

Jan. 7, 1930.

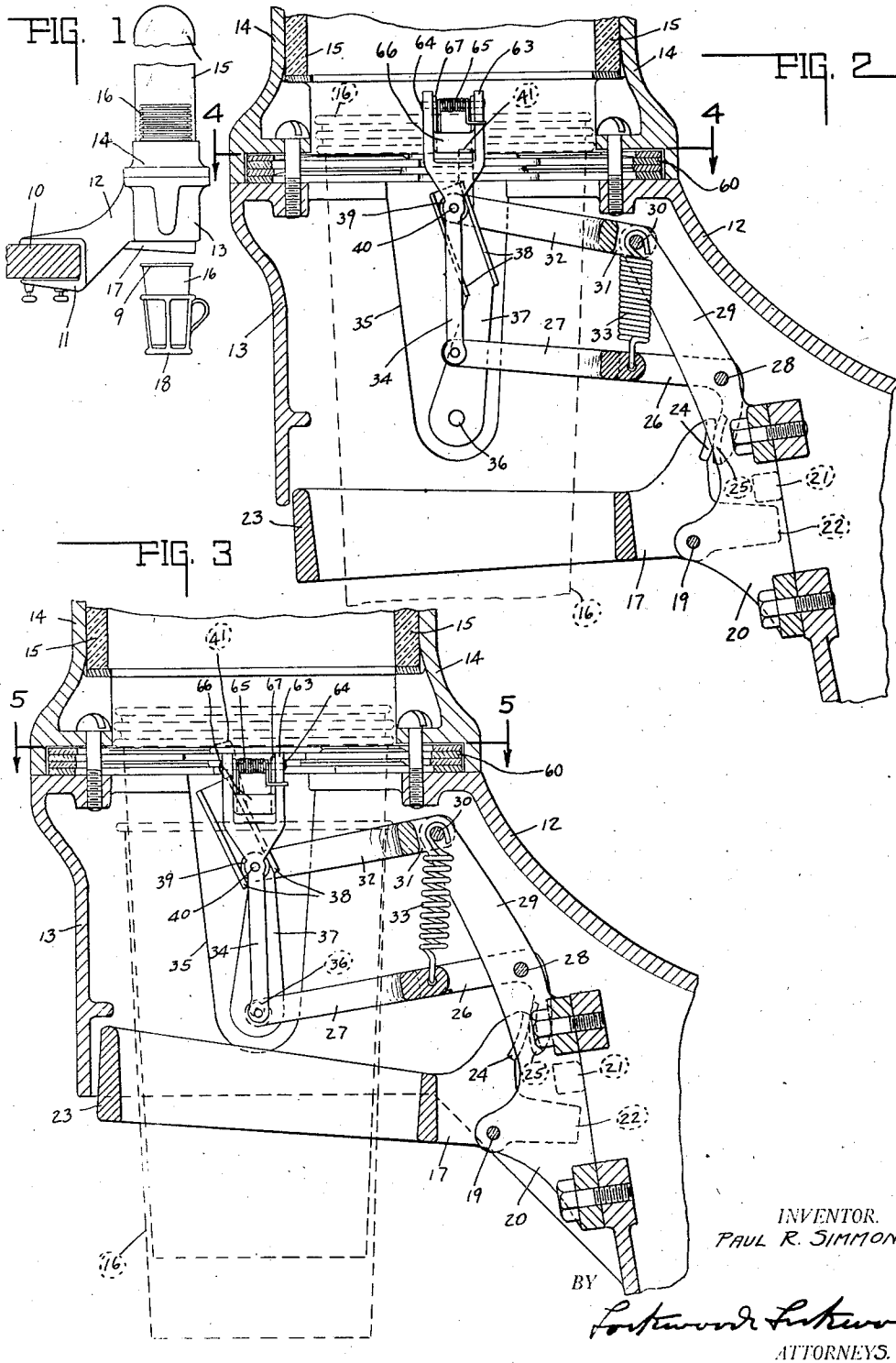
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1,742,371

