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O'Rourke

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[54] DISPENSING APPARATUS

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[52] **U.S. Cl.** **119/51.12**
[51] **Int. Cl.** **A01k 5/02**
[58] **Field of Search** 119/51.12; 222/70

[56] **References Cited**

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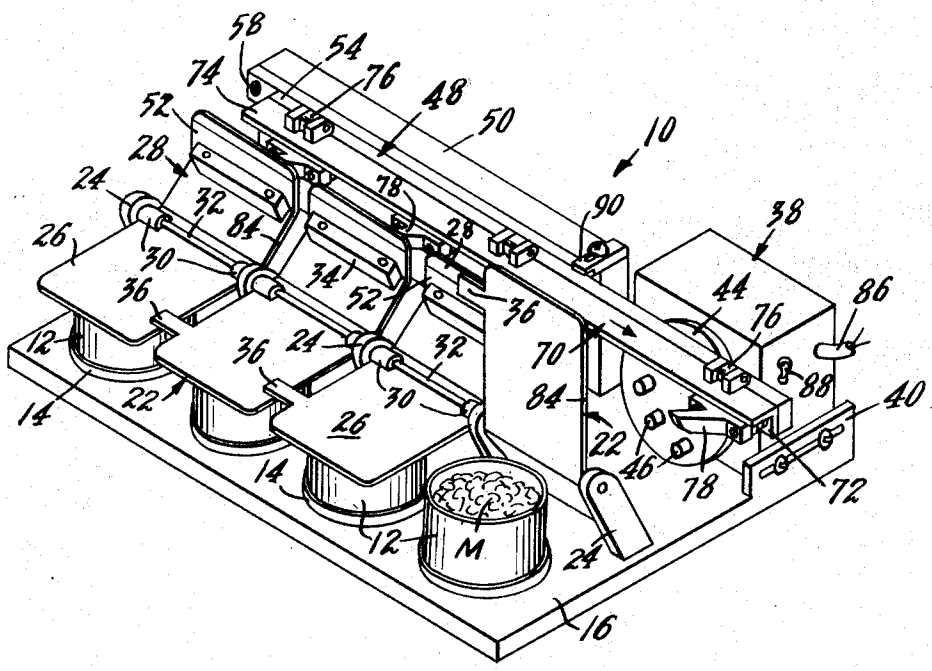
[57] **ABSTRACT**

An apparatus for uncovering a predetermined quantity of material at the ends of consecutive preselected time periods has a plurality of stationarily-positioned receptacles, each for containing the predetermined quantity of material. A lid is associated with each receptacle and is pivotable between an upright position in which it covers the receptacle and an upturned position in which it uncovers the receptacle. Fingers which outwardly project from a slide at predetermined spaced locations thereon are each engageable with one of the lids for holding the lid in its upright position. Spaced projecting elements secured to a rotatable drive wheel in a circular arrangement thereon are each carried by the drive wheel into engagement with one of a succession of spaced depending elements which project downwardly from the slide to thereby move the slide along a generally linear path of travel as the drive wheel turns through a portion of one rotation cycle. As the slide moves along its path, one of the fingers, which are engaged with the lids at the beginning of the time periods, will disengage from one lid at the end of each time period to allow that lid to pivot to its upright position and thereby uncover one of the receptacles.

