March 5, 1963 R. H. FIERMAN 3,080,098

DISPOSABLE SPREADING PACKAGE FOR DISTRIBUTING DRY MATERIALS AT PRE-DETERMINED RATES

Filed Sept. 9, 1959 2 Sheets-Sheet 1

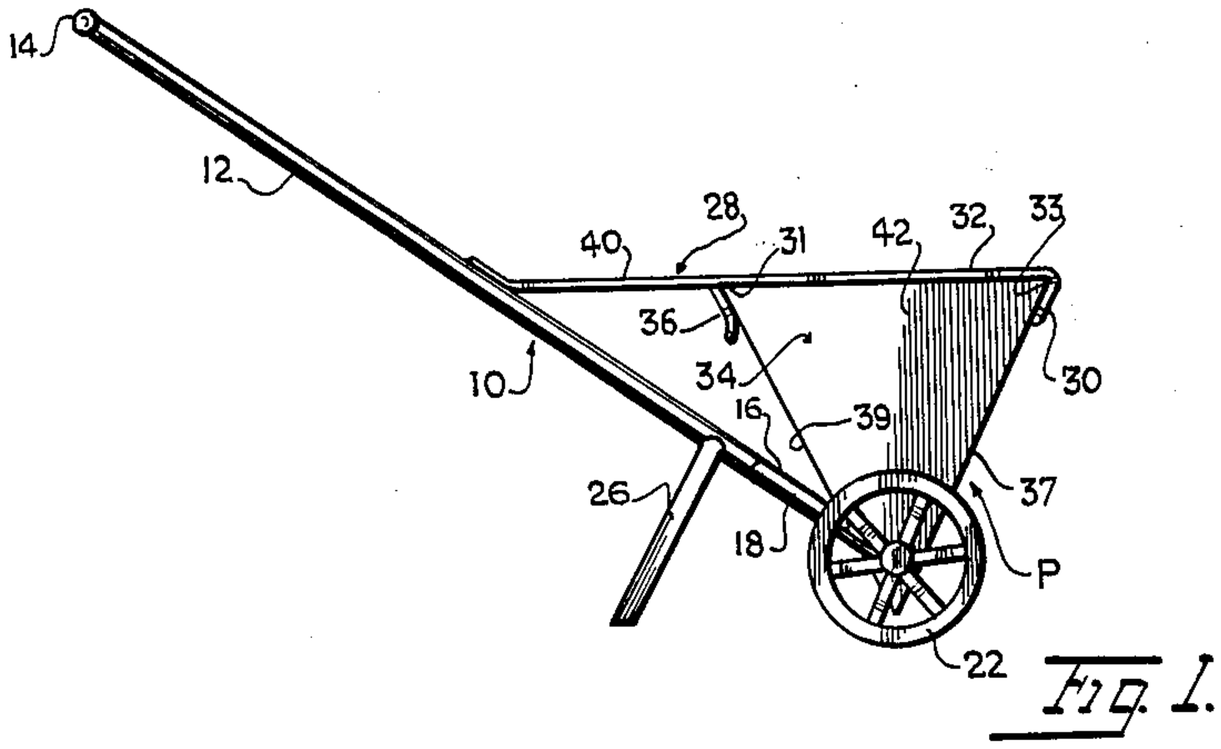


Fig. 1.