PAPER CUP DISPENSER

Filed June 4, 1926

3 Sheets-Sheet 1



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FIG. 4—

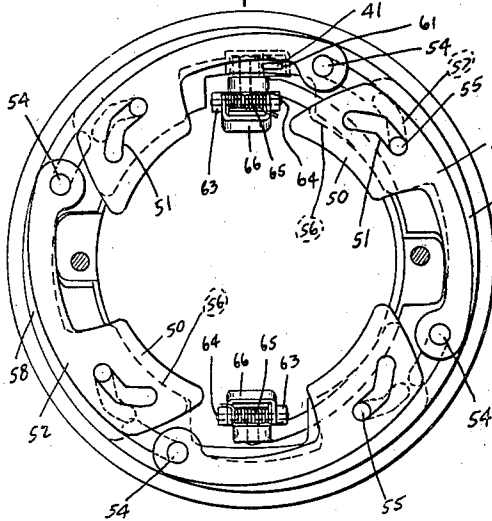


FIG. 5

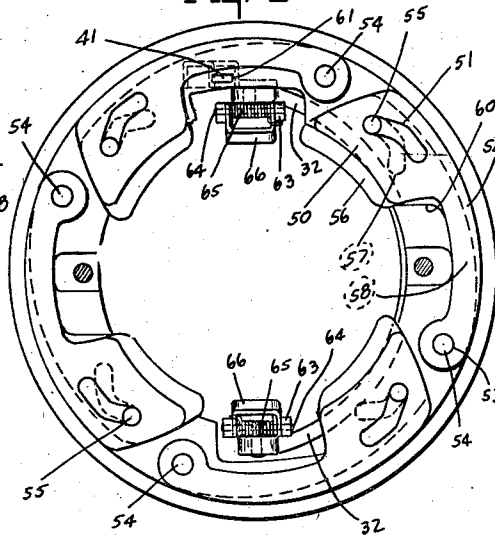


FIG. 6

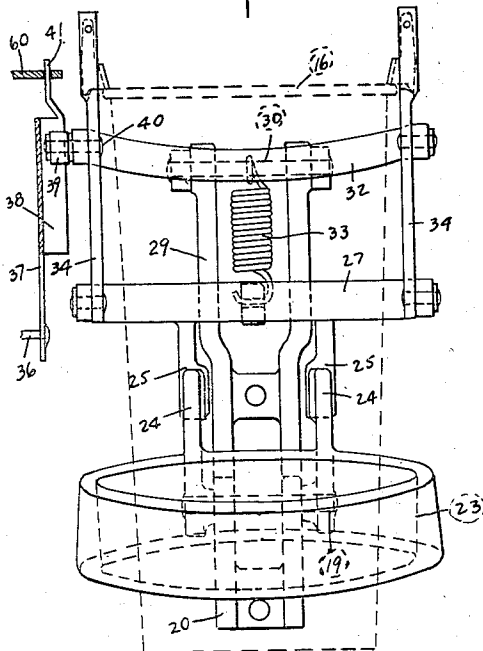
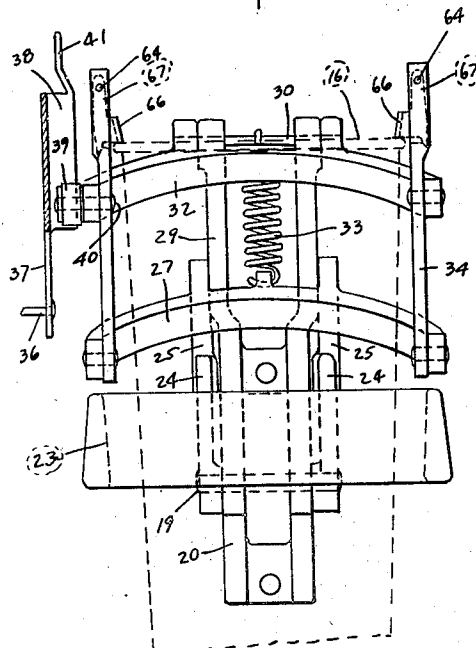