12 Claims, 10 Drawing Figures



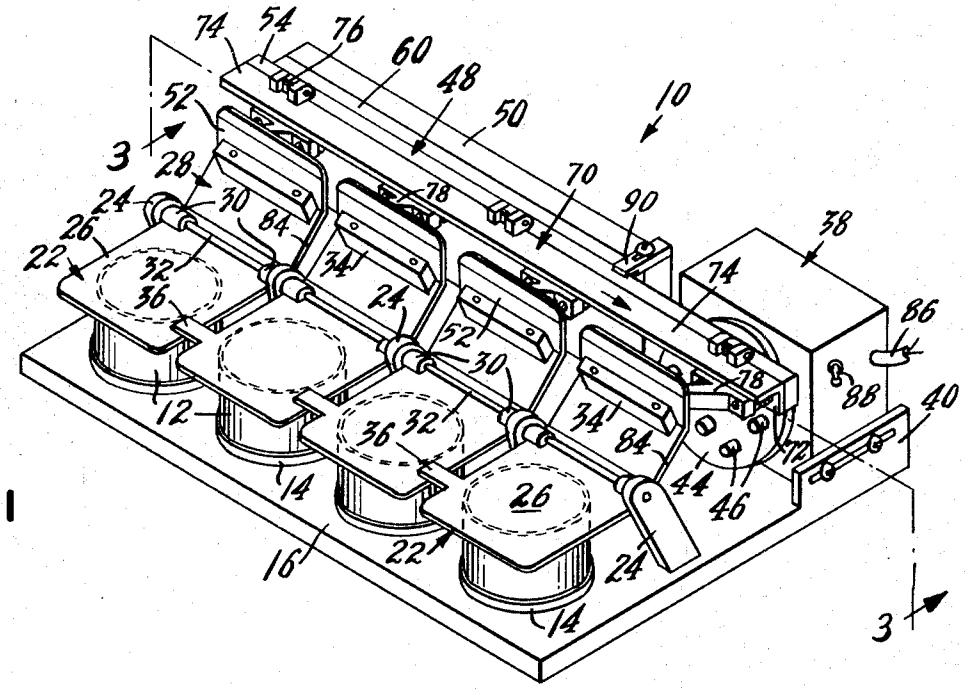


FIG. 1

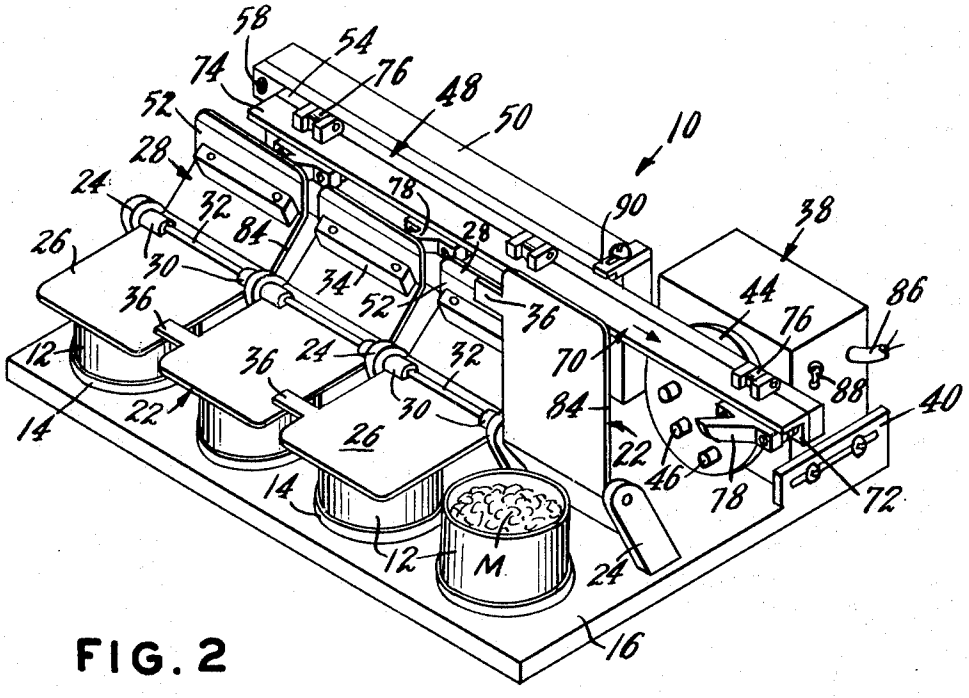


FIG. 2

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FIG. 3

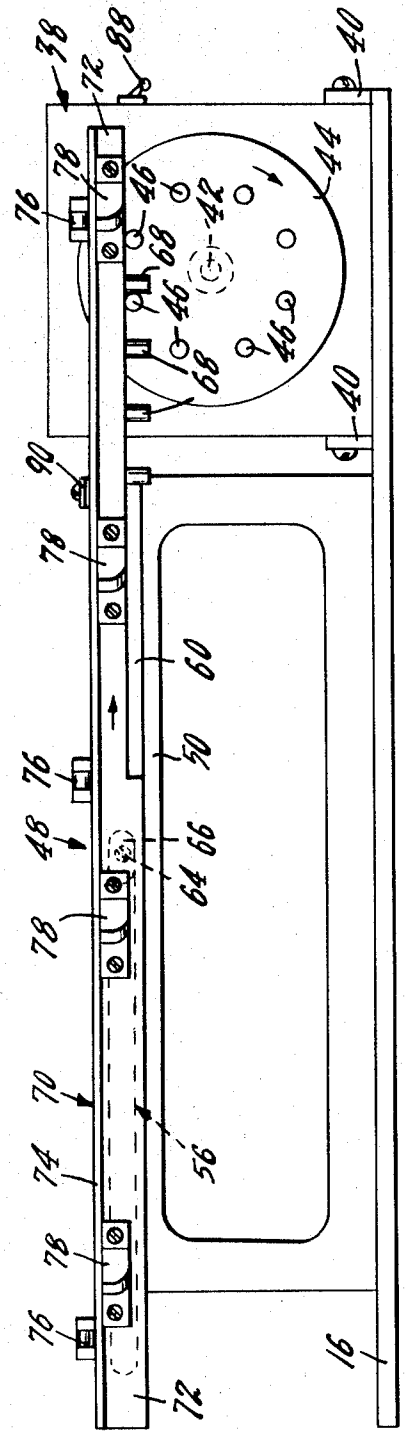

FIG. 4

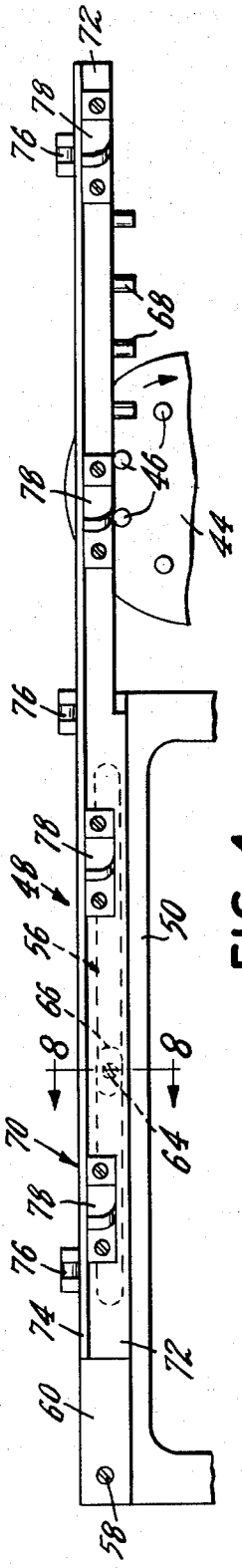

FIG. 5

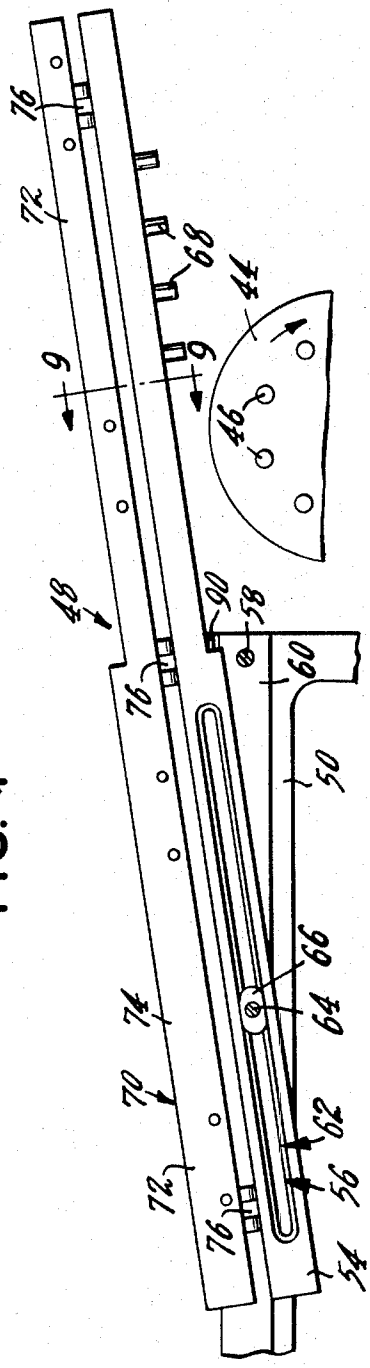

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FIG. 6

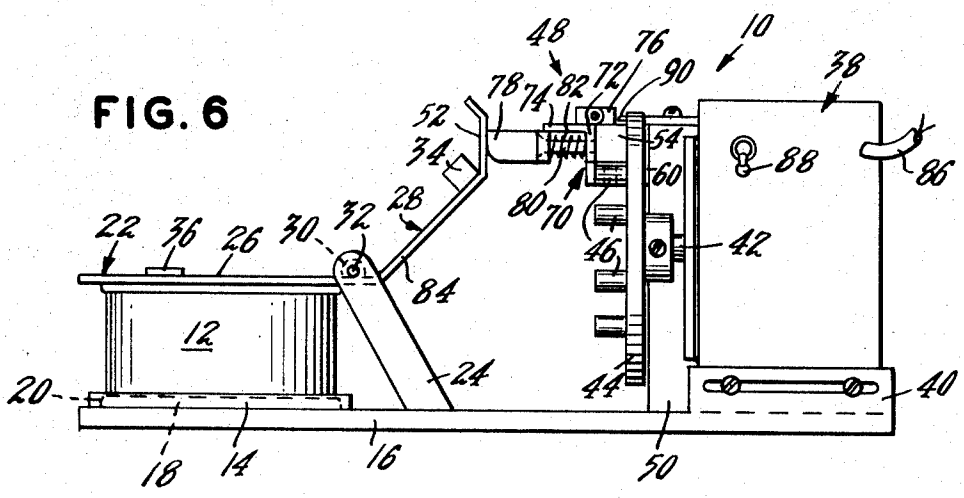
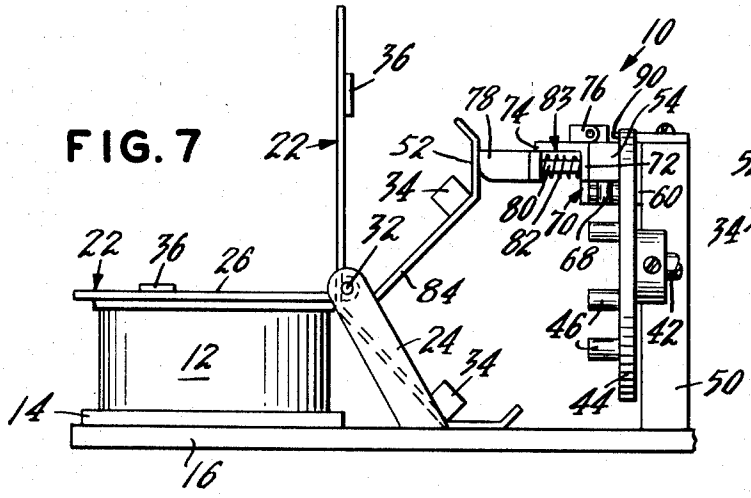


FIG. 7