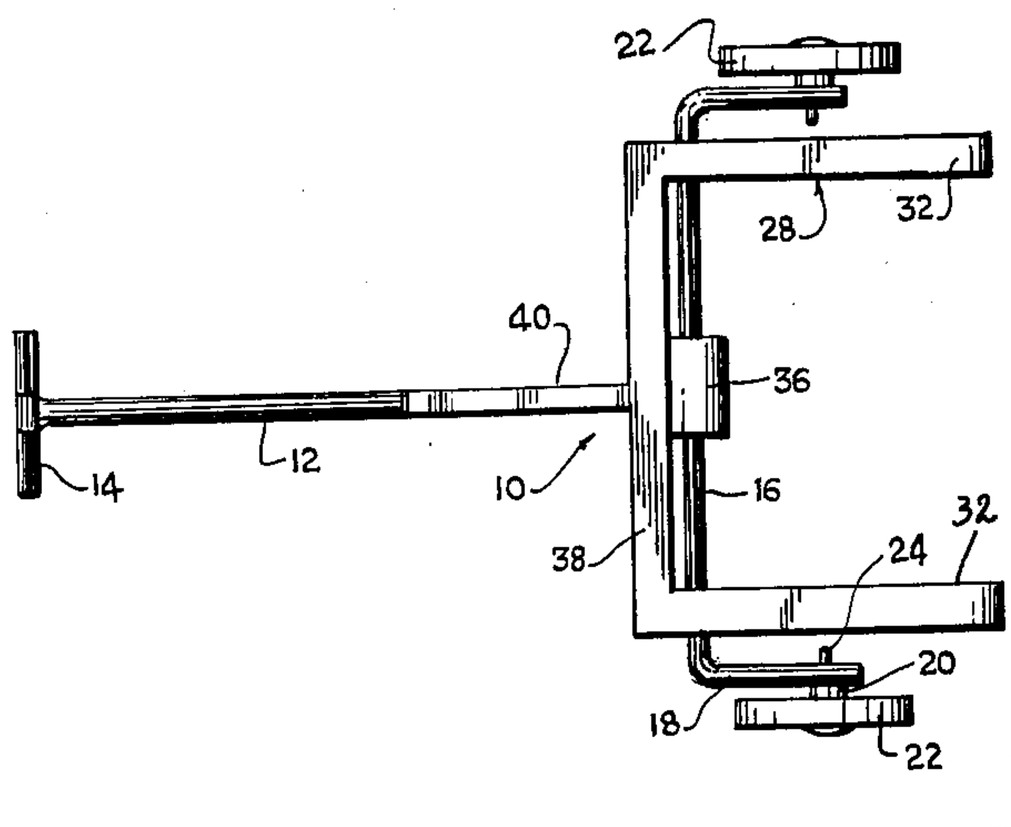


Fig. 3.

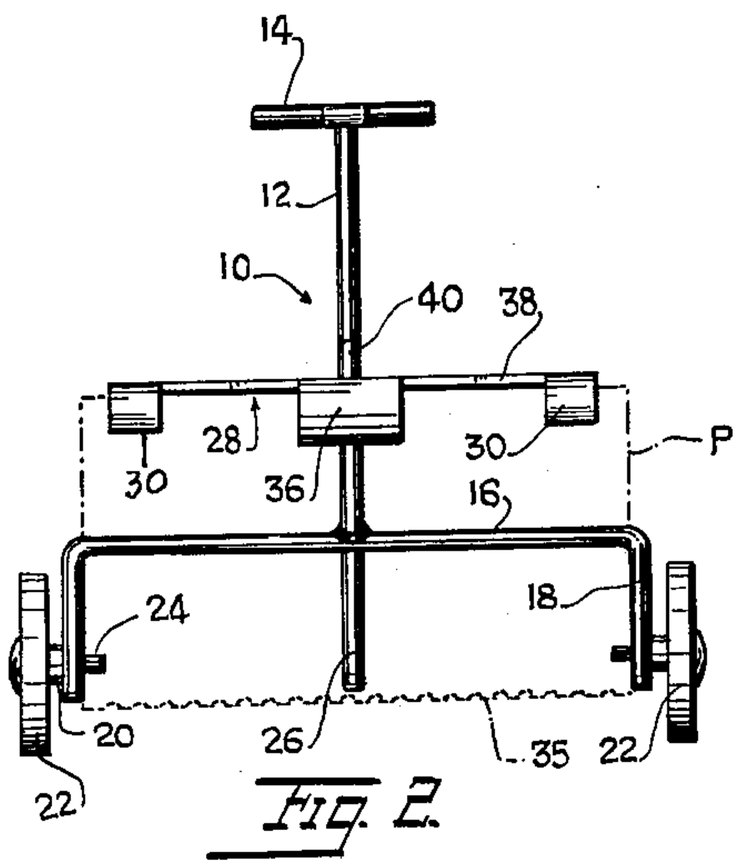


Fig. 2.

