate therewith and arranged to engage and exert a forward swinging movement upon the said tail portion of the oscillatable member as said arm swings upwardly.

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