FIG. 7



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FIG. 8

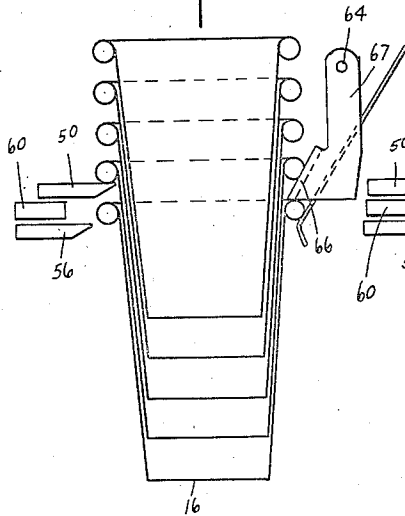


FIG. 9

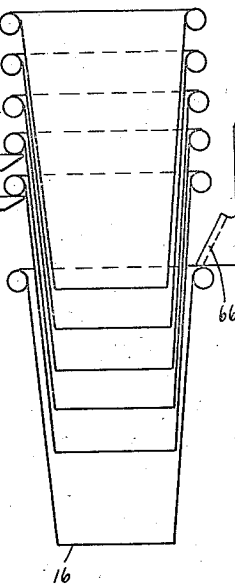


FIG. 10

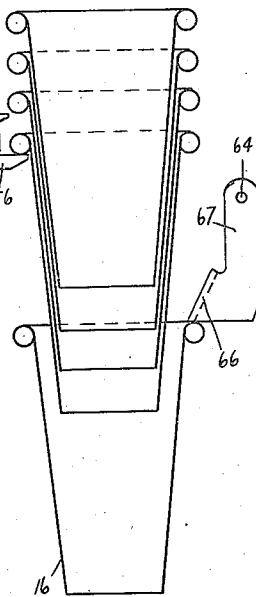


FIG. 11

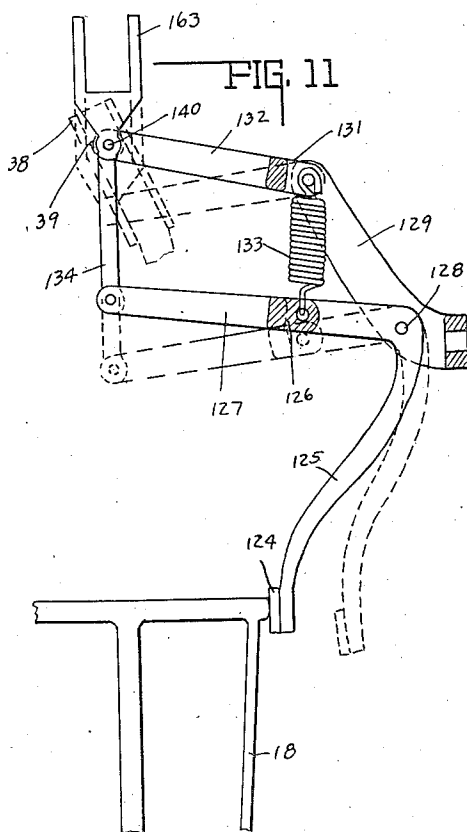
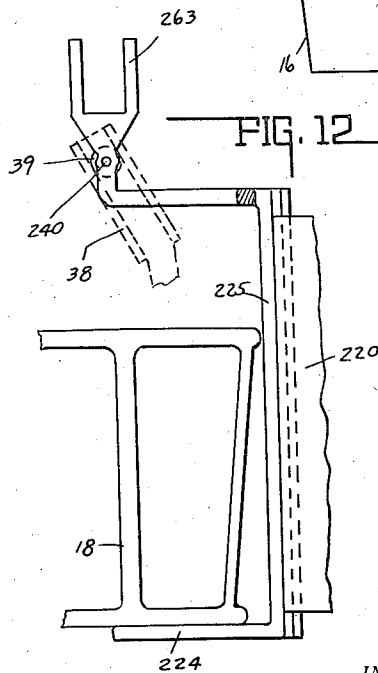


FIG. 12



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PAPER-CUP DISPENSER

Application filed June 4, 1926. Serial No. 113,689.

This invention relates to an article dispensing device.

The chief object of this invention is to construct an article dispenser of the general character indicated, whereby the device is automatically actuatable upon engagement of a member thereof by an article receiving holder which permits the operator to retain in one hand an article such as an ice-cream dipper, and in the other hand the article holder to receive said article automatically discharged by the dispenser upon engagement of the actuating member thereof by said holder, thereby facilitating the dispensing of the material such as ice-cream and the like.