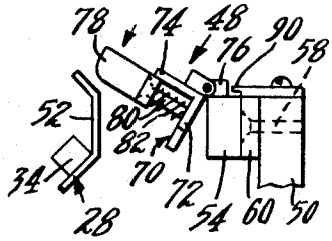
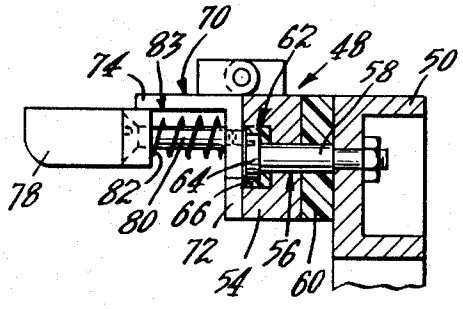


FIG. 10

FIG. 8



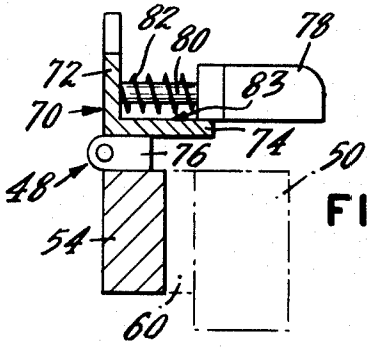


FIG. 9

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DISPENSING APPARATUS

BACKGROUND OF THE INVENTION

The present invention relates broadly to dispensing apparatus and is more particularly concerned with a novel apparatus for uncovering a predetermined quantity of material at the ends of consecutive preselected time periods.