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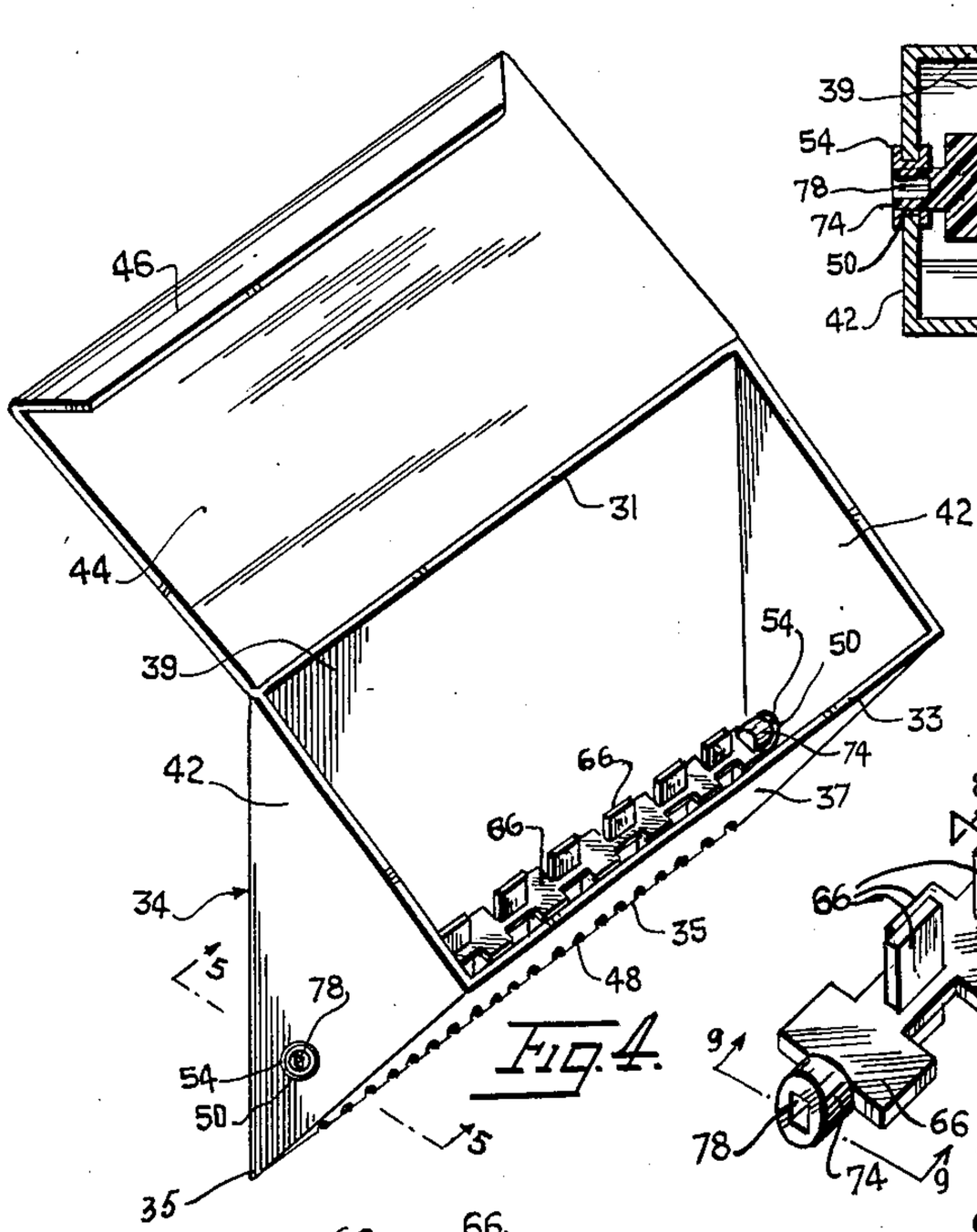


Fig. 4.