The chief feature of the invention consists in the nested and enclosed arrangement of the several parts with an exposed actuating means engageable by an article receiving holder when the latter is positioned to receive an article, but which is formed and movable such that the member or its movement does not interfere with the discharge of an article from the dispenser to the article holder.

The full nature of the invention will be understood from the accompanying drawings and the following description and claims:

In the drawings Fig. 1 is a side elevational view of the complete article, parts being broken away and other parts being shown in section for clearness. Fig. 2 is an enlarged longitudinal central sectional view of the actuating mechanism of the dispenser with the parts in the normal, holding or down position. Fig. 3 is a similar view of the same parts in the article ejecting or up position. Fig. 4 is a transverse sectional view of the article engaging means and the actuating mechanism therefor in the normal or article retaining position, and is taken on line 4—4 of Fig. 2 and in the direction of the arrows. Fig. 5 is a similar view of the same parts in the ejecting position and is taken on line 5—5 of Fig. 3 and in the direction of the arrows. Fig. 6 is an end elevation of the actuating mechanism for the article engaging means in the normal, holding or down position. Fig. 7 is a view similar to Fig. 6 and of the same parts and in the up or article

ejecting position. Fig. 8 is a diagrammatic sectional view of the gripping devices and ejecting mechanism showing the same in the normal position. Fig. 9 is a view similar to Fig. 8 showing the parts in the intermediate or partial ejecting position. Fig. 10 is a similar view of the same parts in the fully ejected position preparatory to returning to the normal position. Fig. 11 is a side elevational view of the modified form of actuating mechanism. Fig. 12 is a view similar thereto and of a still further modified form of the invention.

In the drawings 10 indicates a suitable support such as a table or counter and clampingly mounted thereon by a portion 11 is a base 12 having a socket portion 13. Positioned in longitudinal alignment therewith and retained by the collar 14 is a guide 15 in the form of a transparent or glass inverted test tube or case adapted to receive a plurality of tandem arranged articles such as nested cups or dishes 16. Movably mounted on the base 12 is an actuating member 17 and the same is engageable by an article holder in the form of a cup holder 18 movable upwardly in longitudinal alignment with the socket 13 and casing 15 for receiving a cup 16 ejected by the mechanism from the socket.

The ejecting mechanism comprises a movable actuator 17 pivotally supported at 19 on the bracket 20, in turn supported by base 12. Said bracket 20 includes a stop 21 engageable by an extended portion 22 of the movable member 17 shown tubular or hollow and having the opening defining wall 23, whereby the articles or cups ejected by mechanism to be described hereinafter, pass through said actuator. The lever 17 terminates in an abutment 24 engaging an arm 25 of a lever 26 having bifurcated extensions 27 and pivotally supported at 28 on an upwardly extended arm 29 of the bracket 20. Pivotally supported at the upper end 30 of said arm is another lever 31 having the bifurcated portions 32. A spring 33 normally tends to force lever 26 in engagement with the abutment 24 for maintaining the actuating lever 17 in the lowered or normal position and lever 26 in the normal or upward position. The free ends of the

bifurcations 27 are connected by links 34 to the free ends of the bifurcations 32 and thus a parallelogram or closed linkage construction is obtained. Pivotally supported at one side of the socket 13 on the portion 35 thereof at 36, is a cam 37 having the substantially parallel walls 38 forming a cam trackway receiving the roller 39 carried by the pivot 40 concentric with the pivotal connection of link 34 and the adjacent bifurcation 32. The cam 37 includes an upward extension 41 or actuating pawl. By reason of the aforesaid arrangement, longitudinal tilting movement of actuating member 17 on pivot 19 through the parallelogram construction causes lateral tilting movement of the cam 37 and transverse reciprocatory movement of the pawl 41.

Figs. 2, 3, 6 and 7 illustrate the clearance arrangement whereby the nested articles are successively discharged without interference from the holding and ejecting mechanism positioned above the previously described actuating members.

The holding and releasing mechanism comprises a pair of annular series of grippers arranged in superposed relation. Each member of each series is substantially identical and in the upper series said members each comprise an inwardly projecting article engaging portion 50 having an angular slot 51 therein and a curved extension 52 terminating in a pivotal support 53, whereby the member is supported on the pivot 54. An actuating pin 55 positioned in the slot 51 causes inward and outward movement of the article engaging member upon its pivotal support. The lower series is substantially similar to the upper series, except that the shape of the slot is slightly different and thus the timing actuation is correspondingly different.