It is quite common today to find in the average household one or more of an assortment of small animals which are being kept as pets by members of the household in artificially-created habitats. These habitats may or may not take the form of a caged enclosure depending on the particular animal. It is essential for the long-term health and survival of the particular animal that, in some respects, the artificially-created habitat resembles as near as possible the natural environment of that animal. In one respect, therefore, it is essential that the animal has available a source of fresh, uncontaminated food materials at regular time intervals which correspond to the natural physiological time cycle of its appetite.

However, frequently it is difficult for the average pet owner to continually devote regular daily attention to the food requirements of his pet animals. Therefore, unless the pet owner can find someone to assume his responsibility in regard to feeding his pet at regular intervals during his absence, the long-term health and survival of the pet will be seriously impaired by the inattention on the part of the pet owner.

The present invention releases the pet owner from the burden of maintaining regular daily attention to the food requirements of his pet by providing an apparatus which automatically uncovers a desired predetermined quantity of food materials at the ends of consecutive preselected time periods within the habitat of the pet. The time periods may be preselected fractions of a day, a week or more depending on the particular physiological cycle of the pet's appetite.

The apparatus of the present invention is particularly suited for providing a predetermined quantity of food material to pets such as cats or dogs, or even less domesticated animals such as rabbits or hamsters. Particularly, the apparatus is capable of uncovering the quantity of fresh, uncontaminated food material required by the particular animal at periodic time intervals during a day without any service activity being required on the part of the pet owner.

SUMMARY OF THE INVENTION

The present invention relates to an apparatus for uncovering a predetermined quantity of material at the end of a preselected time period having at least one receptacle for containing the material and a lid member pivotable between an upright position in which it covers the receptacle and an upturned position in which it uncovers the receptacle. Further, the apparatus has a slide member with at least one outwardly projecting finger element which is enagageable with the lid member when it is in its upright position. A rotatable drive wheel has secured thereto a projecting element offset from the wheel axis which, during a portion of one rotation cycle of the drive wheel, engages a depending element projecting downwardly from the slide member to move the slide member along a generally linear path of travel. As the slide member moves along its path, the finger element which initially engages the lid member at the beginning of the time period disengages from the lid member at the end of the time period to allow the lid member to pivot to its upturned position and thereby uncover the receptacle.

BRIEF DESCRIPTION OF THE DRAWINGS

FIG. 1 is a perspective view illustrating the apparatus of the present invention when all the receptacles are covered by lid members at the beginning of the preselected time periods;

FIG. 2 is a perspective view illustrating the apparatus shown in FIG. 1 when one of the receptacles has been uncovered by its respective lid member at the end of the first of the consecutive preselected time periods;

FIG. 3 is an enlarged front elevational view taken substantially along line 3—3 of FIG. 1 illustrating the slide member of the apparatus in its initial retracted position at the beginning of the consecutive preselected time periods;

FIG. 4 is a fragmentary front elevational view corresponding to FIG. 3 illustrating the slide member of the apparatus in its extended position at the end of the consecutive preselected time periods;

FIG. 5 is a fragmentary front elevational view corresponding to FIG. 3 illustrating the position of the slide member before it is moved to its retracted position of FIG. 3;

FIG. 6 is an enlarged side elevational view of the apparatus shown in FIG. 1;

FIG. 7 is an enlarged side elevational view of the apparatus shown in FIG. 2;

FIG. 8 is an enlarged fragmentary sectional view taken substantially along line 8—8 of FIG. 4;

FIG. 9 is an enlarged fragmentary sectional view taken substantially along line 9—9 of FIG. 5; and

FIG. 10 is a fragmentary side elevational view corresponding to FIG. 6 illustrating the relative positions of the finger members and the lid members before the finger members are engaged with the lid members as shown in FIG. 6.

DETAILED DESCRIPTION OF THE INVENTION

As a preferred or exemplary embodiment of the instant invention, FIGS. 1, 2, 6 and 7 illustrate an apparatus, generally designated 10, for uncovering a predetermined quantity of material M at the ends of consecutive preselected time periods.

A series of tubular receptacles 12, each for containing the predetermined quantity of material M, are releasably mounted within a series of moldings 14, preferably made of resilient material, which are attached to a base plate 16 of the apparatus 10. The receptacles 12 each have an open top end and an end closure attached to the bottom end by a seam 18 (see FIG. 6). The bottom seam 18 of each receptacle 12 is snap-fitted into an annular groove 20 formed in the inside surface of each molding 14. By such means, the receptacles 12 are secured against accidental dislodgment when mounted within the moldings 14, but may be removed from the moldings 14 for replacement or cleaning of the receptacles 12.

Each of a series of lid members, generally designated 22, are pivotally mounted above one of the receptacles 12 by support arms 24 which are integrally formed

with, welded to, or otherwise secured to, the base plate 16 of the apparatus 10. Each lid member 22 has a substantially planar portion 26 aligned above the receptacle 12 and capable of covering the open top end of the receptacle 12, and an angular portion 28 which extends upwardly from the planar portion 26 and is offset from the receptacle 12.