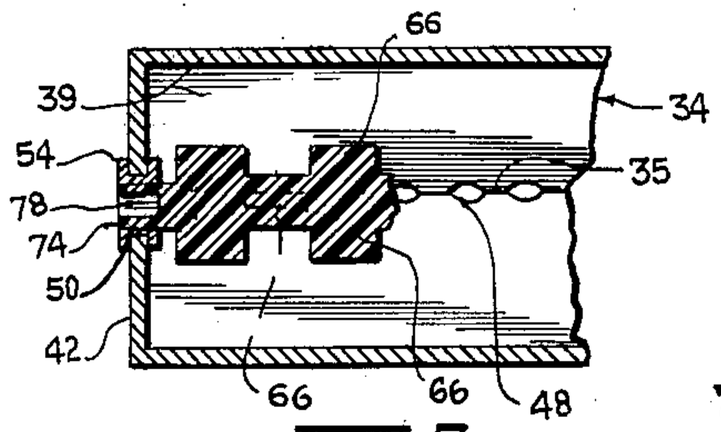


Fig. 5.

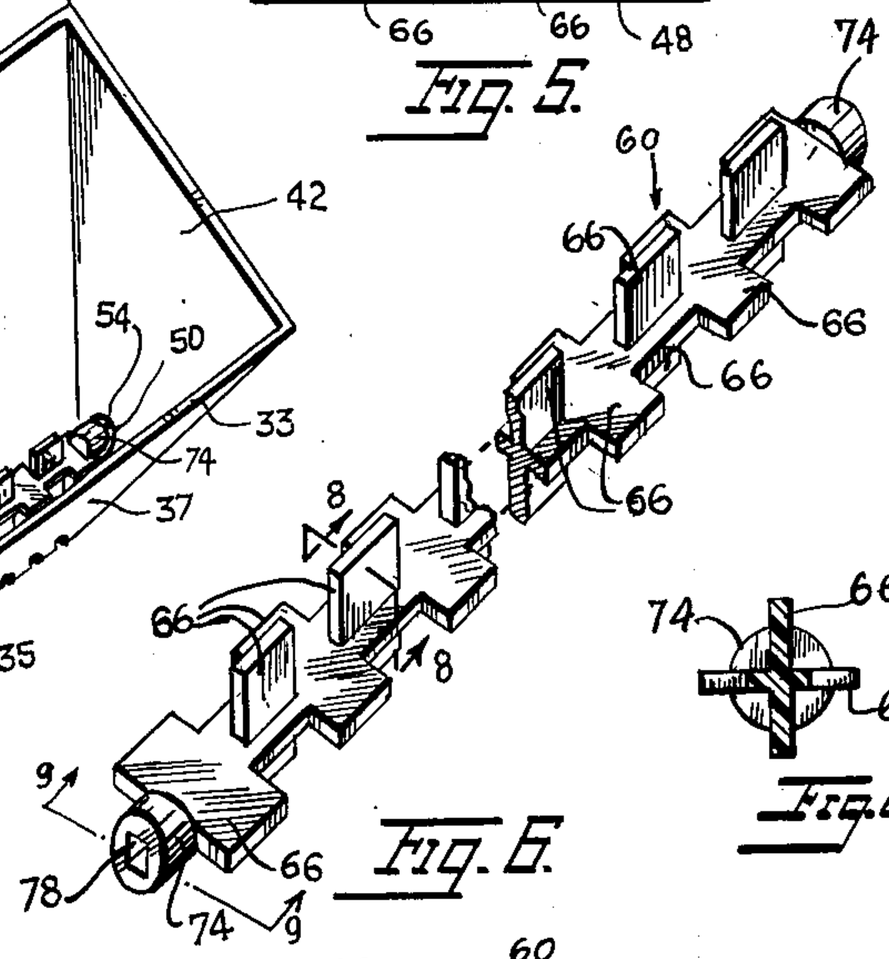


Fig. 6.

Fig. 8.