The lowermost series is indicated by the numeral 56, the slot thereof by the numeral 57, the arcuate extension by the numeral 58 and the pivotal support is coaxial with the superposed gripper 50. A plate or ring 60 is interposed between said series of grippers and has upwardly and downwardly projecting pins 55 thereon seatable in the slots 51 and 57. The ring 60 also has a slot 61 therein receiving the pawl 41, and thus transverse reciprocatory movement of said pawl is transformed into oscillatory movement coaxial with the longitudinal movement of the hollow actuating member 17.

Means for positively ejecting cups from the grippers comprises bifurcated extensions 63 on links 34 and mounted in said extensions is the pin 64 about which is coiled the spring 65 having one end bearing on the bifurcation and the other end upon a U-shaped article engaging device 66 also pivotally supported by ears 67 on the pivot 64.

The normal position of the grippers is diagrammatically illustrated in Fig. 8, wherein the lowermost cup 16 is frictionally

retained by the second lowermost cup, the latter and all the superposed cups being restrained and supported by the uppermost series of grippers 50, the lowermost series of grippers being in the retracted position. Immediately above the beaded edge of the lowermost section 16 is the cup engaging portion 66 carried by the arm 67. Since upward movement, by reason of cup receiver engagement, of lever 17 causes oscillating movement of the plate 60 and lowering movement of the ejector 66, through the leverage arrangement, said ejector engages the lowermost cup and in opposition to the frictional connection discharges or separates the lowermost and second lowermost cups. In the intermediate ejecting position, see Fig. 9, the lower grippers 56 are projected into the path of the cups and serve to restrain the second last cup. In the final ejection the last cup is fully separated, see Fig. 10, and the entire column of cups is supported by the lowermost series of grippers. Following the return of the mechanism, the ejecting edge 66 rides over the bead and positions itself immediately above the latter of the lowermost cup. The lowermost series of grippers are retracted and the uppermost series are projected into cup engagement leaving the lowermost cup again solely supported by frictional engagement with the second lowermost cup. The whole column of cups is successively lowered the distance of the nesting between cups at each ejection.

A modified form of mechanism, see Fig. 11, includes a lever arrangement of substantially the same character of that previously described, except that the lever 125 pivoted at 128 has the abutment 124 laterally engageable by the cup holder 18. This, through the linkage 131 and 126 having the bifurcations 132 and 127 respectively, connected by the links 134 the first mentioned link being mounted on the arm 129, raises and lowers the support 163 for the ejector 66. One of the ejector supports includes the laterally projecting pivot 140 upon which is mounted the roller 39 receivable by the cam 38 for transferring longitudinal movement into oscillatory movement, reference being had to the common axis of the cup mechanism.

A simplified and modified form of the invention is shown in Fig. 12, wherein the stand 224 is engageable by the cup support 18, and in lowering or sliding movement thereof the sliding portion 225 carried by the bracket 220 raises and lowers the ejector support 263. One of said supports includes a pivot 240 mounting the roller 39 receivable by the cam 38.

The invention claimed is:

1. In an article dispenser for successively dispensing a plurality of tandem arranged articles, the combination of a plurality of article gripping members arranged for periph-

5 eral engagement with an article for holding
the same, and another plurality of article
gripping members arranged for peripheral
engagement of an article, and means differen-
tially operating each plurality of members
for causing their peripheral engagement with
the article and their release therefrom, said
means including an actuating member thru
which the article may pass and positioned be-
10 tween each plurality of gripping members
and separating the same.

2. In combination with means for receiv-
ing and holding an article, a mechanism in-
cluding a hollow actuator pivotally support-
15 ed and movable for actuating said means and
through which the article may pass when
released, a forked lever in article straddling
position, another forked lever similarly po-
sitioned, and means connecting said levers
20 and said article holding means and the ac-
tuator together for operation.

3. In combination with means for receiv-
ing and holding an article, a mechanism in-
cluding a movable hollow actuator for re-
25 leasing the same and through which the ar-
ticle may pass when released, and a parallelo-
gram linkage construction connecting said
actuator to the article holding means for such
operation.

30 In witness whereof, I have hereunto affixed
my signature.

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