Two semi-cylindrical sleeve elements 30 are integrally formed with, welded to, or otherwise secured to, the planar portion 26 of each lid member 22 at each corner of the margin of the planar portion 26 from which extends the angular portion 28 of the lid member 22. A rod 32 extends through complementary bores formed in the support arms 24 and sleeve elements 30 to thereby mount the lid members 22 on the support arms 24 and define the pivotal axis of the lid members 22. Each lid member 22 is thereby pivotable between an upright position in which it covers the receptacle 12, as shown in FIG. 1, and an upturned position in which it uncovers the receptacle 12, as shown by the position of the first of the series of lid members 22 in FIG. 2.

The angular portion 28 of each lid member 22 has a weight element 34 attached thereto in order that the angular portion 28 has a weight greater than that of the planar portion 26 so that the lid member will normally be pivoted to its upturned position.

In the preferred embodiment of the invention, as shown in FIGS. 1 and 2, the apparatus 10 has four receptacles 12 and four lid members 22 associated therewith. When all the lid members 22 have pivoted to their upturned positions, it is desirable to be able to return the lid members 22 to their upright positions as a unit, instead of individually. In order to achieve this, an extension element 36 is integrally formed on the edge of the planar portion 26 of each lid member 22 where the edge runs along, and adjacent to, the opposite edge of the next lid member 22. Each extension element 36 extends over this opposite edge of the next lid member 22 such that when all of the lid members 22 are in their upturned positions and the first lid member 22 (that is, the lid member on the far right side as shown in FIG. 1) is pivoted from its upturned position to its upright position, each extension element 36 engages the planar portion 26 of the next successive lid member 22 to pivot all of the lid members 22 as a unit. Obviously, an extension element 36 is not necessary on the last of the successive lid members 22 (that is, the lid member on the far left side as shown in FIG. 1).

A drive mechanism 38 is mounted on a pair of guide brackets 40 which are integrally formed with, welded to, or otherwise secured to, the base plate 16 of the apparatus 10. The drive mechanism 38 includes a rotatable output drive shaft 42 having a drive wheel 44 fixed in any suitable manner to the outer end of the drive shaft 42. A plurality of projecting elements 46 are secured to the front surface of the drive wheel 44 in any suitable manner in a spaced circular arrangement thereon in concentricity with the rotation axis of the drive wheel 44.

A slide member, generally designated 48, is slideably and pivotally mounted on a support member 50 which is integrally formed with, welded to, or otherwise secured to, the base plate 16 of the apparatus 10 adjacent to the drive mechanism 38. Further, one end of the slide member 48 normally rests on the uppermost ones of the plurality of projecting elements 46 of the drive wheel 44 during the operation of the apparatus 10 which will be described in detail hereinafter. In such position of the slide member 48 as shown in FIGS. 1, 2, 6 and 7, the slide member 48 is aligned substantially parallel to, but spaced from, a vertically extending section 52 of the angular portion 28 of each of the lid members 22 when the lid members are pivoted to their upright positions.

As shown in FIGS. 3 through 5, the slide member 48 includes a longitudinal bar element 54 having an elongated slot 56 formed therein which extends from near the other end of the slide member 48 to near the middle of the slide member 48. The elongated slot 56 of the bar element 54, as shown in greater detail in FIG. 8, receives a bolt 58 which extends through the support member 50 at a location thereon approximately midway between the ends of the support member 50. The bolt 58 further extends through a spacer 60 which is attached in any suitable manner to the support member 50 in a position between the support member 50 and the bar member 54. The spacer 60 offsets the bar element 54 from the support member 50 and is preferably made of any suitable material which will reduce to a minimum any frictional forces which would oppose the sliding movement of the slide member 48 relative to the spacer 60.

The elongated slot 56 of the bar element 54 includes a channel portion 62 which has a greater height than the remaining portion of the slot 56. The head 64 of the bolt 58 confines an oval-shaped washer 66 within the channel portion 62 of the slot 56. The washer 66 is dimensioned to tightly fit within the channel portion 62 such that substantially all of the weight of the slide member 48 bears on the washer 66. Therefore, the washer 66 is preferably made of any suitable material which will reduce to a minimum any frictional forces which would oppose the sliding movement of the slide member 48 relative to the washer 66.

Preferably, four depending elements 68 project downwardly from that end of the bar element 54 which normally rests on the uppermost ones of the projecting elements 46 of the drive wheel 44, the depending elements 68 being secured in any suitable manner to the bar element 54 at predetermined spaced locations thereon.

The slide member 48 further includes an angled element 70 which has a base component 72 and an arm component 74 which extends preferably at a ninety degree angle from the base component 72. Sets of hinge means 76 are respectively integrally formed with, welded to, or otherwise secured to, both the bar element 54 along one longitudinal edge thereof and the adjacent longitudinal edge of the arm component 74 to thereby render the angled element 70 pivotable from its position as shown in FIGS. 4 and 8 through an approximately 180 degree circular path in relation to the bar element 54 to its position as shown in FIGS. 5 and 9.

Preferably, four finger elements 78 are yieldably mounted on, and project outwardly from, the base component 72 of the angled element 70. Each finger element 78 is slideable on a pair of stem elements 80 which are secured in any suitable manner to the base component 72. A compression spring 82 is positioned

longitudinally about each stem element **80** between the finger element **78** and the base component **72** to bias the finger element **78** in an outwardly direction away from the base component **78**. The lower surface **83** of the arm component **74** serves as a guiding surface when the finger elements **78** are slideably moved on their respective stem elements **80**.