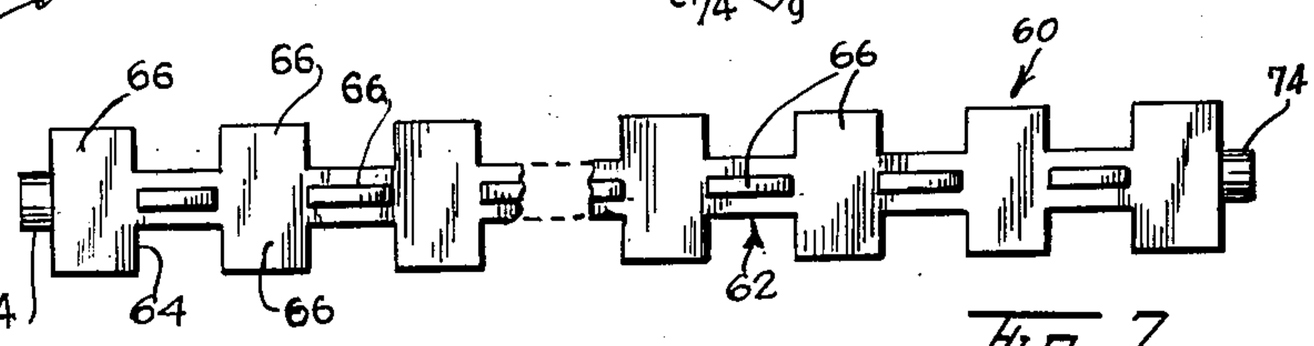


Fig. 7.

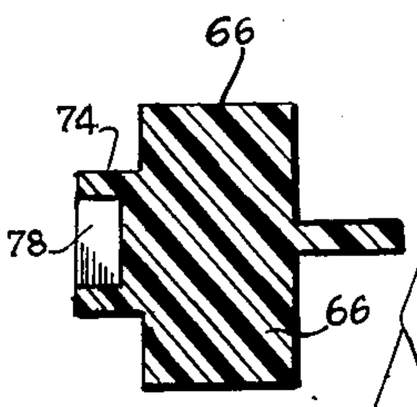


Fig. 9.

Fig. 10.

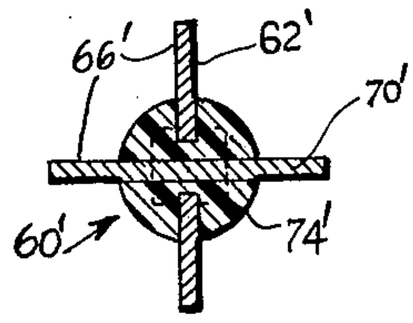


Fig. 11.

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DISPOSABLE SPREADING PACKAGE FOR DISTRIBUTING DRY MATERIALS AT PRE-DETERMINED RATES

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1 Claim. (Cl. 222—325)

This invention relates to the art of containers and more particularly concerns a package of dry materials provided with means for dispensing and spreading the same.

According to the invention, there is provided a disposable package adapted to contain dry materials such as seeds, fertilizer, mulching material, humus, and the like, for spreading on lawns, garden beds, golf courses, etc. The package is intended for use in a cart structure including a frame support, handle, and wheels for supporting the package thereon. The package is in the form of a tapered container made of corrugated board, cardboard, or other expendable package material containing the dry material to be dispended. The package has a plurality of spaced openings at a bottom edge thereof arranged to permit an even and uniform discharge of the material contained in the package as it is wheeled over the surface to be covered by the material. Inside the package and packed with the material to be dispensed therefrom is an agitator in the form of a finned member rotatably mounted so that as the package is moved, the material therein is stirred up and uniformly dispensed through the openings.

The agitator may be made of plastic, wood, metal, paper or other material. It will include spaced radially extending fins which will cause a uniform mixing and agitation of the material as the package is wheeled over the ground. Openings are provided in the agitator into which extend stub shafts of axles for turning the agitator while the wheels turn. The package holds a predetermined quantity of the material to be spread over a particular area. When the package is mounted in the wheel unit, the operator will dispense the material therefrom without requiring replenishment until all the material is discharged. Then the package containing the agitator can be removed from the wheel unit and discarded, to be replaced in the unit by another package of material to be dispensed.