FIG. **10** shows the relative positions of the finger elements **78** and the lid members **22** when the lid members **22** are manually held in their upright positions before the finger elements **78** are engaged with the vertically extending sections **52** of the angular portions **28** of the lid members **22**. The tip end of each finger element **78** has an arcuate configuration which causes camming of the finger element **78** inwardly toward the base component **72** as the angled element **70** which carries the finger elements **78** is pivoted from its position as shown in FIG. **10** to its position as shown in FIG. **6** to bring the finger elements **78** into engagement with the vertically extending sections **52** of the angular portions **28** of the lid members **22** and thereby retain the lid members **22** in their upright positions.

As shown in FIGS. **1, 3** and **6**, the apparatus **10** is set in its condition for operation.

Each pair of stem elements **80** are secured to the base component **72** of the angled element **70** at spaced locations thereon which are calculated to arrange each finger element **78** in a desired lateral displacement with respect to the right longitudinal edge **84** of each lid member **22** when the slide member **48** is initially in its retracted position as shown in FIGS. **1, 3** and **6**. If the displacement of the left edge of the tip of the first finger element **78** (as viewed from right to left in the drawings) from the right longitudinal edge **84** of the first lid member **22** is equal to "*d*", then the displacement of the left edge of the tip of the second finger element **78** from the right longitudinal edge **84** of the second lid member **22** is equal to "2*d*". Accordingly, the displacement is "3*d*" with regard to the third finger element **78** and the third lid member **22**, and "4*d*" with regard to the fourth finger element **78** and the fourth lid member **22**. Further, the center-to-center distances between successive tips of the respective finger elements **78** are equal.

The drive mechanism **38** of the apparatus **10** may take the form of an one-eighth to one horsepower electric motor in the preferred embodiment of the invention. The drive mechanism **38** is electrically energized by a suitable source of electrical power via lead chord **86**. Preferably, the drive mechanism **38** is capable of rotating the drive wheel **44** at very slow speeds, for example, an angular speed within the range of 1 revolution per 12 hours to 1 revolution per 24 hours. A switch **88** is provided having "on" and "off" positions for turning the drive mechanism **38** on and off.

Preferably, the plurality of projecting elements **46** which are secured to the front surface of the drive wheel **44** in predetermined spaced locations thereon together form a circular arrangement wherein the chordal distance between each of the projecting elements **46** from center-to-center is approximately equal to the displacement "*d*" between the left edge of the tip of the first finger element **78** and the right longitudinal edge **84** of the first lid member **22**.

Preferably, the plurality of depending elements **68** which project downwardly from the right end portion of the bar element **54** of the slide member **48** are spaced from one another at predetermined locations on the bar element **54** wherein the center-to-center distance between each of the depending elements **68** is approximately equal to the displacement "*d*".

As described hereinbefore, the slide member **48** is mounted on the oval-shaped washer **66** for both longitudinal sliding movement and pivotal movement with respect to the lid members **22**. Further, the forward or right end portion of the slide member **48** normally rests on the uppermost ones of the plurality of projecting elements **46** of the drive wheel **44** to thereby maintain the slide member **48** in a substantially horizontal position wherein the slide member **48** is substantially parallel to the vertically extending sections **52** of the angular portions **28** of the respective lid members **22** when the lid members **22** are pivoted to their upright positions. The slide member **48** is pivotally mounted, in addition to being slideably mounted, for two reasons.

First, when the drive mechanism **38** is energized to rotate the drive wheel **44**, the one of the projecting elements **46** on the drive wheel **44** which is initially engaged with the first one of the depending elements **68** on the slide members **48** will not only cause longitudinal sliding movement of the slide member **48**, but also pivotal movement of the slide member **48**, in relation to the lid members **22** as that one of the projecting elements **46** moves through a portion of the circular path of travel (in a clockwise direction) of the projecting elements **46** which is substantially tangential to the horizontal position of the slide member **48**.

Accordingly, as each of the succeeding three of the projecting elements **46**, following the first one of the projecting elements **46**, engages respectively the succeeding three of the depending elements **68** during the same portion of the circular path of travel of the projecting elements **46**, the slide member **48** will continue to pivot simultaneously as it slideably moves in relation to the lid members **22**.

This pivotal movement of the slide member **48** will cause vertical movement of the finger elements **78** in either an upward or downward direction in relation to the lid members **22** depending on which side of the oval-shaped washer **66** each of the finger elements **78** happen to be at a given moment during the sliding movement of the slide member **48**. However, the vertical displacements of the finger elements **78** are less than the widths of the respective vertically extending sections **52** of the angular portions **28** of the lid members **22**. Therefore, the finger elements **78** will not become prematurely disengaged from their respective lid members **22** as a result of this pivotal movement of the slide member **48** simultaneously as the slide member **48** moves along a generally linear path of travel from its initial retracted position as shown in FIGS. **1, 3** and **6** to its final extended position as shown in FIG. **4**.

Further, when the slide member **48** has reached its final extended position as shown in FIG. **4**, this pivotal capability of the slide member **48** allows the drive wheel **44** to indefinitely continue to rotate without any risk of damage to the slide member **48**. Therefore, the drive mechanism **38** of the apparatus **10** does not need

to be de-energized immediately when the slide member **48** has reached the position shown in FIG. **4**.

Also, a lock element **90** is slideably mounted on the top of the support member **50**. The lock element **90** is moveable forwardly to a position above the bar element **54** of the slide member **48** in order to prevent accidental pivoting of the slide member **48** beyond the vertical displacement desired. Sufficient clearance is provided between the bar element **54** and the superimposed lock element **90** to allow for the desired pivotal movement of the slide member **48** as it moves along its generally linear path of travel.

Second, the slide member **48** is pivotally mounted, in addition to being slideably mounted, in order that, after the slide member **48** has reached its extended position as shown in FIG. **4**, the slide member **48** may be manually returned or reset to its initial retracted position as shown in FIG. **3**. In order to achieve reseting of the slide member **48**, the angled element **70** is pivoted upwardly in a clockwise direction in relation to the bar element **54** from the position as shown in FIG. **8** to the position as shown in FIG. **9**. Next, the right end portion of the bar element **54** of the slide member **48** is pivoted upwardly in a counterclockwise direction in relation to the oval-shaped washer **66** in order to clear its depending elements **68** from contact with the uppermost ones of the projecting elements **46** on the drive wheel **44**, as shown in FIG. **5**, and then the slide member **48** is slideably moved to its retracted position. The lid members **22** as a unit are now manually pivoted to their upright positions as shown in FIG. **1**, after which time the bar element **54** is pivoted in a clockwise direction in relation to the oval-shaped washer **66** back to its horizontal position and the angled element **70** is pivoted downwardly in a counterclockwise direction in relation to the bar element **54** to thereby engage the finger elements **78** with the angular portions **28** of the lid members **22**, and thereby reset the slide member **48** and the lid members **22** in their initial positions.

The mode of operation of the apparatus **10** in uncovering the respective receptacles **12** is believed to be readily apparent from the foregoing description. It should be pointed out, however, that the length of the preselected time period, at the end of which it is desired to uncover one of the successive receptacles **12**, will equal the time it takes for the slide member **48** to move through the aforementioned displacement "*d*", that is, the time it takes the slide member **48** to move the first finger element **78** past the right longitudinal edge **84** of the first lid member **22** from the initial position of the first finger element **78**. Therefore, the rotation speed of the drive wheel **44** by the drive mechanism **38** can be readily calculated and selected that will move the slide member **48** through the distance "*d*" during the desired preselected time period.

It is thought that the invention and many of its attendant advantages will be understood from the foregoing description and it will be apparent that various changes may be made in the form, construction and arrangement of the parts and that changes may be made in the form, construction and arrangement of the apparatus described without departing from the spirit and scope of the invention or sacrificing all of its material advantages, the form hereinbefore described being merely a preferred embodiment thereof.

I claim:

1. In an apparatus for uncovering a predetermined quantity of material at the end of a preselected time period, the combination comprising:

a stationarily-positioned receptacle for containing a predetermined quantity of material;

a lid member pivotable between an upright position in which it covers said receptacle and an upturned position in which it uncovers said receptacle;

a movable slide member;

a finger element projecting from said slide member at a predetermined location thereon and engageable with said lid member for holding said lid member in its upright position; and

drive means for moving said slide member along a generally linear path of travel during a preselected time period, said finger element being engaged with said lid member at the beginning of said time period and being disengaged from said lid member at the end of said preselected time period for allowing said lid member to pivot to its upturned position and thereby uncover said receptacle.

2. In an apparatus for uncovering a predetermined quantity of material at the end of a preselected time period, the combination according to claim **1**, wherein:

said slide member includes a depending element; and

said drive means includes

a rotatable drive wheel, and

a projecting element secured to said wheel in a location thereon offset from the rotation axis of said wheel, said projecting element carried by said drive wheel along a fixed path of revolution which is substantially tangential to the linear path of travel of said slide member, said projecting element engageable with said depending element of said slide member for moving said slide member along its linear path of travel as said drive wheel turns through a portion of one rotation cycle which corresponds to the preselected time period.

3. In an apparatus for uncovering a predetermined quantity of material at the end of a preselected time period, the combination according to claim **1**, wherein the lid member includes:

a substantially planar portion for covering the open mouth of said receptacle; and

an angular portion extending from said planar portion and engageable with said finger element of said slide member when said lid member is in its upright position, said lid member being pivotable about an axis defined along the margin of said planar portion from which said angular portion extends, said angular portion being of a weight greater than that of said planar portion so that said lid member is normally in its upturned position when said angular portion is disengaged from said finger element.

4. In an apparatus for uncovering a predetermined quantity of material at the end of a preselected time period, the combination according to claim **2**, wherein the lid member includes:

a substantially planar portion for covering the open mouth of said receptacle; and

an angular portion extending from said planar portion and engageable with said finger element of said slide member when said lid member is in its

upright position, said lid member being pivotable about an axis defined along the margin of said planar portion from which said angular portion extends, said angular portion being of a weight greater than that of said planar portion so that said lid member is normally in its upturned position when said angular portion is disengaged from said finger element.