It is therefore a principal object of the invention to provide a cart unit adapted for dispensing loose, dry material from a package removably mounted in the unit.

It is a further object to provide a package of loose, dry material containing an agitator adapted to be removably mounted in a cart for dispensing the material.

It is a still further object to provide a package or container of a material to be dispensed therefrom, the package containing a rotatable finned agitator, the entire package and agitator being expendable to be discarded after the material is dispensed.

For further comprehension of the invention, and of the objects and advantages thereof, reference will be had to the following description and accompanying drawings, and to the appended claim in which the various novel features of the invention are more particularly set forth.

In the accompanying drawings forming a material part of this disclosure:

FIG. 1 is a side elevational view of a cart with a material dispensing package according to the invention mounted on the cart.

FIG. 2 is a front elevational view of the cart per se, the package being shown in dot-dash lines.

FIG. 3 is a plan view of the cart.

FIG. 4 is a perspective view on an enlarged scale of the container and agitator forming parts of the package, the container being shown in open position.

FIG. 5 is a fragmentary plan sectional view taken on line 5—5 of FIG. 4, on an enlarged scale.

FIG. 6 is a perspective view on a further enlarged scale of the agitator per se, parts being broken away.

FIG. 7 is a side elevational view of the agitator of FIG. 6

FIGS. 8 and 9 are sectional views taken on enlarged scales on lines 8—8 and 9—9, respectively, of FIG. 6.

FIG. 10 is a perspective view on a reduced scale of the closed package when distributed as an article of commerce and manufacture, parts being shown broken away.

FIG. 11 is a view similar to FIG. 8 of a modified form of agitator.

Referring to FIGS. 1–3, there is shown a cart 10 including a shaft or bar 12 having a handle 14 disposed transversely across one end. The other end of the bar is secured to a flexible U-shaped yoke 16. At the ends of the arms 18 of the yoke there are rotatably secured and journaled the stub axles 20 of a pair of wheels 22. The inner end of each axle is formed as a key 24 of rectangular cross section.

The cart further includes a stand bar 26 secured to the bar 12 near its lower end and extending rearwardly and downwardly to support the cart in an upright position when not in use. Also secured to bar 12 near the center thereof is a flexible U-shaped frame 28 having bent fingers 30 at the ends of its arms 32 adapted to engage over the angular edge 33 of a container 34. A centrally disposed flexible finger 36 is disposed on the bight 38 of frame 28 and is adapted to engage the opposite angular edge 31 of the container. The frame 28 is secured to the bar 12 by a link 40 which may be welded to bar 12. The cart structure 10 is preferably made of metal or other durable material since it is intended to be reused with a succession of containers. 34.

The container 34 may be formed of corrugated paperboard, or other inexpensive disposable packaging material and is wedge-shape in form with a narrow bottom 35 flaring outwardly and upwardly at its sides 37, 39. The container has triangular ends 42, and a wide rectangular open top which may be closed by the cover 44 hinged to the top edge 31. The cover has a flap 46 adapted to fit inside the top edge 33 at side 37. The bottom edge 35 is formed with a plurality of spaced openings 48 best shown in FIGS. 4 and 5. Holes 50 are formed near the bottom corner of each of the ends 42. These holes may be reinforced by metal or plastic eyelets 54 to serve as bearing elements for the journals 74 of an agitator 60 disposed in the container.

Agitator 60, as best shown in FIGS. 4–9, is formed of wood, paper, plastic, metal or any other inexpensive expendable material and comprises a one-piece elongated shaft body constituted by plate-like radial projections serving as fins 66, alternate projections extending perpendicularly to each other, thereby defining a body cruciform in cross section as shown in FIG. 8. The ends of the body terminate in cylindrical journals 74 formed with socket openings 78 opening outwardly of the ends of the journals, the openings being square in cross section. The length of the agitator 60 is substantially the length of the container 34 and fits in the narrow bottom end 35 thereof with its journals 74 rotatably fitted in the eyelets 54 in the holes 50 in the end walls of the container. The agitator is thus rotatably supported just above the holes or openings 48.