5. In an apparatus for uncovering a predetermined quantity of material at the end of a preselected time period, the combination according to claim 4:

further comprising a stationary support member having a stud element projecting therefrom; and

wherein said slide member includes

a longitudinal bar element having an elongated slot defined therein into which said stud element of said support member is confined for slideably and pivotally mounting said bar element, said depending element extending downwardly from said bar element, and

an angled element pivotally connected to said bar element along a longitudinal edge thereof, said finger element being yieldably mounted on, and projecting outwardly from, said angled element,

said slide member being in a retracted position at one end of its generally linear path of travel at the beginning of the time period, in which position said stud element is engaged with one end of the elongated slot of said bar element, said finger element is engaged with said angular portion of said lid member, and said projecting element of said drive wheel engages said depending element of said bar element,

said finger element being disengaged from said angular portion of said lid member at the end of the time period at least by the time said slide member has moved to an extended position at the other end of its generally linear path of travel, and

after the end of the preselected time period, said angled element of said slide member may be pivoted upwardly in relation to said bar element, said bar element pivoted to clear its depending element from contact with said projecting element on said drive wheel, said bar element slideably moved to its retracted position, said lid member pivotally returned to its upright position to cover said receptacle, and said angled element pivoted downwardly to engage its finger element with said angular portion of said lid member to thereby reset said slide member and said lid member in their initial positions for the beginning of a subsequent preselected time period.

6. In an apparatus for uncovering a predetermined quantity of material at the ends of consecutive preselected time periods, the combination comprising:

a plurality of stationarily-positioned receptacles for containing a predetermined quantity of material;

a plurality of lid members, each of said lid members pivotable between an upright position in which it covers one of said receptacles and an upturned position in which it uncovers one of said receptacles;

a movable slide member;

a plurality of finger elements projecting from said slide member at predetermined spaced locations thereon, each of said finger elements engageable with one of said lid members for holding said lid member in its upright position; and

drive means for moving said slide member along a generally linear path of travel during consecutive preselected time periods, one of said finger elements being engaged with one of said lid members at the beginning of the time periods and being disengaged from said one of said lid members at the end of each of the time periods to allow said one lid member to pivot to its upturned position and thereby uncover one of said receptacles.

7. In an apparatus for uncovering a predetermined quantity of material at the ends of consecutive preselected time periods, the combination according to claim 6, wherein:

said slide member includes a plurality of depending elements projecting from said slide member at predetermined spaced locations thereon; and

said drive means includes

a rotatable drive wheel, and

a plurality of projecting elements secured to said wheel at predetermined spaced locations in a circular arrangement thereon in concentricity with the rotation axis of said wheel, said projecting elements carried by said drive wheel along a fixed path of revolution which is substantially tangential to the linear path of travel of said slide member, each of said projecting elements consecutively engageable with one of said depending elements of said slide member for moving said slide member along its linear path of travel as said drive wheel rotates through a portion of one rotation cycle.

8. In an apparatus for uncovering a predetermined quantity of material at the ends of consecutive preselected time periods, the combination according to claim 6, wherein each of said plurality of lid members includes:

a substantially planar portion for covering the open mouth of said receptacle; and

an angular portion extending from said planar portion and engageable with one of said finger elements of said slide member when said lid member is in its upright position, said lid member being pivotable about an axis defined along the margin of said planar portion from which said angular portion extends, said angular portion being of a weight greater than that of said planar portion so that said lid member is normally in its upturned position when said angular portion is disengaged from said finger element.

9. In an apparatus for uncovering a predetermined quantity of material at the ends of consecutive preselected time periods, the combination according to claim 7, wherein each of said plurality of lid members includes:

a substantially planar portion for covering the open mouth of said receptacle; and

an angular portion extending from said planar portion and engageable with one of said finger elements of said slide member when said lid member is in its upright position, said lid member being

pivotable about an axis defined along the margin of said planar portion from which said angular portion extends, said angular portion being of a weight greater than that of said planar portion so that said lid member is normally in its upturned position when said angular portion is disengaged from said finger element.

10. In an apparatus for uncovering a predetermined quantity of material at the ends of consecutive preselected time periods, the combination according to claim **9**:

further comprising a stationary support member having a stud element projecting therefrom; and

wherein said slide member includes

a longitudinal bar element having an elongated slot defined therein into which said stud element of said support member is confined for slideably and pivotally mounting said bar element, said spaced depending elements extending downwardly from said bar element, and

an angled element pivotally connected to said bar element along a longitudinal edge thereof, said plurality of spaced finger elements being yieldably mounted on, and projecting outwardly from, said angled element,

said slide member being in a retracted position at one end of its generally linear path of travel at the beginning of the consecutive preselected time periods, in which position said stud element is engaged with one end of the elongated slot of said bar element, each of said finger elements is engaged with the angular portion of each of said lid members, and one of said projecting elements of said drive wheel engaging the first one of said depending elements of said bar element,

one of said finger elements being disengaged from said angular portion of one of said lid members at the end of each of the consecutive time periods such that all of said finger elements are disengaged from said respective lid members by the time said slide member has moved to an extended position at the other end of its generally linear path of travel, and

after the end of the preselected time periods, said angled element of said slide member may be pivoted upwardly in relation to said bar element, said bar element pivoted to clear its depending elements from contact with said projecting elements on said drive wheel, said bar element slideably moved to its retracted position, said lid members pivotally returned to their upright positions as a unit to cover said receptacles, and said angled element pivoted downwardly to engage its finger elements with said angular portions of said lid members to thereby reset said slide member and said lid members in their initial positions for the beginning of a subsequent series of preselected time periods.

11. In an apparatus for uncovering a predetermined quantity of material at the ends of consecutive preselected time periods, the combination according to claim **10**, further comprising extension means for releasably connecting each of said plurality of lid members to the next successive one of said lid members such that said lid members may be pivotally returned to their upright positions simultaneously as a unit.

12. In an apparatus for uncovering a predetermined quantity of material at the ends of consecutive preselected time periods, the combination according to claim **10**, further comprising locking means for preventing inadvertent dislocation of said slide member out of its generally linear path of travel during its movement from its retracted position to its extended position.

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