FIG. 10 shows a package P to be used with cart 10 which includes a container 34 filled with a loose, dry, granular material to be dispensed, such as seed 76. The cover 44 is closed over the top of the container. The side and top edges are sealed with pressure sensitive removable tapes 75, 77. The bottom edge 35 is sealed with another strip of pressure sensitive removable tape 79.

Suitable identification indicia 80 are marked on the container.

Initially the agitator will be inserted into the empty container. The end walls 42 are sufficiently flexible so that the journals 74 can be snapped into the eyelets 54 of holes 50 and will be held rotatably therein. The length of the agitator 60 will be equal to the length of the container 34. Thus, socket openings 78 will be exposed at the ends of the container. After the agitator is inserted, the tape 79 can be applied to the bottom edge to close holes 48 and the container will then be filled with the desired loose, dry, granular material 76 to be dispensed from the package. Thereafter, the sealing strips 75 and 77 can be applied.

To install the package in cart 10, the flexible arms 18 of the yoke 16 may be spread apart slightly to permit insertion of the keys 24 into socket openings 78 in the journals 74. The fingers 30 of the frame 28 will then be engaged over edge 33 and finger 36 will be engaged over edge 31. The strips 75 and 77 may be removed from the cover for the purpose of inspecting the contents, but their removal is not necessary for the operating of the device. The elements of frame 28 can be engaged over the closed and sealed cover without removing the sealing strips 75, 77. After the package P is installed in the cart, the bottom sealing strip 79 may be removed to expose openings 48. The operator can then wheel the device over the ground area to be covered with the material in the package. The agitator 60 will rotate as the traction of the wheels on the ground causes them to turn so that the agitator is also turned. As the agitator turns its fins keep the contents of the package in an agitated condition so that the material is fed uniformly through all holes 48 and the material will be distributed evenly over the entire ground surface to be covered.

When the container is empty it can easily be removed from the wheel unit or cart and another full package may be inserted. The agitator will be discarded along with the empty container 34. A particular advantage of the present invention is that the user is never required to handle the loose material. Heretofore it has required the user to fill a hopper or bin by hand from a bulk supply. The hopper was permanently mounted on a cart and could not be removed therefrom. While the hopper was being filled material was often spilled and wasted. If inadvertently the cart fell over on the ground all the granular material spilled out of the hopper. In the present device, the package is closed at the top and only the holes 48 at the narrow end are open. If the bottom is upended, the material cannot spill out. Also, the user is not required to fill the package from a bulk supply. The package is purchased already filled by the manufacturer, and the user need only insert it in his cart for dispensing the material therefrom.

In FIG. 11, a modified form of agitator 60' is shown

wherein the fins 62', 66' and 70' are separate from the plate and are embedded and inserted therein and in roller 74'.

In the modified form of agitator 60' shown in FIG. 11, the shaft body instead of being one-peice construction is formed by means of perpendicularly arranged elongated plates 62' and 70', formed with cut away portions to provide spaced fins 66'. Plastic rollers 74' are secured to the ends of the plates for journaling the shaft in the end walls of the container.

While I have illustrated and described the preferred embodiments of my invention, it is to be understood that I do not limit myself to the precise constructions herein disclosed and that various changes and modifications may be made within the scope of the invention as defined in the appended claim.

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

As an article of manufacture, a disposable container for seed and the like to be used as part of a seed spreading machine, said container comprising a wedge shape body of corrugated paperboard material having opposing rectangular side walls, a closed rectangular top integrally hinged to one edge of one of said walls, said top having a free flap engageable inside the other one of said walls, triangular end walls, and a narrow bottom edge defined by the side walls extending between apical ends of said end walls, said end walls being apertured near said apical ends, and a material agitator inside said body having bearing ends exposed in the apertures in the end walls, said bearing ends having socketed openings for engagement by an agitator-actuating device, said side walls at said narrow bottom edge having spaced holes therein for discharging said material therethrough when the agitator is actuated, said agitator having an elongated plural finned body extending between said end walls inside the body, and a removable pressure sensitive tape closing the holes in the side walls at the bottom edge of the body.

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